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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the list of PCT member countries and the most recent PCT rule changes see the notice appearing at 1001 O.G. 14 in the OFFICIAL GAZETTE of December 9, 1980.

Note that the international fees have been increased as of January 1, 1981. The current schedule of fees is as follows:

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SIDNEY A. DIAMOND,
Commissioner of Patents and Trademarks.

January 13, 1981.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,544,858, Re. S.N. 191,031, Filed Sept. 25, 1980, Cl. 357/53, INSULATED GATE FIELD-EFFECT TRANSISTOR COMPRISING A MESA CHANNEL AND A THICKER SURROUNDING OXIDE, Else Kooi, Owner of Record: *U.S. Philips Corp., New York, N.Y.,* Attorney or Agent: Thomas A. Briody, Ex. Gp.: 254

3,631,104, Re. S.N. 238,712, Filed Feb. 26, 1981, Cl. 260/561 N, CATALYSTS FOR THE HYDRATION OF NITRILES TO AMIDES, Clarence E. Habermann, et al., Owner of Record: *The Dow Chemical Co., Midland, Mich.,* Attorney or Agent: Richard G. Waterman, et al., Ex. Gp.: 117

3,705,100, Re. S.N. 235,093, Filed Feb. 17, 1981, Cl. 210/23, BLOOD FRACTIONATING PROCESS AND APPARATUS FOR CARRYING OUT SAME, William F. Blatt, et al., Owner of Record: *Amicon Corp., Lexington, Mass.,* Attorney or Agent: Edgar H. Kent, Ex. Gp.: 176

3,758,578, Re. S.N. 238,395, Filed Feb. 26, 1981, Cl. 260/561 N, HYDRATION OF NITRILES TO AMIDES USING CUPREOUS CATALYSTS, Clarence E. Habermann, et al., Owner of Record: *The Dow Chemical Co., Midland, Mich.,* Attorney or Agent: Richard G. Waterman, et al., Ex. Gp.: 117

3,771,940, Re. S.N. 239,293, Filed Mar. 2, 1981, Cl. 431/4, SMOKELESS GAS FLARE WITH SPECIFIC GRAVITY GAS ANALYZER FOR REDUCING NOISE, John J. Stranahan, et al., Owner of Record: *Texaco, Inc., New York, N.Y.,* Attorney or Agent: Carl G. Ries, et al., Ex. Gp.: 345

3,774,838, Re. S.N. 237,865, Filed Feb. 25, 1981, Cl. 229/62, PLASTIC BAG CONSTRUCTION, Eugene P. Christie, Owner of Record: *Inventor,* Attorney or Agent: John S. Fosse, Ex. Gp.: 241

3,940,606, Re. S.N. 205,641, Filed Nov. 10, 1980, Cl. 362/263, HIGH INTENSITY SPOTLIGHT, Thomas M. Lemons, Owner of Record: *Starlight Associates, Salem, Mass.,* Attorney or Agent: Herbert B. Barlow, et al., Ex. Gp.: 221

3,960,989, Re. S.N. 236,748, Filed Feb. 23, 1981, Cl. 260/45.7 R, COLLOIDAL SOL ANTIMONY PENTAOXIDE FLAMEPROOFING COMPOSITIONS, Henry G. Petrow, et al., Owner of Record: *Inventors,* Attorney or Agent: W. R. Hulbert, Ex. Gp.: 143

4,008,893, Re. S.N. 236,891, Filed Feb. 23, 1981, Cl. 273/85 R, SIMULATED BOWLING GAME, Mark L. Yoseloff, Owner of Record: *Inventor,* Attorney or Agent: Peter L. Costas, Ex. Gp.: 334

4,014,041, Re. S.N. 234,009, Filed Feb. 12, 1981, Cl. 360/96, CASSETTE RECORDING AND HANDLING DEVICE, Rodolfo Cicatelli, Owner of Record: *Autovox, S.p.A., Roma, Italy,* Attorney or Agent: Robert L. Harmon, et al., Ex. Gp.: 235

4,016,261, Re. S.N. 224,438, Filed Jan. 12, 1981, Cl. 424/180, THERAPEUTIC COMPOSITION AND METHOD OF THERAPEUTICALLY TREATING WARM BLOODED ANIMALS THEREWITH, Paul Gordon, Owner of Record: *Strategic Medical Research, Murray, Utah,* Attorney or Agent: Douglas B. Henderson, et al., Ex. Gp.: 125

4,025,128, Re. S.N. 238,949, Filed Feb. 27, 1981, Cl. 308/6 C, ANTIFRICTION BEARINGS, Ted Geffner, Owner of Record: *Inventor,* Attorney or Agent: Jerome Bauer, et al., Ex. Gp.: 243

4,064,207, Re. S.N. 242,096, Filed Mar. 9, 1981, Cl. 264/29.6, FIBRILLAR CARBON FUEL CELL ELECTRODE SUBSTRATES AND METHOD OF MANUFACTURE, Michael A. De Crescente, et al., Owner of Record: *United Technologies Corp., Hartford, Conn.,* Attorney or Agent: Harry J. Gwinnell, Ex. Gp.: 147

4,068,433, Re. S.N. 226,451, Filed Jan. 19, 1981, Cl. 52/207, WOOD-FRAME GLASS DOOR UNIT, J. Raymond Glover, Owner of Record: *Inventor,* Attorney or Agent: D. Carl Richards, et al., Ex. Gp.: 354

4,086,749, Re. S.N. 184,599, Filed Sept. 5, 1980, Cl. 56/98, ADJUSTABLE WIDTH ROW CROP HEADER, Joe E. Shriver, Owner of Record: *Sperry Rand Corp., New Holland, Pa.,* Attorney or Agent: Frank A. Seemar, et al., Ex. Gp.: 333

4,086,749, Re. S.N. 184,600, Filed Sept. 5, 1980, Cl. 56/98, ADJUSTABLE WIDTH ROW CROP HEADER, James G. Greiner, et al., Owner of Record: *Sperry Rand Corp., New Holland, Pa.,* Attorney or Agent: Frank A. Seemar, et al., Ex. Gp.: 333

4,106,972, Re. S.N. 237,432, Filed Feb. 23, 1981, Cl. 156/363, VELOCITY COMPENSATOR AND APPARATUS INCORPORATING THE SAME, Donald L. Caudill, Owner of Record: *Label-Aire Inc., Fullerton, Calif.,* Attorney or Agent: Gordon L. Peterson, Ex. Gp.: 161

4,109,785, Re. S.N. 229,686, Filed Jan. 29, 1981, Cl. 206/0.84, CHILD RESISTANT PACKAGE, Walter G. Berghahn, et al., Owner of Record: *Bristol-Meyers, New York, N.Y.,* Attorney or Agent: John J. Balser, et al., Ex. Gp.: 241

4,112,258, Re. S.N. 234,016, Filed Feb. 12, 1981, Cl. 370/110, COMMUNICATION SYSTEM USING INTELLIGENT NETWORK PROCESSOR, Harold G. Alles, Owner of Record: *Bell Telephone Laboratories, Inc., Murray Hill, N.J.,* Attorney or Agent: S. E. Hollander, et al., Ex. Gp.: 236

4,139,742, Re. S.N. 234,109, Filed Feb. 13, 1981, Cl. 179/107 BC, CUTANEOUS COMMUNICATION DEVICE, Jay F. Walker, Owner of Record: *Inventor,* Attorney or Agent: James R. Brueggemann, et al., Ex. Gp.: 235

4,140,046, Re. S.N. 231,504, Filed Feb. 4, 1981, Cl. 493/203, PIERCING BLADE TEMPERATURE CONTROL, Walter V. Marbach, Owner of Record: *Union Carbide Corp., New York, N.Y.,* Attorney or Agent: Maurice W. Ryan, et al., Ex. Gp.: 324

4,140,211, Re. S.N. 235,025, Filed Feb. 17, 1981, Cl. 193/40, WORKPIECE LOADER WITH RESILIENT END OF FEED CHUTE, Joseph Franz Gibbemeyer, Owner of Record: *Cincinnati Milacron Inc., Cincinnati, Ohio,* Attorney or Agent: Daniel P. Worth, et al., Ex. Gp.: 313

4,142,359, Re. S.N. 240,476, Filed Mar. 4, 1981, Cl. 368/155, ELECTRONIC TIMEPIECE, Yasuo Kusumoto, Owner of Record: *Kabushiki Kaisha Daini Seikosha, Tokyo, Japan,* Attorney or Agent: None, Ex. Gp.: 217

4,142,511, Re. S.N. 240,105, Filed Mar. 3, 1981, Cl. 126/271, SOLAR RADIATION COLLECTOR DEVICES AND SYSTEMS, Ralph O. Doughty, et al., Owner of Record: *General Dynamics Corp., Fort Worth, Tex.,* Attorney or Agent: Charles E. Schurman, et al., Ex. Gp.: 345

4,142,929, Re. S.N. 240,364, Filed Mar. 4, 1981, Cl. 156/72, PROCESS FOR MANUFACTURING TRANSFER SHEETS, Kazuo Otomine, et al., Owner of Record: *Inventor,* Attorney or Agent: John E. Lind, et al., Ex. Gp.: 161

4,146,844, Re. S.N. 227,286, Filed Jan. 22, 1981, Cl. 330/149, FEED-FORWARD AMPLIFIER, Patrick Allen Quinn, Owner of Record: *Tektronix Inc., Beaverton, Ore.,* Attorney or Agent: George T. Noe, et al., Ex. Gp.: 252

4,154,705, Re. S.N. 234,315, Filed Feb. 13, 1981, Cl. 252/466 PT, CATALYTIC STRUCTURE, Alfonso L. Baldi, et al., Owner of Record: *Alloy Surfaces Co., Inc., Wilmington, Del.,* Attorney or Agent: Arthur G. Connolly, et al., Ex. Gp.: 116

4,158,239, Re. S.N. 238,382, Filed Feb. 25, 1981, Cl. 365/182, RESISTIVE GATE FET FLIP-FLOP STORAGE CELL, Claude L. Bertin, Owner of Record: *International Business Machines Corp., Armonk, N.Y.,* Attorney or Agent: John E. Hoel, et al., Ex. Gp.: 235

4,163,925, Re. S.N. 239,709, Filed Mar. 2, 1981, Cl. 315/276, TWO-WIRE BALLAST FOR FLUORESCENT TUBE DIMMING, Zoltan L. Gyursanszky, Owner of Record: *Honeywell Ltd., Ontario, Canada,* Attorney or Agent: Laurence J. Marhoefer, et al., Ex. Gp.: 256

4,169,181, Re. S.N. 229,270, Filed Jan. 28, 1981, Cl. 428/217, IMPACT RESISTANT SOFT COATED LAMINATES AND PROCESS FOR MAKING THE SAME, Richard Edgar Molari, Jr., Owner of Record: *General Electric Co., Pittsfield, Mass.,* Attorney or Agent: William F. Mufatti, et al., Ex. Gp.: 164

4,170,474, Re. S.N. 236,481, Filed Feb. 20, 1981, Cl. 75/251, POWDER METAL COMPOSITION, Yew-Tsung Chen, Owner of Record: *Pitney Bowes Inc., Stamford, Conn.,* Attorney or Agent: Melvin J. Scolnick, et al., Ex. Gp.: 111

4,170,657, Re. S.N. 233,239, Filed Feb. 10, 1981, Cl. 424/322, SUBSTITUTED -(((PHENYL)AMINO)-CARBONYL)-BENZAMIDES, Raymond H. Rigterink, Owner of Record: *The Dow Chemical Co., Midland, Mich.,* Attorney or Agent: Richard G. Waterman, et al., Ex. Gp.: 125

4,182,537, Re. S.N. 218,599, Filed Dec. 22, 1980, Cl. 308/4 A, ANTI-FRICTION SUCKER ROD GUIDE ASSEMBLY, Clarence Oster, Owner of Record: *Conoco, Inc., Ponca City, Okla.,* Attorney or Agent: Joseph C. Ratarski, et al., Ex. Gp.: 243

4,184,636, Re. S.N. 227,227, Filed Jan. 22, 1981, Cl. 239/11, FLUIDIC OSCILLATOR AND SPRAY-FORMING OUTPUT CHAMBER, Peter Bauer, Owner of Record: *Inventor,* Attorney or Agent: Ira C. Edell, Ex. Gp.: 313

4,193,203, Re. S.N. 242,056, Filed Apr. 3, 1981, Cl. 33/180 AT, METHOD AND APPARATUS FOR REFORMING AND STRAIGHTENING VEHICLES, Pierre N. Le Grand, et al., Owner of Record: *Applied Power Inc., Milwaukee, Wisc.,* Attorney or Agent: Fred Wiviott, et al., Ex. Gp.: 243

4,194,534, Re. S.N. 219,828, Filed Dec. 24, 1980, Cl. 137/625.39, PRESSURE AND TEMPERATURE COMPENSATING HYDRAULIC VALVE, William A. P. Lawrence, et al., Owner of Record: *Elevator Equipment Co., Los Angeles, Calif.,* Attorney or Agent: Vernon D. Beehler, et al., Ex. Gp.: 341

4,195,805, Re. S.N. 240,582, Filed Mar. 4, 1981, Cl. 246/428, RAILROAD SWITCH HEATER, Henry Keep, Jr., Owner of Record: *Inventor,* Attorney or Agent: Albert C. Johnston, et al., Ex. Gp.: 315

4,202,044, Re. S.N. 238,872, Filed Feb. 27, 1981, Cl. 365/182, QUATERNARY FET READ ONLY MEMORY, Kenneth E. Beilstein, Jr., et al., Owner of Record: *International Business Machines Corp., Armonk, N.Y.,* Attorney or Agent: John E. Hoel, et al., Ex. Gp.: 235

4,207,136, Re. S.N. 218,656, Filed Dec. 22, 1980, Cl. 156/515, WELDING MACHINE FOR THERMOPLASTIC WEB, Ehrhart Schulze, Owner of Record: *Karl Heinz Stiegler, Stuttgart, Germany,* Attorney or Agent: Thomas R. Morrison, Ex. Gp.: 161

4,208,147, Re. S.N. 226,696, Filed Jan. 21, 1981, Cl. 29/117, ROLL DEVICE, Sture Giege, et al., Owner of Record: *Sandvik Aktiebolag, Sandviken, Sweden,* Attorney or Agent: Ronald L. Grudziecki, et al., Ex. Gp.: 353

4,218,104, Re. S.N. 229,445, Filed Jan. 29, 1981, Cl. 312/214, REFRIGERATION INSULATION PANEL AND STRUCTURE, Arnold N. Anderson, et al., Owner of Record: *Inventors,* Attorney or Agent: William T. Hough, Ex. Gp.: 355

4,231,513, Re. S.N. 229,627, Filed Jan. 29, 1981, Cl. 236/49, THERMALLY ACTUATED DIFFUSER, Robert L. Vance, et al., Owner of Record: *Acutherm, Inc., Sunnyvale, Calif.,* Attorney or Agent: Karl A. Limbach, et al., Ex. Gp.: 344

4,243,234, Re. S.N. 236,953, Filed Feb. 23, 1981, Cl. 277/084, SEAL AND SEAL ASSEMBLY, James G. Blaha, Owner of Record: *Towmotor Corp., Mentor, Ohio,* Attorney or Agent: Ralph E. Walters, et al., Ex. Gp.: 241

PATENT NOTICES

Certificates of Correction for the Week of May 5, 1981

3,629,106	4,228,961	4,238,690	4,247,954
3,929,861	4,229,106	4,238,922	4,248,096
4,133,241	4,229,430	4,239,056	4,248,638
4,140,516	4,230,475	4,239,674	4,248,758
4,143,279	4,230,542	4,240,751	4,249,014
4,179,306	4,230,629	4,240,831	4,249,365
4,183,646	4,230,890	4,241,063	4,249,603
4,184,602	4,230,894	4,241,102	4,249,638
4,186,028	4,231,251	4,241,105	4,249,813
4,186,176	4,232,015	4,241,133	4,249,948
4,187,662	4,232,053	4,241,373	4,249,970
4,191,860	4,232,881	4,241,411	4,249,979
4,196,329	4,233,013	4,241,708	4,250,237
4,196,859	4,233,052	4,242,012	4,250,240
4,197,916	4,233,085	4,242,386	4,250,486
4,202,513	4,233,297	4,242,411	4,250,879
4,207,242	4,233,305	4,243,792	4,251,129
4,207,406	4,233,665	4,245,306	4,251,349
4,207,924	4,234,538	4,246,064	4,251,492
4,208,724	4,234,849	4,246,906	4,251,660
4,210,825	4,235,249	4,247,320	4,251,698
4,213,517	4,236,390	4,247,384	4,251,753
4,215,565	4,236,397	4,247,389	4,251,824
4,219,764	4,236,897	4,247,434	4,252,144
4,221,658	4,236,944	4,247,515	4,252,179
4,221,660	4,237,283	4,247,540	4,252,574
4,222,306	4,237,306	4,247,614	4,253,127
4,227,774	4,237,468	4,247,809	4,253,809
4,228,036	4,238,542	4,247,947	

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing in accordance with the licensing policies of the agency-sponsors.

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Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Va. 22161 for $5.00 each ($10.00 outside North American Continent). Requests for copies of patent applications must include the patent application number. Claims are deleted from patent application copies sold to avoid premature disclosure. Claims and other technical data will usually be made available to serious prospective licensees upon execution of a non-disclosure agreement.

Requests for information on the licensing of particular inventions should be directed to the addresses cited for the agency-sponsors.

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE AIR FORCE
AF/JACP
1900 Half St., S.W.
Washington, D.C. 20234

Patent application 6-171,611. Flow-Closing Bleed Valve Assembly. Filed July 23, 1980.

Patent application 6-181,924. Taggants with Explosive Induced Magnetic Susceptibility. Filed Aug. 27, 1980.

Patent application 6-181,940. Multi-Tone Jammer. Filed Aug. 24, 1980.

Patent application 6-185,469. A Netted Search Radar System. Filed Sept. 9, 1980.

Patent application 6-185,472. Automatic Bandwidth Control System. Filed Sept. 9, 1980.

Patent application 6-185,473. Improved Film Cooled Annuler Combustor. Filed Sept. 9, 1980.

Patent 4,226,800. Synthesis of Acetylene-Terminated Compounds. Filed June 14, 1979. Patented Oct. 7, 1980. Not available NTIS.

Patent 4,228,435. Radar Sensitivity Time Control Using Range Gated Feedback. Filed Jan. 23, 1979. Patented Oct. 14, 1980. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-196,707. Method and Apparatus for Reading Map Coordinates. Filed Oct. 14, 1980.

Patent application 6-202,395. Starch Adduct Encasement of Particulate Elastomers. Filed Oct. 30, 1980.

Patent application 6-202,396. Encapsulation by Entrapment Within Starch Adduct Matrix. Filed Oct. 30, 1980.

Patent 4,237,271. Crosslinked Starch Halohydrins and Their Nitrogen-Containing Substitution Products. Filed Apr. 24, 1979. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,237,984. Rotating Field Plot Row Marker. Filed May 30, 1979. Patented Dec. 9, 1980. Not available NTIS.

U.S. DEPARTMENT OF COMMERCE
National Tech. Information Service
Office of Government Inventions and Patents
Springfield, Va. 22161

Patent application 6-156,442. Ultra-Black Coating Due to Surface Morphology. Filed June 4, 1980.

U.S. DEPARTMENT OF ENERGY
Assistant General Counsel for Patents
Washington, D.C. 20545

Patent application 6-080,727. Photoresist Laminate. Filed Oct. 1, 1979.

Patent application 6-081,987. High Temperature Lubricating Process. Filed Oct. 4, 1979.

Patent application 6-083,507. Low Temperature Ion Source for Calutrons. Filed Oct. 10, 1979.

Patent application 6-085,653. Improved Method of Preparing Composite Superconducting Wire. Filed Oct. 17, 1979.

Patent application 6-088,301. Sintered Metal Electrodes and Method of Making Same. Filed Oct. 25, 1979.

Patent application 6-089,345. Method of Making a High-Capacity Sintered Iron Electrode and Product. Filed Oct. 30, 1979.

Patent application 6-089,346. Method and Means of Passive Detection of Leaks in Buried Pipes. Filed Oct. 30, 1979.

Patent application 6-090,175. Recovery of Aluminum and Other Metal Values from Fly Ash. Filed Nov. 1, 1979.

Patent application 6-090,846. RF Feedback Free Electron Laser. Filed Nov. 2, 1979.

Patent application 6-092,155. Production of the Ammonium Salt of 3,5-Dinitro-1,2,4-Triazole by Solvent Extraction. Filed Nov. 7, 1979.

Patent application 6-096,859. Method for Etching Thin Films of Niobium and Niobium-Containing Compounds for Preparing Superconductive Circuits. Filed Nov. 23, 1979.

Patent application 6-096,871. Method Utilizing Laser-Processing for the Growth of Epitaxial p-N Junctions. Filed Nov. 23, 1979.

Patent application 6-101,370. Apparatus for Installing Condition-Sensing Means in Subterranean Earth Formations. Filed Dec. 7, 1979.

Patent application 6-102,804. Catalac Free Electron Laser. Filed Dec. 12, 1979.

Patent application 6-106,132. Method of Altering the Effective Bulk Density of Solid Material and the Resulting Product. Filed Dec. 21, 1979.

Patent application 6-118,379. Penetrameter Positioner for Bore-Side Radiography of Tubes. Filed Feb. 5, 1980.

Patent application 6-119,709. Dilatometer. Filed Feb. 8, 1980.

Patent application 6-121,541. Radiant Energy Collector. Filed Feb. 14, 1980.

Patent application 6-121,566. Overvoltage Protector Using Varistor Initiated Arc. Filed Feb. 14, 1980.

Patent application 6-124,871. Sensor for Detecting Changes in Magnetic Fields. Filed Feb. 26, 1980.

Patent application 6-125,406. Preparation of Reactive beta-Dicalcium Silicate. Filed Feb. 28, 1980.

Patent 4,090,012. Electrochemical Heat Engine. Filed May 5, 1977. Patented May 16, 1978. Not available NTIS.

Patent 4,200,846. Efficient Laser Amplifier Using Sequential Pulses of Different Wavelengths. Filed Sept. 29, 1977. Patented Apr. 29, 1980. Not available NTIS.

Patent 4,205,529. LiCl Dehumidifier/LiBr Absorption Chiller Hybrid Air Conditioning System with Energy Recovery. Filed Dec. 4, 1978. Patented June 3, 1980. Not available NTIS.

Patent application 4,208,377. Process for Recovering Actinide Values. Filed July 25, 1978. Patented June 17, 1980. Not available NTIS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent 4,239,749. 'Neisseria gonorrhoeae' Vaccine. Filed Sept. 27, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,241,187. Method and Apparatus for Cell and Tissue Culture. Filed Mar. 27, 1979. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,242,502. Enchancement of Cholesterol Combining Properties of Saponins. Filed Apr. 20, 1979. Patented Dec. 30, 1980. Not available NTIS.

Patent 4,244,787. Apparatus and Method for Determining Serum Concentrates of Metabolites by Monitoring Dialysate Fluid. Filed June 11, 1979. Patented Jan. 13, 1981. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Council for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent 4,206,466. Non-Fouling Print Stylus. Filed Mar. 12, 1979. Patented June 3, 1980. Not available NTIS.

Patent 4,223,311. Long Range Listening System. Filed Feb. 29, 1956. Patented Sept. 16, 1980. Not available NTIS.

Patent 4,224,520. Room Temperature Two Color Infrared Detector. Filed July 13, 1979. Patented Sept. 23, 1980. Not available NTIS.

Patents Available for Licensing or Sale

3,996,918. SOLAR ENERGY COLLECTOR. *M. R. Quick*, RFD Box 194B, Owancock, Va. 23417 (804) 787-7874.

4,098,018. INSECT TRAP ATTACHABLE TO A TREE. *Jack H. Bartelme*, Rte. 2, Box 1755, Rhinelander, Wis., 54501.

4,142,679. HEAT EXCHANGER CHIMNEY. *Donald McKillop, Sr.*, R.R. 1 Box 124A, Canistota, S. Dak. 57012.

4,146,098. MASONARY CUTTING TOOL. *John S. Cabillo*, 105 East Lola Dr., Austin, Tex. 78753.

4,186,683. BOOK MARK-PAGE LINE-READER. *Edward W. LeRoy*, 45-25 Kennedy Blvd., North Bergen, N.J. 07047.

4,197,667. BATTERY POWERED FISHING ROD HOLDER THAT SNAPS BACK TO HOOK FISH. *Joseph G. McKinsey*, 3524 35th St., Sacramento, Calif. 95817.

4,224,899. PET SHELTER. *Wayne Cruchelow*, 1315 39th St., Des Moines, Iowa 50311.

4,233,872. HUDRAULIC SHOCK ABSORPTION IN PUNCH OR CUTTING PRESSES. Respond to: *E. E. Greigg*, 425-13th St. N.W., Washington, D.C. 20004.

4,236,600. VERTICAL HORIZONTAL RESCUE SYSTEM. *William Wooten*, 238 Moye Ave., Biloxi, Miss. 39532.

4,245,809. FRAME-FORMING METHOD AND APPARATUS. *Andrew G. Jackson*, 975 W. Peachtree, Atlanta, Ga. 30309.

4,250,833. ENTOMOLOGICAL APPARATUS. *Katsuhiko Waldon*, 4000 Shady Oak Dr., Doltewah, Tenn. 37363.

Otis Engineering Corp. is prepared to grant licenses under the following patents upon reasonable terms. Address inquiries to: Patent Attorney, Otis Engineering Corp., P.O. Box 34380, Dallas, Tex. 75234. Telephone (214) 323-3882.

4,095,424. VARIABLE HYDRAULIC PUMP NON-LINEAR CONTROL WITH CAM-ACTUATED, ADJUSTABLY-SEQUENCED SECONDARY CONTROL.

4,142,597. MECHANICAL DETENT JARS.

4,166,475. SAFETY COUPLING.

General Electric Co. is prepared to grant non-exclusive licenses under the following patents upon reasonable terms to domestic manufacturers.

Applications for license may be addressed to: Patent Counsel, General Electric Co., Re-Entry Systems Division, 3198 Chestnut St., Philadelphia, Pa. 19101.

3,868,296. PLASTIC WALL CONSTRUCTION AS A WALL UNIT.

4,201,831. MAGNETIC ADSORBENT COMPOSITE.

4,216,633. PROCESS AND APPARATUS FOR ELEVATING A FOLDING ROOF SYSTEM.

Applications for license under the following patents should be addressed to: Division Patent Counsel, Industrial Electronics Systems Division, General Electric Co., 1501 Roanoke Blvd., Salem, Va. 24153.

3,392,696. SHIP.

3,459,943. SILCON CONTROLLED GATING CIRCUITS WITH A HIGH FREQUENCY TRIGGERING VOLTAGE AND PHOTOCELLS.

3,492,534. FUSE SPARK GAP DEVICE FOR PROTECTION AGAINST LINE TRANSIENT VOLTAGES.

3,527,987. MONITOR CIRCUIT FOR DETECTING THE OCCURRENCE OF ONE OR MORE OF A PLURALITY OF EVENTS IN A SYSTEM.

3,621,352. INVERTER-CONTROL SYSTEM FOR AC MOTOR WITH PULSE-LOCKED CLOSED LOOP FREQUENCY MULTIPLIER.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602.

4,219,160. FLUID SPRAY NOZZLE HAVING LEAK RESISTANT SEALING MEANS.

Applications for license may be addressed to: Patent Counsel, Gas Turbine Division, General Turbine Division, General Electric Co., 1 River Rd., Bldg. 500, Room 218, Schenectady, N.Y. 12345.

4,249,088. AUTOMATIC DEVICE FOR SYNCHRONIZATION OF PRIME MOVER WITH ELECTRICAL GRID.

4,249,103. BREECH-ASSEMBLED IGNITER DEVICE.

Applications for license may be addressed to: Patent Counsel, General Electric Co., Re-Entry Systems Division, 3198 Chestnut St., Philadelphia, Pa. 19101.

3,597,057. CONTINUOUS MOTION PICTURE PROJECTOR.

3,635,764. COMBINED WASTEWATER TREATMENT AND POWER GENERATION.

3,687,365. THERMOSTATIC FLOW CONTROLLER.

3,710,625. MINIATURIZED AUTOMATIC DECOMPRESSION METERS.

3,724,477. LAMINAR RATE SENSOR.

3,744,297. APPARATUS FOR MONITORING SUSPENDED AEROSOLS AND PARTICULATES IN A GAS.

3,757,586. PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENT.

3,759,101. COMBINED DEPTH GAUGE AND PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENT.

3,759,108. SINGLE GAUGE MULTI-TIME CONSTANT AND MULTI-TISSUE RATIO AUTOMATIC DECOMPRESSION INSTRUMENTS.

3,759,109. MULTI-TIME CONSTANT PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENTS.

3,767,636. SEMISOLID PROPELLANT AND THRUSTOR THEREFOR.

3,788,967. WASTEWATER TREATMENT USING ELECTROLYSIS WITH ACTIVATED CARBON CATHODE.

3,793,173. WASTEWATER TREATMENT USING ELECTROLYSIS WITH ACTIVATED CARBON CATHODE.

3,812,013. SOLUBLE CELLULASE ENZYME PRODUCTION.

3,819,053. WASTE TREATMENT SYSTEM.

3,822,601. PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENT.

3,838,198. CONDITIONING RAW WASTE INPUT FOR DIGESTION BY THERMOPHILIC AEROBIC MICROORGANISMS.

3,840,417. PROCESS FOR PRODUCING DIMPLED REFLECTORS AND REFRACTORS.

3,855,568. FORCED CONTACT ELECTRICAL CONNECTOR.

3,857,757. MEANS FOR THE OXYGEN/TEMPERATURE CONTROL OF AEROBIC FERMENTATIONS.

3,872,731. MINIATURIZED AUTOMATIC DECOMPRESSION COMPUTER.

3,914,437. OSMOTIC PRESSURE CONTROL TO IMPROVE THERMOPHILIC MICROORGANISM GROWTH.

3,923,597. MERCURY CONCENTRATION BY THE USE OF MICROORGANISMS.

4,058,411. DECRYSTALLIZATION OF CELLULOSE.

4,094,742. PRODUCTION OF ETHANOL FROM CELLULOSE USING A THERMOPHILIC MIXED CULTURE.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602.

D. 210,732. RECHARGEABLE FLASHLIGHT CHARGER AND STORAGE DEVICE OR SIMILAR ARTICLE.

D. 215,258. HAIR CURLER OR SIMILAR ARTICLE.

D. 221,824. HOLDER FOR AN ELECTRIC TOOTHBRUSH OR SIMILAR DEVICE.

D. 228,105. HEATED SHAVE CREAM DISPENSER.

D. 236,167. DESIGN FOR A HAIR DETANGLER.

D. 253,073. DESIGN FOR PISTOL HAIR DRYER OR SIMILAR ARTICLE.

3,183,611. MANUAL SPRAY IRON.

3,251,085. SHOE POLISHER POWER HANDLE.

3,251,086. POWER HANDLE ASSEMBLY FOR SHOE POLISHER.

3,307,211. SHOE POLISHER.

3,443,136. METHOD OF FORMING AND MOTOR STATOR.

3,443,795. BEATER EJECTOR FOR FOOD MIXER.

3,474,552. STEAM IRON VALVE STRUCTURE.

3,476,331. CORD STORAGE MEANS AND ELECTRICAL APPLIANCE.

3,497,650. SWITCH AND SPEED CONTROL MECHANISM.

3,546,428. STEAM GENERATOR.

3,555,699. HAIR DRYER WITH COLLAPSIBLE HOSE STORAGE MEANS.

3,566,059. SWITCH AND SPEED CONTROL MECHANISM.

3,567,341. COFFEEMAKER PUMP.

3,578,884. ORAL HYGIENE APPARATUS.

3,592,126. COFFEEMAKER FILTER.

3,632,083. VALVE FOR PRESSURIZED FLUID SYSTEM.

3,725,848. ATTACHMENT LUG WITH CORD GRIP.

3,728,805. MULTI-FUNCTION STEAM IRON.

3,773,460. APPARATUS FOR HEATING DISPENSED FLOWABLE MATERIAL.

Applications for license may be addressed to: Patent Counsel, General Electric Co., Re-entry Systems Division, 3198 Chestnut St., Philadelphia, Pa. 19101.

3,630,389. MATERIAL-HANDLING APPARATUS.

3,868,296. PLASTIC WALL CONSTRUCTION AS A WALL UNIT.

4,201,831. MAGNETIC ADSORBENT COMPOSITE.

4,216,633. PROCESS AND APPARATUS FOR ELEVATING A FOLDING ROOF SYSTEM.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602

4,223,303. ALARM DEVICES FOR INTERCONNECTED MULTI-DEVICE SYSTEMS.

4,242,743. IMPROVED INTRUSION DETECTION METHOD AND APPARATUS.

Applications for license may be addressed to: Patent Counsel, Aircraft Engine Business Group, General Electric Co., 1000 Western Ave., Lynn, Mass. 01910.

3,391,702. LIQUID FLOW SYSTEMS.

3,437,173. GAS TURBINE ENGINE WITH SCREECH ATTENUATING MEANS.

3,673,802. FAN ENGINE WITH COUNTER ROTATING GEARED CORE BOOSTER.

3,715,170. COOLED TURBINE BLADE.

3,719,430. DIFFUSER.

3,739,262. INSPECTION MACHINE USING A MASTER AND FOLLOWER TO GUIDE A PROBE AT A PREDETERMINED ANGLE RELATIVE TO A TEST PIECE.

4,022,018. MOUNTING SYSTEM FOR A THRUST GENERATING ENGINE.

4,027,997. DIFFUSER FOR A CENTRIFUGAL COMPRESSOR.

4,043,509. ACTUATION SYSTEM FOR A GAS TURBINE ENGINE EXHAUST DEVICE.

4,087,996. METHOD AND APPARATUS FOR CORRECTING DISTORTION IN GAS TURBINE ENGINE BLADES.

4,104,002. SPIRAL STRIP ACOUSTIC TREATMENT.

4,129,895. CURRENT WAVE SHAPES FOR JET ENGINE FUEL IGNITERS.

Applications for license may be addressed to: General Electric Co., Component Motor Division, 1635 Broadway, P.O. Box 2204, Fort Wayne, Ind. 46801. Attn: Patent Counsel.

3,278,776. ELECTRIC MOTOR CONSTRUCTION.

3,401,281. ELECTRIC MOTOR WITH PERMANENT MAGNET STATOR POLES AND METHOD OF MAKING.

3,401,282. ELECTRIC MOTOR WITH PERMANENT MAGNET STATOR POLES AND METHOD OF MAKING.

3,719,843. DYNAMOELECTRIC MACHINE COOLING ARRANGEMENT.

4,003,128. METHODS OF MAKING INDUCTIVE DEVICES AND TERMINATION ARRANGEMENTS FOR SAME.

D. 225,335. DYNAMOELECTRIC MACHINE.

Applications for license may be addressed Division Patent Counsel, Switchgear & Distribution Transformer Division, General Electric Co., 6901 Elmwood Ave., Philadelphia, Pa. 19142.

4,071,882. STRUCTURE FOR ELECTRICAL INTERFACE.

4,092,607. MAGNETIC AMPLIFIER HAVING A CO-AXIAL WINDING.

4,238,750. MECHANICAL TRIP DEVICE FOR A CIRCUIT BREAKER.

The RCA Corp. offers to grant nonexclusive licenses on reasonable terms and conditions under the patents listed below. Inquiries respecting licenses under RCA patents should be addressed to RCA Corp., Sr. Vice President, Licensing, 30 Rockefeller Plaza, New York, N.Y. 10020.

4,248,075. METHOD OF FORMING APERTURE WITH ROUNDED EDGES IN SHEET MATERIAL.

4,249,089. SHORT-TERM POWER DROPOUT ARRANGEMENT USEFUL IN A TELEVISION RECEIVER.

4,249,095. COMPARATOR, SENSE AMPLIFIER.

4,249,119. DIGITAL DRIVE CIRCUIT FOR ELECTRIC MOTOR OR THE LIKE.

4,249,132. CONTINUOUS TUNING ARRANGEMENT FOR A MULTIBAND TELEVISION RECEIVER.

4,249,137. AMPLIFIER SYSTEM WITH AGC, AS FOR AN AM RADIO.

4,249,199. PHASE COMPENSATED CONTROLLED OSCILLATOR.

4,249,214. EXCITER HAVING INCIDENTAL PHASE CORRECTION COMPENSATION IN CONSONANCE WITH OUTPUT POWER LEVEL.

4,249,255. CONTINUOUS TUNING ARRANGEMENT FOR A MULTIBAND TELEVISION RECEIVER.

4,249,256. CONTINUOUS TUNING ARRANGEMENT FOR A MULTIBAND TELEVISION RECEIVER.

4,249,959. SOLAR CELL CONSTRUCTION.

4,249,960. LASER ROUNDING A SHARP SEMICONDUCTOR PROJECTION.

4,250,461. CURRENT MIRROR AMPLIFIER.

4,250,464. MULTI-MODE RELAXATION OSCILLATOR.

4,250,475. ADJUSTABLE PASSBAND FILTER.

4,250,500. SMOKE DETECTOR.

4,250,520. FLIP CHIP MOUNTED DIODE.

4,250,521. VIDEO SIGNAL DROPOUT COMPENSATOR.

4,250,525. TELEVISION HORIZONTAL AFPC WITH PHASE DETECTOR DRIVEN AT TWICE THE HORIZONTAL FREQUENCY.

4,250,541. PUSH-PUSH RESONANT POWER INVERTER.

4,251,137. TUNABLE DIFFRACTIVE SUBTRACTIVE FILTER.

4,251,206. APPARATUS FOR AND METHOD OF SUPPORTING A CRUCIBLE FOR EFG GROWTH OF SAPPHIRE.

4,251,742. CURRENT SOURCE, AS FOR SWITCHING PIN DIODES.

4,251,756. REGULATED DEFLECTION CIRCUIT.
4,251,778. CIRCUIT WITH ELECTRICALLY CONTROLLED GAIN.
4,251,811. BATTERY TEST SYSTEM, AS FOR SMOKE DETECTOR ALARM.
4,251,833. TELEVISION HORIZONTAL AFPC WITH PHASE DETECTOR DRIVEN AT TWICE THE HORIZONTAL FREQUENCY.
4,252,574. LOW LEAKAGE N-CHANNEL SOS TRANSISTORS AND METHOD OF MAKING THEM.
4,252,848. PERFLUORINATED POLYMER THIN FILMS.
4,252,886. NOVEL RESISTS AND RECORDING MEDIA.
4,253,077. YOKE TABBING DEVICE.
4,253,105. SEMICONDUCTOR POWER DEVICE INCORPORATING A SCHOTTKY BARRIER DIODE BETWEEN BASE AND EMITTER OF A PNP DEVICE.
4,253,106. GATE INJECTED FLOATING GATE MEMORY DEVICE.
4,253,110. AUTOMATIC KINESCOPE BEAM CURRENT LIMITER WITH SEQUENTIAL CONTROL MODES.
4,253,116. TELEVISION SYNCHRONIZING SYSTEM OPERABLE FROM NONSTANDARD SIGNALS.
4,253,120. DEFECT DETECTION MEANS FOR CHARGE TRANSFER IMAGERS.
4,253,121. PLURAL SEQUENTIAL OPERATING MODE AUTOMATIC KINESCOPE BEAM CURRENT LIMITER.
4,253,162. BLOCKED SOURCE NODE FIELD-EFFECT CIRCUITRY.
4,253,196. FREQUENCY CONVERTER, AS FOR FIRST DETECTOR OF HETERODYNE RADIO RECEIVER.
4,242,913. ACOUSTIC VARIABLE FOCAL LENGTH LENS ASSEMBLY.
4,243,283. CIRCUIT BOARD GUIDE AND GROUND CONNECTOR.
4,243,395. METHOD FOR PRECISION GRINDING OF HARD, POINTED MATERIALS.
4,243,911. RESISTIVE LENS ELECTRON GUN WITH COMPOUND LINEAR VOLTAGE PROFILE.
4,243,912. SIMPLIFIED RESISTIVE LENS ELECTRON GUN WITH COMPOUND LINEAR VOLTAGE PROFILE.
4,243,913. COLOR PICTURE TUBE MAGNETIC SHIELDING AND DEGAUSSING STRUCTURE.
4,243,917. FLASH LAMP DRIVE CIRCUIT.
4,243,918. SIGNAL INTEGRATOR WITH TIME CONSTANT CONTROLLED BY DIFFERENTIATING FEEDBACK.
4,243,948. SUBSTANTIALLY TEMPERATURE-INDEPENDENT TRIMMING OF CURRENT FLOWS.
4,243,951. HIGH REPETITION RATE DRIVER CIRCUIT FOR MODULATION OF INJECTION LASERS.
4,243,952. TEMPERATURE COMPENSATED BIAS CIRCUIT FOR SEMICONDUCTOR LASERS.
4,243,953. VOLTAGE CONTROLLED OSCILLATOR PRESENTING HIGH IMPEDANCE TO PARALLEL RESONANT TANK CIRCUIT.
4,244,001. FABRICATION OF AN INTEGRATED INJECTION LOGIC DEVICE WITH NARROW BASE WIDTH.
4,244,027. DIGITAL OPEN LOOP PROGRAMMABLE FREQUENCY MULTIPLIER.
4,245,205. CONVERGENCE ADJUSTMENT ARRANGEMENT USING MAGNETIC TABS WITH DIFFERENTIAL MOTION AND ROTARY DRIVE.
4,245,210. THICK FILM RESISTOR ELEMENT AND METHOD OF FABRICATING.
4,245,221. FM-CW RADAR RANGING SYSTEM WITH AUTOMATIC CALIBRATION.
4,245,237. CONTROLLABLE NON-LINEAR PROCESSING OF VIDEO SIGNALS.
4,245,238. NON-LINEAR PROCESSING OF VIDEO IMAGE VERTICAL DETAIL INFORMATION.
4,245,251. AFPC PHASE DETECTOR WITH NO OUTPUT FROM ALTERNATE SYNC PULSES.
4,245,336. ELECTRONIC TONE GENERATOR.
4,245,351. AFT ARRANGEMENT FOR A PHASE LOCKED LOOP TUNING SYSTEM.
4,246,535. DESIGN METHOD FOR LINEAR AMPLIFIER.
4,246,551. MULTIVIBRATOR CIRCUIT.
4,246,583. MULTIMODE FEED FOR A MONOPULSE RADAR.
4,246,591. CCD IMAGERS.
4,247,031. METHOD FOR CRACKING AND SEPARATING PELLETS FORMED ON A WAFER.
4,247,119. RECORD IDENTIFICATION APPARATUS FOR VIDEO DISC PLAYER.
4,247,822. FREQUENCY TRANSLATION MEANS.
4,247,861. HIGH PERFORMANCE ELECTRICALLY ALTERABLE READ-ONLY MEMORY (EAROM).
4,247,866. NESTED LOOP VIDEO DISC SERVO SYSTEM.
4,247,898. APPARATUS FOR COMPUTING THE CHANGE IN BEARING OF AN OBJECT.
4,247,946. SMART NOISE GENERATOR.
4,240,093. INTEGRATED CIRCUIT DEVICE INCLUDING BOTH N-CHANNEL AND P-CHANNEL INSULATED GATE FIELD EFFECT TRANSISTORS.
4,240,102. IDENTIFICATION SYSTEM FOR SECAM OR SECAM/PAL COLOR TELEVISION RECEIVERS.
4,240,111. VERTICAL SYNC SEPARATOR.
4,240,594. CREEL.
4,241,108. SPRAYABLE TITANIUM COMPOSITION.
4,241,120. VIDEO DISCS AND MOLDING COMPOSITIONS THEREFOR.
4,241,265. TELEVISION VERTICAL RAMP GENERATOR.
4,241,345. PULSE RADAR TRANSMITTING OSCILLATOR.
4,241,355. ABLATIVE OPTICAL RECORDING MEDIUM.
4,241,423. OPTICAL MEMORY WITH INJECTION LASER AS LIGHT SOURCE AND DETECTOR.
4,241,450. AUTOMATIC TURN-OFF APPARATUS FOR A RADIO OR TELEVISION RECEIVER.
4,242,112. SOLAR POWERED DEHUMIDIFIER APPARATUS.

4,242,643. VARIABLE GAIN CURRENT AMPLIFIER.
4,242,644. PULSE MODULATOR FOR OPERATING A DEVICE IN THE AVALANCHE MODE.
4,242,655. RF CONNECTOR ASSEMBLY WITH LOW FREQUENCY ISOLATION.
4,242,689. ABLATIVE OPTICAL RECORDING MEDIUM.
4,242,700. LINE-TRANSFER CCD IMAGERS.
4,242,738. LOOK AHEAD HIGH SPEED CIRCUITRY.
4,236,823. DIFFRACTOMETER FOR MEASURING SIGNAL DEPTH AND WIDTH.
4,237,208. SILANE ELECTRON BEAM RESISTS.
4,237,210. AQUEOUS PHOTORESIST METHOD.
4,237,379. METHOD FOR INSPECTING ELECTRICAL DEVICES.
4,237,383. HIGH SPEED LOADING OF OUTPUT REGISTER OF CCD ARRAY SYSTEM.
4,237,423. DIGITAL PHASE DETECTOR.
4,237,438. HIGH RESISTANCE CONTINUOUS SHIELD FOR REDUCED CAPACITIVE COUPLING IN A DEFLECTION YOKE.
4,237,472. HIGH PERFORMANCE ELECTRICALLY ALTERABLE READ ONLY MEMORY (EAROM).
4,237,474. ELECTROLUMINESCENT DIODE AND OPTICAL FIBER ASSEMBLY.
4,237,477. CHARGE TRANSFER IMAGER.
4,237,490. SIGNAL OVERLOAD PREVENTION CIRCUIT.
4,237,491. TELEVISION CAMERA HIGHLIGHT DISCHARGE APPARATUS.
4,237,600. METHOD FOR FABRICATING STACKED SEMICONDUCTOR DIODES FOR HIGH POWER/LOW LOSS APPLICATIONS.
4,238,712. SWITCHED VERTICAL DEFLECTION WITH TRIAC.
4,238,713. VERTICAL DEFLECTION CIRCUIT.
4,238,745. PHASE SHIFTER.
4,238,796. RADIO FREQUENCY PULSE GENERATOR.
4,238,855. PARALLEL OPERATION OF MULTIPLE TV TRANSMITTERS.
4,239,108. VIDEO DISC CADDY.
4,239,237. TURNTABLE DRIVE SYSTEM FOR VIDEO DISC PLAYER.
4,239,238. RECORD EXTRACTING MECHANISM FOR CADDY TYPE VIDEO DISC PLAYER.
4,239,790. METHOD OF DEFINING A PHOTORESIST LAYER.
4,239,939. STEREOPHONIC SOUND SYNTHESIZER.
4,239,994. ASYMMETRICALLY PRECHARGED SENSE AMPLIFIER.
4,240,012. REGULATED DEFLECTION CIRCUIT.
4,240,013. HORIZONTAL DEFLECTION AND POWER SUPPLY CIRCUIT WITH A START-UP ARRANGEMENT.
4,240,042. BANDWIDTH LIMITED LARGE SIGNAL IC AMPLIFIER STAGE.
4,240,090. ELECTROLUMINESCENT SEMICONDUCTOR DEVICE WITH FIBER-OPTIC FACE PLATE.

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	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
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	St. Louis Public Library	(314) 241-2288 Ext. 214
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New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
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	New York Public Library (The Research Libraries)	(212) 790-6291
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	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
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*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF Mar. 21, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	10-22-79
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	2-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-01-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	7-10-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-05-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	7-09-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	2-12-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-29-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-01-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-18-77
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	7-27-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during Feb. 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents . . . . . Numbers 3,122,749 to 3,127,613, inclusive

Plant Patents . . . . . Numbers 2,368 to 2,388, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED MAY 5, 1981

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T100,601
COMPOSITIONS AND PROCESSES FOR PRODUCING FLAME RETARDANT TEXTILE MATERIALS BASED ON METHYLOLAMINOTRIHALOPROPYL TRIAZINES AND ANTIMONY OXIDES

Leon H. Chance, 715 Ursulines St., New Orleans, La. 70116; Judy D. Timpa, 2320 Metairie Ct., Metairie, La. 70001, and George L. Drake, Jr., 2009 Elizabeth Ave., Metairie, La. 70003

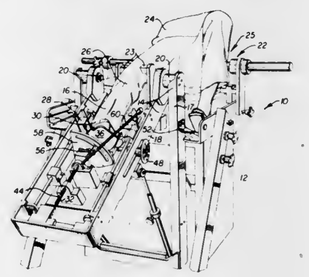
Filed Mar. 26, 1980, Ser. No. 134,014
Int. Cl.[3] D06M *13/44, 13/34, 9/00*
U.S. Cl. 8—115.7
No Drawing. 27 Pages Specification

The tetramethylol derivatives of 2,4-diamino-6(3,3,3-tribromo-1-propyl)-1,3,5-triazine and 2,4-diamino-6(3,3,3-trichloro-1-propyl)-1,3,5-triazine, namely: 2,4-bis[di(hydroxymethyl-)amino]-6-(3,3,3-tribromo-1-propyl)-1,3,5-triazine and 2,4-bis[-di(hydroxymethyl)amino]-6-(3,3,3-trichloro-1-propyl)-1,3,5-triazine, respectively, were used in combination with colloidal antimony oxides and or water emulsifying agents and suitable solvent to impart durable flame-retardancy to cellulosic materials, protein fibers such as wool, and to blends of cellulosic materials and synthetic fibers, particularly to cotton textiles or textiles composed of blends of cotton and polyester. Afterglow was eliminated by the use of small amounts of reactive phosphorus compounds.

T100,602
APPARATUS FOR MEASURING ANGLES

Daniel G. Roley, R.R. #3, Box V-78, Chillicothe, Ill. 61523, and Paul L. Wright, 4321 Nelson Dr., Peoria, Ill. 61614

Filed Oct. 22, 1979, Ser. No. 86,985
Int. Cl.[1] A61B *5/10*
U.S. Cl. 128—782
4 Sheets Drawing. 9 Pages Specification



An apparatus for measuring angles of displacement between human femur and tibia leg bones to determine the stability (stiffness and laxity) of a knee joint has structure and instruments for checking upper and lower leg bone alignment, angulation and degree of relative lateral displacement. A platform is provided to support and secure a human torso about its hips while auxiliary inner and outer coacting frame support structure adjustably secures the leg bones. Sensing and indicating instruments associated with the coacting frame structure and an auxiliary detachable support frame contact the leg and foot to give a reading on leg and knee stability as the lower leg bone (tibia) and the foot are selectively placed at various angles while predetermined side loads on the tibia are simultaneously applied.

T100,603
BENEFICIATION OF HIGH CARBONATE PHOSPHATE ORES

James R. Lehr, 124 Riverview Dr., and Shuang-Shii Hsieh, 1622 Bridlewood Dr., both of Florence, Ala. 35630

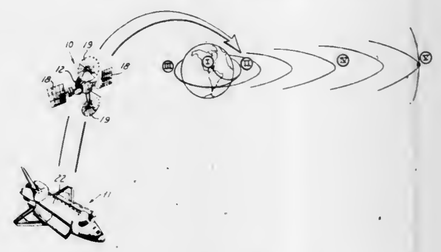
Filed May 5, 1980, Ser. No. 146,579
Int. Cl.[3] B03D *1/06*
U.S. Cl. 209—167
No Drawing. 10 Pages Specification

A phosphate ore beneficiation process to remove undesirable carbonate mineral components by flotation by subjecting a deslimed phosphate ore flotation feed containing the carbonate mineral impurities to a froth flotation treatment in the presence of a phosphate depressant, said depressant being alkyl phosphonic acids including alkyl diphosphonic acids such as hydroxyethylidene diphosphonic acid, and a carbonate mineral collector reagent, said collector being a fatty acid or mixtures thereof; removing the carbonate mineral overflow so obtained by froth flotation; and recovering the phosphate value in the underflow product of said flotation process. The process can be performed either prior to or after the conventional flotation separation treatment for removing siliceous mineral contaminants from the phosphate mineral by methods known to the art.

T100,604
METHOD OF PLACING A SPACECRAFT INTO FINAL EARTH ORBIT OR EARTH ESCAPE TRAJECTORY

Philip D. Crill, 744 La Prenda Rd., Los Altos, Calif. 94022, and Shel Kulick, 22364 Ramona Ct., Cupertino, Calif. 95014

Continuation of Ser. No. 854,553, Nov. 25, 1977. This application Jan. 29, 1979, Ser. No. 7,532
Int. Cl.[2] B64G *1/10*
U.S. Cl. 244—158 R
3 Sheets Drawing. 29 Pages Specification



The method of placing a spacecraft having on-board propulsion devices with self-start capabilities into a series of successively higher transfer orbits to attain from a low earth orbit a final earth orbit or earth escape trajectory. Incremental thrusting impulses limited to a thrusting level at which the acceleration of the spacecraft is more than 0.01 g at beginning of thrusting, but is no more than 0.3 g at termination of thrusting are applied to the spacecraft. The propulsion propellant is ignited upon the near completion of each orbit at the perigee altitude, the latter being substantially common to all of the transfer

orbits. The duration of each propellant burn is selectively varied during the transit from one transfer orbit to the next higher orbit and results in the spacecraft being propelled into successively higher energy orbits or trajectories until the desired orbit or escape trajectory is attained. The self-start capability of the spacecraft permits it to be parked in any transfer orbit to permit checkout of its equipment and recapture if a malfunction is detected.

T100,605

CABLE CLAMP WITH COMPRESSION LIMIT STOP

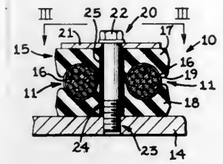
Robert L. Christian, 3855 Graces La., Decatur, Ill. 62521

Continuation of Ser. No. 12,161, Jan. 10, 1979, abandoned. This application Dec. 20, 1979, Ser. No. 105,805

Int. Cl.³ F16L *3/22;* **H01R** *7/24*

U.S. Cl. 248—68 R

1 Sheets Drawing. 10 Pages Specification



A clamp (**10**) is particularly adapted for use on a construction vehicle for clamping one or more battery cables (**11**) thereon. The clamp (**10**) permits longitudinal adjustment of the cables (**11**) while yet limiting the degree of compression imparted thereto to prevent shredding of the electrical insulation (**13**) thereof. The clamp (**10**) comprises a support (**14**) and a clamping member (**21**) having an elastomeric pad (**15**) compressed therebetween and a stop (**25**) for limiting the degree of compression imparted to the pad (**15**).

REISSUES

MAY 5, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,597

TWO WIRE CURRENT TRANSMITTER RESPONSIVE TO A RESISTIVE TEMPERATURE SENSOR INPUT SIGNAL

Earl A. Grindheim, Minneapolis, Minn., assignor to Rosemount Inc., Eden Prairie, Minn.

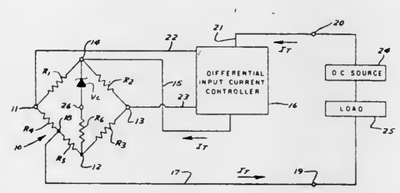
Original No. 4,016,763, dated Apr. 12, 1977, Ser. No. 510,026, Sep. 27, 1974. Division of Ser. No. 14,748, Feb. 24, 1970, Pat. No. 3,859,594, which is a continuation of Ser. No. 661,988, Aug. 21, 1967, abandoned. Application for reissue Aug. 17, 1978, Ser. No. 934,450

The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Disclosure was also published under second Trial Voluntary Protest Program on Apr. 13, 1976

Int. Cl.³ G01K *7/24*

U.S. Cl. 73—362 AR **12 Claims**



1. A resistance-to-current converter system comprising:

a. a sensing resistor responsive to a variable physical condition to be indicated,

b. a bridge including said resistor, said bridge having input and output junctions and being balanced only when said resistor has a predetermined value, whereby the bridge voltage developed at said output junctions is a function of the deviation of the resistor from said predetermined value as a result of a change in said physical condition, *said bridge further comprising voltage reference means connected across said input junctions to stabilize the voltage thereacross,*

c. a D-C amplifier whose input circuit is connected to the output junctions of said bridge whereby the impedance in the output circuit of the amplifier varies as a function of said bridge voltage,

d. a direct-voltage source providing an operating voltage both for said bridge and said amplifier,

e. a load connected in series with said source and having an output current flow therethrough resulting from variations in said resistor and hence indicative of said condition,

f. a voltage regulator,

g. a pair of wires connecting said series-connected source and load through said regulator across both the output circuit of said amplifier and the input junctions of said bridge, whereby the operating voltage of said amplifier is stabilized despite variations in said output current flow through said load resulting from variations in the value of said resistor,

h. a feedback resistor connected in series with said load to produce a feedback voltage, and

i. means to feed said feedback voltage into the arm of said bridge containing said sensing resistor in series opposition to the voltage produced by the sensing resistor to rebalance the bridge, whereby the output current is accurately proportional to changes in said resistor.

Re. 30,598

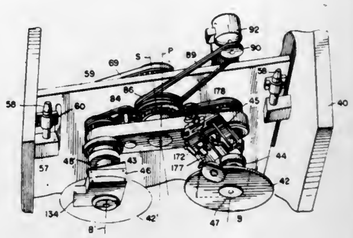
METHOD FOR TRANSVERSE CUTTING

Harvey J. Spencer, Green Bay, Wis., assignor to Paper Converting Machine Company, Green Bay, Wis.

Original No. 4,041,813, dated Aug. 16, 1977, Ser. No. 658,181, Feb. 17, 1976. Application for reissue Feb. 14, 1979, Ser. No. 12,034

Int. Cl.³ B26D *1/58;* **B23D** *25/02*

U.S. Cl. 83—14 **5 Claims**



1. A method of cutting logs of convolutely wound web material *such as toilet paper and toweling,* comprising:

uniformly advancing a log along a path into a cutting station having an arm above said path,

rotating said arm about an axis skewed with respect to said path, said arm having a disc blade *support* mounted thereon *and rotatably carrying a disc blade* with the blade axis spaced from the arm axis to cause said blade to intersect said path and cut a log *adjacent the bottom of the blade orbit,* maintaining said blade axis at an angle skewed relative to said arm axis to position said disc blade continually perpendicular to said path whereby said disc blade makes a square cut through a log, [and] *said support carrying sharpening stones,*

continuously planetarily rotating said disc blade *support* about the blade axis from said arm axis *to maintain said sharpening stones above the axis of said disc blade and in a fixed relation to said blade axis whereby said stones are adapted to sharpen said blade at any point during the orbit thereof, and*

continuously rotating said disc blade about said blade axis independently of said arm.

Re. 30,599

IGNITION TIMING CONTROL FOR ENGINE

Toru Yagi, and Akihisa Nakamura, both of Tokyo, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Original No. 4,133,324, dated Jan. 9, 1979, Ser. No. 811,244, Jun. 29, 1977. Application for reissue May 1, 1980, Ser. No. 145,666

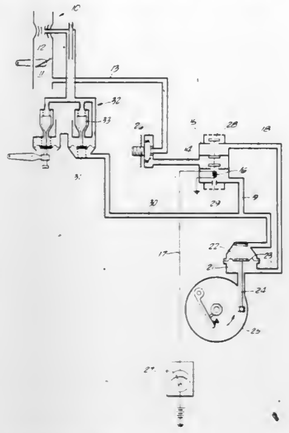
Claims priority, application Japan, Jul. 7, 1976, 51-89348[U]

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—408 **3 Claims**

1. For use with an internal combustion engine connected to drive a vehicle, the engine having an intake passage for an air-fuel mixture and provided with a throttle valve, the improvement comprising, in combination: a vacuum line communicating with the intake passage downstream from the throttle valve, a three-way valve connected to said vacuum line, means including a movable member for controlling the ignition timing of said engine, a vacuum responsive device including a flexible diaphragm connected to said member, walls forming a spark advance chamber on one side of said diaphragm and

forming a spark retard chamber on the other side of said diaphragm, a first conduit connecting said three-way valve to said spark advance chamber, a second conduit connecting said three-way valve to said spark retard chamber, electromagnetic means for moving said three-way valve to connect said vacuum line to either said first first conduit or to said second conduit, a valve responsive to engine temperature acting to close said vacuum line when the engine temperature falls



below a predetermined value, an electric circuit for operation of said electromagnetic means, said circuit including a switch sensitive to vehicle velocity and acting to [de-energize] *energize* said electromagnetic means when the vehicle velocity exceeds a predetermined value, an additional fuel supply system connected to said intake passage and having a valve operated by vacuum pressure, and a third conduit connected to said second conduit to close the latter said valve to cut off the additional fuel supply when the spark is retarded.

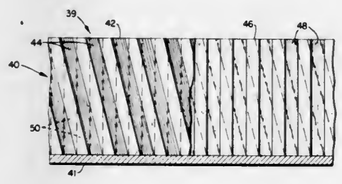
Re. 30,600
COMPLIANT STRUCTURAL MEMBERS

John V. Long, El Cajon, and George D. Cremer, Lemon Grove, both of Calif., assignors to International Harvester Company, Chicago, Ill.

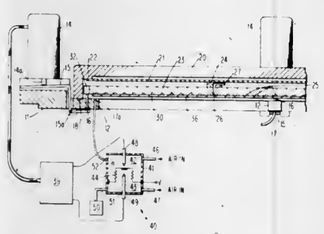
Original No. 4,022,481, dated May 10, 1977, Ser. No. 560,607, Mar. 21, 1975. Division of Ser. No. 335,320, Feb. 23, 1973, Pat. No. 3,916,054. Application for reissue May 22, 1978, Ser. No. 907,962

Int. Cl.³ B32B *3/12, 3/28;* **F16J** *15/34*

U.S. Cl. 277—96.1 **17 Claims**



1. In a machine having two, juxtaposed, relatively movable components, means providing a seal between said components comprising an assemblage of deformable metallic strips disposed in side-by-side relationship with the opposite edges of the strips respectively facing one and the other of said components; means spacing said strips apart to provide interstices therebetween; and a backing member disposed between said assemblage of metallic strips and one of said components for maintaining said strips of the assemblage in the aforesaid relationship; the edges of the strips facing said one of said components being fixed to the backing member and the edges of the strips facing the other of said components being free of attachment to each other, whereby the portions of the strips nearer to said other component can move relative to each other and to said other component to provide a compliant seal between said assemblage of metallic strips and said other component; the means spacing said strips apart comprising corrugations formed in at least part of said strips; and said strips being oriented to extend in the direction of relative movement between said components with the corrugations at the edges of the strips which are free of attachment to each other being at an angle of less than 90° to said direction of movement to thereby minimize the resistance to deformation offered by said strips.



Re. 30,601
ALIGNMENT APPARATUS

Andrew F. Horr, and William F. White, both of Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Original No. 4,093,378, dated Jun. 6, 1978, Ser. No. 737,819, Nov. 1, 1976. Application for reissue Dec. 11, 1978, Ser. No. 968,053

Int. Cl.³ G03B *27/62, 27/64*

U.S. Cl. 355—76 **9 Claims**

1. A mechanism for positioning the surface of an object in a selected position with respect to a reference plane comprising:
- means for holding said object,
- means for defining said reference plane, *an adapter ring for mating with said holding means,*
- driver means *mounted on said adapter ring and* aligned with said holding means, and
- sensor means coupled to said driver means and spaced from said object for sensing the surface of said object with respect to said reference plane and controlling respective ones of said driver means to engage and move the holding means to position the sensed surface of said object in said selected position with respect to said reference plane[.] *said holding means comprising a chuck enclosing a spring loaded mounting means provided with means for holding an object having a flat surface thereon, and*
- *said driver means being aligned with said mounting means to position the sensed surface of the object by moving said mounting means against said spring.*

Re. 30,602
ALKALINE PROTEASE PRODUCED BY A BACILLUS

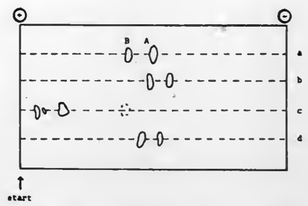
Bauke TeNijenhuis, Rijswijk, Netherlands, assignor to Gist-Brocades N.V., Delft, Netherlands

Original No. 4,002,572, dated Jan. 11, 1977, Ser. No. 633,026, Nov. 18, 1975. Application for reissue Dec. 30, 1977, Ser. No. 866,179

Claims priority, application United Kingdom, Nov. 19, 1974, 50044/74

Int. Cl.³ C11D *7/42;* **C12N** *9/54*

U.S. Cl. 252—99 **8 Claims**



1. A process for the preparation of an enzyme having high proteolytic activity in alkaline media comprising cultivating Bacillus strain PB 92 in a nutrient medium and recovering the formed proteolytic enzyme.

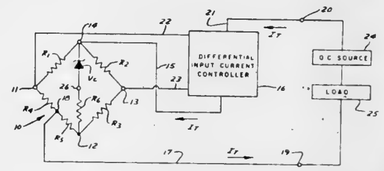
Re. 30,603
TWO WIRE CURRENT TRANSMITTER RESPONSIVE TO A RESISTANCE SENSOR INPUT SIGNAL

Earl A. Grindheim, Minneapolis, Minn., assignor to Rosemount Inc., Eden Prairie, Minn.

Original No. 3,859,594, dated Jan. 7, 1975, Ser. No. 14,748, Feb. 24, 1970. Continuation of Ser. No. 661,988, Aug. 21, 1967, abandoned. Application for reissue Aug. 17, 1978, Ser. No. 934,451

Int. Cl.³ G01R *27/00*

U.S. Cl. 324—57 R **28 Claims**



1. A measuring system comprising a pair of *current* terminals, a source of direct current and a load, means to connect the source and load in series between said current terminals, means to provide a variable voltage signal which varies in magnitude as a function of a variable condition to be measured *said variable voltage means including voltage reference source means for generating a reference voltage,* a current adjusting controller means having a voltage responsive input coupled to said variable voltage means for receiving said variable voltage signal and adjusting the current through said terminals as a function of the magnitude of the variable voltage signal at said input, said controller means being connected across said terminals and energized solely from current supplied through said terminals, resistance means connected to said current terminals *and said voltage reference source means* to provide a voltage feedback which is a function of *said reference voltage and* total current flowing through said terminals, and means connecting said resistance means to said input of said controller means to provide the feedback voltage as determined by the current through said resistance means to tend to balance a change in the variable voltage signal at said input occurring due to a change in magnitude of said variable condition and to stabilize the adjusted current through said terminals at a new magnitude which is representative of a change in magnitude of said variable condition.

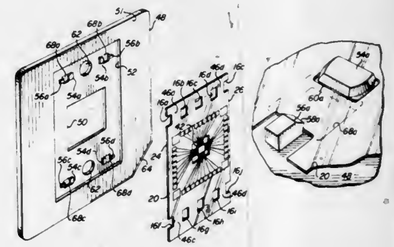
Re. 30,604
REUSABLE FIXTURE FOR AN INTEGRATED CIRCUIT CHIP

John L. Kowalski, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Phoenix, Ariz.

Original No. 4,069,496, dated Jan. 17, 1978, Ser. No. 755,758, Dec. 30, 1976. Application for reissue Mar. 5, 1979, Ser. No. 17,759

Int. Cl.³ H01L *23/48, 23/02;* **H02G** *13/08;* **H01R** *13/50*

U.S. Cl. 357—70 **16 Claims**



14. A fixture for a substantially rectangular segment of film having substantially planar surfaces and four edges; said segment having a plurality of sprocket holes arranged in two parallel rows which rows are substantially parallel to opposite edges of the segment, at least a pair of sprocket holes of each row being attachment sprocket holes; each segment having at least four attachment webs, each web forming an edge of an attachment sprocket hole and having a centroid; said fixture comprising:
- *a laminar layer;*
- *means forming an aperture in said laminar layer,*
- *recess means surrounding said aperture, the dimensions of the recess being such as to receive and position a segment relative to said aperture so that said aperture provides access to the segment positioned in said recess means;*
- *means located in said recess means for partially overlying the attachment webs of a segment positioned in said recess means for retaining a segment in the recess means; and*
- *means forming detachment openings through said fixture for providing access to the centroids of the attachment webs of a segment positioned in said fixture.*

PLANT PATENTS

GRANTED MAY 5, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,705

ROSE PLANT-MEIBIRANDA VARIETY

Marie L. Meilland, Antibes, France, assignor to The Conard-Pyle Company, West Grove, Pa.

Filed Sep. 17, 1979, Ser. No. 76,311
Claims priority, application Morocco, Oct. 24, 1978, PV18433
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of Hybrid Tea rose plant of vegetative reproduction, as described and illustrated, characterized by the fact that:

from the physical point of view the plant with green adult wood is erect, forms double flowers which are bicolored with the inside of the petals being poppy red on the edge and mimosa yellow in the center, and the outside of the petals being red currant red on the edge and mimosa yellow in the center, the petals are largely rounded with their lateral edges reflexed, and frequently exhibit a pronounced median groove; and

from the biological point of view the rose plant is of very vigorous vegetation, exhibits nearly continuous flowering under glass, and forms flowers of long duration both on and off the plant.

4,706

ROSE PLANT

O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710

Filed Apr. 21, 1980, Ser. No. 142,179
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—15 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by its unusual yellow ochre-orange buff flower coloring, blooms borne on a robust, vigorous plant and attractive green foliage.

4,707

ROSE PLANT

Herbert C. Swim, Ontario, and Arnold W. Ellis, Garden Grove, both of Calif., assignors to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Dec. 26, 1979, Ser. No. 106,545
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—18 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, being particularly characterized in its tendency to carry its blooms singly on normal to strong medium-length to long stems, the blooms being generally from 3½ to 4½ inches across, and having a relatively uniform pink coloration throughout, with from about 35 to 45 petals.

4,708

ROSE PLANT

O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710

Filed Apr. 21, 1980, Ser. No. 142,361
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—19 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by brick red flowers which darken upon aging, borne primarily singly to a stem and are long lasting on the plant and as cut flowers and a vigorous, upright plant.

4,709

ROSE PLANT

O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710

Filed Apr. 21, 1980, Ser. No. 142,362
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—20 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by brilliant currant red flowers which maintain color well upon aging, borne on long stems and are long lasting on the plant and as cut flowers.

4,710

ROSE PLANT

O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710

Filed Apr. 14, 1980, Ser, No. 140,118
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—28 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by vibrant red colored substantially non-fading flowers borne in medium sized clusters and showing yellow coloring on reverse of petals.

PATENTS

GRANTED MAY 5, 1981

ERRATA

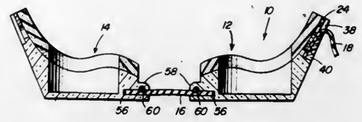
For CLASS	See PATENT NO.
474-231	4,265,134
411-442	4,265,160
493-435	4,265,437
493-428	4,265,438
493-451	4,265,439
280-803	4,265,480
564-096	4,265,831
564-163	4,265,832
564-435	4,265,833
564-421	4,265,834
564-204	4,265,835
570-230	4,265,836
570-243	4,265,837
427-393.5	4,265,946

PATENTS

GRANTED MAY 5, 1981

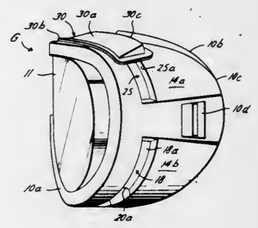
GENERAL AND MECHANICAL

4,264,987
GOGGLES
John L. Runckel, P.O. Box 87, Portland, Oreg. 97201
Continuation-in-part of Ser. No. 957,009, Nov. 2, 1978, abandoned. This application Aug. 1, 1979, Ser. No. 62,818
Int. Cl.³ A61F *9/02*
U.S. Cl. 2—428 **11 Claims**



5. Goggles for use in athletic events and adapted to make a watertight seal around the eyes of the wearer comprising: a pair of eyepieces interconnected by a flexible, elastic nosepiece, each eyepiece comprising an integrally formed body, said body having a forward lens portion and a head-fitting portion contour, said contour including transverse generally incurved upper and lower portions for conforming to the forwardly facing surfaces of the human skull defining the upper and lower eye socket margins of the user and upstanding inside and outside excurved portions for conforming to the forwardly facing skull surfaces defining the inside and outside margins of the eye socket of the user in the vicinities of the nose and temporal areas of the skull, an eye socket contacting surface defined along said incurved and excurved portions, said surface sloping radially forward and outward toward the front of said goggles in the areas of said upper, inner and lower portions of said contour for producing a radially outward pressure on the eye socket of the user and sloping radially rearwardly and outwardly toward the rear of the goggles in the area of the outer portion of said contour, and a head band attached to and extending between the outer sides of the eyepieces for producing radial inward pressure on the temporal eye socket area of the user, the adjacent ends of said excurved and incurved portions as well as adjacent portions of said forwardly and rearwardly sloping surfaces merging smoothly together independent of abrupt changes in slope and radius of curvature.

4,264,988
PROTECTIVE SPLASH GOGGLE
Paul B. Specht, Wilmette, Ill., assignor to Vallen Corporation, Houston, Tex.
Filed Nov. 4, 1977, Ser. No. 848,514
Int. Cl.² A61F *9/02*
U.S. Cl. 2—431 **8 Claims**



1. A protective goggle for protecting the eye area of a wearer's face from the entry of chemical splash or other foreign substances, comprising:

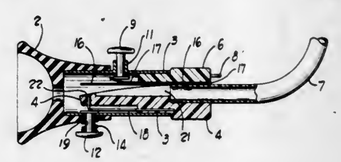
a goggle frame and lens, said goggle frame including a front portion having means for mounting said lens and a rear portion having a periphery contoured to engage the face of a wearer, said goggle frame including a top portion for positioning approximately above the eyes of the wearer and a bottom portion for positioning approximately below the eyes of the wearer;

said goggle frame having a frame opening therein to allow the transfer of air into or out of the goggle frame;

shield means mounted onto said goggle frame over said frame opening for providing a shield opening in fluid communication with but spaced from said frame opening; and

said goggle frame including fluid drain means recessed in said goggle frame surface and positioned between said goggle frame opening and said shield opening and extending outwardly of said shield means for preventing fluid flow through said goggle frame opening and for transferring fluid entering said shield opening away from said goggle frame opening and outwardly of said shield means to thereby substantially prevent the undesirable entry of chemical splash or other foreign materials through the goggle frame opening into contact with the eyes of the wearer.

4,264,989
ARTIFICIAL LARYNX
Jack P. Wiley, P.O. Box 136, Linden, Tex. 75563
Filed Oct. 22, 1979, Ser. No. 86,735
Int. Cl.³ A61F *1/20*
U.S. Cl. 3—1.3 **10 Claims**

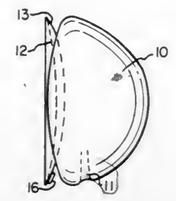


1. An artificial larynx comprising a sound chamber having an air inlet, an outlet for air, an air discharge element communicating with said outlet, a tone-producing element inside said chamber, said tone-producing element having an edge that is vibratable against a receptor element and vibratable in the human voice range in response to air flow from said inlet, and spreader means for spreading said vibratable edge away from said receptor element.

4,264,990
MAMMARY PROSTHESIS
Robert S. Hamas, 7070 Forward Ave., Apt. 808, Pittsburgh, Pa. 15217
Continuation-in-part of Ser. No. 6,117, Jan. 24, 1979, abandoned. This application Jun. 28, 1979, Ser. No. 53,051
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—36 **33 Claims**

1. A mammary prosthesis comprising a soft front envelope of an inert elastomer for containing an inert fluid material and a backing of an inert polymeric material, said backing being sized and defining at least one enclosed volume for receiving a

material in said enclosed volume of said backing to rigidify the backing sufficiently to prevent the contraction of scar tissue



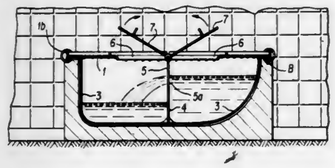
around the prosthesis from pulling the prosthesis into a hard shape.

4,264,991

FOLDABLE BATHTUB LINER TANK

Raffaele Lasalandra, Via Di Vagno, 118, Mola di Bari, Italy

Filed May 24, 1979, Ser. No. 42,105
Claims priority, application Italy, May 25, 1978, 3412/78[U]
Int. Cl.[1] A47K *3/02, 3/06, 3/14*; B65D *37/00*
U.S. Cl. 4—514 **4 Claims**



1. A foldable tank for use in a bathtub comprising
a cover and support plate having a perimeter, an underside surface and apertures, said plate being adapted to be supported at said perimeter by a bathtub, said plate comprising a hinge and two pieces which are hingedly connected therewith;
a flexible and bendable sheet formed and sized to conform to the interior surface of said bathtub thereby to transfer the hydrostatic pressure of a liquid contained therein to said interior surface when in use;
joining means for joining said sheet to said plate at a suitable distance from said perimeter on said underside surface of said plate parallel to said perimeter, said means including a strip of curved shape forming a fluting such that its surface facing the corresponding edge of said plate can act to maintain said sheet in tight contact and a tensioning elastic located in the center of said fluting formed by the concavity in the shape of said strip which is bent around the edges of said plate; and
covers for said apertures;
said plate being foldable along said hinge enclosing said sheet between said pieces thereby occupying minimal space when not in use.

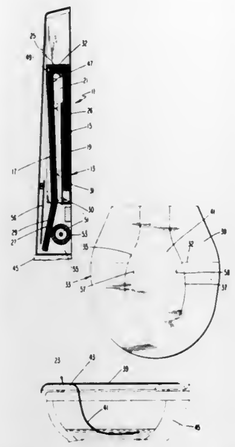
4,264,992

PAPER SHEET CARTRIDGE

Gerardus M. Tromp, Van Alkemadelaan 1132, The Hague, Netherlands

Filed Oct. 25, 1979, Ser. No. 88,383
Int. Cl.[1] A47K *13/14*
U.S. Cl. 4—244 **5 Claims**

1. A paper sheet cartridge for use in a device which dispenses single sheets of paper for use in covering toilet seats, said sheets having an outer portion adapted to rest on and cover said toilet seat and a central tongue adapted to hang downwardly from said outer portion, said cartridge comprising a flat, elongated container having top and bottom walls, side walls, and an open end, a partition in said container extending parallel to said top and bottom walls, a stack of said paper sheets in said container having one end extending through said open end and outwardly of said container, said paper sheets being folded inside said container and having their other end positioned behind said partition, and means carried by said container penetrating said paper sheets at said central



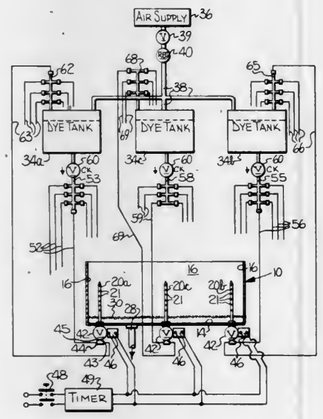
tongue and holding said paper sheets in said container, said penetrating means allowing the innermost of said folded sheets to be withdrawn from said container by applying an outward pulling force on said one end of said innermost folded sheet, whereby said innermost folded sheet tears away from said penetrating means and emerges from said container.

4,264,993

METHOD FOR SPACE DYEING YARN

Danny M. Freeman, Dalton; Milton M. Knight, Jr., Calhoun; Clarence M. Payton, Adairsville; Robert S. Simpson, and Howard B. Smith, Jr., both of Calhoun, all of Ga., assignors to Calhoun Yarn Services, Inc., Calhoun, Ga.

Filed Jul. 7, 1978, Ser. No. 922,539
Int. Cl.[1] D06B *5/20*
U.S. Cl. 8—149 **9 Claims**



4. A method for space dyeing yarn which is characterized by essentially random and relatively short colorband lengths, and comprising the steps of

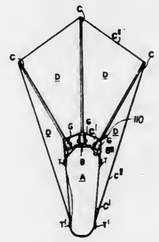
penetrating a loosely gathered package of yarn at spaced apart locations with a plurality of apertured nozzles, and then
injecting an atomized spray of dye and a gas from each of the nozzles and such that the dye contacts a portion only of the yarn, and including separately supplying the dye and gas under substantially equal pressures to each of the nozzles at a point located immediately adjacent one end of each nozzle, to thereby assure that both the dye and gas will be injected from the nozzles and without an initial non-atomized squirt of dye being emitted therefrom.

4,264,994

ARTICULATED FLIPPERS FOR HANDS AND FEET, WITH A SURFACE VARIABLE DURING SWIMMING

Giovanni M. Carbone, Via Candore, 59, Messina, Italy

Filed Jul. 5, 1978, Ser. No. 921,992
Claims priority, application Italy, Jul. 6, 1977, 18704 A/77; Jun. 21, 1978, 49970 A/78
Int. Cl.[1] A63B *31/10*
U.S. Cl. 9—309 **26 Claims**



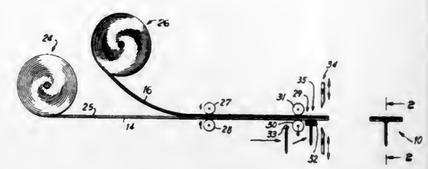
26. An articulated flipper for use on the foot of a swimmer comprising:
(a) a shoe to be worn on the foot of the swimmer including a forward toe portion and sole portion, said sole portion being aligned with the bottom of the swimmer's foot and said forward portion being disposed in front of the swimmer's foot, said forward portion having a predetermined size and shape;
(b) a flipper assembly comprising a first flexible membrane and at least two flipper ribs, said first membrane being supported on said said ribs;
(c) a flipper support comprising a base with a first side being sized and shaped to receive and conform to said forward portion of said shoe, a raised edge extending upwardly from said base and along said first side, guide means operable to receive and secure said rib to said flipper support, and means to pivotably secure said rib to said support thereby to pivotably mount said flipper assembly to said flipper support;
(d) connecting means connecting said flipper support and said shoe, with said first side and said shoe forward portion in engagement;
(e) spring means disposed between said flipper assembly and said flipper support normally biasing said flipper ribs into substantially parallel alignment with said shoe sole portion;
(f) first reinforcing edge means disposed along and reinforcing the outer and inner periphery of said first membrane;
(g) tensioning means provided on the sides of said shoe sole portion to fix and tension said first reinforcing edge means.

4,264,995

INSULATION SUPPORT FIXTURE AND METHOD OF MAKING THE SAME

Milton Hinden, Massapequa, N.Y., assignor to Duro Dyne Corporation, Farmingdale, N.Y.

Filed Jun. 18, 1979, Ser. No. 49,178
Int. Cl.[1] B21G *3/10*
U.S. Cl. 10—1 R **4 Claims**



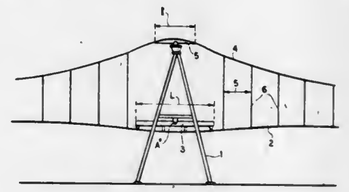
1. The method of manufacturing a thermal insulation hanger comprising the steps of providing an elongate band of metallic sheet stock material having a first and second surface, providing a metallic pin member sharpened at one end, weldingly connecting the other end of said pin member to said first surface of said stock material, providing a roll of adhesive tape material having on both of its faces a pressure sensitive adhesive substance, connecting one adhesive face of said tape material with said second surface of said stock material at an area in registry with said pin member while said second surface is in a heated condition as a result of said welding operation, thereby adhesively to connect said tape to said band, and thereafter effecting a transverse cut through said band and attached tape to sever an increment of said band and tape carrying said connected pin thereby to provide a thermal insulation hanger member.

4,264,996

SUSPENSION-CABLE SUPPORT SADDLE FOR TRACK-TYPE SUSPENDED RAILWAY

Rudolf Baltensperger, Alte Kaiserstuhlstr. 157, CH 8181 Höri, and Hans B. Pfister, Frohhaldenstr. 20, 8120 Bülach, both of Switzerland

Filed Nov. 1, 1978, Ser. No. 956,652
Claims priority, application Switzerland, Nov. 14, 1977, 13831/77
Int. Cl.[3] E01D *11/00*
U.S. Cl. 14—21 **8 Claims**



1. In a suspended railway having
a tower;
a suspension cable supported at the top of said tower and lying generally at said tower in a vertical plane; and
a track hung from said suspension cable and lying generally in said plane thereof,
the improvements comprising:
a beam at said tower above said track and below said cable and positioned to bow said track when unloaded downwardly at said tower;
a saddle at said top of said tower having an upper surface forming an upwardly open seat receiving and supporting said suspension cable,

having a length in said plane equal to at least one-third of the length of said beam in said plane,

having a central upwardly convex cable-engaging section of a predetermined relatively large radius of curvature, and

having a pair of upwardly convex end cable-engaging sections flanking said central section and of predetermined relatively small radii of curvature;

means on said tower for limited horizontal displacement of said saddle in said plane relative to said tower; and

means for limited pivoting of said saddle on said tower about an upright axis generally in said plane.

4,264,997

WIPING ARRANGEMENT FOR WIPING A VEHICLE WINDOW

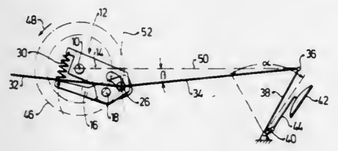
Erich Kolb, Bühl, Fed. Rep. of Germany, and Heinrich Laurent, Strasbourg, France, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Apr. 27, 1979, Ser. No. 33,834

Claims priority, application Fed. Rep. of Germany, May 9, 1978, 2820104

Int. Cl.³ B60S *1/24*

U.S. Cl. 15—250.29 **9 Claims**



1. A wiping arrangement for wiping a vehicle window, comprising a rotatable output shaft; wiping means including at least one wiper shaft arranged for performing a swinging movement, and a wiping element connected with said wiper shaft for joint swinging movement therewith; swinging drive means operative for converting the rotary movement of said output shaft into the swinging movement of said wiper shaft and including a crank member connected with said output shaft and including a first lever, a rocker arm arranged to swing about a pivot point and connected with said wiper shaft, and a swingable connecting rod having two end portions one of which is pivotally connected with said crank member, whereas the other end portion is pivotally connected with said rocker arm by a hinge; and means for allowing swinging of said connecting rod about said hinge even when the arrangement is blocked in the region behind said wiper shaft, so that said connecting rod can swing and thereby said crank member can rotate despite such blocking, said allowing means including at least one further hinge which allows temporary deflection of at least one element located upstream of said wiper shaft, a spring which is arranged so that said deflection is performed against force of said spring, and a second two-arm lever which is pivotally connected with said first lever of said crank member by said further hinge.

4,264,998

WINDSHIELD WIPER FLEXOR

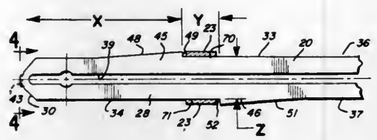
Donald W. Stratton, St. John, Ind., assignor to The Anderson Company of Indiana, Gary, Ind.

Filed Jul. 2, 1979, Ser. No. 54,161

Int. Cl.³ B60S *1/02*

U.S. Cl. 15—250.42 **11 Claims**

1. A flexor element (**20**) comprising an elongate member (**28**) having opposed axial ends (**30,31**) and opposed lateral edges (**33,34**) extending between said axial ends, said lateral edges said parallel to each other over a portion thereof and defining tabs (**45,46**) and indents (**55,56**) over a portion of the remainder thereof, one edge (**33**) having a tab (**45**) spaced from one end (**30**) with a skewed edge portion (**48**) extending laterally outward and axially away from said one end to define a first external shoulder (**49**) at the inward end thereof, said one edge also having an indent (**55**) spaced from the other end (**31**) with a skewed edge portion (**58**) extending laterally inward and axially toward said other end to define a first internal shoulder (**59**) at the inward end thereof, the opposite edge (**34**) having a tab (**46**) spaced from said one end with a skewed edge portion (**51**) extending laterally outward and axially toward said one



end (**30**) to define a second external shoulder (**52**) at the outward end thereof which is axially spaced inward of said first external shoulder, said opposite edge (**34**) also having an indent (**56**) spaced from said other end (**31**) with a skewed edge portion (**61**) extending laterally inward and axially away from said other end (**31**) to define a second internal shoulder (**62**) at the outward end thereof which is axially spaced inward of said first internal shoulder (**59**).

4,264,999

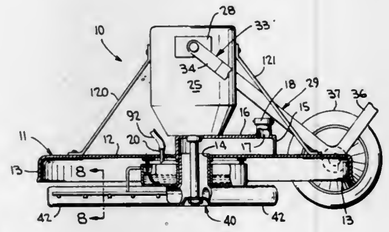
ROTARY FLOORING SURFACE TREATING DEVICE

Clifford L. Monson, 49-789 Kam Hwy., Box 452, Kaawa, Hi. 96730

Filed Oct. 30, 1979, Ser. No. 89,486

Int. Cl.³ A47L *11/34*

U.S. Cl. 15—321 **13 Claims**



1. A rotary flooring surface treating device which is movable on and over the surface to be treated, said device comprising a lower carriage unit and an upper handle unit,

said lower carriage unit including a shroud means, a drive means and a wand means;

said shroud means including a generally disc-shaped cover part having a skirt extending downwardly from the periphery thereof and an opening therethrough at the center thereof, said shroud means also including means forming a vacuum chamber positioned on the upperside of said cover part so as to enclose said opening, said vacuum chamber including means forming a port for sealing attachment thereto of one end of a flexible hose which is connected at its other end to a vacuum generating means, said shroud means also including an annular vacuum seal means extending downwardly from the underside thereof so as to enclose said opening, said seal means being capable of forming a substantially vacuum-tight seal with an upper part of a hollow cylindrical portion of a wand means positioned therein, yet allow for free rotation of said upper part therein, said shroud means also including a treating solution feed pipe extending downwardly through said cover part at a point radially outwardly of said opening therein, the upper portion of said feed pipe being sealingly connectable to a hose for the feed of treating solution thereto;

said drive means including a motor positioned on top of said vacuum chamber and fixedly connected to said shroud means, said motor including a rotatable drive shaft sealingly extending downwardly through said vacuum chamber and through said opening in said cover part;

said wand means, which is fixedly attached to said drive shaft of said motor, including a hollow cylindrical portion whose upper part is generally sealingly yet rotationally mounted within said annular vacuum seal means and multiple radially-extending arms, said arms each including a radially-extending vacuum duct means with bottom vacuum slot, each of said vacuum duct means being operatively connected to the lower part of said hollow cylindrical portion, and a discharge pipe with spray nozzles attached to the side of each vacuum duct, said wand also including a doughnut-shaped pan positioned on the outside of said hollow cylindrical portion and on top of said wand arms, said pan being fed with treating solution from said feed pipe extending through said shroud cover part, said pan including delivery conduits for delivering treating solution therefrom to each said discharge pipe;

said lower carriage unit also including wheel means for movably mounting said shroud means and said wand means above the flooring surface to be treated and a bracket means for connecting said lower carriage unit to said upper handle unit;

said upper handle unit including an extension means and a handle means,

said extension means including at least one elongated extension member, one end of which is adjustably connected to said bracket means,

said handle means comprising an operator gripper means connected to said extension means adjacent the second end thereof.

4,265,000

FURNITURE HINGE

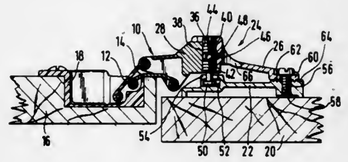
Karl Lautenschläger, Jr., Reinheim, Fed. Rep. of Germany, assignor to Karl Lautenschlager KG, Mobelbeschlagfabrik, Reinheim, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,774

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838722

Int. Cl.³ E05D *7/04*

U.S. Cl. 16—129 **5 Claims**



1. In combination: a mounting plate to be fastened to the supporting wall of a piece of furniture, and a supporting-wall-related element of a furniture hinge, said element being held on said plate and having an elongated body part and a head part which is adjustable relative to the body part at right angles to the pivot axis of the hinge and at right angles to the surface of the supporting wall to which said part is to be connected, guiding means connecting said head and body parts, said guiding means comprising on one of said parts a guiding projection having a broadened free end engaging a complementary guiding slot with a narrowed mouth extending in the other part in the direction in which said parts are adjustable relative to each other, a bore being provided in a plane of separation of said guiding means, said bore being half in the one and half in the other of the two parts, the half of the bore provided in the head part having a thread, a threaded spindle situated in the bore and having a thread engaging said thread of said bore, said thread of said spindle being interrupted by an annular groove, a transverse projection extending from the other bore half in the body part and engaging said groove, said other bore half being smooth, said threaded spindle protruding from the bore towards the mounting plate and terminating in a retaining head of larger diameter than said spindle, said mounting plate having a longitudinal groove which has a bottom receiving said retaining head and which is open towards the hinge pivot axis, said longitudinal groove having a narrowed mouth securing the retaining head against being lifted from the mounting plate.

4,265,001

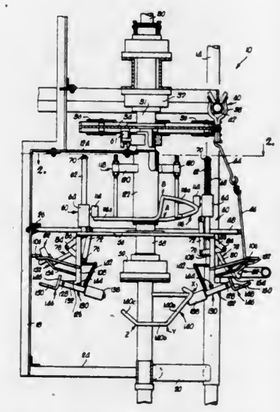
OPENING METHOD FOR POULTRY CARCASSES

Jack L. Hathorn, Springdale, Ark., and Donald J. Scheier, Kansas City, Mo., assignors to Gordon Johnson Company, Kansas City, Mo.

Filed May 22, 1978, Ser. No. 908,379

Int. Cl.³ A22C *21/06*

U.S. Cl. 17—11 **5 Claims**



1. In a method of making an enlarged opening to the body cavity of a bird by inserting a knife into a hole at the stern of the bird and then using the knife to slit the skin between the hole and the keel bone of the bird, the improvement comprising:

clamping only the thighs and legs of the bird against stationary shoulder means at a known relationship to the knife before inserting the latter into the hole of the bird while leaving the remaining trunk portion of the bird otherwise unrestrained; and

continuing to maintain the bird clamped only by its thighs and legs throughout the inserting and slitting steps so that the hole of the bird will remain properly positioned during the insertion of the knife, yet the trunk portion of the bird may yield outwardly during the slitting stroke of the knife to thereby avoid damage to the keel bone and excessive slitting of the skin.

4,265,002

MAGNETIC FASTENING MEANS

James C. Hosken, 329 Fox Hill St., Westwood, Mass. 02090

Filed Aug. 13, 1979, Ser. No. 66,086

Int. Cl.³ A44B *17/00*

U.S. Cl. 24—201 B **1 Claim**

1. Magnetic fastening means for a pair of flaps or the like comprising a ferromagnetic plate having an upper surface and a lower surface, a ferromagnetic cup having peripheral walls and an end wall, the cross sectional area of said peripheral walls being no greater than the area of the upper surface of said plate, a magnet having a first surface and a second surface of opposite polarities and a height less than that of the peripheral

walls of the ferromagnetic cup affixed within said cup such that its first surface lies against the end wall thereof, a pair of thermoplastic strips affixable to facing surfaces of the flaps, female mounting means affixed to one of said strips holding



said plate substantially parallel to said strip, and male fastening means affixed to the other of said strips holding said ferromagnetic cup such that the end wall thereof is substantially parallel to said other strip and such that said peripheral walls thereof may releasably engage said plate.

4,265,003

WARP-KNIT TAPE FABRIC FOR SLIDE FASTENERS

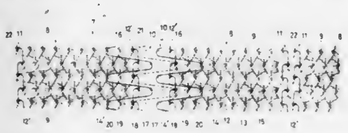
Yoshio Matsuda, Nyuzen, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Jul. 31, 1979, Ser. No. 62,549

Claims priority, application Japan, Jul. 31, 1978, 53-105406[U]

Int. Cl.³ A44B *19/00*

U.S. Cl. 24—205.1 C **4 Claims**



1. A slide fastener comprising:

(a) a pair of warp-knit stringer tapes each having a plurality of longitudinal wales and alternate grooves between a pair of first and second longitudinal edges of the tape, each of said warp-knit tapes including a plurality of transverse threads extending transversely across a plurality of adjacent ones of said wales, said wales including a first outermost wale at said first longitudinal edge, a reinforced second inner successive wale adjacent to said first outermost wale, a third inner successive wale adjacent to said second inner successive wale, one of said transverse threads which engages said first outermost wale being thicker than the outer transverse threads, said stringer tapes positioned with the first longitudinal edges of the stringer tapes confronting each other, and said transverse threads being effective for pulling said first outermost wale into contact with said second inner successive wale to define a combined widened wale portion;

(b) a pair of rows of coupling elements mounted on a flat side of the respective stringer tape along said first longitudinal edge;

(c) a pair of stitches of sewing threads securing the respective rows of coupling elements to the corresponding stringer tapes respectively along said first longitudinal edges, each of said stitches of sewing threads extending through one of said stringer tape at a groove between said second and third wales.

4,265,004

SEPARABLE SLIDE FASTENER

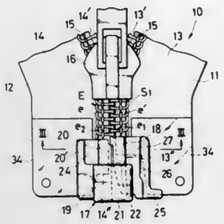
Shunji Akashi, Kurobe, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

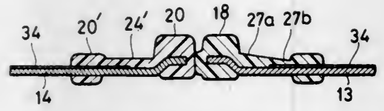
Filed May 7, 1979, Ser. No. 36,740

Claims priority, application Japan, May 19, 1978, 53/68520[U]

Int. Cl.³ A44B *19/36*

U.S. Cl. 24—205.11 R **2 Claims**





1. A separable slide fastener comprising:

(a) a pair of companion stringers each having a fabric tape and a row of interlocking fastener elements mounted on a longitudinal edge of said tape;

(a) a slider slidably mounted on the rows of fastener elements for taking the same into and out of coupling engagement, said slider having a flanged opening; and

(c) a separable end stop assembly comprising:

(1) a pin member mounted on one of said companion stringers;

(2) a socket member mounted on the other stringer and having an opening receptive collaterally of said pin member therein through said slider, each of the tapes having an end portion raised above the general plane of the tape in transverse and longitudinal directions thereof and anchored within one of said pin and socket members; and

(3) a reinforcing sleeve portion integrally formed with said pin member and having a slant thick region extending longitudinally along and adjacent to said pin member, and a thin region disposed remotely from said pin member for registration with and through said flanged opening when said pin member is inserted through said slider.

4,265,005

U-BOLT CLAMP SADDLE CONSTRUCTION

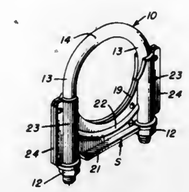
John E. Heckethorn, Dyersburg, Tenn., assignor to Heckethorn Manufacturing Company, Dyersburg, Tenn.

Filed May 12, 1977, Ser. No. 796,217

Int. Cl.³ B65D *63/00;* **F16L** *33/10*

U.S. Cl. 24—277 **6 Claims**

5. A saddle for a U-bolt clamp comprising two thicknesses of sheet metal secured together in face-to-face relation by spot welding, said saddle having a central flat web provided with upright parallel tubular portions adjacent the laterally opposite ends thereof for slideably receiving the threaded legs of a U-bolt, the upper edge of said web between said tubular portions being of generally semicircular shape to encircle approxi-



mately one-half of the circular periphery of a pair of telescopically engaged tube sections, the lower edge of said web being defined by a pair of flanges turned outwardly in opposite directions from the plane of said web and extending substantially throughout the width of said web between said bolt-receiving portions, a portion adjacent the lower edges of the web being secured together by spot welding.

4,265,006

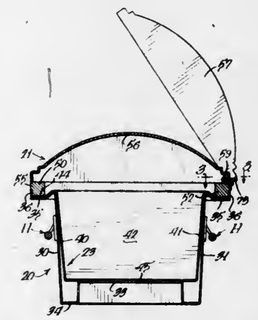
DISPLAY AND BURIAL SYSTEM

Manfred E. Angermann, Lake Geneva, Wis., assignor to Citadel Management Services, Inc., Lake Geneva, Wis.

Filed Jan. 24, 1980, Ser. No. 115,114

Int. Cl.³ A61G *17/00*

U.S. Cl. 27—14 **9 Claims**



1. A display and burial system including a display base having an appearance similar to a casket base and having support means along the upper perimeter thereof, a reusable casket-like movable lid unit removably supported by said support means to enable viewing of a body, and a cover unit positionable on said support means in place of said lid unit after viewing whereby the display base and cover unit provide an enclosed structure for subsequent entombment, cremation, or burial.

4,265,007

TOOL FOR RASPING

Marcel Delattre, Claix, and Gerard Romagnolo, Eybens, both of France, assignors to Eurotungstene, Grenoble, France

Filed Feb. 26, 1979, Ser. No. 15,244

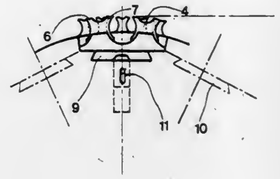
Claims priority, application France, Feb. 28, 1978, 78 06564

Int. Cl.³ B26D *1/12*

U.S. Cl. 29—79 **9 Claims**

1. A rasping tool, for use particularly in the preparation of the exterior surface of a tire to be retreaded, comprising a cylindrical drum rotatable in opposite directions on its axis, protruding cutting elements on the exterior surface of the drum, said cutting elements being able to act in both directions of rotation, an assembly of detachable bars disposed regularly about the exterior surface of the drum parallel to the drum axis, each one of the bars having at least one transverse row of cutting elements fixed thereto, each cutting element of a same row having two parallel cutting edges oriented in opposite directions relative to, and making the same acute angle with the axis of the drum, the cutting elements of an adjacent row equally presenting two cutting edges making, with the axis of the drum, angles essentially the same as the preceding row but oppositely directed, and means for a quick assembly of the detachable bars on the drum, said means for quick assembly comprising a dove-tail section on each bar which is received within a corresponding groove in the drum, said groove opening through a first side of the drum, the groove and dove-tail section each having a decreasing width from the first side of the drum to the other.

7. A rasping tool, for use particularly in the reparation of the exterior surface of a tire to be retreaded, comprising a cylindrical drum rotatable in opposite directions on its axis, protruding



cutting elements on the exterior surface of the drum, said cutting elements being able to act in both directions of rotation, an assembly of detachable bars disposed regularly about the exterior surface of the drum parallel to the drum axis, each one of the bars having at least one transverse row of cutting elements fixed thereto, each cutting element of a same row having two parallel cutting edges oriented in opposite directions relative to, and making the same acute angle with the axis of the drum, the cutting elements of an adjacent row equally presenting two cutting edges making, with the axis of the drum, angles essentially the same as the preceding row but oppositely directed, and means for a quick assembly of the detachable bars on the drum, said means comprise a dove-tail section on each bar, a corresponding groove in the drum, said groove having an opening through a first side of the drum for slidably receiving said dove-tail section therethrough when assembling said bar on the drum, and removing said bar from the drum, and a pressure retractable catch mounted on the drum adjacent the first side thereof and spring biased to an outwardly moved position to selectively block the groove opening and retain the dove-tail section in the groove.

4,265,008

TOOL FOR PLACING SELF-DRILLING DOWELS

Wolfgang Lippacher, Breitbrunn, and Gerhard Teger, Munich, both of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Nov. 27, 1979, Ser. No. 97,855

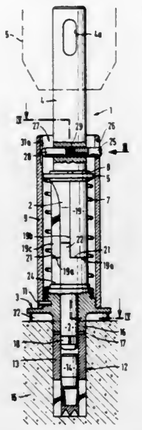
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851896

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—240 **14 Claims**

1. Tool for inserting and setting a self-drilling dowel, consisting of a drill member and a spreading member, in a receiving material, comprising an engaging member arranged to engage and apply percussive and rotative forces to the drill member for inserting the drill member into the receiving material, a plunger for applying percussive force to the spreader member for driving the spreader member relative to the drill member for setting the drill member within the receiving material, said plunger being movable relative to said engaging member in the

direction of insertion of the dowel for effecting the setting of the dowel, a transmission member including an insert shank which is engageable within a driving device, said transmission member arranged to transmit percussive force from the driving device to said engaging member and plunger and to selectively transmit rotative forces to said engaging member and plunger at the same time that percussive forces are transmitted, wherein the improvement comprises that said transmission member and plunger are formed as an axially extending unit with said transmission member having a first end formed by



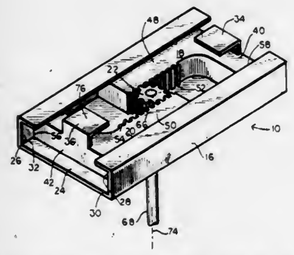
said insert shank adapted to be inserted into a driving device and a second end from which said plunger extends axially, said transmission member having an axially extending surface extending between the first and second ends thereof, said transmission member having at least one axially extending projection projecting radially outwardly therefrom, said projection having a first axially extending side, a second axially extending side, and a radially extending end, and said first axially extending side and said radially extending end being engageable with said engaging member for effecting the transmission of percussive and rotative forces.

4,265,009

DUCT ASSEMBLING TOOL

Glenn E. Mann, 10812 Highcliff Dr., Knoxville, Tenn. 37922

Filed Dec. 22, 1978, Ser. No. 972,477
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—244 **4 Claims**



1. A tool for assembling two duct sections, each duct section having at least one flanged end, said tool suitable for use with duct sections of any selected cross-section and comprising:

a housing having a base plate with first and second parallel edges, and first and second channel members attached to said parallel edges such that said channel members are parallel and open inwardly and toward each other;

a toothed gear rotatably attached to said base of said housing, and located substantially equal-distant between said first and second parallel channel members;

first and second carrier members, each having a toothed rack portion and a clasp support portion at substantially a right angle with said rack portion, said first and second carrier member being supported by said housing such that each of said rack portions are controlled, one each, by said first and second channel members, and such that said toothed racks mesh with said rotatably toothed gear so that rotation of said tooth gear imparts motion to said first and second carrier members along a selected line of travel;

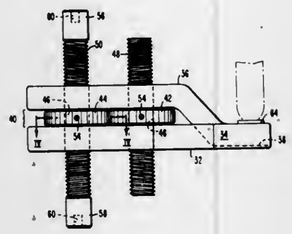
first and second L-shaped clasps, having first and second legs, said first leg of each of said clasps being affixed to said clasp support portion of said first and second carrier members respectfully and said second leg of each of said clasps having a shape suitable for engaging said flanges of said duct sections, said first and second L-shaped clasps being attached to said carrier members such that said second legs are substantially parallel with said base of said housing and extend toward each other so that movement of said carrier member along said selected line of travel varies the distance between said first and second L-shaped clasps.

4,265,010

METHOD AND APPARATUS FOR ADJUSTING THE ELEVATION OF FUEL RODS IN A NUCLEAR REACTOR FUEL ASSEMBLY

Glenn D. Doss, and Theodore W. Nylund, both of Columbia, S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 24, 1978, Ser. No. 963,596
Int. Cl.² B22D *19/10;* **B23P** *19/04;* **B66F** *3/18;* **G21C** *19/20*
U.S. Cl. 29—402.01 **7 Claims**



1. The method of adjusting the level of a fuel rod in a fuel assembly for a nuclear reactor comprising the steps of:

locating a gap adjusting tool between a nozzle in the assembly and the end of a fuel rod appearing at an incorrect level;

placing a surface of the adjusting tool in direct contact with the exposed surface of a nozzle adapter plate;

placing an end of the adjusting tool over an end of the fuel rod which appears at an incorrect level;

adjusting the tool in a manner such that the plate thereof which engages the end of the fuel rod moves in a direction to force the fuel rod axially into a position where the end thereof appears at the same level as the ends of other fuel rods in the assembly; and

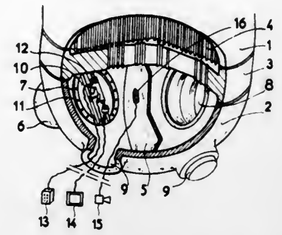
removing the tool from said assembly.

4,265,011

REMOTE-CONTROLLED SCREWING DEVICE

Bernard Lebouc, Dinan, France, assignor to Framatome, Courbevoie, France

Filed Dec. 28, 1978, Ser. No. 974,508
Claims priority, application France, Jan. 30, 1978, 7802506
Int. Cl.³ B23P *15/26, 19/04*
U.S. Cl. 29—720 **4 Claims**



1. A screw fastening apparatus for fastening screws of a sealing cover for a circular orifice within a nuclear steam generator, onto an annular bearing seat disposed at the circumference of the orifice and having threaded bores arranged in a circle, the cover being provided with fixed screws arranged in a circle and which are engageable in the bores, wherein:

there is provided a support plate;

said support plate being adapted to be affixed to the cover;

a pivot defining an axis and being mounted on said support plate whereby said axis is perpendicularly extendable to the plane of the bearing seat;

an arm pivotable about said pivot axis, and extending perpendicular thereto;

a screwing head at the end of said arm, having an axis perpendicular to said arm and arranged whereby the axis thereof is perpendicular to the plane of the bearing seat and intersects the circle of the screws;

a screw key mounted on said screwing head for movement in the direction of said axis of said screwing head;

drive means for rotating said arm about said pivot;

drive means for rotating said screw key about said axis of said screwing head;

drive means for moving said screw key axially of said screwing head;

and

a television circuit for observing operation of said screwing drive including a camera carried by said arm and arranged with its axis of sight orientated towards said screw key, and a monitoring screen for viewing said operation of said screwing device.

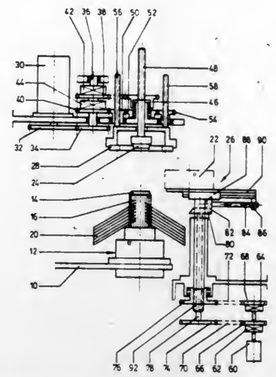
4,265,012

DEVICE FOR COLLECTING WINDINGS IN STATORS OR THE LIKE

Willi Muskulus, Frankfurt am Main, Fed. Rep. of Germany, assignor to Balzer & Droll KG, Niederdorfelden, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,620
Int. Cl.³ H02K *15/06*
U.S. Cl. 29—736 **12 Claims**

1. Apparatus for the collecting of windings in a stator comprising a collecting tool comprising lamellae disposed in a ring, an aligning star piece, means for moving a stator sheet packet having an aperture therethrough in position adjacent the free ends of said lamellae, means for moving said aligning star piece from a retracted position through said aperture and into an alignment position between said lamellae to align said stator sheet packet and said ring of lamellae and means for automatically delivering stator sheet packts for movement into adjacency with the free ends of said lamellae comprising a magazine for storing stator sheet packets and a conveyor for moving stator sheet packets from said magazine to said stator sheet packet moving means, said magazine comprising a set of spaced roller trains on which the stored stator sheet packets are movable to said conveyor means, the spacing between said



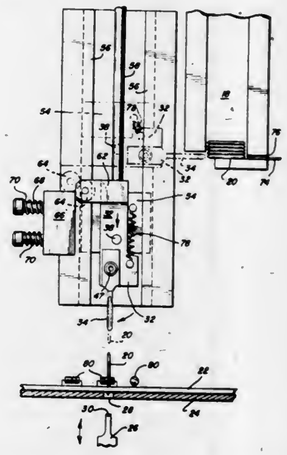
roller trains being wider than the aperture in said stator sheet packet to accommodate groove insulation located in said aperture and extending therebeyond.

4,265,013

APPARATUS FOR DRIVING PINS INTO A PRINTED CIRCUIT BOARD AND THE LIKE

Vincent B. Brown, Prospect Heights, and Charles A. Kozel, McHenry, both of Ill., assignors to Methode Electronics, Inc., Chicago, Ill.

Filed May 10, 1979, Ser. No. 37,741
Int. Cl.³ H05K *3/32*
U.S. Cl. 29—739 **13 Claims**



1. An apparatus for driving pins into a printed circuit board and the like, which comprises: table means for receiving and retaining a board into which the pins are to be driven; magazine means for holding a supply of said pins in a position parallel to the plane of said table, and receiver means, said receiver means being pivotably movable to receive a pin from said magazine means in a first pivotal position, and to pivot said pin into transverse relation with said table means in a second pivotal position; said receiver means being movable in slide means along a path transverse to said table for advancement and retraction of the receiver means toward and away from the

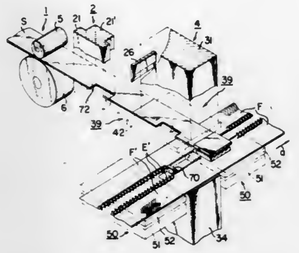
table and board, and cam means for automatically pivoting said receiver into said second pivotal position as it is advanced in said slide means toward the table and board; loading means for inserting pins into said receiver means; and means for moving said receiver means while in the second pivotal position to directly drive the pin into the board by advancement of said receiver means toward the board.

4,265,014

APPARATUS FOR PRESS-BONDING A REINFORCED TAPE TO A SLIDE FASTENER WITH A SEPARABLE END STOP

Keiichi Yoshieda, Kurobe, and Kazuki Kuse, Toyama, both of Japan, assignors to Yoshida Kogyo K.K., Tokyo, Japan

Filed Dec. 29, 1978, Ser. No. 974,602
Claims priority, application Japan, Dec. 30, 1977, 52/160361
Int. Cl.³ B23P *21/00*
U.S. Cl. 29—766 **4 Claims**



1. An apparatus for press-bonding a reinforcement tape of thermoplastic resin film onto a space section of a continuous length slide fastener chain having a series of space sections at intervals, comprising:

(a) a forming punch;

(b) a forming die disposed below said forming punch, normally spaced therefrom and being relatively movable toward and away from said forming punch;

(c) a pair of chain guide units disposed one on each side of the forming die for guiding and holding the fastener chain as said chain moves along a path;

(d) a tape guiding and holding unit having a pair of guide rams movable in a direction perpendicular to said path for entering and coming out of the space between said forming die and said forming punch;

(e) a feeding unit for feeding the tape into said tape guiding and holding unit;

(f) a tape punching unit disposed between said tape feeding unit and said tape guiding and holding unit and having a vertically movable tape punch; and

(g) a tape cutting unit disposed between said tape punching unit and said tape guiding and holding unit.

4,265,015

ADJUSTABLE RAZOR WITH BLADE CLEANING MEANS

Tamoru Asano, Seki, Japan, assignor to Kai Cutlery Center Company Limited, Gifu, Japan

Filed Jun. 27, 1979, Ser. No. 52,215
Claims priority, application Japan, Feb. 28, 1979, 54-23798
Int. Cl.³ B26B *21/16*
U.S. Cl. 30—41 **10 Claims**

1. A razor comprising:

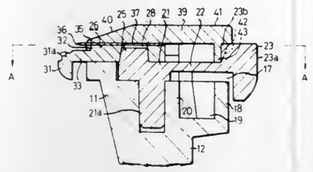
a base provided at the tip of a handle;

a top plate mounted on said base through attaching means;

a blade support disposed between the top plate and the base and adapted to receive a razor blade on its upper surface;

operating means for moving said blade support back and forth between the base and the top plate by being operated from outside the razor base, said operating means comprising an operating member rotatably supported by its own support shaft at the central rear portion of the base and a slot formed at the center of the blade support, said operating member comprising a support shaft, an operating lever extending rearwardly from the support shaft,

a knob provided at the rear end of the lever and projecting rearwardly from between the base and the top plate, and



an eccentric pin provided on the top of the support shaft, said slot extending perpendicular to the direction in which the blade support is moved;

and a guard member provided in front of the blade support and projecting forwardly beyond the cutting edge of the razor blade mounted on the blade support, said guard member extending parallel with the cutting edge.

4,265,016

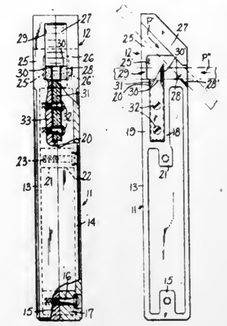
CABLE SPLITTER

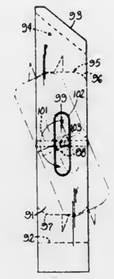
Lucien C. Ducret, 8 Apache Pl., Riverside, Conn. 06878

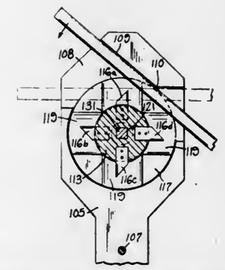
Continuation-in-part of Ser. No. 909,124, May 24, 1978. This application Jul. 27, 1979, Ser. No. 61,264
Int. Cl.³ B21F *13/00*
U.S. Cl. 30—90.8 **6 Claims**

1. A cable splitting tool (according to claim **2** wherein) comprising an elongated handle portion and a hollow head portion at one end of the handle portion, the head portion including spaced parallel internal side walls and an internal top having a rear edge, said walls defining a cutting chamber, at least one pointed slitting blade extending into said chamber from the direction of the handle portion, the top wall of the chamber being so disposed that its rear edge defines the upper limit of a lateral opening, said edge lying substantially in a plane which passes through the blade point and is perpendicular to the length of the handle, the angle of the top wall relative to said plane being such that no point on the top wall surface is spaced from the point of the splitting blade by less than the thickness of a cable to be slit, the tool including a plurality of

blades and means for mounting said blades in a predetermined position in the handle portion, and the blade mounting means







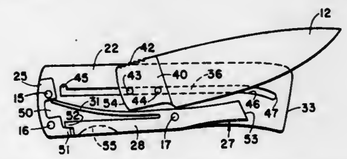
(is) being an elongated turret pivotally mounted in the handle and provided with blades at each end.

4,265,017

POCKET KNIFE WITH RETRACTABLE BLADE

Walter W. Collins, Rock Hill, S.C., assignor to Jenkins Metal Corporation, Gastonia, N.C.

Filed Sep. 7, 1979, Ser. No. 73,266
Int. Cl.³ B26B *1/00*
U.S. Cl. 30—162 **14 Claims**



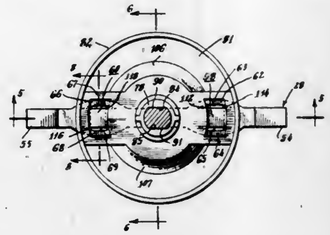
1. A knife comprising a handle and a blade mounted within the handle and selectively movable into fully extended operative position beyond the handle and into fully retracted or inoperative position within the handle, said knife including spring means fixed within the handle beneath the blade and extending axially along the length of the knife, and blade having a butt portion and means supporting the butt of the blade for axial movement in continuous engagement with said spring between the fully retracted inoperative position and the fully extended operative position of the blade, said means supporting the butt of the blade comprising a liner on each side of the blade, said liners having longitudinally extending slots defining a trackway and first and second guide pins fixed to the butt of the blade and extending through the slots in the liner.

4,265,018

GRASS TRIMMER DEVICE

Martin O. Schrock, Baltimore; Thomas J. Howard, Jr., White Marsh, and Danny R. Jinkins, Bel Air, all of Md., assignors to Black & Decker Inc., Towson, Md.

Filed Aug. 21, 1978, Ser. No. 934,746
Int. Cl.³ A01D *35/00, 50/00*
U.S. Cl. 30—276 **14 Claims**



1. A cordless, portable grass trimmer device having a single cutter blade comprising:

(a) a unitary, elongated cutter blade body formed of a strip of flexible material;

(b) said blade body have a generally rectangular shape including a length, a width and a thickness;

(c) said blade body dimensioned to provide flexibility thereof upon application of finger pressure thereto in a direction normal to a plane of the body which includes said length and width, and, to exhibit stiffness in the direction of said width;

(d) said blade body having a rotational axis normal to said plane and centrally located along said length;

(e) said blade body having first and second cutting segments symmetrically located about said axis at distal, opposite ends of the length of said body;

(f) means for mounting said blade body for rotating said blade body in a predetermined course about said rotational axis;

(g) said blade body subject to deflection from rotation in said predetermined course upon impact with an object;

(h) said blade mounting means supporting and restraining said blade over a segment which is at least 60 percent of the length of said blade, said supported segment including said axis of rotation whereby rotation of said blade is maintained in said predetermined course upon impact with an object; and

(i) an electrically energized motor means for rotating said blade.

4,265,019

FILAMENT VEGETATION TRIMMER

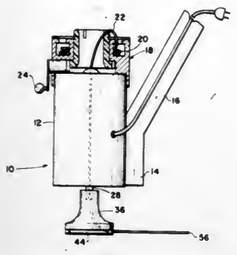
Lauren G. Kilmer, 1927 E. 35th Pl., Tulsa, Okla. 74105

Continuation-in-part of Ser. No. 771,400, Feb. 23, 1977, abandoned, which is a continuation of Ser. No. 958,518, Nov. 7, 1978. This application Nov. 7, 1978, Ser. No. 958,519
Int. Cl.³ A01D *50/00*
U.S. Cl. 30—276 **3 Claims**

1. In a filament vegetation trimmer having a rotary drive

means, a hollow shaft attached to the drive means, said shaft terminating at a trimming or gyrational end, a gyrator head attached to said shaft at said trimming end and having a bell-shaped opening axial with the said shaft,

means to supply the filament through said shaft and said a bell-shaped opening, the improvement comprising a transverse bar attached to said gyrator head across at least the center axis of the bell-shaped opening,



said bar to define a rotational fulcrum point for said filament and sufficient opening between said bell-shaped opening and at least one side of said bar for passage of said filament therethrough and outward to form a rotary whip for trimming.

4,265,020

GARMENT DESIGNING AID

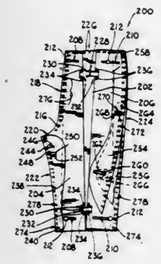
Fred W. K. R. Werber, 29 Schaumans-kamp, Reinbeck, Hamburg, Fed. Rep. of Germany

Division of Ser. No. 853,668, Nov. 21, 1977, Pat. No. 4,156,969. This application Mar. 1, 1979, Ser. No. 16,573

Claims priority, application South Africa, Mar. 9, 1977, 77/1434

Int. Cl.³ A41H *3/015*

U.S. Cl. 33—14 **9 Claims**



1. A pants design aid for assisting a person in providing a pattern for a pair of pants, including

a first template section;

a second template section which is secured to the first template section and is adjustably displaceable with respect thereto and which overlaps the first template section on one side of the first template;

a third template section which is also secured to the first template section and is adjustably displaceable with respect thereto and which overlaps the first template section on an opposite side to the second template section; and

a hip width varying means for varying the hip dimension of the pants, said hip dimension varying means comprising two pivotally displaceable members, a first member pivotally secured at one end to an upper outer corner portion of the third template section and a second member pivotally secured to the first member in the region of that part of the first member that corresponds with the hip, the two members being secured to the third member at their lower ends by means of a screw and nut, suitable slots being provided in the first and second members.

4,265,021

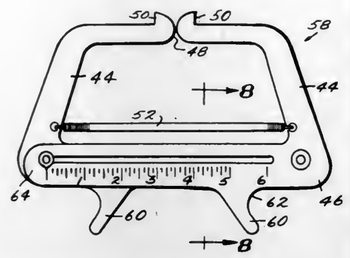
DISTANCE MEASURING INSTRUMENT

Robert A. Campbell, 167 N. Ridgeland Ave., Oak Park, Ill. 60302

Filed Jul. 2, 1979, Ser. No. 54,247

Int. Cl.³ G01B *3/20*

U.S. Cl. 33—143 R **22 Claims**



1. A distance measuring instrument comprising:

a pair of substantially planar and substantially identical juxtaposed measuring members, each of said members having an elongated base;

means in operative relationship with the base of each of said measuring members for cooperation with said base of said other measuring member to hold said bases in juxtaposed and slideable relationship with each other;

an arm projecting from a first end of each of said bases, each said arm defininin a first measuring surface and further defining a second measuring surface;

first means for displaying distance measurements located on a first side of said base of a first one of said measuring members;

means in operative relationship with said measuring members for urging said first measuring surfaces toward each other;

each of said cooperating means including a first aperture and a second elongated aperture defined within each said base, a first fastener positioned within said first aperture of said first measuring member and within said second aperture of the second one of said measuring members, a second fastener positioned within said first aperture of said second measuring member and within said second aperture of said first measuring member, said fasteners holding said measuring members with said first measuring surfaces in opposed relationship with each other;

a first index in operative relationship with said second fastener and with said first display means for indicating the distance between said first measuring surfaces;

a handle projecting from the base of each of said measuring members, each of said handles projecting from each of said respective bases at a location adjacent to a second end of each of said bases, and each of said handles projecting from said bases in a substantially opposite direction from said arms; and

wherein each of said measuring members is substantially C-shaped in configuration.

12. A distance measuring instrument comprising:

a pair of substantially planar and substantially identical juxtaposed measuring members, each of said members having an elongated base;

means in operative relationship with the base of each of said measuring members for cooperating with said base of said other measuring member to hold said bases in juxtaposed and slideable relationship with each other;

an arm projecting from a first end of each of said bases, each said arm defining a first measuring surface and further defining a second measuring surface;

first means for displaying distance measurements located on a first side of said base of a first one of said measuring members;

means in operative relationship with said measuring members for urging said first measuring surfaces toward each other;

said cooperating means including two pairs of lugs, each lug defining a recessed channel, and one pair of said lugs attached to each of said arms in position to receive and hold said other base in slideable relationship with said channels.

4,265,022

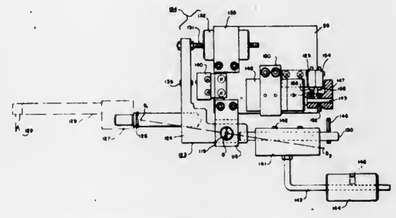
CONTOUR MEASURING APPARATUS

Hironori Noguchi, and Kenji Sakuma, both of Kawasaki, Japan, assignors to M. T. I. Corporation, Paramus, N.J.

Filed Feb. 22, 1979, Ser. No. 13,965

Int. Cl.³ G01B *7/28*

U.S. Cl. 33—174 P **17 Claims**



1. A measuring device comprising:

(a) a base for positioning an object to be measured; and

(b) a measuring apparatus joined to said base, said measuring apparatus having an arm member divided into a first and second portion by a fulcrum, said first portion having the center of gravity adjacent a first end thereof farthest from the fulcrum, said second portion having weight means provided thereon, said weight applying a weight to the second portion such that said second portion has the center of gravity adjacent a second end thereof farthest from said fulcrum, and said fulcrum thereinbetween said first and second centers of gravity and wherein said first and second centers of gravity and the fulcrum lie in a common line.

4,265,023

TURBINE BLADE GROWTH MEASURING APPARATUS AND METHOD

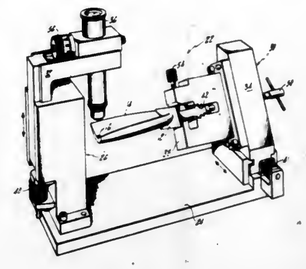
Stuart J. Frost, Bloomfield; Edward J. Riley, Somers, and Ronald F. Bogdan, Glastonbury, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Apr. 23, 1979, Ser. No. 32,608

Int. Cl.³ G01B *11/02, 5/02*

U.S. Cl. 33—174 C **5 Claims**

1. Apparatus for measuring the growth of a turbine blade subjected to hostile environment of a turbine type of power plant in combination with the turbine blade, the blade having a concave working surface and a root section adapted to be secured in a rotary hub, a dimple in the concave working surface in proximity to but spaced from the end of the turbine blade remote from said root section, a pair of spaced apart upstanding members, one of said members having jaw means for securing the root section of the blade for holding the blade, an optical measuring means secured by said other of said members for aligning with said dimple, aligning means in said jaw means for aligning said root with a predetermined plane passing through a point in said root known to be the original distance between the center of the dimple and said plane and means for positioning said optical measuring means to align with said dimple to the new growth position of the blade



which new position is the value of said distance between the center of the dimple and said plane.

4,265,024

JIG FOR STORING ADJUSTMENT POSITIONS

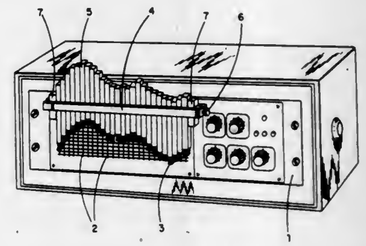
Herbert Handte, Filderstadt, Fed. Rep. of Germany, assignor to Moog GmbH, Boblingen, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 135,309

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1979, 2915668

Int. Cl.³ G01B *5/20*

U.S. Cl. 33—175 **5 Claims**



1. A jig for storing setting data of an apparatus, said apparatus having a plurality of adjacent settable sliding members the relative positions of which determine said sitting data, said apparatus also having a plurality of alignment holes, said jig comprising:

a frame;

a plurality of alignment pins mounted on said frame and adapted to be selectively inserted into said alignment holes such that said jig may be repeatedly repositioned on said apparatus at a desired location;

a plurality of bars mounted on said frame, said bars being positioned adjacent one another for independent sliding movement relative to said frame along parallel paths, each of said bars having an end face aligned with and arranged to be selectively contacted by a corresponding setting member; and

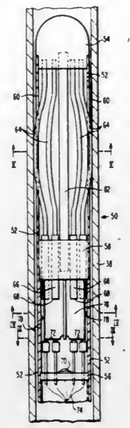
clamp means mounted on said frame and arranged to releasably hold said bars in desired relative positions.

4,265,025

INSPECTION PROBE

James W. Finlayson, Rostraver Township, Westmoreland County, and Harold P. Johnson, Penn Hills Township, Allegheny County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 8, 1978, Ser. No. 959,034
Int. Cl.[2] G01B *11/12*
U.S. Cl. 33—178 F 10 Claims



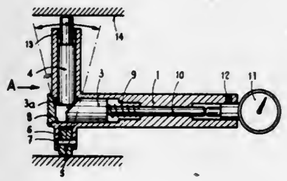
1. An inspection probe for inspecting tubes comprising:
a housing capable of being disposed in said tube;
a plurality of feeler mechanisms disposed in said housing and extending through said housing into contact with said tube and having at least one end slidably disposed in said housing for centering said probe and for detecting irregularities in said tube;
a radiation source disposed in said housing and directed toward said slidable ends for emitting radiation toward said slidable ends; and
a plurality of radiation sensors disposed in said housing and arranged to detect radiation reflected from said slidable ends, said feeler mechanisms being capable of deflecting in response to irregularities in said tube thereby changing the distance between said slidable ends and said sensors thus changing the amount of radiation reflected from said slidable ends to said sensors and indicating an irregularity in said tube.

4,265,026

INTERNAL MEASURING DEVICE

Hans Meyer, Rue du Bugnon, 24, Renens, Vaud, Switzerland

Filed Mar. 21, 1979, Ser. No. 22,501
Claims priority, application Switzerland, Apr. 5, 1978, 3632/78
Int. Cl.[1] G01B *5/12*
U.S. Cl. 33—178 R 2 Claims



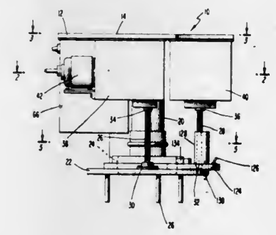
1. An internal measuring device including a measuring unit with a fixed contact member, a movable contact member supported in the measuring unit, a transmission element engaging said movable contact member, an indicator gauge mounted in said measuring unit in engagement with said transmission element and a spring acting on the movable contact member to urge it outwardly, wherein at least one of the contact members is provided with at least one roller supporting the measuring device on the bore wall to be measured at least during part of the measuring process and, as a result of its directional force, ensuring that said device is centrally located in the borg, one roller located on one side of the fixed contact member so that it supports itself on the bore wall when the device is inclined relative to the bore axis and thus carries out its centering function whereas the fixed contact member supports itself on the bore wall when the measuring units assumes its perpendicular position relative to the bore axis.

4,265,027

AUTOMATIC SELF-LEVELING INSTRUMENT MOUNT

Edward W. Burniski, 118 Charles St., Wilkes-Barre, Pa. 18702

Filed Jun. 5, 1979, Ser. No. 45,692
Int. Cl.[1] G01C *5/02*
U.S. Cl. 33—291 16 Claims



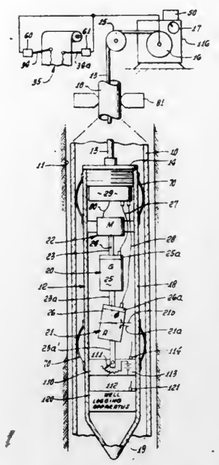
1. A self-leveling mount, comprising:
a table having a surface to be oriented parallel to a reference plane;
a stationary frame member;
a first, fixed length support arm pivotably connected between said table and said frame member;
second and third, variable length support arms pivotably connected between said table and said frame member; said first, second and third arms being oriented in a triangular array;
means entirely mounted with said table for measuring the orientation of said table relative to the reference plane;
servo means responsive to said measuring means for controlling effective lengths of said second and third support arms to orient said table parallel to said reference plane;
wherein said reference plane is a horizontal plane and said measuring means includes a pendulum suspended from a pendulum support carried by said table; and
wherein said pendulum is electrically conducting and is suspended by an electrically conducting line, said pendulum extending downwardly between first and second mutually orthogonal pairs of opposed electrical contacts, said pendulum being electrically isolated from said contacts when said table is parallel to the horizontal plane, an electrical connection being established between said electrically conducting pendulum and said contacts depending upon an angular displacement of said table relative to the horizontal plane, said servo means being responsive to said electrical connection.

4,265,028

SURVEY APPARATUS AND METHOD EMPLOYING CANTED TILT SENSOR

Brett H. Van Steenwyk, San Marino, Calif., assignor to Applied Technologies Associates, San Marino, Calif.

Filed May 7, 1979, Ser. No. 36,328
Int. Cl.[1] G01C *19/38*; E21B *47/024*
U.S. Cl. 33—304 12 Claims



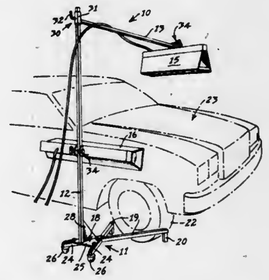
1. In a borehole navigation apparatus, the combination comprising
(a) a carrier movable lengthwise in the borehole,
(b) means on the carrier defining an axis of rotation,
(c) a tilt sensitive device on the carrier and having a tilt sensitive axis about which tilt is sensed, said tilt sensitive axis extending in a cant direction having components respectively along said axis of rotation and also along a perpendicular to said axis of rotation, such device being rotatable about said axis of rotation, and
(d) drive means on the carrier for rotating said device in the same direction and through more than one complete turn about said axis of rotation, the extent of said cant remaining fixed during said rotation.

4,265,029

MOTOR VEHICLE DRYER STAND

Kenneth A. Jenkins, 3207 Lakeshore Dr., Old Hickory, Tenn. 37138

Filed Dec. 4, 1979, Ser. No. 100,254
Int. Cl.[3] F26B *23/04*
U.S. Cl. 34—39 3 Claims



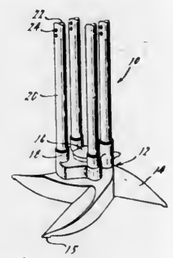
1. A motor vehicle dryer stand for supporting one or more dryer lamps in different positions to dry the finish on a motor vehicle, comprising,
(a) a base member having a longitudinal axis, transverse dimensions, and remote and proximal end portions,
(b) said base member comprising a platform member at said proximal end portion, said platform member having a proximal edge portion,
(c) a pair of roller members depending from the proximal end portion of the base member, closely adjacent said proximal edge portion, and transversely spaced on opposite sides of the longitudinal axis of said base member to rollably engage a supporting surface,
(d) said base member comprising a pair of elongated legs projecting remotely from said platform member and having free ends forming the remote end portion of said base member and terminating in depending foot members adapted to frictionally engage the supporting surface,
(e) said free ends being spaced apart transversely on opposite sides of said longitudinal axis a distance substantially greater than the transverse spacing between said roller members and great enough to straddle the wheel of a motor vehicle, in a drying position,
(f) an upright standard having a bottom end portion fixed to said platform member along the proximal edge of said platform member, on said longitudinal axis, and between said roller members and said foot members and projecting vertically upward from said base member,
(g) an elongated lamp arm adapted to support a dryer lamp, said lamp arm being at least as long as said base member and long enough, when extending in the remote direction parallel to said longitudinal axis, to support a dryer lamp over the center portion of a motor vehicle in said drying position.
(h) clamp means adjustably securing one end of said lamp arm upon said standard at selectively different elevations relative to said base member, and
(i) a reinforcing gusset member rigidly fixed to said standard and said platform member and projecting remotely from said standard above said platform member and disposed in a vertical plane on the longitudinal axis of said base member to resist the cantilever forces exerted by said lamp arm extending remotely from said standard.

4,265,030

ARTICLE DRYER

Jon M. Smallegan, Farmington Hills, Mich., assignor to Novo Products, Inc., Farmington Hills, Mich.

Filed Jul. 6, 1979, Ser. No. 55,344
Int. Cl.[3] F26B *19/00*
U.S. Cl. 34—104 3 Claims



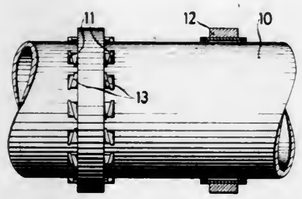
1. For an article dryer:
a housing;
a plurality of tubes extending from said housing, each tube having an inlet and an outlet portion on which said article is to be disposed for drying;
a blower means, associated with said housing, for providing a flow of air through said tubes in order to ventilate said article, the improvement comprising: pocket means,

formed in said housing for each of said plurality of tubes, having a wall portion which diverges relative to said flow of air from said blower means and a wall portion which is disposed generally transversely of said flow of air, for capturing a portion of said flow of air and for directing said portion of said flow of air into said inlet of each of said tubes, so that the effect upon air flow through one of said tubes, due to a restriction of said outlet thereof by said articles, is reduced when less than all of said outlets of said tubes are likewise restricted.

4,265,031
ROTARY DRUM MOUNTED BY MEANS OF RUNNING RINGS

Bernhard Kirchhoff, Ennigerloh, Fed. Rep. of Germany, assignor to O&K Orenstein & Koppel Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed Nov. 15, 1979, Ser. No. 94,538
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849490
Int. Cl.[1] F26B *25/02*
U.S. Cl. 34—108 **9 Claims**

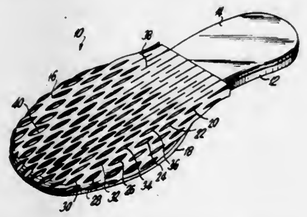


1. A rotary drum for the heat treatment of bulk goods, the drum being mounted by means of thrust rings, comprising
a rotary drum having an outer shell, a thrust ring disposed around said outer shell,
wedges being mounted on the outer periphery of the shell of the rotary drum, said wedges being disposed opposite to one another at a spacing corresponding approximately to the width of said thrust ring, said wedges having inclined surfaces facing toward each other,
portions constituting insert pieces being secured to said thrust ring, said insert pieces having counterwedge surfaces cooperating with said inclined surfaces of said wedges,
said inclined surfaces and said counterwedge surfaces are disposed on the outer periphery of the shell of the rotary drum successively "flip" symmetric.

4,265,032
EXPANDABLE ARTICLE OF FOOTWEAR

Beth Levine, New York, N.Y., assignor to Betherb, Inc., New York, N.Y.

Filed Jun. 14, 1979, Ser. No. 48,487
Int. Cl.[1] A43B *3/12, 7/06*
U.S. Cl. 36—11.5 **13 Claims**

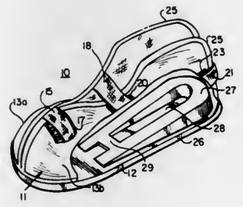


1. An expandable article of footwear comprising
a sole with an upper disposed over at least a portion of said sole,
a free edge of said upper providing an opening through which a foot enters into said article of footwear,
said upper including means for permitting a major portion of said upper to expand,
said means also permitting said free edge to expand to accommodate entry of the foot,
said means including an array of elongated slits colinearly arranged into substantially parallel columns, said slits extending through said upper and being spaced apart in the columnar direction, said slits of adjacent columns being disposed in staggered relationship with each other, and
said slits being substantially perpendicular to said free edge with a plurality of said slits extending through said free edge.

4,265,033
SHOE TO BE WORN OVER CAST

Sidney R. Pols, c/o E. J. Sabel & Co., Benson East Bldg.,P.O. Box 644, Jenkintown, Pa. 19046

Filed Mar. 21, 1979, Ser. No. 22,447
Int. Cl.[1] A43B *7/00, 7/14*
U.S. Cl. 36—110 **4 Claims**



1. A shoe to be worn over a cast which comprises
an upper which is adapted to fit around the lower portion of a cast and which has a toe and heel portion, the upper including
a pair of side halves detachably secured around the cast by a plurality of straps,
a sole having a toe and heel portion with a flat bottom surface and having said side halves joined to the sole along its outer margin,
said upper side halves meeting at the front and rear of the sole for enclosing the cast,
a continuously forwardly tapered cast supporting heel wedge within said upper and higher at the rear thereof and extending forwardly from the rear of the upper a distance of the order of two thirds of the length of the sole from the rear,
said wedge between its side margins having a central longitudinally extending cutout portion for the reception of the transversely curved bottom of the cast.

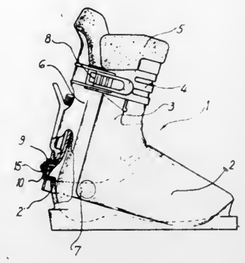
4,265,034
SKI BOOT

Georges P. Salomon, Annecy, France, assignor to S.A. Etablissements Francois Salomon & Fils, Annecy, France

Filed Jun. 14, 1979, Ser. No. 48,467
Claims priority, application France, Jun. 16, 1978, 78 18122; Apr. 27, 1979, 79 10811
Int. Cl.[1] A43B *5/04;* **B43B** *21/00*
U.S. Cl. 36—121 **19 Claims**

1. In a ski boot of the type which is put on and taken off through the rear, comprising:
a shell continuously surrounding the zones of the foot and the front of the bottom of the leg and comprising respectively, a rigid bottom part of the shell around the foot and

a more flexible upper of the shell around the front of the bottom of the leg;
a rear closing cover or spoiler pivoted on said shell, about a lower transverse axis, approximately in the malleolar zone, said spoiler surrounding the rear of said bottom of the leg and serving as cover for closing the boot on the foot, as well as means for rearwardly supporting the leg when in a position of use,
connecting means connecting said rear closing spoiler and the monobloc upper-bottom of the shell assembly
a member for supporting the upper formed by said spoiler

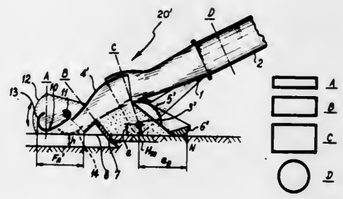


and the flexible upper of the shell adapted to occupy a first active position for limiting the rearward angular movement of said upper, and a second inactive position allowing the upper freedom of angular movement,
the improvement comprising: providing that the support member is formed of a piece having a U-cross section which extends transversely and provided with two arms, an upper arm and a lower arm, said arms being adapted to slide respectively in oblong and transverse slots provided in the lower, rear part of the spoiler and the support member removably mounted on the spoiler is, in active position of use, in direct contact with the rigid bottom of the shell.

4,265,035
DRAG-HEAD FOR A SUCTION DREDGER WITH A PIVOTABLE SIGHT

Arie Goedvolk, Krimpen A/D Ijssel, Netherlands, assignor to Koninklijke Adriaan Volker Groep B.V., Rotterdam, Netherlands

Filed Dec. 26, 1978, Ser. No. 973,033
Claims priority, application Netherlands, Dec. 27, 1977, 7714438
Int. Cl.[1] E02F *3/92*
U.S. Cl. 37—58 **3 Claims**

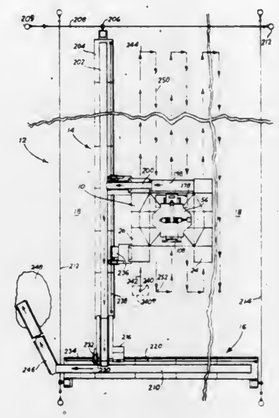


1. A drag-head for a suction dredger comprising
a sight freely pivotable about a transversely extending axis during operation, said axis disposed proximate to the surface to be cut and located between a transversely extending blade and a heel plate,
said cutting blade protruding downwardly and forwardly from below the lower edge of said sight,
the top edge of said cutting blade forming an inlet opening with the inner wall of said sight,
said heel plate connected to said sight and located in front of said axis for supporting said drag-head, said heel plate being at substantially the same level as said axis but spaced apart therefrom and contacting the surface to be cut at a point well forward of said axis thereby inhibiting forward tilting of said sight, and
slide blocks attached to said sight spaced behind said axis and located outside of the side edges of said sight for resting upon an uncut surface thereby inhibiting rearward tilting of said sight.

4,265,036
BUCKET DREDGING AND CONVEYING SYSTEM

William J. Staats, 4007 Orchard Hts. Rd., NW., Salem, Oreg. 97304

Filed Mar. 23, 1979, Ser. No. 23,157
Int. Cl.[1] E02F *5/28, 7/02, 9/18, 3/44*
U.S. Cl. 37—71 **17 Claims**



1. Apparatus for removing bottom material from beneath the surface of a body of water comprising:
floatable base means;
tower means mounted on said base means for extending vertically upwardly therefrom, said tower means including guide means;
carriage means mounted on said tower means operable for substantially vertical shifting along said guide means;
rigid means including an elongate member having a bucket mounted adjacent one end thereof, the other end of said elongate member being pivotally connected to said carriage means and suspended therefrom to permit pivotal movement of said elongate member about a horizontal axis extending generally perpendicularly to the longitudinal axis of said elongate member, said elongate member also being substantially constrained from rotation about a vertical axis; and
power-driven means mounted adjacent said tower means operable for selectively shifting said carriage means in a substantially vertical direction to effect raising and lowering of said bucket.

4,265,037
DEVICE FOR ASSEMBLING TOOLS ON A WHEEL, PARTICULARLY CUTTING TOOLS ON A TRENCHING MACHINE

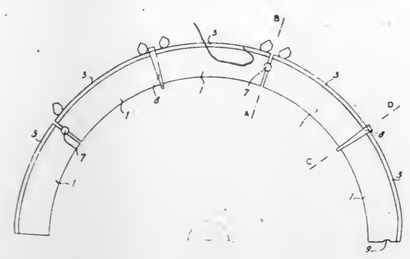
Pol Lamouric, B.P. 12, 78 730 Saint Arnoult, France

Filed Mar. 16, 1979, Ser. No. 21,239
Claims priority, application France, Mar. 22, 1978, 78 08311
Int. Cl.[1] E02F *5/08*
U.S. Cl. 37—94 **7 Claims**

1. A device for assembling tools on a wheel comprising:

sectors to which tools are fixed, each sector having the shape of a portion of a disc; and

means for fixing the sectors adjacent to each other on at least one face of a wheel in a disc formation, said fixing means comprising stops connected to the wheel and wedges positioned between adjacent sectors, said stops and wedges being disposed alternatively around the periphery



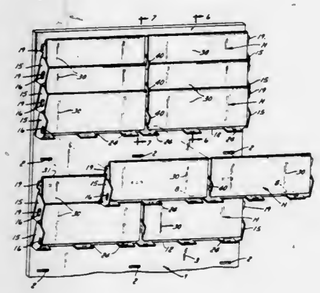
of the at least one face of the wheel, two adjacent sectors being located between two stops and in abutment therewith under the action of one of the wedges radially inserted between adjacent ends of said two adjacent sectors, each of said two adjacent sectors being provided at its other end with a notch for accommodating one of said two stops, the wedging of the sectors between the stops maintaining the sectors in a disc formation on the wheel.

4,265,038

DISPLAY ASSEMBLY HAVING OVERLAPPING AND REMOVABLE SAMPLE HOLDERS

Louis J. Crosslen, Grafton, Wis., assignor to Frank Mayer & Associates, Inc., Grafton, Wis.

Filed May 5, 1980, Ser. No. 146,647
Int. Cl.³ G09F *1/10*
U.S. Cl. 40—124.2 **3 Claims**



1. A display assembly for storage of a variety of samples such as paint chips or the like for visual observation and easy removal of said samples for inspection, said assembly comprising,

a generally vertical support panel having a plurality of horizontal rows of mounting slots therethrough, said rows being vertically spaced apart, said panel having a front mounting surface,

a plurality of elongated paint chip holders mounted in overlapping relationship to one another on and horizontally across said panel on the said front mounting surface thereof,

each of said elongated holders having, a back wall and a front wall having an upper edge formed integrally with an upper edge of said back wall and generally coextensive in length with said back wall, said front wall extending downwardly and outwardly in respect to said back wall and terminating in a lower, free edge; said front wall being resilient whereby its free edge is biased to a forward position and can be pushed rearwardly to accommodate samples thereagainst when said samples are inserted between adjacent overlapping holders,

said holders having hooks for insertion in said mounting slots of said panel and for removably supporting said holders on said panel, and

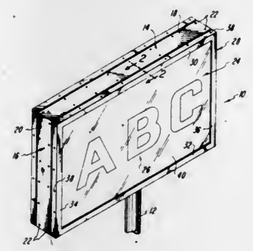
interengaging means between said holders for detachably connecting them together and means extending between said holders to provide shelf means for said samples.

4,265,039

DISPLAY SIGNS

Jackson R. Brooks, Ft. Collins, Colo., assignor to ABC Extrusion Company, Ft. Collins, Colo.

Filed Aug. 23, 1979, Ser. No. 69,222
Int. Cl.³ G09F *17/00*
U.S. Cl. 40—603 **82 Claims**



1. A display sign comprising:

a sign framework having spaced upper and lower elongated support elements joined between corresponding opposite ends thereof by respective spaced elongated side support elements;

a stretchable fabric display face disposed across the space defined by said framework;

a hinge affixed to at least one of said support elements;

a hinge pin mated within said hinge to rotate therein;

means for limiting said hinge pin in extent of rotation within said hinge pin;

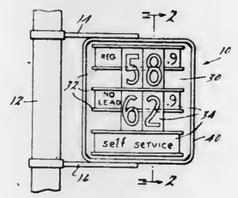
and means for coupling to said hinge pin one marginal portion of said fabric.

4,265,040

TWO-SIDED DISPLAY DEVICES

Robert Sarkisian, 4276 Stoneleigh Rd., Bloomfield Hills, Mich. 48013

Filed Feb. 8, 1979, Ser. No. 10,309
Int. Cl.³ G09F *7/02*
U.S. Cl. 40—618 **11 Claims**



1. A display holder for displaying sign panels, said sign panels being held securely in place without permanent deformation and adapted for repeated use and reuse in said display holder, said display holder comprising

a substantially flat backing member comprising a single sheet of material with two sides,

at least one track member positioned on and secured to each side of said backing member,

each of said track members having a pair of flanges thereon forming elongated channels between each of said flanges and a side of said backing member, each of said channels having an inner end and an outer open end, said sign panels being receivable into selected of said channels through said open end thereof,

first rib means on each of said flanges adjacent the open ends of said channels and extending inwardly into said channels, and

second rib means on each side of said backing member adjacent each of said channels, each of said second rib means comprising a plurality of projections extending inwardly into said channels and positioned in each of said channels between said first rib means and the channel inner end,

said first and second rib means extending inwardly into each of said channels such that said sign panels positioned in said channels and abutting against the respective rib means associated therewith are held tightly in tension in said channels without permanently deforming said sign panels,

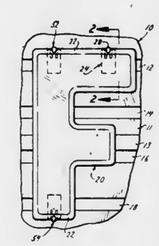
said first and second rib means automatically biasing the portion of the sign panels outwardly of each of said channels in a direction toward the plane of and into engagement with each side of said backing member.

4,265,041

INDICIA-SUPPORTING CLIP

Lindell N. Edwards, St. Louis, Mo., assignor to Commander Board International, Inc., St. Louis, Mo.

Filed Apr. 25, 1980, Ser. No. 143,749
Int. Cl.³ G09F *7/20*
U.S. Cl. 40—620 **17 Claims**



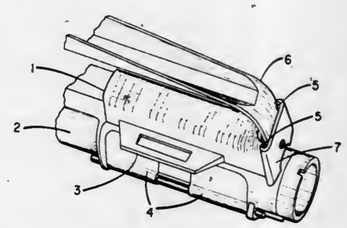
1. A clip which can grip indicia and which can engage a signboard to dispose said indicia a short distance forwardly of said signboard and which comprises an elongated member of resilient material that has a board-engaging portion adjacent one end thereof, a plurality of fingers at the other end thereof, and an intermediate spacing portion, said clip being adapted to be disposed adjacent the rear of said indicia, one of said fingers having a portion thereof which is adapted to extend from a position adjacent the rear of said indicia past the adjacent edge of said indicia to a position adjacent the front of said indicia where it can overlie and engage a portion of said front of said indicia, another of said fingers being adapted to engage the rear of said indicia adjacent said edge of said indicia, said fingers acting, in their un-stressed state, to resist movement of said edge of said indicia into a position wherein said other finger can engage said rear of said indicia adjacent said edge of said indicia while said portion of said one finger overlies and engages said portion of said front of said indicia, said clip yielding in response to the application of stress thereto to permit relative movement between said one and said other fingers which will allow said edge of said indicia to move into said position wherein said other finger can engage said rear of said indicia adjacent said edge of said indicia while said portion of said one finger overlies and engages said portion of said front of said indicia, the relative movement of said one and said other fingers in response to said stress developing restorative forces within said clip which will cause said one and said other fingers to be urged into intimate gripping engagement with said rear of said indicia adjacent said edge of said indicia and into intimate gripping engagement with said portion of said front of said indicia.

4,265,042

CARTRIDGE RETRIEVER MOUNTING AND ATTACHING DEVICE FOR A COLT M-16 RIFLE

Raymond O. Isola, 1071 Killmaster Dr., Oscoda, Mich. 48750

Filed Feb. 4, 1980, Ser. No. 118,113
Int. Cl.³ F41C *27/00*
U.S. Cl. 42—1 T **1 Claim**



1. A mounting and attaching device for mounting and attaching a cartridge retriever to an M-16 Colt rifle which comprises in combination a channel member and a wedge-shaped locking device which channel member is a rigid channel member adapted to be mounted channel down on the upper surface of the receiver section of an M-16 rifle, said channel member having a lug with a centrally located aperture, positioned such that the lug is situated on the lowest front edge and parallel to the channel member and extending perpendicular thereto; said channel member having at its forward end, two right angle, vertical tabs which receive the wedge-shaped locking device, which wedge-shaped locking device has a lower edge longer than the top edge and a centrally located threaded set-screw in its face for securing the wedge-shaped locking device to the Colt M-16 rifle, said wedge-shaped device having its side edges turned back upon themselves such that the side edges form a lip which is the same width as the vertical tabs on the channel member whereby the wedge-shaped locking device side edges align with and set down over the right angle vertical tabs to help secure the channel member to the Colt M-16 rifle.

4,265,043

EXTRACTOR ARRANGEMENT FOR FIREARMS

Kenneth C. Rowlands, 612 Pauline Ave., Utica, N.Y. 13502

Continuation-in-part of Ser. No. 28,503, Apr. 9, 1979, abandoned. This application Aug. 30, 1979, Ser. No. 71,279
Int. Cl.³ F41C *15/12*
U.S. Cl. 42—25 **17 Claims**

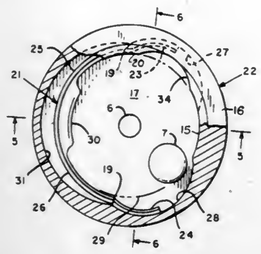
1. In a firearm of the type which includes a breech-bolt having a face formed with an annular shroud having an interior circumferential wall defining a recess for receiving the base of a cartridge, and a resilient extractor ring segment received in said recess and formed with a claw in a central portion thereof for engaging the cartridge base, an improved extractor arrangement comprising:

said extractor ring segment having free end portions at opposite ends of the arc length thereof bent outwardly to form detent arms;

said interior wall being formed with an arcuate clearance cut, and having a pair of projections circumferentially spaced thereabout, said clearance cut extending said re-

cess outwardly into said shroud and defining a lip lying between said clearance cut and said bolt face;

said detent arms normally engaging said projections to position said central portion of said ring segment in circumferential alignment with said clearance cut and in spaced-



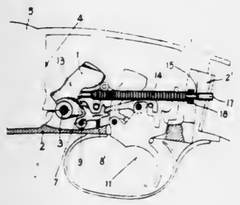
apart relation to said interior wall, said ring segment being displaceable to admit a cartridge base into said recess by deflecting radially outwardly toward said interior wall with an accompanying sliding motion of said detent arms with respect to said projections.

4,265,044

DOUBLE-BARREL SHOTGUN

Pier C. Beretta, Gardone, Italy, assignor to Fabbrica D'Armi Pietro Beretta S.p.A., Gardone, Italy

Filed Jan. 10, 1979, Ser. No. 2,710
Int. Cl.³ F41C *7/00*
U.S. Cl. 42—41 **10 Claims**



1. A double-barrel shotgun comprising a pair of hammers pivoted on a first common pin; a pair of strikers respectively associated with said pair of hammers; a pair of trip levers each having a first portion facing upwardly and including a frontwardly directed projection for arming and releasing said hammers, said trip levers being pivoted on a second common pin; a trigger element for separately controlling the trip levers; a pair of axially elongated trip springs acting on said hammers for displacement thereof toward their respective strikers; and a tripping mechanism including first and second trip teeth formed in the rearwardly facing surface of each of said hammers, said teeth being alternately engaged by said projection on said trip levers.

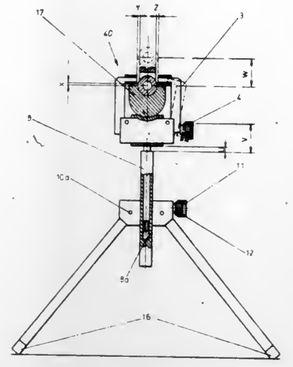
4,265,045

RIFLE AND WEAPON REST

Louis K. Garbini, Schöntal, CH-9304 Bernhardzell, Switzerland

Filed Jan. 2, 1979, Ser. No. 526
Claims priority, application Switzerland, Jan. 11, 1978, 257/78; Oct. 20, 1978, 10855/78
Int. Cl.³ F41C *29/00*
U.S. Cl. 42—94 **13 Claims**

1. Rifle and weapon rest, for use with a rifle for support of said rifle during the process of aiming, which comprises: a pressure rod (7) and spring (8*a*), a rifle holder (40, 50, 51, 52), adapted for partial radial rotation; a spring support, and a guide tube (8) for guiding said rifle holder symmetrically in axial and vertical directions, said guide tube (8) being axially and verti-



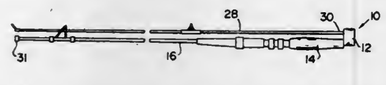
cally adjustable continuously; and a holding body having struts (13, 14, 24) which takes supports on the ground.

4,265,046

ROD HOLDER DEVICE

W. Louis Keith, 609 SE. 52nd Ave., Ocala, Fla. 32670

Filed Aug. 2, 1979, Ser. No. 63,998
Int. Cl.³ A01K *87/00*
U.S. Cl. 43—21.2 **8 Claims**



1. A rod holder device for use in combination with a plural section fishing rod for holding one of the rod sections, said device comprising: receiver head means pivotally attached to the rod handle and moveable between first and second positions; and receiver means formed in said receiver head means, said receiver means comprising at least one aperature dimensioned and configured to retain one end of a rod section therein, said first position defining a closed configuration and said second position defining an opened position, whereby at least one rod section may be releasably held in said receiver means in substantially parallel relation to the main body of the fishing rod.

4,265,047

VEHICLE INSTRUMENTATION AND CONTROL APPARATUS

Burton C. Meyer, Downers Grove; Howard J. Morrison, Deerfield, and Gunars Licitis, Jr., Lombard, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 9, 1979, Ser. No. 10,808
Int. Cl.³ A63H *33/26*
U.S. Cl. 46—232 **10 Claims**

1. A toy vehicle instrumentation and control apparatus comprising:

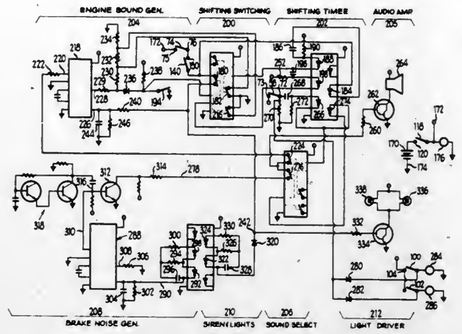
a toy vehicle instrumentation panel and control housing;

operator actuated control means attached to said housing and being positionable to various operating positions;

means adjacent said operator control means for sensing the operative positions of said operator actuator control means; and

means responsive to said operative position sensing means for automatically generating at least two increasing frequency sound effects one after the other, each for a predetermined time duration corresponding to engine operation

in at least two respective forward drive modes in response to predetermined states of said sensing means correspond-



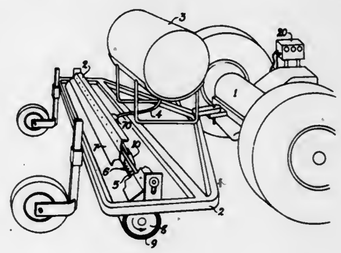
ing to predetermined operative positions of said operator actuated control means.

4,265,048

AUTOMATIC MOISTURE CONTROL FOR ROLLER APPLICATOR

James S. Schepers, Lincoln, Nebr., and Cary A. Gloor, Carrollton, Tex., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Dec. 3, 1979, Ser. No. 99,813
Int. Cl.³ B05C *1/00*
U.S. Cl. 47—1.5 **8 Claims**



1. In a moisture control system for use with a contact roller-type, fluid applicator for treating plants, wherein said applicator comprises a roller having a fluid absorbent surface for contacting said plants and a wetting device for delivering said fluid to said roller surface, the apparatus comprising:

a. a sensor comprising at least two electrodes spaced apart along the length of said roller and adapted to conform to at least a portion of said roller surface circumference;

b. means for yieldingly biasing the electrodes of said sensor against said roller surface;

c. an electric current source coupled to said sensor whereby the flow of electric current across said electrodes varies with the resistance in said roller surface as a function of its moisture content; and

d. controlling means provided with a timing function for wetting said surface and a timing function for moisture equilibrium on said surface, wherein said controlling means is responsive to said electric current flow across said electrodes for automatically controlling a valve upstream of said wetting device.

4,265,049

TEMPORARY PLANT COVERS

Lynda Gorewitz, 9107 Shad La., Potomac, Md. 20854

Filed Oct. 3, 1978, Ser. No. 948,137
Int. Cl.³ A01G *13/00*
U.S. Cl. 47—26 **2 Claims**



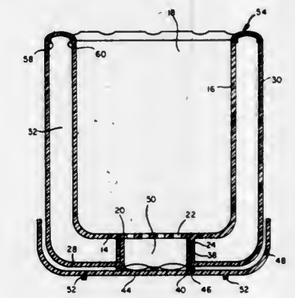
1. A plant cover adapted to substantially enclose a plant in a container, said plant cover formed of a substantially waterproof and light transmitting flexible sheet with upper and lower edges and having a first tie means, second tie means and trough means, said first tie means comprising a first channel and draw string within said first channel and being located along said upper edge of said flexible sheet, said second tie means being located between said lower edge of said flexible sheet and said trough means and comprising a second channel and a draw string within said second channel, said trough means being integrally formed with said second channel of said second tie means, said upper and said lower edges of said flexible sheet being formed of upper and lower folded portions of said sheet and said lower folded portion being sealed to said sheet to form said second channel wherein said lower folded portion is sealed between said lower edge and the distal edge of said lower folded portion and the trough means is formed above said seal and the distance from the seal to the distal edge of said lower folded portion is greater than the distance from the seal to said lower edge.

4,265,050

FLOWER POT WITH CONTROLLED MOISTURE

Theodore H. Buescher, 1709 E. Third Pkwy., Washington, Mo. 63090

Filed Oct. 1, 1979, Ser. No. 80,436
Int. Cl.³ A01G *25/00*
U.S. Cl. 47—79 **16 Claims**



1. A flower pot device for use in providing for the controlled emission of moisture about the foliage of a flower or other plant contained therein while at the same time providing for the drainage and collection of any excess fluid from within the plant medium, said device comprising an inner container member adapted for holding potting soil and a plant, means associated with said inner member for draining the excess fluid there-

from, container means disposed exteriorly about said inner container member adaptable to hold a liquid therein, a basin member positioned adjacent to and engageable with said container means adaptable to catch and hold a liquid therein, discharge means communicating said inner container member with said basin member for drainage of the excess fluid therefrom, and a member cooperatively engageable with said container means for controlling the amount of moisture emitted about the periphery of a flower or other plant contained therein.

4,265,051

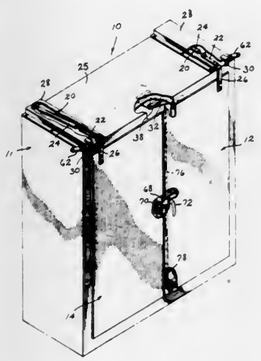
DOOR HAVING IMPROVED CLOSING AND LATCHING SYSTEMS

Clarence E. Williams, 2122 W. 450 N, LaPorte, Ind. 46350

Division of Ser. No. 868,905, Jan. 12, 1978, Pat. No. 4,146,994, which is a continuation-in-part of Ser. No. 757,979, Jan. 10, 1977, abandoned. This application Feb. 23, 1979, Ser. No. 14,499

Int. Cl.[3] **E05C** *9/00, 7/04*

U.S. Cl. 49—7 **10 Claims**



1. A door construction comprising a frame having upper and lower and spaced side parts, a pair of doors supported by said frame, one of said doors connected adjacent one side edge to said frame, first and second generally vertically oriented rods carried by said one door adjacent the other side edge of the door, guide means for said rods wherein said first rod is shiftable generally axially relative to said one door between an extended position with one end protruding from the top of the door and a retracted position and wherein said second rod is shiftable relative to said one door between an extended position with one end protruding from the bottom of the door and a retracted position, latch means carried by said one door, means connecting the other end of each rod to said latch means for movement of the rods between their respective extended and retracted positions upon rotation of the latch means, said latch means having an opening position in which said rods are in their retracted positions and a locking position in which said rods are in their extended positions, said latch means including retainer means engageable with the other of said doors when said doors are each in a closed position and said latch means is in its locking position, biasing means associated with said latch means for urging the latch means into its locking position, a socket in each of said frame upper and lower parts, said rod one ends protruding lockingly into said sockets when said latch means is in its locking position, catch means carried by said one door for engaging one of said rods when said latch means is rotated into its opening position to releasably secure the latch means in its opening position and the rods in their retracted positions, said frame including trip means for contacting said one rod and disengaging said one rod from said catch means when said one door is closed with said latch means in its opening position whereby said biasing means will urge the latch means into its locking position and cause said rod one ends to enter said frame sockets and said retainer means to engage said other door in its closed position.

4,265,052

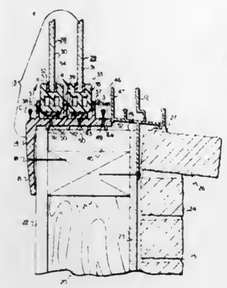
STORM WINDOW CONSTRUCTION

Earl L. Johnson, 2827 E. Little Cottonwood Rd., Salt Lake City, Utah 84170, and Dell R. Beynon, Jr., #15 Altawood Dr., Sandy, Utah 84070

Filed Aug. 17, 1979, Ser. No. 67,543

Int. Cl.[3] **E05B** *65/04*

U.S. Cl. 49—63 **10 Claims**



1. An interior storm window construction including, in combination, a four-sided frame each side of which has a generally L-shaped transverse cross-section and is provided with a plurality of inwardly directed channel-forming ribs defining window-receiving channels and outwardly directed support ribs, said frame being provided with respective sets of fluid-admitting apertures between successive pairs of said support ribs, windows disposed in said channels, said frame being provided with an on-the-job-site-cut, installed-window-frame abutment edge disposed inwardly of said channel-forming ribs.

4,265,053

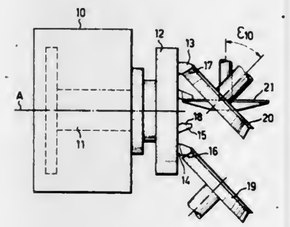
APPARATUS FOR GRINDING CUTTING TOOLS

Erich Kotthuas, Wallisellen, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zürich, Switzerland

Division of Ser. No. 874,463, Feb. 2, 1978, Pat. No. 4,183,182. This application Nov. 27, 1978, Ser. No. 964,084

Int. Cl.[3] **B24B** *3/02*

U.S. Cl. 51—3 **1 Claim**



1. A grinding machine for grinding cutters detachably secured to a cutter head of a gear cutting machine, each cutter having an inner flank, an outer flank and a cutting face and the cutter head possessing sets of cutters of three respective cutter groups encompassing inner cutters, located along a first circle having a first radius, outer cutters located along a second circle having a second radius and auxiliary cutters located on a third circle having a third radius, comprising:

a shaft fixed on said cutter head, a shaft bearing fixed on said

grinding machine supporting said shaft with said cutter head;

a disk member;

a first grinding means for grinding the outer flanks of the cutters;

a second grinding means for grinding the inner flanks of the cutters, each of said first and second grinding means having a grinding disk rotatable about an axis arranged at an angle relative to said disk and the projection of those axes on said disk member are normal to a common radius of said disk member;

a third grinding means for grinding the cutting faces of the cutters, said third grinding means having a grinding disk rotatable about an axis arranged parallel to a radius of said disk member intersecting the axis of the cutter head;

a separate respective drive means for each of the three grinding disks;

said disk member having a recess which renders it possible to remove a cutter head and to mount a different cutter head; and

said grinding means with their respective driving means being attached to said disk member and said cutter shafts upon a support in the direction of the shafts towards said disk member in order to selectively bring into engagement at least one of said grinding disks with said cutters located at said cutter head.

4,265,054

INTERNAL GRINDING MACHINE

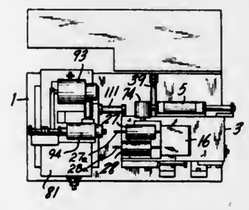
Shohei Ito, Tokyo, Japan, assignor to Seiko Seiki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 613,876, Sep. 16, 1975, abandoned. This application Jan. 16, 1978, Ser. No. 869,428

Claims priority, application Japan, Sep. 17, 1974, 49-107463; Oct. 4, 1974, 49-114405

Int. Cl.[3] **B24B** *5/06*

U.S. Cl. 51—5 D **6 Claims**



1. An internal grinding machine comprising: a base; a first wheel carrier table slidably mounted on said base and slidable along a first axis; a second wheel carrier table mounted on said first wheel carrier table and being mounted for slidable movement along a second axis and having a plurality of grinding wheel spindles mounted thereon; a shift infeed table slidably mounted on said base and slidable along a third axis disposed at an angle with respect to said first axis and supporting thereon a work spindle head for holding a workpiece; means for selectively advancing said shift infeed table along said third axis so as to selectively position the workpiece held on said work spindle head adjacent and facing respective ones of said grinding wheel spindles; an infeeding mechanism mounted on said base operable after said shift infeed table has positioned the workpiece adjacent and facing a first one of said grinding wheel spindles to effect infeeding movement of said shift infeed table to thereby effect infeeding of the workpiece held on said work spindle head along said third axis relative to said first one of said grinding wheel spindles whereby a first grinding operation can be performed on the workpiece; and another infeeding mechanism mounted on said base operable after said shift infeed table has positioned the workpiece adjacent and facing a second one of said grinding wheel spindles to effect infeeding movement of said first wheel carrier table along said first axis to thereby effect infeeding of said second one of said grinding wheel spindles relative to the workpiece held on said work spindle head whereby a second grinding operation can be performed on the workpiece.

4,265,055

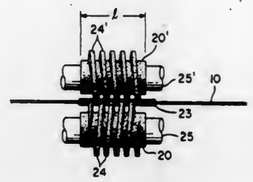
METHOD AND APPARATUS FOR FORMING A RAZOR BLADE EDGE

Cyril A. Cartwright, Monroe, and Anthony J. Peleckis, Jr., Trumbull, both of Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 857,726, Dec. 5, 1977, abandoned, which is a continuation of Ser. No. 633,751, Nov. 20, 1975, abandoned. This application Sep. 8, 1978, Ser. No. 940,693

Int. Cl.[3] **B24B** *1/00, 3/48*

U.S. Cl. 51—80 B **10 Claims**



1. Apparatus for sharpening a razor blade comprising:

means for drawing a razor blade strip along a defined path at a controlled linear velocity;

grinding means disposed in the path of the strip for forming a grind facet on an edge thereof;

first honing means located on the path remote of the grinding means for forming a first hone facet on the strip; and

two final resilient substantially cylindrical honing wheels located adjacent the strip each mounted on opposing sides of the strip having their axes parallel thereto and helical circumferential axially advancing grooves formed therein to permit the wheels to intermesh creating a nip of predetermined axial length and included angle parallel to the strip and contiguous therewith, the Young's Modulus value of said honing wheels being less than about 3×10^6 pounds per square inch, means for rotating the wheels in opposing directions into the edge of the strip and then away from the strip adjacent a remaining portion thereof and abrading the strip so that the final hone facet thereby formed is of substantially convex geometry and the blade edge is free from periodic lateral deformation.

4,265,056

ELECTRIC CAN-OPENER WITH KNIFE SHARPENER

Osamu Yamamoto, Nagoya, Japan, assignor to Kabushikikaisha, Japan

Filed May 17, 1979, Ser. No. 39,928

Claims priority, application Japan, May 17, 1978, 53-58457

Int. Cl.[3] **B24B** *45/00*

U.S. Cl. 51—128 **4 Claims**

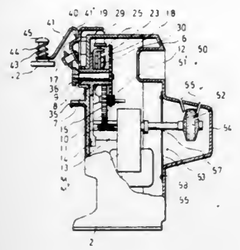
1. In a can opener including an electric motor and a spindle coupled for rotation to said motor and carrying a knife grinding wheel, the improvement which comprises, in combination:

(i) said spindle has a portion, extending from a free end thereof, which has a cylindrical outer periphery,

(ii) said grinding wheel has an axial hole the internal periphery of which is cylindrical and of greater diameter than the outer periphery of the spindle,

(iii) a one-piece bush composed wholly of resiliently deformable material is disposed in and extends at each end from the axial hole of the grinding wheel, and is engaged upon said spindle portion, said bush including a sleeve having its external periphery cylindrical and of a diameter, in the unconstrained state of the bush, less than the diameter of

the internal periphery of the grinding wheel hole, said sleeve having its internal periphery cylindrical and of a diameter, in the unconstrained state of the bush, less than the diameter of the outer periphery of the spindle, said bush having at a first end thereof a radially-outwardly projecting flange of external diameter greater than the diameter of the internal periphery of the grinding wheel hole, said bush having at a second end thereof a rib which, in the unconstrained state of the bush, is radially-inwardly projecting and of a diameter less than that of the internal



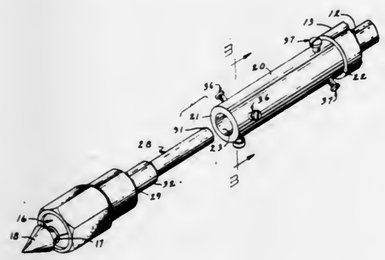
periphery of the bush, whereby upon insertion of said bush in its unconstrained state into the hole of the grinding wheel with the flange at one side of the grinding wheel, and thereafter forcing said bush onto said spindle, said rib abuts against the spindle and is expanded with resilient deformation to become a radially-outwardly directed rib at the other side of the grinding wheel, the dimensions of said inwardly projecting rib being made such that after deformation said radially-outwardly rib is of diameter greater than the diameter of the internal periphery of the grinding wheel hole.

4,265,057

COLLET CHUCK ALIGNING ASSEMBLY FOR GEM FACETING MACHINES

Douglas L. Hoffman, Box 246-A, Clayton, Wash. 99110

Filed Apr. 7, 1980, Ser. No. 138,133
Int. Cl.³ B24B *9/16*
U.S. Cl. 51—229 **10 Claims**



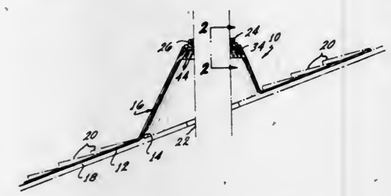
1. Apparatus for coaxially aligning a chuck on the dop arm of a gem faceting machine, comprising:
an elongated plug having a forward plug end adapted to mount the collet chuck along a central chuck axis and a longitudinally spaced rearward plug end;
a socket having an open longitudinal bore leading rearwardly along a bore axis from an open socket end to a closed socket end, said socket being adapted to mount to a dop arm along a dop arm axis;
said socket slidably receiving the elongated plug along the length of said bore;
a first set of three screws threadably mounted through the socket, said screws being equiangularly spaced about the bore axis and being radially extendable into the longitudinal bore;
said first set of three screws being situated across a single plane perpendicular to the bore axis and situated adjacent the open socket end;
a second set of three screws threadably mounted through the socket, said screws being equiangularly spaced about the bore axis and being radially extendable into the longitudinal bore;
said second set of three screws being situated across a single plane perpendicular to the bore axis and is situated adjacent the closed socket end.

4,265,058

ROOF FLASHING STRUCTURES

Duane D. Logsdon, Fullerton, Calif., assignor to The Logsdon Foundation, Stanton, Calif.

Continuation-in-part of Ser. No. 883,420, Mar. 6, 1978, Pat. No. 4,160,347. This application May 24, 1979, Ser. No: 42,216
Int. Cl.³ E04D *1/36*
U.S. Cl. 52—58 **9 Claims**



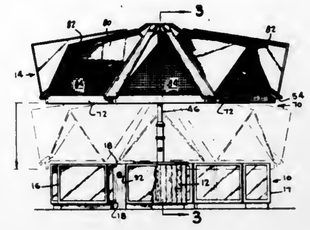
1. A roof flashing structure used to form a seal between a roof and a pipe extending through the roof, of the type wherein a generally flat plate having a centralized opening of a larger dimension than said pipe and an upstanding tapered housing having an internal dimension larger than said pipe are integrally formed of a rigid material such that said housing extends upward from said plate and said centralized hole in said plate forms the lowermost opening in said housing the improvement which comprises:
the uppermost periphery of said housing containing a generally upward opening annular channel means dividing said uppermost periphery into an inner annular support means and an outer annular support means;
a resilient elastomeric annular sealing means having a generally upstanding annular wall and an annular skirt means projecting downward from said annular wall, said upstanding annular wall having a plurality of sealing flanges extending circularly around said wall and projecting radially toward the center of said sealing means, said flanges each being independently capable of engaging with and forming a seal with said pipe;
said annular skirt means fitting into said annular channel means so as to position said annular skirt means between said inner annular support means and said outer annular support means;
said annular skirt means being thermally bonded to at least said inner annular support means locking said annular sealing means in said annular channel means and maintaining said annular sealing means fixedly held in said uppermost periphery of said housing;
said annular skirt means and at least said inner annular support means being formed from thermally compatible material such that when contacted in a heated state said thermal bond is formed upon cooling.

4,265,059

KIOSK

David J. Johnson, Muskegon, Mich., assignor to Studio One Services, Inc., Muskegon, Mich.

Filed Dec. 15, 1978, Ser. No. 969,922
Int. Cl.³ E04B *1/346*
U.S. Cl. 52—66 **6 Claims**



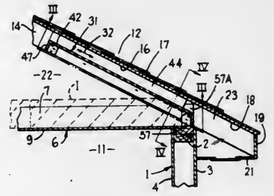
1. A kiosk comprising:
a central housing having a hollow interior;
a vertically extending movable support tube having a lower end mounted and supported in said central housing;
an umbrella-like cover mounted on the upper end of said movable support tube;
counter means spaced from and encircling said central housing to define a space therebetween and having an outer periphery in vertical alignment with the outer periphery of said umbrella-like cover;
motor driven power drive means mounted in said said central housing for moving said support tube between a lower position in which the umbrella-like cover is adjacent the upper extent of said counter means so as to result in secure enclosure of the space within the confines of said counter means and an upper position in which the umbrella-like cover is at a sufficient elevation above the counter to permit unimpeded human occupancy of the space between the counter means and the central base means; and
wherein said umbrella like cover includes:
a cap plate assembly attached to the upper end of said support tube;
a base ring frame positioned in a horizontal plane concentric with respect to the vertical axis of the support tube at an elevation below the cap plate assembly; and
a plurality of radial ribs equidistantly positioned about the support tube with each radial rib having an upper end connected to the cap plate assembly and a lower end extremity connected to the base ring frame with said radial ribs being held in compression by the static interaction of the radial ribs with the top plate assembly and the base ring frame.

4,265,060

VENTILATION BAFFLE

Edward J. Woodhams, 134 Crooked Lake Dr., Kalamazoo, Mich. 49009

Filed Jul. 6, 1979, Ser. No. 55,338
Int. Cl.³ E04B *7/02*; **F24F** *7/00*
U.S. Cl. 52—92 **2 Claims**



1. An insulation stop and ventilation baffle for minimizing ice accumulation on the eaves of a ceiling-insulated building wherein the building comprises upstanding walls having a horizontal top plate, horizontal ceiling joists having a ceiling affixed to the undersides thereof, roof rafters inclined upwardly from said ceiling joists and having roof sheathing affixed to the tops of said roof rafters, the space between said ceiling and said roof sheathing defining an attic, said ceiling joists and said roof rafters extending to said top plate and being affixed thereto, said roof rafters extending outwardly beyond said top plate to form eaves so that the attic and the eaves communicate by means of openings defined between adjacent roof rafters, said baffle comprising an elongated generally rectangular retainer member of stiff material, said retainer member having a pair of longitudially extending, parallel, fold lines respectively located close to the opposite lateral edges of said retainer member to divide said retainer member into a rectangular central portion and a pair of rectangular lateral edge portions on opposite sides of said central portion so that said lateral edge portions of said retainer member can be bent upwardly relative to said central portion to form upstanding sides positionable adjacent the opposing surfaces of a pair of adjacent roof rafters and extending substantially into contact with the lower surface of said roof sheathing whereby to position said central portion substantially parallel with and spaced a fixed distance downwardly from the lower surface of said roof sheathing thereby to define an air-flow passageway which is open at both its ends, said retainer member having an outer transversely extending fold line located close to the outer longitudinal end of said retainer member and defining an outer rectangular end portion so that said outer end portion can be positioned at the juncture of said roof rafters and ceiling joists above said top plate and can be bent downwardly relative to said central portion to define an outer downwardly extending end wall between the opposing surfaces of a pair of adjacent roof rafters and extending downwardly from said central portion substantially into contact with said top plate, a pair of rectangular outer tabs formed at the outer ends of said lateral edge portions of said retainer member adjacent said outer rectangular end portion, each of said outer tabs being defined by an outer transversely extending cut line spaced longitudinally inwardly from said outer transversely extending fold line and extending between the adjacent longitudinal edge of said retainer member and the adjacent longitudinally extending fold line, a longitudinally extending cut line extending longitudinally from the inner end of said outer transversely extending cut line to said outer transversely extending fold line and an outer tab fold line extending longitudinally from said outer transversely extending fold line to the adjacent outer end edge of said retainer member, said longitudinally extending cut line and said outer tab fold line being longitudinally aligned with and constituting extensions of said longitudinally extending fold line for said lateral edge portion so that said tabs can be bent into upright positions wherein they extend between said top plate and the lower surface of said sheathing and substantially parallel with said lateral edge portions.

4,265,061

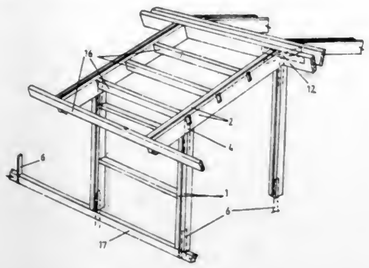
BUILDING SYSTEM

Barry A. Sweet, Durham Dr., Havelock North, and John W. Linnell, 813 A Caroline Rd., Hastings, both of New Zealand

Filed Dec. 27, 1978, Ser. No. 973,610
Claims priority, application New Zealand, Jan. 10, 1978, 186187
Int. Cl.³ E04B *7/02*
U.S. Cl. 52—93 **19 Claims**

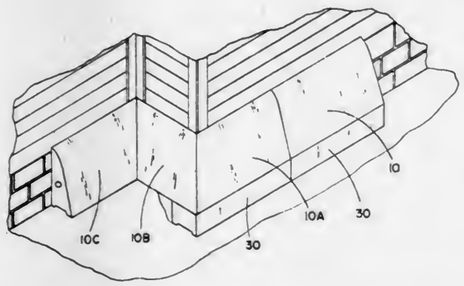
1. A timber framed building which is prefabricated or fabricated in part prior to assembly, said building forming a post and beam structure on a foundation and being completed with diaphragm sheathing on the outside of the frame, wherein wall posts, rafters and ridge beam(s) of the frame and floor beams if the building is of more than one storey and ridge to floor

intermediate posts, if any, each comprise a pair of timber plates in parallel spaced relationship which are connected
(i) foundation to wall posts
(ii) wall posts to floor beams, if any
(iii) wall posts to rafters
(iv) rafters to ridge beam(s)
(v) ridge beam to post, if any



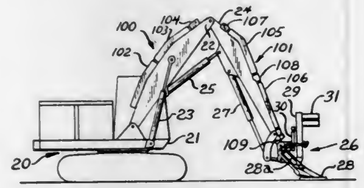
(vi) tie rafters and/or wall posts, if any, by metal splicing members secured between and to said spaced timber plates, and wherein said sheathing comprises a cladding of both exterior walls and roof with a waterproof, insect resistant, structural diaphragm formed from sheet material, a strong back member between said wall posts which runs substantially horizontally across the back of said cladding and is secured to said wall posts and is fixed along its length to the diaphragm sheet.

4,265,062
FOUNDATION COVERING
Virgil L. Klibofske, 1018-15th Ave. N., South St. Paul, Minn. 55075
Filed Feb. 2, 1979, Ser. No. 8,878
Int. Cl.³ E04B *1/80*
U.S. Cl. 52—97 **3 Claims**



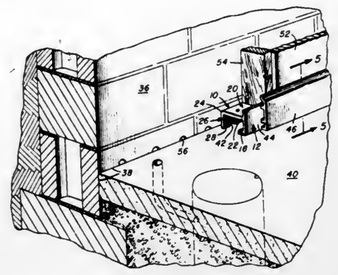
1. An above-ground foundation covering to provide a continuous insulating layer around the perimeter of a building foundation area comprising:
a free-standing insulating block, said free-standing insulating block having a cross section that is generally in the form of a right triangle, said free-standing insulating block having a base for supporting said free-standing insulating block in an upright position along a foundation area, said free-standing insulating block having a top section with a radiused edge, a front surface on said free-standing insulating block connecting said top section to said base to provide a surface for directing rain or snow away from the foundation area, said free-standing insulating block having a back side for placing against a foundation area, said free-standing insulating block having means on said base to permit positioning said free-standing insulating block upright by a foundation wall, said free-standing insulating block having a pair of ends with each of the ends having means for engaging another free-standing insulating block to thereby permit the end of a first free-standing insulating block to be assembled to the end of a second free-standing insulating block to thereby enable the assembled free-standing insulating blocks to form a continuous insulated region around the above-ground foundation of a building without attachment to the foundation area, said free-standing insulating block made from an insulating material to thereby retard loss of heat from the foundation wall, said means for engaging another free-standing insulating block operable to permit the disassembly of said free-stading insulating block for storage.

4,265,063
GUARD STRUCTURE FOR HYDRAULIC CONDUITS OF A MOBILE APPARATUS
Thomas P. Muller, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US79/00501, § 371 Date Jul. 16, 1979, § 102(e) Date Jul. 16, 1979.
This PCT application filed Jul. 16, 1979, Ser. No. 98,146
Int. Cl.³ B66C *23/06*
U.S. Cl. 52—115 **18 Claims**



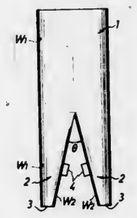
1. In a mobile apparatus (**20**) having a hydraulically operated, pivotally mounted beam means (**22** or **24**) a free end of which supports a hydraulically operated mechanism (**26**) for handling heavy loads, and a plurality of rigid hydraulic conduits (**42***a*or *b* and **45***a* or *b* **50***a* or *b*) mounted in a single plane on said beam means (**22** or **24**) there being couplings (such as **43***a* and *b*, and **50***c* and *e*) connecting certain of said conduits, a conduit guard structure (**100** or **101**) and guard mounting means (**51** or **52** with **110** etc. or with **125–131**, or **110** etc. or **132** etc.), comprising in combination:
a rigid guard member (**103** or **105***a* and *b*) which has a top and side plates constructed and arranged to span the plurality of conduits (**42***a* or *b* and **45***a* and *b* to **50***a* or *b*) nearly from end to end;
a rigid, short coupling guard member (**104** or **107***a* and *b* or **108***a* and *b*) immediately adjacent one end of said rigid guard member, said coupling guard member having a top and side plates constructed and arranged to span the couplings between conduits;
and guard mounting means (**51** or **52** with **110** etc. and **51** or **52** with **125–131**, or **110** etc. or **132** etc.) mounting each end of said guard member (**103** or **105***a* and *b*) and each of said coupling guard member (**104** or **107***a* and *b* or **108***a* and *b*) on the beam (**22** or **24**) so that said ends are free for directionally unrestricted limited movement in a plane of movement parallel to the single plane of said conduits, and for axial movement perpendicular to said plane of movement, said guard mounting means including mounting bolts (**125** and **145** or **125** and **118**) detachably securing said coupling guard member (**104** or **107***a* and *b* or **108***a* and *b*) to other parts of said mounting means for removal independently of said guard member (**103** or **105***a* and *b*), said independent removal of said coupling guard member (**104** or **107***a* and *b* or **108***a* and *b*) permitting access to said couplings without disturbing said guard member (**103** or **105***a* and *b*).

4,265,064
BASEMENT WATERPROOFING SYSTEM
Allen Parezo, 16112 Laurel Ridge Dr., Laurel, Md. 20810
Filed May 29, 1979, Ser. No. 43,370
Int. Cl.³ E02D *27/00*
U.S. Cl. 52—169.5 **14 Claims**



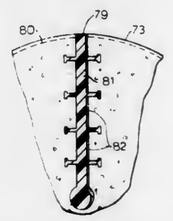
1. For use in a waterproofing system for a subsurface room, a drainage channel, said channel including an elongated substantially vertical planar front panel, said front panel having upper and lower edges, and front and rear faces, an elongated substantially horizontal planar top panel, said top panel having a first front edge integral with the rear face of said front panel generally parallel and in spaced relation to the upper and lower edges of said front panel, said top panel having a second rear edge generally parallel to said front edge, a planar rear panel integral with and projecting solely vertically downwardly from the rear edge of said top panel, fluid passage means defined through said rear panel, an integral downwardly directed sealer receiving groove formed along the lower edge of said front panel, and depending support means integral with the top panel between the front and rear panels.

4,265,065
SILO
Shiroyoshi Osada, No. 5-36, Sakura 2-chome, Iwanuma-shi, Miyagi-ken, Japan
Filed Apr. 10, 1979, Ser. No. 28,827
Claims priority, application Japan, May 31, 1978, 53/74768[U]
Int. Cl.³ B65D *88/26*; E04H *7/22*
U.S. Cl. 52—197 **5 Claims**



1. A silo for storing and discharging powder comprising a storage portion having a vertical perimeter wall, said vertical perimeter wall having a vertical inside surface, at least first and second hoppers below said storage portion contiguous to the bottom perimeter of said perimeter wall, a first exhaust port at the bottom of said first hopper, a second exhaust port at the bottom of said second hopper, a first vertical internal wall portion in said first hopper forming an integral continuation of said vertical inside surface of said storage portion, said first vertical internal wall portion ending contiguous to at least a first point on said first exhaust port, a second vertical internal wall portion in said second hopper forming an integral continuation of said vertical inside surface of said storage portion, said second vertical internal wall portion ending contiguous to at least a second point on said second exhaust port, said at least first and second exhaust ports being symmetrically disposed about a vertical axis of said storage portion, said first and second exhaust ports being disposed radially inward of said first and second points with respect to said vertical axis whereby at least some of said powder adjacent said vertical inside surface can fall vertically downward and be discharged through said first and second exhaust ports, the upper ends of said at least first and second hoppers dividing the cross sectional area of said storage portion into substantially equal symmetrical contiguous portions each of which is contiguous to said vertical axis, said first and second exhaust ports having a total area substantially less than said cross sectional area of said storage portion, and each of said at least first and second hoppers tapering smoothly to its respective exhaust port.

4,265,066
PRESTRESSED CONCRETE PRESSURE VESSELS
Tung-Yen Lin, El Cerrito; Yue-Chyou Yang, San Francisco, and Philip Y. Chow, Orinda, all of Calif., assignors to T. Y. Lin International, San Francisco, Calif.
Continuation-in-part of Ser. No. 789,634, Apr. 21, 1977, abandoned. This application Jan. 19, 1979, Ser. No. 4,742
Int. Cl.³ E04C *3/26*
U.S. Cl. 52—224 **12 Claims**



1. A prestressed concrete pressure vessel, comprising:
a very thick-walled concrete structure having an outer encompassing surface and a body,
said body being shaped to provide cavity means in said concrete body for holding a fluid under pressure and conduits providing ingress, egress, and connections for said cavity means,
fluid impermeable linings in and for said cavity means supported by said concrete body,
a series of vertically spaced-apart annular horizontal tendon means embedded in said body adjacent to and spaced inwardly from said outer surface, for prestressing said body, each said horizontal tendon means comprising a plurality of coplanar radially spaced-apart tendons,
a series of U-shaped vertical tendons spaced apart from each other around each cavity of said cavity means, each tendon thereof having two vertical portions on opposite sides of the adjacent cavity and joined by a curved bottom portion,
accompanying post-tensioning means for each said tendon, and
stress-relieving means for generating stress-relieving radially-extending cracks in radially outer portions of said body away from said cavity means, for enhancing the resistance of said body to high internal pressure and to stress due to internal temperatures.

4,265,067

FOAMED PLASTIC CORE DOOR

Fred I. Palmer, St. Charles, Ill., assignor to Masonite Corporation, Chicago, Ill.

Filed May 7, 1979, Ser. No. 36,299
Int. Cl.³ E04C 2/20
U.S. Cl. 52—309.9 **18 Claims**



1. A closure member comprising:
an inner core of light weight, resinous plastic, relatively rigid type, cellular foam material having an outwardly facing surface formed with a planar base portion having a plurality of small, outwardly projecting compressible bosses arranged in spaced apart intervals in a matrix pattern thereon;
said projecting bosses being formed to be substantially frusto-conical in shape and including a substantially planar outer face of circular shape;
an outer skin for said closure member having an inside surface confronting said core surface in facing spaced apart relation with said planar base portion and in direct contact against outer faces of said projecting bosses;
said skin formed of thin sheet material comprising compressed wood fibres and having smooth planar outer surface portions and an inner surface compressing some of said bosses;
said core including a plurality of said planar base portions at spaced apart locations on said outwardly facing core surface and an intermediate surface portion separating said planar portions without any projecting bosses formed thereon;
said intermediate surface portion being non-planar and said outer skin including a generally matching non-planar inside surface portion in spaced apart relation therewith; and
adhesive means for securing said outer skin to said projecting bosses.

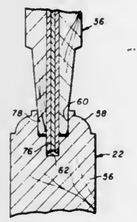
4,265,068

SECURITY PANEL DOOR

Michael F. Pomroy, Oshkosh, Wis., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Mar. 23, 1979, Ser. No. 23,121
Int. Cl.³ E06B 3/26
U.S. Cl. 52—456 **11 Claims**

1. A security panel door operative for effecting the closing and the opening of a passageway comprising:
(a) a first plurality of surround components made of wood and each having first joint means formed in at least one of the longitudinally extending edges thereof, said first joint means each including a first portion and a second portion, said second portion being located in contiguous relation to said first portion, said first portion consisting of a first rabbeted groove and said second portion consisting of a second rabbeted groove, said second rabbeted groove being coaxially aligned with said first rabbeted groove, said second rabbeted groove being equal in length to said first rabbeted groove and being of a lesser width than said first rabbeted groove;
(b) a second plurality of surround components made of wood and each having second joint means formed in at least one of the longitudinally extending edges thereof, said second joint means each including a third portion and a fourth portion, said third portion being located in contiguous relation to said fourth portion, said third portion consisting of a third rabbeted groove and said fourth portion consisting of a fourth rabbeted groove, said fourth rabbeted groove being coaxially aligned with said third rabbeted groove, said fourth rabbeted groove being equal in length to said third rabbeted groove and being of a lesser width than said third rabbeted groove; and
(c) at least one panel member made of wood, said panel member having third joint means formed in each of a first pair of longitudinally extending edges thereof and fourth joint means formed in each of a second pair of longitudinally extending edges thereof, each of said third joint means including first and second portions located in abutting relation one to another, one of said first and second portions of each of said third joint means consisting of a first tenon and the other of said first and second portions of each of said third joint means consisting of a first complementary portion, each of said first tenons embodying a configuration complementary to each of said second rabbeted grooves so as to be receivable therewithin and each of said first complementary portions embodying a configuration complementary to each of said first rabbeted grooves so as to be receivable therewithin, each of said fourth joint means including third and fourth portions located in abutting relation one to another, one of said third and fourth portions of each of said fourth joint means consisting of a second tenon and the other of said third and fourth portions of each of said fourth joint means consisting of a second complementary portion, each of said second tenons embodying a configuration complementary to each of said fourth rabbeted grooves so as to be receivable therewithin and each of said second complementary portions embodying a configuration complementary to each of said third rabbeted grooves so as to be receivable therewithin, said panel member being joined to said first plurality of surround components through the interengagement of said third joint means of said panel member with said first joint means of said first plurality of surround components, said panel member being joined to said second plurality of surround components through the interengagement of said fourth joint means of said panel member with said second joint means of said second plurality of surround components, each of said first complementary portions having a length longer than each of said first tenons so as to enable said first complementary portion to function to guide the insertion of said first tenon into said second rabbeted groove as said first complementary portion is inserted into said first rabbeted groove, and each of said second complementary portions having a length longer than each of said second tenons so as to enable said second complementary portion to function to guide the insertion of said second tenon into said fourth rabbeted groove as said second complementary portion is inserted into said third rabbeted groove.

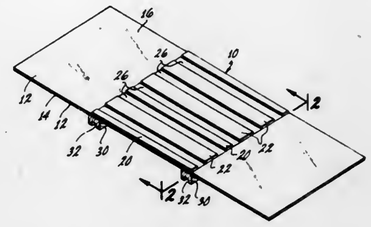


4,265,069

METHOD OF FORMING FRANGIBLE DOOR CONTAINERS

James J. Heaney, Glendale, Calif., assignor to Anthony's Manufacturing Company, Inc., San Fernando, Calif.

Division of Ser. No. 877,026, Feb. 10, 1978, Pat. No. 4,127,188.
This application Jun. 26, 1978, Ser. No. 918,776
Int. Cl.³ B65B 27/00
U.S. Cl. 53—399 **9 Claims**



1. A method of packaging a plurality of substantially flat frangible items capable of sustaining load on their edges, and producing a shipping ensemble therefor comprising:
(a) providing a first elongated paperboard sheet means having a longitudinal dimension and longitudinal ends, and having grooves for receiving portions of edges of said items, said grooves formed by a set of spaced, substantially continuous narrow strips of paperboard fastened to said sheet means and extending parallel to the longitudinal dimension of said sheet means
(b) stacking each of said items in said grooves of said first sheet to form a stack of spaced, parallel items;
(c) placing a second said elongated paperboard sheet means identical to said first sheet means over said stack, positioning edges of each item in a corresponding one of said grooves in said second sheet means;
(d) folding longitudinal ends of said first sheet means over end edges of said items;
(e) folding longitudinal ends of said second sheet means over end edges of said items and overlapping said longitudinal ends of said first sheet means to cover all edges of all items in the stack while leaving flat sides of items at ends of the stack exposed to view; and
(f) securing said overlapped ends together to form a shipping package for resiliently holding said stack of spaced parallel items.

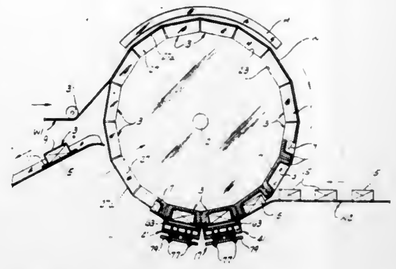
4,265,070

METHOD OF AND APPARATUS FOR PACKAGING

Walter A. Mainberger, and Adrian Gerritsen, both of Wayne, N.J., assignors to Hayssen Manufacturing Company, Sheboygan, Wis.

Filed Aug. 7, 1979, Ser. No. 64,405
Int. Cl.³ B65B 31/02, 47/02
U.S. Cl. 53—433 **16 Claims**

1. The method of packaging units in individual sealed packages comprising:
continuously feeding forward a web of thermoformable plastic material at one of different speeds;
forming open-mouthed receptacles in the web with the receptacles spaced at intervals longitudinally of the web and with portions of the web surrounding the mouths of the receptacles for the sealing thereto of a cover web for forming sealed packages;
introducing units to be packaged into said receptacles;
continuously feeding a second web of thermoplastic material constituting a cover web into engagement with said portions of the first web for forward movement together with the first web;
bringing a sealing member into engagement under pressure



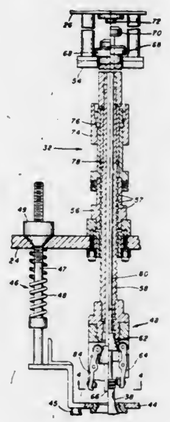
with the cover web to press it against said portions of the first web and heating said webs where pressed together for heat-sealing them together around the open mouths of the receptacles;
moving the sealing member forward at the speed at which the web is fed forward; and
maintaining the sealing member is engagement with the webs for a timed sealing interval which is the same for the different speeds of the web and then withdrawing the sealing member from the webs.

4,265,071

APPARATUS AND METHOD FOR REMOVING CLOSURES FROM CONTAINERS ASSEMBLED IN CASES

James D. Smith, Freeport, and James A. Miller, Apollo, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation of Ser. No. 864,776, Dec. 27, 1977, abandoned.
This application Sep. 12, 1979, Ser. No. 75,150
Int. Cl.³ B65B 43/40
U.S. Cl. 53—492 **12 Claims**



8. A method of removing screw-off closures from containers assembled in cases, which comprises:
(a) guiding cases of containers seriatum into and out of a temporary stop at a location disposed below multiple

spindles, with each spindle aligned with each container-receiving position in a case;

(b) non-rotatably translating said spindles axially with respect to the containers in a case until grippers on the bottom end of said spindles contact screw-off closures on the containers;

(c) mechanically detecting the presence of a closure on a container for said gripper on each spindle to grip a closure on a container by contacting the lower end of a shaft slidably arranged within a hollow screw of each spindle and extending through said gripper with the top wall of a closure on the container; and thereafter

(d) automatically grasping closures on the containers with said grippers of said spindles as said shaft is pushed upwardly through said screw by the top wall of the closure, while

(e) applying a downward force of said spindles against the closures to push said shaft upwardly through said screw by the top wall of the closure to activate said grippers to grasp closures on containers and to press the containers against the case to prevent rotation of the containers;

(f) further applying the downward force against the closures to axially displace said screw of each spindle upwardly by the top wall of the closure through a non-rotatable associated threaded nut, through which the screw is freely rotatable, to rotate said screw and grippers thereon in said nut with torque sufficient to break any temporary seal securing the closures to the containers to unscrew the closures from the containers;

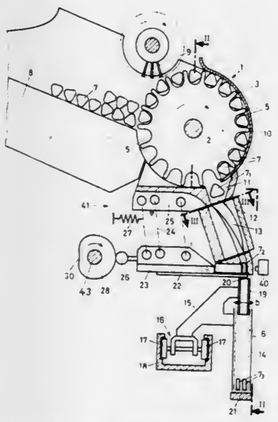
(g) non-rotatably translating said spindles axially with respect to the containers to move said grippers and unscrewed closures away from the containers; then

(h) releasing the grasp of said gripper and ejecting the removed closures from said grippers by forcing the upper end of said shaft downwardly to push said shaft downwardly through said hollow screw.

4,265,072
APPARATUS FOR CHARGING RECEPTACLES WITH ITEMS OF LIKE SIZE AND SHAPE

Alwin Egli, Neuweg 15, CH-8222 Beringen, Switzerland

Filed Jul. 19, 1979, Ser. No. 59,021
Claims priority, application Switzerland, Jul. 21, 1978, 7914/78
Int. Cl.³ B65B *57/20, 35/56;* B65G *47/24*
U.S. Cl. 53—501 **13 Claims**



1. In an apparatus for charging receptacles with items of like size and shape, including at least one counting and charging unit having a plurality of axially aligned, toothed counting wheels having a plurality of tooth gaps along their periphery for receiving individual items; and a funnel arranged underneath the counting wheels for receiving items discharged by the counting wheels and for directing them into a receptacle arranged below the funnel; the improvement comprising

(a) means defining a plurality of orienting channels, a separate one of said orienting channels being arranged between said funnel and each said counting wheel; each said orienting channel receiving items in sequence from the associated counting wheel; the items being of plate-like configuration having a main plane parallel to the opposite, relatively large item faces; the receptacles having a narrow opening with relatively long and relatively short sides and a main plane being parallel to the height dimension of the receptacle and to the long sides of the receptacle opening; each said orienting channel being further arranged to orient the items such that upon discharge of each item from the orienting channels into said funnel, the main plane of each item is parallel to the main plane of the receptacle situated underneath said funnel;

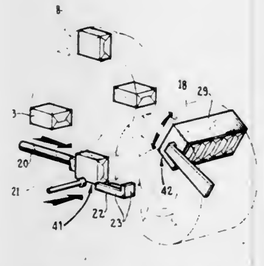
(b) blocking means cooperating with each said orienting channel for periodically opening and closing the orienting channels; and

(c) means controlling said blocking means for permitting a simultaneous discharge of two items at the most from said orienting channels into said funnel.

4,265,073
APPARATUS FOR FORMING AND OVERWRAPPING BATCHES OF PRODUCTS

Enzo Seragnoli, Bologna, Italy, assignor to G.D. S.p.A., Bologna, Italy

Filed Jul. 23, 1979, Ser. No. 59,778
Claims priority, application Italy, Sep. 14, 1978, 3532 A/78
Int. Cl.³ B65B *35/46, 11/32*
U.S. Cl. 53—542 **6 Claims**

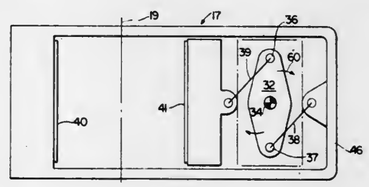


1. In an improved apparatus for forming and overwrapping batches of products of flat shape which has a first rotating head for infeeding individual products, movable intermittently around its own axis and provided with equidistant radial compartments in which individual products are accommodated, the compartments being so positioned that each one adopts, at successive times and during halting of the first rotating head, two positions which are interspaced angularly by 90°; a second rotating head for forming batches of the individual products, whose axis of rotation is perpendicular to the axis of the first rotating head and which is provided with equidistant radial compartments so dimensioned that each can accommodate a desired batch of the individual products; a mechanism for wrapping the batches, which includes a further head that rotates intermittently around an axis parallel to the axis of rotation of the second rotating head and is provided with equidistant radial compartments so dimensioned that each can accept a batch of products withdrawn from the second rotating head; ejector and pusher devices located between the second rotating head and the wrapping mechanism for transferring batches of products from the second rotating head to the wrapping mechanism; an improvement comprising a bed plate; a slideable support casing resting on said bed plate and slideable with respect thereto, said second rotating head and said wrapping mechanism being supported by said casing which rests on said bed plate; slide guides of said support casing for guiding said plate to allow it to slide alternately in direction of said first rotating head, along a path such that said second rotating head is positioned at successive times, in vicinity of two transfer stations for transfer of individual products from said first rotating head to said second rotating head, at points corresponding to two waiting positions for each of said 90° angularly interspaced compartments in said first rotating head; at least one pair of pusher devices in vicinity of said first rotating head and between this and said second rotating head, said pair of pusher devices being movable parallel to the axes of said first rotating head and of said second rotating head, respectively, to withdraw individual products from said first rotating head and to transfer them to said second rotating head; means for adjusting the sliding movement of said support casing with respect to said bed plate on which the former rests; a setting device connected to said means for adjusting to stably position said support casing, with said second rotating head, in vicinity of said transfer stations, said setting device including locking means which act on said slide guides of said said support casing.

4,265,074
WEB PROCESSING MECHANISM FOR FORMING PACKAGES

Daniel L. Reuter, Waldorf, Md.; Philip L. Reid, Duncan, S.C.; Charles M. Blackburn, Davidsonville, Md., and Clifton W. Heffner, Charlotte, N.C., assignors to Sigma Systems, Inc., Capitol Heights, Md.

Filed Oct. 30, 1978, Ser. No. 955,752
Int. Cl.³ B65B *9/10, 9/12, 51/30*
U.S. Cl. 53—551 **7 Claims**



1. A package forming machine system for feeding a continuous web provided from a supply roll through a tubular member folding over and sealing the web edges longitudinally, and thereafter for transversely processing and sealing the web to form a sequence of packages by a processor mechanism transversely engaging the web as the web is fed past the forming member in tubular form, said processor mechanism comprising in combination,

intermittently operated web transport means for pulling the web through the system constituting a reciprocable carriage mechanism pivotable about an axis and having mounted thereon remote from the pivot axis a pair of movable jaws for reciprocating as the carriage mechanism is pivoted and operable for gripping during only one direction of reciprocation said longitudinally sealed web and pulling off a length of web from said supply roll, motive means for relatively moving said jaws into and out of engagement with said web on opposite sides thereof in a plane substantially perpendicular to the web comprising a reciprocable member providing motive power for moving said jaws in and out of said engagement during said one direction of engagement,

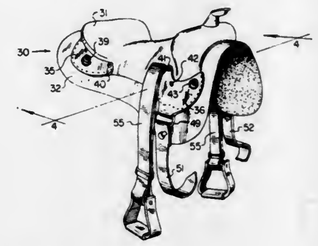
a pivot axis perpendicular to the plane of movement of the jaws carried by said carriage mechanism,

a rocker member with opposed arms extending from said pivot axis and pivotable about said axis connected for rotation through a reciprocating cycle arc of less than 360° by said reciprocable member, and a link connecting either rocker arm respectively to one of said jaws for moving them simultaneously toward and away from engagement with the web in response to reciprocation of said reciprocable member, wherein the linkage lengths and jaw movement are related so that the rocker arm extends the links to a position substantially along a straight line as the jaws engage said web, thereby to provide high pressure on the jaws with relatively small power produced by said motive means.

4,265,075
SADDLE

Don M. Motsenbocker, Rte. 2, Box 35, Wylie, Tex. 75098

Filed Jul. 19, 1979, Ser. No. 59,099
Int. Cl.³ B68C *1/00*
U.S. Cl. 54—44 **2 Claims**



1. A saddle comprising:

a saddle tree having a seat region on the top thereof and having four corner areas;

padding positioned atop said tree;

a layer of upholstery covering said padding and securing it to said tree;

a padded flexible saddle skirt underlying said saddle tree;

four connecting flaps affixed to said saddle skirt one flap being positioned at each corner area of said tree, a portion of each flap extending over the margins of said tree and upholstery, said connecting flaps being affixed to said skirt along their margins to form with said skirt pockets into which the corner areas of said tree are received;

removable connecting means for said connecting flaps attaching the overlapping portion of said flaps to said tree through said upholstery;

cinch rings mounted on the connecting flaps at the front corners of said saddle tree; and

slots in said saddle tree for accepting a stirrup strap therethrough.

4,265,076
DEVICE FOR TREATING AGRICULTURAL PRODUCTS TO ENHANCE DRYING

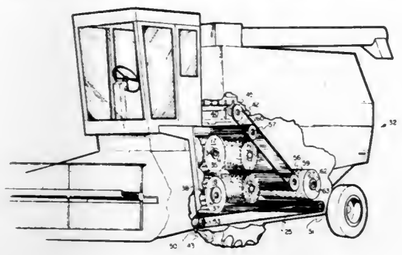
Gary W. Krutz, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Continuation of Ser. No. 901,067, Apr. 28, 1978, abandoned. This application Feb. 25, 1980, Ser. No. 124,631
Int. Cl.³ A01D *45/00*
U.S. Cl. 56—14.4 **30 Claims**

1. A device for maceration of agricultural products, said device comprising:

first and second movable means having substantially horizontally extending portions with peripheries contiguous to one another for receiving agricultural products therebetween, said first movable means being mounted above said second movable means with one of said movable

means moving at a different rate of speed than the other of said movable means whereby agricultural products re-



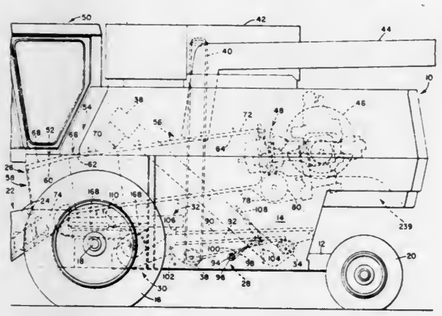
ceived between said portions of said movable means are macerated while passing therebetween.

4,265,077

BLOWER SYSTEM FOR AN AXIAL FLOW ROTARY COMBINE CLEANING SHOE

Loren W. Peters, Bettendorf, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Aug. 3, 1979, Ser. No. 63,423
Int. Cl.³ A01F *12/20*; A01D *14/02*
U.S. Cl. 56—14.6 **30 Claims**



1. In a mobile grain harvester for harvesting and processing crop material, including a generally fore-and-aft extending separator body, containing between opposite fore-and-aft extending housing side walls an axial flow rotary generally mechanically activated, separator having an at least partially foraminous casing and a cleaner below the separator, wherein there is a generally downward flow of at least a portion of the crop material from the foramina of the casing to the cleaner, said flow being dispersed initially over substantially the length of the separator casing, a blower assembly operatively associated with and augmenting the function of the cleaner comprising:

a transversely arrayed plurality of spaced coaxial centrifugal blower wheels;

a plurality of blower housings, each housing partially enclosing one of said blower wheels, for admitting inlet air generally axially to the blower wheels and controlling delivery of air from the wheel, each housing including opposite fore-and-aft extending side walls, each wall having an inlet air opening, and first and second scroll portions, each scroll portion partially wrapping a blower wheel and having a cut-off edge closely adjacent the wheel periphery and a scroll wall progressively diverging, with respect to the direction of rotation of the blower wheel, from the cut-off edge and from the wheel periphery so as to permit and receive generally tangential air delivery from the blower wheel and extending to meet the opposite blower housing side walls, the cut-off edge of the second scroll portion being spaced circumferentially from that of the first; and

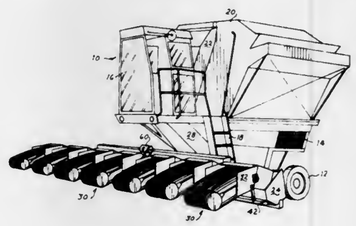
first and second duct means defining at least partially first and second ducts each having opposite walls including an outer wall approximately tangential to and extending and contiguous with the first and second scroll walls respectively and an inner duct wall extending from said second and first scroll cut-off edges respectively, said ducts receiving and directing the air discharged into the first and second scroll portions, the first duct means being disposed to deliver air rearwardly for engaging at least a portion of the dispersed flow of crop material emerging from the foramina of the separator casing and the second duct means being disposed to deliver air for engaging at least a portion of the crop material received by the cleaner.

4,265,078

COTTON GLEANER

William D. Lay, P.O. Box 285, Idalou, Tex. 79329

Filed Sep. 20, 1979, Ser. No. 77,327
Int. Cl.³ A01D *45/18*
U.S. Cl. 56—28 **8 Claims**



1. A cotton gleaner comprising the combination of:

a. a wheeled vehicle,

b. a header on the vehicle,

c. a basket on the vehicle,

d. an elevator on the vehicle for conveying gleaned cotton from the header to the basket,

e. a cross conveyor in the header for moving the gleaned cotton to the elevator,

f. a plurality of gleaner units,

g. each gleaner unit having two side plates attached to the header,

h. each unit having a drive shaft journalled in bearings on the side plates,

j. a plurality of drive pulleys on each shaft, and

k. a slotted gleaner belt trained around each pulley,

m. a plurality of ground pulleys,

n. a pivot shaft extending between the side plates,

o. a plurality of arms having a distal end and a pivot end journalled to the pivot shaft, and

p. the belt is also trained around one of the plurality of ground pulleys;

q. a bifurcation on the distal end of each arm,

r. two of said ground pulleys attached to a single ground shaft, and

s. two distal bearings on each of the ground shafts,

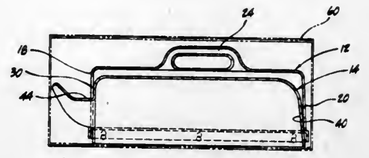
t. the two distal bearings of each ground shaft attached to the bifurcation of the arm.

4,265,079

RIGID GRASS CATCHER

Ralph L. Hoffmann, St. Louis, Mo., assignor to The Perfection Manufacturing Company, St. Louis, Mo.

Filed Feb. 5, 1979, Ser. No. 9,164
Int. Cl.³ A01D *35/22*
U.S. Cl. 56—202 **5 Claims**



1. A rigid grass catcher for a lawn mower having a housing provided with a grass discharge opening, the catcher comprising:

(a) a first hollow body section including opposed longitudinal sidewalls, a transverse wall extending between said sidewalls and a front end opening,

(b) a second hollow body section having opposed longitudinal sidewalls, a transverse wall extending between said sidewalls, and outwardly projecting lip at the front end and a front end opening,

(c) means connecting the body sections together to form a relatively deep grass catching container adapted to receive grass clippings in a grass catching mode, and

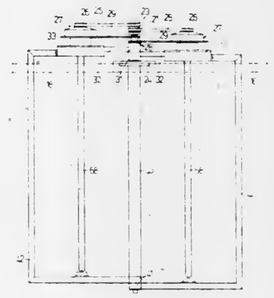
(d) the second section being invertible and nestable within the first section, the lip of the second section being received by the opening of the first section, in a storage mode.

4,265,080

HARVESTING APPARATUS

Sydney A. Goldsmith, 51 Middleton Rd., Christchurch, New Zealand

Filed Mar. 19, 1979, Ser. No. 21,636
Claims priority, application New Zealand, Mar. 10, 1978, 186664; Dec. 15, 1978, 189179
Int. Cl.³ A01D *46/00*
U.S. Cl. 56—330 **12 Claims**



1. A mounting and drive arrangement for shaker head assemblies of a harvesting apparatus, comprising:

(a) at least one pair of vibrating shaker head assemblies, each of the assemblies having an input and an output with a respective associated input and output member;

(b) a primer mover;

(c) means for converting rotary motion applied to each input into a torsional vibration superimposed on the associated output member, the output members being mounted so as to enable a rotary motion to be superimposed thereon;

(d) an intermediate shaft;

(e) a pair of coupled pulley wheels coupled for rotation of said intermediate shaft, each of said pulley wheels having a positively engaging belt which couples it to the input of a shaker head assembly;

(f) drive means for coupling said prime mover to said coupled pulley wheels; and

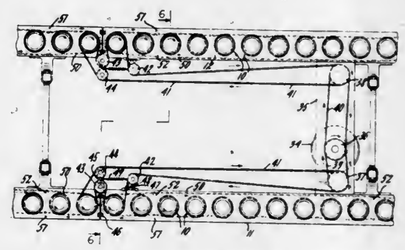
(g) a pair of coupled sprocket wheels mounted for rotation on said intermediate shaft, each of the sprocket wheels being engaged by an endless chain which extends about a toothed ring located on a housing of each respective shaker head assembly, each shaker head assembly being supported by a respective mounting means, each said respective mounting means being mounted for pivotal movement independent of the other mounting means about an axis which is substantially coaxial with the intermediate shaft.

4,265,081

DRIVEN SPINNING RING DEVICE FOR YARN SPINNING AND TWISTING MACHINES

Rufino Creus, Sabadell, Spain, assignor to Spurmach Espana S. L., Sabadell, Spain

Continuation-in-part of Ser. No. 694,998, Jun. 11, 1976, abandoned, which is a continuation-in-part of Ser. No. 663,121, Mar. 2, 1976, Pat. No. 4,114,359. This application Apr. 10, 1978, Ser. No. 895,010
Claims priority, application Spain, Mar. 15, 1975, 435.657; Jun. 4, 1976, 448.589
Int. Cl.³ D01H *7/58*, *1/241*
U.S. Cl. 57—75 **17 Claims**



1. A yarn spinning or twisting machine comprising a traveler for guiding yarn in a spinning or twisting operation about a spindle axis, a support ring for the traveler for guiding it in a circular path around the spindle axis under the influence of the yarn, a ring holder rotatably mounted to enable the ring to rotate in the same direction as the traveler to decrease the relative movement between the ring and the traveler, a drive source for imparting a positive drive to the ring holder in the same direction as the traveler, and automatic means for controlling the drive imparted to the ring holder at predetermined points of time during the spinning or twisting operation, said automatic means operating on startup to delay the positive drive imparted to the ring holder until a point of time after the startup of the spinning or twisting operation, and thereafter to impart a positive drive to the ring holder at the end of said delay and to render inoperative the positive drive imparted to the ring holder prior to the discontinuance of the spinning or twisting operation.

17. A yarn spinning or twisting method comprising the steps of guiding yarn through a traveler and winding the yarn in a spinning or twisting operation about a spindle axis, the traveler being slidably mounted on a support ring so that it can be guided in a circular path around a spindle axis under the influence of the yarn, imparting a positive drive to the support ring in the same direction as the movement of the traveler under the influence of the yarn, delaying the drive to the support ring

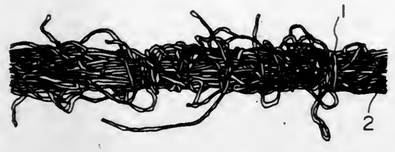
until after the initiation of the winding operation and disabling the drive to the support ring prior to the discontinuance of the winding operation.

4,265,082

SPUN-LIKE YARN AND A PROCESS FOR MANUFACTURING THE SAME

Yoshiyuki Sasaki, Takatsuki, and Katsuyuki Kasaoka, Ibaraki, both of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Oct. 9, 1979, Ser. No. 82,722
Claims priority, application Japan, Oct. 20, 1978, 53-128559
Int. Cl.³ D02G *3/34*
U.S. Cl. 57—207 **8 Claims**



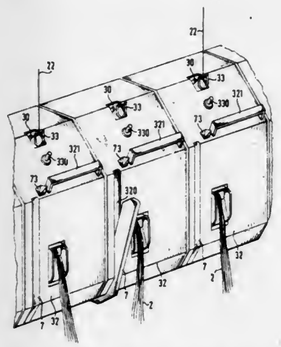
1. A spun-like yarn comprising; a fiber bundle which essentially comprises staple fibers and which substantially has no true twist therein along said yarn; and surface fibers of thermoplastic synthetic staple fibers which wrap around said fiber bundle so that said fiber bundle is cohered, wherein said surface fibers form a plurality of individual wrapping portions spaced along said yarn, each of said wrapping portions being securely wrapped around said fiber bundle in a direction substantially perpendicular to said fiber bundle, and in each of said wrapping portions said surface fibers are interlaced with each other, the number of said wrapping portions being at least 2 per the length of 1 cm of said yarn, and the mean fiber packing density of said yarn being in a range between 2 cm^3/g and 8 cm^3/g.

4,265,083

PROCESS AND APPARATUS FOR INDIVIDUAL PIECING UP OF SINGLE OPEN END SPINNING APPARATUS

Erwin Braun; Erich Bock, both of Ingolstadt; Karl Handschuch, Lippertshofen, and Edmund Schuller, Ingolstadt, all of Fed. Rep. of Germany, assignors to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany

Filed Mar. 13, 1979, Ser. No. 20,210
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1978, 2811960
Int. Cl.³ D01H *7/885, 15/00*
U.S. Cl. 57—263 **20 Claims**



1. An apparatus for individually piecing-up yarn on an open-end spinning machine, a spinning rotor carried on said machine, a rotor brake provided for stopping said spinning rotor responsive to being activated, a rotor cleaning apparatus for cleaning said rotor responsive to being activated, and a cover pivotally carried on said machine and extending over said rotor for providing access to said rotor, the improvement comprising:

means for supporting said rotor cleaning apparatus on said cover; and

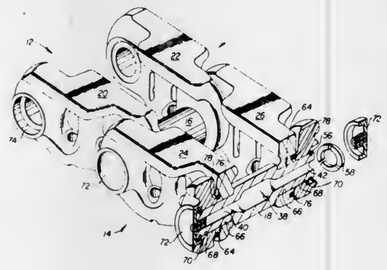
a pivotal lever means movable relative to said cover for simultaneously activating said rotor cleaning apparatus and said rotor brake causing said rotor to be cleaned as said rotor is being stopped, said pivotal lever means also being movable together with said cover for only activating said rotor brake causing said rotor to be stopped when said cover is moved to provide access to said rotor.

4,265,084

METHOD AND APPARATUS FOR ASSEMBLY OF A TRACK CHAIN WITH MINIMUM END PLAY

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00504, § 371 Date Jul. 16, 1981, § 102(e) Date Jul. 16, 1981, PCT Pub. No. WO81/00223, PCT Pub. Date Feb. 5, 1981.
This PCT application filed Jul. 16, 1979, Ser. No. 98,143
Int. Cl.³ F16G *13/06*
U.S. Cl. 59—7 **16 Claims**



1. A method of assembling a joint comprising:

Step (a) pressing a first member (**20**) a first preselected distance onto one of first and second ends (**28,30**) of a pin (**16**);

Step (b) urging a second member (**24**) onto the pin (**16**) adjacent the first member (**20**) and simultaneously pressing the first member (**20**) with the second member (**24**) onto the pin (**16**) to a second preselected distance; and

Step (c) installing retaining means (**58**) onto the pin (**16**) and permitting free pivotal movement of the second member (**24**) on the pin (**16**).

4,265,085

RADIALLY STAGED LOW EMISSION CAN-ANNULAR COMBUSTOR

Theodore G. Fox, Newington, and Melvin H. Zeisser, Marlborough, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 30, 1979, Ser. No. 43,916
Int. Cl.³ F02C *7/22*
U.S. Cl. 60—39.06 **10 Claims**

1. A burner construction including:

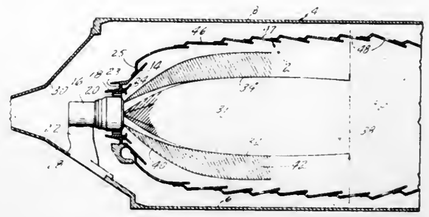
a burner duct;

a can in said duct having an upstream end cap;

a fuel nozzle in said cap having:

means for delivering primary fuel in a low angle spray for idle and low power,

other means surrounding said first means for delivering secondary fuel in a hollow cone surrounding and spaced from the low angle spray for higher power operation with the primary fuel; and



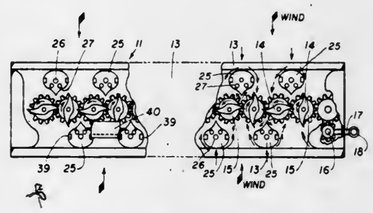
a row of axially extending holes in said cap surrounding the nozzle to direct a flow of air axially around the spray of primary fuel.

4,265,086

WIND FENCE

Harry H. Bahrenburg, 11 Sherman Ct., Bethpage, N.Y. 11714

Filed Jul. 16, 1979, Ser. No. 58,090
Int. Cl.³ F03D *3/02, 3/04, 9/00*
U.S. Cl. 60—398 **1 Claim**



1. A linear terrestial weathervaneless wind fence for the commercial production of electricity and adapted to engage winds from any direction comprising a plurality of suitably spaced-apart vertically disposed tall support columns; structural support means disposed between adjacent columns; a plurality of rectangular wind energy extracting modules disposed within said structural support means; each of said modules having a plurality of parallel vertically disposed wind actuated rotors; suitably curved vanes disposed on said rotors to effect unidirectional rotation; tapered, tear drop in cross section, vertically disposed struts for directing the wind to said rotors, disposed alternately above and below said rotors; a gear secured to each rotor, with each adjacent gear being in direct engagement with one another; conduit and pump means for tranferring gear energy into pressurized liquid; and turbine and generator means for converting said pressurized liquid into electricity.

4,265,087

HYDRAULIC MOTOR SEAL AND VALVE ARRANGEMENT

Denny L. Peeples, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 11, 1979, Ser. No. 84,054
Int. Cl.³ B60T *13/12*
U.S. Cl. 60—550 **2 Claims**

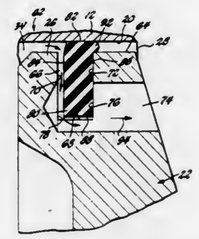
1. In a hydraulic motor having a cylinder, a pressure responsive piston reciprocably received in said cylinder and dividing said cylinder into a pressure chamber and an exhaust chamber, means for selectively causing hydraulic pressure in said pressure chamber to act on said piston and move it axially in one direction in said cylinder, manually operated means for selectively moving said piston axially in said one direction in said cylinder in the absence of hydraulic pressure in said pressure chamber, and piston return means; a seal and valve arrangement comprising:

an annular groove in the outer peripheral surface of said piston, said annular groove having substantially flat side walls and a bottom wall;

passage means spaced radially inwardly of the outer peripheral surface of said piston providing a fluid connection between said groove and said pressure chamber, said passage means intersecting said groove bottom wall and the radially inner portions of said side walls;

and a rubber-like annular seal having a substantially rectangular cross section and received in said groove, the outer peripheral surface of said seal sealingly and slidably engaging said cylinder, the axial thickness of said seal being less than the axial thickness of said annular groove;

said piston outer peripheral surface being spaced radially inwardly from said cylinder, said seal being forced to one position by pressure in said hydraulic pressure chamber and said passage means tightly against most of the area of



one groove side wall and in tight sealing but sliding engagement with said cylinder when hydraulic pressure in said pressure chamber acts to move said piston in said one axial direction, said seal being moved axially relative to said groove to another position spaced from said one groove side wall and engaged with most of the area of the other of said groove side walls when said manually operated means moves said piston axially in said one axial direction, said seal then being so positioned as to open a fluid flow path from said exhaust chamber between said cylinder and the outer peripheral surface of said piston and in said groove between said seal and said one groove side wall and radially inwardly of said seal and through said passage means to said pressure chamber, said open fluid flow path substantially preventing pressurization of hydraulic fluid in said exhaust chamber when said piston is manually moved axially so that manually operated movement of said piston is not hydraulically resisted by pressure in said exhaust chamber.

4,265,088

SYSTEM FOR TREATING AND RECOVERING ENERGY FROM EXHAUST GASES

Harald F. Funk, 68 Elm St., Murray Hill, N.J. 07974

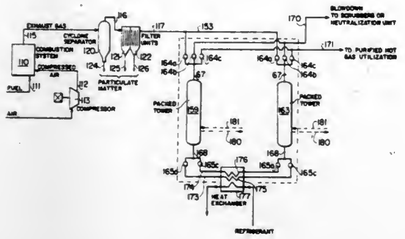
Continuation-in-part of Ser. No. 674,219, Apr. 6, 1976, Pat. No. 4,126,000, which is a continuation-in-part of Ser. No. 565,045, Apr. 4, 1975, Pat. No. 3,970,524, which is a continuation-in-part of Ser. No. 486,562, Jul. 8, 1974, abandoned, which is a continuation-in-part of Ser. No. 252,610, May 12, 1972, abandoned. This application Nov. 17, 1978, Ser. No. 962,103
The portion of the term of this patent subsequent to Nov. 21, 1995, has been disclaimed.
Int. Cl.³ F01K *21/00*
U.S. Cl. 60—648 **32 Claims**

1. A method of treating hot exhaust gas, comprising the steps of:

(a) removing particulate matter from the gas;

(b) cooling the gas to effect a separation of harmful, less volatile components from more volatile components;

(c) compressing the gas at some time prior to the completion of step (b);



(d) discharging the more volatile components to atmosphere; and

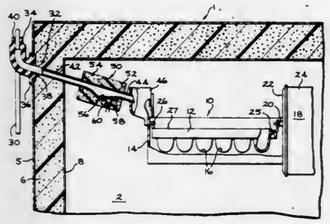
(e) processing the less volatile components.

4,265,089

ICE MAKING APPARATUS AND METHOD

William M. Webb, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Feb. 11, 1980, Ser. No. 120,184
Int. Cl.³ F25C *1/10*
U.S. Cl. 62—72 **23 Claims**



21. The improved method of controlling the ejection of ice pieces made by an automatic ice maker contained in a freezer compartment, the ice maker including a flexible mold containing a plurality of spaced cavities for forming ice pieces and means responsive to a signal for flexing the mold to eject the ice pieces from the mold, water conduit means for introducing water into the mold, a water valve, and signal means including temperature sensing means to actuate the means for flexing the mold to eject ice pieces from the mold, comprising:

providing a stationary, ice forming chamber in the freezer compartment and spaced from the flexible mold and in water flow communication with the conduit means delivering water from the water valve to the mold;

retaining a small portion of the water passing through the conduit means in the ice forming chamber,

sensing the temperature of the ice forming chamber with the temperature sensing means, and

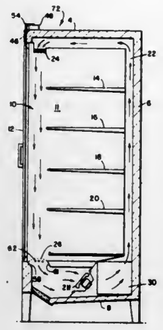
generating a signal when the water in the mold reaches a preselected temperature below 32° F.

4,265,090

GLASS DOOR MERCHANDISER WITH AMBIENT AIR DEFROST

Fayez F. Ibrahim, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Continuation-in-part of Ser. No. 25,473, Mar. 30, 1979, and a continuation-in-part of Ser. No. 58,916, Jul. 19, 1979. This application Dec. 7, 1979, Ser. No. 101,069
Int. Cl.³ F25D *21/12*; A47F *3/04*; F25D *17/04*
U.S. Cl. 62—82 **34 Claims**



16. A refrigerated display case having a display section therein comprising:

a cabinet having top, bottom, rear and side walls and an opening at its front;

at least one door covering said front opening, said door being movable for enabling access through said front opening to products within said display section of said display case;

an air conduit extending along said top, bottom and rear walls and having an outlet opening and an inlet opening at opposing end thereof, said outlet opening and said inlet opening being arranged in alignment so that air leaving said outlet opening will be directed towards and received by said inlet opening and form an air curtain across said front opening along a path inside of said door;

an air band establishing means for establishing a flow of refrigerated air through said air conduit during a refrigeration cycle of operation, said air band establishing means including refrigeration means and means for creating a positive pressure air flow through said refrigeration means; and

defrost means for defrosting said display case when said display case is operated in a defrost cycle of operation, said defrost means causes ambient air to be drawn into said air conduit and to pass through the entire said air conduit, and passing such ambient air through said refrigeration means for defrosting said refrigeration means and said defrost means including means for opening said door during a defrost cycle of operation for enabling the ambient air to be drawn through said front opening in said cabinet into said air conduit and enabling the ambient air that has passed through said air conduit to be expelled out of said display case through said front opening.

28. A method of operating a refrigerated display case having:

a cabinet with top, bottom, rear and side walls, an interior display section, and an opening at its front for enabling access to products within said display section; at least one door covering the front opening and being movable for enabling access through the front opening, an air conduit extending along the top, bottom and rear walls and having an outlet opening and an inlet opening at opposing ends thereof, with the outlet opening and the inlet opening being arranged in alignment so that air leaving the outlet opening will be directed towards and received by the inlet opening; and an evaporator coil being arranged within the air conduit;

the method comprising the steps of:

selectively operating the display case in a refrigeration cycle of operation and a defrost cycle of operation;

during a refrigeration cycle of operation, circulating air through the air conduit so that air is expelled from the outlet opening and received by the inlet opening so as to form an air curtain across the front opening in the cabinet along a path inside of the door, propelling the air through an evaporator coil and refrigerating such air by using the evaporator coil as the air is circulated through the air conduit; and

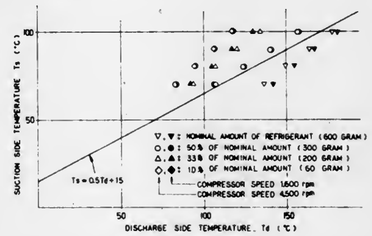
during a defrost cycle of operation, causing unrefrigerated ambient air to be drawn into the air conduit and to pass through the air conduit, including that portion located along the rear wall of the cabinet, and opening the door and expelling the ambient air that has passed through the air conduit from the cabinet through the front opening in the cabinet.

4,265,091

REFRIGERANT COMPRESSOR PROTECTING DEVICE

Hisao Kobayashi, Kariya, Japan, assignor to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Apr. 21, 1980, Ser. No. 142,622
Claims priority, application Japan, Jun. 7, 1979, 54-71546
Int. Cl.³ F25B *49/00, 1/00*; F04B *49/10*
U.S. Cl. 62—126 **11 Claims**



1. A device for protecting a compressor connected to a refrigeration circuit charged with a refrigerant to compress said refrigerant, comprising:

an inlet temperature sensing unit for monitoring temperature of a suction port of said compressor;

an outlet temperature sensing unit for monitoring temperature of a discharge port of said compressor;

a judging unit for judging a refrigerant amount as insufficient and generating a signal to indicate the insufficiency in the event a coordinate point determined by outputs of said two temperature sensing units was located in a refrigerant-insufficiency region of coordinates, said refrigerant-insufficiency region being separated from a refrigerant-sufficiency region by a line obtained and expressing a specific relationship known between the inlet and outlet temperatures as measured while the refrigerant amount is held at a predetermined lower limit; and

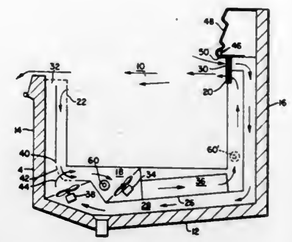
a working means for taking action necessary to protect said compressor against troubles resulting from shortage of the refrigerant, upon reception of said signal generated from said judging unit.

4,265,092

REFRIGERATED DISPLAY CASE USING AIR DEFROST WITH SUPPLEMENTAL HEATER

Fayez Abraham, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Filed Dec. 26, 1979, Ser. No. 107,261
Int. Cl.³ F25D *21/08*
U.S. Cl. 62—155 **4 Claims**



1. A refrigerated display cabinet having an access opening for communicating a storage and display space in the cabinet with the ambient atmosphere;

at least one outlet means extending across one edge of said access opening;

at least one corresponding inlet means extending across an opposite edge of said access opening;

conduit means extending from said at least one inlet means around said cabinet to said at least one outlet means;

refrigeration means located in said conduit means;

air circulating means for propelling air through said conduit means over and/or around and/or through said refrigeration means in a first direction during a refrigeration cycle, and in a second direction, substantially opposite said first direction during a defrost cycle, whereby during a defrost cycle ambient air is drawn into said conduit means through said outlet means and is passed over and/or around and/or through said refrigeration means to defrost same;

supplemental defrost means located in said conduit means upstream of said refrigeration means in the direction of air flow through said conduit means in the defrost cycle; and,

sensing and control means coupled with said supplemental defrost means for sensing defrost conditions during the defrost cycle and for energizing said supplemental defrost means upon the detection of an abnormal defrost condition to thereby accelerate the rate of defrost.

4,265,093

EVAPORATOR FEED AND CONTROL SYSTEM

Alwin B. Newton, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Sep. 4, 1979, Ser. No. 72,538
Int. Cl.³ F25B *41/00, 39/02*; G05D *15/00*
U.S. Cl. 62—198 **8 Claims**

8. In a refrigerating apparatus, an evaporator feed and control system which maintains a relatively high level of stability over a wide range of varying loads, said evaporator system comprising:

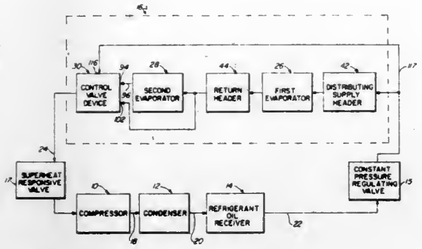
first evaporator means having a multiple pass inlet and a single pass outlet, the inlet being adapted to receive a refrigerant-oil mixture;

second evaporator means having an inlet and an outlet, the inlet of said second evaporator being connected to the output of said first evaporator;

valve means including a first inlet connected to the outlet of said second evaporator, a second inlet connected to the outlet of said first evaporator, and an outlet adapted for bypassing at least a portion of the refrigerant-oil mixture flowing in said first evaporator from the second evapora-

tor directly through a suction line to a compressor when the system is operating at a reduced capacity; and

said valve means including a control valve device having a first valve opening and a second valve opening, the first



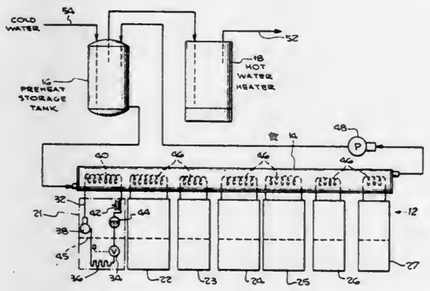
valve opening being opened and closed in response to the differential pressure of the refrigerant across the entrance of said first evaporator means and the exit of said second evaporator means, and the second opening being closed and opened in opposition to the action of the first opening.

4,265,094

UNITIZED REFRIGERATION AND WATER HEATING SYSTEM

Hans Haasis, Jr., 1421 Duarte Cir., Simi Valley, Calif. 93065

Filed Oct. 4, 1979, Ser. No. 81,675
Int. Cl.[1] F25B *27/02;* **A28F** *11/00*
U.S. Cl. 62—238.6 **16 Claims**



1. A unitized multi-unit refrigeration and water heating system in which manifolding of piping is avoided and potable water is protected against contamination, comprising:

an elongated refrigeration installation including a plurality of refrigeration units;

an elongated heat exchanger pipe mounted generally coextensively with said refrigeration installation, said heat exchange pipe having a diameter of at least four inches and a length of at least ten feet;

a plurality of double walled condenser coils formed of standard metal tubing, mounted within said heat exchanger pipe, and having connections extending out from said heat exchanger pipe along the length thereof, said coils having different heat exchange capabilities corresponding respectively to the requirements of the individual refrigeration units in said installation;

non-toxic heat exchange liquid located between the inner and outer tubing of said double walled coils;

low pressure seals located between said inner and outer tubing outside of said heat exchanger pipe;

means for connecting the high pressure refrigeration fluid from individual refrigeration units to corresponding individual ones of said condenser coils; and

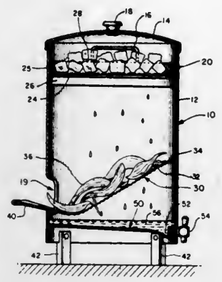
means for supplying water to be heated to one end of said heat exchanger pipe and for withdrawing heated water from the other end thereof.

4,265,095

APPARATUS FOR STORING AND DISPENSING LEAFY VEGETABLES

John W. McConachie, 421 May St., Elmhurst, Ill. 60126

Filed Jun. 29, 1979, Ser. No. 53,222
Int. Cl.[1] F25D *17/02*
U.S. Cl. 62—373 **11 Claims**



1. An apparatus for storing and dispensing leafy vegetables, comprising:

a container having an aperture in a side wall;

a tray having a perforated surface, said tray being adapted to fit within said container;

means for supporting said tray within said container; and

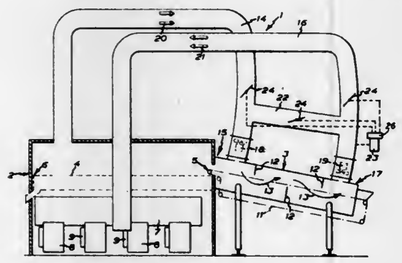
means for supporting leafy vegetables within said container below said tray, said means inclined towards the aperture in said container.

4,265,096

FREEZING PLANT FOR FOOD PRODUCTS

Gustaf A. Andersson, Viken, Sweden, assignor to Frigoscandia Contracting AB, Sweden

Filed Aug. 28, 1979, Ser. No. 70,468
Claims priority, application Sweden, Sep. 6, 1978, 7809386
Int. Cl.[1] F25D *25/04*
U.S. Cl. 62—380 **5 Claims**



1. An arrangement in a freezing unit for food products having a preferably low bulk weight and/or long holding time as compared with, for example, peas, said plant comprising in combination:

(a) a freezer having an infeed end, an outfeed end, and cooling elements between said infeed end and said outfeed end;

(b) a precool unit having an infeed end and an outfeed end, said precool unit being coupled at the outfeed end thereof to said freezer at the infeed end of said freezer;

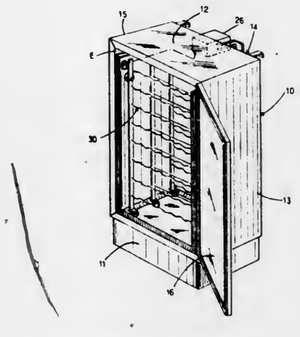
(c) means for circulating air from said freezer to said precool unit and back to said freezer so that air returned to said freezer will be evenly spread over said cooling elements and whereby the amount of air in said freezing plant is maintained substantially constant without any reaction with ambient atmosphere wherein said air circulating means includes a first pipe connecting said freezer and said precool unit adjacent said outfeed end of said precool unit for cooling air to flow from said freezer to said precool unit and through said precool unit in a direction opposite to the feed direction of the product, and a second pipe connecting said precool unit to said freezer for air to return from said precool unit back to said freezer.

4,265,097

CLOSET FOR THE CONSERVATION OF WINE IN BOTTLES OR OTHER FOODSTUFFS

Robert Bordas, St. Jean de Maurienne; Paul Lacharmoise, Neuilly-sur-Seine, and Gilbert Moteruil, Plaisir, all of France

Filed Aug. 16, 1979, Ser. No. 67,002
Claims priority, application France, Aug. 16, 1978, 78 23835
Int. Cl.[1] F25D *11/04*
U.S. Cl. 62—438 **5 Claims**



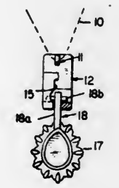
1. A closet for the conservation of foods such as wine in bottles, cheese or the like by maintaining said goods under conditions of constant high humidity and relatively low temperature above freezing comprising an insulated box having a top, a bottom, three vertical walls, and a door, a vat adapted to receive and retain water, the vat extending around the three verticle walls of the box and immediately adjacent thereto, and a refrigerative group comprising an evaporator, the evaporator being positioned within the vat so as to cool water therein, and the upper end of the vat presenting at least one opening to the interior of the box whereby moisture from the vat flows through said opening into the interior of the box for maintaining the desired constant high humidity therein.

4,265,098

DEVICE FOR CARRYING A REMOVABLE PENDANT

Kurt Wayne, White Plains, N.Y., assignor to Kurt Wayne, Inc., New York, N.Y.

Filed Jul. 9, 1979, Ser. No. 56,037
Int. Cl.[1] A44C *25/00*
U.S. Cl. 63—2 **13 Claims**



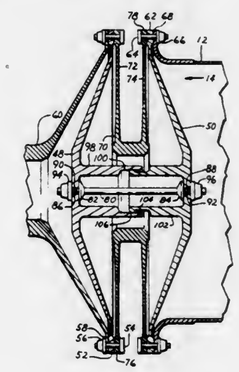
1. A device for carrying a removable pendant from a chain or necklace which comprises a member terminating in a curved portion and having an aperture extending from just below the top of said member to just beyond the point of curvature, said aperture having an enlargement at approximately the mid-point thereof and an aperture closure element attached to said member adapted to move from a position wherein said aperture is open to a position wherein that portion of said aperture from just below the top of said member to slightly below said enlargement is closed on one side, said element having a protuberance extending substantially at a right angle therefrom and positioned so that when said element is in the closed position, said protuberance extends through said aperture and seats against a surface of said member beyond said aperture.

4,265,099

FLEXIBLE COUPLING

Kenneth O. Johnson; Harold E. Fogg, both of Cincinnati, and Ned A. Hope, Loveland, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Mar. 2, 1979, Ser. No. 16,850
Int. Cl.[1] F16D *3/78*
U.S. Cl. 64—13 **4 Claims**



1. An improved drive shaft including a driving member and driven member, an improved flexible coupling for transmitting torque from the driving member to the driven member comprising:

a first diaphragm member which is connected to the driving member;

a second diaphragm member which is connected to the driven member; and

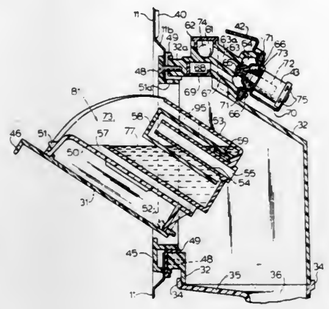
an annular flexible coupling member disposed axially between the diaphragm members, said coupling member including first and second radially extending discs, the first disc being connected to the first diaphragm member and the second disc being connected to the second diaphragm member, wherein the improvement comprises means for increasing the axial stiffness of the flexible coupling while maintaining alignment offset capability,

wherein the means is comprised of a tie-bolt extending through the radial center of each of the diaphragm members, said tie-bolt including a pair of bosses thereon to prevent the radial centers of the diaphragm members from axially converging and means for securing each axial end thereof to the diaphragm members in order to prevent the radial centers of the diaphragm members from axially diverging.

4,265,100
PIVOTAL SIPHON BLEACH DISPENSER FOR AUTOMATIC WASHER

Gerald L. Kretchman, St. Joseph; James R. Mulder, Berrien Township, Berrien County, and John W. Pielemeier, St. Joseph, all of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jan. 14, 1980, Ser. No. 111,714
Int. Cl.³ D06F *39/02*
U.S. Cl. 68—12 R **9 Claims**



8. In an automatic washer appliance having a treatment zone operable through a programmed sequence of washing, rinsing and drying steps,

additive dispensing means in said appliance comprising a container adapted to be filed to selective levels,

mounting means carrying said container for pivotal movement between a first receiving position and a second dispensing position, whereby the container may be charged with additive in said receiving position,

siphon means in said container for siphoning liquid out of said container and into a treatment zone in response to the liquid in the container reaching a specified level,

means for preventing said liquid from reaching said specified level when said container is in said first receiving position, and

water control means for selectively providing water to said container and operable in correlation with the programmed sequence,

whereby the container may be prefilled to a first selected level with additive and thereafter will be automatically filled to said specified level with water as a function of the programmed sequence of the machine whereupon the additive and water will be siphoned into the treatment zone.

4,265,101
BLOOD IDENTIFICATION MEANS

Harold Kaplan, 37 Oakland Beach Ave., Rye, N.Y. 10580

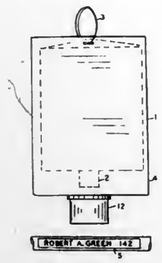
Filed Sep. 11, 1978, Ser. No. 941,657
Int. Cl.³ E05B *25/00*
U.S. Cl. 70—57 **6 Claims**

1. Patient blood identification and supply means to insure the correct blood supply to a patient comprising:

a holder bag adapted to hold a bag of blood for a particular patient,

a coded lock mounted in the holder bag, the lock being coded for a particular patient, and

means attached to the patient providing the code for the lock, whereby application of said code in cooperative

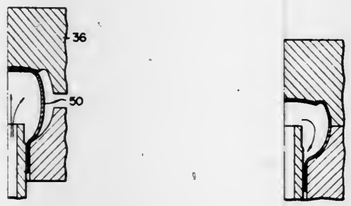


viewing relation to the supply means will insure correct blood to be supplied to the patient.

4,265,102
METHOD FOR MOLDING A BULGE

Ryuji Shimakata, Atsugi, and Kazuyoshi Naito, Machida, both of Japan, assignors to Tokyo Press & Die Co., Ltd., Tokyo, Japan

Filed Dec. 20, 1978, Ser. No. 971,259
Claims priority, application Japan, Dec. 27, 1977, 52-159247
Int. Cl.³ B21D *26/02*
U.S. Cl. 72—58 **5 Claims**

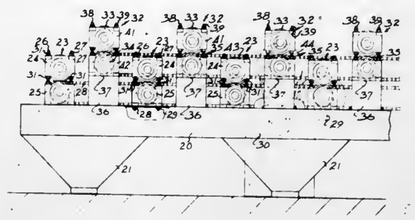


1. A method for molding a bulge from a shaped blank having a neck portion and an entirely unoccupied interior comprising the steps of inserting a nozzle into the shaped blank through the neck portion to seal the neck portion to the nozzle, and jetting a pressure liquid from the nozzle into the entirely unoccupied interior of the shaped blank to cause air trapped in the shaped blank to be agitated into air bubbles to allow the liquid pressure to be applied to the inner surface of the shaped blank with a uniform distribution to mold a bulge, and controlling the pressure in the shaped blank by discharging, during molding, the liquid from within the blank through an interspace between the nozzle and neck portion by breaking the seal at the neck portion of the shaped blank.

4,265,103
RELATING TO COLD SHEET METAL ROLL FORMING APPARATUS

Jurgen Noack, 10 Winston Crescent, West Beach, South Australia, Australia

Filed Apr. 24, 1979, Ser. No. 32,889
Claims Priority, Application Australia, Apr. 21, 1978, PD 4144178, Apr. 28, 1978, PD4196/78
Int. Cl.³ B21D *13/04*
U.S. Cl. 72—180 **2 Claims**



1. The cold sheet metal forming apparatus of a type in which a metal sheet is fed between in succession upper and lower complimentary shaped forming rollers so as to provide a shaped form in the metal sheet of constant cross section, each of the rollers being supported at each end by bearings so that each of the rollers rotates about an axis parallel with the axis of the other rollers and the apparatus including drive means to synchronously rotate about the said axis at least some of the rollers, the invention being characterized in that the rollers are supported by a common frame by adjustable support means in which the bearing housings at the common end of the roller pair are supported by a screw threaded rod at each side of each bearing housing, the end of each screw-threaded rod being secured to the supporting frame and nuts with screw threads complimentary to the screw thread of the respective rods being screwed onto the screw-threaded rods in such a way as to hold the respecting bearing housing firmly with respect to the frame;

further pairs of rollers positioned between at least some of the successively positioned roller pairs and located so that the forming gap is sufficiently high to enable a second forming line to be supported on the said common frame; and each roller pair having at each roller end by a separate bearing housing with the two housings at each end for each roller pair being held by the same two-threaded rods with one of the housings being vertically aligned above the other.

4,265,104
METHOD AND DEVICE FOR CUTTING A METAL STRIP SIMULTANEOUSLY INTO AT LEAST THREE CONTINUOUS COMB-SHAPED COMPONENTS

Giuseppe Todeschini, Olginate, Italy, assignor to Exfin, S.A., Lausanne, Switzerland

Filed Feb. 26, 1979, Ser. No. 16,129
Claims priority, application Italy, Mar. 13, 1978, 67543 A/78
Int. Cl.³ B21D *28/08*
U.S. Cl. 72—330 **6 Claims**

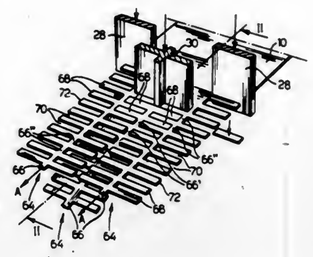
1. The method of cutting a strip of metal into at least three continuous comb-shaped components, simultaneously, comprising the steps of:

(a) advancing the strip stepwise in a plane;

(b) cutting a parallel row of side notch arms in opposite edges of the strip each time it stops;

(c) cutting a continuous member from the central portion of the strip and forcing the member below the plane of the remainder of the strip; and

(d) cutting said continuous member from side arms parallel to said side notch arms and forcing the cut portion of said continuous member below the plane of said notch arms;

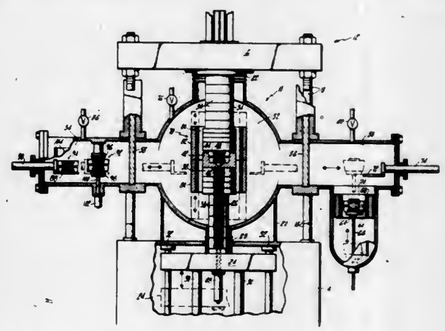


thereby to prevent the side arms of said continuous member from becoming entangled with said side components.

4,265,105
FORGING APPARATUS

Donald G. MacNitt, Jr., Singer Island, and Bryant H. Walker, Stuart, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 1, 1979, Ser. No. 90,184
Int. Cl.³ B21K *1/32*
U.S. Cl. 72—354 **6 Claims**



1. A die package for forming a central disk structure and a plurality of integrally formed appendages extending therefrom, said die package comprising:

a stationary die of generally cylindrical geometry having an outer surface;

a movable die of generally cylindrical geometry having an outer surface;

a further movable die of generally cylindrical geometry contained within said movable die and slideable with respect thereto independently of the first movable die during the forming operation, both said movable dies being axially aligned with said stationary die and spaced apart therefrom; and

a cylindrical array of circumferentially adjacent die segments, each segment having

a pair of circumferential side walls in abutting relationship with the side walls of the adjacent segments and being contoured to form therewith a plurality of circumferentially spaced cavities of the inverse geometry of the appendages to be formed, and

an inner arcuate surface contacting the outer surfaces of said stationary and movable dies.

4,265,106

PIPE-BENDING APPARATUS

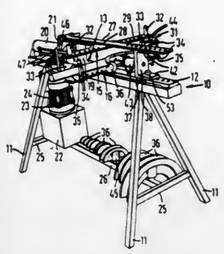
Tom McMaster, and Thomas Reid, both of 31 Movenis Hill, both of Garvagh, England

Filed May 24, 1979, Ser. No. 41,845

Claims priority, application United Kingdom, May 31, 1978, 24693/78

Int. Cl.³ B21D *7/03*

U.S. Cl. 72—389 **2 Claims**



1. A pipe-bending apparatus comprising:

an elongated structure having a longitudinal work surface;

a clamping means comprising a pair of vertically-spaced transverse arms with a respective pipe-clamping device towards each opposite end thereof;

each clamp device including a pivotal support on both adjacent arm ends so as to be pivotal with respect thereto and also including means for detachably clamping a pipe to be bent so as to permit support of the pipe with respect to the arms before, during, and after bending of the pipe;

means mounting said clamping means towards one end of said work surface with said transyerse arms extending beyond each longitudinal side of said surface;

a forming head;

means mounting said forming head towards the other end of said work surface;

and power-operated means to drive said clamping means along said work surface selectively towards and away from said forming head;

said clamping means and forming head being so sized and positioned relative to one another that, on an outward stroke of said clamping means, said transverse arms can pass one above and one below said forming head.

4,265,107

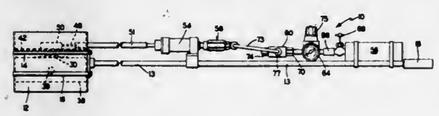
PORTABLE AIRBORNE DROPLET IMPACTOR SAMPLER AND METHOD

Lung Cheng, McMurray, and Warren G. Cross, Library, both of Pa., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Dec. 18, 1979, Ser. No. 104,922

Int. Cl.³ G01N *15/02*

U.S. Cl. 73—28 **16 Claims**



1. A drop impactor sampler, comprising:

a target having an upper surface which, when struck by a droplet, retains an impression corresponding to droplet size;

a stationary plate positioned adjacent said target and containing a first orifice through which said target is exposed to droplets to be sampled;

a movable plate parallel to said stationary plate and containing a second orifice;

means for moving said movable plate between first and second positions at a predetermined velocity; and

means for guiding said movable plate to maintain said first and second orifices along a common diametric axis between said first and second positions, said first and second orifices being non-overlapping with said movable plate located in said first position or said second position;

said movable plate and said stationary plate forming a shutter for selectively exposing said target to the external droplets for a period of time corresponding to said predetermined movable plate velocity.

4,265,108

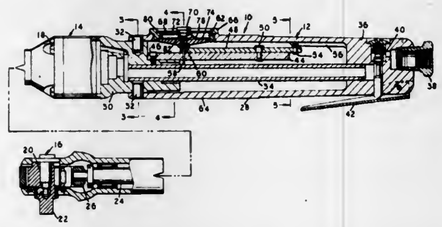
PNEUMATIC NUT RUNNER WITH TORQUE INDICATOR

William K. Wallace, Barneveld, and David A. Giardino, Deerfield, both of N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y.

Filed Apr. 2, 1979, Ser. No. 26,458

Int. Cl.³ B25B *23/145*

U.S. Cl. 73—862.21 **10 Claims**



1. In a torque read-out pneumatically powered hand-held tool for setting fasteners, said tool having in axial alignment a handle portion, a motor portion and a work engaging portion, an improvement comprising a torque read-out means including a rotatable torque indicating dial arranged on the handle portion, and a linkage means enclosed in the handle portion, one end of the linkage means arranged in operative engagement with the dial, the other end of the linkage means being arranged for movement responsive to change in axial alignment between the motor portion and the handle portion resulting from torque developed on a fastener by the tool at the work engaging portion whereby the dial is rotated to indicate said torque.

4,265,109

WRENCH WITH ANGULAR ROTATION READOUT

Hans-Dieter Hallbauer; Fritz G. H. Gast; Klaus-Werner Hoenow, and Armin Rahn, all of Hamburg, Fed. Rep. of Germany, assignors to C. Plath KG, Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 869,403, Jan. 16, 1978, abandoned, which is a continuation of Ser. No. 733,294, Oct. 18, 1976, abandoned. This application Oct. 10, 1979, Ser. No. 83,730

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1975, 2547815

Int. Cl.³ B25B *23/14*

U.S. Cl. 73—862.23 **4 Claims**

1. A tool comprising:

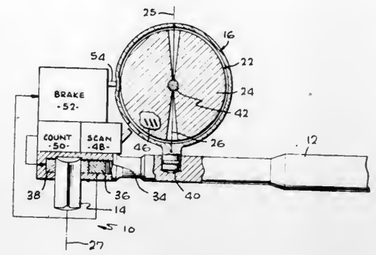
tool means for applying a rotational force to a workpiece;

a housing mounted on the tool means;

an inertial body mounted for rotation in the housing, the body having a high moment of inertia with respect to the frictional moment of its mounting so that the angular orientation of the inertial body with respect to a fixed reference will not be substantially changed by rotation of the tool means about the axis of rotation of the workpiece;

brake means for selectively restricting rotation of the inertial body within the housing;

torque means for determining the torque applied by the tool means to the workpiece; and



means responsive to the torque means for deactivating the brake means to allow rotation of the inertial body when the torque reaches a preselected value.

4,265,110

DOWNHOLE CABLE TENSION MEASURING APPARATUS

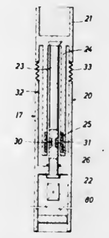
Pierre A. Moulin, Chaville, France, assignor to Schlumberger Technology Corp., Houston, Tex.

Filed Jun. 25, 1979, Ser. No. 51,472

Claims priority, application France, Jun. 30, 1978, 78 19585

Int. Cl.³ E21B *47/00*

U.S. Cl. 73—151 **9 Claims**



1. Apparatus for measuring the downhole tension applied to a cable suspending a well-logging apparatus in a borehole, comprising:

(a) an elongated sensitive element adapted to be connected between the cable and the well-logging apparatus to elongate elastically under the effect of the downhole tension;

(b) a reference element fixed to a first portion of said sensitive element and extending along said sensitive element to a second portion of said sensitive element;

(c) a fluid-filled body member adapted to receive said sensitive element and said reference element and compensation means on said body member to maintain the fluid at the pressure of the borehole; and

(d) detection means on said reference element and said sensitive element for detecting longitudinal displacements of said second portion of said sensitive element relative to said reference element under the effect of the downhole tension to generate an output signal representative of the downhole tension.

4,265,111

DEVICE FOR DETERMINING VERTICAL DIRECTION

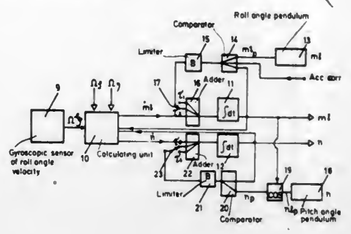
Torbern Teiling, Lidingö, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Feb. 5, 1979, Ser. No. 9,568

Claims priority, application Sweden, Feb. 22, 1978, 7802038

Int. Cl.³ G01C *21/00*

U.S. Cl. 73—178 R **8 Claims**



1. Apparatus for determining the vertical direction relative to a weapon system mounted on a moving base such as a craft, vehicle, aircraft, ship or the like, said apparatus comprising:

first gyroscopic means for measuring the angular velocity of said weapon system with respect to a first axis;

second gyroscopic means for measuring the angular velocity of said weapon system with respect to a second axis perpendicular to said first axis;

third gyroscopic means for measuring the roll angle velocity of said moving base;

means for determining an initial value of the vertical direction; and

means for calculating from said initial value, said two angular velocities and said roll angle velocity the roll angle and pitch angle of said moving base, thereby determining the coordinates of said vertical direction.

4,265,112

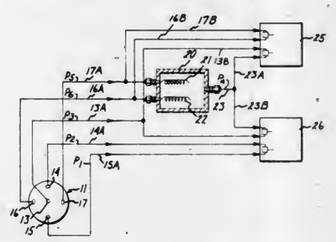
PNEUMATIC AVERAGER

Richard V. De Leo, Hopkins, and Floyd W. Hagen, Eden Prairie, both of Minn., assignors to Rosemount Inc., Minneapolis, Minn.

Filed May 11, 1979, Ser. No. 38,208

Int. Cl.³ G01C *21/00*

U.S. Cl. 73—180 **8 Claims**



1. A gaseous fluid pressure averager apparatus including output fluid pressure carrying means for providing an output pressure signal having a pressure value substantially comprising the average of a plurality of pressure input signals from input fluid pressure carrying means without creating substantial cross flow between the input fluid pressure carrying means, said apparatus comprising separate fluid resistor fluid pressure transmitting means each having a resistance to fluid flow substantially greater than the resistance to fluid flow in the input fluid pressure carrying means, each of said fluid resistor fluid pressure transmitting means coupling one of the input fluid

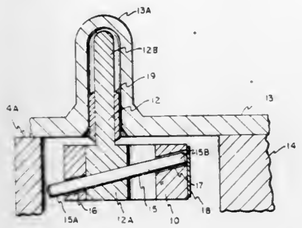
pressure carrying means to the output fluid pressure carrying means, the input fluid pressure carrying means and the output fluid pressure carrying means being connected only through a fluid flow path including the fluid resistor fluid pressure transmitter means.

4,265,113

SLIDING VALVE ASSEMBLY FOR USE IN GAS METERS OR THE LIKE

Howard H. Holmes, Sandy Hook, Conn., assignor to Textron, Inc., Providence, R.I.

Filed May 8, 1979, Ser. No. 37,094
Int. Cl.³ G01F *3/20*
U.S. Cl. 73—266 **7 Claims**



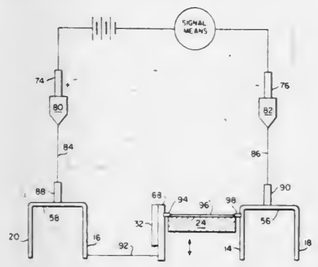
1. A multiple chamber gas meter having a casing including a gas inlet and a gas outlet, a plurality of measuring chambers disposed within said casing, a valve means including a valve seat having a plurality of port openings communicating with said measuring chambers, a rotary mounted valve disc for sequentially valving said port openings, and a drive means for imparting relative rotary movement between said valve disc and and said valve seat, the improvement wherein said drive means comprises means for camming said valve disc in any relative rotational position of said valve disc so as to space said valve disc slightly from said valve seat in any position thereof whenever any retarding reactive force imparted to said rotating valve disc as a result of any tendency of said valve disc to stick to said valve seat in any position thereof.

4,265,114

LIQUID LEVEL INDICATOR FOR A RESERVOIR

Nicholas Anderson, 3234 Clifton Ave., Baltimore, Md. 21216

Filed Oct. 15, 1979, Ser. No. 84,612
Int. Cl.³ G01F *23/12*; G01R *33/00*; G01B *7/00*
U.S. Cl. 73—313 **8 Claims**



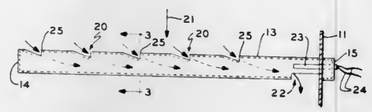
1. A liquid level indicator for a reservoir for liquids, comprising:
a housing means, said housing means having an open compartment exposed to liquid in a reservoir and an enclosed compartment not exposed to liquid in said reservoir, said housing means being suitably affixed to the inside surface of a wall of said reservoir;
a floating carriage means, said floating carriage means being retained within said open compartment and in contact with said liquid;
an indicator carriage means, said indicator carriage means being retained with said enclosed compartment and not exposed to said liquid;
a first permanent magnet means, said first permanent magnet means being affixed to said floating carriage means;
a second permanent magnet means, said second permanent magnet means being affixed to said indicator carriage means;
a third permanent magnet means, said third permanent magnet means being affixed within said enclosed compartment;
two pairs of guide rods, said two pairs of guide rods consisting of a first pair of guide rods affixed within said open compartment and connected to a first terminal means, and a second pair of guide rods affixed within said enclosed compartment and connected to a second terminal means, said floating carriage means being retained in said open compartment by being slidably mounted on said first pair of guide rods, said indicator carriage means being retained in said enclosed compartment by being slidably mounted on said second pair of guide rods;
a power source, said power source being external to said liquid level indicator and said reservoir;
a signal means, said signal means being external to said liquid level indicator and said reservoir, said signal means being gauge-like;
an electrical circuit means, said electrical circuit means being within said enclosed compartment, said electrical circuit means having connections on exterior of said enclosed compartment and extending to exterior of said reservoir and connected to said power source and to said signal means and additionally connected to said first and second terminal means, said electrical circuit means within said enclosed compartment having a rod-like element as an electrically connected part thereof affixed within the field of the magnetic lines of force of said third permanent magnet means.

4,265,115

AVERAGING TEMPERATURE RESPONSIVE APPARATUS

Leslie P. Stuhr, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 17, 1979, Ser. No. 39,712
Int. Cl.³ G01K *1/16*; G05D *23/24*
U.S. Cl. 73—349 **5 Claims**



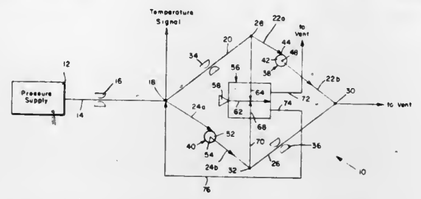
1. In an averaging temperature responsive apparatus for use in air conditioning system to measure the average temperature of air passing through a duct comprising:
a hollow channel member adapted to be mounted across a duct substantially at right angles to the direction of air flow through the duct, said hollow channel member being supported at one end on a wall of the duct and having its ends closed,
a temperature responsive element mounted in one end of said channel member,
said channel member having a plurality of holes spaced the length of said member on one side thereof,
said channel member having an exhaust opening adjacent said temperature responsive element, said exhaust opening being on the opposite side of said member from said plurality of holes whereby a portion of the air passing through the duct flows into said plurality of holes, by said element, and out said exhaust opening to provide a sample of air across the duct and thus the average temperature of the air in the duct, and
means comprising a portion of said channel member bent inward toward said one end of each of said plurality of holes for directing the flow of air as the air enters said one hole through said channel member toward said one end and said temperature responsive element.

4,265,116

FLUIDIC TEMPERATURE SENSOR

Paul S. Evans, Mesa, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Oct. 1, 1979, Ser. No. 80,902
Int. Cl.³ G01K *11/00*
U.S. Cl. 73—357 **17 Claims**



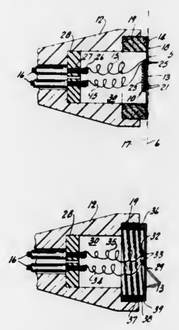
1. A fluidic temperature sensing system comprising:
a supply of pressurized fluid;
fluidic temperature sensing means having an input coupled to said supply of pressurized fluid;
means for sensing pressure variations in said supply of pressurized fluid; said pressure variation sensing means being coupled to said fluidic temperature sensing means; and
means for compensating for pressure variations in said supply of pressurized fluid, said compensating means being coupled between said input and said pressure variation sensing means.

4,265,117

SURFACE TEMPERATURE DETECTING APPARATUS

Paul E. Thoma, 208 Grove St., Burlington, Wis. 53105; Louis J. Crum, 6277 W. Port Ave., and Ronald J. Frias, 6282 W. Port Ave., both of Milwaukee, Wis. 53223

Filed Jan. 26, 1979, Ser. No. 6,864
Int. Cl.² G01K *7/04, 7/16*
U.S. Cl. 73—359 R **16 Claims**



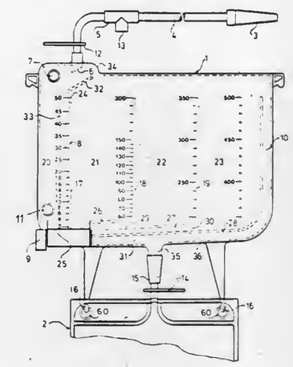
1. A temperature sensing apparatus for detecting the temperature of a surface, including a temperature sensitive sensor means having a support member with an extended surface engaging face means, said support member being a flexible member moveable into general conformance to the configuration of a surface to be detected, a support means for said support member, and an elastic means connected to the support member and to the support means and locating the support member spaced from the support means to allow elastic deflection of the support member relative to the support means.

4,265,118

URINE COLLECTING AND MEASURING INSTRUMENT

Karl-Heinz Griesel, Melsungen, Fed. Rep. of Germany, assignor to Intermedicat GmbH, Emmenbrucke, Switzerland

Filed Jul. 27, 1979, Ser. No. 61,257
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1978, 7825225[U]
Int. Cl.³ G01F *19/00*
U.S. Cl. 73—427 **16 Claims**



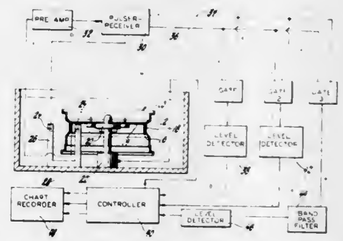
1. A urine measuring instrument for receiving, collecting and measuring urine from a catheterized patient comprising a transparent, graduated container with an upper inlet and a lower outlet to which a urine bag can be connected, said container being subdivided into several side-by-side vertical chambers into the first of which the inlet communicates, all the chambers being open to one another at the top and separated from one another at the bottom by a multi-path valve, all the chambers being in communication with the container outlet through said valve, and each chamber having a scale thereon.

4,265,119

ULTRASONIC METHOD OF INSPECTING SPOT WELDS

Martin W. Dubetz, Sterling Heights, and Umit Bilge, St. Clair Shores, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1979, Ser. No. 99,074
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—588 **3 Claims**



1. The method of ultrasonically measuring the size of a weld nugget contiguous to a surface bond region comprising the steps of
scanning a welded part with repetitive pulses of an ultra-

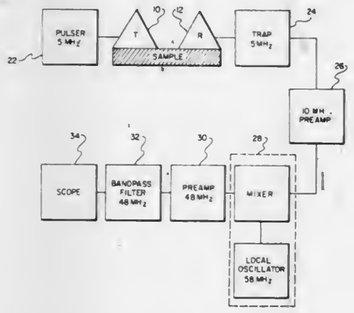
sonic beam having frequencies above 20 MHz and detecting the signal transmitted through the part,
analyzing the detected signal to determine the presence of a weld and
analyzing the detected signal where a weld is present to measure the nugget size by gating the signal to sample a signal portion which results from a plurality of reflections within the part, filtering the signal to pass only a band of frequencies above about 20 MHz, and determining the amount of high frequency energy in the signal portion wherein a high amount of high frequency energy correlates with a surface bond region and a low amount of high frequency energy correlates with a weld nugget region whereby the extent of the nugget traversed during each scan of a weld is determined.

4,265,120

FATIGUE DETECTION UTILIZING ACOUSTIC HARMONICS

Winfred L. Morris, Thousand Oaks; Richard V. Inman, Simi Valley, and Otto Buck, Thousand Oaks, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed May 23, 1979, Ser. No. 41,671
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—600 **12 Claims**



1. A nondestructive test method for inspecting an object, comprising the steps of:
(a) generating an acoustic wave at a first location on the object;
(b) detecting a harmonic of the generated wave at a second location on the object; and
(c) relating the characteristics of the detected wave to the surface cracks present in the object to provide an indication of the remaining useful life of the object.

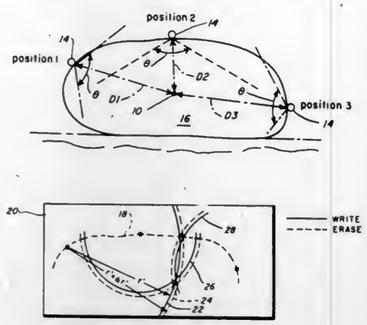
4,265,121

HIGH RESOLUTION ULTRASOUND DIAGNOSTIC APPARATUS

Robert W. Cribbs, Placerville, Calif., assignor to Litton Industrial Products, Inc., Beverly Hills, Calif.

Filed Nov. 13, 1978, Ser. No. 959,565
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—607 **7 Claims**

1. An imaging system for examining an area comprising:
transducer means for generating and transmitting pulses of wide frequency bandwidth energy into the examined area and for receiving echos reflected from an object in said area, said transducer means further having means for developing a first set of signals in response to return time and magnitude of the echos;
means for translating said transducer means along a scanning path in the vicinity of the examined area and for developing and recording a second set of signals in response to the position of said transducer means along the scanning path;
means on said transducer means for producing a beam of energy having an angle sufficiently large to impinge on said object from substantially all positions of the transducer means on the scanning path;
means for displaying multi grey level images on a display surface, the images having length and width dimensions



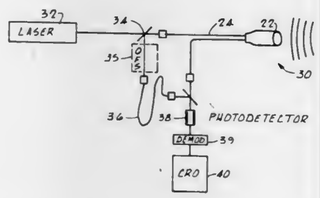
corresponding to length and width dimensions of object in the examining area and including a storage surface;
means for processing said first and said second set of signals and applying said processed signals to said displaying means.

4,265,122

NONDESTRUCTIVE TESTING APPARATUS AND METHOD UTILIZING TIME-DOMAIN RAMP SIGNALS

Billy D. Cook, and Eduardo Cavanagh, both of Houston, Tex., assignors to University of Houston, Houston, Tex.

Filed Apr. 23, 1979, Ser. No. 32,176
Int. Cl.³ G01N *29/04*; G02B *5/14*
U.S. Cl. 73—627 **21 Claims**



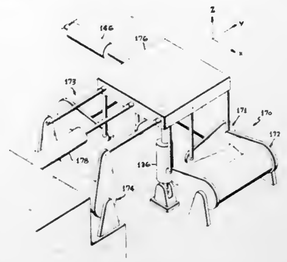
1. A nondestructive testing apparatus comprising:
a high frequency electrical pulse generator;
a first transducer for producing and detecting broadband pulses of ultrasonic energy including:
a support,
a second transducer located on said support, electrically connected to said generator, for generating an acoustic signal with a modulated ultrasonic carrier signal,
a nonlinear absorbing material disposed within said support and located adjacent to said first transducer for absorbing said carrier signal and parametrically generating a low frequency signal envelope having a waveform dependent upon said modulation, said low frequency signal envelope applied to a test structure for evaluation of defects,
a nonresonant broadband receiver disposed on said support for receiving a reflected signal response from said structure; and
a display for viewing and evaluating said reflected response.

4,265,123

MOTION LIMITING APPARATUS

Klaus L. Cappel, Madison, Ala., assignor to Wyle Laboratories, El Segundo, Calif.

Filed Apr. 16, 1979, Ser. No. 30,163
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—663 **14 Claims**



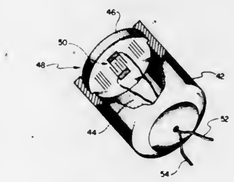
12. Apparatus for supporting a table (134, FIG. 3) and producing table movement comprising:
a vertical actuator (136) centered on said table to move it vertically;
a horizontal actuator (146) connected to said table to move it along a predetermined horizontal axis;
four largely horizontally-extending links (141, 142, 143, 144) extending primarily perpendicular to said predetermined horizontal axis, said links having outer ends pivotally connected to said table and having pivotally supported inner ends, said links arranged with a pair of links at opposite ends of said table and with the two links of each pair being vertically spaced, to permit horizontal table movement by said horizontal actuator while preventing rotation about a vertical axis and about said predetermined horizontal axis; and
a torque device (132) which includes a torque resistant member (137) rotatably mounted about an axis parallel to said predetermined axis and having a pair of links (139) with lower ends pivotally connected to the ends of said member and upper ends pivotally connected to said table.

4,265,124

REMOTE ACOUSTIC WAVE SENSORS

Teong C. Lim, and Edward J. Staples, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jun. 4, 1979, Ser. No. 45,506
Int. Cl.³ G01L *9/00*
U.S. Cl. 73—703 **10 Claims**



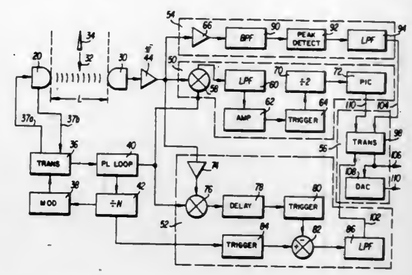
1. An acoustic wave sensor, comprising:
an acoustic wave oscillator having a resonant frequency which is modulated according to changes in a physical variable, including a Stoneley acoustic wave transducer and an amplifier coupled to said transducer in a feedback loop, the transducer thereby being adapted to modulate the resonant frequency of said loop; and a broadcast amplifier for directly transmitting said modulated frequency as a radio frequency signal.

4,265,125

FLOWMETER METHOD AND APPARATUS

Richard J. Mahany, 1341 Harold Dr., SE., Cedar Rapids, Iowa 52403

Filed Aug. 2, 1979, Ser. No. 63,007
Int. Cl.³ G01F *1/32, 9/24, 29/00*
U.S. Cl. 73—861.03 **6 Claims**



6. A fluid flowmeter comprising:
sonic signal transmitting means for directing a carrier sonic signal through a fluid stream;
sonic signal receiving means for receiving said sonic signal;
carrier modulation means connected to said sonic signal transmitting means for periodically frequency-shifting said carrier signal with respect to a reference average carrier frequency at a carrier modulation frequency so that a standing wave created by said sonic signal has an energy peak at said sonic signal receiving means;
means connected to said sonic signal receiving means for detecting an energy peak received at said receiving means, said energy peak representing the density of said fluid
a vortex strut mounted so that Karman vortices are created in the wake of the strut when there is relative movement between the strut and fluid in which the strut is immersed, said vortices modulating said transmitted sonic signal; and,
means for filtering from said peak energy a component caused by said vortices which modulate said sonic signal.

4,265,126

MEASUREMENT OF TRUE BLOOD VELOCITY BY AN ULTRASOUND SYSTEM

Emmanuel Papadofrangakis, Schenectady; William E. Engeler, Scotia, both of N.Y., and John A. Fakiris, Holly Hill, Fla., assignors to General Electric Company, Schenectady, N.Y.

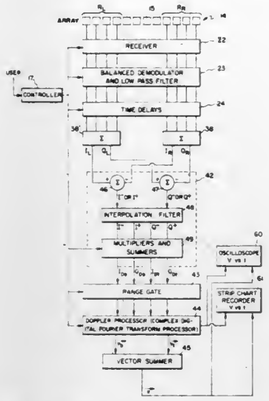
Filed Jun. 15, 1979, Ser. No. 48,711
Int. Cl.³ G01F *1/66*
U.S. Cl. 73—861.25 **17 Claims**

1. A steered beam ultrasound instrument for measuring two components of the flow velocity of blood and similar liquids comprising:
a linear transducer array for transmitting pulses of ultrasound with a preselected emission frequency and for generating received echo signals,
said array being comprised of a row of elements divisible into a transmitter sub-array and into left and right receiver sub-arrays that are variably located such that received center wave vectors through any observation point in the field of view subtend approximately equal angles with respect to a transmitter wave vector through the observation point,
means for exciting the elements of said transmitter sub-array to sequentially generate ultrasound pulses that propagate along a designated beam direction and insonify a sample

volume through which the true flow velocity vector is being determined,

left and right receiver means for coherently demodulating echo signals generated by the respective sub-arrays with phase quadrature emission frequency references and for producing left and right focused in-phase and quadrature signals,

computation means for deriving in-phase and quadrature Doppler signals for the beam direction and for the transverse direction realized by combining four signals repre-



senting the differences of the focused left and right in-phase and quadrature signals and the sums of the focused left and right in-phase and quadrature signals,

a range gate for extracting analog samples from said Doppler signals after every pulse transmission at a time corresponding to reception of echoes backscattered from the sample volume, and

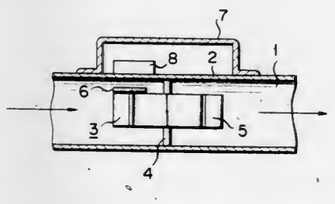
a Doppler processor for deriving from sets of said analog samples two components of flow velocity parallel to and transverse to the beam direction.

4,265,127

LOW METER SYSTEM PROVIDED WITH A PULSE GENERATOR

Hajime Onoda, Tokyo, Japan, assignor to Kimmon Manufacturing Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1979, Ser. No. 44,519
Claims priority, application Japan, Jun. 2, 1978, 53/75646[U]
Int. Cl.³ G01F *1/58*
U.S. Cl. 73—861.78 **9 Claims**



1. A flow meter comprising:

a movable member mounted in the flow of a running fluid so as to be moved as a function of said flow;

a composite wire which is formed of a core and shell having different coercive forces and mounted on the movable member, so as to move in a movement path the alignment direction of the respective magnetic domains of either of the core and shell of said composite wire being reversed when an external magnetic field is applied to said composite wire at a threshold level;

a pulse generator including a pair of permanent magnets arranged to face the movement path of the composite magnetic wire, a magnetic core positioned adjacent to one of the paired permanent magnets and a coil wound around the core;

counter means coupled to said pulse generator for counting pulses generated from said pulse generator; and

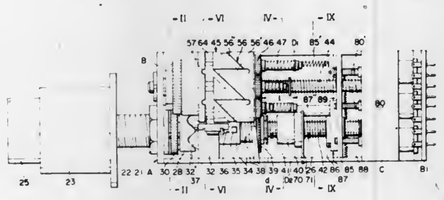
display means coupled to said counter means for indicating a flow of said running fluid as a function of the number of pulses counted by said counter means.

4,265,128

TURRET TYPE FREQUENCY SELECTOR

Hideki Ohshima, Tokyo, Japan, assignor to Nihon Technical Kabushiki Kaisha, Tokyo, Japan

Filed May 9, 1979, Ser. No. 37,291
Claims priority, application Japan, May 19, 1978, 53-59654
Int. Cl.³ H03J *5/02, 5/06;* F16H *27/02*
U.S. Cl. 74—10.15 **22 Claims**



1. Apparatus for selecting the position of a slide member, comprising a turret supported for rotation about an axis and having a plurality of circumferentially spaced position setting elements which project from an end of the turret toward the slide member, the slide member being supported for sliding movement toward and away from the position setting elements and being biased toward the position setting elements, the slide member having contact means adapted to engage a projecting end portion of a selected position setting element when that element is placed at a predetermined location by rotation of the turret, operating means for rotating the turret and concurrently moving the side member away from the position setting elements, and displacement means for movably supporting the contact means on the slide member to permit the contact means to move out of the way when struck by a position setting element as the turret is rotated and later to move into engagement with the end portion of the selected position setting element.

4,265,129

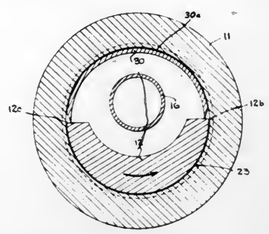
ORBITING MASS OSCILLATOR WITH OIL FILM CUSHIONED BEARINGS

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Apr. 6, 1979, Ser. No. 27,935
Int. Cl.³ F16H *33/10*
U.S. Cl. 74—61 **4 Claims**

1. In an orbiting mass oscillator having an unbalanced arcuate rotor which is orbitally driven around a cylindrical housing for generating vibratory energy for delivery to a load wherein sharp jolting forces are developed, the improvement being means for providing cushioning between the rotor and the housing to dampen said forces comprising:

a supply of lubricating fluid to the bearing surfaces between the rotor and the housing, said rotor having a curving leading edge providing a wedge effect such that the rotor rides upon said fluid which forms a thick cushioning layer between the rotor and the housing, said rotor having a hollowed central portion and being in the form of first and second half cylinders, said first half cylinder forming an unbalanced rotor mass, said second half cylinder comprising a hollowed shell portion located in opposite relationship to the first half cylinder, there being a greater clearance space between the outer wall of said second half



cylinder and the inner wall of the housing than between the outer wall of the first half cylinder and the inner wall of the housing, and

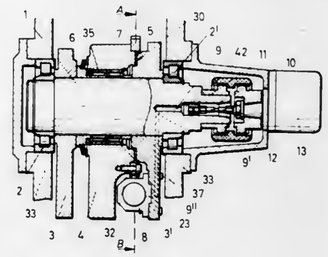
means for flowing said fluid around said bearing surfaces.

4,265,130

VIBRATION GENERATOR WITH ADJUSTABLE ECCENTRIC WEIGHT

Gülertan Vural, Emmelshausen; Udo Carle, Höhr-Grenzhausen, and Manfred Lenkeit, Neuwied, all of Fed. Rep. of Germany, assignors to Koehring GmbH - Bomag Division, Boppard, Fed. Rep. of Germany

Filed Sep. 12, 1979, Ser. No. 75,004
Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840236; Oct. 2, 1978, 2842937
Int. Cl.³ B06B *1/16*
U.S. Cl. 74—87 **33 Claims**



1. A vibration generator comprising a driven excitation shaft, at least one first eccentric weight fixed to and rotatable with said shaft, a second eccentric weight which is also rotatable with said shaft while being adjustable relatively thereto, a gear ring on said second eccentric weight and concentric with the excitation shaft, and an adjusting pawl which is movable to-and-fro tangentially of said gear ring and which is mounted on said first eccentric weight and in engagement with the gear ring, said second eccentric weight being lockable in each adjusted position.

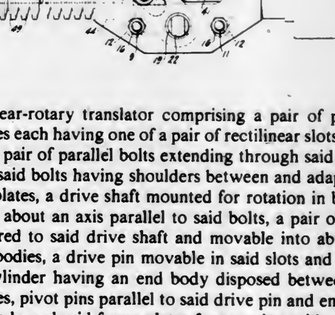
4,265,131

MACHINE TOOL TRANSFER BAR ACTUATOR UNIT

Robert R. Grover, Westport, N.H., assignor to Kingsbury Machine Tool Corporation, Keene, N.H.

Filed Jun. 28, 1978, Ser. No. 919,936
Int. Cl.³ F16H *27/02, 37/12*
U.S. Cl. 74—89.16 **31 Claims**

6. A mechanism for translating rotational motion to linear motion comprising a turret, means for rotating said turret about a first axis, a crankshaft, means mounting said crankshaft for rotation relative to said turret about a second axis generally parallel to but offset from said first axis, a crank arm carried by said crankshaft and being disposed in transverse relationship to said second axis, a driven element, means for guiding the driven element for movement along a generally linear path, said crank arm having a driving element for driving said driven element upon rotation of said turret, said driving element having a third axis generally parallel to but offset from said first and second axes, said driving element being moved upon the the rotation of said turret between first and second generally diametrically opposite positions relative to the arc of rotation of said turret, said first, second and third axes lying in common plane in the first and second positions of said driving element, means for absorbing the momentum of a load driven



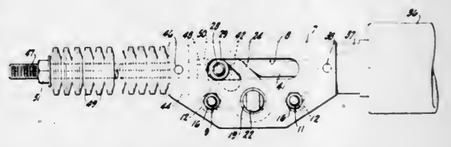
by said driven element when said driving element is contiguous said first and second positions, said momentum absorbing means including a pair of cooperative abutment members, one of said abutment members being carried by said turret for movement thereby generally between said first and second positions, gear means meshingly interconnecting another of said abutment members and said crankshaft, said one abutment member being effective to contact and move said another abutment member upon said driving element moving contiguous said first and second positions, and means yielding against the movement of said another abutment member thereby absorbing the momentum transferred thereto from said turret through said meshed gear means.

4,265,132

LINEAR-ROTARY TRANSLATOR

James R. Robertson, 1445 O'Hara Dr., Benicia, Calif. 94510

Filed Apr. 27, 1979, Ser. No. 34,202
Int. Cl.³ F01B *9/00;* F16H *21/44*
U.S. Cl. 74—104 **4 Claims**



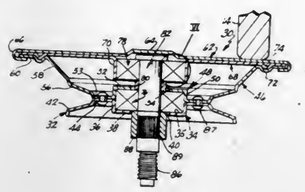
1. A linear-rotary translator comprising a pair of parallel frame plates each having one of a pair of rectilinear slots therethrough, a pair of parallel bolts extending through said plates, bodies on said bolts having shoulders between and adapted to abut said plates, a drive shaft mounted for rotation in both of said plates about an axis parallel to said bolts, a pair of drive forks secured to said drive shaft and movable into abutment with said bodies, a drive pin movable in said slots and in said forks, a cylinder having an end body disposed between said frame plates, pivot pins parallel to said drive pin and engaging said end body and said frame plates for securing said cylinder to said frame plates against relative axial translation but for

small relative rotation about said pivot pins, a drive rod reciprocable in said cylinder and extending between said frame plates, a block on said drive rod, and rollers on said block disposed in said pair of drive forks and in said rectilinear slots.

4,265,133
DRIVE DISC-PULLEY ASSEMBLY

Douglas J. Van Der Meulen, Shelbyville, and Siegfried K. Weis, Byron Center, both of Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.

Filed Aug. 3, 1978, Ser. No. 930,520
Int. Cl.³ F16H *15/08, 55/44*
U.S. Cl. 74—194 **22 Claims**



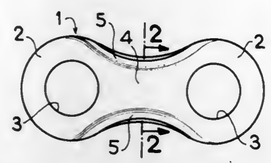
1. A drive disc-pulley assembly comprising:
three separate, coaxial, circular pieces of stamped sheet metal;
first means on two of said pieces of sheet metal for forming a central bearing pocket having at least one axially extending central aperture therein, said bearing pocket being adapted to receive and retain at least one bearing;
flared means on said two pieces radially offset from said first means for forming an outwardly opening, V-belt receiving groove coaxial and axially aligned with said bearing pocket;
said two pieces of sheet metal secured together intermediate said V-belt groove and said bearing pocket;
a conical brace formed in one piece with and extending outwardly and away from said flared means on one of said two pieces;
said third piece being axially offset from said V-belt groove and including a radially extending, generally planar friction drive wheel engaging surface and having its outer periphery bent around, enclosing and clamping said outer edge of said conical brace such that in the region of said outer periphery, said drive wheel engaging surface is smooth and continuous, said drive wheel engaging surface having a diameter larger than the largest diameter of said V-belt groove and facing away from said V-belt groove; and
axially extending means adjacent said third piece of sheet metal for providing a bearing locator opening toward said bearing pocket and adapted to receive a second bearing.

4,265,134
TRANSMISSION CHAIN

Guy J. M. Dupoyet, St. Simeon de Bressieux, France, assignor to Compagnie des Transmissions Mecaniques Sedis, Levallois Perret, France

Filed Jun. 30, 1978, Ser. No. 920,830
Claims priority, application France, Jul. 6, 1977, 77 20793
Int. Cl.² F16G *13/02*
U.S. Cl. 474—231 **14 Claims**

1. A transmission chain for cooperation with sprockets and comprising alternately outer links and inner links, each outer link comprising two outer plates and spacer members interconnecting the outer plates and each inner link comprising two generally parallel longitudinally extending laterally confronting and laterally spaced apart inner plates and tubular members rigid with the inner plates, the inner plates being trapped between the outer plates and the spacer members extending through the tubular members, each inner plate having two end portions, a center portion which interconnects said end portions and a peripheral edge which is curvilinear in the region of said end portions, said end portions respectively defining planar inner faces which are contained in a common plane, the center portion of each inner plate having at least one part which is deformed throughout its thickness and defines an inner face which extends from said peripheral edge in said center portion and is offset from said common plane laterally

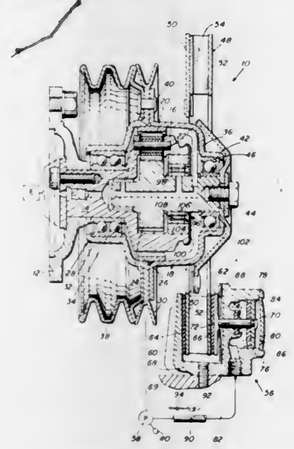


outwardly of the corresponding inner link, and the inner link having an outer face which is correspondingly offset laterally outwardly away from the tubular members in said at least one part of said center portion, whereby the lateral spacing between the inner faces defined by said deformed part of said inner portions is larger than the lateral spacing between the inner faces of said end portions which facilitates the engagement of teeth of the sprockets in the inner links, in particular when the chain is shifted by a derailleur.

4,265,135
AUTOMOTIVE ACCESSORY DRIVE

Richard L. Smirl, Arlington Heights, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Nov. 27, 1978, Ser. No. 964,218
Int. Cl.³ F16H *5/42*
U.S. Cl. 74—336 R **7 Claims**



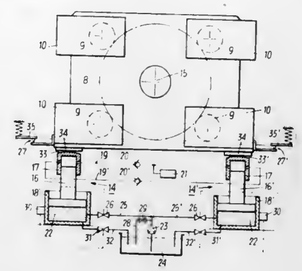
1. In a drive system adapted to drive the accessories of a prime mover at a constant ratio predetermined speed, then at a substantially constant speed, comprising:
a planetary gear set having a sun gear, a ring gear and planet gears positioned on a planet carrier;
said ring gear adapted to drive said accessories at said constant ratio when said sun gear is held stationary;
a spring applied rotary brake adapted to hold said sun gear stationary;
a hydraulic drive adapted to progressively release said rotary brake in response to an increasing hydraulic pressure to permit controlled rotation of said sun gear;

speed responsive means drivingly connected to said ring gear and adapted to generate a hydraulic pressure which increases with the speed of said ring gear.

4,265,136
TORQUE SUPPORT ARRANGEMENT

Ernst Riegler, Enns, and Manfred Schmidt, Linz, both of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Dec. 26, 1978, Ser. No. 973,146
Claims priority, application Austria, Jan. 10, 1978, 160/78
Int. Cl.³ F16H *35/00*; C21C *5/50*
U.S. Cl. 74—380 **11 Claims**

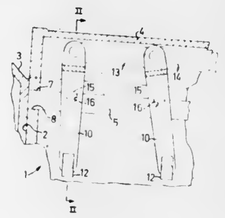


1. In a torque support arrangement for a gear, in particular for a converter drive, mounted so as to be movable about a pivot axis, and of the type including a base, a gear casing, and elastic supporting means provided for supporting said gear casing against said base on both sides of the pivot axis, the improvement which is characterized in that said elastic supporting means are designed as pressure-medium-piston-cylinder-means to which pressure gas is admitted, and that adjustment means are provided for adjusting the position of said pressure-medium-piston-cylinder-means relative to said base.

4,265,137
GEAR SELECTOR MECHANISM FOR A VEHICLE GEARBOX

Stig-Erik Johannesson, Kungälv, and Stanislaw J. Kruk, Västra Frölunda, both of Sweden, assignors to AB Volvo, Goteborg, Sweden

Filed Mar. 29, 1979, Ser. No. 25,454
Claims priority, application Sweden, Apr. 3, 1978, 7803713
Int. Cl.³ B60K *20/02*
U.S. Cl. 74—473 R **4 Claims**

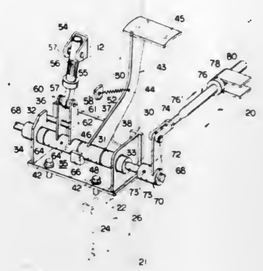


1. Gear selector mechanism for a vehicle gearbox, comprising axially displaceable shift rails and rocker forks joined to the shift rails, said rocker forks being swingable upon axial displacement of the shift rails to displace engaging sleeves in the coupling and synchronizing means of the gearbox, characterized in that a plurality of rocker forks are journalled in a common fork holder in the form of a pair of substantially parallel bars arranged at a distance from one another and oriented in the direction of the gearbox shaft.

4,265,138
EMERGENCY BRAKE APPARATUS FOR TRACK-TYPE VEHICLE

Takayuki Sato, Suarashi, Japan, assignor to Caterpillar Mitsubishi Ltd., Tokyo, Japan

Filed May 31, 1979, Ser. No. 44,291
Claims priority, application Japan, Nov. 6, 1978, 53-152617[U]
Int. Cl.³ G05G *11/00*
U.S. Cl. 74—481 **6 Claims**



1. An auxiliary braking apparatus for a vehicle providing a second means of activating main braking systems which have a first rod (**20**) movement of which activates and deactivates the brakes, comprising:
a rotary member (**68**) axially fixed on said vehicle;
a brake member (**43**) rotatable about said rotary member (**68**);
means (**56,60**) for locking said brake member (**43**) in one of two operating positions, a totally activated position and a deactivated position, so as to be free from movement until an external force is applied, and so as to ensure that only total activation and total deactivation of said auxiliary braking apparatus can occur, with spring means (**57'**) for ensuring swift attainment of said activated position;
a second rod (**76**) connected to said brake member (**43**) such that movement of said brake member (**43**) to said activated position causes movement of said second rod (**76**); and,
means (**78,80**) interconnecting said second rod (**76**) and said first rod (**20**) such that movement of said brake member (**43**) to said activated position causes brake activating movement of said first rod (**20**).

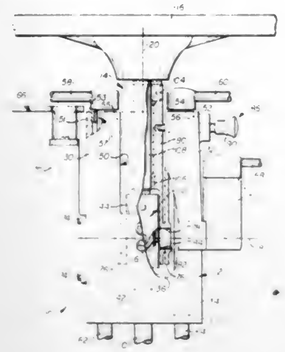
4,265,139
TILT STEERING WHEEL AND SUPPORT COLUMN APPARATUS

Larry R. Logemann, Decatur, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00319, § 371 Date May 14, 1981, § 102(e) Date May 14, 1981.
This PCT application filed May 14, 1979, Ser. No. 89,114
Int. Cl.³ B62D *1/18*
U.S. Cl. 74—485 **11 Claims**

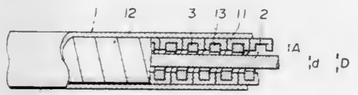
1. A tilt steering wheel and support column apparatus (**10**) comprising:
an upwardly inclined stationary support column (**12**) having an upwardly facing distal end surface (**54**);
an upwardly inclined steering wheel column (**14**) having a steering wheel (**16**);
means (**84,86**) for pivotally mounting the steering wheel

column (14) on the support column (12) and adjusting the tilt angle therebetween; and



a vehicle control member (60) mounted for pivotal movement on the support column (12) at the distal end surface (54) subjacent the steering wheel (16).

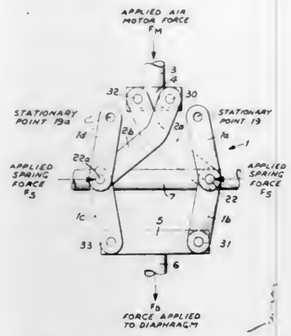
4,265,140
OPERATING CABLE
Masashi Nagano, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan
Filed Jun. 11, 1979, Ser. No. 47,564
Claims priority, application Japan, Jun. 15, 1978, 53-83769
Int. Cl.³ F16C *1/10*
U.S. Cl. 139—501 R **5 Claims**



1. An operating cable comprising an outer tube which is made cylindrical by the winding operation of a band-shaped steel sheet in a spiral shape, and an inner wire which is inserted into the outer tube and is guided by the outer tube, said band-shaped steel sheet having a groove along its length direction, and a band-shaped liner to be engaged into the groove, said groove being open onto at least the inner side of when said band-shaped steel sheet has been wound, said liner being projected in the winding inward direction from the inner side face of said band-shaped steel sheet when the liner has been engaged into said groove, and the length between the open face, in said band-shaped steel sheet, of said groove and the groove bottom face opposite to said open face being greater than a distance represented by D-d, where d is the outer diameter of said inner wire, and D is the inner diameter of said liner in said outer tube.

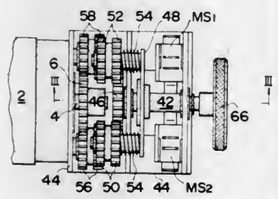
4,265,141
MECHANICAL FORCE MULTIPLIER
Jeffrey M. Bowman, York, Pa., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Continuation of Ser. No. 754,719, Dec. 27, 1976, abandoned.
This application Jul. 17, 1978, Ser. No. 925,008
Int. Cl.³ G05G *1/04;* F16K *31/44*
U.S. Cl. 74—516 **26 Claims**

1. A mechanical force multiplier comprising:
a first link unit having at least a first pair of links, each of said first pair of links having one end thereof pivotably coupled to and in a force transferring relationship with one of an actuator having an actuator force and a device to be actuated and a second pair of links each of said second pair of links having one end thereof pivotably connected to a stationary point distinct and spaced from both said actuator and said device to be actuated and the other end thereof pivotably connected to the other end of an associated one of said first pair of links;
a second link unit having at least a third pair of links, each of said third pair of links having one end thereof pivotably connected to said other end of an associated one of said first and second pair of links and the other end thereof pivotably coupled to and in a force transferring relationship with the other of said actuator and said device to be actuated;
said first, second and third pair of links defining a volume having a longitudinal dimension, each of said first and



third pair of links having an angle therebetween on the inside of said volume that is less than 180° at all times; and
at least one spring in a force transferring relationship with at least one of said first and second link units, said spring being disposed outside of said volume with the force thereof being directed perpendicular to said longitudinal dimension from the outside of said volume toward the inside thereof;
said first and second link units being disposed between said actuator and said device to be actuated, said first and second link units in cooperation with each other and said spring providing a relatively linearly increasing multiplied output force to said device to be actuated for activation thereof when said actuator is actuated.

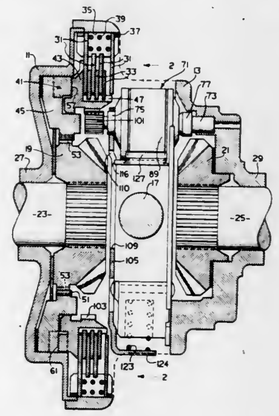
4,265,142
MANUAL AND POWER MOTIVATED DRIVE MEANS
Yutaka Watanabe, Hon, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Apr. 28, 1978, Ser. No. 901,050
Claims priority, application Japan, May 10, 1977, 52/59911
Int. Cl.³ F16H *1/06;* G03B *23/12;* F16H *3/34*
U.S. Cl. 74—625 **10 Claims**



1. A manual and power motivated drive apparatus for manually driving an object, comprising:
a power driven output shaft drive coupled to a motor;
drive force receiving means mounted on said output shaft;

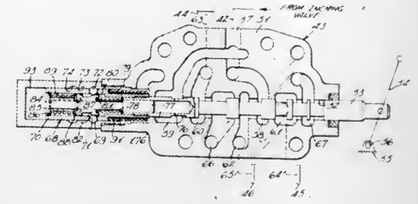
a manually rotatable input shaft;
first motion transmission means mounted on said input shaft;
intermediate second transmission means in engagement with said first motion transmission means and swingable about said input shaft in response to the rotation of said first motion transmission means;
biasing means urging said intermediate second transmission means about said input shaft, said second transmission means being spaced away from said drive force receiving means under the influence of said biasing means when said input shaft is stationary and drive engaging said drive force receiving means in response to said swinging of said second transmission means about said input shaft against the influence of said biasing means when said input shaft is rotated, whereby the driving force of said input shaft is transmitted to said output shaft; and
deactuating means responsive to the swing of said second transmission means for deactuating said motor.

4,265,143
LATCH MECHANISM FOR LOCKING DIFFERENTIAL
Edward J. Goscenski, Jr., Battle Creek, and Phillip E. Konkle, Albion, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio
Filed Mar. 22, 1979, Ser. No. 22,662
Int. Cl.³ F16H *1/44, 1/40*
U.S. Cl. 74—710.5 **12 Claims**



1. A differential gear mechanism comprising a gear case defining a gear chamber, a differential gear means disposed in said gear chamber, said differential gear means including at least one input gear and a pair of output gears defining an axis of rotation, lockup means for locking up said differential means to retard differentiating action, and actuating means for actuating said lockup means, said lockup means including clutch means operable between an engaged condition, effective to retard relative rotation between said gear case and said output gears, and a disengaged condition, said lockup means further including cam means operable to effect said engaged condition of said clutch means, said actuating means including retarding means operable to engage said cam means and retard rotation of a portion of said cam means, said retarding means comprising a flyweight mechanism rotatable about its axis at a speed generally proportional to the level of differentiating action and defining a stop surface movable from a retracted position to an extended position in response to an increase in the level of differentiating action, said actuating means further including a latch mechanism including a latch member and means biasing said latch member toward an operative position, said latch member, in said operative position being disposed to engage said stop surface, when said stop surface is in said extended position, said latch mechanism further including a weight oppositely disposed from said latch member, about said axis of rotation, said weight being operable to move said latch mechanism, in opposition to said biasing means, along a straight, generally diametrally-oriented path in response to increasing rotational speed of said differential gear mechanism, to move said latch member from said operative position to an inoperative position, above a predetermined rotational speed of said differential gear mechanism.

4,265,144
DETENT RELEASE FOR POWER SHIFT TRANSMISSION SELECTOR VALVE
Brian C. Clark, Brown Deer, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 26, 1978, Ser. No. 972,863
Int. Cl.³ F16H *47/00;* B60K *41/22;* F15B *15/04*
U.S. Cl. 74—752 C **14 Claims**



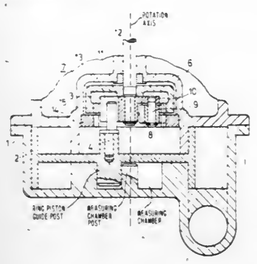
1. A detent mechanism in a hydraulic system comprising, a spool valve including a housing defining a cylindrical opening and having a plurality of annular grooves formed therein, a spool received in the cylindrical opening, a sleeve connected to said spool of said valve defining a plurality of radial openings for selective alignment with each of said annular grooves, a return spring means normally biasing said spool to a return position, a plurality of detent elements in said radial openings, camming means reciprocally mounted in said sleeve for selectively camming said detent elements into said annular grooves, a detent actuating means biasing said camming means and said detent elements radially outward in said openings in a selected one of said grooves, a detent release means biasing said camming means for release of said detent elements from said annular grooves, a load piston received in said sleeve defining a fluid pressure chamber and normally biasing said release means to a disengaging position with said camming means when said detent elements are engaged, said piston disengaging said release means permitting said release means to disengage said detent means responsive to a decrease in pressure in said fluid pressure chamber.

4,265,145
RING-PISTON METER WITH A PLANETARY-GEAR DIFFERENTIAL
Eberhard Friebel, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Continuation of Ser. No. 795,494, May 10, 1977, abandoned.
This application May 29, 1979, Ser. No. 42,849
Claims priority, application Fed. Rep. of Germany, May 28, 1976, 7617502[U]
Int. Cl.³ F16H *1/28;* G01F *3/08*
U.S. Cl. 74—805 **1 Claim**

1. A ring piston meter comprising a ring piston and a planetary gear-differential coupling said ring piston to an output shaft, said ring piston having a driving pin arranged eccentrically with respect to the central axis thereof and being adapted to move about the axis of said output shaft, said planetary-gear differential including:
a stationary ring gear;
a further gear adapted to be connected to said output shaft,

said further gear having a number of teeth which differs from the number of teeth of said ring gear;

a planetary gear arranged to mesh with said ring gear and said further gear;



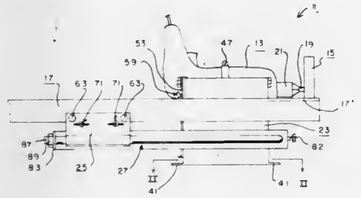
and a driving disk for supporting said planetary gear, said driving disk being rotatably supported coaxially with the axis of said output shaft and having a slot adapted to be engaged by said driving pin.

4,265,146

DEVICE FOR SHARPENING LAWN MOWER BLADES

Charles I. Horrell, Rte. 2, Hardy, Ark. 72542

Filed Apr. 2, 1979, Ser. No. 26,441
Int. Cl.³ B21K *19/00*
U.S. Cl. 76—82.1 **8 Claims**



1. A lawn mower blade sharpening device for use with a motor having an abrasive wheel attached thereto, said device comprising:

(a) clamp means for holding said lawn mower blade;

(b) attachment means for attaching said clamp means to said motor so as to allow said clamp means to be manually reciprocated back and forth substantially parallel to the longitudinal axis of said abrasive wheel with the cutting edge of said lawn mower blade in contact with said abrasive wheel, said attachment means including a rail means for being attached to said motor and a rail follower means for being attached to said clamp means and for reciprocating movement along said rail means, said rail means including a first leg for being slidably attached to said motor and including a second leg fixedly attached to said first leg for movement between an infinite number of positions along a plane substantially parallel to a horizontal plane passing through the longitudinal axis of said abrasive wheel; and

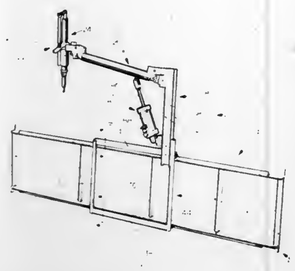
(c) lock means for selectively locking said second leg of said rail means in one of said infinite number of positions.

4,265,147

WORKING PIT WITH ARTICULATED TOOL ARM ASSEMBLY

Albert D. Fox, Novi, Mich., assignor to D. W. Zimmerman Mfg., Inc., Madison Heights, Mich.

Filed Nov. 5, 1979, Ser. No. 91,477
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—55 **18 Claims**



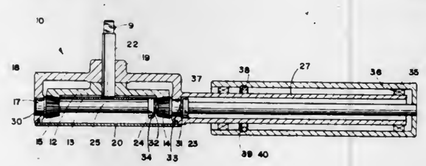
1. In combination, means forming a working pit along an automobile assembly line, supporting means extending longitudinally of said pit and affixed thereto, a trolley mounted on said supporting means for longitudinal movement toward the ends of the pit, an upright support mounted on said trolley and having a portion extending upwardly above said supporting means, arm means pivotally connected to said portion of said upright support, tool-holding means pivotally connected to an outer end of said arm means, and means carried by said upright support for counterbalancing the weight of said arm means and said tool-holding means.

4,265,148

RATCHET TOOL

Rudolf E. Gartzke, 2326 Superior St., Madison, Wis. 53704

Filed Dec. 4, 1978, Ser. No. 966,110
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.29 **5 Claims**



1. A ratchet tool comprising,

(a) a frame configured with a casing head portion and an elongated annular handle portion,

(b) a sleeve disposed substantially concentrically about said annular handle portion and mounted for rotational and axial biasing relative thereto,

(c) a shaft coaxial with said sleeve and affixed thereto extending axially through said handle portion,

(d) a tool head rotatably mounted within said casing head portion and provided with a gear portion having peripherally cut gear teeth,

(e) at least one pinion disposed about said shaft for engaging said gear teeth,

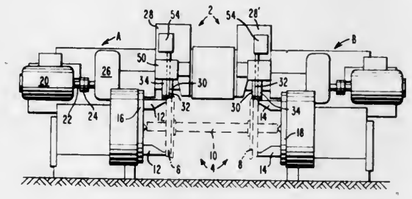
(f) a pair of overrunning couplers disposed with inner races thereof fixedly secured to said shaft and with outer races thereof fitted with means engaged alternately by axial biasing of said shaft and affixed sleeve, with at least said one pinion, thereby to enable said tool head to be operably driven in either rotational direction selectively by said couplers being set to operably be engaged by rotation of said shaft, one in one position of axial biasing of said shaft and the other in the other position of axial biasing of said shaft, to drive at least one pinion and said tool head.

4,265,149

METHOD AND APPARATUS FOR TRUING RAILROAD WHEELS

Helmut Wittkopp, and Bernhard Kunze, both of Erkelenz, Fed. Rep. of Germany, assignors to Firma W. Hegenscheidt Gesellschaft mbH, Erkelenz, Fed. Rep. of Germany

Division of Ser. No. 889,914, Mar. 24, 1978. This application Feb. 26, 1979, Ser. No. 14,957
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1977, 2713997
Int. Cl.³ B23B *5/28*
U.S. Cl. 82—8 **5 Claims**



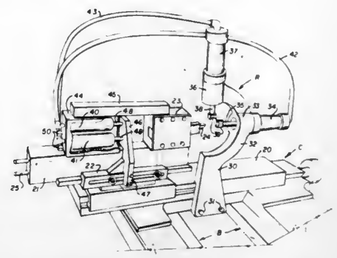
1. An apparatus for truing the wheels of a set of railroad wheels which have a peripheral wheel surface including a rolling tread and a wheel flange, said apparatus comprising, means for mounting the wheels for rotation about an axis of rotation, machine frame means, common carriage means, means mounting said common carriage means on said machine frame means for movement relative to a mounted, rotating peripheral wheel surface in directions parallel to and normal to said axis of rotation, first cutting means fixedly mounted on said common carriage means in a position in which the first cutting means may be brought into cutting engagement with a mounted, rotating peripheral wheel surface by movement of the common carriage means, second cutting means operatively mounted on said common carriage means for movement in unison with the common carriage means and for movement on the common carriage means independently of the common carriage means between a first position in which the second cutting means may be brought into cutting engagement with a mounted, rotating peripheral wheel surface and a second position in which the second cutting means remains out of cutting engagement with any wheel surface, said second cutting means being further mounted and arranged on the common carriage means relative to the first cutting means so that in said first position said second cutting means extends from the common carriage means a first distance less than the first cutting means, and so that in said second position the second cutting means extends from the common carriage a second distance less than the first cutting means and less than said first distance, said apparatus further comprising drive means operatively connected to said second cutting means for selectively moving the second cutting means between said first and second positions independently of said first cutting means and independently of said common carriage means.

4,265,150

VARIABLE FOLLOWER REST FOR A LATHE

Billy R. Burford, Canon City, Colo., assignor to Portec, Inc., Oak Brook, Ill.

Filed Apr. 9, 1979, Ser. No. 28,553
Int. Cl.³ B23B *3/36, 25/00*
U.S. Cl. 82—17 **9 Claims**



1. In combination with a lathe having a carriage, a crossfeed and a cutting tool on the crossfeed, a variable follower rest mounted on the carriage for supporting a tapered shaft, or the like, when it is being turned, comprising:

(a) a standard affixed to the carriage to extend upwardly therefrom to a position alongside the shaft opposite to the position of the cutting tool;

(b) a shiftable bearing arm means mounted upon the standard adapted to engage the shaft and to hold the shaft against the pressure of the cutting tool as the shaft is being turned, including a generally horizontal bearing arm which is radially disposed with respect to, and directed towards, the shaft axis at the side opposite the crossfeed cutting tool;

(c) a shifting means adapted to shift the bearing arm means towards and away from the shaft axis responsive to, and in unison with, the movement of the crossfeed and its cutting tool towards and away from the shaft axis, including a master cylinder and a slave cylinder for said bearing arm means;

(d) an abutment means on the carriage;

(e) an abutment means on the crossfeed in alignment with the carriage abutment means with respect to crossfeed movement; and

(f) said master cylinder having a piston and a piston rod, with said master cylinder and its piston rod being disposed between the carriage abutment means and the crossfeed abutment means whereby to move said piston rod into and out of the master cylinder responsive to movements of the crossfeed upon the carriage and thereby pump fluid into and out of said slave cylinder.

4,265,151

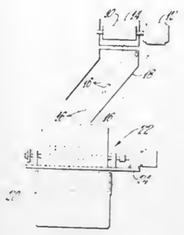
APPARATUS FOR REMOVING LONG STRANDS FROM CHOPPED STRAND MATERIAL

Grant F. Carruth, Granville; Fred S. Coffey, Newark, both of Ohio, and Ray M. Fulmer, Aiken, S.C., assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jul. 31, 1979, Ser. No. 62,379
Int. Cl.³ D01G *1/04*
U.S. Cl. 83—102 **2 Claims**

1. In glass strand chopping and collecting apparatus including a chopping apparatus (**10,12,14**), a collecting carton (**20**), and a chute (**18**) for receiving chopped glass strands (**16**) from the chopping apparatus and directing them into the carton, the improvement comprising apparatus (**22**) for removing strands longer than a desired chopped length, the long strand removing apparatus being disposed between the carton and the chute and comprising a base plate (**24**) having an aperture (**24a**) therethrough, a casing formed principally of two half-covers (**38,40**) pivotally mounted on the base plate respectively on

opposite sides of the aperture and collectively providing an inlet throat (**44**) for receiving chopped glass strands from the chute for delivery through the aperture in the base plate into the carton, a pair of spaced parallel shafts (**27,28**) rotatably mounted on the base plate and extending through the casing over the aperture, each shaft having a plurality of rows of radially extending fingers (**36**) mounted thereon, the rows on each shaft extending axially thereof and being equally arcuately spaced from each other, the fingers of each row being



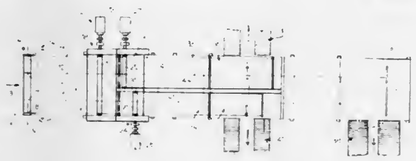
equally spaced from each other, and the fingers on one shaft being staggered from those on the other shaft axially of the shafts, and means (**30,31,32,34**) for rotatably driving the shafts in opposite directions whereby the fingers move upwardly in interleaving relationship between the shafts, strands longer than the desired chopped length are wrapped around one or the other of the shafts, and strands of the desired chopped length pass through the aperture generally on the outer sides of said shafts as distinct from between the shafts.

4,265,152

APPARATUS FOR LONGITUDINALLY AND TRANSVERSELY CUTTING STRIP MATERIAL

Gabriel Corradi, Soissons, France, assignor to Astin France Assistance Technique Industrielle, France

Filed Apr. 17, 1979, Ser. No. 30,815
Claims priority, application France, Feb. 5, 1979, 79 03791
Int. Cl.³ B31B *1/16*
U.S. Cl. 83—106 **5 Claims**



1. A cutting machine for dividing a band of sheet material into a multiplicity of blanks comprising:

means for moving said band in a longitudinal direction,

longitudinal cutting means for dividing said band longitudinally into at least three strips comprising first and second side strips spaced from one another and an intermediate strip between said two side strips,

first and second transverse cutting devices disposed adjacent one another at a first level in position to cut said first and second side strips respectively transversely of their length, each of said first and second cutting devices having a cutting width less than the width of said band, the combined cutting width of said first and second cutting devices being at least approximately equal to the width of said band,

a third transverse cutting device disposed at a second level and having a cutting width at least equal to the width of said band, and

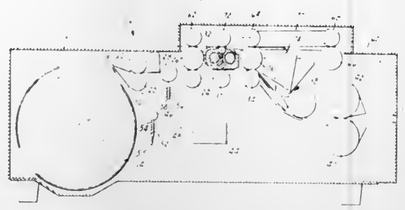
means for directing said first and second side strips to said first and second transverse cutting devices respectively at said first level and for directing said intermediate strip to said third transverse cutting devices at said second level, whereby said strips are independently cut transversely into a multiplicity of blanks of predetermined sizes.

4,265,153

COPY MACHINE WITH AUTOMATIC ROLL SUPPLIED COPY PAPER FEEDING AND CUTTING APPARATUS AND CONTROL CIRCUITRY

Lawrence D. Price, Jr., Minnetonka, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 4, 1980, Ser. No. 118,198
Int. Cl.³ B26D *5/38*
U.S. Cl. 83—372 **3 Claims**



1. An electrically operated copy machine having a transferring mechanism driven by a drive motor for providing synchronous movement in the copy machine of copy paper and original sheets of varying lengths where the copy paper is provided by a continuous web of copy paper from a copy paper supply roll and apparatus and circuitry responsive to the presence and absence of the original for cutting sheets from the copy paper which correspond to the length of the original including:

first and second copy paper feed rollers included in the transferring mechanism, said first feed roller positioned between the copy paper supply roll and said second feed roller;

first and second solenoids, each having a winding;

a capacitor having one side connected to one end of each of said windings;

a D.C. power supply having one side connected to the other end of said second solenoid winding;

a cutter positioned in the path of travel of the copy paper between said first and second feed rollers and operatively connected to said first solenoid;

switch means positioned along the path of travel for an original sheet presenting a first position and a second position in response to the absence and presence, respectively, of an original sheet presented to the copy machine at said switch means, said switch means operatively connected to said other end of said first solenoids, the other side of said capacitor and the other side of said D.C. supply voltage forming a first circuit loop including said first solenoid winding and said capacitor when said switch means is presenting said first position and forming a second circuit loop including said D.C. supply source, said capacitor and said second solenoid winding when said switch means is presenting said second position, said second circuit loop when formed causing said capacitor to be charged and causing said second solenoid winding to be energized while said capacitor is being charged and said first circuit loop when formed subsequent to the formation of said second circuit loop causing said first solenoid winding to be energized by the discharge of said capacitor; and

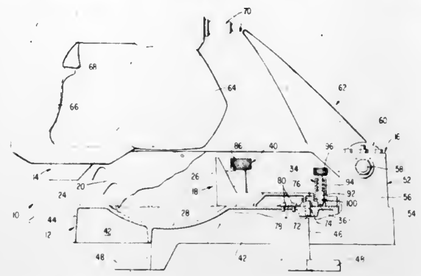
a clutch adapted for control by said second solenoid and operatively engaged between the drive motor and said first feed roller for providing sufficient rotation of said first feed roller to move the copy paper from said cutter to said second feed roller following energization of said second solenoid.

4,265,154

MOTORIZED MITER SAW FENCE MOUNTING

William A. Batson, Pickens, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Oct. 15, 1979, Ser. No. 84,493
Int. Cl.³ B27B *5/20*
U.S. Cl. 83—468 **8 Claims**



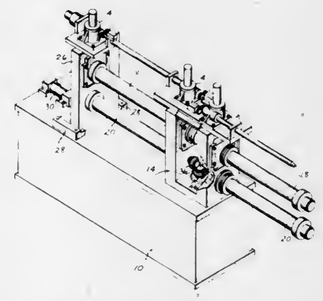
1. Miter saw comprising a cast base structure having a generally planar work support surface to which a motor powered circular chop saw is pivotally mounted for rotation about about an axis generally parallel said work support surface and a work piece positioning fence pivotally carried by said base support structure for rotation about an axis generally perpendicular both said surface and said first mentioned axis, together with means for guiding and restraining said fence for pivotal movement about said second mentioned axis, said guiding and restraining means comprising a pair of pins pressed into said work support surface projecting generally normally upwardly thereof and a cooperating generally circularly arcuate generally downwardly open groove in the under surface of said fence.

4,265,155

SLITTER HAVING PIVOTAL MULTIPLE SPACED PAIRS OF ARBORS

Esteban Lopez, Chicago, and Douglas Matsunaga, Vernon Hills, both of, IL, assignors to Braner Enterprises, Inc., Schiller Park, Ill.

Filed Feb. 26, 1979, Ser. No. 16,126
Int. Cl.³ B23D *19/06;* **B26D** *1/24*
U.S. Cl. 83—479 **4 Claims**



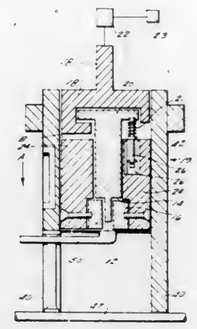
1. In a slitter having multiple spaced pairs of arbors, a frame, a support carried upon said frame, means mounting said support for rotation relative to said frame, said pairs of arbors journaled at one end to said support, a bearing housing spaced from said support and carried by said frame, each pair of arbors being alignable with said bearing housing upon pivotal movement of said support, said bearing housing being shiftable toward and away from said support, the other end of each pair of arbors being journaled within said bearing housing when said arbors are aligned with said bearing housing and the bearing housing shifted toward said support, the improvement comprising drive means at said support for rotating at least one of the arbors of each pair of arbors when journaled in said bearing housing.

4,265,156

STEEL STOCK CUTTING

James H. Stubbings, Rockville, Md., assignor to Potomac Applied Mechanics, Inc., Bethesda, Md.

Filed Jul. 31, 1979, Ser. No. 62,552
Int. Cl.³ B23D *15/04, 23/00*
U.S. Cl. 83—530 **20 Claims**



1. A shearing assembly comprising a female die;

a male die including a cutting blade having a pair of said faces; and

means associated with said cutting blade for preventing rolling of edges of material being sheared, said means comprising a pair of shelf members, one associated with each of said cutting blade side faces, for engaging the edges of material being sheared, each shelf member comprising a pair of substantially straight, planar surfaces, converging to form a point pointing to a direction in which the male die is moved during shearing.

4,265,157

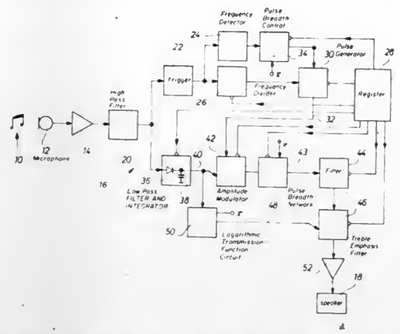
SYNTHETIC PRODUCTION OF SOUNDS

Jobst Fricke; Wolfgang Voigt, and Jürgen Schmitz, all of Cologne, Fed. Rep. of Germany, assignors to Colonia Management-und Beratungsgesellschaft mbH & Co., K.G., Fed. Rep. of Germany

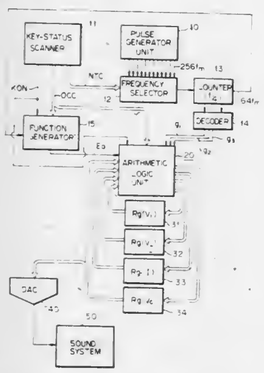
Continuation of Ser. No. 674,830, Apr. 7, 1976, abandoned. This application Jul. 14, 1978, Ser. No. 924,726
Claims priority, application Switzerland, Apr. 8, 1975, 4411/75
Int. Cl.³ G10H *1/02*
U.S. Cl. 84—1.19 **28 Claims**

1. A method for the electronic production of sounds from a sequence of periodic electrical pulse signals, the sounds to be produced having an adjustable pitch and a predetermined timbre, which is determined by an amplitude/frequency function determined by the pulses, the frequency function having a formant character and, above a fundamental frequency corresponding to the pitch of the sounds to be produced from the sequence, at least one amplitude minimum, the cycle duration of the sequence being the reciprocal of the pitch, comprising the steps of: maintaining, for cycles having only one pulse and pulse pause, the duration of each of one of the pulse and pulse pause of each of such cycles of the sequence constant for all pitches within a predetermined pitch range, which includes at

least one fifth; for cycles having more than one pulse and pulse pause which form respectively a pulse distribution pattern and a pulse pause distribution pattern for each of such cycles, maintaining the duration of each pulse within the pulse distribution pattern or the duration of each pulse pause within the pulse pause distribution pattern of each of such cycles of the sequence constant for all pitches within the predetermined pitch range; and transducing said sequence into sounds, wherein the pulse shape is not rectangular.

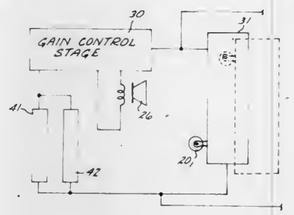


4,265,158
ELECTRONIC MUSICAL INSTRUMENT
Shuichi Takahashi, 1-1-16, Takaidohigashi, Suginami-ku, Tokyo, Japan
Filed Oct. 12, 1979, Ser. No. 84,503
Claims priority, application Japan, Feb. 9, 1979, 54-13293; Mar. 15, 1979, 54-29431; Mar. 20, 1979, 54-31723
Int. Cl.³ G10H *1/12, 5/00*
U.S. Cl. 84—1.22 **15 Claims**



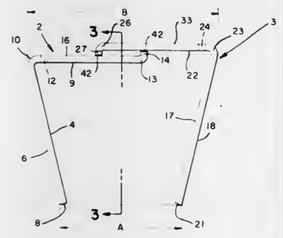
1. An electronic musical instrument comprising:
a key-status scanner means which scans the contacts of all of the key-switches on an instrument keyboard, said key-status scanner means transmitting an octave code representing the octave number corresponding to a closed contact, a note code representing one of the twelve notes corresponding to said closed contact, and a key-on signal indicating the duration of the closed state of said closed contact;
a frequency selector means controlled by said note eode for generating a clock pulse train having a pulse repetition period specified by said note code;
a function generator means which receives said clock pulse train, said octave code and said key-on signal to produce a digital representation of a periodic time function for a duration determined by said key-on signal, the repetition period of said periodic time function being equal to an integral multiple of said pulse repetition period of said clock pulse train, the value of said integral multiple being determined by said octave code;
an elementary digital filter which receives said digital representation of said periodic time function, said octave code and said key-on signal for producing a digital representation of a tone waveshape, said elementary digital filter including an arithmetic logic unit for simulating a voltage and a current in an elementary analog filter; and
output means for producing a musical note from the digital representation of said tone waveshape.

4,265,159
COLOR ORGAN
Theodore Liebman, 8201 Henry Ave., Philadelphia, Pa. 19128, and Robert V. Nemiroff, 9728 Walley Ave., Philadelphia, Pa. 19115
Filed Nov. 13, 1978, Ser. No. 959,889
Int. Cl.³ G08B *5/38*
U.S. Cl. 84—464 R **6 Claims**



1. In a color organ having a plurality of lights mounted in an enclosure, said enclosure including a color mask mounted over said lights, the improvement comprising:
an audio responsive switching circuit connected in circuit with said lights including a sound responsive pick up connected to a gain control stage said gain control stage including a first circuit branch rendered effective during increases in said sound and a second circuit branch rendered effective during decreases in said sound, said first and second branches having different response rates and threshold means at the output of said gain control means connected to said lights for exciting said lights when said gain control means produces an output signal above a predetermined threshold.

4,265,160
COMPOSITE STAPLE-TYPE FASTENER HAVING RELATIVELY MOVABLE LOCKING PORTIONS
Renato G. Martinez, P.O. Box 177, Los Altos, Calif. 94022
Filed Feb. 27, 1978, Ser. No. 881,187
Int. Cl.³ F16B *15/00*
U.S. Cl. 411—442 **8 Claims**



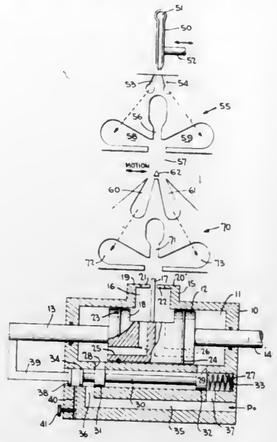
1. A composite staple-like drivable fastener comprising first and second parts adapted to be driven simultaneously and each including a leg portion converging toward the other leg portion and mutually reaching web portions arranged in partially overlapping engagement and adapted while so engaged to simultaneously move relative to one another into further overlapping engagement when the fastener is driven, and means retaining said first and second staple parts in partially overlapping engagement prior to being driven and adapted to release said staple parts for said relative movement when said staple parts are driven.

4,265,161
MEANS FOR CONTROLLING RAPID-FIRE IN AN AUTOMATIC WEAPON
Pier C. Beretta, Gardone Val Trompia, Italy, assignor to Fabbrica D'Armi Pietro Beretta S.p.A., Gardone V.T., Italy
Filed Feb. 7, 1979, Ser. No. 10,144
Claims priority, application Italy, Feb. 7, 1978, 5122 A/78
Int. Cl.³ F41D *11/10*
U.S. Cl. 89—129 B **8 Claims**



1. In an automatic weapon which includes a trigger; a hammer for angular displacements toward and away from a firing pin; a pair of arming teeth on the hammer and angularly spaced from each other; a trip lever associated with one of the arming teeth on the hammer and capable of angular displacements; an arming pull-rod attached to the trigger and acting on the trip lever for disengaging the hammer; a rapid-fire lever associated with the other arming tooth on the hammer during rapid-firing; and a striker carriage having first and second cam surfaces engaging the lever and the arming pull-rod during the recoiling and closing movements of the carriage striker, improved means for controlling rapid-fire conmprising:
(a) a transfer lever for transferring the movement of the striker carriage to the arming pull-rod for angularly displacing the arming pull-rod to engage and disengage the trip lever of the hammer;
(b) fire selector means for controlled rapid-fire action, said fire selector means being angularly displaceable;
(c) a disengager rocker lever arm pivotably associated with said transfer lever and movable into active and inactive positions with said first selector means;
(d) a counting tooth integral with said disengager rocker lever arm for counting the sequentially fired shots;
(e) a rapid-fire control rod attached to the arming pull-rod and guided for vertical, linear movements by action of said disengager rocker lever arm, and for angular movements as a result of the displacements of the arming pull rod;
(f) a first group of teeth in said rapid-fire control rod engaging said counting tooth; and
(g) a second group of teeth in said rapid-fire control rod associated with an arrest lever associated with said rapid-fire control rod, the number of teeth in said second group corresponding to the number of shots to be fired sequentially.

4,265,162
SERVOVALVE HAVING FLUIDIC ACTUATOR
Vincent F. Neradka, 13806 Drake Dr., Rockville, Md. 20853, and Francis M. Manion, 1705 Evelyn Dr., Rockville, Md. 20852
Filed May 25, 1979, Ser. No. 42,292
Int. Cl.³ F01B *25/02*; F15B *15/22*
U.S. Cl. 91—3 **13 Claims**

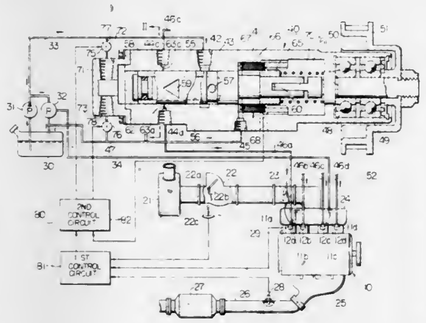


1. A servo actuator of the type wherein a first body member is moved in a chamber in response to a command signal, said servo actuator being characterized by:
first and second fluid inlets into said chamber for receiving said fluid directed thereto differentially;
a fluidic driver amplifier for providing said command signal in the form of a fluid jet which is deflected relative to said first and second inlets in proportion to the amplitude of said command signal;
means for moving said first body member in one direction in said chamber in response to the fluid flow received at said first inlet being greater than the fluid flow received at said second inlet, and for moving said first body in an opposite direction in said chamber in response to the fluid flow received at said second inlet being greater than the fluid flow received at said first inlet; and
flow splitter means secured to and movable with said first body member and disposed directly in the path of said fluid jet for increasing the jet flow into said second inlet in proportion to displacement of said first body member in said one direction in said chamber, and for increasing the jet flow into said first inlet in proportion to displacement of said first body member in said opposite direction in said chamber.

4,265,163
FUEL CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES
Umeo Arao, Okazaki; Tsuneyuki Egami, Aichi; Tooru Kosuda, and Yasuhiro Takeuchi, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan
Filed Jul. 31, 1979, Ser. No. 62,554
Claims priority, application Japan, Aug. 10, 1978, 53-97873
Int. Cl.³ F15B *13/16*
U.S. Cl. 91—361 **4 Claims**

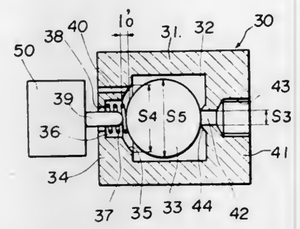
1. A system for controlling the position of plunger means comprising:
a source of hydraulic medium;
a pump for pressurizing the hydraulic medium;
a housing having a closed end;
plunger means slidably fitted inside said housing, said

plunger means forming with said housing a hydraulic chamber;
biasing means for biasing said plunger means axially;
an inlet passage communicated with said pump and said hydraulic chamber for delivering the pressurized hydraulic medium from the pump to the hydraulic chamber to thereby bias said plunger means against said biasing means;
an outlet passage communicated with said hydraulic chamber and said source of hydraulic medium for returning the hydraulic medium from the hydraulic chamber to the source of hydraulic medium;
an inlet electromagnetic valve positioned in said inlet passage for opening and closing said inlet passage;
an outlet electromagnetic valve positioned in said outlet passage for opening and closing said outlet passage;
a position sensor for sensing an actual position of said plunger means generating an actual position signal indicative thereof;
calculation means for calculating a variable desired position for said plunger means;
first comparison means, connected to said position sensor and said calculation means, for determing whether the pressure in said hydraulic chamber is to be increased or decreased, by comparing the desired position of said plunger means, calculated by said calculation means, with the actual position of said plunger means sensed by said position sensor;



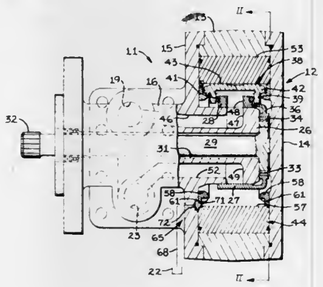
difference calculating means connected to said position sensor and said calculation means, for calculating a difference between the sensed actual position and the desired position;
second comparison means, connected to said difference calculating means, for comparing the calculated difference with a predetermined value; and
valve control means, connected to said first and second comparison means and said inlet and outlet electromagnetic valves, for electrically controlling the openings and closing of said inlet and outlet electromagnetic valves,
said valve control means determining, in response to a comparison result of said second comparison means indicating that said calculated difference is larger than the predetermined value, (a) that one of said inlet and outlet electromagnetic valves is to be opened continuously, while (b) the other thereof is to be closed continuously, and in response to a comparison result of said first comparison means, to which electromagnetic valve is to be opened, and
said valve control means, in response to a comparison result of said second comparison means indicating that said calculated difference is smaller than the predetermined value, determining (a) that one of said inlet and outlet electromagnetic valves is to be opened intermittently with pulses of a first predetermined width, while (b) the other thereof is to be closed intermittently with pulses of a second predetermined width which is different from said first predetermined width, and in response to the comparison result of said first comparison means to which electromagnetic valve the pulses of the first predetermined width is to be applied.

4,265,164
PRESSURE DETECTING DEVICE
Eizo Maeda, Tokyo, and Hiromichi Iizuka, Yokosuka, both of Japan, assignors to Kabushiki Kaisha ASAHI Enterprise, Kanda, Japan
Filed Apr. 23, 1979, Ser. No. 32,458
Claims priority, application Japan, Apr. 24, 1978, 53/48468; Jan. 16, 1979, 54/3609[U]
Int. Cl.³ F15B *15/17*
U.S. Cl. 91—417 R **11 Claims**



1. A pressure detecting device comprising a housing with a pair of side walls and having a pressure detecting port at one of the side walls and a discharge port at the other side thereof, a pressure receiving member axially displaceable disposed in an axial bore in said housing, said axial bore being communicated with the pressure detecting port through said one side wall of the housing, an actuating rod secured to said pressure receiving member and displaceably extended through the other side wall of the housing and a coil spring which is energized to displace the pressure receiving member toward the pressure detecting port, wherein seal is provided between the side wall of the housing at the pressure detecting port side and the pressure receiving member as well as between the other side wall of the housing at the discharge port side and the pressure receiving member and further sealing area at the discharge port side is larger than that at the pressure detecting port side.

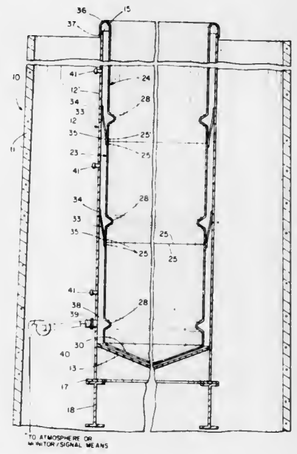
4,265,165
RADIAL PISTON FLUID TRANSLATING DEVICE WITH POWER CONSERVING SCAVENGING MEANS
William K. Engel, Peoria, and Dean E. Miller, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Aug. 27, 1979, Ser. No. 90,153
Int. Cl.³ F01B *13/06*
U.S. Cl. 91—490 **11 Claims**



1. In a radial piston fluid translating device (**11**, **11***a*, **11***b*) having a rotor (**27**), a plurality of fluid translating elements (**38**)

carried thereon, race means (**44**) for forcing radial reciprocation of said elements (**38**) as said rotor (**27**) turns and which defines an annular chamber (**57**) in which said elements (**38**) orbit and wherein centrifugal force forms accumulated fluid into a rotating annular volume during rotation of said rotor (**27**) and wherein different portions of said rotating annular volume of fluid exhibit different pressures, the device having a fluid drain path (**68**, **68***a*, **68***b*) adapted to discharge fluid accumulated in said chamber (**57**), the improvement comprising:
scavenging means (**65**) for communicating said drain path (**68**, **68***a*, **68***b*) with said chamber (**57**) along a first portion of the element orbit at which the fluid exhibits a first pressure and for blocking communication of said drain path (**68**, **68***a*, **68***b*) with said chamber (**57**) along a second portion of said element orbit at which the fluid exhibits a different second pressure.

4,265,166
CORROSION RESISTANT MEMBRANE FOR CHIMNEY LINER
John A. Parker, Grand View, Mo.; Sid Handler, Williamsport, Pa., and Randolph W. Snook, Shawnee Mission, Kans., assignors to Pullman Incorporated, Chicago, Ill.
Filed Sep. 10, 1979, Ser. No. 73,814
Int. Cl.³ E04H *12/28*
U.S. Cl. 98—58 **21 Claims**

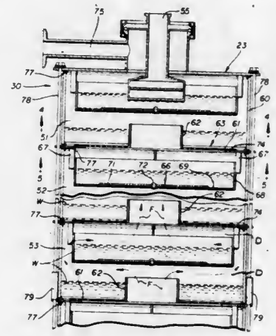


1. A chimney having in combination;
a tubular outer vertically extending liner,
an inner tubular membrane shell substantially vertically coextensive with said liner and being radially spaced therefrom to provide and an annular enclosed space therebetween,
means supporting said inner membrane from said outer liner, and
means connected to said liner communicating with said space to provide a minus atmospheric pressure within said space.

4,265,167
DEOXYGENATING UNIT
Harry G. Mojonnier, and Sigmund P. Skoli, both of Chicago, Ill., assignors to Mojonnier Bros. Co., Chicago, Ill.
Continuation of Ser. No. 871,539, Jan. 23, 1978, abandoned. This application Jun. 20, 1979, Ser. No. 50,158
Int. Cl.³ B01D *19/00;* **A23L** *2/00;* **B01F** *3/04*
U.S. Cl. 99—323.2 **12 Claims**

1. A modular gas-exchange deoxygenating column for removing oxygen-containing air from water, comprising, in combination, a water exhaust pump bottom unit, water level control means mounted in and on the pump bottom unit for controlling the water level therein, a plurality of deoxygenating units separably mounted atop the pump bottom unit in vertical array, interconnector rod means interconnecting the units, each deoxygenating unit including an outer unit wall, a foraminous baffle sheet extending inwardly from the wall, and a stack member extending upwardly from the baffle sheet, the wall, sheet and stack together forming a foraminous-bottomed retainer for temporarily retaining water, the retained water forming a first gas barrier, and the water falling from the foraminous sheet being brought into first intimate contact with upwardly flowing gas and metering device means for introducing carbon dioxide gas into the column at a positive pressure, so as to provide virtually complete exchange of carbon dioxide for the oxygen-containing air previously dissolved in the water.

6. A system for deaerating water to be used in brewing beer

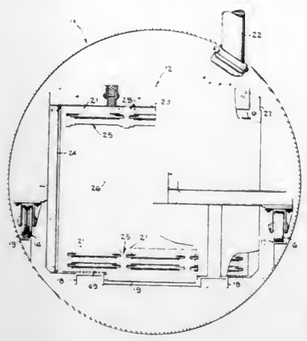


and the like, the system comprising water flow control means for providing an even flow of water, a gas-exchange deaerating column connected to the water flow control means for receiving water therefrom and comprising a liquid exhaust pump unit bottom, water level control means mounted in and on the pump unit for controlling the water level therein and a plurality of deoxygenating unit modules separably mounted atop the pump unit in vertical array, interconnector rod means interconnecting the column units, each deoxygenating unit module including an outer unit wall, a foraminous retainer baffle sheet extending inwardly from the wall and a stack member extending upwardly from the baffle sheet, the wall, sheet and stack together forming a foraminous-bottomed retainer for temporarily retaining a layer of water, the column further including metering device means for introducing carbon dioxide gas into the column at a positive pressure so as to provide virtually complete exchange of carbon dioxide for the oxygen-containing air previously dissolved in the water.

4,265,168
STEAM TABLE TRAY SPACING APPARATUS
Tony T. Chiu, Los Gatos; Bruce M. Wright, San Jose; Jurgen H. Strasser, Mountain View, and Bruce M. Harper, San Jose, all of Calif., assignors to FMC Corporation, San Jose, Calif.
Division of Ser. No. 951,549, Oct. 16, 1978, Pat. No. 4,225,626. This application Feb. 1, 1980, Ser. No. 117,593
Int. Cl.³ A23L *3/10, 3/12;* **A47J** *27/00*
U.S. Cl. 99—448 **13 Claims**

1. A spacer assembly for steam table trays to be carried in a car adapted to be disposed within a cooking retort, said assembly comprising a rectangular frame having two side frame members and two end frame members, and a plurality of equally spaced longitudinal frame members extending between said two end frame members substantially parallel to said side frame members, and a plurality of support pads attached to said longitudinal frame members and equally spaced thereon so that the distance laterally between adjacent support pads accom-

modates the width of a steam table tray and the distance longitudinally between adjacent support pads accommodates the length of a steam table tray, each of said support pads including a pad body having a planar support surface thereon with a centrally disposed land projecting therefrom, said land having



peripherally spaced abutment surfaces extending toward said planar support surface, said planar support surface and said abutment surfaces cooperating to engage the corners of adjacent steam table trays, whereby a grid is provided which is adapted to receive a predetermined number of steam table trays in spaced relation in a predetermined pattern.

4,265,169

METHOD AND APPARATUS FOR PRODUCING PITTED OLIVES

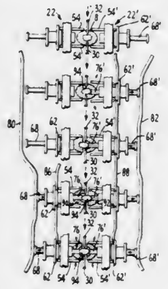
Jesus A. Silvestrini, Hualpa 235, Godoy Cruz, Mendoza, Argentina

Continuation-in-part of Ser. No. 855,821, Nov. 30, 1977, abandoned, and Ser. No. 27,404, Apr. 5, 1979, abandoned. This application Jul. 2, 1979, Ser. No. 53,829

Int. Cl.³ A23N *4/08, 4/22*

U.S. Cl. 99—494

8 Claims



1. Apparatus for separating the meat of an olive into two end portions and preparing such an olive for packing, comprising means for receiving an olive and producing a cut substantially through the meat of said olive in a plane transverse to an axis extending through the blossom and stem ends of said olive, thus defining a pair of olive meat end portions each extending around and adhered to a portion of the pit of said olive, said receiving and cut producing means being configured to restrain movement of said meat end portions along said axis toward said receiving and cut producing means while permitting movement of the pit of said olive generally along said axis;

first punch means aligned with and mounted for reciprocation along said axis between two positions, in one said position said first punch means being outside the end of one said meat end portion remote from said receiving and cut producing means and in the other said position said first punch means extending at least partially through said one end portion sufficiently to dislodge said pit from said one end portion;

second punch means generally opposed to said first punch means and aligned with and mounted for reciprocation along said axis between two positions, in one said position said second punch means being outside the end of the other said meat end portion remote from said receiving and cut producing means and in the other said position said second punch means extending at least partially through said other end portion sufficiently to dislodge said pit from said other end portion; and

means for reciprocatingly moving said first and second punch means between said first and second positions, whereby the two olive meat end portions may be freed from the pit.

4,265,170

SOLENOID ACTUATED CONTAINER CRUSHER

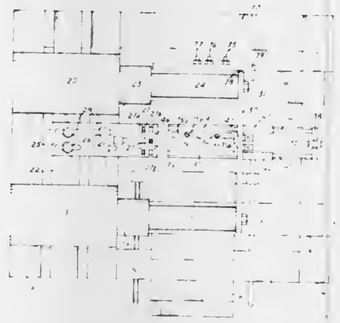
Everett E. Schulze, Jr., 1700 Jasper St., Suite E, Aurora, Colo. 80011

Filed Aug. 21, 1979, Ser. No. 68,479

Int. Cl.³ B30B *9/32*

U.S. Cl. 100—49

8 Claims



1. A small container crushing assembly comprising:

(a) frame means,

(b) holder means inclusive of a pair of horizontal, spaced rods mounted on said frame means for a container to be crushed, supporting such container in a longitudinal position,

(c) anvil means against which an end of a container is crushed mounted adjacent one end of said holder means, including a limited movement face means normally spring biased away from said anvil means and movable to said anvil means under influence of a container being crushed,

(d) flat faced crusher bar means mounted normally to said pair of rods arranged to reciprocate toward and away from said anvil means, and

(e) solenoid motivating means including at least one coil and a plunger interconnected with said crusher bar means for reciprocating the same toward said anvil means on activating said solenoid motivating means to draw said at least one plunger in said at least one coil of said solenoid motivating means for crushing a container on said holder means under full force of said solenoid motivating means.

4,265,171

APPARATUS FOR CONVEYING AND DEWATERING WET COARSE SCREENINGS DEBRIS

Oswald Busse, and Hugo Klesper, both of Aarbergen, Fed. Rep. of Germany, assignors to Passavant-Werke Michelbacher Huette, Fed. Rep. of Germany

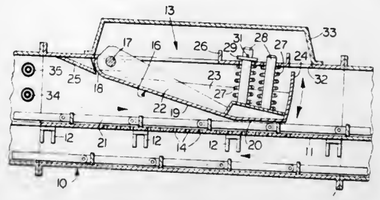
Filed Jul. 26, 1979, Ser. No. 60,917

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1978, 7824274[U]

Int. Cl.³ B30B *9/06*

U.S. Cl. 100—118

8 Claims



1. In apparatus for conveying and dewatering wet coarse screenings debris embodying a drag chain conveyor having a conveying flight, the improvement comprising,

(a) a pressing unit having a pressure plate mounted above said conveying flight and exerting a downward pressure on said wet coarse screenings debris,

(b) a trough having a perforated bottom disposed subjacent said conveying flight in the vicinity of said pressure plate, and

(c) said pressure plate being of a width generally conforming to that of said trough.

4,265,172

SELECTIVE DRUM SERIES MARKING HEAD

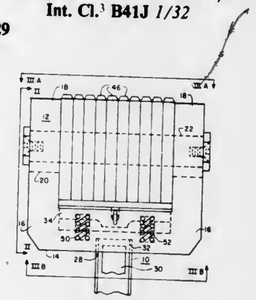
Monti El-Souessi, 632 Stoops Ferry Rd., Coraopolis, Pa. 15108

Filed Jun. 4, 1979, Ser. No. 44,863

Int. Cl.³ B41J *1/32*

U.S. Cl. 101—29

8 Claims



1. A numbering head, for impressing a mark upon a workpiece, adaptable to a device having a force transmitting movable hammer, comprising:

a. a frame having a base and two spaced prongs, said prongs each including an elongated aperture and being positionable against a workpiece, said base including an aperture therethrough;

b. a shaft supported from said prong apertures sized and disposed for sliding motion in the direction of the elongation of said prong apertures;

c. a plurality of marking wheels supportcd on said shaft between said prongs;

d. a yoke disposed within said frame including a first portion contactable with said marking wheels and a second portion aligned with said base aperture;

e. means for biasing said yoke into contact with said wheels; and

f. means for affixing said frame to said force transmitting device such that, with said prongs positioned against a workpiece, force is transmitted by said hammer to said second portion of said yoke, said force being transmitted through said base aperture, said force being further transmitted from said yoke to said wheels and to said workpiece.

4,265,173

NUMBERING MACHINE WITH CHECK DIGIT FUNCTION

Mutsumi Takahashi, Kawasaki; Toshio Uwabe, Tokyo; Toshio Nagase, Yokohama, and Shosuke Sato, Tokyo, all of Japan, assignors to Tokyo Keiki Company Ltd. and Totec Co., Ltd., both of Tokyo, Japan

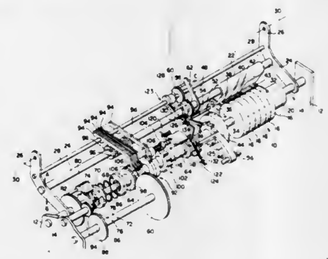
Filed Oct. 27, 1978, Ser. No. 955,235

Claims priority, application Japan, Oct. 31, 1977, 52/130405; Nov. 1, 1977, 52/131003; Feb. 17, 1978, 53/17432

Int. Cl.³ G06F *11/10*; B41J *3/40*

U.S. Cl. 101—79

9 Claims



1. A numbering machine in which each of code numbers to be printed and a check digit number associated therewith are printed simultaneously, said machine comprising:

a print unit including a plurality of numbering type wheels for successively setting the code numbers in response to print operations;

a check digit type wheel including a predetermined circulating sequence of digits for check digits corresponding to the code numbers to be printed by said print unit; and

a check digit type wheel drive control means whereby in response to a change of the code number of said print unit by a print operation, the check digit printing digit on said check digit type wheel is changed according to a predetermined number of skips, said check digit type wheel drive control means including:

synchronous drive means for rotating said check digit type wheel in synchronism with the intermittent rotation of the numbering type wheel corresponding to the least significant digit place;

synchronous drive releasing means for disengaging said synchronous drive means with said check digit type wheel in response to a change of the code number on the numbering type wheels of said print unit dictating a skipping of said circulating sequence of digits for check digits;

a driving source for imparting a rotational driving force to said check digit type wheel in response to the disengagement of said synchronous drive releasing means; and

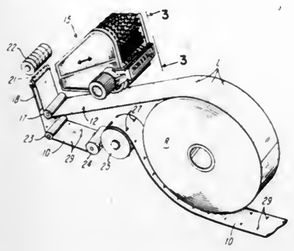
rotational angle control means whereby said check digit type wheel is rotated by said driving source through a predetermined rotational angle corresponding to a predetermined number of skips of the circulating check digit pattern corresponding to a change of the code number.

4,265,174

ENDLESS PRINTING BAND AND SUPPORT ASSEMBLY

William A. Jenkins, Englewood, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Nov. 15, 1978, Ser. No. 960,911
Int. Cl.³ B41J *1/20*
U.S. Cl. 101—111 **8 Claims**



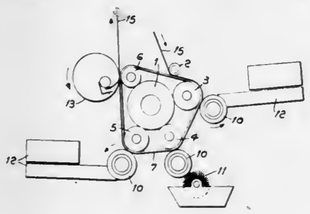
1. A printing head assembly adapted for use in a compact handheld label printing and dispensing apparatus, comprising a first row of flexible endless printing bands arranged in side-by-side relation, a second row of flexible endless printing bands arranged in side-by-side relation and spaced from the first row in tandem relation, the corresponding printing bands in the first and second rows having corresponding peripherally spaced raised printing characters, guide means within the printing bands and forming a printing station, a corresponding annular indexing gear within each of the printing bands and cooperating with the guide means to support the band, the indexing gears including corresponding gear teeth disposed between the adjacent endless printing bands and forming narrow spaces between the bands, a row of corresponding transfer gears disposed between the first and second rows of printing bands and connecting the gear teeth of the indexing gears for the bands in the first row with the gear teeth of the indexing gears for the corresponding bands in the second row to effect simultaneous indexing of each set of two corresponding bands within the first and second rows, and setting means supported for both axial and rotary movement within the indexing gears for one of the row of bands for indexing each set of corresponding indexing gears to present different sets of characters for printing.

4,265,175

CENTRAL SUPPORT ARRANGEMENT FOR PRINTING SYSTEMS

Richard K. Smejda, 192 Edmund Ave., Paterson, N.J. 07502

Continuation-in-part of Ser. No. 902,954, May 4, 1978, abandoned. This application Jun. 23, 1980, Ser. No. 162,174
Int. Cl.³ B41F *9/02, 15/10, 13/20, 5/08*
U.S. Cl. 101—115 **9 Claims**



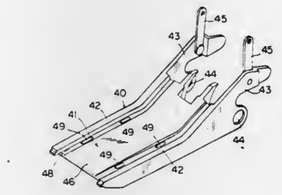
1. A printing system comprising:
a center drive roller mounted for rotation in a given direction,
a plurality of backing rollers mounted around and in contact with said center roller and driven in the opposite direction,
means for independently adjusting the position of each of said backing rollers in selective positions about the circumference of said center roller,
an endless flexible blanket sleeve stretched around and enveloping and rotating with said backing rollers to urge said backing rollers into contact with said center roller, and
printing means mounted at selective positions about said blanket sleeve and adapted to print on a substrate material passing between said blanket sleeve and printing means.

4,265,176

CLOG PREVENTIVE DEVICE FOR LABEL PRINTING AND APPLYING MACHINE

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato Kenkyusho, Japan

Filed Jun. 1, 1979, Ser. No. 44,659
Int. Cl.³ B41F *35/00;* **B41K** *5/02*
U.S. Cl. 101—292 **13 Claims**



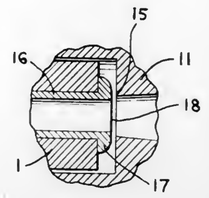
1. A clog prevention device for use with a label printing and applying machine for preventing clogging of the feed path of a label strip over the platen of the label printing and applying machine; said clog prevention device comprising:
a platen for use in the label printing and applying machine; said platen including an upper surface over which passes a complete label strip, comprised of a series of labels and a supporting carrier paper for the labels, and adhesive between the labels of the series and the supporting carrier paper, the individual labels of the series thereof are printed on said platen;
said platen further includes a forward tip, around which the carrier paper may be wrapped and comprises an underside past which the carrier paper may be passed following separation therefrom of the previously adhered labels of the series thereof;
a passage along said platen upper surface defined by side walls extending longitudinally along said platen; label strip relief means associated with said platen for acting upon the label strip as it moves through said passage for preventing the label strip from contacting said side walls of said passage;
said relief means further comprising a carrier paper guide recess in said platen underside which is defined by and between opposed underside side walls; and said carrier paper guide recess having a width less than the width of said passage and substantially the same width as the width of the carrier paper for guiding the carrier paper while contacting both side edges of the carrier paper, whereby the complete label accumulation strip may be guided over said platen upper surface through being guided at said underside of said platen.

4,265,177

DEVICE IN BLASTING CAP FOR LOW-ENERGY FUSE

Hans Lundborg; Leif Kristensen, and Stig Nyqvist, all of Nora, Sweden, assignors to Nitro Nobel AB, Gyttorp, Sweden

Filed Mar. 26, 1979, Ser. No. 23,608
Claims priority, application Sweden, Apr. 7, 1978, 7803931
Int. Cl.³ C06C *7/00*
U.S. Cl. 102—275.9 **9 Claims**



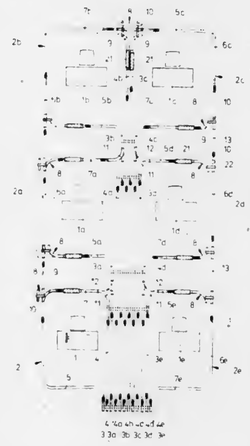
1. The combination comprising a blasting cap and a low energy fuse, the low energy fuse comprising a hose adapted for detonation to transmit a blast wave, the blasting cap comprising a tubular cover having an open end and a closed end, explosive means in said cover, said hose having one end inserted into the open end of the cover in facing relation with said explosive means, and moisture-proof barrier means between said fuse and said explosive means, said moisture-proof barrier means including a diffusion-tight rigid tube inserted into said one end of the hose and a flange on said tube extending outside said hose in proximity with said one end of the hose, and a diffusion-tight film or foil covering said flange to seal the interior of said tube and thereby said hose from the interior of said cover, said film or foil being ruptured by the blast wave upon detonation of said hose.

4,265,178

CONVEYOR APPARATUS FOR INTRAPLANT CONVEYANCE

Gustav G. Veith, Laiming, Fed. Rep. of Germany, assignor to Gustav Georg Veith GmbH & Co. KG, Munich, Fed. Rep. of Germany

Filed Oct. 18, 1979, Ser. No. 86,263
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1978, 2845799
Int. Cl.³ B61L *27/04*
U.S. Cl. 104—88 **4 Claims**



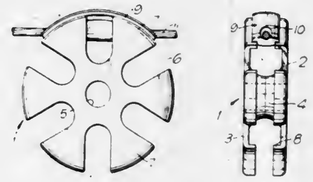
1. A rail system for conveying goods within a plant or the like in which there are at least two work stations, said rail system being of the type having a feeder rail for each of said at least two work stations, each feeder rail extending from a terminal zone towards its work station, and a return rail for each of said at least two work stations, each return rail extending from its work station to said terminal zone, said rail system being characterized by:
A. a pair of rail loops, one for each of said at least two work stations, each rail loop comprising rail arranged as
(1) a first segment having an entry end connectable with the feeder rail for the work station and having a departure end,
(2) a second segment which is spaced from the first segment and which has a departure end connectable with the return rail for the work station and an entry end, and
(3) a third segment having an entry end connectable with the departure end of said first segment and a departure end connectable with the entry end of said second segment;
B. a bypass rail segment having an entry end adjacent to the departure end of the third segment of one of said rail loops and a departure end adjacent to the entry end of the third segment of the other of said rail loops;
C. said one rail loop having shiftable rail means at the departure end of its third segment for connecting said third segment alternatively and selectably with the second segment of said one rail loop and with the entry end of said bypass segment; and
D. said other rail loop having shiftable rail means adjacent to the entry end of its third segment for connecting the same alternatively and selectably with the departure end of said bypass segment and with the departure end of its first segment.

4,265,179

LOAD-TRANSFER DEVICE

Alan W. Tupper, The Weavers House, Castle Combe, Wiltshire, SN14 7HX, England, and Peter R. Flux, Calne, England, assignors to Alan William Tupper, Wiltshire, England

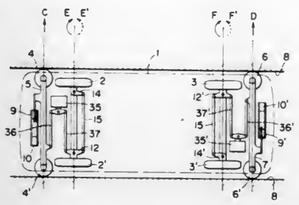
Filed Mar. 19, 1979, Ser. No. 21,967
Claims priority, application United Kingdom, Mar. 30, 1978, 12342/78
Int. Cl.³ B61B *12/02*
U.S. Cl. 104—182 **16 Claims**



1. A system for enabling a load to be moved along a guide path comprising:
(a) a pair of wheels, at least one being formed with several recesses evenly spaced around its periphery, the recesses being spaced by projecting parts of the wheel;
(b) a slug member shaped to generally conform to, and located between, juxtaposed peripheral parts of the wheels to allow relative rotation between at least one of the wheels and the slug member;
(c) an elongate guide member defining the aforesaid guide path and extending between the wheels as a chord across the wheels at peripheral parts thereof;
(d) means to maintain the elongate member in sliding contact with the slug member to permit relative movement between the wheel and slug member assembly and the elongate member while locating the elongate member with respect to the wheel and slug member assembly;

(e) rigidly fixed support means supporting one of the group consisting of said wheel and said elongate member; and
(f) load attachment means associated with the other of the group consisting of said wheel and said elongate member.

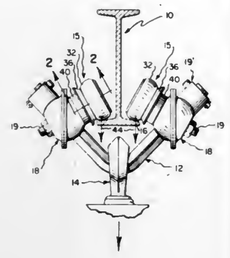
4,265,180
STEERING MEANS FOR GUIDED VEHICLES
Yukio Uozumi, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan
Filed Feb. 27, 1979, Ser. No. 15,667
Claims priority, application Japan, Mar. 1, 1978, 53-22920
Int. Cl.³ B61B *13/00*; B61F *9/00*
U.S. Cl. 104—247 **11 Claims**

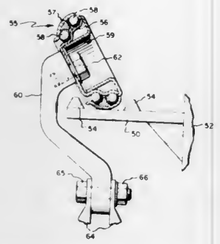


1. Guided vehicle for use with combined guide rail means and running track means comprising a vehicle body, steerable running wheel means provided at each end portion of said vehicle body adapted to run on running track means, guide wheel means adapted to run along the guide rail means, the guide rail means being provided at opposite sides of the running track means, said guide wheel means being comprised of deformable tire means and movable with respect to said vehicle body in transverse direction of the body, steering linkage means connecting said guide wheel means with said running wheel means so that a transverse movement of the guide wheel means produces a steering movement of the running wheel means, restraining means comprised of friction means for providing a frictional resistance to the linkage means associated with the steering linkage means for applying a restraining force to the linkage means so that the steering movement is not produced in the running wheel means until steering force applied by the guide wheel means exceeds a predetermined value.

4,265,181
ROLLING BEARING WHEEL AND HUB SUPPORT COMBINATION
Kenneth D. Schreyer, Clarence; Earl T. Leverentz, North Tonawanda; Thomas R. Nusz, Amherst, and Reuben P. Benton, North Tonawanda, all of N.Y., assignors to Columbus McKinnon Corporation, Tonawanda, N.Y.
Filed Nov. 13, 1978, Ser. No. 959,679
Int. Cl.³ B61B *13/00*
U.S. Cl. 105—150 **9 Claims**

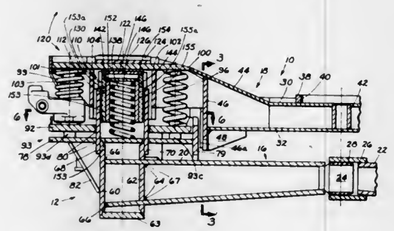
1. An overhead trackway and rolling trolley combination comprising:
a trackway having an upper planar wheel tracking surface;
a rolling bearing wheel and support assembly therefor arranged to run along said trackway surface;
said assembly including a load carrying and wheel support means; a wheel hub member anchored to said support means and comprising an inner race member defining an axis for rotation thereabout which is laterally inclined downwardly and outwardly relative to the plane of said trackway surface; an outer race wheel tread member enclosing said inner race hub member in spaced relation therefrom; and rolling bearing means disposed between said inner race hub and outer race wheel tread members, whereby said outer race wheel tread member is adapted to roll upon said trackway surface about said hub member;
said race members being fabricated from sheet material in the regions of their rolling bearing contact surfaces and having internal profiles in such regions which are complementary to the profiles of such rolling bearing means, whereby the spacing between said members permits lim-





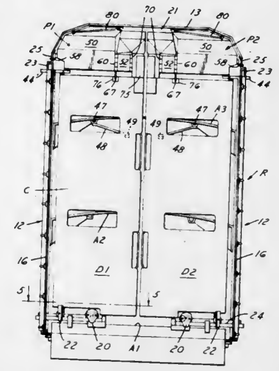
ited relative floating movement therebetween when the wheel assembly is in its operative position while still maintaining contact between said rolling bearing means and said regions of said race members.

4,265,182
DAMPING RAILWAY CAR TRUCK
Robert K. Neff, St. Louis, and David P. Hillstead, St. Charles, both of Mo., assignors to ACF Industries, Inc., New York, N.Y.
Filed Jul. 2, 1979, Ser. No. 54,390
Int. Cl.³ B61D *5/06, 5/10, 5/12, 5/52*
U.S. Cl. 105—197 D **6 Claims**



1. A railway car truck comprising: transversely spaced side frames, said side frames including centrally depressed portions having transversely aligned vertical slots which receive a plurality of truck spring groups and side frame stop means located inboard of said depressed portions, a bolster including a center connection extending between the side frames and resting on the spring groups; said side frames including a hollow post extending upwardly between the spring groups; said bolster including a depending post which surrounds and is exterior to the upper portion of the side frame post, and bolster stop means which abut said side frame stop means to control lateral movement of the bolster relative to the side means; said bolster stop means being spaced from said side frame stop means a distance sufficient to allow significant relative movement between the bolster and the side frames; a friction damping assembly including upper and lower wedges located within the side frame post; said lower wedge including an opening to receive a spring extending upwardly from said depressed portion of said side frame and extending into said upper wedge; said lower wedge including at least one inclined wear surface which interacts with and slidingly engages at least one wear surface on said upper wedge which is superimposed on the lower wedge wear surface; the upper wedge having an upper surface engaging a lower surface of the bolster whereby oscillations of said spring groups and bolster are damped by abutting surfaces of the lower wedges and side frame posts, increasing damping force as the bolster moves downwardly.

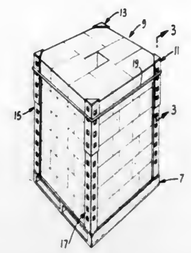
4,265,183
UPPER CLOSURE FOR AN END DOOR OF A RAIL CAR
Israel D. Peisner, Huntington Woods, and George H. Stol, Berkley, both of Mich., assignors to Whitehead & Kales Company, River Rouge, Mich.
Filed Oct. 22, 1979, Ser. No. 87,405
Int. Cl.³ B61D *17/06, 19/00*
U.S. Cl. 105—410 **8 Claims**



2. An end closure for a rail car having a side wall and means defining a vertical slot in said side wall near one end of said rail car, said end closure comprising an upright door and a panel, means mounting said door for lateral movement from a closed position across a lower portion of said one end of said rail car to an open position projecting through said vertical slot with at least a portion of said door disposed at the outer side of said side wall, means mounting said panel for lateral movement from a closed position across an upper portion of said one end of said rail car to an open position disposed at the inner side of said side wall, and means connecting said panel to said door to cause said panel to be moved to open and closed positions by the corresponding movement of said door.

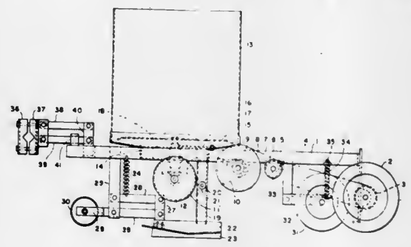
4,265,184
METAL CORNERBOARD FOR PALLETS
Clayton E. Cox, 1371 Eureka Canyon Rd., Watsonville, Calif. 95076
Filed Sep. 20, 1979, Ser. No. 77,345
Int. Cl.³ B65D *19/44*
U.S. Cl. 108—55.1 **1 Claim**

1. A corner structure for a pallet comprising in combination:
a. a top section, said top section having two side walls disposed at right angles to each other, forming an L-shaped structure;
b. a top cap of generally triangular configuration bridging the top walls of said L-shaped structure;
c. a plurality of tongues directed inwardly from each side wall of said top section, each of said tongues terminating in a down-turned end parallel to a side wall;
d. a bottom section of the same general configuration as said top section having side walls at right angles to each other and a bottom cap bridging the lower surfaces of said side walls;
e. said lower section having a plurality of slots formed in each side wall corresponding in placement and separation



to the tongues in the top section whereby said top and bottom sections can be locked together to form a pallet corner, with said tongues entering said slots and locking against the side walls of the bottom section and
f. said top section and said bottom section have a plurality of tongues and slots in the respective sections, spaced vertically from each other whereby said sections can be locked together at various preselected heights to change the distance between said top and bottom caps.

4,265,185
PLUG MIX SEED PLANTER
Kevin G. Skipper, Merlin, Ontario, Canada
Filed Dec. 8, 1978, Ser. No. 967,590
Int. Cl.³ A01C *1/00*
U.S. Cl. 111—1 **2 Claims**



1. A plug planter for planting, in synchronization, gel and plugs containing sprouts, said planter comprising, in combination, a framework, ground-engaging wheels carried by said framework for supporting same, a container carried by said framework for storing a mixture from which the plugs are formed, said container having a discharge chute extending toward the ground, gate means within said chutes for intermittently discharging the plugs therefrom, a plow located below said discharge chute and movably supported by said framework, mechanically-operated, electrical make-and-break contact points connected to at least one of said wheels for controlling said gate means for controlling discharge of the plugs at predetermined intervals, a device carried by said planter for discharging measured quantities of gel synchronously with the discharge of the plugs, said device comprising a gel-containing tank, and discharge means for discharging gel from said gel-containing tank in uniformly-measured quantities, said discharge means comprises a cylinder, a piston in said cylinder, a piston rod connected to said piston, a solenoid coil

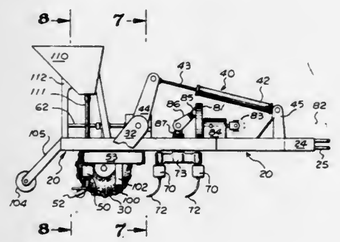
having a core connected with said piston rod for moving said piston rod and said piston in one direction in said cylinder when said solenoid coil is activated, a spring for moving said piston rod and said piston in the opposite direction when the solenoid coil is activated, an inlet in one end portion of said cylinder, an outlet in another end portion of said cylinder, whereby a measured quantity of the gel moves from said inlet to said outlet when the piston moves in said cylinder in a direction toward said outlet from said inlet, pipe means having a discharge end located adjacent said discharge chute and having another end communicating with said cylinder outlet, second pipe means connecting a lower portion of said gel-containing tank with said cylinder inlet, said solenoid coil being activated by said make-and-break contact points to cause the uniformly-measured quantities of gel to be discharged substantially simultaneously with the plugs, with the rate of discharge of the plugs and the quantities of gel also being coordinated with the rate of rotation of said ground-engaging wheels.

4,265,186

GRAIN DRILL WITH OSCILLATING PLANTER BAR

William K. Nichols, P.O. Box 18, Corral, Id. 83322

Filed Aug. 20, 1979, Ser. No. 67,606
Int. Cl.³ A01C *5/06, 19/00*
U.S. Cl. 111—85 **33 Claims**



1. An apparatus for planting seed comprising:

(a) a frame carried by a plurality of ground engaging wheels;

(b) means for raising and lowering said frame with respect to the ground;

(c) a planter bar carried by said frame carrying a plurality of seed dispensing boots for penetrating the ground and inserting seeds therein when said frame is lowered, wherein each seed dispensing boot includes a ground penetrating blade having a leading edge for forming a furrough in the ground in which to insert seeds, with each of said seed dispensing boots connected to said planter bar by swivel means enabling each seed dispensing boot to rotate freely and said ground penetrating blade to steer said seed dispensing boot along the ground track of said planter bar as said frame is moved over the ground, and wherein each seed dispensing boot is attached to said swivel means by a means enabling each seed dispensing boot to be deflected upwardly toward said frame upon engaging an obstruction in the ground, the said means urging said boot into ground engagement when the boot no longer engages the obstruction, and wherein each seed dispensing boot includes a furrough covering plate disposed above and outwardly around each seed dispensing boot, each furrough covering plate being curved and engaging the ground on either side of the furrough and covering the furrough after seeds have been inserted therein;

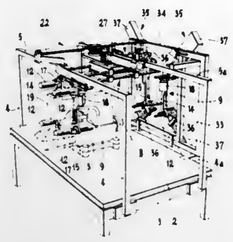
(d) means for oscillating said planter bar laterally as said ground engaging wheels move across the ground.

4,265,187

APPARATUS FOR APPLYING ELASTIC RINGS TO TUBULAR GARMENTS

Giancarlo D. Torre, Milan, Italy, assignor to Rockwell-Rimoldi, S.p.A., Biassono, Italy

Filed Jun. 4, 1979, Ser. No. 44,884
Claims priority, application Italy, Jun. 15, 1978, 24590 A/78
Int. Cl.³ D05B *21/00*
U.S. Cl. 112—121.26 **9 Claims**



1. An apparatus for applying elastic rings to tubular garments of the type having a supporting frame with a sewing machine mounted therein and with opposed piece-carriers that are alternately movable between a position of garment loading and a sewing zone position for effecting a seaming operation by the sewing machine on the garment carried thereby said apparatus comprising:

(a) a movable structure (**8**) mounted on the supporting frame above the sewing machine having a piece carrier unit (**9**) assembled on each end thereof;

(b) a first actuating means (**22**) connected to said movable structure (**8**) for effecting longitudinal movement thereof and for simultaneously moving one of said piece-carriers to and from a loading means (**35**) and the other to and from the sewing zone;

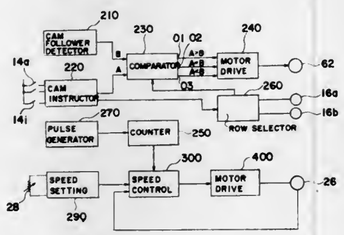
(c) a second actuating means **27** connected to said movable structure (**8**) for rotating the latter to effect a reversal of positions of said piece-carriers units (**9**) after movement of the latter from said loading means (**35**) and the sewing zone by said first actuating means (**22**).

4,265,188

ELECTRIC SEWING MACHINE

Kazuo Suzuki, Oohasuhigashi; Hirokazu Koda, Gose; Kenichi Nakamura, Nara; Syuich Yoshikawa, Nara, and Naoki Ohara, Aichi, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi and Sharp Kabushiki Kaisha, Osaka, both of, Japan

Filed Jun. 5, 1979, Ser. No. 45,762
Claims priority, application Japan, Jun. 6, 1978, 53-68465
Int. Cl.³ D05B *3/02, 3/06*
U.S. Cl. 112—158 B **8 Claims**



1. An electric sewing machine having a thread carrying needle which is reciprocated in an axial direction thereof and is jogged in a lateral direction, a cloth advancing mechanism for advancing a cloth in a direction perpendicular to the lateral

direction at a predetermined pitch after each stitch is formed for forming a predetermined pattern of stitches, said sewing machine comprising:

a plurality of individual pattern information carrying means each provided for controlling the lateral movement of the thread carrying needle, said means including the first information carrying means carrying information indicative of a pattern of tacking stitches of a button hole defined on a cloth, the second information carrying means carrying information indicative of a pattern of left side stitches of the button hole and the third information carrying means carrying information indicative of a pattern of right side stitches of the button hole;

means for reading information carried on any one of said information carrying means;

pattern instructing means including at least one switch for generating an instruction to sew button hole stitches;

pulse generating means for producing a pulse upon the sewing of each stitch in synchronism with the rotation of the shaft for driving the needle;

means for selecting the location of said information reading means to allow said information reading means to read the information carried by said first information carrying means in response to instructions fed from said pattern instructing means;

means for counting the number of tacking stitches formed on the cloth by counting the number of pulses fed from said pulse generating means; and

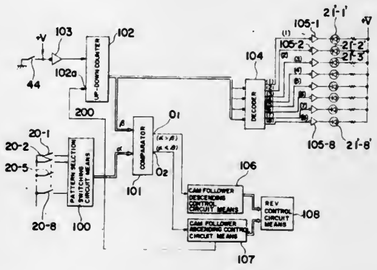
means for selecting the location of said information reading means to allow said information reading means to read information carried by said second information carrying means or by said third information carrying means when said tacking stitches are completed.

4,265,189

SEWING PATTERN DISPLAYING ARRANGEMENTS

Kazuo Suzuki, Higashiosaka; Hirokazu Koda, Gose; Kenichi Nakamura, Nara; Syuich Yoshikawa, Yamatokooriyama, and Naoki Ohara, Toyota, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka and Aisin Seiki Kabushiki Kaisha, Aichi, both of, Japan

Filed Jun. 12, 1979, Ser. No. 47,861
Claims priority, application Japan, Jun. 13, 1978, 53/71715
Int. Cl.³ D05B *3/02, 79/00*
U.S. Cl. 112—158 E **3 Claims**



1. In a sewing machine capable of electrically sewing an object subject to a sewing pattern selected, a sewing pattern displaying arrangement capable of displaying in a visible mode a transient process from one present selection of the sewing pattern to the successive selection of the sewing pattern, which comprises in combination;

a plurality of sewing pattern selection buttons for optionally selecting a sewing pattern from a plurality of sewing patterns;

a plurality of displaying members capable of correspondingly showing respective selections of said sewing patterns, the number of said displaying members being correspondingly equivalent to the number of said sewing patterns;

a plurality of sewing pattern information carrying members constituting one unit, each member of which is to carry an information of said sewing pattern, respectively;

at least one picking-up member for picking up one sewing pattern information from said plurality of said sewing pattern information carrying members;

at least one sewing pattern information carrying member selector means for transferring said picking-up member to one of said sewing pattern information carrying members specifically selected subject to an actuation of one of said plurality of sewing pattern selection buttons;

a circuitry means capable of electrically actuating in succession certain numbers of said displaying members one by one following a transferring movement of said picking-up member from one sewing pattern information carrying member presently selected to the succesively selected sewing pattern information carrying member, with said certain numbers of said displaying members respectively provided for the corresponding numbers of said sewing pattern information carrying members being correspondingly spaced between said one sewing pattern information carrying member and said successively selected sewing pattern information carrying member,

said circuitry means including,

a switching means including a first inverter, said switching means being arranged to produce a clock pulse, every time after said picking-up member is transferred selectively in an upward direction and in a downward direction on said unit from one to another successive sewing information carrying member;

an up-down counter means, said up-down counter means being arranged to count said clock pulse impressed through said first inverter selectively in an increment mode and in a decrement mode subject to one of said selective directions of vertical transit of said picking-up member, thereby to output a respective coded information signal corresponding to said successive selection; and

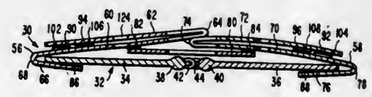
a decoder circuit means provided with a plurality of outputs and including a corresponding number of second inverters, the number of said outputs of said decoder corresponding to said number of said displaying members, each of said displaying members being constituted by a respective light-emitting member and connected to a corresponding one of said second inverters, said decoder circuit means being impressed by an output from said up-down counter, thereby to convert said coded signal into a respective signal correspondingly actuating one of said light-emitting members correspondingly provided for the respective displaying member through said corresponding one of said inverters.

4,265,190

SEWING AID FOR SLIDE FASTENER AND METHOD

George B. Moertel, Conneautville, Pa., assignor to Textron, Inc., Providence, R.I.

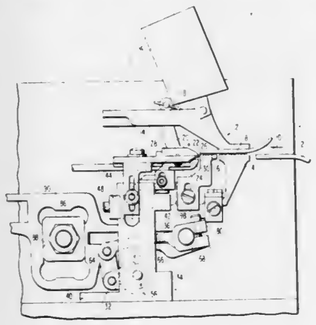
Filed Jun. 1, 1978, Ser. No. 911,570
Int. Cl.³ D05B *3/12, 35/06*
U.S. Cl. 112—265.2 **81 Claims**



1. A device for use in sewing at least a portion of a slide fastener having a pair of carrier tapes to an article having an opening defined by edge portions on opposite sides thereof comprising

a guide for extending along the article edge portions bordering opposite sides of the opening in the article,
said guide having a width sufficient to extend over portions of both carrier tapes of the slide fastener, and having a length sufficient to extend along substantially the length of the slide fastener portion to be sewn to the article,
said guide being substantially inelastic and stable in the width and length dimensions thereof,
means for removably attaching the guide to both carrier tapes of the slide fastener, and
means for removably attaching the edge portions of the article to the guide to mount the slide fastener on the article in position to be sewn to the article.

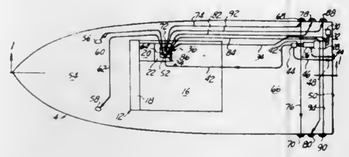
4,265,191
SEWING MACHINE WITH TRIMMER DRIVE MECHANISM
Edward A. Kelly, Wethersfield, Conn., assignor to The Merrow Machine Company, Hartford, Conn.
Filed Jun. 6, 1979, Ser. No. 46,400
Int. Cl.[2] D05B *65/02*
U.S. Cl. 112—288 **10 Claims**



1. A sewing machine, comprising,
a feed member for engaging and moving articles in a feed direction through a sewing station where stitches are applied to the article, a feed drive mechanism for driving the feed member,
a trimmer on the outfeed side of the sewing station for cutting dangling chains of stitches from articles sewn by the machine, said trimmer including a pair of blades, a trimmer drive mechanism for producing relative movement between the trimmer blades,
the improvement wherein said trimmer drive mechanism includes a rotary member, means for operatively connecting the rotary member to one of the trimmer blades to drive the trimmer blade in response to rotation of the rotary member, a first one-way clutch supporting said rotary member for movement in one rotary direction, a second one-way clutch for driving said rotary member in said rotary direction, and means for rotationally oscillating said second one-way clutch to rotate said rotary member and move said one of said trimmer blades.

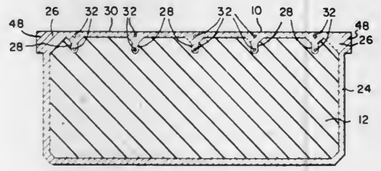
4,265,192
AUXILIARY HYDRAULIC MANEUVERING SYSTEM FOR SMALL BOATS
Garf L. Dunn, 31120 Hunter Dr., Farmington Hills, Mich. 48018
Filed Feb. 5, 1979, Ser. No. 9,106
Int. Cl.[3] B63H *25/46*
U.S. Cl. 114—151 **1 Claim**

1. A small boat with an auxiliary hydraulic maneuvering system comprising a hull with a bow portion and a stern portion and a transom behind the stern portion and with a water line at which the boat floats when immersed in water,
a hydraulic pump having connected thereto a water intake conduit with a water inlet opening adapted to be mounted in the hull below the water line thereof,
power-operated means for driving said pump,
starboard and port bow thrust nozzles adapted to be mounted in and transversely to the hull bow portion on opposite sides thereof above the water line thereof in a downward and outward discharge direction relatively to said hull,
starboard and port stern sidewise thrust nozzles adapted to be mounted in and transversely to the hull stern portion on opposite sides thereof above the water line thereof in a downward and outward discharge direction relatively to said hull,



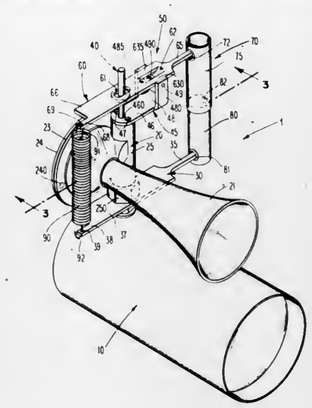
forward thrust nozzles adapted to be mounted in and transversely to the hull stern portion on opposite sides thereof above the water line thereof in a downward and outward and rearward discharge direction relatively to said hull,
backward thrust nozzles adapted to be mounted in and transversely to the hull stern portion on opposite sides thereof above the water line thereof in a downward and outward and forward discharge direction relatively to said hull,
hydraulic pressure discharge conduit means connecting said pump to said nozzles,
control valve means disposed in said hydraulic pressure discharge conduit means between said pump and said nozzle means in flow-regulating relationship therewith,
and means for shifting said control valve means between closed and open positions thereof.

4,265,193
CONCRETE MARINE FLOAT AND METHOD OF FABRICATING
Wesley W. Sluys, Bellingham, Wash., assignor to Builders Concrete, Inc., Bellingham, Wash.
Filed Jul. 16, 1979, Ser. No. 57,594
Int. Cl.[3] B63B *35/44*
U.S. Cl. 114—267 **6 Claims**



1. A marine float, comprising a concrete shell having a bottom, a deck, two opposed sidewalls having lower edges contacting opposite side edges of said bottom and upper edges contacting opposite side edges of said deck and two opposed endwalls having lower edges contacting respective end edges of said bottom, upper edges contacting respective end edges of said deck, and opposed side edges contacting opposite side edges of said sidewalls, said floats being adapted for joining other of said floats endwall-to-endwall, said deck having a plurality of downwardly projecting transverse and longitudinal reinforcing ribs integrally formed therewith, thereby allowing said deck to have a relatively thin mean thickness, said float further including a tubular conduit extending transversely beneath each transverse rib in contact with the lower edge thereof, and a tie rod extending through each of said conduits with the ends of said tie rods projecting from the sidewalls of said float to allow said tie rods to be secured to fastening members which fasten said floats to each other.

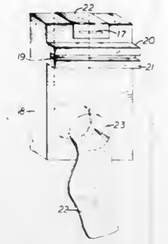
4,265,194
FIRE ALARM HEAT SENSOR
Joseph T. Sullivan, 1170 Country La., Huntingdon Valley, Pa. 19006
Filed May 4, 1979, Ser. No. 36,390
Int. Cl.[3] B67D *5/32;* **G01K** *11/06;* **G08B** *17/00*
U.S. Cl. 116—106 **5 Claims**



1. A heat sensor comprising:
a support member having a fulcrum and first and second portions;
an actuating member pivotally mounted with said support member and having first and second portions inversely moveable about said fulcrum;
a spring operatively engaging in tensioned condition said first portion of said support member and said first portion of said actuating member; and
heat responsive means for collecting heat from the environment and transferring same to a fusible means, said heat responsive means having two separable portions each bound to the other by said fusible means to form an interengaging assembly wherein said separable portions of said heat responsive means comprise a first cylindrical element operatively engaging said second portion of said actuating member and a second cylindrical element operatively engaging said second portion of said support member, said first and second cylindrical elements forming outer and inner cylindrical sleeves which telescopically engage each other and are fused together by a eutectic bond.

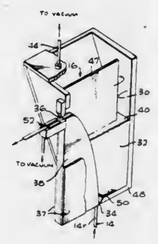
4,265,195
MARKERS FOR ELECTRIC FENCES
Wayne G. Higgins, Valley High On Lost River Rd., North Woodstock, N.H. 03262
Continuation-in-part of Ser. No. 969,465, Feb. 1, 1979, abandoned. This application Sep. 20, 1979, Ser. No. 77,397
Int. Cl.[3] A01K *3/00;* **E04H** *17/00*
U.S. Cl. 116—209 **2 Claims**

1. A fence marker comprising:
a plate of stiff elastic insulating material having front and back faces, said front face having thereacross a groove with substantial length and substantially parallel sides, said groove having a depth at least somewhat greater than the diameter of wire to which said marker is to be attached and a width somewhat less than said diameter, said groove being of such width to cause said parallel sides to grip said wire tightly when said wire is pressed into said groove, said groove being located at a substantial distance from a center line across said front face such that a larger portion of said plate tends to hang below said wire and a smaller portion of said plate is held above said wire,



a streamer attached to said smaller portion and extending downwardly over a portion of said back face opposite said groove to prevent contact between said streamer and said wire, said lower larger portion having an aperture through said faces thereof, and said streamer extending through said aperture to hang from said front face of said larger portion.

4,265,196
TONER APPLICATOR APPARATUS
Alfred M. Nelson, Redondo Beach, and David L. Davis, Venice, both of Calif., assignors to AM International, Inc., Los Angeles, Calif.
Continuation of Ser. No. 726,912, Sep. 27, 1976, abandoned. This application Jun. 19, 1978, Ser. No. 917,424
Int. Cl.[3] B05C *11/06, 19/00*
U.S. Cl. 118—50 **2 Claims**



1. Apparatus for applying magnetically attractable toner to a front face of a tape and for removing excess toner from the tape, comprising:
chamber walls forming a chamber for storing the toner to a predetermined level, said chamber forming inlet and outlet openings for passing said tape therethrough;
said chamber walls including a convex tape guide means for defining a tape path and for supporting a rear face of said tape above and below said toner level to permit the application of toner to said front face and substantially eliminate the application of toner to said rear face, the portion of the tape guide means disposed above the toner level having a smaller radius of curvature than the portion disposed below the toner level;
vacuum means positioned external to said chamber and coupled to the inside of said chamber for continually applying a vacuum to said chamber and drawing air into said outlet opening and across the front face of the tape

and into a region of the chamber immediately over the toner, producing an airflow in said chamber; and

baffle means disposed in said region of said chamber adjacent said outlet opening and in the path of said airflow for slowing the airflow in said chamber enabling toner carried in the airflow to become separated from the airflow and accumulate with the stored toner in the chamber.

4,265,197

DEVELOPING METHOD AND APPARATUS USING APPLICATION OF FIRST AND SECOND ALTERNATING BIAS VOLTAGES FOR LATENT IMAGE END PORTIONS AND TONE GRADATION, RESPECTIVELY

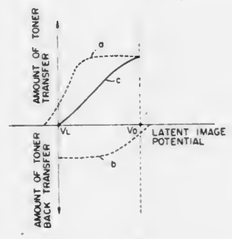
Tsutomu Toyono, Tokyo; Shunji Nakamura, Kawasaki; Junichiro Kanbe, Tokyo; Yasuyuki Tamura, Kawasaki, and Tohru Takahashi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

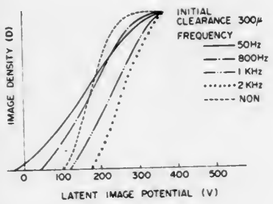
Filed Feb. 26, 1980, Ser. No. 124,910

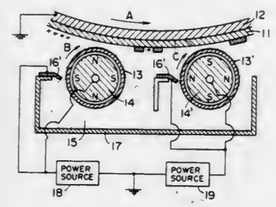
Claims priority, application Japan, Mar. 6, 1979, 54-25921

Int. Cl.³ G03G *15/09*

U.S. Cl. 118—657 **10 Claims**







1. A developing method in which a developer supporting member is opposed to a latent image bearing member with a clearance therebetween so that developer is caused to be transferred from said supporting member to said latent image bearing member to effect development, the improvement residing in that a first and a second developing portion are provided as said developer supporting member so that these portions effect development in the named order so as to complete the developing step, a first alternating bias for causing the developer to be transferred so as to develop mainly the edge portions of the latent image is imparted to said first developing portion and a second alternating bias for causing the developer to be transferred so as to to reproduce mainly the tone gradation of the latent image is imparted to said second developing portion.

10. A developing apparatus in which a developer supporting member is disposed with a clearance with respect to a latent image bearing member and development is effected with developer being caused to be transferred from said developer supporting member to said latent image bearing member, the improvement residing in that said developer supporting member comprises a non-magnetic rotatable member enclosing magnetic poles therein and that said apparatus has means for imparting a first developing alternating bias during a first rotation of said rotatable member, means for imparting a second developing alternating bias during a second rotation of said rotatable member, and means for changing over the alternating bias from said first alternating bias to said second alternating bias after termination of the first rotation of said non-magnetic rotatable member, whereby a developing bias is provided by said first and second alternating biases.

4,265,198

APPARATUS FOR FIXING HEAT-FUSIBLE TONER IMAGES FORMED ON A WEB

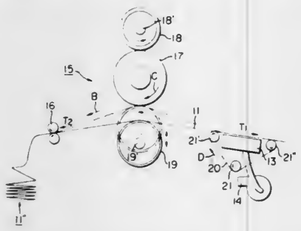
Yukimasa Shinohara, Yokohama, and Hiroo Ichihashi, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 819,141, Jul. 26, 1977, Pat. No. 4,218,499. This application Dec. 12, 1978, Ser. No. 968,800

Claims priority, application Japan, Jul. 30, 1976, 51-91834

Int. Cl.³ G03G *15/20*

U.S. Cl. 118—695 **14 Claims**



1. An apparatus for intermittently fixing a toner image formed on a web which is intermittently fed to a fixing station thereof, the toner image being formed by a toner image forming means located upstream of the fixing station with respect to the web feeding direction, said apparatus comprising:

a heated first roller at the fixing station for fusing and fixing the toner image on the web;

a second roller at the fixing station for press-contacting the web to said first roller;

instruction means for alternately generating a start signal for starting the fixing operation and a stop signal for stopping the fixing operation, while the web is between said first and second rollers;

shift means, responsive to the start and stop signals, for alternately changing the relative position of said first and second rollers between a first relative position wherein the web is gripped between said first and second rollers to fix the toner image, and a second relative position wherein the web is disengaged from said first roller to interrupt the fixing action of said first roller;

driving means, responsive to the start signal, for rotating at least one of said first and second rollers to transport the web; and

delay means, responsive to the start signal, for delaying the actuation of said driving means until a predetermined time after the first relative position has been established.

4,265,199

METHOD AND APPARATUS TO ASSIST IN PROVOKING FORWARD MOVEMENT OF ANIMALS

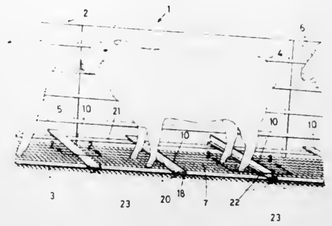
Donald L. Hopkins, Heywood, Australia, assignor to Alf Hannaford & Co. Pty. Ltd., Beverley, Australia

Filed Jan. 10, 1979, Ser. No. 2,469

Claims priority, application Australia, Jan. 10, 1978, PD2989

Int. Cl.³ A01K *15/00*

U.S. Cl. 119—29 **9 Claims**



9. The method for the provoking of forward movement of sheep along a race having an electrically conductive floor comprising the steps of providing a plurality of transversely disposed insulated electrodes along the race at a height above the floor of between the sheep's leg hock and the lower surface of the sheep's hoof, the insulation preventing contact with the electrode by a sheep's leg by only forward and/or downward movement, and shocking the sheep to effect forward movement provocation of the sheep when a sheep backs into any such electrode.

4,265,200

METHOD AND APPARATUS FOR CONTROLLING THE ONSET OF FUEL INJECTION IN DIESEL ENGINES

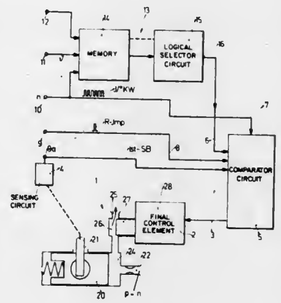
Wolf Wessel, Oberriexingen, and Gerhard Engel, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Nov. 21, 1977, Ser. No. 853,669

Claims priority, application Fed. Rep. of Germany, Nov. 23, 1976, 2653046

Int. Cl.³ F02M *39/00*

U.S. Cl. 123—501 **38 Claims**



1. A method for controlling the timing of fuel injection in a Diesel engine in dependence on external operating conditions, whereby fuel is supplied under pressure from a fuel supply pump to at least one fuel injection nozzle, comprising the steps of:

(a) storing engine operational data in a set-point generating circuit;

(b) sensing at least rpm and load data of the engine and supplying said sensed data to the set-point generating circuit as a result of which the set-point generating circuit generates a set-point value signal determinative of the desired onset of fuel injection:

(c) generating, at a predetermined instant in the crankshaft rotation, a reference value pulse signal in synchronism with the crankshaft rotation;

(d) scanning the operation of the at least one fuel injection nozzle and generating, as an angularly-proportional signal representative of the start of fuel injection, an actual value pulse signal;

(e) generating a set-point value pulse signal from the reference value pulse signal and the set-point value signal;

(f) generating a control deviation of the onset of fuel injection relative to the set-point value signal as a function of the reference value pulse signal, the actual value pulse signal and the set-point value pulse signal, said control deviation having a magnitude and algebraic sign determined by the occurrence of the actual value pulse signal and the set-point value pulse signal relative to the reference value signal; and

adjusting the setting of the onset of fuel injection of a final control element in accordane with the magnitude and algebraic sign of the control deviation to thereby reduce the magnitude of the deviation.

4,265,201

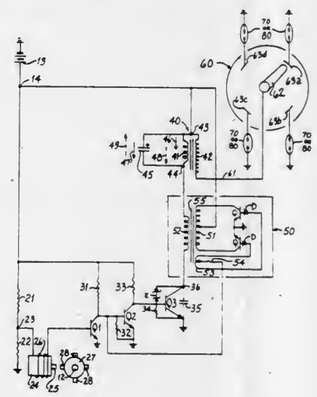
STRATIFIED FUEL IGNITION SYSTEM INCLUDING HUMID AIR INJECTION

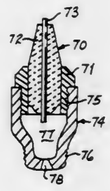
Martin E. Gerry, 13452 Winthrope St., Santa Ana, Calif. 92705

Continuation-in-part of Ser. No. 923,828, Jul. 12, 1978, Pat. No. 4,216,412, and a continuation-in-part of Ser. No. 878,792, Feb. 17, 1978, Pat. No. 4,169,445, and a continuation-in-part of Ser. No. 868,118, Jan. 9, 1978, Pat. No. 4,168,692, and a continuation-in-part of Ser. No. 812,912, Jul. 5, 1977, Pat. No. 4,176,647. This application Jul. 20, 1979, Ser. No. 59,465

Int. Cl.³ F02B *23/00*; F02P *1/00*

U.S. Cl. 123—260 **31 Claims**





1. An ignition system having first and second modes of operation, said system being an integral part of an engine

which develops motive power by burning fuel received in a main combustion chamber, comprising the combination of:

an auxiliary combustion chamber, integral with the main combustion chamber, said chambers having a common passageway therebetween, said auxiliary chamber receiving a portion of the fuel;

an electrical igniter, integral with said auxiliary chamber, said igniter having an electrically conductive base and an electrode electrically insulated from said base;

an ignition transformer having a primary winding and a secondary winding coupled to said igniter; and

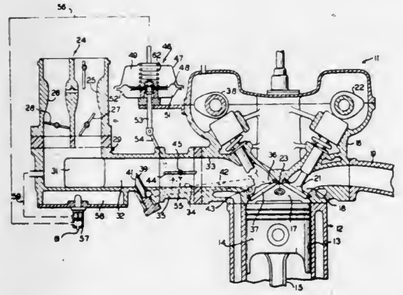
excitation means, connected to said primary winding, for creating an electrical arc within the auxiliary chamber during the second mode and for creating a bipolar dual amplitude voltage waveform consisting of a first voltage of relatively short time duration and relatively high level as compared with the second voltage of said waveform of relatively lower voltage level and relatively longer time duration than the first voltage, said first voltage initiating an electric field and said arc within the auxiliary chamber and said second voltage sustaining said field and arc for the duration of the second mode, said second voltage also sustaining acceleration of a jet flame of the ignited fuel portion exiting through said passageway into the fuel within the main chamber.

4,265,202

INDUCTION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Hiromitsu Matsumoto, Hamamatsu, Japan, assignor to Yamaha Hatsukoki Kabushiki Kaisha, Iwata, Japan

Filed Aug. 29, 1978, Ser. No. 937,703
Claims priority, application Japan, Sep. 3, 1977, 52-106030
Int. Cl.³ F02B *31/00*
U.S. Cl. 123—308 **9 Claims**



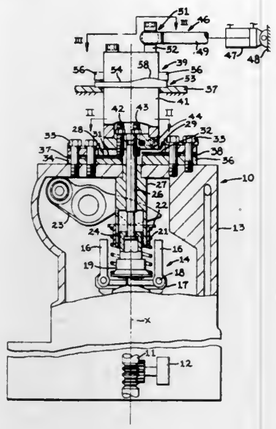
1. In an internal combustion engine having a substantially open variable volume chamber in which combustion occurs, a spark plug positioned in said open variable volume chamber for filing a charge in said chamber and a main intake passage communicating with said chamber through a main intake port for delivering a charge therethrough, the improvement comprising a sub-intake passage communicating with said chamer through a sub-intake port, said sub-intake passage having an effective cross-sectional area substantially less than the effective cross-sectional area of said main intake passage for causing a given mass flow of charge through said sub-intake port to enter said chamber at a significantly greater velocity, said sub-intake port communicating with said main intake passage contiguous to said main intake port, said sub-intake port being oriented relative to said chamber and said spark plug for directing charge entering said chamber through said sub-intake port across said spark plug at the time of ignition, and valve means for controlling the ratio of the communication of said ports with said chamber during a given cycle operation of said engine.

4,265,203

GOVERNOR CONTROL HAVING DUAL POWER SETTINGS

Donald E. Cain, Peoria, Ill., and Nathan Gutman, Simsbury, Conn., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 14, 1979, Ser. No. 11,989
Int. Cl.³ F02D *1/04*
U.S. Cl. 123—367 **8 Claims**



1. In a governor (**10**) having a governor housing (**13**) and a member (**26**) movable in the housing (**13**) for controlling the delivery of fuel to an engine and hence the operating power of the engine, the improvement comprising:

first and second stop means (**28,29**) connected to the housing (**13**) for establishing first and second power settings of the movable member (**26**) of the governor (**10**), at least one of said first and second stop means (**28,29**) being of a construction sufficient for yielding in response to the governor (**10**) for controlling the lug characteristic and torque rise of the engine; and

means (**39**) connected to the movable member (**26**) and movable therewith for selectively engaging said first and second stop means (**28,29**) in response to said movable member (**26**) moving in an increased fuel direction.

4,265,204

IGNITION CONTROL SYSTEM WITH CLOSURE ANGLE INDEPENDENT OF RESIDUAL ENERGY STORED IN IGNITION COIL

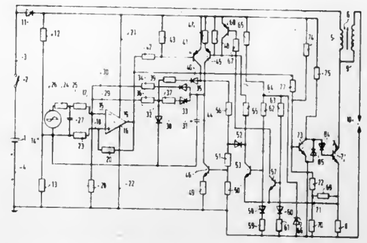
Werner Jundt, Ludwigsburg, and Herman Roozenbeek, Schwieberdingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 20, 1979, Ser. No. 50,316
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830557
Int. Cl.³ F02D *1/00*
U.S. Cl. 123—418 **5 Claims**

1. In an ignition system having an ignition coil (**6**) having a primary winding (**5**), electronic interrupter switch means (**7**) connected in series with said primary winding, threshold circuit means (**15**) connected to said electronic interrupter switch means for controlling the operation thereof, and control circuit means for varying the cut-in threshold of said threshold circuit means so that the closure angle of said electronic interrupter switch means varies as a function of engine speed, said control circuit means including integrator circuit means for varying the cut-in threshold of said threshold circuit means in accordance with DC current supplied thereto,

the improvement comprising

means connected to said integrator means and responsive to said current through siad primary winding of said ignition coil for supplying DC current to said integrator means thereby changing said cut-in threshold of said threshold circuit means only when said current through said primary winding has reached a predetermined minimum value (I_{min}) exceeding the maximum possible residual



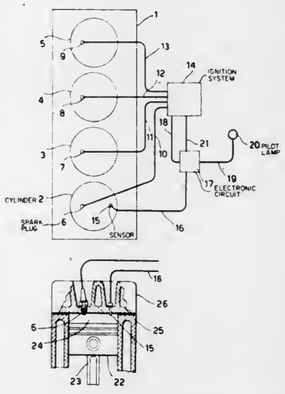
current in said primary winding of said ignition coil when said electronic interrupter switch closes, whereby said variation of said cut-in threshold of said threshold circuit means is independent of residual current present in said ignition coil when said electronic interrupter switch closes.

4,265,205

CONTROLLED IGNITION I.C. ENGINE WITH THERMAL DETECTION SYSTEM

Giampaolo Garcea, Milan, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy

Filed Jul. 31, 1979, Ser. No. 62,482
Claims priority, application Italy, Aug. 11, 1978, 26740 A/78
Int. Cl.³ F02P *5/14*
U.S. Cl. 123—425 **7 Claims**



1. A device for checking the overheating phenomena in the interior of the explosion chamber of an internal combustion engine of the controlled-ignition type and equipped with an ignition system for producing an electric discharge at a sparking plug of a cylinder relative to the upper dead center of a respective piston, said device comprising a temperature sensor in the interior of the explosion chamber of at least one of the engine cylinders, said sensor being positioned for contact with exhaust gases while also bonded to a wall of said explosion chamber so as to take a temperature between the average temperature of the gases and the average temperature of said wall, said sensor being also positioned in the explosion chamber in a zone generally farthest from the sparking plug and in which a knock phenomenon first occurs, and an electronic circuit for receiving a signal from said temperature sensor, said circuit comprising a threshold comparator which is capable of evaluating if the sensor temperature is below or above a prese-

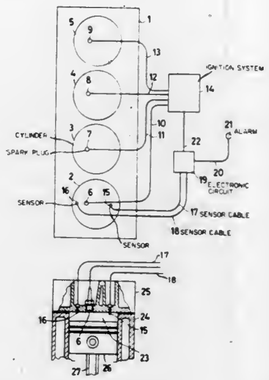
lected threshold value and of sending thus a command if said temperature exceeds said threshold value.

4,265,206

DEVICE FOR DETECTING THE KNOCK PHENOMENA IN INTERNAL COMBUSTION ENGINES HAVING A CONTROLLED-IGNITION DEVICE, BASED ON THE USE OF TEMPERATURE SENSORS

Giampaolo Garcea, Milan, Italy, assignor to Alfa Romeo S.p.A, Milan, Italy

Filed Aug. 10, 1979, Ser. No. 65,726
Claims priority, application Italy, Aug. 11, 1978, 26738 A/78
Int. Cl.³ F02P *5/14*
U.S. Cl. 123—425 **4 Claims**



1. A controlled-ignition internal combustion engine of the type having a spark plug and a piston for each cylinder, said engine having an ignition system for causing electric discharge at the spark plug with a determined basic regulation of ignition advance relative to the upper dead center of the respective piston, said engine also having a device for detecting the occurrence of the knock phenomenon in an explosion chamber of at least one of the engine cylinders, said device comprising two separate temperature sensors separately arranged in exposed relation in said chamber, one of said sensors being arranged in a zone of said chamber farthest from the spark plug in which generally the phenomenon of incipient knocking is experienced, the other of said sensors being arranged in a zone of said chamber near the spark plug in which said incipient knocking phenomenon does not occur, said device further comprising an electronic circuit for receiving and comparing signals coming from said sensors so as to detect if the engine is operating under knock conditions.

4,265,207

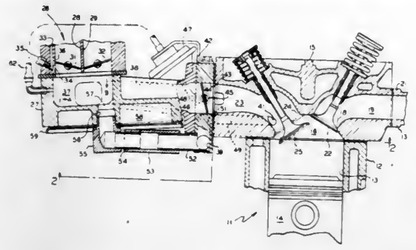
INDUCTION SYSTEM OF FOUR STROKE INTERNAL COMBUSTION ENGINE

Takanori Hayashida, Iwata, Japan, assignor to Yamaha Hatsukoki Kabushiki Kaisha, Iwata, Japan

Filed Nov. 28, 1978, Ser. No. 964,156
Claims priority, application Japan, Nov. 30, 1977, 52/142671
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—432 **10 Claims**

1. An induction system for an internal combustion engine having a variable volume chamber in which combustion occurs, a charge forming device having a fuel discharge system including a discharge port, and a main induction passage having a plenum for delivering charge therefrom to said variable volume chamber, the improvement comprising an auxiliary induction passage communicating at its downstream end with said variable volume chamber, said auxiliary induction passage

having its inlet disposed in the lower wall of said plenum and in the path of fuel discharge from said charge forming device discharge port for delivering such fuel to said variable volume chamber through said auxiliary induction passage, and valve means for controlling the ratio of communication of the induc-



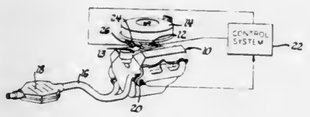
tion passages with the chamber so that a substantial portion of certain load requirements of the engine are served primarily through the auxiliary induction passage and a substantial portion of other load requirements are served primarily through the main induction passage.

4,265,208

CLOSED LOOP AIR-FUEL RATIO CONTROLLER WITH AIR BLEED CONTROL

Philip H. Emmert, Sterling Heights; Richard A. Stevens, Union Lake, and Glenn A. Walkush, Flint, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 16, 1979, Ser. No. 39,330
Int. Cl.³ F02M 7/00
U.S. Cl. 123—440 **3 Claims**



1. An air/fuel mixture control system for an internal combustion engine having combustion space into which an air/fuel mixture is supplied to undergo combustion and having means defining an exhaust gas passage from the combustion space into which spent combustion gases are discharged, comprising, in combination:

an air/fuel mixture forming assembly effective to supply an air and fuel mixture to the combustion space, the air-fuel ratio of said mixture being substantially less than a predetermined ratio during certain engine operating conditions;

a sensor effective to monitor the exhaust gases in the exhaust gas passage and provide a sensor signal representing at least the sense of deviation of the air-fuel ratio from the predetermined ratio;

a controller responsive to the sensor signal effective to adjust the air-fuel ratio supplied by the mixture forming assembly in amount between rich and lean control limits and direction tending to produce the predetermined air-fuel ratio;

air supply means effective to supply air to the air and fuel mixture upstream of the sensor and independent of the air-fuel mixture forming assembly; and

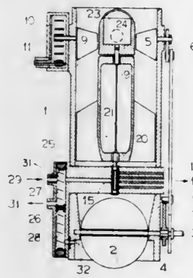
means effective to enable the air supply means to supply air to the air and fuel mixture when the controller adjustment attains a predetermined amount in the mixture leaning direction in response to the sensed rich air-fuel ratio during said certain engine operating conditions to increase the air-fuel ratio to reduce the required controller adjustment of the air-fuel ratio in the leaning direction to thereby effectively increase the adjustment range of the controller in the mixture leaning direction, whereby the controller is prevented from operating at the lean limit in response to the rich air and fuel mixture supplied during said certain engine operating conditions.

4,265,209

FUEL CONTROL AND INJECTION SYSTEM FOR I.C. ENGINES

Willy A. Fiedler, 12758 Leander Dr., Los Altos Hills, Calif. 94022

Filed Jan. 19, 1979, Ser. No. 5,359
Int. Cl.³ F02M 41/00
U.S. Cl. 123—450 **6 Claims**



1. An arrangement for providing air and fuel to at least one cylinder in an internal combustion engine comprising in combination

a fuel tank,

a tank pump for delivering fuel under pressure,

a controller of air and fuel flow rates, including

a duct for passing air to said engine,

a throttle for controlling the air flow through said duct, vanes movably mounted in said duct for generating air vortices in the air flow,

means for relating the movement of the first of said vanes to the movement of said throttle for varying the air-fuel flow ratio,

means for positioning the second of said vanes in relation to engine temperature for varying the air-fuel flow ratio, a rotor with at least one blade, inclined to the air flow direction, for aerodynamically developing torque around its axis in dependence of air velocity, density and vorticity, spring means elastically restraining said rotor and deflecting to counter torque applied by said rotor,

metering means governed by said rotor for controlling the rate of continuous fuel flow and for dividing it equally if said engine has more than one cylinder,

a regulator for maintaining near-constant differential pressure between the fuel supplied by said tank pump and the air behind said throttle while returning surplus fuel to said fuel tank;

means for transfering fuel from said controller to said engine,

with said cylinder having

an intake port,

continuous injection means for releasing fuel into said intake port while maintaining pressure,

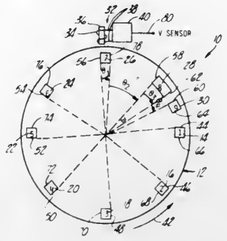
a fuel line connecting said metering means with said continuous injection means.

4,265,210

ELECTRIC CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINES

John C. P. Hanisko, Southfield, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 4, 1978, Ser. No. 948,453
Int. Cl.³ F02D 5/02
U.S. Cl. 123—490 **9 Claims**



1. An electric control apparatus for providing control signals containing timing and steering information to control electronic fuel injectors of a sequential fuel injection system of an internal combustion engine, said apparatus comprising;

pulse generating means for sequentially generating electrical output pulses throughout each cycle of the engine over a range of engine speeds in synchronism with the revolutions of the engine, said electrical pulses containing a reference pulse for each complete engine cycle,

wherein said pulse generating means includes a rotatable member operatively associated with said engine to rotate in synchronism therewith and having a plurality of spaced sensible elements contained thereon, one of said sensible elements defining a reference element corresponding to said reference pulse and having a recognizable characteristic distinguishing it from the other sensible elements, the distance between said reference element and an adjacent element defining a predetermined distance different than the distance between any two adjacent nonreference elements, and wherein said pulse generating means further includes a single sensor disposed in operative relationship with said rotating member for sensing said spaced sensible elements and providing said electrical output pulses, said pulse processing means detecting said reference pulse in accordance with said recognizable characteristic and the predetermined distance, and

pulse processing means electrically connected to the output of said pulse generating means for processing said pulses, said pulse processing means including comparing means for generating a plurality of first signals indicative of the period of time a particular pulse is present within a variable time period with a second signal indicative of said variable time period and for comparing said first signal with said second signal, said comparing means providing an indication signal indicating the detection of said reference pulse based on said comparison, said particular pulse comprises said reference pulse and said pulse processing means utilizing said indication signal to provide said control signals.

4,265,211

DISTRIBUTORLESS INTERNAL COMBUSTION ENGINE IGNITION SYSTEM

Michael R. Meloeny, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 23, 1979, Ser. No. 96,836
Int. Cl.³ F02P 9/00, 3/12, 5/00
U.S. Cl. 123—643 **4 Claims**

1. A distributorless internal combustion engine ignition system for use with internal combustion engines of the type having at least four cylinders, a spark plug for each cylinder, a piston contained within each cylinder and a crankshaft mechanically coupled to each piston comprising:

means for producing a crankshaft reference signal pulse at a selected reference crankshaft angle relative to the top dead center position of the said pistons of a selected pair of said cylinders;

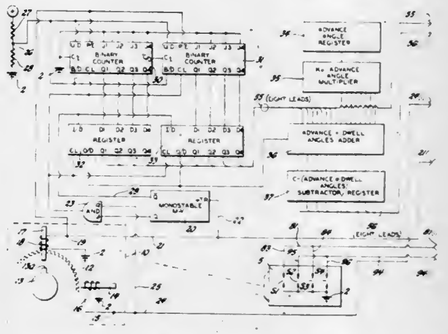
means for producing a predetermined number of crankshaft position signal pulses during each crankshaft revolution;

means responsive to said crankshaft position signal pulses for snythesizing a crankshaft reference signal pulse at the same said selected reference crankshaft angle relative to the top dead center position of the said pistons of each other pair of said cylinders;

means for producing a binary code representation of ignition spark crankshaft angle in crankshaft position signal pulse counts relative to piston top dead center at which an ignition spark event is to occur;

means for producing a binary code representation of ignition dwell in crankshaft position signal pulse counts for all engine speeds;

means for producing a binary code representation of not ignition dwell in crankshaft position signal pulse counts as



determined by the different between the number of said crankshaft position signal pulses occurring during a crankshaft revolution divided by the number of pairs of said cylinders less the sum of said binary code representations of ignition spark crankshaft angle and ignition dwell;

means responsive to said binary code representations of not ignition dwell and of ignition dwell, said crankshaft position signal pulses and said crankshaft reference signal pulses for effecting ignition coil primary winding energization when the number of said crankshaft position signal pulses occurring subsequent to each said crankshaft reference signal pulse is equal to said binary code representation of not ignition dwell and for effecting ignition coil primary winding deenergization when the number of said crankshaft position signal pulses occurring subsequent to each said crankshaft reference signal pulse is equal to the sum of said binary code representations of not ignition dwell and ignition dwell; and

means for directing the ignition spark potential produced upon each ignition coil primary winding deenergization to the spark plugs of the cylinder pair including the cylinder to be fired.

4,265,212

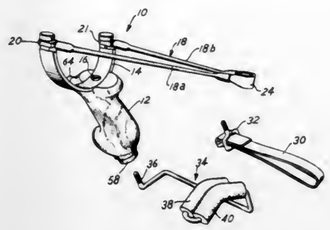
HAND CATAPULT

Rodney A. Wolf, Stevens Point, Wis., assignor to Weber Tackle Company, Stevens Point, Wis.

Filed Jan. 18, 1978, Ser. No. 870,420
Int. Cl.³ F41B 7/00
U.S. Cl. 124—20 A **13 Claims**

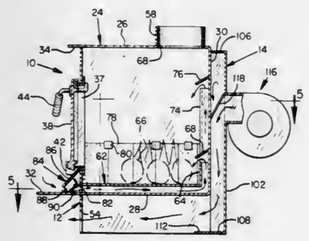
1. A hand catapult including a handle adapted to be gripped by the hand of the user, handle core means within the handle for mounting attachments to the handle, said handle core

means comprising a longitudinally extending handle core, said handle core being provided with an internally threaded opening in the bottom, a carriage secured to the top of the handle, resilient band means for hurling a missile, swivel carriage



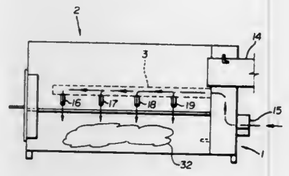
bindings for swivelly connecting the resilient band means to the carriage, and attachments for steadying the hand catapult in use adapted to be selectively secured to the internally threaded opening in the bottom of the handle core.

4,265,213
FREE STANDING STOVE
Garald W. Gorsuch, Rte. 3, Box 292, Sherwood, Oreg. 97140, and Eldon D. Schnelle, 19501 S. McVey La., Oregon City, Oreg. 97045
Filed Aug. 15, 1978, Ser. No. 933,890
Int. Cl.³ F24B *7/04*
U.S. Cl. 126—66 **2 Claims**



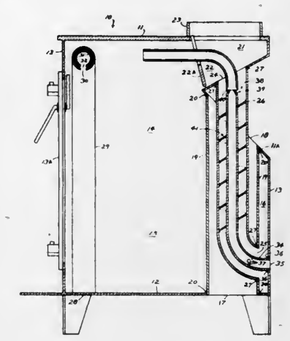
1. A stove adapted for location in spaced relation to a wall of a room, said stove comprising:
- a metal firebox comprising spaced metal side walls, a top, and a bottom wall forming a substantially closed enclosure for supporting fuel therewithin above the bottom wall of said firebox,
- a flue connection opening for removing flue gases from said firebox, a door providing access to said firebox for the deposition of fuel therewithin, and base means for supporting said firebox,
- said firebox including a first U-shaped member and a second U-shaped member, wherein said U-shaped members are joined in inverted ninety degree relationship such that one member forms a closure with the other to provide said firebox,
- wherein said first U-shaped member forms the side walls including the front of said stove, said front having a door opening provided with said door, and said second U-shaped member forms the top, bottom wall and rear wall of said stove,
- said base means extending downwardly from the bottom wall of the second U-shaped member of said firebox,
- further including a first air duct extending along the bottom wall of said second member from a first end in communication with an opening in the front of said first U-shaped member for receiving draft air and upwardly adjacent the rear wall of said second member to a second end horizontally adjacent the position of the fire in said firebox, said first duct being closed except for a first opening on the first end thereof extending through said front of said first member and a second opening at said second end for providing draft air to the fire in said firebox,
- a second air duct extending along the bottom wall of said second member from a first end in communication with an opening in the front of said first member and upwardly adjacent the rear wall of said second member to a second end above the level of the fire in said firebox, said second duct being closed except for an opening at the first end thereof extending through said front of said first member for receiving draft air and a second opening at the second end thereof for providing secondary air for combustion of volatile gases above the location of a fire in said firebox,
- and a damper adjacent the first ends of said first duct and said second duct for regulating the flow of draft air therethrough.

4,265,214
HEATER
Henry Rasmussen, P.O. Box 62, Kenora, Ontario, Canada (P9N 3X1)
Filed Apr. 5, 1978, Ser. No. 893,806
Int. Cl.³ F24C *1/14;* **F24B** *5/00;* **F24H** *3/00*
U.S. Cl. 126—77 **3 Claims**



1. An apparatus for generating heat by the combustion of solid fuels which comprises:
- (a) a combustion chamber in which fuel is to be burned, said combustion chamber having two downwardly and outwardly sloping heat conducting walls for transferring heat from said combustion chamber to the space surrounding the apparatus and at least one other heat conducting wall;
- (b) an air heating chamber positioned adjacent said combustion chamber having at least one heat conducting wall located against said other heat conducting wall of said combustion chamber whereby heat may be conducted from said combustion chamber to said air heating chamber;
- (c) blower means for drawing ambient air about the apparatus into said air heating chamber;
- (d) conduit means communicating with said air heating chamber and said combustion chamber for leading heated air from said air heating chamber to said combustion chamber, the flow of heated air being at a rate to promote the combustion of fuel to be burned in said combustion chamber;
- (e) a chimney outlet for evacuating gaseous products of combustion from said combustion chamber, said chimney outlet passing through said air heating chamber;
- (f) means for replenishing the supply of fuel to be burned and removing the products of combustion from said combustion chamber;
- (g) temperature responsive control means for controlling said blower means and for causing said blower means to cease to operate if there is no fuel in said combustion chamber; and wherein
- (h) the portion of said chimney outlet located in said air heating chamber has a small vent therein communicating with said air heating chamber; and
- (i) said conduit means is a tube of heat conducting material communicating from said air heating chamber to said combustion chamber, that part of said tube within said combustion chamber having a plurality of downwardly directed outlets, said tube being so positioned that said outlets are placed above the region within said combustion chamber where combustion of fuel is to occur.

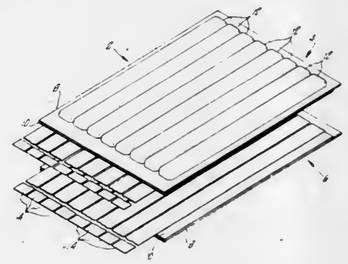
4,265,215
SPACE HEATER
Earle Curry, 116 Purchase St., South Easton, Mass. 02375
Filed Jun. 12, 1979, Ser. No. 47,684
Int. Cl.³ F24C *1/14, 5/00;* **F24H** *3/00;* **F24B** *3/00*
U.S. Cl. 126—77 **7 Claims**



1. A space heater of the type adapted to be connected to a flue for exhausting flue gases therefrom, comprising in combination:
- a combustion chamber having
- a fuel burning section,
- a rear section,
- a top,
- a bottom, and
- side walls;

said top and said walls being arranged so that the outer surfaces thereof are exposed directly to the (ambient) room air to be heated and
the inner surfaces thereof enclosing said fuel burning section are exposed directly to the heat of the burning fuel and to the flue gases therein and the inner surfaces thereof enclosing said rear section are exposed directly to the flue gases therein and said rear section having
- an air inlet port in said bottom and
- an air outlet port in said top:
- a flue gas chamber having
- a chamber outlet port adapted to be connected to said flue and
- a chamber inlet port:
- a flue passage connecting said fuel burning section and said flue chamber:
- a damper in said flue passage adapted to regulate the rate of flow of flue gases therethrough:
- an air heating duct in said rear section connecting said air inlet port and said air outlet port in hermetically sealed relation to said bottom and to said top respectively, said air inlet port and said air outlet port being located so that said air heating duct is spaced from the side walls of said rear section, whereby the outer surface of said air heating duct facing said walls enclosing said rear section is exposed directly to the flue gases in the section between said outer surface and said wall and the inner surface of said air heating duct is exposed directly to the air in said air heating duct and thus transfers heat from said flue gases therein to the inner surface of said duct where it is available to heat the air in said duct and cause a convection flow of room air into said inlet port through said air heating duct and through said outlet port into the room space above the stove said air heating duct having a flue gas inlet port located adjacent to said bottom remote from said fuel burning section: a flue duct in said air heating duct connecting said flue gas inlet port in hermetically sealed relation to said air heating duct and to said flue chamber respectively: whereby, the heat in the flue gases flowing through said flue is readily transfered through the wall of said flue duct to the air in said air heating duct:
- an air supply duct adapted to admit air for combustion into said fuel burning section at a point adjacent to said top and remote from said rear section:
- whereby when fuel is burning in said fuel burning section, the flue gases are drawn around said air heating duct into and through said flue duct to be exhausted through said flue chamber and chamber outlet port into said flue, (.),
- and when said damper in said flue duct is in its open position, part of the flue gases in said combustion chamber flow through said flue passage to said flue and the other portions of said flue gases flow through said flue duct to said flue and when said damper in said passage is in its closed position, all of said flue gases in said combustion chamber flow from said combustion chamber through said flue passage to said flue.

4,265,216
SELF-CONTAINED EXOTHERMIC HEAT RECOVERABLE CHEMICAL HEATER
Larry J. Marshall, Menlo Park, and Phillip C. Jensen, Fremont, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.
Filed Dec. 6, 1978, Ser. No. 967,029
Int. Cl.³ F24J *1/00;* **B65D** *25/08*
U.S. Cl. 126—263 **18 Claims**



1. A self-contained heat recoverable exothermic chemical heater comprising:
- a first and a second heat bag, each of said heat bags including a heat recoverable sheet having a plurality of separate compartments therein and a rupturable barrier sheet bonded to the rear of each heat recoverable sheet, thereby enclosing all of said compartments, said compartments having a continuous strip of adhesive placed between adjacent compartments to form a bond between said heat recoverable sheets and said rupturable barrier sheets which seals each of said compartments, each of said rupturable barrier sheets having a plurality of integrally extending tear strips, each of said tear strips being positioned lengthwise over a compartment and having a portion thereof which extends outwardly from one end of said heater, said first and second heat bags being joined together such that said rupturable barrier sheets separate said heat bags and the compartments in the heat recoverable sheet of the first heat bag overlap the compartments in the heat recoverable sheet of the second heat bag, said rupturable barrier sheets providing access to each pair of overlapping compartments by removing said tear strips;
- a first chemical means disposed in each compartment of said first heat bag;

a second chemical means disposed in each compartment of said second heat bag which reacts with said first chemical means to produce heat when mixed by removing said tear strips, said adhesive bond between adjacent compartments disintegrating as the heat produced increases until said bond is released;

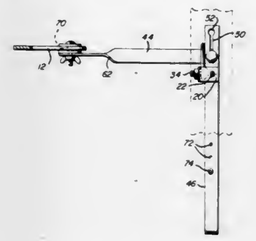
means for sealing the end of said chemical heater from which said tear strips are removed to prevent escape of said first and second chemical means.

4,265,217

REMOTE FIREPLACE DAMPER CONTROL

Louis W. Flaherty, and Harold H. Huber, both of No. 4-7th St. South, Great Falls, Mont. 59401

Filed May 25, 1979, Ser. No. 42,497
Int. Cl.³ F23L *13/02*
U.S. Cl. 126—288 **10 Claims**



1. A damper control for a fireplace including a fireplace opening upper limit defining lintel and a downwardly extending damper lever whose lower end is shiftable toward and away from the lintel from within the fireplace, said damper control including a support defining an upper portion for support from said lintel and a lower mounting portion, elongated horizontal operating and control levers, pivot means pivotally attaching first adjacent ends of said levers together for relative oscillation about a vertical axis transverse to said control and operative levers, said control lever including means on the remote end thereof for pivotal attachment to the lower end of said damper lever for oscillation relative thereto about a horizontal axis extending transversely of said damper and control levers, said lower mounting portion defining a guide opening therethrough through which the first end of said operating lever, said pivot means and the adjacent end of said control lever are guidingly projectable, said pivot means including means enabling limit longitudinal shifting of said operating lever relative to said vertical axis and control lever, whereby said operating lever may be longitudinally displaced through said opening, swung horizontally to a position disposed at generally right angles relatively to said control lever and then longitudinally shifted relative to said vertical axis and said control lever to a position spanning said guide opening through which the adjacent end of said control lever extends.

4,265,218

FAILSAFE PROTECTION DAMPER FOR A FIREPLACE FURNACE

John H. Agee, Fremont, Nebr., and Marshall D. Albert, Woodbine, Iowa, assignors to American Road Equipment Co., Omaha, Nebr.

Filed Nov. 14, 1979, Ser. No. 94,220
Int. Cl.³ F23L *3/00*
U.S. Cl. 126—288 **13 Claims**

1. A fireplace furnace comprising,

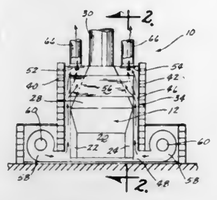
a firebox adapted for burning combustible fuels therein,

flue means in communication with said firebox for exhausting combustion gases therefrom,

an outer housing partially surrounding said firebox and spaced therefrom to define a heat chamber therebetween, said outer housing including an air intake opening through a lower portion thereof for supplying intake air to said heat chamber and first and second heat outlets through an upper portion thereof, said second heat outlet including a generally vertical duct means having an entrance end in communication with said heat chamber,

a power actuated blower associated with said intake opening for forcing air into said intake opening, through said heat chamber and outwardly through said first and second heat outlets,

a damper supported within said vertical duct means for



pivotal movement between a generally horizontal closed position and an upright open position, said damper being positioned at the entrance end of the vertical duct means adjacent said upper portion of said outer housing,

bias means urging said damper to the generally horizontal closed position therefor, and

said damper being opened against the urging of said bias means in response to the flow of forced air through said heat chamber by said blower whereby said damper is closed by said bias means when power to the blower is cut off.

4,265,219

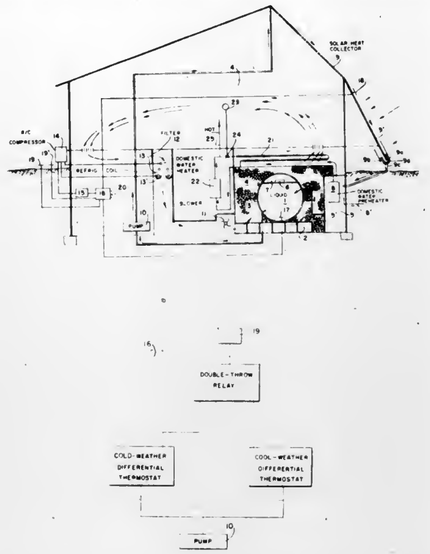
SOLAR HEATING (COOLING) SYSTEM

Harry E. Thomason, 609 Cedar Ave., Fort Washington, Md. 20022

Continuation of Ser. No. 926,527, Jul. 20, 1978, abandoned, which is a division of Ser. No. 398,323, Sep. 18, 1973, Pat. No. 4,102,327. This application Aug. 14, 1979, Ser. No. 66,497
Int. Cl.³ F24J *3/02*; F24D *11/00*; G05D *23/00*
U.S. Cl. 126—419 **7 Claims**

1. Heat storage and solar heat collecting apparatus, means to transfer heat from said collecting to said storage apparatus, control means to operate said transfer means comprising a first sensor responsive to temperatures in said storage apparatus and a second sensor responsive to temperatures in said collecting apparatus, said first and second sensors comprising means to activate said control means to start said transfer means when the temperature in the collecting apparatus exceeds that in storage by a first differential, third sensor means connected to said control means to activate it to start said transfer means when the temperature in the collecting apparatus exceeds that

in storage by a second differential wherein said third sensor means is responsive to ambient temperatures to automatically



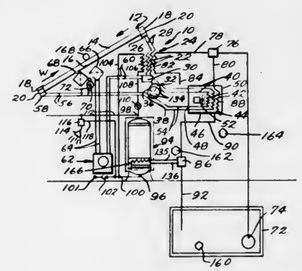
switch to said first differential or to said second differential responsive to ambient temperatures.

4,265,220

MULTIPLE FLUID MEDIUM SYSTEM AND IMPROVED HOT WATER SUPPLY TANK ASSEMBLY UTILIZED THEREIN

Roy E. McAlister, 5285 Red Rock North, Phoenix, Ariz. 85018

Filed Apr. 23, 1979, Ser. No. 32,636
Int. Cl.³ F24J *3/02*; G05D *23/00*; F25B *27/00*
U.S. Cl. 126—421 **7 Claims**



1. A multiple fluid medium energy conversion system for a building comprising

radiant energy panel means for mounting exteriorly of the building having passage means for directing a flow of air therethrough and means for enabling (1) environmentally available solar energy to heat the flowing air and (2) the flowing air to give up heat to the environment when solar energy is not available and temperature conditions are favorable therefor,

interior room air temperature conditioning means for mounting interiorly of said building including return air inlet means for receiving room air to be temperature conditioned, room air outlet means for discharging a supply of temperature conditioned air and blower means for effecting a flow of room air from said return air inlet means to said room air outlet means,

first heat exchanger means including first flow path means for the air flowing from said return air inlet means to said room air outlet means and second and third flow path means in heat exchange relation to said first flow path means,

second heat exchanger means having fourth flow path means connected in series with said panel passage means and fifth flow path means in heat exchange relation to said fourth flow path means,

means defining a conditioned temperature storage water circuit including insulated water storage tank means, pump means for pumping water from said storage tank means and water return means for directing water into said storage tank means, and means for directing water from said pump means to said water return means alternatively (1) through said third flow path means or (2) said fifth flow path means,

means defining a closed air flow circuit through said panel passage means and said fourth flow path means in series therewith and through said second flow path means including means for alternatively (1) compressing the air from said panel passage means into said second flow path means and expanding the air from said second flow path means into said fourth flow path means or (2) compressing the air from said fourth flow path means into said second flow path means and expanding the air from said second flow path means into said panel passage means, and

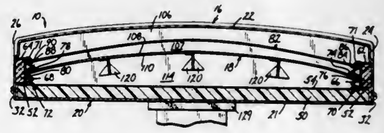
means defining an environmental air circuit through said panel passage means and said fourth flow path means in series therewith including environmental air inlet means, environmental air outlet means and blower means for causing a flow of air from said environmental air inlet means through said panel passage means, said fourth flow path means and into said environmental air outlet means.

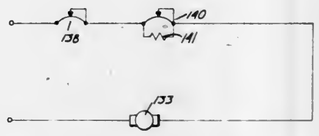
4,265,221

SOLAR ENERGY COLLECTOR ASSEMBLY AND METHOD AND APPARATUS FOR CONTROLLING THE FLOW OF A TRANSFER MEDIUM

Lewis A. Whinnery, Huntsville, Ala., assignor to Kendon Concepts, Excelsior, Minn.

Continuation-in-part of Ser. No. 914,572, Jun. 9, 1978, abandoned. This application Mar. 26, 1979, Ser. No. 23,843
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—422 **42 Claims**





1. A solar energy collector assembly comprising:

an outer enclosure having a light transparent major face adapted to face a light source and a plurality of walls extending rearwardly from said major face;

a single collector plate secured in said enclosure spaced from and rearward of said major face, said collector plate having a single curvilinear, outwardly facing, convex config-

uration with a large radius of curvature and an outer convex surface adapted to face a light source and an opposite inner surface, said collector plate extending over an area substantially equal to the area of said transparent major face of said outer enclosure;

a rear panel assembly having an inner and an outer surface, said rear panel assembly being attached to said enclosure rearward of said collector plate to form an enclosed heating chamber between said inner surface of the rear panel assembly and said inner surface of the collector plate; and

inlet and outlet means communicating with said heating chamber for passing a transfer medium through said heating chamber.

4,265,222

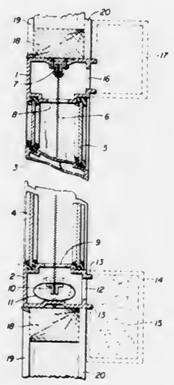
SEE-THROUGH SOLAR COLLECTOR

Narinder S. Kapany, 2126 Greenways Dr., Woodside, Calif. 94061, and Fred C. Unterleitner, 3732 Grove Ave., Palo Alto, Calif. 94303

Continuation-in-part of Ser. No. 933,513, Aug. 14, 1978, abandoned. This application Aug. 14, 1978, Ser. No. 933,513

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—431 **9 Claims**



1. A see-through building facade module for use in a wall of a room in a building comprising:

a frame adapted to be mounted in said wall;

interior and exterior transparent parallel panes mounted within said frame to define an air space therebetween;

a louvered radiant solar energy absorbing screen centrally located within said air space and coextensive with the area of said panes, said louvered screen being characterized by a screen thickness, said louvered screen having louvers sloping downward toward said exterior pane, the vertical separation of individual louvers being sufficiently small so as to subtend no more than approximately 2 arc minutes at the mean viewing distance within said room said louvers including an absorptive coating thereon;

said louvered screen being spaced apart from the nearest faces of each of said interior and exterior panes by a distance at least 10 times said screen thickness;

said frame being provided with air flow slots at its top and bottom to establish an upward flow through said air space, said small louver spacing promoting substantially turbulent air flow in the region of said louvered screen to promote effective heat transfer from said louvered screen to said flowing air in the vicinity of said louvered screen, said separation of at least 10 times said thickness preventing said region of turbulence from extending to said interior and exterior panes, thus allowing laminar flow proximate said panes to reduce heat transfer through said panes, thus providing effective heat collection and effective shielding of said room.

4,265,223

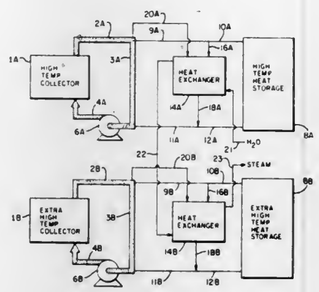
METHOD AND APPARATUS FOR UTILIZING SOLAR ENERGY

Constantine D. Miserlis, Arlington; Albert G. Luke, Jr., Stoneham, both of Mass.; Walter Laber, Deggendorf, and Friedrich Guetlhuber, Metten, both of Fed. Rep. of Germany, assignors to The Badger Company, Inc., Cambridge, Mass. and Deffendorfer Werft und Eisenbau, Deggendorf, Fed. Rep. of Germany

Filed Sep. 18, 1978, Ser. No. 943,373

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—435 **25 Claims**



1. A process for utilizing solar energy comprising at least two different cycles of operation as follows:

(a) during periods of sunlight, absorbing solar energy in a collector characterized by first and second solar energy-absorbing heat exchangers of the type through which a fluid heat transfer medium may be circulated, continuously passing first and second fluid heat transfer media in a first direction through said first and second heat exchangers so as to pick up heat therefrom, continuously passing the heated first fluid heat transfer medium from said first heat exchanger through a third heat exchanger so as to give up heat to said third heat exchanger and through a first heat storage reservoir so as to store heat in said first heat storage reservoir, continuously passing the heated second fluid heat transfer medium through a fourth heat exchanger so as to give up heat to said fourth heat exchanger and through a second heat storage reservoir so as to store heat in second heat storage reservoir, and passing a third fluid heat transfer medium through said third and fourth heat exchangers so that said third heat transfer medium recovers heat by indirect heat exchange with said first and second heat transfer media; and

(b) during periods when the sun's rays are substantially occluded, continuously passing heated first fluid heat transfer medium for said first heat storage reservoir through said first solar energy-absorbing heat exchanger and said third heat exchanger so as to give up heat to said first and third heat exchangers, and continuously passing heated second fluid heat transfer medium from said second heat storage reservoir through said second solar energy-absorbing heat exchanger and said fourth heat exchanger so as to give up heat to said second and fourth exchangers.

14. A system for utilizing solar energy comprising:

a solar energy collector adapted to receive solar energy and having at least first and second solar energy-absorbing heat exchangers of the type through which a fluid heat transfer medium may be circulated;

at least third and fourth heat exchangers of the type through which a fluid heat exchange medium may be circulated;

first conduit means for circulating a first fluid heat tranfer medium through said first heat exchanger;

second conduit means for circulating a second fluid heat transfer medium through said second heat exchanger;

third conduit means for circulating said first fluid heat transfer medium between said first and third heat exchangers;

fourth conduit means for circulating said second fluid heat transfer medium between said second and fourth heat exchangers;

at least first and second heat storage reservoirs of the type through which a fluid heat transfer medium may be circulated;

fifth conduit means for circulating said first fluid heat transfer medium through said first heat storage reservoir;

sixth conduit means for circulating said second fluid heat transfer medium through said second heat storage reservoir;

means for removing heat from said third and fourth heat exchangers; and

means for controlling the circulation of said first and second heat transfer media through said first, second, third, fourth, fifth and sixth conduit means so that

(1) in the event the solar energy received by the collector is more than is required to be recovered from the third and fourth heat exchangers, the flow of said first and second fluid heat transfer media may be adjusted so that at least some of the solar energy absorbed as heat by said media is stored in said first and second heat storage reservoirs, and

(2) in the event the solar energy received by the collector provides insufficient heat for the third and fourth heat exchangers, the flow of said first and second fluid heat transfer media may be altered so as to remove heat from said first and second heat storage reservoirs respectively and deliver said heat to said first and second and third and fourth heat exchangers respectively.

24. A system for collecting solar energy and using it to heat a working fluid, said system including:

at least one heliostat for reflecting an incident beam of radiant solar energy;

an energy receiver for receiving an incident beam of radiant solar energy reflected by said at least one heliostat and converting said received solar energy to heat, said receiver including first and second heat exchangers adapted to conduct a heat exchange fluid along a selected path in said receiver so as to absorb heat from solar energy striking the receiver;

an output heat exchanger comprising at least a steam generator section and a steam superheater section;

a heat storage section comprising first and second tanks each adapted to store a hot fluid heat transfer medium so as to substantially prevent loss of heat from said medium;

first conduit means connecting said first heat exchanger with said steam generator section and said first tank so as to form a first circuit for circulating a fluid heat transfer medium;

second conduit means connecting said second heat exchanger with said steam superheater section and said first tank so as to form a second circuit for circulating a fluid heat transfer medium;

a first fluid heat transfer medium in said first tank, said first heat exchanger, said steam generator section and said first conduit means;

a second fluid heat transfer medium in said second tank, said second heat exchanger, said steam superheater section and said second conduit means;

pump means for circulating a fluid heat transfer means through said first and second circuits; and

means for controlling circulation of said first and second fluid heat transfer media whereby (a) during periods of uninterrupted and high intensity sunlight said first and second heat transfer media are circulated so that heat is recovered in said first and second heat exchangers, heat is given up in said steam generator section and said steam superheater section, and heat is stored in said first and second tanks and (b) during periods of darkness said first and second heat transfer media are circulated so that heat is retrieved from said first and second tanks and given up in said first and second heat exchangers, said steam generator and said steam superheater.

4,265,224

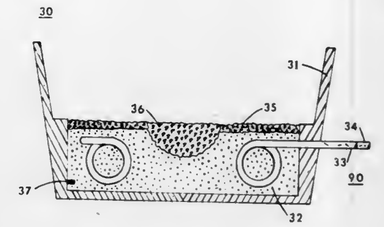
MULTI-STAGE SOLAR STORAGE SYSTEM

Stanley A. Meyer, U.S. Post Office Tri-Village Station, Columbus, Ohio 43212

Filed Apr. 7, 1980, Ser. No. 138,144

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—436 **10 Claims**



1. A multi-stage solar storage system comprising in combination:

an enclosure,

a capping lens positioned in the uppermost region of said enclosure, said capping lens comprising an upper lens partition superimposed over an lower lens partition divided in spaced relationship to form an thermal-insulated air-cavity;

a low-energy conversion/storage section positioned in the lowermost region of said enclosure comprised of material having a high rate of absorption to solar radiant energy to thereby convert said solar radiant energy to thermal radiant energy;

a high-energy conversion/storage section positioned within said enclosure intermediate of said capping-lens and said low-energy conversion/storage section, said high-energy conversion/storage section comprised of material having a high rate of absorption to solar radiant energy to thereby convert said solar radiant energy to thermal radiant energy, and said high-energy conversion/storage section further comprising a solar-energy transmittal aperture;

a light-shutter positioned in the center of said capping-lens, said light-shutter comprising an array of rotating deflection vanes reflective to incident light rays;

said enclosure further comprising a thermal-insulated air/-liquid tight outer liner positioned around said high and low energy conversion/storage sections, said outer liner thereby thermal-sealed against said capping-lens; and

multi-utilization means for utilizing said thermal energy in said high and low energy conversion/storage sections.

4,265,225

SOLAR COLLECTOR ELEMENT

Ernst Berger, Altdorf, and Norbert Herwegh, Schattdorf, both of Switzerland, assignors to Datwyler AG.Schweiz, Kabel-, Gummi- und Kunststoffwerke, Altdorf, Switzerland

Filed Dec. 6, 1978, Ser. No. 967,026

Claims priority, application Switzerland, Dec. 9, 1977, 15160/77

Int. Cl.³ F24J *3/02;* **F28F** *9/02*

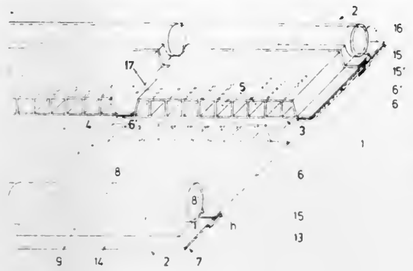
U.S. Cl. 126—445 **5 Claims**

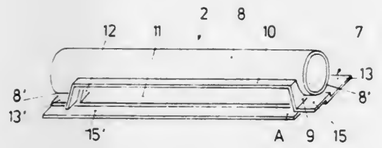
1. In a solar energy collector element of the type comprising an absorbing layer member having a plurality of internal channels for circulating a heat transport medium and a header

member fastened at each open end of the absorbing layer member to supply the transport medium to the internal channels and collect it, an improved header member which permits at least two solar elements to be assembled together as a composite unit, said header member comprising:

a base plate;

a plurality of projections attached to one side of said base plate, each said projection being oppositely displaced in relation to the other with respect to the plane of said base plate, each said base plate and projections acting together





with the base plate and projections of an adjacent header member to join any number of solar elements as a continuous watertight sheet;

a tube saddle fixed to said base plate; and

a header tube fixed upon and opening into the interior of said tube saddle, said header tube resting on said saddle at a predetermined height spaced above the plane of said base plate and forming with said saddle a longitudinal channel opening which extends substantially for the length of said header tube.

4,265,226

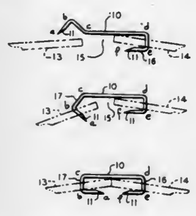
INCISION CLOSING METHOD

Khalil A. I. Cassimally, 403 Hayes Rd., Fort Pierce, Fla. 33450

Filed Mar. 23, 1979, Ser. No. 23,262

Int. Cl.[3] A61B *17/08;* **F16B** *15/00;* **B25C** *5/00*

U.S. Cl. 128—1 R **1 Claim**



1. A method of closing an incision with a deformable clip, said clip initially comprising a hook portion which extends into a shank portion such that the whole is generally J-shaped, said clip having tissue piercing portions at the free ends of said hook and shank portions whereby the closing of said incision comprises:

piercing the tissue adjacent one side of said incision with the piercing portion of said hook portion,

inserting said hook portion in said tissue and thereby holding same,

deforming said shank portion so as to pierce the tissue adjacent the opposed side of said incision with the piercing portion of said shank portion,

further deforming said shank portion such that said clip is transformed to be generally C-shaped;

said further deformation of said shank acting to gather said opposed tissues and thereby close the incision.

4,265,227

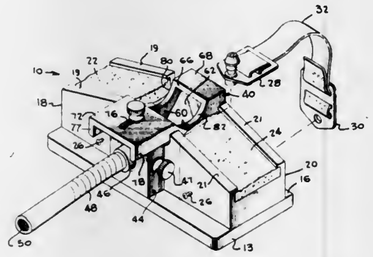
INFANT EXTREMITY POSITIONER AND ILLUMINATOR

Walter Ruge, Tampa, Fla., assignor to The Hospital and Welfare Board of Hillsborough County, Fla.

Filed Oct. 3, 1979, Ser. No. 81,580

Int. Cl.[3] A61B *1/06*

U.S. Cl. 128—23 **9 Claims**



7. An illuminator for providing high intensity light to an extremity of an infant comprising support and restraining means for receiving and restraining against movement an extremity to be illuminated, said support and restraining means including a base member, first and second support blocks mounted in spaced relation on said base member and each having an upper surface, flexible restrainer straps attached to said support blocks and extending over said upper extremity supporting surfaces; a light directing housing including means defining an extremity receiving and positioning aperture in the upper portion of said light directing housing dimensioned to partially receive the portion of the extremity to be illuminated, said light directing housing being positioned between said support blocks and said extremity receiving and positioning aperture in said light directing housing is of adjustable width and is defined on two sides by first and second downwardly curved upper surfaces on two opposed side walls of said light directing housing, a curved edge on a fixed top plate, a curved edge on an adjustable top plate spaced from said fixed top plate and first and second downwardly extending flanges along opposite sides of the adjustable top plate, said downwardly extending flanges having forwardly and downwardly extending protrusions extending alongside said two opposed side walls to cooperate with said downwardly curved upper surfaces thereof to define two variable length sides of said downwardly extending extremity receiving and positioning aperture; a light source positioned externally of said light directing housing; a light conduit extending between said light source and said light directing housing; for reflector means in said light directing housing for directing light from the light conduit upwardly through said extremity positioning and receiving aperture to illuminate an extremity when positioned therein.

4,265,228

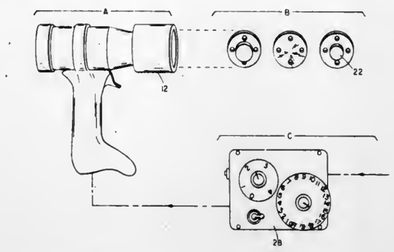
MECHANICAL PACEMAKER

Paul M. Zoll, 261 Brookline St., Newton, Mass. 02192

Continuation of Ser. No. 942,363, Sep. 14, 1978, abandoned, which is a continuation of Ser. No. 802,135, May 31, 1977, abandoned. This application Aug. 17, 1979, Ser. No. 67,411

Int. Cl.[3] A61H *23/00*

U.S. Cl. 128—55 **5 Claims**



1. A mechanical pacemaker for contacting the chest to provide cardiac stimulation, comprising:

a housing having a chest-contact surface, and a cavity with an opening in said chest-contact surface;

an impact surface on one end of a plunger slidably mounted within said cavity such that a travel path for said impact surface is defined,

said path extending outside said housing and through said opening and said impact surface being located outside of said housing at one end of said travel path and inside said housing at the other end of said path,

said impact surface being shaped and sized to achieve deformation of the chest when travelling outside said housing;

an impact means for driving said impact surface in discrete impacts that make and break contact with the chest,

said impact means being operably connected to said impact surface by said plunger,

said impacts being of a predetermined reproducible energy delivery selected to fail within an energy range, the lower end of said range being sufficiently high to achieve cardiac stimulation and the upper end being sufficiently low to avoid causing intolerable pain; and

an electronic circuit means for actuating said impact means in response to the electrical output of a cardiac monitor, said actuation being synchronized to occur in a desired phase relation with the heart beat, to thereby produce a desired electrical ventricular response to the mechanical impacts.

4,265,229

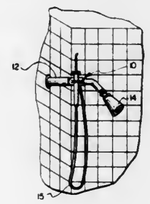
ORAL HYGIENE APPARATUS FOR SHOWERS

Harold E. Rice, 1128 Dover Dr., and N. Ray Neel, 1104 Dover Dr., both of Provo, Utah 84601

Filed Aug. 29, 1979, Ser. No. 70,781

Int. Cl.[3] A61H *9/00*

U.S. Cl. 128—66 **7 Claims**



1. An oral hygiene apparatus adapted to be interconnected between a water outlet pipe and a shower head which comprises,

(a) a hollow valve body open at each end for passing water from said outlet pipe to said shower head,

(b) a lateral bottom opening in said valve body for diverting water away from said shower head having valve seating means in the inside of the valve body at said opening and an outwardly protruding nipple on the outside of said valve body surrounding the lateral bottom opening and forming a continuation thereof,

(c) a valve needle threaded through the valve body opposite the lateral bottom opening and extending into said hollow valve body, said valve needle having a pointed inner end adapted to seat into said valve seating means and seal the lateral bottom opening when said valve needle is threaded completely across said hollow valve body and adapted to control the pressure and amount of water passing through said lateral bottom opening when said valve needle is threaded away from said seating means and into the hollow portion of the valve body without preventing the flow of water to said shower head said valve needle also containing an enlarged outer end outside said valve body to facilitate turning of said needle valve;

(d) hose means connected to said outwardly protruding nipple and

(e) an oral hygiene applicator attached to the opposite end of said hose, said applicator.

4,265,230

TRACTION SPLINT

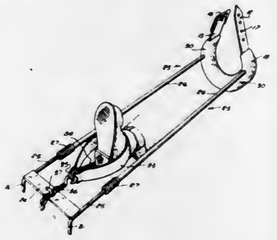
Donald A. Jordon, 3 Kenleigh Grove, Armadale, Victoria, Australia

Filed Jun. 22, 1979, Ser. No. 51,336

Claims priority, application Australia, Jul. 11, 1978, PD5030

Int. Cl.[3] A61F *5/04*

U.S. Cl. 128—87 R **7 Claims**



1. A traction splint comprising:

(a) a thrust member sidewardly applicable to the proximal end of a patient's limb, and, adapted, when so applied, to bear against the patient's trunk at that proximal end, said thrust member comprising a strap furnished with means to join the strap ends together and having a tubular body portion, and a stiff but flexible means housed within said body portion which renders the thrust member substantially straight and stiff to facilitate its application to said patient's limb from the side and yet flexible enough to be easily brought to ring-form around the limb,

(b) a U-shaped caliper including length adjustable side members able to flank a broken limb longitudinally and on either side thereof, with the caliper crotch spaced from the distal end of the patient's limb,

(c) means to locate and retain location of the free ends of said side members in relation to said thrust member, and

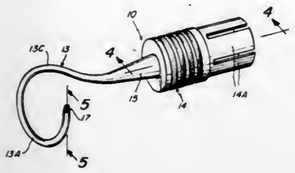
(d) tension means able to take hold of the distal end of a patient's limb which has said caliper and said thrust member applied thereto as aforesaid, and adapted for attachment to said caliper crotch thereby to exert a degree of tension on the patient's limb.

4,265,231

CURVED DRILL ATTACHMENT FOR BONE DRILLING USES

Arnold D. Scheller, Jr., 181 Essex St., North Quincy, Mass. 02171, and Thomas B. Quigley, 99 Pond Ave., Brookline, Mass. 02146

Filed Apr. 30, 1979, Ser. No. 34,452
Int. Cl.³ A61F *5/04, 17/32;* E21B *7/04, 7/08*
U.S. Cl. 128—92 E **11 Claims**



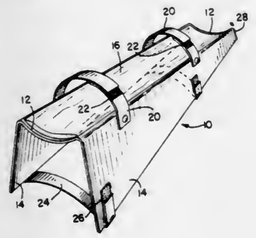
1. A drilling attachment for a drill motor having rotatable means operable to grip or release a burr or drill, said attachment for use in surgical procedures requiring a passageway through bone with the ends of the passageway not in alignment, said attachment including a rigid cannula including a proximal end portion a having a longitudinal axis, said proximal end portion being attachable to the housing of a drill motor and freely receptive of the gripping means thereof, a curved intermediate portion of said cannula extending radially with respect to said longitudinal axis, and a curved distal portion of said cannula lying in a plane which is perpendicular to said longitudinal axis of said proximal portion and substantially concentric with respect to said axis, a bone-cutting burr exposed at the distal end of said distal portion, and a burr-rotating flexible shaft within said cannula, said shaft being anchored to said burr at said distal end and attached to a rod at said proximal end, which rod is connectable to said rotatable gripping means of said drill motor, whereby said drilling attachment and said burr are dimensioned in such fashion that when used a passageway is provided through a bone appropriate for the passage of a curved surgical needle therethrough.

4,265,232

INCLINED ARM SUPPORT FOR STROKE VICTIMS

Timothy Stonich, 1518 Spencer, Wilmette, Ill. 60091

Filed Jul. 2, 1979, Ser. No. 53,966
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—133 **5 Claims**



1. A portable arm rest adapted to be easily transported and carried by stroke victims to position the user's forearm in a position with the hand elevated above the elbow to prevent the accumulation of fluids in the hand and wrist area and the portable arm rest being adapted for mounting and positioning upon a stationary object such as a table, arm of a chair or the like, the improvement comprising:

an arm support section adapted to receive the stroke victim's forearm and position the person's hand above his or her elbow;

said arm support section having a concave curvature providing a dish-shaped cross section having sides located above a lower, central portion;

said arm support having a length less than twenty inches to support a person's forearm and receive the elbow and hand along the length of the support;

support legs extending from the contoured support section and having means adapted to dispose the arm support section at an acute angle of at least twenty degrees above horizontal;

connecting means extending across the bottom of the support legs and providing means adapted to support the unit on a flat, horizontal surface as well as on a contoured or irregular surface;

arm support straps extending from side to side atop the contoured arm support section and providing a first strap adapted to secure the user's wrist and a second strap to secure the forearm area near the user's elbow;

said support legs having means for easily storing a plurality of arm rests in a compact configuration.

4,265,233

MATERIAL FOR WOUND HEALING

Akio Sugitachi, Koube; Kunihiko Takagi, Kyoto, and Yasunori Yabushita, Yamatotakada, all of Japan, assignors to Unitika Ltd., Amagasaki, Japan

Filed Apr. 6, 1979, Ser. No. 27,637
Claims priority, application Japan, Apr. 12, 1978, 53/43466; Oct. 24, 1978, 53/131116
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—156 **24 Claims**

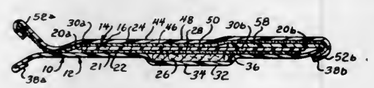
1. A wound healing material capable of effectively promoting the formation of stabilized fibrin at a wound site over a long period of time, said material comprising a structure having a substance fixed thereto, said substance consisting essentially of blood coagulation Factor XIII.

4,265,234

DRESSING COMPOSITE

Charles H. Schaar, Lake Zurich, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Nov. 14, 1979, Ser. No. 93,956
Int. Cl.³ A61F *15/00*
U.S. Cl. 128—156 **10 Claims**



1. A dressing composite, comprising:

a bandage comprising a backing sheet having a back surface facing away from a patient after application of the bandage, a front surface facing toward the patient after application of the bandage, an absorbent pad located over the front surface of said backing sheet and intermediate opposed ends of the backing sheet, and an adhesive covering a substantial portion of the front surface of the backing sheet intermediate said pad and the opposed ends of the backing sheet; and

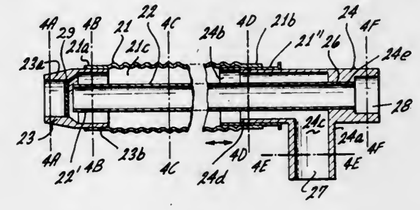
a package comprising a front cover sheet extending the length of the bandage, and having a width greater than the width of the bandage backing sheet, with oppposed side margins of the front cover sheet extending past opposed sides of the bandage, and an inner release surface releasably attached to the exposed adhesive of the bandage, and a back cover sheet extending the length of the bandage, and having a width greater than the width of the bandage backing sheet, with opposed side margins of the back cover sheet extending past opposed sides of the bandage, an adhesive on the back cover sheet extending along the side margins of the back cover sheet and being releasably attached to a release surface on the facing side margins of the front cover sheet, and means for releasably attaching said front and back cover sheets together adjacent at least one end of the bandage, the adhesive on the back cover sheet includes a substantial portion on a front surface of the back cover sheet releasably attached to the back surface of the backing sheet and a portion on the front surface of the back cover sheet side margins releasably attached to the facing inner release surface of the front cover sheet side margins, said back cover sheet being free of attachment from the back surface of the bandage backing sheet in an elongated region extending from the other end of the bandage toward the one end of the bandage.

4,265,235

ANESTHETIC SYSTEM

Atsuo F. Fukunaga, 13139 Bryson St., Arleta, Calif. 91331

Filed May 11, 1979, Ser. No. 38,319
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—200.24 **9 Claims**



1. A unilimb device for use in a breathing circuit wherein inspiratory gas from a source thereof is delivered through inlet means to a person's respiratory system, and expiratory gas exhaled by the person passes back through said inlet means, said device comprising:

A. first flexible tube means of such internal diameter as to pass the required volume of gas at the required rate from the source thereof to said inlet means to provide inspiration for the person, and said first flexible tube having a predetermined external diameter;

B. second flexible tube means enclosing most of the length of the first flexible tube, means said second flexible tube means being of such internal diameter greater than the predetermined external diameter of the first flexible tube means as to provide a sufficient cross-sectional area of passage between the first flexible tube means and the enclosing second flexible tube means to pass expiratory gas from the person at the required rate;

C. first terminal element means, said first terminal element means being generally tubular in configuration, short in length, and having one open nozzle end for communication with said inlet means, and an opposite open end including means for receiving and gripping a first end of the second flexible tube means and to dispose it close to the open nozzle end; said first terminal element means having a tubular wall defining a passage therethrough, a first end of the first flexible tube means being unattached to said second flexible tube means amd said first terminel element means and extending axially toward said open nozzle end, and means within said first terminal element means for limiting the axial extension of said first end of the first flexible tube means toward said open nozzle end, to provide a passage for expired first end of said flexible tube means said open nozzle and said gas passage;

D. second terminal element means comprising a wall defining a cavity and first, second and third openings to said cavity,

said second terminal element means having a tubular extension defining said first opening including means for receiving and gripping the second end of the second end of the second flexible tube means, said tubular extension defining said first opening having an inner diameter larger than the outer diameter of said first flexible tube means;

said second opening being disposed opposite said first opening, said second opening including means for receiving and securely gripping the second end of the first flexible tube means, when said first flexible tube is inserted through said first opening, through said cavity into said receiving and gripping means thereby placing said first tubular means in direct communication with said second opening;

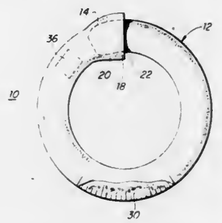
said third opening communicating with said cavity thereby placing said third opening in communication with said second flexible tube means through said cavity and said first opening.

4,265,236

PORTABLE INHALATOR DEVICE

Angelo M. Pacella, 39 Chute Rd., Dedham, Mass. 02026

Filed Mar. 31, 1980, Ser. No. 135,629
Int. Cl.³ A61M *15/00*
U.S. Cl. 128—203.23 **19 Claims**



1. A portable inhalator device comprising:

a length of flexible tubing;

a frictional engaging area on the outer surface of a first end of said tubing;

a second engaging area on the inner surface of the second end of said tubing for releasably gripping said first end of said tubing and sealingly engaging therewith to form a closed loop

means on said first end of said tubing for insertion into a breathing passage of a user and into said second end; and

means within said tubing for holding inhalant for affecting the flow of air therethrough whereby when said first end is gripped in said second end, the tubing acts as a storage vessel and when said ends are separated, the tubing acts as an inhalator.

4,265,237

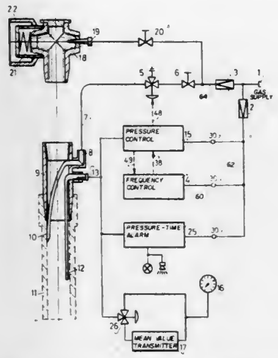
APPARATUS FOR ENHANCING A PERSON'S BREATHING AND/OR ARTIFICIAL RESPIRATION

Erik Schwanbom, Luebeck, and Detlef Warnow, Gross Gronau, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,143
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—204.24 **6 Claims**

1. An apparatus for enhancing a person's breathing and artificial respiration which has inspiration and expiration phases and where the inspiration phase is repeated periodically within a time constant of the operation of a person's lungs, comprising: a respiratory gas breathing line having a tubular connection adapted to be connected to a person's trachea, a blow-in line located in said tubular connection, a gas supply line connected into said tubular connection through said blow-in line in said tubular connection, a pressure sensor located in said tubular connection downstream of said blow-in line, pressure control means connected to said pressure sensor, a pres-

sure reducer, a dosing valve, and an inspiration valve having an open and closed position all located in series in said gas supply line, said pressure control means connected to said inspiration valve and being responsive to said pressure sensor for closing said inspiration valve, frequency control means connected to said pressure control means for supplying pressure signals indicative of inspiration and expiration to said pressure control means, said pressure control means being responsive to said signals for alternately opening and closing said inspiration valve during inspiration and expiration phases, respectively, said frequency control means having a housing with a control chamber defined therein, adjustable partition means in said control chamber dividing said control chamber into an inspiration chamber portion and an expiration chamber portion of adjustable relative size, a frequency valve having an inspiration line connected to said inspiration chamber and an expiration line connected to said expiration chamber, first



pneumatic diaphragm control elements in said inspiration line and said expiration line respectively, a second inspiration line connected from said inspiration chamber to said inspiration valve and a second expiration line connected from said expiration chamber to said inspiration valve, second pneumatic diaphragm control elements in said second inspiration and second expiration lines respectively, connected to said pressure control means and to said first pneumatic diaphragm control elements, said first pneumatic diaphragm control elements being responsive to said frequency control valve and signals from said second pneumatic diaphragm control elements to initiate inspiration and expiration phases, said second pneumatic diaphragm control elements producing signals at the end of inspiration and expiration phases, respectively, said pressure control means switching said second pneumatic diaphragm control elements to initiate an expiration phase and to close said inspiration valve if pressure in said tubular connection attains a selected limit.

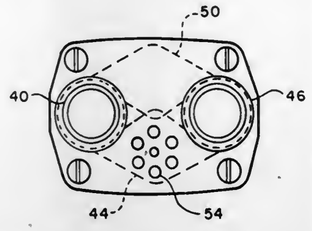
4,265,238

SIMULATED OXYGEN BREATHING APPARATUS

Edmund Swiatosz, Maitland; Wiley V. Dykes; Paul D. Grimmer, both of Winter Park, and Bruce V. Lane, Palm Bay, all of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 16, 1979, Ser. No. 66,944
Int. Cl.[3] A62B *7/00*
U.S. Cl. 128—205.12 **8 Claims**

1. An apparatus that can be utilized as a simulator of a breathing apparatus, comprising:
- a facepiece for placement in covering relationship to the nose and mouth of a wearer;
- conduit means coupled to said facepiece for conveying gaseous fluid to and from said facepiece;
- first and second aperture means coupled to said conduit means, communicating ambient atmosphere to said conduit means, and said conduit means to the ambient atmosphere, respectively;
- means providing one-way flow from said first aperture means through said conduit means and one-way flow from said conduit means through said second aperture means;
- means occupying said first aperture means for filtering the atmosphere communicated through said first aperture means;
- an inflatable bag member coupled to said conduit means and communicating with said second aperture means;



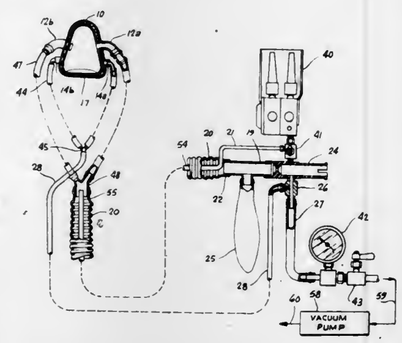
- means occupying said second aperture means for resistively venting said conduit means to said ambient atmosphere while maintaining a predetermined pressure within said bag member;
- such that air is drawn through said filtering means and conveyed to said wearer when said wearer inhales, and said bag member is pressurized when said wearer exhales, and said conduit means is vented when the pressure within said bag member exceeds the predetermined resistance of said venting means.

4,265,239

GAS SCAVENGING EXHAUST SYSTEM

Charles M. Fischer, Jr., 9260 Alcosta Blvd., Suite D-30, San Ramon, Calif. 94583, and Robert S. Price, 3798 Mosswood Dr., Lafayette, Calif. 94549

Filed Nov. 27, 1978, Ser. No. 964,086
Int. Cl.[3] A61M *16/00*
U.S. Cl. 128—205.17 **9 Claims**



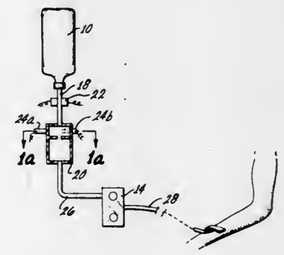
1. In a gas supply system for administering gas to a patient, the system having a remote vacuum means, a scavenging mask with a peripheral chamber adjacent to the rim of the mask, means for supplying gas to the mask, means for removing exhaled gas from the mask, and an exhaust port communicating with the mask through the means for removing exhaled gas, an improved exhaust assembly comprising:
- A. resistance means communicating with the exhaust port for creating a resistance to gas flow therefrom, said resistance means comprising an exhaust tube having a first end, a second end, and a channel therethrough, said channel having a restricted opening near the first end thereof so as to provide resistance to gas flow; and
- B. divider means for dividing gas flow, the divider means communicating with the resistance means, with the peripheral chamber, with the ambient atmosphere, and with the remote vacuum means so that the vacuum-induced gas flow is divided between exhaled gas from the exhaust port, scavenged gas from the peripheral chamber and air from the ambient atmosphere, wherein said divider means includes the second end of said exhaust tube wherein said second end is open to the ambient atmosphere and a tee divider having two ends and a stem, the tee divider communicating at one end with the exhaust tube through the tube wall between the restricted opening and said second end of the exhaust tube communicating with the ambient atmosphere, the tee divider communicating at the other end with said remote vacuum means, the tee divider communicating at the stem thereof with said peripheral chamber.

4,265,240

APPARATUS FOR PROVIDING A CONTROLLED INTRODUCTION OF INTRAVENOUS FLUID TO A PATIENT

Jon A. Jenkins, Rancho Santa Fe, Calif., assignor to IMED Corporation, San Diego, Calif.

Filed Apr. 16, 1979, Ser. No. 30,161
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 E **13 Claims**



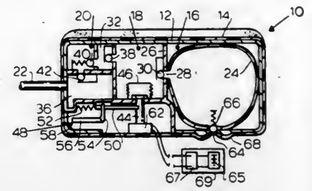
1. In combination for providing for the flow of fluid to a patient,
- first means for providing for a passage of a first particular volume of fluid at a first controlled rate to the patient,
- second means for providing for a passage of a second particular volume of fluid at a second controlled rate to the patient where the second particular rate is different from the first particular rate,
- third means operatively coupled to the first and second means for providing for an initial operation of the first means in producing a passage of fluid to the patient,
- fourth means responsive to the passage of the first particular volume of fluid to the patient for interrupting the operation of the first means and instituting the operation of the second means,
- a first source of fluid,
- a drip chamber,
- first hollow tubing extending from the first source to the first tubing and having a volume less than that of the drip chamber,
- second hollow tubing extending from the drip chamber to the first means, and
- sensor means associated with the first hollow tubing at a position adjacent the drip chamber for sensing when the fluid from the first source no longer flows through the first hollow tubing.

4,265,241

IMPLANTABLE INFUSION DEVICE

Peer M. Portner, Kensington, and Jal S. Jassawalla, San Francisco, both of Calif., assignors to Andros Incorporated, Berkeley, Calif.

Filed Feb. 28, 1979, Ser. No. 15,927
Int. Cl.[3] A61M *7/00*
U.S. Cl. 128—260 **4 Claims**



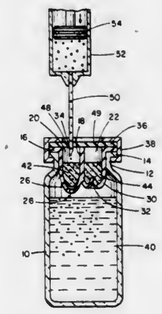
1. An implantable infusion device for delivering precisely regulated dosages of drugs under external control, comprising
- a housing for the infusion device which is completely implantable within the body of a patient,
- said housing including a reservoir chamber and a compressable reservoir arranged in said reservoir chamber for containing a selected drug,
- catheter means for connecting said reservoir with a portion of the body to which the drug is to be delivered, said housing including a pumping chamber having inlet means in communication with said reservoir and outlet means in communication with said catheter, and
- actuating means operable for causing flow of a precise dosage of the selected drug from said reservoir through said catheter means to the body portion, said actuating means having at least a portion implanted in the body of the patient along with said housing and including a movable element operable reciprocally to vary the volume of said pumping chamber and a solenoid for driving said element, said reservoir chamber containing means for developing a pressure within said reservoir which exceeds that of said pumping chamber when said movable element increases the volume thereof, a power source for said solenoid, and telemetry means responsive to a telemetered signal from outside the body for actuating said solenoid from said power source.

4,265,242

FILTER DEVICE FOR INJECTABLE FLUID

Milton J. Cohen, 10823 Burbank Dr., Potomac, Md. 20854

Filed Jul. 23, 1979, Ser. No. 59,670
Int. Cl.[3] A61J *1/00*
U.S. Cl. 128—272 **8 Claims**



1. A filter device for injectable fluid comprising a vial open

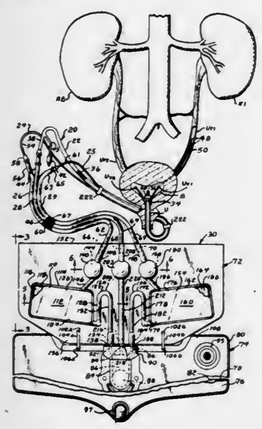
at one end and partially filled with the injectable fluid, a sealing disc sealing the open end of the vial, a container secured in sealing relation to the open end of the vial between the sealing disc and the interior wall of the vial and extending into the neck portion of the vial, a wall subdividing the container into two compartments communicating at one end with the sealing disc which seals the compartments and having self sealing slits in the other end of each compartment, one of which opens in response to pressure differential between one compartment and the vial when the pressure in the one compartment is greater than the pressure in the vial and closes when the pressure in the one compartment is less than the pressure in the vial, and the other having means which remains sealed when the pressure in the other compartment is greater than the pressure in the vial but is opened when the pressure in the other compartment is less than the pressure in the vial, and filter means within each compartment through which the fluid or gas must flow for filtration of fluid and gas during flow through the compartments.

4,265,243

COLLECTION CONTAINER WITH SIPHON ASSEMBLY

Glenn N. Taylor, Cary, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Apr. 4, 1979, Ser. No. 26,868
Int. Cl.[3] A61F *5/44*
U.S. Cl. 128—275 **18 Claims**



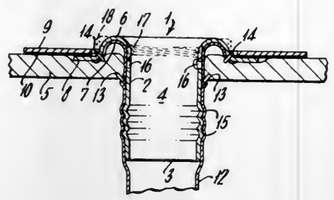
1. A container for collecting body fluids comprising:
a receptacle having a cavity; and
a siphon assembly having a pair of opposed spaced walls and a sidewall defining an assembly chamber, a port communicating with the assembly chamber to receive the fluids, and wall means defining a siphon passageway having an upper portion spaced a substantial distance above a lower portion of the assembly chamber and located below an upper portion of the assembly chamber, a first portion connecting the passageway upper portion to the lower portion of the assembly chamber, and a second portion extending downwardly from the passageway upper portion and communicating with the receptacle cavity, with at least one of said opposed walls being constructed from a flexible material, such that the one wall may be pressed toward the other of said walls to substantially reduce the volume in the assembly chamber, including a drip chamber located above the assembly chamber, and a first channel communicating between the drip chamber and the port adjacent the upper portion of the assembly chamber.

4,265,244

STOMA ADAPTOR

Roger C. Hill, Skipton, England, assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Feb. 7, 1979, Ser. No. 10,275
Int. Cl.[3] A61F *5/44*
U.S. Cl. 128—283 **7 Claims**



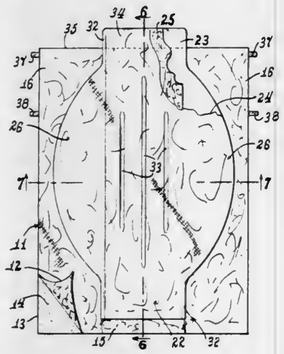
1. A stoma adaptor comprising: an open tube of non-toxic material, having a proximal end for insertion into the lumen of a body orifice at a stoma site and a distal end, said distal end comprising a rim turned outwards to form an annular lip having a concave underside geometrically continuous with the rest of the tube, whereby an open live intestine advanced over the tube from the proximal end will take up a similarly flared configuration for attachment to the external periphery of the orifice; means for securing an open intestine to the outer surface of the tube; means for securing the tube to the body wall, said means for securing the tube to the body wall comprising tabs formed integral with the outer edge of said annular lip for underlying an adhesive sheet placed on the skin around the stoma, and further including holes in said annular lip adapted for suturing therethrough; and means for attachment to the tube, at the distal end thereof, of a fluid-tight stoma closure.

4,265,245

DOUBLE-DUTY DIAPER

Jacob A. Glassman, 1680 Michigan Ave., Miami Beach, Fla. 33139

Filed Mar. 19, 1979, Ser. No. 21,352
Int. Cl.[3] A41B *13/02*
U.S. Cl. 128—287 **11 Claims**



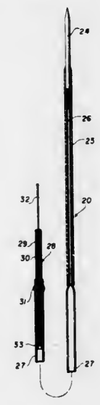
1. A double-duty diaper comprising, in combination, a main diaper including at least one relatively thick substantially rectangular layer of highly moisture absorbent material constituting a longitudinal central portion, a thin layer of moisture impervious material underlying the central portion and extending laterally beyond the longitudinal edges of said central portion, a thin layer of moisture pervious material overlying the central portion and having laterally extending side portions one overlying each lateral extension of the moisture impervious material, said lateral extensions each having a width corresponding at least to one-half the width of the longitudinal central portion and being bonded together face to face; and a removable body contacting insert strip including a central relatively thick body of highly moisture absorbent material of a width responding substantially to the width of and superposed on the said longitudinal central portion, adhesive means removably securing the insert strip to said central portion, and means to prevent spillover from said insert strip onto the main diaper comprising thinner lateral wing portions on said central relatively thick body each terminating short of the ends of said thick body and being of a width not greater than the width of the laterally extending side portions of the main diaper, said thinner wing portions comprising a thin bottom layer of moisture impervious material and a thin upper layer of moisture absorbing material bonded together face to face.

4,265,246

STERILE COSMETIC SUTURE AND SCALP IMPLANT FOR ATTACHING HAIR PIECES

Robert J. Barry, Little Falls, N.J., assignor to Barry Cosmetic Suture Company, Inc., Little Falls, N.J.

Filed May 30, 1979, Ser. No. 43,651
Int. Cl.[3] A61B *17/00*
U.S. Cl. 128—330 **3 Claims**



1. A needle, suture and scalp implant assembly comprising a needle adapted to penetrate the scalp generally tangentially of the skull for forming entrance and exit scalp openings, a trailing flexible tubular tissue-compatible suture connected with the needle, a tubular scalp implant bushing engaged telescopically and frictionally in the bore of said suture, said implant bushing having a metal tube body and an exterior sheath of soft compliant tissue-compatible silicone rubber covering the entire exterior surface of the metal tube body and fixed thereon, and elongated control element of greater length than the implant bushing extending movably through the bore of the metal tube body of the implant bushing and trailing from the implant bushing and suture, an enlarged head at each end of said elongated control element, the heads of said control element being larger than the bore of the metal tube body and incapable of passing through said bore, whereby after positioning of the implant bushing in the scalp the control element may be held to prevent axial displacement of the implant bushing while the tubular suture is pulled from the silicone rubber covering of the implant bushing.

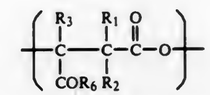
4,265,247

MALIC ACID POLYMERS

Robert W. Lenz, Amherst, Mass., and Michel Vert, Deville-les-Rouen, France, assignors to Research Corporation, New York, N.Y.

Filed Nov. 7, 1979, Ser. No. 92,183
Int. Cl.[3] C08G *63/08*; A61L *17/00*
U.S. Cl. 128—335.5 **16 Claims**

1. A polymer containing repeating units of the formula:



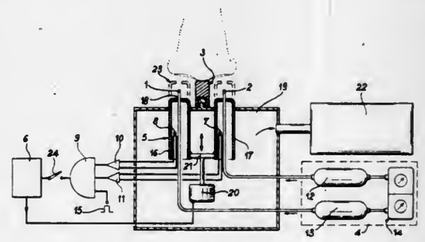
wherein R_1 and R_2 are independently hydrogen, alkyl, aryl, aralkyl, substituted alkyl, substituted aryl, substituted aralkyl, R_3 is hydrogen, alkyl or $-(CH_2)_n COOR_8$ where n is an integer of 0 to 10, R_6 is OR or NR_4R_5, wherein R and R_8 are independently hydrogen or a group derived from a compound containing esterifiable hydroxyl groups, R_4 and R_5 are independently alkyl, aryl, aralkyl, substituted alkyl, substituted aryl, substituted aralkyl or together comprise an alkylene group.

4,265,248

DIFFERENTIAL OLFACTOMETER

Rene Chuiton, Clamart, and Patrick MacLeod, Chatenay-Malabry, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Dec. 13, 1978, Ser. No. 969,257
Claims priority, application France, Jan. 10, 1978, 78 00509
Int. Cl.[3] A61B *5/00*
U.S. Cl. 128—630 **15 Claims**



1. A differential olfactometer comprising two atomizers located on either side of a nasal support and respectively associated with a circuit for supplying olfactory stimuli, a retractable antidiffusion device which hides the atomizers during the intervals between nasal stimulation periods and a breathing detection device associated with an electronic control unit for controlling the hiding of the atomizers, wherein the supply circuit for the atomizers comprises means for continuously supplying the olfactory stimuli to the atomizers in a continuous stream during the entire time period of inhalation.

4,265,249

CATHETER DEVICE AND SYSTEM FOR CONTINUOUS CHEMICAL ANALYSIS OF BODY FLUIDS IN VIVO

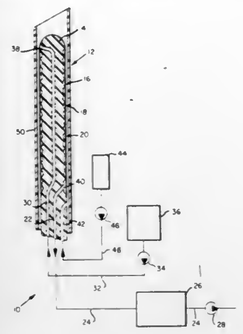
Johannes G. Schindler, Marburg, Lahn, and Wilfried Schael, Bad Homburg, both of Fed. Rep. of Germany, assignors to Dr. E. Fresenius Chemisch pharmazeutisch Industrie KG, Bad Homburg, Fed. Rep. of Germany

Filed Jul. 28, 1978, Ser. No. 928,914

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1977, 2734247

Int. Cl.[3] A61B 5/00

U.S. Cl. 128—635 **8 Claims**



1. A catheter for use with a system for obtaining body fluids from fluid carrying members for a continuous chemical analysis thereof comprising:

(a) an elongated solid body portion having at least three ducts disposed therein, each said ducts being provided with an entrance at one end of said body portion and providing a fluid flow path to the surface of said body portion;

(b) a semi-permeable membrane filter means circumscribing said body portion and supported thereby, leaving at least one of said ducts uncovered, said membrane being permeable to the substances to be analyzed and impermeable to high molecular weight and corpuscular portions of said fluids;

(c) continuous channel means formed on the surface of said body portion for communicating with at least two of said ducts to provide a continuous fluid flow path, said membrane means covering said channels.

4,265,250

ELECTRODE

Dawood Parker, El Toro, Calif., assignor to Battle Research and Development Associates, Cambridge, Mass.

Filed Jul. 23, 1979, Ser. No. 59,643

Int. Cl.[3] A61B 5/00

U.S. Cl. 128—635 **10 Claims**

1. Apparatus for measuring the concentration of gases in blood, comprising

a disposable skin-contact assembly, comprising

a first support,

anode and cathode electrodes mounted on said support, and

a skin-contact membrane permeable to said gases mounted on said support adjacent to said electrodes to define an electrolyte region between said membrane and said electrodes, and

a reusable base assembly, comprising

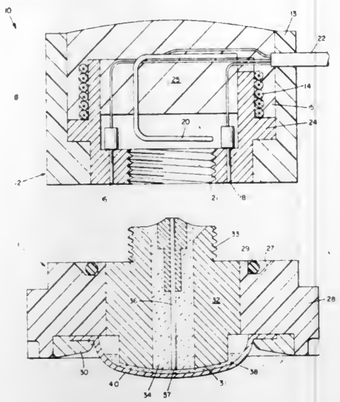
a second support,

a metal member mounted on said second support,

heat source means mounted on said second support for supplying heat through said disposable assembly to said electrolyte region,

an electrical contact member mounted on said second support, and

means for connecting said metal member and said contact member to an electrical cable to provide an electric potential therebetween,



said assemblies further comprising respective interlocking means for bringing said metal member into contact with one said electrode and said contact member into contact with the other said electrode.

4,265,251

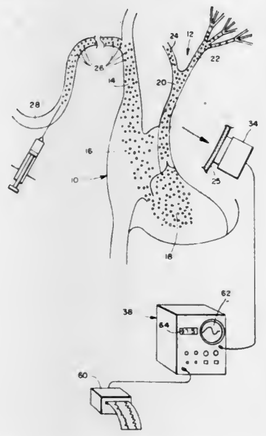
METHOD OF DETERMINING PRESSURE WITHIN LIQUID CONTAINING VESSEL

Ernest G. Tickner, Morgan Hill, Calif., assignor to Rasor Associates, Inc., Sunnyvale, Calif.

Filed Jun. 28, 1979, Ser. No. 52,745

Int. Cl.[3] A61B 5/02

U.S. Cl. 128—660 **9 Claims**



1. A method of determining pressure within a liquid containing vessel, comprising:

adding a solid microbubble precursor to said liquid;

retaining said precursor in said liquid for sufficient time to form a plurality of microbubbles thereby generating a plurality of sonic signals, said precursor forming said plurality of microbubbles at a plurality of times, wherein said precursor is formed to provide each of said microbubbles of a substantially equal selected size, said size being

selected to be within a range from about 0.5 micron to about 325 microns;

measuring a characteristic of said sonic signals representative of the pressure in the liquid, said measuring being of the ultrasonic frequency generated by formation of said microbubbles as a function of said times; and

determining the pressure in the liquid from the measured characteristic, said determining being of the pressure in the liquid as a function of time.

4,265,252

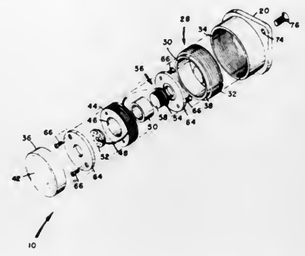
INTRACRANIAL PRESSURE IMPLANT

John G. Chubbuck, Silver Spring, and James T. Turner, Ellicott City, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.

Filed Apr. 19, 1978, Ser. No. 897,716

Int. Cl.[1] A61B 5/02

U.S. Cl. 128—748 **18 Claims**



1. An apparatus for sensing pressure within a cavity in the body of a living entity and for implantation within said body comprising:

inductor-capacitor resonant circuit means;

pressure responsive means for responding to said pressure disposed in said cavity; and

means for increasing the resonant frequency of said resonant circuit means in response to an increase in said pressure as sensed by said pressure responsive means and for decreasing said resonant frequency of said resonant circuit means in response to a decrease in said pressure as sensed by said pressure responsive means, said means for increasing and decreasing said resonant frequency comprising deformable means for acting upon said inductor-capacitor resonant circuit means to vary the frequency thereof in response to deformation of the configuration of said deformable means, said deformable means sealing therein a predetermined quantity of a compressible medium, said deformable means thereby serving as a reference pressure source.

4,265,253

SKIN CONDUCTING ELECTRODE AND ELECTRODE ASSEMBLY

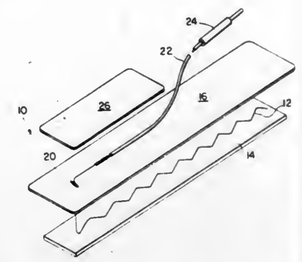
William W. Abraham, New Hartford, N.Y., assignor to Consolidated Medical Equipment Inc., Utica, N.Y.

Filed Jul. 9, 1979, Ser. No. 55,812

Int. Cl.[1] A61N 1/18

U.S. Cl. 128—798 **5 Claims**

1. A skin conducting electrode assembly for use in supplying electrical impulses to a patient to reduce pain, said electrode assembly comprising, in combination, an electrode comprising a thin conductive member having an undulating configuration along the length thereof such that said member extends across a width of skin substantially greater than the width of said member; means for providing electrical impulses to said conductive member including a lead wire directly connected to said electrode; a gel pad in contact with one side of said electrode, said gel pad extending beyond the configuration of said member to prevent direct contact of said electrode with the skin of the patient; an adhesive pad in adhesive contact with the other side of said electrode, said adhesive pad extending beyond the outer edges of the gel pad to hold the assembly to the patient and to maintain said gel pad and said electrode in electrical contact with the skin of the patient, the configuration of said conductive member providing a wide area of the skin which is in close contact with said electrode, such that said electrode easily stretches and flexes as the skin or said assembly



stretches and flexes, a portion of said conductive member extending through said adhesive pad said lead wire being attached to that portion of said conductive member extending through said adhesive pad and said assembly further comprising an adhesive strip secured to said adhesive pad holding said portion of said conductive member and a portion of said lead wire firmly in place.

4,265,254

APPARATUS FOR PERFORATING CIGARETTE PAPER OR THE LIKE

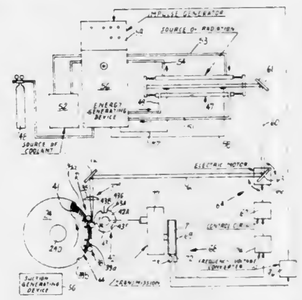
Franz-Peter Koch, Schwarzenbek; Peter Pinck, Gross-Hansdorf; Kurt-Eckard Petersen, Wentorf; Norbert Lange, Glinde; Elke Köhler, and Ulrich Bornfleth, both of Hamburg, all of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG., Hamburg, Fed. Rep. of Germany

Filed Nov. 22, 1978, Ser. No. 963,087

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1977, 2754104

Int. Cl.[1] A24C 5/60

U.S. Cl. 131—281 **14 Claims**



1. In a machine which produces and/or processes rod-shaped articles constituting or forming part of smokers' products of the type having at least one tubular envelope constituting a section of a web of flexible wrapping material and surrounding at least one rod-like filler, the combination of means for advancing the wrapping material along a predetermined path; a prime mover operative to determine the rate of production and/or processing of rod-shaped articles and arranged to drive said advancing means; and an apparatus for making perforations in the wrapping material, said apparatus comprising a source of coherent radiation, energizing means operable to energize said source so that the latter emits a beam of coher-

ent radiation, optical means for focusing said beam upon the wrapping material in said path, mobile beam reflecting means interposed between said source and said optical means, moving means actuatable to move said reflecting means between a plurality of positions in each of which said optical means focuses said beam upon a different portion of the wrapping material in said path, means for operating said energizing means in synchronism with the operation of said prime mover, and means for actuating said moving means in synchronism with the operation of said prime mover.

4,265,255

METHOD AND MACHINE FOR PROCESSING WEBS OF CIGARETTE PAPER OR THE LIKE

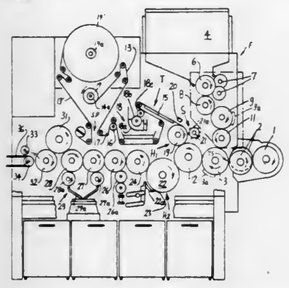
Adolf Helms, Hamburg, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co. KG., Hamburg, Fed. Rep. of Germany

Filed Apr. 9, 1979, Ser. No. 28,320

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1978, 2816165

Int. Cl.³ A24C *5/24, 5/47*

U.S. Cl. 131—69 **24 Claims**



1. A method of connecting a sheet-like wrapping material with rod-shaped smokers' products, comprising the steps of applying to one side of the wrapping material at least one layer of an aqueous dispersion of hotmelt; thereupon expelling the liquid from the layer, including heating the layer; and the additional steps of heating the layer to a temperature at which the hotmelt of the layer is in a molten state, and draping the wrapping material around smokers' products.

4,265,256

Patent Not Issued For This Number

4,265,257

POWER DRIVEN DENTAL FLOSS CLEANER

James R. Salyer, 816 Bacon Ave., Dover, Del. 19901

Filed Jul. 17, 1979, Ser. No. 58,381

Int. Cl.³ A61C *15/00*

U.S. Cl. 132—92 R **31 Claims**



1. A power driven floss holder and cleaner comprising vibratory source means, an elongated vibratory arm mounted on said vibratory source means and having a distal end spaced outwardly from said vibrating source means, said vibratory source means being operative to impart vibratory motion to said vibratory arm, and an elongated nonvibratory arm mounted upon said vibratory source means to extend in spaced relationship to said vibratory arm from substantially the distal end thereof to said vibratory source means.

4,265,258

DENTAL FLOSS

Melvin H. Eaton, II, 2600 W. Landing Rd., Virginia Beach, Va. 23456

Filed Aug. 28, 1979, Ser. No. 70,364

Int. Cl.³ A61C *15/00*

U.S. Cl. 132—93 **13 Claims**



1. A dental floss comprising a strand of a multitude of fibers overlaid upon each other with a number of the fiber ends extending beyond the outermost layer of fiber bodies, said strand being of substantially uniform diameter, said number of fiber ends extending in random directions, being randomly spaced along the length of said strand, and being substantially self-supporting.

4,265,259

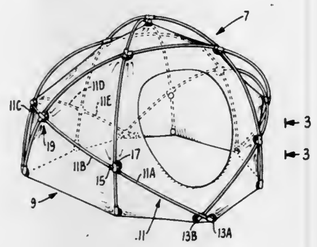
TENT

Robert E. Gillis, P.O. Box 67, Aptos, Calif. 95003

Filed Jun. 7, 1979, Ser. No. 46,341

Int. Cl.³ A45F *1/16*

U.S. Cl. 135—1 R **8 Claims**



1. A dome structure comprising a plurality of stressed poles each pole being flexed into an arcuate shape to exert a force in a direction which is radially outward of each pole, said poles crossing each other at a plurality of intersections, said poles having terminal ends defining a plane,

said poles comprising a plurality of rods held in end-to-end relationship by couplings,

a flexible membrane beneath said poles,

said couplings being attached to said membrane and holding said poles in intersecting relationship at each of said plurality of intersections, said couplings engaging each of said poles substantially at the point of intersection of said poles and holding intersecting poles relative to each other at said intersections and relative to said membrane in a substantially fixed relationship,

said couplings attaching said membrane to said poles and transmitting said outwardly directed force to said membrane,

said membrane constituting the sole connection between spaced terminal ends of said poles.

4,265,260

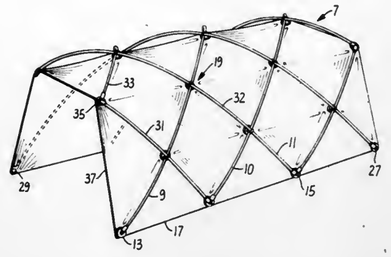
FLEXIBLE VAULT STRUCTURE

Robert E. Gillis, P. O. Box 67, Aptos, Calif. 95003

Filed Jun. 22, 1979, Ser. No. 50,981

Int. Cl.³ A45F *1/16*

U.S. Cl. 135—3 R **6 Claims**



1. A vault structure having an arcuate shape in cross section, a generally rectangular shape in plan, said vault structure extending from a plane and having no member from side-to-side in said plane comprising in combination:

a. A plurality of rod-like members,

b. each of such rod-like members being held in tension by stress means and thereby formed into a generally arcuate shape and a plurality of said rod-like members extending from the level of the plane on one side, over the top of the arcuate structure to the level of the plane on the opposite side,

c. said stress means comprising a flexible member attached to said rod-like members by means of a sliding connection and

d. said stress means forming a plurality of geometric cords with respect to said arcuate rod-like members.

4,265,261

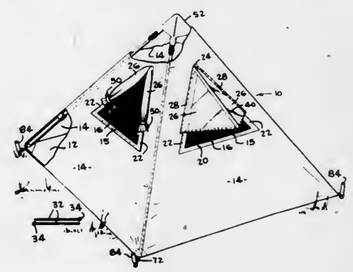
TENT

Joseph K. Barker, Rte. 7, Box 111, Abingdon, Va. 24210

Filed Dec. 7, 1979, Ser. No. 102,110

Int. Cl.³ A45F *1/16*

U.S. Cl. 135—3 R **8 Claims**



1. A shelter comprising a flexible polygonal floor panel, a plurality of flexible triangular side walls with each having a lower edge attached to an edge of said floor panel, and edges of adjacent side walls attached together thereby forming an apex at the upper end thereof and floor corners in conjunction with the floor panel at the lower ends thereof, and a support structure including telescoping rod members positionable within the shelter along the adjoining edges of said side walls and an apex cap member formed of plastic material positionable in the apex formed by said side walls and having flexible spring members extending downwardly and outwardly therefrom for receiving and retaining upper ends of said telescoping rod members.

4,265,262

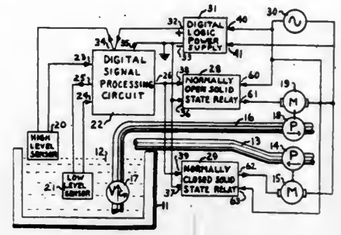
FLUENT MATERIAL LEVEL CONTROL SYSTEM

William Hotine, Box 216, Albion, Calif. 95410

Filed Mar. 19, 1979, Ser. No. 21,906

Int. Cl.³ F17D *3/00*

U.S. Cl. 137—2 **6 Claims**



1. The method of controlling the level of fluent material in a reservoir and maintaining said level between desired high and low levels in said reservoir, which comprises:

detecting increasing or decreasing levels of fluent material by placing upper and lower level sensors at said desired levels, said sensors individually transmitting a digital signal voltage upon immersion in said material and terminating said digital output signal upon emergence from said material;

transmitting said digital voltage signals from said sensors to first and second input terminals of a digital signal processing circuit including digital logic gates, said circuit being energized by a connected power supply and having first and second output terminals;

processing said digital signals from said sensors in said processing circuit in a manner to transmit a digital signal voltage to said first and second output terminals of said processing circuit when a digital signal voltage is received at both said first and said second input terminals, to maintain said digital signal voltage at said first and said second output terminals after a digital "zero" signal voltage appears at said first input terminal, and to transmit a digital "zero" signal voltage to said first and said second output terminals after a digital "zero" voltage is received at said second input terminal;

transmitting said digital voltage output signal from said second output terminal of said processing circuit to the input circuit of a solid state relay having an input circuit and an output circuit, said relay output circuit being serially connected between a source of electrical power and power driven flow control means, said relay input circuit responding to said output digital signal from said processing circuit and changing the operating state of said output circuit of said relay;

operating flow control means by said change of state of said relay output circuit; and

controlling flow of said material in piping connected to said reservoir to maintain level of said material within said desired levels in said reservoir.

4,265,263

NON-LINEAR LEVEL CONTROLLER

James W. Hobbs, Sweeny, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 28, 1979, Ser. No. 70,300

Int. Cl.³ F17D *3/01*

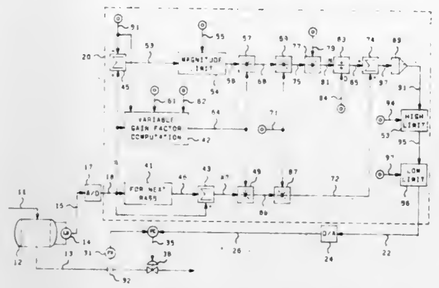
U.S. Cl. 137—2 **14 Claims**

7. A method for controlling the level of a liquid in a means for containing said liquid comprising the steps of:

establishing a first signal (LP) representative of the actual level of said liquid at a time T_1;

establishing a second signal (L) representative of the actual

liquid level of said liquid at a time T_2, said time T_2 being later in time than said time T_1;
subtracting said first signal from said second signal to establish a third signal representative of the change in liquid level (DL) between said time T_1 and said time T_2;
establishing a variable gain factor (VGF) which is a non-linear function of the level of said liquid;
multiplying said third signal by said variable gain factor to establish a fourth signal representative of (VGF)*(DL);
establishing an incremental proportional output (DP) in response to said fourth signal;
establishing a fifth signal (SP) representative of the desired level of said liquid;
subtracting said fifth signal from said second signal to establish a sixth signal representative of the integral error (E);



multiplying said sixth signal by said variable gain factor to establish a seventh signal representative of (VGF)*(E);
establishing an incremental integral output (DI) in response to said seventh signal;
combining said incremental porportional output and said incremental integral output to produce a total incremental output (DF);
adding said total incremental output to the total incremental output of said non-linear level controller at said time T_1 to establish a position output (FS); and
manipulating the flow of liquid from said means for containing said liquid in response to said position output to thereby control the level of said liquid in said means for containing said liquid.

4,265,264
METHOD OF TRANSPORTING VISCOUS HYDROCARBONS
Thomas R. Sifferman, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.
Filed May 3, 1979, Ser. No. 35,561
Int. Cl.³ F17D *1/17*
U.S. Cl. 137—13 **5 Claims**

1. In the method of transporting a viscous hydrocarbon through a pipe the improvement which comprises forming an oil-in-water emulsion by adding to said hydrocarbon from about 20 to about 80 volume percent of an aqueous solution containing an effective amount of a combination of
(a) about 25 to about 20,000 parts per million, based on said hydrocarbon, of a salt of an ethoxylated alcohol sulfate which is represented by the formula

$$[CH_3(CH_2)_xCH_2(OCH_2CH_2)_nOSO_3]M$$

wherein x is an integer in the range of about 10 to about 16, n is a number in the range of about 3 to 12, and M is sodium or ammonium, and
(b) about 50 to about 20,000 parts per million of a second surfactant selected from the group consisting of
(i) materials represented by the formula

$$HO(CH_2CH_2O)_a(CHCH_2O)_b(CH_2CH_2O)_cH, \text{ wherein}$$
$$\quad\quad\quad

means continuously rotates, closing both of said nozzles, simultaneously, and opening said nozzles to allow flow into the second outlet line, whereby the necessity for a sealing relationship of said rotary shutter means with said valve housing is eliminated, said rotary shutter means comprising a drive shaft and two shutters thereon positioned to simultaneously close and open said nozzles, and including an axial bearing assembly for holding said shaft in coaxial alignment with said bore, wherein said shutters of said rotary shutter means are positioned axially slidable on and keyed to said drive shaft held by said axial bearing assembly to allow axial as well as rotative movement of said shutters relative to and with said drive shaft, said shutters being urged by a spring disposed in said drive shaft against a non-rotating axially movable piston, said piston being actuated by a differential pressure upstream and downstream of a restriction positioned in the first outlet line directed to the load;

second conduit means for directing fluid from each of said first conduit means to the first outlet line; and

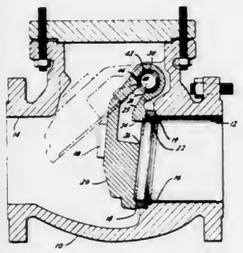
check valve means permitting flow from the inlet line into the first outlet line only when said nozzles are closed.

4,265,268

MODULATING FLOW CONTROL VALVE ASSEMBLY

Heinz K. Hetz, Holicong, Pa., assignor to Yarway Corporation, Blue Bell, Pa.

Filed Feb. 1, 1980, Ser. No. 117,389
Int. Cl.³ G05D *7/01*
U.S. Cl. 137—117 **15 Claims**



1. A modulating flow control valve assembly comprising:

a valve body having an inlet, an outlet, a main fluid passage extending from said inlet to said outlet, and a valve seat formed in said main fluid passage;

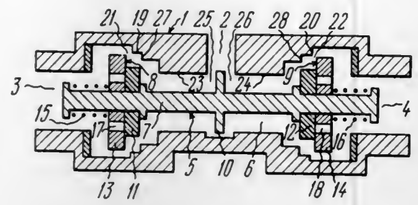
a valve member having a face shaped and sized to cooperate with said valve seat and a bypass fluid passage extending from an inlet in said face to an outlet; and, mounting means for mounting said valve member within said valve body for pivotal movement about an axis transverse to said fluid passage to move said face of said valve member into and out of contact with said valve seat, said mounting means including a discharge passage having an inlet which selectively communicates with said outlet of said bypass fluid passage from a maximum when said face of said valve member is in contact with said valve seat to a minimum when said face member is spaced from said valve seat a predetermined distance.

4,265,269

DEVICE FOR AUTOMATICALLY CUTTING OFF DAMAGED BRANCHES OF PNEUMATIC AND HYDRAULIC SYSTEMS

Vladimir I. Dolberg, ulitsa Khalturina, 8, kv. 9; Igor V. Yarovoi, ulitsa Primakova, 12, kv. 74, and Mikhail I. Dronin, ulitsa Zygina, 42, kv. 37, all of Poltava, U.S.S.R.

Filed Apr. 9, 1979, Ser. No. 28,396
Int. Cl.³ G05D *7/00*
U.S. Cl. 137—118 **4 Claims**



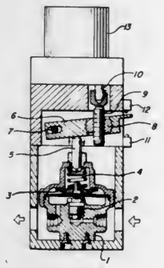
1. A device for automatically cutting off damaged branches of pneumatic or hydraulic systems, comprising: a casing having an inlet chamber and outlet chambers communicating with each other through a passage; stops provided within said casing in the form of projections inwardly extending from the side of the passage; a pilot valve arranged freely for axial movement in the passage of said casing and including a rod carrying at its ends main pistons which define with said casing shut-off valves of the outlet chambers when said pilot valve is in an axially displaced position, each of said main pistons including a seat secured to the rod of said pilot valve and a perforated shut-off member normally urged by a spring against said seat and interacting with a respective one of said stops upon movement of said pilot valve; an additional piston secured to the rod of said pilot valve between the main pistons and having an area smaller than the area of each of the main pistons, said additional piston defining together with said casing a throttle between the inlet chamber and the outlet chamber located in the direction of movement of said pilot valve, while the respective main piston of said pilot valve forms, together with said casing, a throttle between the inlet chamber and the outlet chamber located opposite to the displacement of said pilot valve.

4,265,270

REMOTE-CONTROLLED PRESSURE REGULATOR

Ryozo Satoh, Yamato, Japan, assignor to Tel-Thermco Engineering Co., Ltd., Yokohama, Japan

Filed Mar. 4, 1980, Ser. No. 127,005
Int. Cl.³ G05D *11/06*
U.S. Cl. 137—505.39 **2 Claims**



1. A remote-controlled pressure regulator comprising

(a) a pressure-regulating unit, which has a load spring,

(b) a connecting shaft, which has an inner end and an outer end, which is operatively associated with the pressure-regulating unit so as to permit axial movement of the connecting shaft, and which is operatively associated with the load spring at the inner end of the connecting shaft so as to increase loading of the load spring upon axial movement of the connecting shaft in one axial direction, and so as to decrease loading of the load spring upon axial movement of the connecting shaft in an opposite direction,

(c) an arm, which is pivotally supported at one end of the arm, and which engages the outer end of the connecting shaft at an intermediate portion of the arm so as to effect axial movement of the connecting rod so as to increase loading of the load spring upon pivotal movement of the arm in one pivotal sense, and so as to decrease loading of the load spring upon pivotal movement of the arm in an opposite sense,

(d) a stepping motor, which has an output shaft that is operatively connected to the arm so as to effect pivotal movement of the arm in opposite pivotal senses, as the output shaft is driven in opposite rotational senses by the stepping motor, and

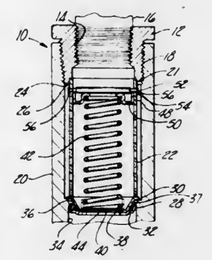
(e) a pair of limit switches, which are respectively mounted to the framework so as to be engaged by the arm, at one extreme of a range of pivotal movement of the arm, and which are operatively associated with the stepping motor.

4,265,271

RELIEF VALVE

Borje O. Rosaen, 4031 Thornoaks Dr., and Dale P. Fosdick, 3000 Hunting Valley Dr., both of Ann Arbor, Mich. 48104

Filed Aug. 20, 1979, Ser. No. 68,009
Int. Cl.³ F16K *15/02*
U.S. Cl. 137—540 **6 Claims**



1. A relief valve for use with a fluid system comprising:

a fluid fitting having a throughbore, first means formed on the fitting for connecting said fitting to a fluid connector on a fluid system and second means formed on the fluid fitting for connecting said fluid fitting to a second fluid connector on the fluid system whereby the fitting through bore fluidly communicates with one of the fluid connectors;

a valve seat having a fluid passageway and means for securing said valve seat to said fitting;

a valve member movable between a closed position in which the valve member abuts against the valve seat and prevents fluid flow through the valve seat passageway and open positions in which said valve member is spaced apart from said valve seat to permit fluid flow through said valve seat passageway and also through said fluid fitting through bore;

means for resiliently urging said valve member toward its closed position;

an elongated tube secured to said fluid fitting, said valve seat being secured to one end of the tube, said resilient means being positioned within the interior of the tube;

a retainer;

means for securing said retainer within the interior of the tube at a position spaced from said end of said tube so that said resilient means is entrapped between the retainer and said valve member;

wherein said means for securing said retainer to said tube further comprises means for longitudinally adjustably securing said retainer to said tube to thereby vary the compression of said resilient means; and

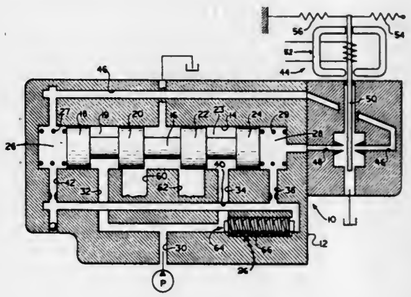
wherein said tube has a plurality of longitudinally spaced and diametrically opposed apertures and wherein said adjustable securing means further comprises a pin extending through a pair of diametrically opposed apertures in said tube.

4,265,272

TRANSIENT START-UP ELIMINATOR FOR PRESSURE PILOTED VALVE

Michael A. Klimowicz, Kalamazoo, and Charles R. Cornell, Battle Creek, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 1, 1979, Ser. No. 80,963
Int. Cl.³ F15B *13/042;* **F16K** *31/40, 31/383*
U.S. Cl. 137—625.62 **27 Claims**



10. A control valve for controlling a flow of control fluid comprising a valve body, first and second fluid chambers disposed in said valve body, first fluid passageway means disposed in said valve body for directing pressurized control fluid to said first and second fluid chambers, a valve member located in said valve body for controlling the flow of pressurized control fluid from the valve body, said pressurized fluid in said first fluid chamber biasing said valve member in a first direction, said pressurized fluid in said second fluid chamber biasing said valve member in a second direction opposite said first direction and a viscosity sensitive restriction disposed in said first fluid passageway and through which said control fluid is directed to said first and second fluid chambers, said viscosity sensitive restriction maintaining substantially equal pressure in said first and second chambers upon initial pressurization thereof.

4,265,273

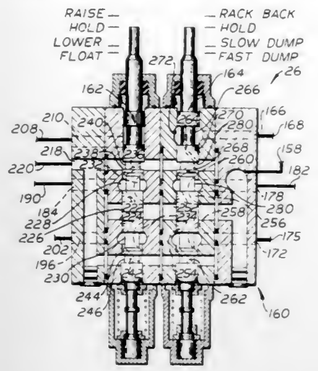
HIGH PRESSURE IMPLEMENT CIRCUIT FOR LOADER WITH SLOW AND FAST DUMP POSITION

Wayne A. Peterson, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 967,345, Dec. 7, 1978, Pat. No. 4,199,293, which is a continuation of Ser. No. 775,062, Mar. 7, 1977, abandoned. This application Oct. 1, 1979, Ser. No. 80,646
Int. Cl.³ F15B *13/07*
U.S. Cl. 137—625.68 **4 Claims**

1. A valve comprising a valve body and a valve spool movable therein, wherein the body defines a pilot supply pressure port, a first port, a second port and a tank port, and wherein the spool defines a first passage means for providing communication between the pilot supply pressure port and first port as the spool is moved in one direction to a first position relative to the body, wherein the spool further defines means for communi-

cating said first port and said tank port, said communicating means including a means for restricting communication between the first port and tank port, said means for restricting determining pressure buildup in the first port with the spool in said first position, wherein the spool further defines a second



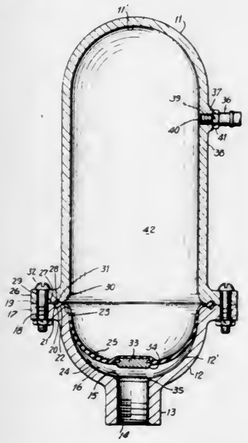
passage, further movement of the spool in said one direction providing blocking of the communicating means including the means for restricting from the tank port and providing communication of the means for restricting with the second port through the second passage, with communication between the pressure port and first port continued.

4,265,274

PULSATION DAMPENER FOR LOW OUTPUT SYSTEMS

Abduz Zahid, Los Angeles, Calif., assignor to Greer Hydraulics, Incorporated, Chatsworth, Calif.

Filed Sep. 4, 1979, Ser. No. 72,439
Int. Cl.³ F16L *55/04*
U.S. Cl. 138—30 **4 Claims**



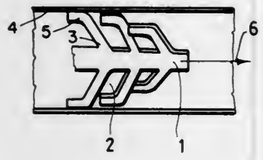
1. A low output pulsation dampener device comprising, in combination, an upper generally cylindrical shell part and a lower generally cylindrical shell part, each of said parts including at one end a generally hemispherical end and at the other end a radially directed flange, said flanges being disposed in juxtaposition, and including opposed annular registering groove portions, a separator assembly interposed between said shell parts, said separator assembly comprising a resilient elastomeric member having an enlarged annular bead sealingly clamped between said registering annular grooves, clamp means interposed between said flanges maintaining said bead in compressed relation within said grooves, a liquid port formed in said lower shell part, a valve member carried by said bladder and shiftable toward and away from said liquid port responsive to pressure variations in said liquid port, a gas charging valve formed in said upper shell part, gas under pressure disposed within said upper shell part for maintaining said valve member in a normally seated position on said valve seat, said device being characterized by the volume of said upper shell part comprising substantially three or more times the volume of said lower part and by the lower shell part comprising a corrosion resisting metallic material and said upper shell part comprising a different and less expensive metallic material.

4,265,275

INTERNAL FIN TUBE HEAT EXCHANGER

Laszlo Heller; Laszlo Forgo; Istvan Papp; Janos Bodas; Gyula Kovacs, all of Budapest, and Karoly Laszlo, Jaszbereny, all of Hungary, assignors to Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat, Budapest, Hungary

Continuation of Ser. No. 811,903, Jun. 28, 1977, abandoned. This application Jun. 28, 1979, Ser. No. 52,797
Claims priority, application Hungary, Jun. 30, 1976, EE 2429
Int. Cl.³ F28B *3/02*
U.S. Cl. 138—38 **1 Claim**



1. An internal fin tube heat exchanger, comprising a cylindrical tube, and inside the tube a resilient metal strip that is cut to provide a central strip and a plurality of ribs in the form of strips extending from both side edges of said central strip at an acute angle to the length of the central strip, the free ends of the ribs bearing resiliently against the inner surface of the tube, said strip being twisted whereby said ribs contact said tube in a helical pattern, said ribs terminating in feet that are parallel to said central strip and that extend from the ends of said ribs in the same axial direction as the ribs are inclined from the central strip and that are in heat exchange contact with the inner surface of said tube, said ribs being cut from said strip with space between them, each said rib and its associated said foot being coplanar and being disposed substantially in a radial plane of said cylindrical tube.

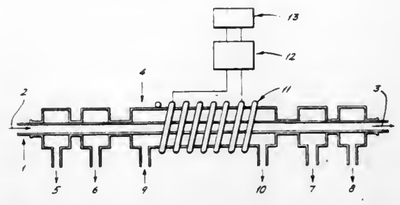
4,265,276

PLASTIC TUBE HAVING A CROSSLINKED THIN LAYER ON THE SURFACE

Kenji Hatada; H. Kobayashi, and Miyoshi Yokura, all of Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Continuation of Ser. No. 948,707, Oct. 5, 1978, abandoned. This application Jan. 10, 1980, Ser. No. 110,836
Claims priority, application Japan, Oct. 14, 1977, 52-122529
Int. Cl.³ F16L *9/12*
U.S. Cl. 138—177 **4 Claims**

1. Polyvinyl chloride tube for carrying a fluid, said tube having a body portion composed of polyvinyl chloride mixed with a plasticizer or other additive which tends to migrate from said body portion to said fluid, said tube having a cross-linked thin layer on its inner surface, said layer having a critical thickness of about 0.1 to about 1 micron thereby substantially reducing the migration of said plasticizer or other additive from the body portion of said polymeric tube into the fluid located in said tube.

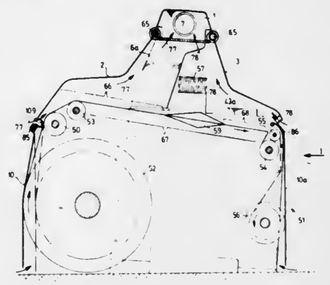


4,265,277

WEAVING MACHINE HAVING NOISE ATTENUATING MEANS

Heinz Baumann, and Charles Caille, both of Winterthur, Switzerland, assignors to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Nov. 13, 1978, Ser. No. 959,477
Claims priority, application Switzerland, Nov. 17, 1977, 14038/77
Int. Cl.³ D03D *49/00*; G10K *11/16*
U.S. Cl. 139—1 R **9 Claims**



1. A weaving machine supported on a floor and having a warp beam end, a cloth beam end, a cover over a weaving plane between said ends to attenuate noise, a suspension device located at one of said ends and a curtain freely suspended from said suspension device at said one end to extend loosely along an outer side of a beam at said end and extending to points near the floor, said curtain being of multi-part construction to define a plurality of flaps to permit lifting to provide access to the machine.

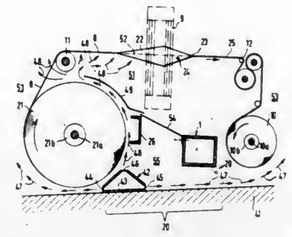
4,265,278

VENTILATING SYSTEM FOR A WEAVING MACHINE

Kurt Jassniker, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jul. 17, 1979, Ser. No. 58,244
Claims priority, application Switzerland, Jul. 17, 1978, 7686/78
Int. Cl.³ D03J *1/02*
U.S. Cl. 139—1 C **9 Claims**

1. The combination with a weaving machine having a machine frame, a warp beam mounted at one end of said frame, a cloth beam mounted at an opposite end of said frame and means for directing warp yarns from said warp beam through a weaving plane to said cloth beam; a ventilation system comprising at least one air supply duct disposed below said weaving plane between said warp beam and said cloth beam, said duct having one set of apertures for directing a first flow of air below at least one of said warp beam and said cloth beam to an area outside and adjacent said respective end of said machine



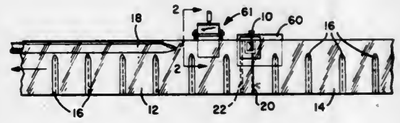
and a second set of apertures for directing a second flow of air into the interior of said machine below said weaving plane.

4,265,279

PACKAGE FOR MAINTAINING ASEPSIS OF A STERILE WEB OF BAGS AND METHOD OF USING

Roy J. Weikert, 2000 Schlater Dr., Sidney, Ohio 45365

Filed Aug. 6, 1979, Ser. No. 64,304
Int. Cl.³ B65B *55/04*
U.S. Cl. 141—10 **11 Claims**



1. A package for maintaining the sterility of new and expiring webs of tubular material having sterile interiors while transferring a filling nozzle from said expiring to said new web comprising:

an inner sheet adapted to contact and sterilize opposed inner surfaces of new and expiring webs of tubular material,

a first outer sheet adapted to overlie and sterilize an outer surface of a new web substantially opposite said inner sheet,

a second outer sheet adapted to overlie and sterilize an outer surface of an expiring web substantially opposite said inner sheet, and

means carried by one of said outer sheets for forming an opening through walls of new and expiring webs with which said package is engaged to allow the sterile transfer of a filling nozzle from the expiring to the new web of tubular material.

4,265,280

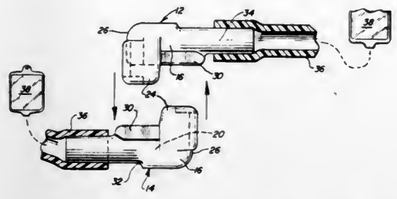
CONNECTOR MEMBER FOR SEALED CONDUITS

David W. Ammann, Boulder, Colo., and Daniel B. Granzow, Ingleside, Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jan. 23, 1979, Ser. No. 5,749
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—98 **17 Claims**

9. A connector element for providing sealed, sterile connection with a second connector element of similar design, said connector element comprising a hollow, transparent housing, the hollow interior of said housing being sealable from the exterior, a flat section of said housing wall comprising an opaque wall portion separating the hollow housing interior from the exterior and being sealable by connection to said second connector element in facing contact with a corresponding opaque wall portion of the second connector element, and openable through said connector elements upon exposure to of said opaque wall portions to radiant energy, thereby forming

an edge-sealed aperture through said opaque portions and providing a virtually sterile connection through said connector, the improvement comprising: retention means as part of said connector element for retention to the second connector elements, said retention means including track-defining gripper arm means positioned adjacent the first end of the housing, and flange means positioned adjacent the second end of said housing, said flange means and the track defined by the gripper arm means occupying a plane which is parallel to the plane of said opaque wall portion, the width of the track defined by the gripper arm means being at least as great as the width of said flange means, whereby the flange means may slideably fit into



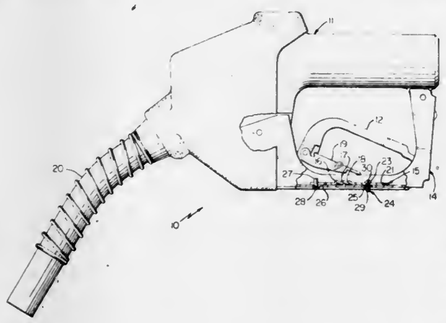
the corresponding gripper arm means of the second connector element, and the gripper arm means may slideably receive corresponding flange means of the second connector element, for sealing of the two connector elements into a single connector member with the opaque wall portion in facing contact; a conduit member communicating with the hollow interior of said housing, the outer end of said conduit member defining a frangible closed end wall, and a projecting member extending outwardly from said closed end wall, and an annular area of weakness in said end wall about said projecting member, whereby manual bending of said projecting member can cause the rupture of said end wall to permit the opening of the outer end of said conduit member.

4,265,281

REMOVABLE RACK FOR A LIQUID DISPENSING NOZZLE

David A. Oberrecht, Cincinnati, Ohio, assignor to Dover Corporation, Del.

Filed Oct. 31, 1978, Ser. No. 956,369
Int. Cl.³ B67D *5/37*
U.S. Cl. 141—392 **15 Claims**



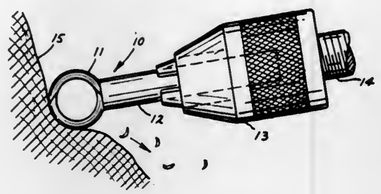
1. A liquid dispensing nozzle including a body, flow control means to control the rate of flow through said body, a guide mounted on said body, a rack removably mounted on said guard, said rack having a plurality of means for selectively holding said flow control means in each of a plurality of predetermined desired positions to control the rate of flow through said body, releasable retaining means for connecting said rack to said guard in a predetermined single position on said guard, longitudinally aligning means on said rack and said guard for cooperation with each other to longitudinally align said rack on said guard when said rack is connected to said guard in the predetermined single position by said releasable retaining means, and cooperating means on said guard and said rack to control the position of said rack on said guard so that said rack is disposed to hold said flow control means at any of the predetermined desired positions when said rack is connected to said guard in the predetermined single position by said releasable retaining means.

4,265,282

TUBULAR ROTATING CUTTER

John O. Lenz, Coon Rapids, Minn., assignor to Kurt Manufacturing Company, Inc., Minneapolis, Minn.

Filed Nov. 13, 1979, Ser. No. 93,188
Int. Cl.³ B27G *13/00*
U.S. Cl. 144—219 **4 Claims**



1. A cutting tool for use relative to workpieces comprising an annulus of metal having a central axis around which the annulus is formed, means defining a rotational axis generally perpendicular to said central axis, said annulus of metal being defined by side edges generally lying along planes that are transverse to the central axis of the annulus and that are inclined relative to the rotational axis so that the cutting planes form a wall of the annulus that is shorter in direction parallel to the central axis at a leading end with respect to the direction of feed of said tool than the diametrically opposite wall portion, portions of said side edges being sharpened so that with respect to rotation of the annulus about the rotational axis the leading side edges are sharpened and in any plane perpendicular to the rotational axis and passing through the annulus, the leading sharpened edge is at a greater radius from the axis of rotation than the rotationally trailing side edge of the wall portion of the annulus on which the sharpened edge is formed.

4,265,283

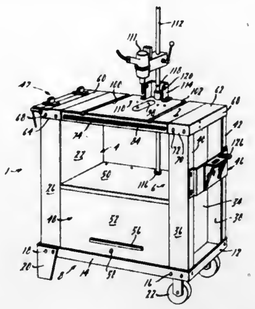
WORK BENCH STRUCTURE

Edward M. Nash, Michigan City, Ind., and Edward M. Johnson, Jr., Matteson, Ill., assignors to The Triangle Corporation, Grant Park, Ill.

Filed Jan. 2, 1979, Ser. No. 589
Int. Cl.³ B27C *5/10*; **S27C** *9/00*
U.S. Cl. 144—286 R **9 Claims**

1. A workbench construction adaptable for use with a plurality of removable electrically powered hand tools each having a different cutting device, said construction including: a rectangular base member; a pair of vertical support members extending upwardly from opposite side portions of said base member, each having a width substantially coextensive with the associated side portion of said base member and each being generally channel-shaped in horizontal cross-section; a normally horizontally disposed top member selectively pivotally supported along a horizontal axis extending through a center portion thereof, said top member being supported between respective upper end portions of said pair of vertical support members and at opposite ends of said horizontal axis by pivot means; an end cap member attached to the top of each of said vertical support members, each end cap member having a horizontal planar portion substantially coplanar with said top member when said top member is in a horizontal position;

means on said end caps and said top member defining said pivot means, said means on said end caps and said top member being disposed intermediate the width of said support members



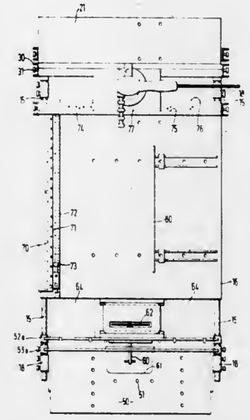
and said end caps; said top member having an aperture therein and mounting means attached to the underside of said top member for mounting one of said plurality of tools with the cutting device being extendable through said aperture.

4,265,284

WORK BENCH

George O. Taylor, Guildford, England, assignor to Bondgrade Limited, Slough, England

Filed Jul. 7, 1978, Ser. No. 922,680
Claims priority, application United Kingdom, Jul. 7, 1977, 28642/77
Int. Cl.³ B27C *9/02*
U.S. Cl. 144—287 **8 Claims**



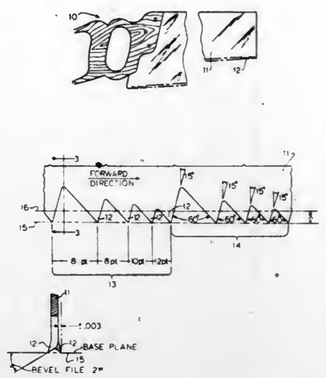
1. A work bench comprising, in combination:
(a) a rigid support;
(b) a main, substantially flat topped, working surface mounted on said support and having opposite ends;
(c) a pair of laterally space apart, longitudinal guide rods extending parallel to one another from each end of the working surface;
(d) a clamping member slidably mounted on said pair of guide rods for longitudinal movement therealong;
(e) means for locking said clamping member in a variety of positions therealong; and
(f) a screw operated device mounted on said clamping member and being operable to clamp a tool against the adjacent end of the working surface.

4,265,285

COMBINATION CROSS AND RIP CUT HANDSAW

William G. Fodor, Blairs, Va., assignor to Sandvik, Inc., Greensboro, N.C.

Filed Mar. 18, 1980, Ser. No. 131,462
Int. Cl.³ B27B *21/00*
U.S. Cl. 145—31 R **6 Claims**



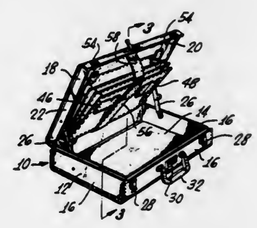
1. A handsaw having repeating identical groups of plural teeth, within each group the teeth having gradually diminishing pitch and depth in the forward direction, each group having at least three teeth of different pitch within the range of 12 to 6 points, the teeth comprising each group being alternately set and bevel filed with the surface of the beveled surface of each tooth in all groups being at the same angle with respect to the plane of the opposed side surface of the tooth, with the set of the teeth being equal so that all teeth of all said groups extend laterally to the same extent, the included gullet angle for each tooth in all the groups being the same and the leading edge of each tooth in all the groups having the same negative forward rake angle and the points of the teeth of all the groups terminating on a common cutting line of the teeth in a plane normal to the plane of the blade.

4,265,286

ATTACHE CASE WITH REMOVABLE FILE FOLDER

George Rapoport, 644 S. Saltair, Los Angeles, Calif. 90049

Filed Jul. 19, 1979, Ser. No. 58,796
Int. Cl.³ A45C *3/02*
U.S. Cl. 150—1.6 **8 Claims**



8. An attache case having a base section formed by a first side panel and four walls arranged in a rectangular configuration, a lid section including a second side panel and having a closed position in which it engages said base section and combines therewith to form a complete box-like enclosure, hinge means for pivotally connecting said lid section to said base section whereby said lid section is movable between said closed position and an open position, latch means for releasably securing said lid section in said closed position, and a removable file folder with a front panel, a back panel, an open top

end, a closed bottom end and a cover flap that can be folded over said top end in an in-use position, said file folder being receivable within said lid section with said cover flap in a stored folded-back position between said back panel and said lid section to expose said top edge, wherein the improvement comprises:

securing means for releasably securing said back panel to said lid along said top end thereof with said cover flap in said folded-back position, said securing means comprising at least two flexible tabs each attached along one edge thereof to the inner surface of said second side panel and extending from said one edge over said top end of said file folder toward said hinge; and

means for releasably holding said bottom end of said folder against said second side panel.

4,265,287

PNEUMATIC TIRE HAVING ANTI-TRANSVERSE SKID PROPERTY FOR VEHICLES WHICH RUN AT HIGH SPEED UNDER HEAVY LOAD

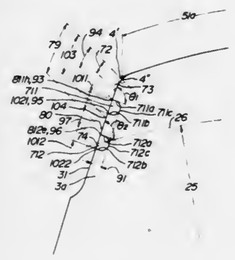
Masaru Abe, Sayama, and Yoshihiro Sakai, Kawasaki, both of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Aug. 24, 1979, Ser. No. 69,406

Claims priority, application Japan, Aug. 24, 1978, 53-102995

Int. Cl.³ B60C *11/04*

U.S. Cl. 152—209 R **12 Claims**



1. In a pneumatic tire having an anti-transverse skid property for vehicles which run at a high speed under a heavy load, comprising a pair of bead portions, a toroidal-shaped carcass extending across said bead portions, a tread rubber superimposed about said carcass, a tire sidewall connected through two side ends of said tread rubber, that is, shoulders to said tread, and depressions provided in said tire sidewall and for circumferentially dividing said tire sidewall into a number of lands, the improvement which comprises a shoulder side groove provided in the lands of the tire sidewall and improving the anti-transverse skid property of the tire and in which said shoulder side groove has such a sectional configuration that its depth is 0.0070 to 0.0255 times the tire sectional height and that the groove wall near the shoulder is inclined at an angle of 75° to 120° with respect to the tire sidewall outer surface, said shoulder side groove has such an arrangement that the total sum of those lengths of a crossing line between the groove wall near the shoulder and the tire sidewall outer surface, that is, the edge lines of the shoulder side groove which are projected onto a plane perpendicular to both the radial plane containing the rotational axis of the tire and the tire equatorial plane for dividing said land into two halves is made larger than the total sum of those lengths of said edge line which are projected onto the radial plane containing the rotational axis of the tire, said shoulder side groove is located at a position distant apart from said shoulder toward the bead portion along the tire sidewall outer surface by a distance which is at least 0.0123 times the tire sectional height, that portion of said groove edge lines which is the nearest to the bead portion is located within a limited range which is distant apart from a crossing point between an arc having a radius of curvature which has a center on a tire width center line in the radial plane containing the rotational axis of the tire and which is 1.55 times larger than the tire maximum sectional width and passing through the groove base at a crown portion groove depth measuring position and the tire sidewall outer surface by a distance along the tire sidewall surface which is 0.0123 to 0.0483 times the tire sectional height whereby the anti-transverse skid property of the tire at its wear end is improved, and those portions of said groove edge lines which are located between a position which is distant apart from said shoulder toward said bead portion along the tire sidewall outer surface by a distance which is 0.80 times the crown portion groove depth and said limited range and which are the nearest to the bead portion are arranged such that the total sum of those lengths of said groove edge lines which are projected onto a plane perpendicular to both said radial plane containing the rotational axis of the tire and said tire equatorial plane is at least 1.1 times larger than the total sum of those lengths of said groove edge lines which are projected onto said radial plane containing the rotational axis of the tire whereby the anti-transverse skid property of the tire after the middle wear period is improved.

4,265,288

PNEUMATIC SAFETY TIRE WITH EXCELLENT LONG-RUNNING ABILITY AFTER PUNCTURE EMPLOYING RUBBER HAVING SPECIFICALLY DEFINED PROPERTIES FOR SIDEWALL INSERTS AND TREAD

Yoshio Kaneko, Tokorozawa; Makoto Yamauchi, Fussa; Shinji Shiozawa, Kodaira; Yoshihiro Hayakawa, Akigawa, and Fumio Banba, Kodaira, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan

Filed Nov. 8, 1979, Ser. No. 92,302

Claims priority, application Japan, Nov. 20, 1978, 53/143001

Int. Cl.³ B60C *17/00, 11/00, 9/20*

U.S. Cl. 152—209 R **5 Claims**



1. A pneumatic safety radial tire with excellent long-running ability after puncture, comprising a pair of annular bead portions, a carcass extending across the two bead portions, an annular tread portion formed on the outer peripheral surface of the carcass, a pair of sidewalls between one of the bead portions and corresponding one of opposite edges of said tread portion, a pair of rubber reinforcing members mounted to said sidewalls for enhancing rigidity thereof so as to give an ability to bear load on the tire independently, and a tread reinforcing belt layer embedded in tread rubber forming said tread portion while surrounding said carcass, said rubber reinforcing members consisting of an elastomer having a JIS hardness of not less than 70, a tensile stress (Mod_{25}) of not less than 10 kg/cm^2 after an aging test for 24 hours in an inactive atmosphere at 140° C.±1° C., and a repulsive elasticity by Dunlop tripsometer of not less than 65%, while said tread rubber consisting of an elastomer having a repulsive elasticity by Dunlop tripsometer of not less than 40% together with regular characteristics.

4,265,289

TIRE WITH ASYMMETRIC REINFORCEMENT EMPLOYING CARCASS EXPANSION CORRECTION BLOCK

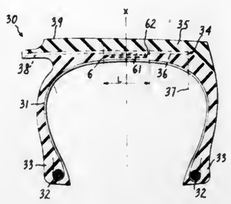
Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,181, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,030

Claims priority, application France, Mar. 10, 1978, 78 7387

Int. Cl.³ B60C *11/10, 9/20, 9/08*

U.S. Cl. 152—209 A **16 Claims**



1. A tire with a carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement which has a slight meridian curvature, which is asymmetrical with respect to the equatorial plane, which is parallel to the carcass reinforcement along an equatorial zone and which is formed of at least two superimposed plies of wires or cables that are parallel to each other in each ply and crossed from one ply to the other forming angles at most equal to 45° with the longitudinal direction of the tire, characterized by the fact that between the carcass reinforcement and the tread reinforcement there is arranged a correction block formed of two superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than one-third of the smallest angle used in the tread reinforcement; the correction block being parallel to the carcass reinforcement, preferably centered on the equatorial plane and of a width less than the width of the equatorial zone along which the tread reinforcement is parallel to the carcass reinforcement and further characterized by the fact that the wires or cables of low extensibility of the correction block have a relative elongation less than 0.2% under a load equal to 10% of their rupture load.

4,265,290

TIRE AND WHEEL RIM ASSEMBLIES

William L. Jackson, Sutton Coldfield, England, assignor to Dunlop Limited, London, England

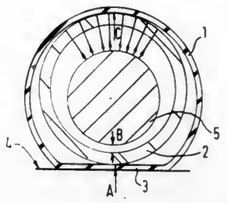
Filed May 31, 1979, Ser. No. 44,323

Claims priority, application United Kingdom, Jun. 6, 1978, 26376/78

Int. Cl.³ B60C *17/04*

U.S. Cl. 152—330 RF **21 Claims**

1. A pneumatic tire and wheel rim assembly in which the tire has a tread portion and two sidewalls, each sidewall having a tire bead located on a respective bead seat of the wheel rim, the assembly containing positioning means and an emergency support hoop which is sufficiently rigid to support that part of the weight of the vehicle applied to the assembly, the hoop being located in the chamber defined by the tire and wheel rim by means of said positioning means, the relative dimensions of the support hoop and the tire and their disposition relative to each other being such that the support hoop remains out of contact with the inner surface of the tire when the tire is at a normal inflation pressure, and the radius of the radially inner surface of the support hoop is greater than the radius of the wheel rim, whereby when the tire becomes deflated, the positioning means allows the radially outer surface of the support hoop to contact the radially inner surface of the tread portion



at the lowest and highest parts of the hoop only, the support hoop remaining out of contact with the wheel rim, and rotating with the tire.

4,265,291

RADIAL CARCASS TIRE EMPLOYING CARCASS EXPANSION LIMITING BLOCK

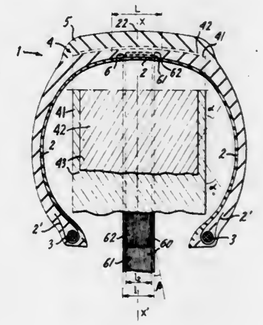
Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,179, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,035

Claims priority, application France, Mar. 10, 1978, 78 7385

Int. Cl.³ B60C *9/20, 9/08*

U.S. Cl. 152—352 R **12 Claims**



1. A tire with a radial carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement formed of at least two superimposed plies of wires or cables parallel in each ply and crossed from one ply to the other forming angles greater than 30° with the longitudinal direction of the tire, said tread reinforcement having a meridian curvature less than that of the radial carcass reinforcement and being parallel to the radial carcass reinforcement along an equatorial zone of a width less than that of the tread reinforcement, characterized by the fact that between the radial carcass reinforcement and the tread reinforcement there is arranged a limiting block formed of two superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than one-quarter of the smallest angle used in the tread reinforcement, the width of the limiting block being at most equal to the width of the equatorial zone along which the tread reinforcement is parallel to the radial carcass reinforcement, the limiting block being arranged in the equatorial zone and centered on the equatorial plane and further characterized by the fact that the wires or cables of low extensibility of the limiting block have a relative

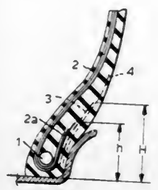
elongation less than 0.2% under a load equal to 10% of their rupture load.

4,265,292

RADIAL TIRES

Teruo Inoue, Yao, Japan, assignor to The Toyo Rubber Industry Co., Ltd., Osaka, Japan

Filed Apr. 20, 1979, Ser. No. 32,103
Claims priority, application Japan, Apr. 24, 1978, 53/48884
Int. Cl.[1] B60C *15/06*
U.S. Cl. 152—354 R **4 Claims**



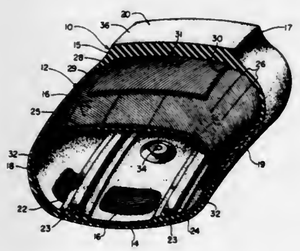
1. A radial tire comprising: a bead core; a carcass ply structure having a plurality of carcass plies made of multi-layered polyester cords, at least part of said plurality of carcass plies being folded around said bead core from the inside of said bead core, with respect to the inside of the tire, to the outside thereof and any remaining carcass plies terminate to the inside or to the radially inner side of the bead core, a steel chafer formed of steel cords and provided outside the folded portions of the carcass plies, and at least one reinforcing layer of organic fiber cords further provided outside the steel chafer and extending radially outwardly of the tire past the end of the steel chafer, the angle of the cords of the steel chafer with respect to the circumferential direction of the tire being 15°-45°, the radial dimension H of the steel chafer being 25-28% of the radial dimension of the inside of the tire, the maximum radial dimension h of the edges of the folded carcass plies being at most 85% of the dimension H of the steel chafer, and the cords in the reinforcing layer being disposed at an angle of 20°-75° with respect to the circumferential direction of the tire crossing the cords of the steel chafer at an angle of at least 10°.

4,265,293

CLOSED TUBE SIMPLIFIED RADIAL TIRE, TIRE/RIM ASSEMBLY AND METHOD OF MAKING SAME

Walter W. Curtiss, Jr., Akron, and Patrick T. O'Flanagan, Lodi, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 929,861, Jul. 31, 1978, abandoned. This application Apr. 18, 1980, Ser. No. 141,709
Int. Cl.[1] B29H *17/20;* **B60C** *9/02*
U.S. Cl. 152—354 R **17 Claims**



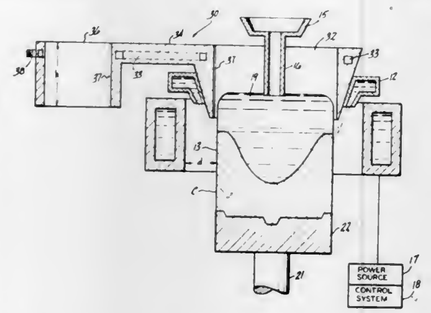
1. A closed tube tire having a carcass ply of substantially parallel cords extending continuously and completely around a circumferentially elongated segment of said tire, said cords of said carcass ply in the crown of said tire being inclined to a plane perpendicular to the axis of revolution of said tire, said cords of said carcass ply in the sidewalls of said tire being substantially radial, said cords of said carcass ply in the base of said tire being oppositely inclined to said plane an amount greater than in the crown of said tire, and in the crown of said tire a belt ply of substantially parallel cords which are oppositely inclined to said cords of said carcass ply in said crown.

4,265,294

DUFLEX IMPEDANCE SHIELD FOR SHAPE CONTROL IN ELECTROMAGNETIC CASTING

Gerhart K. Gaule, Elberon, N.J.; John C. Yarwood, Madison, Conn.; Derek E. Tyler, Cheshire, Conn., and Ik Y. Yun, Orange, Conn., assignors to Olin Corporation, New Haven, Conn.

Filed May 30, 1979, Ser. No. 43,726
Int. Cl.[1] B22D *27/02. 11/01*
U.S. Cl. 164—49 **39 Claims**



1. A process for electromagnetically forming molten metal or alloy into cast ingots of desired shape comprising:

establishing a casting zone defining an upstream portion and a downstream portion;

placing an inductor in surrounding relation to said zone;

providing a duplex shield, said shield having a first loop defining a first impedance, and a second loop defining a second impedance connected to said first loop;

positioning said first loop adjacent to said inductor toward the upstream portion of said casting zone while positioning said second loop in spaced apart relation to said first loop, remote from said inductor and outside said casting zone;

passing a current through said inductor to generate an electromagnetic field in said casting zone;

pouring said molten metal or alloy into said casting zone; and

attenuating said electromagnetic field with said duplex shield to provide desired ingot shape control during ingot solidification.

16. A process for electromagnetically forming molten metals or alloys into cast ingots of desired shape comprising pouring of said molten metal or alloy into a casting zone established by an inductor and at least a portion of a non-magnetic shield defining a first impedance, said inductor inducing an electromagnetic field in said casting zone and said shield attenuating said electromagnetic field, the improvement comprising:

providing a portion of said non-magnetic shield, remote from said inductor and outside said casting zone, defining a second impedance; and,

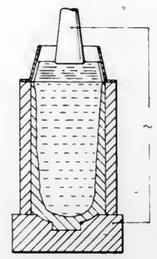
adjusting the overall impedance of said shield during said casting process by selectively altering the impedance of said portion of said non-magnetic shield remote from said inductor and outside said casting zone.

4,265,295

METHOD OF PRODUCING STEEL INGOTS

Erwin Plöckinger; Gert Kühnelt, both of Kapfenberg; Peter Machner, Leoben, and Heimo Jäger, Bruck a.d. Mur, all of Austria, assignors to Vereinigte Edelstahlwerke Aktiengesellschaft (VEW), Vienna, Austria

Filed Nov. 19, 1976, Ser. No. 743,102
Claims priority, application Austria, Nov. 17, 1975, 8719/75
Int. Cl.[1] B22D *27/02. 27/06*
U.S. Cl. 164—52 **2 Claims**



1. An improved method of producing ingots of unalloyed and alloyed steels having an improved primary crystallization reduced ingot segregation and a reduced content of non-metallic inclusions,, comprising the steps of pouring liquid steel into a mold in an amount corresponding at least approximately to that of the preselected weight of the ingot to be produced, then dosing said mold containing the liquid steel with melted slag, confining said melted slag laterally by means of liquid-cooled walls so that a layer of solid slag is formed and maintained adjacent said walls, supplying energy by electric resistance heating by means of at least one consumable electrode to said melted slag during solidification of said liquid steel which forms a partially solidified ingot having a remaining melt, the chemical composition of said consumable electrode being substantially equal to that of the formed steel ingot, the supply of electric energy to the liquid core zone of the already melted slag being at least 120 kilowatt-hours per metric ton of ingot weight so that said liquid core zone of the slag is maintained at a high temperature, the improvement comprising the steps of determining the concentration increase per unit of time of segregation elements in the remaining melt of the ingot and selecting a quantitive composition for the at least one consumable electrode which will supply a concentration of segregation elements in the amount of steel melted off per unit of time lower by the amount corresponding to said increase, said at least one consumable electrode being conical in shape thus having a smaller diameter at one end and a wider diameter at the other end, and melting-off is started at the end of the electrode having the wider diameter.

4,265,296

INVESTMENT CASTING MOLD FORMING APPARATUS

Richard C. Ostrowski, Dunlap, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 21, 1978, Ser. No. 4,112
Int. Cl.[1] B22C *13/08*
U.S. Cl. 164—165 **6 Claims**

1. Investment casting mold forming apparatus comprising:

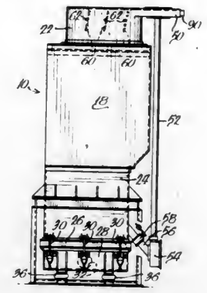
a vertically extending housing (**10**) having a top (**22**) and a bottom (**28**) and an access opening (**20**) intermediate the top and bottom;

a diffuser (**26**) within said housing below said opening and above said bottom;

means (**32**) for introducing a fluid under pressure into said housing between said bottom and said diffuser whereby a fluidized bed of particulate material may be established within said housing above said diffuser; and

means (**50,52,60**) for introducing particulate material into said housing at an elevated position therein above said access opening such that the particulate material may descent within said housing after being introduced thereto;

the interior of said housing in the vicinity of said fluidized



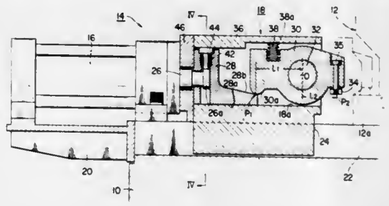
bed and said access opening being unobstructed so that a mold core may be introduced into said housing through said access opening and be coated with particulate material from said particulate material introducing means as it descends therefrom toward said fluidized bed or by immersion in said fluidized bed.

4,265,297

APPARATUS FOR DETACHABLY MOUNTING MOLDS

Kazutaka Asakuma, Zama, and Tsuyoshi Kikuchi, Atsugi, both of Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 6, 1980, Ser. No. 127,751
Claims priority, application Japan, Mar. 9, 1979, 54/26726
Int. Cl.[1] B22D *17/22*
U.S. Cl. 164—303 **7 Claims**



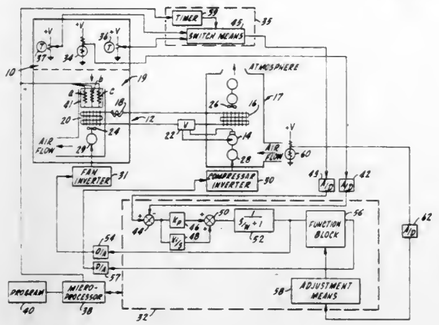
1. Apparatus for detachably mounting mold halves on a die casting machine comprising a casing slidable on a die plate of the die casting machine, a wedge member located within said casing and in slidable contact with the inner surface thereof, the contact frictional force between the wedge member and said inner surface being larger than the sliding resistance between said die plate and the outer surface of said casing, a clamp lever located in said casing to be rotatable about a shaft attached to said casing, said clamp lever having one end in contact with an inclined surface of said wedge member and the other end provided with a clamping member to clamp said mold half positioned in said die plate, hydraulic drive means in engagement with said wedge member to reciprocate said wedge member together with said casing and to reciprocate said wedge member relative to said casing, and means for resiliently urging said one end of said clamp lever againt the inclined surface of said wedge member.

4,265,298

MICROCOMPUTER CONTROL FOR SUPPLEMENTAL HEATING WITH NIGHT SET-BACK

Lee E. Sumner, Jr., Dallastown; Kenneth W. Cooper, York, and Frederic H. Abendschein, Columbia, all of Pa., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Sep. 28, 1979, Ser. No. 80,362
Int. Cl.³ F28B *29/00*
U.S. Cl. 165—2 **6 Claims**



6. A method for use in a heat pump and refrigeration system for conditioning a space having a closed refrigerant circuit including a compressor, a condenser, an expansion device, and an evaporator connected respectively in series, said method comprised in the steps of:

sensing the temperature of a space to be conditioned to generate an electrical signal representative of the measured temperature;

setting a first lower reference temperature during the nighttime of the space to be conditioned and setting second higher reference temperature during the daytime to generate a second electrical signal representative of the selected reference temperature;

sensing the temperature of the outdoor atmosphere to generate a third electrical signal representative of the outdoor atmospheric temperature;

providing at least three stages of supplemental electric heaters to generate heat to the conditioned space;

providing a programmed control device to generate a signal to activate the electric heaters in response to the measured temperature, the reference temperature and the outdoor atmospheric temperature;

changing automatically through a set-back device from the first reference temperature to the second reference temperature at a predetermined time of day;

activating one of the three stages of electric heaters through the control device when the measured temperature at a particular sampling time is less than a corresponding calculated temperature for that sampling time for at least two consecutive sampling times; and

controlling through a microprocessor having a program the step of generating the signal to activate the supplemental electric heaters to affect the measured temperature of the conditioned space.

4,265,299

HEAT PUMP CONTROL SYSTEM

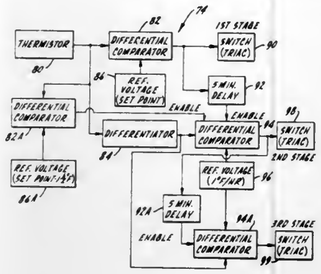
James R. Harnish, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Sep. 28, 1979, Ser. No. 79,859
Int. Cl.³ F25B *29/00*
U.S. Cl. 165—12 **6 Claims**

1. In combination with a heat pump of the type including at least one stage of supplemental heat, a control system comprising:

temperature sensing means for sensing the indoor conditioned space temperature;

means for comparing the temperature sensed with a reference temperature to determine the rate of temperature change in said indoor conditioned space temperature; and



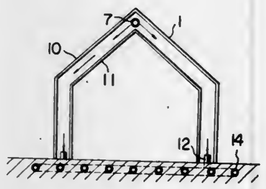
means for initiating supplemental heat following temperature setup of said temperature sensing means only if the rate of temperature change is below some predetermined value.

4,265,300

GREENHOUSE DEVICE

Yoshitane Kurimoto, 4-14, 4-Chome, Ichikawa-Minami, Ichikawa-Shi, Chiba-Ken, Japan

Filed Nov. 8, 1978, Ser. No. 958,884
Claims priority, application Japan, Nov. 10, 1977, 52-135076
Int. Cl.³ A01C *1/00*
U.S. Cl. 165—47 **3 Claims**



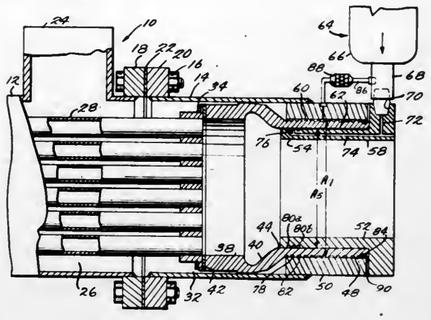
1. A system for generating and conditioning warm air for a greenhouse assembly having a greenhouse section, a double wall structure and an underground piping section, which includes a desulfurizer for gaseous fuel; a warm air generating device comprising a hot air generator in which the gaseous fuel is mixed and combusted with a stoichiometric amount of outside air for generating heated air and a mixer in which the heated air is mixed with relatively cool air for generating the warm air at a temperature suitable for plant growth; a conditioned air generator provided and connected to the outlet of said mixer for measuring the amount of oxygen and toxic gases in the warm air obtained from said mixer, adding oxygen thereto in case of necessity and further heating, cooling and dehumidifying the warm air, and means for routing the warm air passed through the conditioned air generator to the greenhouse section and means for routing the warm air which has not passed through the conditioned air generator to the double wall structure and the underground piping section.

4,265,301

HEAT EXCHANGER SUPPORT CONSTRUCTION

James H. Anderson, 1615 Hillock La., York, Pa. 17403

Continuation-in-part of Ser. No. 674,675, Apr. 6, 1976, abandoned. This application Aug. 15, 1978, Ser. No. 933,879
Int. Cl.³ F28F *9/00*
U.S. Cl. 165—162 **14 Claims**



1. In a shell and tube type heat exchanger including a bundle of generally parallel heat exchange tubes contained within a shell, means for supporting a plurality of said tubes as a group in spaced-apart relationship which comprises:

a tubular support member engaged between said plurality of tubes,

said support member being located between said plurality of tubes solely by means of its said engagement therebetween,

said support member having passage means extending therethrough generally parallel to said plurality of tubes, and

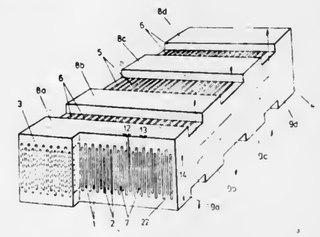
means for holding said plurality of tubes against the exterior of said support member.

4,265,302

HEAT EXCHANGER

Siegfried Förster, Alsdorf; Manfred Kleemann, Quadrath-Ichnedorf; Axel Krauth, Selb; Horst R. Maier, Selb, and Hans-Jürgen Pohlmann, Selb, all of Fed. Rep. of Germany, assignors to Rosenthal Technik AG and Kernforschungsanlage Julich GmbH, both of, Fed. Rep. of Germany

Filed Dec. 7, 1977, Ser. No. 858,271
Claims priority, application Fed. Rep. of Germany, Feb. 19, 1977, 2707290
Int. Cl.³ F28D *7/00*
U.S. Cl. 165—165 **11 Claims**



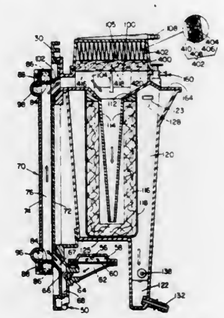
1. A heat exchanger comprising a ceramic body having opposite cover walls; the body having a plurality of elongate flow passages therein which are closed at their ends, the flow passages extend between their ends generally along the direction of extension of the cover walls; the flow passages being arranged in a parallel to each other and in an interleaved relationship, wherein each flow passage has and is defined between opposed side walls thereof which side walls extend toward the cover walls, and the respective side walls of adjacent interleaved passages being disposed and of such length that they overlap the respective side walls of the passages adjacent thereto; the interleaved passages having a staggered relationship to one another, wherein one set of alternate interleaved passages extend along their lengths closer toward one of the cover walls, and the other set of alternate interleaved passages extend closer toward the opposite cover wall of the ceramic body; at least two transversely extending parts of each of the cover walls being absent to expose and permit access through the cover walls to only that set of the passages closer thereto, thus presenting a total of at least four openings for permitting fluid flow of two heat exchange media to flow through respective ones of the two interleaved sets of passages.

4,265,303

LEAKPROOF ADHESIVE SEALING

Joel F. Giurtino, Littleton, and Robert L. Anderson, Boulder, both of Colo., assignors to Cobe Laboratories, Inc., Lakewood, Colo.

Filed Jun. 19, 1978, Ser. No. 916,775
Int. Cl.³ F28F *3/00*
U.S. Cl. 165—166 **3 Claims**



1. Apparatus for exchanging heat with a pressurized fluid, comprising:

a housing with an interior surface,

inlet and outlet fluid fittings in a back plate that forms said interior surface,

partitioning means inside said housing for forming one or more fluid passages within said housing, said partitioning means having at least one surface facing and spaced from said housing interior surface, said partitioning means surface having a different contour from said housing interior surface, said difference in contours defining a gap between said surfaces,

said partitioning means comprising a corrugated heat-conductive sheet mounted in close proximity to said back plate, said corrugated sheet having ends transversely to said corrugations and sides parallel to said corrugations,

adhesive filling said gap along an elongated zone to prevent fluid within said housing from leaking through said gap,

said adhesive comprising potting material sealing said gap which is between said corrugated sheet and said back plate near said ends of said corrugated sheet,

two elongated openings in said housing along said zone for introducing said adhesive,

each said opening being in said back plate and extending transversely to said corrugations and located near said ends of said corrugated sheet, said openings providing a path for introducing said potting material pured therein to seal in a pair of zones between said corrugated sheet and said housing and thereby provide a fluid compartment between said zones, and

first rows of fingers extending from said back plate along one long side of each of said narrow openings and being received in corrugations of said corrugated sheet, thereby

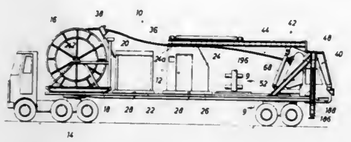
retarding the flow of potting material past the position of said fingers and reducing the size of the zones to be sealed by said material between said corrugated sheet and said back plate.

4,265,304

COILED TUBING APPARATUS

Benton F. Baugh, Houston, Tex., assignor to Brown Oil Tools, Inc., Houston, Tex.

Filed Jun. 6, 1978, Ser. No. 913,118
Int. Cl.[3] E21B *15/00, 19/08*
U.S. Cl. 166—77 **29 Claims**



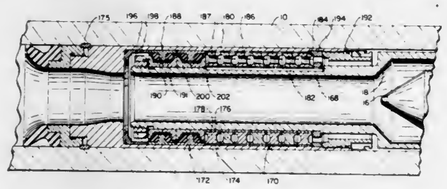
1. Apparatus for operating on a well comprising:
(a) mast means, including a first mast section and a second mast section pivotally joined to said first mast section, wherein said second mast section may be moved about said pivotal joining between an operating configuration in which said second mast section is generally aligned with said first mast section in a generally upright orientation and a non-operating configuration in which said second mast section is tilted relative to said first mast section;
(b) injector means for propelling tubing into or out of a well; and
(c) wherein said injector means may be selectively elevated and positioned along said mast means with said second mast section in said operating configuration, and wherein second mast section may be moved to said non-operating configuration while said injector means may be generally upright and positioned generally along said first mast section.

4,265,305

MOUNTING AND SHOCK ABSORBER ASSEMBLY FOR BOREHOLE TELEMETRY APPARATUS

Frederick A. Stone, Durham, and Normand P. Holcomb, Warehouse Point, both of Conn., assignors to Teleco Oilfield Services Inc., Middletown, Conn.

Filed Aug. 27, 1979, Ser. No. 70,154
Int. Cl.[3] E21B *47/12*; F16F *7/12*; G01D *11/10*; G01L *19/14*
U.S. Cl. 166—113 **12 Claims**



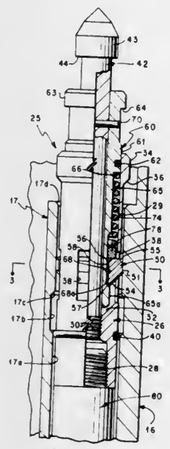
1. A mounting and shock absorber assembly for borehole telemetry apparatus, including:
first bumper means;
second bumper means following said first bumper means;
a plurality of mounting rings following said second bumper means;
said first and second bumper means and said plurality of mounting rings being in a sequential axial array along the axis of a device to be mounted;
each of said bumper means having an outer ring, an inwardly projecting annular rib, annular elastomeric bumper elements adhered to each side of said rib, a pair of inner rings and an outwardly extending annular rib from each of said inner rings in opposed relationship to said elastomeric bumper elements;
each of said mounting rings having an outer ring, an inner ring, and elastomeric material extending between and being adhered to said rings;
the outer rings of said bumper means and the outer rings of said mounting rings being connected to an outer support sleeve, and the inner rings of said bumper means and the inner rings of said mounting rings being connected to structure to be mounted for suspension and shock absorption;
means defining a flow path for fluid through said assembly; and
means for locking said assembly against rotation of said structure to be mounted relative to said support sleeve.

4,265,306

LATCH FOR WELL TOOLS

Gregg W. Stout, Humble, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Mar. 7, 1980, Ser. No. 127,952
Int. Cl.[3] E21B *23/02*
U.S. Cl. 166—237 **7 Claims**



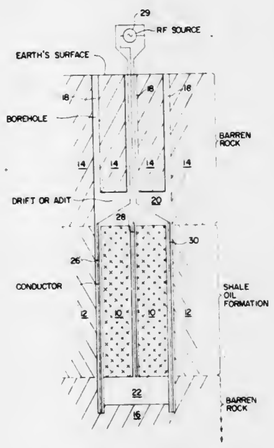
1. A latch for securing well tools in a landing receptacle of a well flow conductor having a locking recess therein providing a downwardly facing lock shoulder, comprising:
a. a body having a bore and a plurality of circumferentially spaced windows communicating said bore with the exterior of said body, said body having means at its lower end for attachment to a well tool;
b. a core in said bore of said body secured at a location therein below said windows and having its upper end extending above said body, said core having a head thereon providing a downwardly facing shoulder engageable by a running tool, said body and said core forming an annular space therebetween;
c. a locking lug disposed in each of said windows of said body and movable radially therein between inner retracted positions and outer expanded locking positions wherein they are engageable with the downwardly facing lock shoulder of said receptacle, said lugs being additionally movable longitudinally in said windows independently of said radial movement;
d. a lock sleeve slidably mounted about said core and having a flange at its upper end providing a downwardly facing fishing shoulder and a portion of said sleeve initially extending into said body to a point near the lower ends of said windows and having a lock surface thereon engageable with the inner surfaces of said locking lugs to maintain the lugs in expanded locking position, said sleeve having an external annular recess above said lock surface and a downwardly facing abutment shoulder intermediate said recess and said fishing shoulder, said sleeve being movable to an upper unlocking position wherein the lower end of said sleeve is above said lugs and said lugs are movable to retracted unlocked position;
e. spring means disposed about said lock sleeve with the upper end thereof engaging said abutment shoulder, said spring means biasing said lugs downwardly in said windows, said lugs being movable upwardly against the force of said spring means to a position where they can retract into said external recess of said lock sleeve; and
f. means releasably securing said sleeve in its lower locked position supporting said lugs in expanded position and being releasable by upward force applied to said sleeve to move said sleeve to its upper position allowing said lugs to move inwardly to retracted position.

4,265,307

SHALE OIL RECOVERY

Lincoln F. Elkins, Oklahoma City, Okla., assignor to Standard Oil Company, Cleveland, Ohio

Filed Dec. 20, 1978, Ser. No. 971,452
Int. Cl.[3] E21B *43/24, 43/247, 43/263*
U.S. Cl. 166—248 **27 Claims**



1. In á process for recovering hydrocabonaceous material from a solid non-freeflowing hydrocarbonaceous material bed in which said bed is heated in situ by applying radio frequency energy thereto to effect dielectric heating of said bed, the improvement wherein said bed is rubblized prior to the application of radio frequency energy thereto, said radio frequency energy being applied by means of conductors inserted into said bed prior to rubblization.

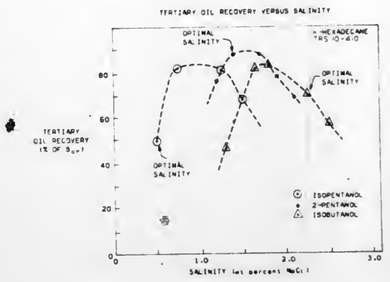
22. A system for in situ heat processing of hydrocarbonaceous earth formations comprising:
conductive means inserted in said formation and electrically bounding a particular bed of said formation on at least two sides thereof;
electrical excitation means for establishing alternating electric fields in said bed, the frequency of said excitation means being selected as the function of the bed dimensions so as to establish substantially non-radiating electric fields which are substantially confined in said bed whereby volumetric dielectric heating of the formations will occur to effect approximately uniform heating of said bed; and
means for rubblizing said bed in situ.

4,265,308

OIL RECOVERY METHOD USING UNIQUE SALINITY FOR OIL RECOVERY SURFACTANT SYSTEM

James H. Hedges, and Gilbert R. Glinsmann, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 31, 1979, Ser. No. 71,642
Int. Cl.[3] E21B *43/22*
U.S. Cl. 166—252 **17 Claims**



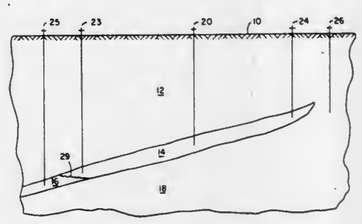
12. A method for recovering oil from an oil-bearing reservoir comprising the steps of:
(a) injecting into said reservoir through at least one injection well an aqueous surfactant system comprising water, electrolyte, surfactant and cosurfactant which system has an optimal salinity at or near a unique salinity for the surfactant-oil combination, said optimal salinity being the salinity concentration at which a microemulsion phase having approximately equal volumes of oil and water forms on mixing the reservoir oil or equivalent with a surfactant system, said unique salinity being the salinity concentration at which maximum oil recovery is obtained for the reservoir oil or equivalent-surfactant combination obtained by the proper selection of the cosurfactant and cosurfactant concentration;
(b) thereafter injecting a drive fluid, thus forcing said oil toward at least one recovery well; and
(c) recovering said oil.

4,265,309

EVALUATION AND PRODUCTION OF ATTIC OIL

Robert L. Magnie, Denver, Colo., assignor to Ruel C. Terry, Denver, Colo.

Filed Oct. 17, 1979, Ser. No. 85,532
Int. Cl.[3] E21B *43/18, 47/00*
U.S. Cl. 166—252 **6 Claims**



1. In a dipping underground petroleum reservoir devoid of a gas cap, wherein at least one well is located in an up dip portion of the reservoir, a method of estimating the size of the attic portion of the reservoir, comprising the steps of
injecting a suite of gases into the said up dip well,
measuring the quantity of each gas injected into the said reservoir in the said suite of gases,
terminating injection of the said suite of gases,
producing attic oil from thee said up dip well,

measuring the quantity of attic oil produced from the said up dip well,

separating the suite of gases recovered with the said produced oil,

measuring the quantity of each gas in the said suite of gases separated from the said produced oil, then

comparing the quantity of each gas in the said recovered and separated suite of gases with the quantity of each gas the said oil is capable of taking into solution when the said oil is positioned in the said reservoir.

4,265,310

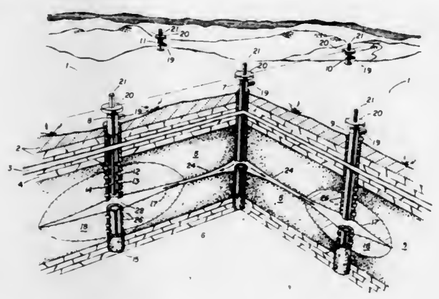
FRACTURE PREHEAT OIL RECOVERY PROCESS

Michael W. Britton; William L. Martin; Jack D. McDaniel, and Harry A. Wahl, all of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Oct. 3, 1978, Ser. No. 948,359

Int. Cl.³ E21B *43/17, 43/24, 43/247*

U.S. Cl. 166—259 **32 Claims**



16. A process for establishing a zone of heated heavy oil having mobility and horizontally traversing a heavy oil reservoir comprising sequentially:

(a) penetrating the reservoir with an injection well bore and a production well bore horizontally separated from each other;

(b) fracturing from the production well;

(c) injecting a hot aqueous fluid at a temperature above 100° C. into the production well to part the fracture zone and impart heat to it;

(d) hydraulically fracturing from the injection well into fluid communication with the production well;

(e) injecting a hot aqueous fluid at a temperature above 100° C. into the injection well at a very high rate and a pressure sufficient to part the formation along the fracture system between the wells while producing fluids from the production well such as to effect channel flow of liquids through the parted fracture system between the wells and to form a heated permeable zone of mobilizable heavy oil in the formation in proximity to the fracture system between the wells;

wherein the fractures between the production wells and the injection well are formed by horizontal hydraulic fracturing, wherein the heavy oil reservoir is less than about 1500 meters in depth, and wherein subsequent to step (e), heavy oil is recovered as the heated permeable zone of mobilizable heavy oil between the wells is enlarged by effecting channel flow conduction heating steam flooding.

4,265,311

METHODS OF WATER FLOODING AND FRACTURING USING CLEAN, NON-DAMAGING FRACTURING FLUIDS

John W. Ely, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Division of Ser. No. 18,537, Mar. 8, 1979, abandoned. This application Nov. 5, 1979, Ser. No. 91,685

Int. Cl.³ E21B *43/22*

U.S. Cl. 166—271 **17 Claims**

2. A method of fracture treating a subterranean hydrocarbon-producing formation penetrated by an injection well and a producing well, said method consisting essentially of:

forming a fracture in said formation by introducing therein, under fracturing conditions via said injection well, a viscous water base fracturing composition comprising a viscosifier, a cation and a solid, water soluble high molecular weight polymeric fluid loss compound selected from the group consisting of polyacrylamide, carboxymethyl cellulose and carboxymethyl hydroxyethyl cellulose which is insoluble in said fracturing composition liquid phase in the presence of said cation; wherein said polyacrylamide has a molecular weight in the range of about 1 to about 20 million and said carboxymethyl cellulose has a molecular weight in the range of about 50,000 to 1,000,000

introducing into said formation via said injection well and said fracture a quantity of water free of said cation whereby said fluid loss compound dissolves and hydrocarbons present in said formation are displaced toward said producing well.

4,265,312

METHOD FOR DEVELOPING WATER WELLS

Dennis J. Thein, Rochester, Minn., assignor to Thein Well Company, Incorporated, Rochester, Minn.

Filed Jan. 25, 1980, Ser. No. 115,200

Int. Cl.³ E21B *37/00, 43/00*

U.S. Cl. 166—312 **3 Claims**

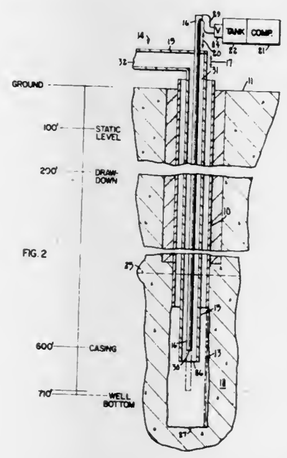


FIG. 2

1. The method of removing particulate matter from the bottom of a drilled water well having a casing open at its top, which comprises the steps of

(a) lowering a pair of tubes one within the other into said casing so that their lower ends extend below the level of the water in said well, with the outer tube extending below the inner tube to a site near the bottom of said well, to define a primary upward discharge path, between said outer tube and said inner tube, and a secondary upward discharge path, between said outer tube and said casing;

(b) supplying air to the top of said inner tube at such a pressure as to cause a primary discharge of fluid upward through said primary discharge path by air-lift operation;

(c) and intermittently first closing said primary discharge path near the top of said outer tube—to interrupt said primary discharge and compel said air to cause a secondary discharge of water downward through said outer tube, and then upward at high velocity through said second discharge path, to entrain said particulate matter—and afterwards suddenly reopening said primary discharge path to interrupt said secondary discharge, enabling rapid gravitational return of water in said secondary discharge path and reestablishing said primary discharge.

4,265,313

MOORING STATION AND TRANSFER TERMINAL FOR OFFSHORE HYDROCARBON PRODUCTION

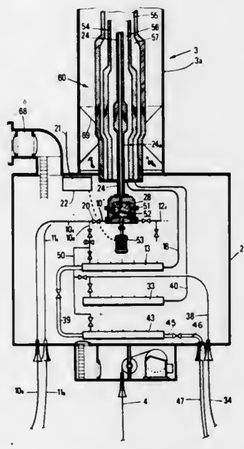
Marcel Arnaudeau, Paris, France, assignor to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Feb. 13, 1979, Ser. No. 11,817

Claims priority, application France, Feb. 14, 1978, 78 04330

Int. Cl.³ E21B *43/017*

U.S. Cl. 166—366 **13 Claims**



1. A mooring station and transfer terminal for offshore hydrocarbon production from a plurality of underwater wells connected to a plurality of production lines, each line communicating with one of said wells, said mooring station and transfer terminal comprising:

at least one underwater production manifold communicating with said production lines;

a riser comprising a through-flow line (TFL) servicing pipe and a plurality of pipes coaxial with and enclosing said TFL servicing pipe and defining annular spaces therebetween, said coaxial pipes including at least one production pipe communicating with said production manifold;

underwater switching means comprising a movable pipe communicating at one end with said TFL servicing pipe, a plurality of ports each of which communicates with a different one of said plurality of production lines, and means for selectively bringing the other end of said movable pipe into communication with any selected one of said plurality of ports; and

a surface facility comprising means for introducing tools into said TFL servicing pipe and communicating with the upper end thereof, and means for receiving the outflow of said at least one production pipe and communicating with the upper end thereof.

4,265,314

HORSE SHOES

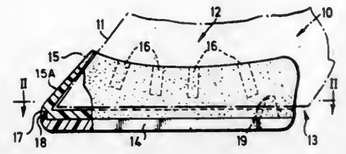
Igal Tovim, Xillers Farm, Norwood End, Fyfield, Ongar, Essex, England

Continuation of Ser. No. 777,506, Mar. 14, 1977, abandoned. This application May 18, 1979, Ser. No. 40,412

Claims priority, application United Kingdom, Mar. 16, 1976, 10428/77

Int. Cl.³ A01L *3/00, 5/00*

U.S. Cl. 168—4 **12 Claims**



7. Apparatus for shoeing a horse, comprising a strip of flexible resilient material having an L-shaped cross section and being preformed to fit against both the wall and peripheral region of the sole of a horse's hoof around the front and sides thereof, said preformed strip being adapted for adhesive application to a horse's hoof and having sufficient flexibility to readily conform closely to the configuration of both the wall and sole portion of the hoof to thereby maximize the adhesively bonded surface contact of the strip with the wall and sole of the hoof, the flexibility and resilience of the strip permitting the deformation of the side wall thereof as necessary to conform to the curvature of the hoof without substantially affecting the configuration of the bottom wall of the strip and its conformance to the sole of the hoof, a preformed plastic horse shoe, said horse shoe being formed of an abrasion resistant plastic material of substantially greater hardness than the plastic material of said strip, said plastic horse shoe being preformed for bonding to said preformed strip after said strip has been adhesively bonded to a horse's hoof.

4,265,315

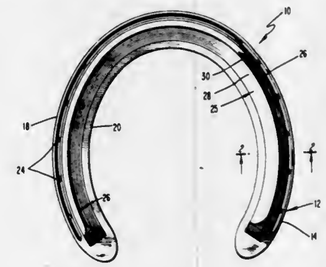
HORSESHOE WITH A CONTINUOUS WEDGE-SHAPED CALK

Jerome P. Thomas, P.O. Box 74, Middleburg, Va. 22117

Filed Jun. 4, 1979, Ser. No. 45,256

Int. Cl.³ A01L *7/04*

U.S. Cl. 168—/29 **10 Claims**



1. A horseshoe for attachment to a horse's hoof comprising:

a U-shaped foot portion forming the body of the shoe, said foot portion including a flat for lying against the horse's hoof and an inside, inclined surface opposite said flat,

a continuous calk running along substantially the entire length of said foot portion and including a wedge-shaped portion having a pointed ridge projecting beyond said foot portion opposite to and at a constant distance from said flat, said continuous calk including an inside, inclined face and an outside, inclined face on opposites sides of said ridge, said inside, inclined face and said inside, inclined

surface of said foot portion forming a continuous inclined surface extending in cross section from said ridge to the inner periphery of said foot portion, and

means for securely attaching said continuous calk to said foot portion.

4,265,316

FIRE EXTINGUISHING SYSTEM HAVING A LINKAGE OPERATED VALVE

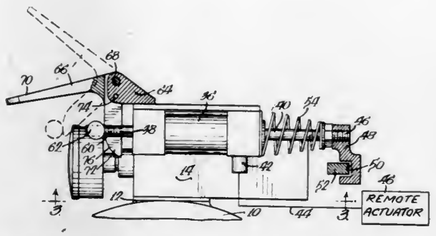
David M. Fee, Groveland, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00845, § 371 Date Oct. 15, 1979, § 102(e) Date Oct. 15, 1979.

This PCT application filed Oct. 15, 1979, Ser. No. 140,386

Int. Cl.³ A62C *35/02, 35/12*

U.S. Cl. 169—19 **5 Claims**



1. A fire extinguishing system including a vessel (**10**) for receipt of a fire extinguishing material and having an outlet (**12**), a flow control mechanism (**14**) normally closing the outlet to maintain fire extinguishing material in the vessel until needed, a linkage (**20,30**) for actuating the flow control mechanism to open the outlet, a fluid cylinder (**36**) connected to the linkage for operating the same in response to a remotely generated fluid pressure signal, a manual actuator (**66**) connected to the linkage for operating the same in response to manual activation by manual, mechanical movement and characterized by the cylinder (**36**) being a double rod ended (**38,40**) cylinder having one rod (**40**) end connected to the linkage, the cylinder having an inlet (**42**) for recipt of pressure fluid to drive said one rod end in one direction to operate the linkage, and further characterized by the manual actuator being a movable handle (**70,72**) coupled to the other rod end (**38**) of said cylinder and manually operable to drive said one rod end in said one direction to operate the linkage.

4,265,317

FIRE RESISTANT MATERIAL

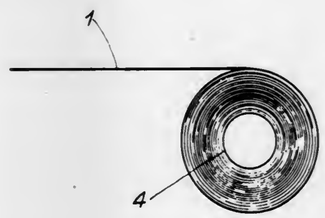
Werner Knecht, Usserdorf 6, CH-5312Döttingen, Switzerland

Filed Apr. 12, 1979, Ser. No. 29,413

Claims priority, application Switzerland, Apr. 25, 1978, 4427/78

Int. Cl.³ A62C *7/00*

U.S. Cl. 169—50 **4 Claims**



1. A device for extinguishing fires comprising a thin, pliable, air-impervious sheet having a thickness in the range of substantially 0.2 to 0.6 mm and a melting point in the range of substantially 105° C. to 135° C., said sheet being fabricated of a synthetic plastic material containing a flame-smothering and flame-inhibiting additive which is homogeneously distributed within and throughout the said plastic material, said sheet being adapted to be laid upon a burning object and, by reason of the pliability, weight, and melting point of the said thin sheet, being adapted to be partially melted by the heat radiated by said object and to plastically conform to irregularities in the burning object thereby to form an air-excluding fire extinguishing layer which completely covers and seals the burning object, wherein said sheet consists of two superposed layers of said plastic material and additive, said two layers being separated from one another by an intervening thin layer of air acting as an insulator.

4,265,318

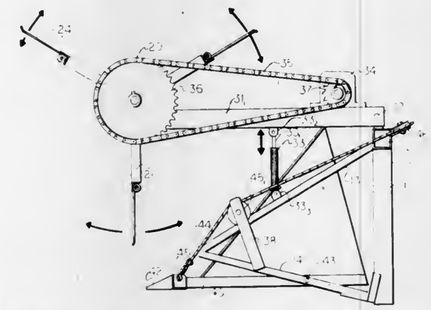
CHUNK PICKING MACHINE

Martin Gaspard, Batchelor, La. 70715

Filed Jul. 27, 1979, Ser. No. 61,489

Int. Cl.³ A01B *43/00*

U.S. Cl. 171—63 **10 Claims**



1. Apparatus for mounting upon an elevator, or lift mechanism located on the front end of a tractor, combine or other powered land vehicle for use in gathering stumps, twigs, branches and other debris from the soil which, in combination, comprises

a rigid frame constituted of vertical posts, horizontal posts, and fixed support struts, said frame being attached directly to the front end of said vehicle and capable of being vertically lifted by said vehicle lift mechanism,

a rotary rake mechanism capable of continuous full rotation mounted upon said frame, said rotary mechanism including a rotary rake mounted upon an arm which is pivotally attached via an end to said rigid frame, a motor mounted on said arm operatively associated with said rotary rake for supplying power for rotation of same for sweeping the surface of the soil when the rotary rake is lowered into contact therewith, and means mounted on said frame for raising and lowering said rake relative to the soil for sweeping same,

an open front pan pivotally mounted on said rigid frame independent of, and below the rotary rake of said rotary rake mechanism for moving along the surface of soil for collecting the debris swept therein from the surface of the soil via rotation of said rotary rake when said rake is lowered into contact with the soil, and

a means for pivoting the open front end of said pan downwardly for dumping said collected debris from the pan when raised by the lift mechanism located on the front end of said powered land vehicle.

4,265,319

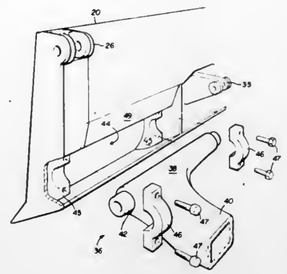
PUSHBEAM TO BLADE HINGE CONNECTION

David H. Seaberg, Davenport, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Dec. 7, 1978, Ser. No. 967,465

Int. Cl.³ E02F *3/76*

U.S. Cl. 172—811 **1 Claim**



1. In an earth-working machine having a frame and a transverse blade body at the forward end thereof, a pair of spaced apart pushbeams each pivotally secured at one end to said frame on opposed sides of said machine, and said pushbeams pivotally secured to said blade body at their opposed ends, the improvement comprising:

said blade body including a rear wall spaced from a forward wall, and said blade body being pivotally secured to said pushbeams by hinge connection bodies, each said hinge body being of generally L-shaped one-piece construction and having a hinge pin leg disposed parallel to the backside of said blade and a second leg telescopically received in the forward end of a respective pushbeam, and housings formed within said blade body forwardly of said rear wall for mounting said hinge pin legs;

means for pivotally securing each hinge pin leg within a respective housing formed in the blade body thereby permitting pivotal movement by said blade about a transverse, horizontal, pivot axis, each hinge pin leg including pivot bearing surfaces on the opposite ends of said hinge pin leg, and said securing means including bearing blocks mounted to opposed interior side walls of each said housing for mounting a hinge pin leg within a respective blade housing;

each housing including an inclined relief surface along one of its exterior edges which permits said blade to pivot about the longitudinal axes of said hinge pin legs without binding; and

said horizontal, transverse pivot axis between said blade and said hinge pin legs being disposed within the housings of said blade body and forward of said rear wall thereby limiting the torsional load on said blade.

4,265,320

ELECTRICALLY POWERED TORQUE-CONTROLLED TOOL

Tamotsu Tanaka; Michio Kato, both of Hirakata; Masataka Uematsu, Katano; Yoshikazu Nishida, Hirakata, and Shuji Hosokawa, Habikino, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 4, 1978, Ser. No. 902,867

Claims priority, application Japan, May 16, 1977, 52/56960; Nov. 1, 1977, 52/131723

Int. Cl.³ B23Q *5/027*

U.S. Cl. 173—12 **7 Claims**

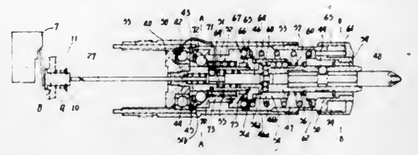
1. A powered torque-controlled tool comprising:

a motor which is a drive source;

a control means for starting and stopping said motor;

a clutch installed between said motor and a bit holder so as to permit interruption and continuation of the transmission of rotation between the both, said clutch having a driving and a driven element;

a torque cut-off mechanism adapted to act on said clutch when the torque on the bit holder reaches a preset torque value to thereby cut off the driving force from the motor to the bit holder, said torque cut-off mechanism comprising a drive shaft receiving the driving force of said motor and having cam surfaces, a driving member having said driving element of said clutch at one end portion thereof and axially tapered grooves at portions of its inner periphery facing said cam surfaces of said drive shaft, said driving member being rotatable and axially slidable relative to said drive shaft, balls disposed between said cam surfaces



of said drive shaft and said grooves of said driving member and continuously drivingly coupling said driving member to said drive shaft, said balls being movable radially in response to the force received from said cam surfaces of said drive shaft by rotation thereof and forcing axial movement of said driving member, and resilient means axially biasing said balls and said driving member into contact;

a lock mechanism for holding said clutch driven element in its disengaged state at the cut-off time; and

an operating means adapted to transmit the action of said torque cut-off mechanism to said control means, said clutch constituting the sole means for interrupting the transmission of rotation from said motor to said bit holder.

4,265,321

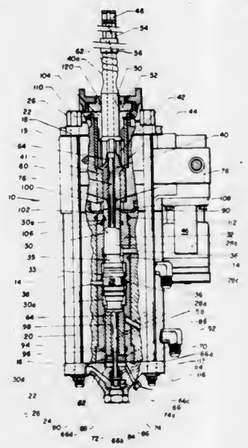
ROCK DRILL

George A. Hibbard, Claremont, N.H., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Nov. 12, 1975, Ser. No. 631,054

Int. Cl.³ E21B *1/02*

U.S. Cl. 173—78 **10 Claims**



1. A fluid motor comprising: a body member; an elongated chamber defined within said body member and having a first portion intermediate second and third portions thereof; a working member reciprocable within said first portion; means for introducing a flow of pressurized liquid within said second

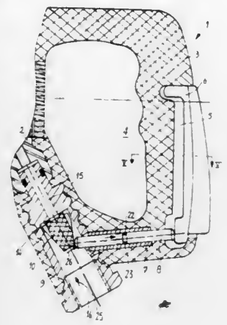
and third portions; sealing means for sealing said first portion from said flow of pressurized liquid within said second and third portions; and means for maintaining a gaseous pressure within at least a part of said first portion and communicating with said sealing means at a pressure greater than the pressure of such liquid.

4,265,322

COMPRESSED AIR FEED CONTROL SYSTEM FOR A TAPPING DEVICE

Henri Emonet, Montbrison, France, assignor to Maco-Meudon, Saint Priest, France

Filed Sep. 19, 1978, Ser. No. 943,912
Int. Cl.³ B23B *45/04*
U.S. Cl. 173—169 **7 Claims**



1. A compressed air distributor system utilizing a source of compressed air for powering hand operated air equipment, said distribution system comprising:

a handle housing having a first passage and a recessed portion;

an annular member mounted coaxially in said first passage, said annular member having a second passage therethrough and means for sealing said first passage;

pivot valve means sealingly mounted in said second passage for selectively opening and closing said second passage;

said pivot valve means further comprising a valve body having a trunconical outer configuration with a central counterbore, said valve body further having a base diameter at one end and a reduced diameter at the opposite end with a circular lip extending axially in one direction from said base diameter and located concentric to said central counterbore, said circular lip defining a valve seat, said trunconical outer configuration further having axial grooves radially spaced and beginning at said base diameter and extending in an opposite direction toward said reduced diameter, said valve body further being mounted in said second passage of the annular member for selectively opening and closing said second passage;

control means mounted in said recessed portion, said control means being mounted in said recessed portion to move from a predetermined first position to a predetermined second position;

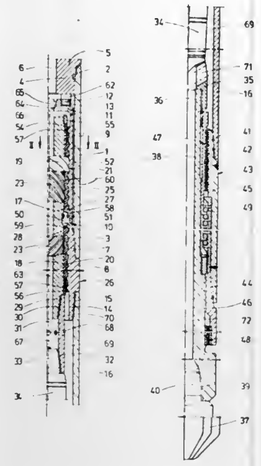
means for translocating interposed said pivot valve means and said control means, said translocating means further being mounted in intimate contact with said control means and said pivot valve means such that when said control means is at said predetermined first position, said translocation means communicates with said pivot valve means to seal said first passage, and when said control means is at said predetermined second position, said translocation means communicates with said pilot valve means to open said first passage means permitting said source of compressed air to pass to the distributor.

4,265,323

DIRECT BIT DRIVE FOR DEEP DRILLING TOOLS

Rainer Juergens, Altencelle, Fed. Rep. of Germany, assignor to Christensen, Inc., Salt Lake City, Utah

Filed Sep. 13, 1979, Ser. No. 75,352
Int. Cl.³ E21B *4/02*
U.S. Cl. 175—107 **20 Claims**



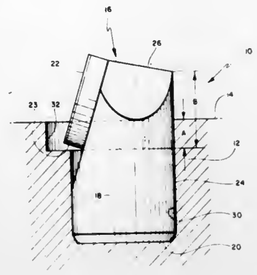
1. In a direct bit drive for deep drilling tools of the kind comprising a housing having an inlet end and an outlet end, a rotor disposed in said housing for rotation therein and for limited radial enlargement but not for axial displacement, said rotor and said housing interengaging at surfaces shaped in the manner of helical teeth, said shaped surfaces jointly defining at least one helical working space for a liquid or gaseous working medium, one of said shaped surfaces being formed on a shaped member of resiliently deformable material, and bearing in regions which move axially, upon relative rotary movement between said housing and said rotor, under pressure, with a sealing action, against the other shaped surface, which is of rigid construction, said shaped member of resiliently deformable material being arranged to be acted upon by the pressure of a pressure medium in a pressure chamber with radially directed deformation forces which alter, depending on the pressure prevailing in the working medium at the inlet side of said housing, and wherein said rotor comprises a shaft which acts as a carrier for the shaped member of resiliently deformable material, said shaped member of resiliently deformable material being disposed on the shaft and being constructed in the form of a diaphragm member which is located at its two ends on the shaft and is freely displaceable radially in its intermediate region, relative to the shaft and which, at its inside, during its radial displacement movements, is in positive guiding engagement with formations of the shaft and can be acted upon by the pressure of a pressure medium in a pressure chamber formed between the shaped member of resiliently deformable material and the shaft with said radially directed deformation forces, the improvement that the drive is divided into two sections disposed end-to-end and co-axially in line each with a helical working space defined as aforesaid between surfaces shaped in the manner of helical teeth, the said helical working spaces following oppositely turning helical paths and being arranged for the flow therethrough of the working medium, in axially opposite directions, wherein the two drive sections are provided with a central continuous bore for the return flow of working medium conveyed through the helical working space of the upper drive section to the bit.

4,265,324

ECCENTRIC COUNTERBORE FOR DIAMOND INSERT STUD

John F. Morris, Westminster, and Robert V. Worrell, Irvine, both of Calif., assignors to Smith International, Inc., Newport Beach, Calif.

Filed Nov. 29, 1979, Ser. No. 98,462
Int. Cl.³ E21B *10/46*
U.S. Cl. 175—329 **5 Claims**



1. A diamond drag bit apparatus wherein said drag bit has a multiplicity of individual diamond inserts strategically inserted within insert holes formed in a face of said drag bit, said diamond inserts having a diamond cutting disc at a first cutting end and a shank portion at an opposite end, said drag bit comprising:

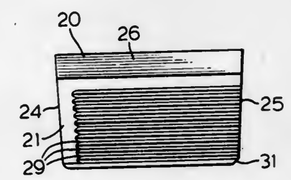
means to provide additional support for said cutting end of said insert along a longitudinal surface of said insert shank substantially opposite to said diamond cutting disc attached to said shank at said first cutting end by relieving a portion of said drag bit face near said insert hole formed in said face to clear an edge of said disc nearest said face of said drag bit so that said shank may be inserted deeper into said insert hole, said relieved portion is provided by eccentrically counterbore drilling each of said insert holes, said counterbore being so positioned to provide relief clearance for an edge of said cutting disc nearest said face of said drag bit while leaving said insert shank with backup material substantially opposite to said cutting disc of said insert, said relieved portion of said insert hole being so positioned dependent upon said strategic orientation of said cutting disc of said insert relative to said face of said drag bit.

4,265,325

PERCUSSION ROCK BIT

David C. Dick, Islington, Canada, assignor to Canadian General Electric Company Limited, Toronto, Canada

Continuation of Ser. No. 905,863, May 15, 1978, abandoned.
This application Oct. 1, 1979, Ser. No. 80,664
Claims priority, application Canada, Jun. 10, 1977, 280272
Int. Cl.³ E21B *10/52, 10/62*
U.S. Cl. 175—410 **15 Claims**



1. A cutting tool comprising in combination a steel body having a head portion including a face wall and a side wall intersecting said face wall, an elongated slot in said head communicating with said face wall and said side wall;

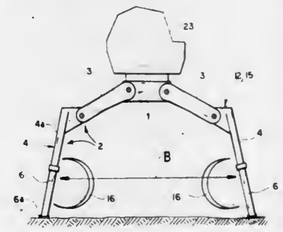
a cemented carbide cutting insert positioned in said slot and having a base and opposed flank walls upstanding therefrom, said base and said flank walls together in right cross section being of complementary form to the right cross section of said slot, each said flank wall being provided with a plurality of elongated serrulations extending substantially parallel to the base of said insert, the width of said insert as measured between the crests of opposed serrulations being greater than the width of said slot prior to the insertion of said insert therein to provide an interference fit therewith, and the width of said insert, as measured between the troughs of opposed serrulations, is marginally less than the width of said slot, to provide relief clearance at said troughs.

4,265,326

ROLLING AND STEPPING VEHICLE

Ernst Lauber, Thun, Switzerland, assignor to Willy Habegger, Hünibach near Thun, Switzerland

Filed Feb. 23, 1979, Ser. No. 14,593
Int. Cl.³ B62D *57/02*
U.S. Cl. 180—8 R **13 Claims**



1. A rolling and stepping vehicle comprising:

a central support adapted to serve as a tool platform;

a plurality of traveling legs extending outwardly from said support;

means pivotally connecting each of said legs to said support for swinging movement about a respective upright axis, each of said traveling legs including an outrigger pivotally connected to said support at the respective axis and swingable in a vertical plane, and a support shank articulated to said outrigger and swingable in a respective vertical plane relative thereto;

means on each of said legs for enabling the pivotal movement of the respective shank relative to the respective outrigger about a substantially vertical steering axis;

rolling means on each of said shanks for rolling engagement with the ground; and

a respective support ram telescopingly received in each of said shanks and extensible to support the platform on the ground independently of the respective rolling means.

4,265,327

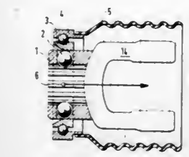
RELEASE DEVICE

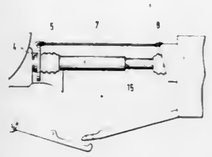
Hubert Geisthoff, Lohmar, Fed. Rep. of Germany, assignor to Jean Walterscheid GmbH, Lohmar, Fed. Rep. of Germany

Filed Sep. 8, 1978, Ser. No. 940,593
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1977, 2743072
Int. Cl.³ B60K *25/00*
U.S. Cl. 180—53 D **8 Claims**

1. A device for releasing a locked connection between a power take-off member and one of a tractor and an agricultural implement comprising an axially elongated telescoping power take-off shaft having a first end and a second end and being telescopable at a point intermediate the ends thereof, said first

end arranged to be secured to one of the tractor and the agricultural implement, and means for releasably attaching said second end to the other one of the tractor and the agricultural implement, said means including a member displaceable in the axial direction of said shaft for releasing the attachment of said shaft, wherein the improvement comprises an elongated traction member extending in the axial direction of said shaft and having a first end and a second end with the first end secured to said displaceable member and the second end arranged to be fixed to one of the tractor and the agricultural implement to which the first end of said shaft is arranged to be secured and said shaft between the first end of said shaft and the point on





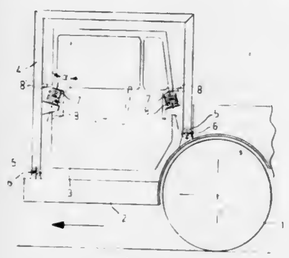
said shaft at which telescoping takes place so that after the drawbar connection between the tractor and implement is disconnected any movement of the tractor away from the implement causes said traction member to be tensioned for effecting the displacement of said member and effecting the release of said means, said means releasably attaches said second end of said shaft to the tractor, said shaft comprises a pair of axially extending parts one telescoping into the other, a tubular protective member for each said part of said shaft, said tubular protective member being telescopable one into the other, and the second end of said traction member is fixed to the one of said protective members closer to the implement.

4,265,328

DEVICE FOR RESILIENTLY SUPPORTING A DRIVER'S COMPARTMENT, PARTICULARLY IN HEAVY-DUTY TRUCKS

Jan-Erik Rowa, Mangigatan 14, 981 00 Kiruna, and Anders Sundgren, Tunastigen 82, 951 58 Luleå, both of Sweden

Filed Apr. 18, 1979, Ser. No. 31,240
Int. Cl.³ B62D *27/04*
U.S. Cl. 180—89.13 **4 Claims**



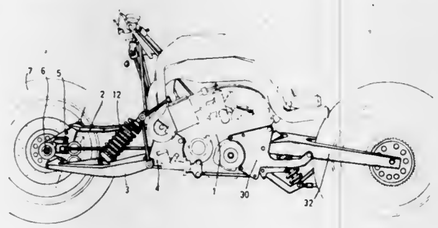
1. In a device for resiliently supporting a driver's compartment which is subjected to vibrations in a heavy-duty vehicle having a nonresilient wheel suspension, said compartment housing at least one seat and being connected to a supporting portion of the vehicle by means of a plurality of spring means, the improvement wherein said spring means comprise four helically coiled springs which are spaced from one another symmetrically around the compartment, each of said helically coiled springs being connected to the compartment at a common and substantially horizontal plane which is located intermediate the top and bottom of said compartment at a position closely adjacent the center of gravity of said compartment, the axis of action of each of said helically coiled springs being at an acute angle of about 20° to the vertical so as to allow the accommodation of vibratory motions in all directions in a three-axis right-angle coordinate system, thereby to obtain all six degrees of freedom of movement.

4,265,329

FRAMELESS MOTORCYCLE

André de Cortanze, 35 Allee des Graviers, 91010 Chevry 2, France

Filed Feb. 15, 1979, Ser. No. 12,457
Claims priority, application France, Feb. 24, 1978, 78 05284; Dec. 29, 1978, 78 36813
Int. Cl.³ B62K *25/16, 25/20*
U.S. Cl. 180—219 **9 Claims**



1. A frameless two-wheeled motor vehicle comprising a motor assembly including a motor, a front assembly including a steerable front wheel having a horizontal axis, movable front linking means for linking said front assembly to said motor assembly, a rear assembly including a rear wheel, movable rear linking means for linking said rear assembly to said motor assembly, and a steering assembly linked to said front assembly and connected to said motor assembly, said front linking means comprising an upper front linking arm and a lower front linking arm substantially parallel to said upper front linking arm, each one of said front linking arms having a front end and a rear end, the rear ends of said front linking arms being pivotally mounted to said motor assembly about respective substantially horizontal parallel axes, the front end of each front linking arm being movably mounted by means of a ball-and-socket joint on a front supporting plate on which is also mounted, in a cantilever position, an axle for rotationally supporting said front wheel, a front damping spring having an upper end pivotally mounted to said motor assembly and a lower end pivotally mounted on said lower front linking arm, said steering assembly being linked to said front supporting plate, and a front wheel braking device mounted on said front supporting plate.

4,265,330

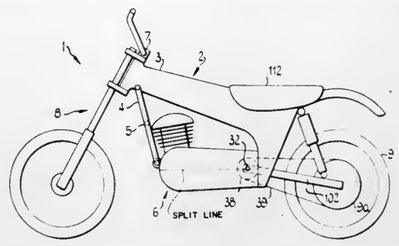
MOTORCYCLE GEAR BOX AND REAR WHEEL SUSPENSION SYSTEM

George R. Silk, 61 Netherfield Rd., and David Midgelow, 12 Hadstock Close, both of Sandiacre, Nottinghamshire, England

Filed May 14, 1979, Ser. No. 38,706
Claims priority, application United Kingdom, May 19, 1978, 20636/78
Int. Cl.³ B60K *5/12;* **B62K** *11/08*
U.S. Cl. 180—230 **7 Claims**

1. A motorcycle comprising:
a frame structure;
an engine;

a front wheel and a rear driven road wheel, each operatively supported by said frame structure;
a change speed gear box for transmitting power from said engine to said driven road wheel at a predetermined number of gear ratios, said change speed gear box having an input shaft operatively driven by said engine, an intermediate shaft, and an output shaft, said input shaft having a plurality of gears thereon, said intermediate shaft having a plurality of gears thereon and said output shaft having a plurality of gears thereon;
means for selectively engaging and disengaging gears on adjacent ones of said input shaft, said intermediate shaft



and said output shaft to transmit power from said input shaft to said output shaft through the intermediate shaft at any of the predetermined number of gear ratios, said means including a first engaging and disengaging means between said input shaft and said intermediate shaft and a second engaging and disengaging means between said intermediate shaft and said output shaft;
a swing arm on which said driven road wheel is mounted, said swing arm having a pivot axis coincident with an axis of rotation of said output shaft; and
drive means coupling said output shaft to said driven road wheel.

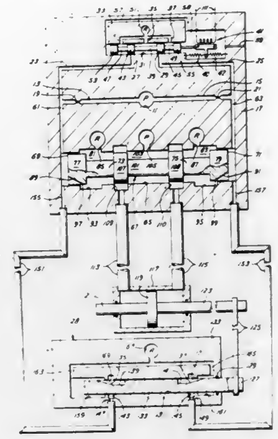
4,265,331

FLUIDIC REPEATER

Willie B. Leonard, 5902 Royalton, Houston, Tex. 77036

Division of Ser. No. 622,760, Oct. 15, 1975, Pat. No. 4,094,229, which is a continuation-in-part of Ser. No. 521,036, Nov. 5, 1974, Pat. No. 4,046,059, which is a continuation-in-part of Ser. No. 489,829, Jul. 18, 1974, Pat. No. 3,988,966. This application Jan. 27, 1978, Ser. No. 872,826
Int. Cl.³ F15B *13/16, 21/02*
U.S. Cl. 181—119 **4 Claims**

1. Fluidic repeater for generating seismic waves comprising
transmitter means including an actuator movable between a first position and a second position and through a continuous range of positions therebetween and adapted for connection to a source of pressure fluid and having an output adapted to deliver pressure fluid at variable pressure according to the setting of the transmitter actuator at different positions in said continuous range of positions,
oscillator means connected to said actuator for moving the actuator back and forth through said range of positions to vary the pressure of said output,
responder means comprising piston-and-cylinder means movable in response to variation of fluid pressure applied thereto and connected to the output of the transmitter for relative axial movement of the piston and cylinder in response to variation in the pressure of the transmitter output, and
feedback means actuated by said responder means for varying fluid pressure applied to the responder means to negate the effect of fluid pressure change created by change of position of the transmitter actuator,
said piston-and-cylinder means of the responder means including primary piston-and-cylinder means and load piston-and-cylinder means, and fluid passage means for supplying fluid to said load piston-and-cylinder means,
said primary piston-and-cylinder means being connected to said transmitter output and controlling fluid supply to said load piston-and cylinder means through said fluid passage means,
said load piston-and-cylinder means including a load piston and a load cylinder in which the piston moves, a piston rod connected to said piston, a ground engageable plate connected to said piston rod,



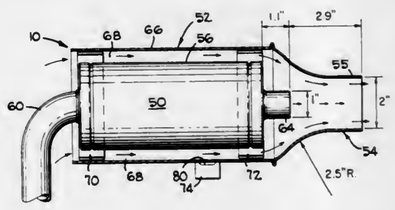
said oscillator means connected to said transmitter actuator effecting cyclic variation of pressure differential in said load cylinder on opposite sides of said load piston independent of changes of pressure of said source of pressure to cause desired vibratory movement of said plate to generate seismic waves in the ground,
said primary piston and cylinder means being continuously connected to said transmitter output,
said fluid passage means for supplying fluid to said load piston and cylinder means bypassing said transmitter means.

4,265,332

HEAT EXTRACTING MUFFLER SYSTEM

Lance O. Presnall, Reseda, Calif., and Gary H. Thurner, Saukville, Wis., assignors to FMC Corporation, San Jose, Calif.

Filed Jun. 21, 1979, Ser. No. 50,730
Int. Cl.³ F01N *1/14, 5/00*
U.S. Cl. 181—211 **5 Claims**



1. A heat extracting muffler system for a vehicle having an engine and a muffler disposed within an engine housing comprising: means connecting the muffler to the engine for communicating hot exhaust gases from the engine to and through the muffler; means defining an exhaust pipe included in said muffler for discharging said gases therefrom; and means defining an open ended tubular heat shield surrounding said muffler and said exhaust pipe, said tubular heat shield means including

a body portion and means defining a venturi tube connected to said body portion and projecting out of said housing; said muffler, said tubular heat shield body and said venturi tube being of cylindrical external cross-section and being generated about a common horizontal axis extending transversely of the engine housing; said venturi tube means being of generally frusto-conical configuration and receiving the end portion of said exhaust pipe for accelerating said exhaust gases which create an airflow through an annular passage between said muffler and said heat shield for drawing warm air from said engine housing and for cooling the peripheral surfaces of said muffler before discharging the air and exhaust gases externally of said housing, said tubular heat shield body having a large diameter inlet end and said venturi tube having its smallest diameter at its outlet end.

4,265,333

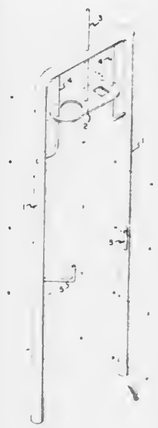
PORTABLE FENCE STILE

Robert Rowell, Whispering Pines Trailer Park, Box 1008, Derry, N.H. 03038, and Albert A. Hickey, 216 Dauphine Dr., West Monroe, La. 71291

Continuation-in-part of Ser. No. 925,935, Oct. 25, 1978, abandoned. This application Dec. 6, 1979, Ser. No. 100,885

Int. Cl.³ E06C *7/48, 1/04*

U.S. Cl. 182—92 **9 Claims**



1. A fence stile comprising two spaced-apart generally vertical when-in-use support members adapted to be placed on either side of a fence and having a length sufficient to extend above said fence, a connecting member at the upper portions of said vertical support members and holding said upper portions of said spaced-apart relationship, at least one foot support means on each of said support members a stepping height from the lower ends thereof, and a stabilizer plate generally horizontal in use comprising a plate having an opening adapted to fit over the top of a fence post and slideably attached to said stile between said support members at said upper portions and beneath said connecting member.

4,265,334

APPARATUS FOR LUBRICATION OF A DIFFERENTIAL BEARING MOUNTED BETWEEN CONCENTRIC SHAFTS

George J. Benhase, Jr., West Chester, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Dec. 4, 1978, Ser. No. 965,953

Int. Cl.³ F02C *7/06;* **F16D** *3/46*

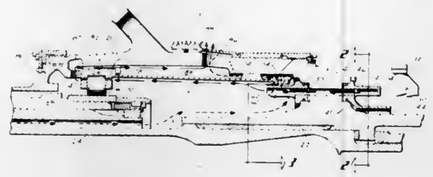
U.S. Cl. 184—6.11 **4 Claims**

2. In an apparatus having a cylindrical rotating shaft with a hollow interior partially defined by an inner wall surface, a lubrication-receiving device positioned radially inwardly in respect to the inner wall surface of said shaft, and having means for introducing lubricant into the interior of said shaft at a point remote from said lubrication-receiving device, improvements comprising:

a transfer tube engaging the inner wall surface of said shaft for rotation therewith, a hollow region of said transfer tube extending from said means for introducing lubricant into said shaft to said lubrication-receiving device for supplying lubricant directly to said device; and

said means for introducing lubricant into the interior of said shaft being comprised of:

(a) at least one passage extending from an exterior portion to the hollow interior of said shaft;



(b) a dispenser extending from each of said passages for directing the lubricant to a position spaced radially inwardly from the inner wall surface of said shaft, wherein each of said dispensers comprises:

(i) an axial wall, extending from each of said passages, for receiving lubricant;

(ii) said wall having side portions for confining the flow of lubricant within a region defined by said wall and permitting a radial flow of a second fluid around the side portions of said walls; and

(iii) an end portion of said wall being positioned within the hollow region of said transfer tube for depositing lubricant therein.

4,265,335

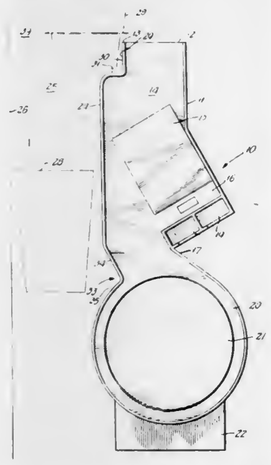
CHECK-OUT COUNTER

Stanley S. Joseloff, 217 Webb Rd., Fairfield, Conn. 06430

Filed Oct. 19, 1979, Ser. No. 86,270

Int. Cl.³ A47F *9/04*

U.S. Cl. 186—63 **2 Claims**



1. In a checkout counter for supermarkets and the like having a peripheral longitudinal axis with a receiving station at a forward end thereof equipped with a conveyor means for the receipt and transport of items deposited thereon by a customer on a customer's side of the counter, a storage station positioned on a second end of said counter and a cashier's station receiving items to be tallied from said conveyor, there being an aisle of effective width to accommodate a shopping cart for passage along side said counter from said forward end to a rearward end thereof, the improvement comprising: a recess in said counter extending from said forward end of width less than that of said aisle, and adapted to accommodate a substantial portion of the width of a shipping cart therein at the customer's side of said counter, whereby when a cart is so positioned a customer may move easily around and reach into it within said aisle; and a second recess in said counter on the customer's side thereof facing said aisle and positioned adjacent said cashier's station for permitting customer mobility within said aisle and around a cart in the close proximity of said cashier's station.

4,265,336

CONVERTIBLE SINGLE-DOUBLE BELT CHECK-OUT COUNTER

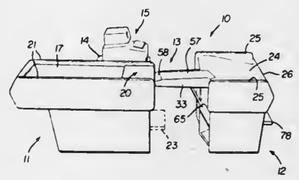
Stephen W. Foster, North Java, N.Y., assignor to Almor Corporation, Warren, Mich.

Continuation of Ser. No. 863,796, Dec. 23, 1977, Pat. No. 4,182,433. This application Aug. 6, 1979, Ser. No. 64,214

The portion of the term of this patent subsequent to Jan. 8, 1997, has been disclaimed.

Int. Cl.³ A47F *9/04*

U.S. Cl. 186—66 **6 Claims**



1. A check-out counter comprising:

a forward check-out module, having a merchandize supporting surface and a rear transverse edge portion, a separate rear bagging module having a merchandize receiving deck and a forward transverse edge portion, said forward check-out module and said rear bagging module being spaced apart;

a conveyor belt unit for bridging the space between the modules and interconnecting the rear transverse edge portion of the check-out module with the forward transverse edge portion of the bagging module;

said conveyor belt unit being formed of a pair of spaced apart horizontally axised rollers secured within a rigid frame, and an endless conveyor belt passing around the rollers;

power means for rotating one of the rollers for thereby driving the conveyor belt;

means for pivotally securing one end of the conveyor belt unit to the forward transverse edge portion of said rear bagging module and releasable latch means for releasably securing the opposite end of said unit to said rear transverse edge portion of said check-out module, said rear bagging module including a conveyor belt unit receiving area consisting of opposed parallel vertical walls that form a vertical belt receiving slot wherein said unit may be stowed in said rear bagging module whereby the conveyor belt unit may be hung downwardly from said pivot means for stowing in a non-use position and may alternatively be extended and secured between the modules in a use position for conveying merchandize from the check-out module to the bagging module;

said pivotal securing means including axially aligned, oppositely extending mounting spindles for rotatably supporting the roller which is adjacent the bagging module and mounting brackets for pivotally connecting said spindles to the forward transverse edge portion of said rear bagging module between said opposed parallel walls of said bagging module belt receiving slot; and

said power means including a drive motor mounted within the roller which is adjacent the bagging module for rotating said roller upon the mounting spindles, said rigid frame also being supported upon said mounting spindles and mounting brackets and said pivotal securing means providing both pivotal securement of the conveyor unit to the rear bagging module and support for said drive motor.

4,265,337

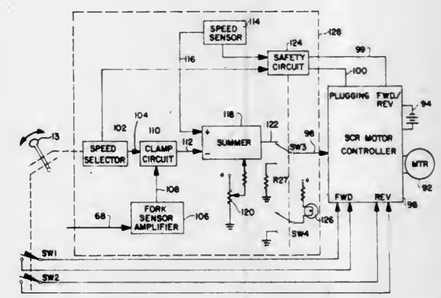
FORK LIFT TRUCK SPEED CONTROL DEPENDENT UPON FORK ELEVATION

Ned E. Dammeyer, New Bremen, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio

Filed Jul. 16, 1979, Ser. No. 57,771

Int. Cl.³ B66F *9/06;* **B60K** *31/00;* **G05B** *1/06;* **H02P** *5/06*

U.S. Cl. 187—9 E **10 Claims**



1. A speed control circuit for a lift truck which includes an operator adjustable speed control mechanism, lift forks mounted on an extendable lift fork mast continuously extendable between a lower and elevated positions, an electric truck drive motor, an electric motor power source, and a motor controller for controlling the application of power to said drive motor from said power source in response to a power control signal, comprising:

speed selector means generating a speed selection signal in response to adjustment of said operator adjustable speed control mechanism,

fork height sensor means providing a continuously variable fork height signal in dependence upon the relative elevated position to which said lift forks are raised,

clamp circuit means, responsive to said speed selector means and to said fork height signal, for providing a speed control signal corresponding to said speed selection signal but having a maximum signal level determined by said fork height signal,

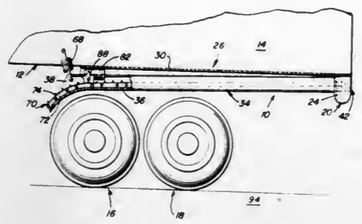
speed sensor means providing a speed sensor signal related to the speed of said lift truck and

summer means, responsive to said clamp circuit means and to said speed sensor means, for comparing said speed control signal and said speed sensor signal to provide said power control signal to said motor controller in dependence upon the difference between said speed control signal and said speed sensor signal.

4,265,338
WHEEL AND GROUND ENGAGING EMERGENCY BRAKE

Andrew S. Shea, and Frances Shea, both of 171 N. Diamond St., Mount Pleasant, Pa. 15666

Filed Jan. 23, 1979, Ser. No. 5,902
Int. Cl.³ B60T *1/04, 1/14*
U.S. Cl. 188—4 R **6 Claims**



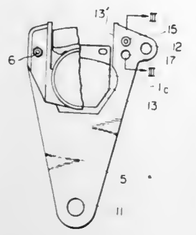
1. In combination with a vehicle having a body and a ground engaging support wheel:
an emergency brake comprising an elongated support tray;
means pivotally mounting said support tray at one end of said vehicle body for movement about a horizontal axis. disposed above and rearwardly of said support wheel and extending transversely of said tray and vehicle. the free end of said tray being open, disposed forwardmost relative to said vehicle wheel and freely swingable between a raised position and a lowered forwardly downwardly inclined position with the undersurface of said tray being held proximate to but spaced above the upper periphery of said support wheel by a resilient tray support means which is attached between said vehicle body and said tray;
an elongated flexible skid member freely longitudinally slidable on said tray between a retracted inoperative position disposed on said tray and an extended position having one end projecting outwardly of the free end of said tray; and
motive power means including an electric motor having a shaft, a gear attached to said shaft, said motor being mounted on said tray adjacent to the free end thereof, said gear operatively engaging said elongated flexible skid member for maintaining said skid member in its inoperative retracted position and for causing powered movement of said skid member for forcing said skid member to assume its extended operative position upon actuation of said motive power means.

4,265,339
DISC BRAKE

Kanji Ishihara, Kawasaki, Japan, assignor to Tokico Ltd., Japan

Filed Jun. 20, 1979, Ser. No. 50,222
Claims priority, application Japan, Jun. 20, 1978, 53-84195[U]
Int. Cl.³ F16D *55/228*
U.S. Cl. 188—72.5 **1 Claim**

1. A disc brake comprising
a substantially flat and substantially triangular mounting member having a first through bore in the apex portion of said mounting member for connecting said mounting member to a wheel shaft of a two-wheeled vehicle, said mounting member being spaced from a rotatable disc in the direction of its rotational axis, and said mounting member extending along a plane perpendicular to the rotational axis of said disc;
a first caliper member secured to one side surface of said mounting member and incorporating therein a cylinder-piston means for applying a first friction pad against one surface of the disc,
a second caliper member secured to the opposite surface of said mounting member and incorporating therein a cylinder-piston means for applying a second friction pad against the opposite surface of said disc, said second caliper member straddling the periphery of said disc in a direction parallel to the rotational axis of said disc.
an aperture in said mounting member for receiving said piston pad therein and for absorbing the braking torque generated by said first friction pad;

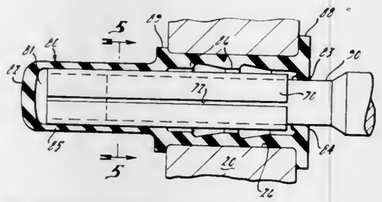


a second through bore in the base portion of said mounting member for providing fluid communication between said cylinder-piston means and said first and second caliper members and
a resilient bushing disposed within said second bore and having an axial length greater than the thickness of said mounting member and being in sealing relationship with said mounting member and said first and second caliper members.

4,265,340
DISK BRAKE MOUNTING

Orland B. Scott, Maidstone, Canada, and Garrett S. Van Camp, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jun. 29, 1978, Ser. No. 920,565
Int. Cl.³ F16D *65/02*
U.S. Cl. 188—73.3 **8 Claims**

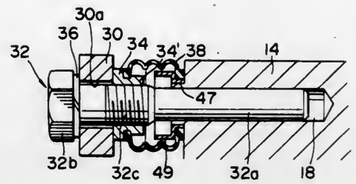


8. A disk brake assembly comprising:
a rotor means for receiving a braking force for reducing rotation of said rotor means;
a caliper having a housing within which a hydraulic piston means is operative for generating an actuating force so that said housing and said hydraulic piston means are urged in opposing directions;
an outer friction element mounted on said housing and an inner friction element mounted on said piston means, said outer and inner friction elements acting in cooperation with said rotor means in generating a braking force;
a support means for said caliper so that said inner and outer friction elements can be positioned on opposite sides of said rotor for transmitting a reactive torque so a braking force can be applied to said rotor means; and
a mounting means for coupling said caliper to said support means, said mounting means including a pin means having an axis generally transverse to the plane of rotation of said rotor means, a relatively low friction sleeve means adjacent said pin means, and a resilient means covering the outer surface of said sleeve means so as to permit sliding movement between said pin means and said sleeve means.

4,265,341
EASY-TO-ASSEMBLE SLIDING ARRANGEMENT IN DISC BRAKE

Minoru Kuramoto, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 20, 1979, Ser. No. 50,161
Claims priority, application Japan, Jun. 26, 1978, 53-77199
Int. Cl.³ F16D *65/02*
U.S. Cl. 188—73.3 **2 Claims**

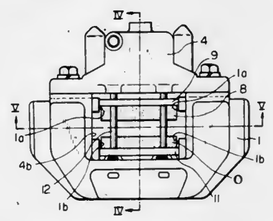


1. A sliding arrangement in a disc brake comprising:
a carrier formed with a bore;
a caliper having a pin including a slide portion slidably received in the bore;
said pin extending through a support portion of said caliper and having a portion formed with a thread on a periphery thereof and a head portion, said threaded portion being disposed between said slide portion and said head portion;
a nut engaging said threaded portion of said pin to interpose said support portion of said caliper between said head portion of said pin and said nut;
a protective boot having one end fixed to said carrier around the opening of said bore and an opposite end fixed to said nut mating with said pin to partially cover said pin;
a member fixed to said carrier, said member including a projection which has a cylindrical wall in register with the bore of said carrier and which is disposed in said protective boot and surrounded thereby; and
a cylindrical portion formed on said nut, having substantially the same diameter as the cylindrical wall of said projection of said member so as to be fittingly receivable thereby such that during assembly, said projection of said member and said portion of said nut cooperate to align said nut with said bore of said carrier to make it easy to insert said pin through said nut into said bore.

4,265,342
DISC BRAKE ASSEMBLY WITH TORQUE ABSORBING BRACKET

Yasuo Karasudani, 4309 Akuwa-cho, Seya-ku, Yokohama-shi, Kanagawa-ken, Japan

Filed Apr. 16, 1979, Ser. No. 30,651
Claims priority, application Japan, Apr. 19, 1978, 53-51576
Int. Cl.³ F16D *65/00*
U.S. Cl. 188—73.6 **2 Claims**

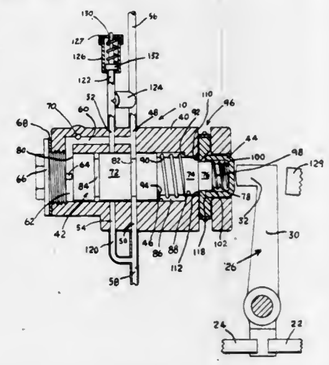


1. A disc brake assembly comprising:
a substantially L-shaped bracket capable of being secured to a non-rotatable part of a vehicle, said bracket having a portion straddling the periphery of the disc and extending in the direction of the rotational axis of said disc.
first and second spaced opposed friction pads disposed respectively on the opposite first and second surfaces of a rotatable disc,
two parallel pins each having one end thereof secured to said bracket and extending parallel to the axis of rotation of said disc,
a caliper slidably supported on said pair of pins and having a piston therein and adjacent the first side of said disc for urging said first pad against said first side of said disc,
said caliper further having a leg portion straddling a portion of the periphery of the disc in a direction parallel to the rotational axis of said disc and extending to the second surface of said disc and engaging said second pad for urging said second pad against the second surface of the disc,
an opening in the caliper extending radially outwardly of said disc for allowing therethrough the extraction of the friction pads in the radially outward direction with respect to the disc, and
a pair of retaining pins on said caliper extending across the opening in the caliper and in the direction of the rotational axis of the disc and supporting the friction pads,
said first and second spaced opposed pads having bracket engaging means on each end thereof, said bracket having guiding and supporting surfaces for engaging said pads at said engaging means for guiding said pads toward and away from said disc and for receiving the braking torque generated by the application of the pads to the brake, and
whereby the said friction pads can be dismounted from the said bracket by removing said retaining pins.

4,265,343
CONTROLLED WHEEL BRAKING SYSTEM

Fred C. Stevens, One Garrett Pl., Bronxville, N.Y. 10708

Filed Jul. 16, 1979, Ser. No. 58,001
Int. Cl.³ B60T *8/04*
U.S. Cl. 188—181 T **7 Claims**



1. A hydraulic braking system for a vehicle wheel comprising a rotatable member, brake means and a fluid brake cylinder, said fluid brake cylinder having fluid pressure sensing means for transmitting force to said brake means so as to bias said brake means against said rotatable member, supply means for supplying fluid under pressure to said fluid pressue sensing means, valve means disposed between said supply means and said fluid pressure sensing means for controlling the flow of fluid to said fluid pressure sensing means and means associated with said brake means and said valve means for sensing the frictional force between said brake means and said rotatable member, said means for sensing said frictional force comprises a pivotably mounted lever means having a first short portion in contact with said brake means and a second longer portion in contact with said valve means for transmitting force to said

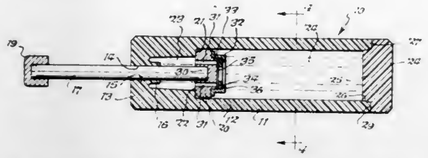
valve means in response to said sensed frictional force wherein said valve means blocks the flow of fluid to said fluid pressure sensing means at the instant of vehicle wheel lock up sensed by said frictional force sensing means.

4,265,344

LIQUID SPRING WITH INTEGRAL PLASTIC BODY AND SEAL AND FABRICATION METHOD THEREFOR

Paul H. Taylor, Grand Island, N.Y., assignor to Tayco Developments, Inc., North Tonawanda, N.Y.

Continuation of Ser. No. 862,745, Dec. 21, 1977, abandoned.
This application Sep. 19, 1979, Ser. No. 76,839
Int. Cl.[1] F16F *9/32*
U.S. Cl. 188—322 **16 Claims**



1. A liquid shock-absorber device comprising a plastic cylinder having first and second ends, an end wall molded integrally with said cylinder at said first end of said cylinder, a piston rod having a central portion and a first end within said cylinder and a second end externally of said cylinder, a plastic seal including a flexible annular lip molded integrally with said end wall, said flexible annular lip extending inwardly into said cylinder and in combination with said first end wall defining an opening for receiving said central portion of said piston rod in sealing relationship, a chamber proximate said end wall at said first end of said cylinder surrounding said flexible annular lip, closure means closing said second end of said cylinder, and fluid in said chamber

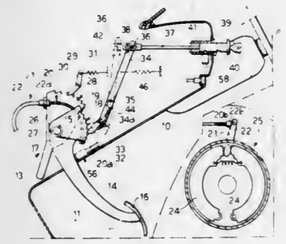
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4,265,345

CONTROL MECHANISM FOR PARKING BRAKE

Osvaldo Fasano, Villarbasse, Italy, assignor to Studi Apparecchiature E Ricerche Tecniche, Turin, Italy

Filed Nov. 17, 1978, Ser. No. 961,825
Claims priority, application Italy, Nov. 22, 1977, 69635 A/77
Int. Cl.[1] B60K *41/20*
U.S. Cl. 192—3 R **8 Claims**



1. A control mechanism for a parking brake of a motor vehicle, comprising in combination:

flexible transmission means comprising a sheath and a control cable slidable in said sheath;

a brake member connected to one end of said cable and controlling a control lever; the operation of the parking brake; adjustable anchorage means attached to the end of the sheath adjacent the control lever for attaching said sheath end to the vehicle body, the opposite end of said sheath abutting the brake member;

adjustment means for adjusting said adjustable anchorage means to vary the position of the associated end of the sheath with respect to the vehicle body;

said control lever connected to the other end of said control cable and pivotally mounted on the vehicle body whereby the application of pressure to one end of said control lever pivots the lever and actuates the parking brake through the cable, said control lever having a peripherally toothed portion remote from the said one end;

a locking pawl urged into engagement with said toothed portion to prevent pivoting of the lever in the sense opposite to that which effects braking;

means for urging said locking pawl into engagement with the toothed portion;

a release mechanism for releasing the pawl from engagement with the toothed portion, including a lever arm carrying a pin on which the locking pawl is pivotally mounted, said arm having pivot means carried by the vehicle body, and means for pivoting the lever arm from a first position in which the pawl is engaged with the toothed portion to a second position in which the pawl is released from engagement therewith; and

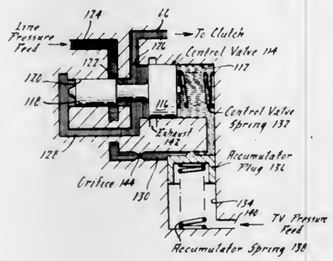
resilient biasing means urging said locking pawl about its pivot pin into a predetermined orientation with respect to the lever arm.

4,265,346

CONTROL VALVE MECHANISM FOR HYDRAULIC CLUTCH IN A POWER TRANSMISSION MECHANISM

Ramakrishna Emmadi, Troy, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jan. 4, 1979, Ser. No. 960
Int. Cl.[1] B60K *41/02*
U.S. Cl. 192—0.034 **2 Claims**



1. A clutch capacity control valve system for controlling engagement of a pressure operated clutch comprising a fluid pressure feed passage for said clutch, a pressure regulator valve in said passage for modulating the pressure made available to said clutch, said valve comprising a valve chamber, a regulating valve spool having spaced valve lands, a first port and a second port communicating with said valve chamber at locations intermediate said valve element lands, a bypass passage extending from one portion of said valve chamber to one side of said valve element, spring means acting on said one side of said valve element tending to move the latter to a passage open position which establishes relatively free communication between said ports, one valve land registering with one port of establish restricted fluid communication between said ports, an exhaust port registering with the other valve land whereby said valve element regulates the pressure made available to said clutch when the pressure force acting thereon overcomes the force of said spring, an accumulator comprising an accumulator chamber on said one side of said valve element, an accumulator piston in said accumulator chamber having a pressure area thereon that is subjected to the pressure in said valve chamber on said one side of said valve element and an accumulator valve spring opposing the pressure force acting on said accumulator piston, said accumulator including means for distributing a torque sensitive pressure signal to said accumulator chamber whereby a pressure force proportional to torque is

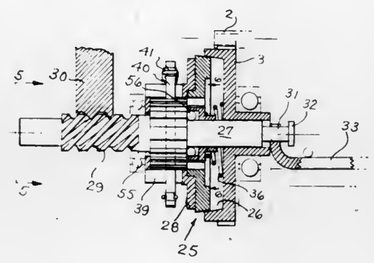
developed on said accumulator piston to supplement the force of said accumulator spring.

4,265,347

CLUTCH MECHANISM FOR POWER DRIVEN HAND TOOLS

Helmut Dischler, Neuss, Fed. Rep. of Germany, assignor to Novopress GmbH Pressen und Presswerkzeuge & Co. KG, Dusseldorf, Fed. Rep. of Germany

Filed Mar. 3, 1978, Ser. No. 883,192
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1977, 2709946
Int. Cl.[1] F16D *43/20*
U.S. Cl. 192—56 R **14 Claims**



1. In a power driven tool, having a motor with a power takeoff pinion and a clutch for engaging the pinion with means for driving an output spindle, the improvement comprising:

(a) a fixed clutch half coupled to said power takeoff pinion;

(b) a movable clutch half coupled to said means for driving said output spindle;

(c) means for urging said clutch halves together in proportion to the output torque transmitted by said output spindle, comprising a shaft on which both said clutch halves are mounted and means mounted on said output spindle and engaging said shaft for moving said shaft in a direction so as to urge said clutch halves into tighter engagement; and

(d) means for disengaging said clutch halves when said output torque of said output spindle exceeds a predetermined limit, comprising a gear rim mounted on said shaft which normally engages inside gearing mounted on said movable clutch half so as to urge said movable clutch half into engagement with said fixed clutch half when said shaft is displaced in an axial direction, said movable clutch half being axially displaceable with respect to said shaft in response to said overload condition so as to move said clutch halves out of engagement in response to said condition, the teeth of said gear rim and the teeth of said inside gearing normally abutting against each other, but meshing with each other in the presence of an overload condition so as to permit the axial displacement of said movable clutch half with respect to said shaft.

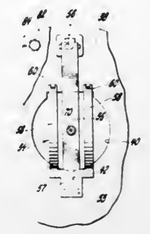
4,265,348

ELECTRO-VISCOUS FAN CLUTCH WITH SNAP ACTION SPRING VALVE ELEMENT FOR CONTROL OF FLUID GATE

Stephen E. Clarke, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 26, 1979, Ser. No. 88,475
Int. Cl.[1] F16D *35/00*
U.S. Cl. 192—58 B **2 Claims**

1. A fan for inducing air flow through a radiator in which engine coolant is circulated comprising a shaft adapted to be rotatably driven, first rotatable clutch means operatively connected to said shaft for rotation therewith, a housing for said first clutch means rotatably supported by said shaft, said housing having second clutch means formed thereon spaced from said first clutch means to provide a fluid shear zone therebetween, fan means secured to said housing and extending radially therefrom, a cover plate attached to said housing to form a chamber therewith, a pump plate secured to said housing between said cover plate and said first clutch means to form a fluid reservoir, said pump plate means having a fluid gate therein for conducting fluid from said reservoir into said shear zone, over-center spring valve means mounted on said pump plate means and movable between opened and closed position



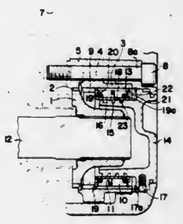
with respect to said fluid gate for controlling the flow of fluid through said gate from said reservoir into said shear zone to thereby control the transmission of torque through said clutch, and electromagnetic actuator means energizable to move said spring valve means to said open position for the viscous drive of said clutch, and said spring valve means having bowed control arms means integral therewith to return said spring valve means to a closed position when the electromagnetic actuator means is deenergized.

4,265,349

HUB CLUTCH

Masao Teraoka, Sano, Japan, assignor to Tochigi-Fuji Sangyo Kabushiki Kaisha, Tochigi, Japan

Filed Dec. 7, 1978, Ser. No. 968,356
Claims priority, application Japan, Dec. 12, 1977, 52-166772[U]
Int. Cl.[3] F16D *19/00*
U.S. Cl. 192—95 **6 Claims**



1. A hub clutch for providing torque connection between a power shaft and a wheel hub, said hub clutch comprising:

a drive clutch adapted to be connected to a power shaft, said drive clutch having coupling teeth;

a driven clutch having coupling teeth and mounted for axial movement between an engaged position whereat said driven clutch coupling teeth mesh with said drive clutch coupling teeth and a disengaged position whereat said driven clutch coupling teeth are out of engagement with said drive clutch coupling teeth, said driven clutch having at the outer periphery thereof a plurality of axially extending substantially semi-circular grooves;

a case surrounding said driven clutch and adapted to be connected to a wheel hub;

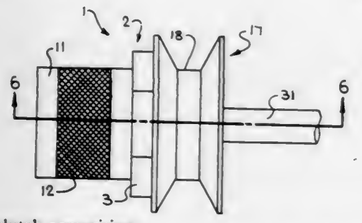
a plurality of bolts for connecting said case to the wheel hub

said bolts having portions received within said semi-circular grooves, the engagement of said bolt portions within said semi-circular grooves comprising the sole structural connection between said driven clutch and said case;

coupling means operatively connected to said driven clutch for imparting thereto a preload; and

actuator means, connected to said driven clutch by means of said coupling means, for moving said driven clutch from said disengaged position thereof to said engaged position thereof, whereby said driven clutch is coupled to said drive clutch and the resultant torque from said driven clutch is transferred to said case solely by engagement between said semi-circular grooves and said bolt portions.

4,265,350
CLUTCH
Robert W. Vaughan, 1104 Rathbun Dr., Minden, La. 71055
Filed Apr. 26, 1979, Ser. No. 33,690
Int. Cl.[3] F16D *11/10*
U.S. Cl. 192—95 **10 Claims**



1. A clutch comprising:

(a) a spindle mounted on a rotating shaft and characterized by a generally flat plate provided with at least one aperture extending through said plate and at least one seat provided in one face of said plate, and a spindle shaft extending through said plate in fixed relationship with a long segment of said spindle shaft projecting from one face of said plate and a short segment of said spindle shaft projecting from the opposite face of said plate;

(b) a generally cylindrically-shaped engaging knob having a hollow interior and a spindle shaft aperture at one end to receive said long segment of said spindle shaft in concentric, rotatable relationship;

(c) at least one engaging pin carried by said one end of said engaging knob and adapted to selectively register with said at least one aperture and said at least one seat in said plate upon rotational manipulation of said engaging knob with respect to said plate;

(d) bias means in said hollow interior of said engaging knob and cooperating with said long segment of said spindle shaft to bias said spindle against said engaging knob; and

(e) power transmitting means journalled for rotation on said rotating shaft and cooperating with said short segment of said spindle shaft and said engaging pins for selectively transmitting power to said shaft responsive to manipulation of said engaging pins in said at least one aperture and said at least one seat.

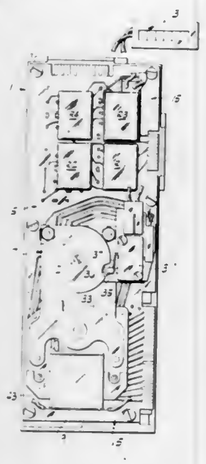
4,265,351
APPARATUS FOR TOTALIZING SALES
Robert E. Koetter, St. Charles, Mo., assignor to UMC Industries, Inc., Stamford, Conn.
Filed Oct. 1, 1979, Ser. No. 81,002
Int. Cl.[3] G07F *9/00*
U.S. Cl. 194—1 M **12 Claims**

1. Apparatus for totalizing the sales of a vendor in response to energization of selection circuits of the vendor for vending items at different prices in the series of values 5¢, 10¢, 15¢, 20¢, 25¢, etc., each circuit being energized upon establishment of credit in the vendor at least equal to the respective price and actuation of a selection means for completing the circuit, said apparatus comprising:

an electrically actuated register operable on being electrically pulsed to register a 5¢ increment;

a switch comprising a series of fixed contacts spaced at intervals and representing amounts in said series of values in sequence at least up to the highest price, and a contact movable through a cycle from a home position successively into engagement with the fixed contacts in reverse direction so as to engage the fixed contact representing the highest amount and then to engage in succession the fixed contacts representing the successively lower amounts and then to return to home position;

means operable in response to energization of any of said selection circuits for operating said movable contact through a cycle;



control means operable in response to energization of any of said selection circuits for energizing the fixed contacts when the movable contact, moving through said cycle in said reverse direction, engages the fixed contact representing the amount corresponding to the price of the selected item under control of that selection circuit;

said fixed contacts being connected in a circuit with said register whereby, as the movable contact engages the fixed contact representing the price of the selected item, and then successively engages the remainder of the fixed contacts and returns to the home position, the register is pulsed a number of times equal to one-fifth the price of the selected item, to step up the register a number of 5¢ increments corresponding to that price.

4,265,352
BEVERAGE CONTAINER RECEIVING AND STORING APPARATUS
Douglas E. Nix, 1117 N. 12th, Duncan, Okla. 73533
Filed Apr. 12, 1979, Ser. No. 29,313
Int. Cl.[3] G07F *7/06*
U.S. Cl. 194—4 D **16 Claims**

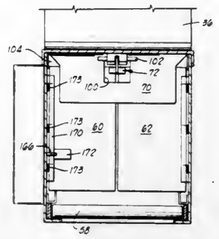
1. An apparatus for receiving and storing a carton of beverage containers, comprising:

a compartment for receiving said carton, said compartment including a cover means selectively movable between an open position and a closed position, so that when said cover means is in said open position said carton may be placed in said compartment;

a means for storing a plurality of said cartons;

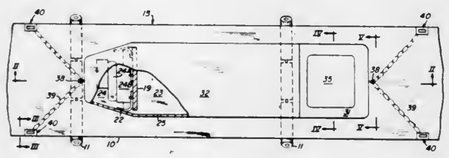
a means for moving said carton from said compartment to said storing means, said moving means including a gravity operated conveyor; and

a holding means, operatively associated with said cover means, for retaining said carton in said compartment when said cover means is in said open position, and for releasing



said carton so that it may move down said gravity operated conveyor to said storing means when said cover means is in said closed position.

4,265,353
CAPSULE APPARATUS FOR TRANSPORTING A DISABLED PERSON
Alvin J. Hill, Coal City, W. Va., assignor to Eastern Associated Coal Corp., Pittsburgh, Pa.
Filed Apr. 4, 1979, Ser. No. 27,182
Int. Cl.[3] B65G *17/00*
U.S. Cl. 198—321 **12 Claims**



1. A capsule apparatus for transporting a disabled person, said apparatus including the combination of:

an elongated base including upstanding side walls extending about the periphery of a floor with inclined forward and aft floor sections to facilitate transporting movement along a support surface,

means within said elongated base for supporting a person therein,

elongated top sections having abutting end surfaces to form a protective top closure while supported by the side walls of said elongated base,

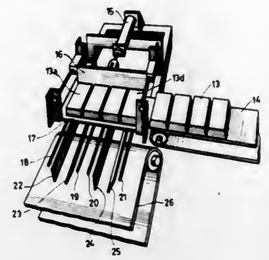
latch means for releasably securing said elongated top sections to said elongated base,

window means supported by one of said elongated top sections for visual monitoring of a disabled person while located within the elongated base,

conveyor means for supporting engagement with said elongated base, and

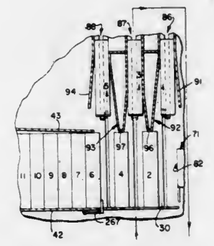
anchor means secured to opposite ends of said elongated base for preventing unintentional disengagement from said conveyor means, said anchor means including clamp means with gripping surfaces for engaging said conveyor means.

4,265,354
APPARATUS FOR POSITIONING PRISMATIC BRICKS UPON A LONGITUDINAL SMALL SIDE, SYMMETRICALLY WITH RESPECT TO EACH OTHER
Hendrik Sinnema, Sneek, Netherlands, assignor to Machinefabriek W. Hubert & Co. B.V., Sneek, Netherlands
Filed Sep. 5, 1978, Ser. No. 939,659
Claims priority, application Netherlands, Sep. 5, 1977, 7709762
Int. Cl.[3] B65G *47/24*
U.S. Cl. 198—374 **5 Claims**



1. Apparatus for pairwise positioning prismatic bricks symmetrically with respect to each other, upon a longitudinal small side, said bricks having a pair of large surfaces, the smallest of the large surfaces facing each other, comprising a supporting face for supporting at least one pair of said bricks which are supplied lying parallel to each other, each resting upon one of the large surfaces, a pusher member being mounted above said supporting face, engaging the bricks and pushing them towards and from an edge of said supporting face, at least one pair of longitudinal supporting members protruding from said edge in the direction of travel of the bricks and being positioned excentrical with respect to the center lines of the paths of the bricks, and a supporting surface therebelow wherin the pair of bricks will rotate about said supporting members so that the smallest of the large surfaces of said bricks are facing each other on said supporting surface.

4,265,355
CIGARETTE TAX STAMP APPLYING MACHINE AND METHOD
Allan C. Davis, Baltimore, Md., assignor to The Meyercord Co., Carol Stream, Ill.
Filed Dec. 18, 1978, Ser. No. 970,256
Int. Cl.[3] B65G *47/26*
U.S. Cl. 198—427 **14 Claims**



1. Apparatus for processing cartons of cigarettes, comprising an input platform adapted to receive a lineup of cartons in side-by-side relation, the cartons being oriented so that the cigarette packages are standing on end and the carton flaps are uppermost, means forming a plurality of parallel, laterally spaced channels, said channels being spaced a distance that is approximately equal to the thickness of said each of said car-

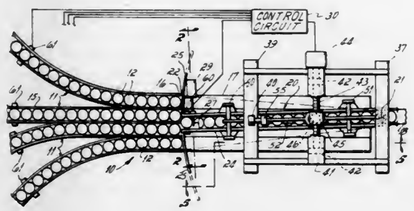
tons, stop means adjacent said platform for stopping said lineup with alternate cartons substantially in line with said channels, carton feeding means for moving cartons onto said platform and in a direction that is substantially perpendicular to said channels and toward said stop means, means for moving said alternate cartons into said channels, said alternate cartons being spaced due to the interleaving cartons, and separator means between said channels for holding said interleaving cartons.

4,265,356

APPARATUS FOR COMBINING ARTICLES FROM PLURAL LANES INTO A SINGLE LANE

Charles G. Glover, Cincinnati, Ohio, assignor to The Lodge & Shipley Company, Cincinnati, Ohio

Filed Aug. 20, 1979, Ser. No. 68,076
Int. Cl.³ B65G *43/00*
U.S. Cl. 198—444 **1 Claim**



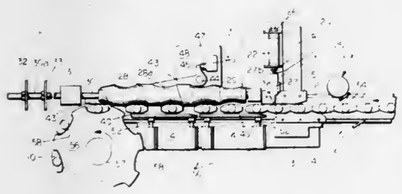
1. Combining apparatus comprising,
plural conveyor lanes moving in a first direction,
means associated with each of said plural conveyor lanes for determining presence of a preselected number of bottles in each of said plural lanes,
a single conveyor lane moving in said first direction and having an upstream end located downstream of the downstream end of said plural conveyor lanes,
a pivotal guide having a downstream end pivoted adjacent said single conveyor lane, and an upstream end swingable to positions adjacent any of said plural lanes,
means for counting the bottles passing through said pivotal guide,
and means for selectively swinging said pivotal guide to each of said positions after a preselected number of bottles has passed into said guide,
said pivotal guide being shifted only to a position wherein a preselected number of bottles has been determined to be present in the lane associated with that position.

4,265,357

ARTICLE INFEED GATE AND CONTROL THEREFOR

Stephen W. Amberg, and Clyde F. Hadl, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Apr. 11, 1977, Ser. No. 786,741
Int. Cl.³ B65G *47/26*
U.S. Cl. 198—460 **1 Claim**



1. An article handling mechanism comprising a driven conveyor having a rotary infeed worm rotatably supported by a horizontal shaft controlling movement of articles into a machine for treating articles, said infeed worm having an inlet receiving said articles and an outlet advancing them into said machine at equal spacings,
said conveyor advancing said articles to said worm inlet and adapted for accumulating said articles upstream of said worm,
a gate adjacent the inlet of said worm for controlling the supply of articles thereto comprising a wedge-shaped gate member supported for reciprocating movement laterally of the conveyor into and out the path of articles thereon,
a reciprocating fluid-operated motor connected to actuate said gate member between an extended position into the path of articles for arresting their movement to the inlet of said worm and a retracted position for feeding articles thereto, said motor being operatively connected to a solenoid for regulating its said reciprocating movement, and
means connected to the solenoid for causing operation of said motor in response to said accumulated articles comprising an electric energizing circuit connected to said solenoid for energizing the latter, at least one circuit closing qualifying contact in series in said circuit comprising a photoelectric switch device positioned across the conveyor upstream of said gate member and in the proximity thereof enabling actuation of said gate member to its retracted position by presence of articles on the conveyor opposite said switch device and actuation to its extended position when there are no articles opposite said switch device, the energizing circuit de-energizing the solenoid by insufficient upstream articles to cause said gate member to be moved to its extended position, and said qualifying contact being operable for energizing the solenoid by the presence of articles upstream of said gate member to cause it to be moved to its retracted position, and
switch means in said energizing circuit and connected to the shaft of said rotary infeed worm operable for opening or closing said circuit at a predetermined point during a revolution of said shaft and synchronizing actuation of said gate member to its said extended and retracted positions, respectively, corresponding with a rotary position of said infeed worm, said switch means comprising plural proximity switches in circuit with said photoelectric switch and closed in response to a predetermined rotary position of the worm during each revolution for closing and opening said energizing circuit thereby synchronizing motor actuation to retract and extend said gate member so as to (a) retract said member responsive to rotational position of said rotary infeed worm to smoothly receive an article on the worm, and (b) extend said member for inserting it between adjacent articles passing in front of it.

4,265,358

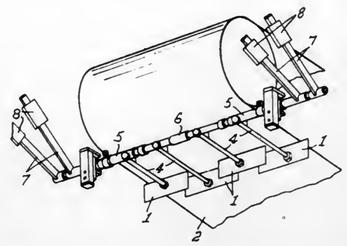
CONVEYOR BELT CLEANER AND SCRAPER BLADE THEREFOR

Willem D. Veenhof, 3 Rambler Rd., Kensington, Johannesburg, Transvaal Province, South Africa

Filed Jun. 7, 1979, Ser. No. 46,225
Claims priority, application South Africa, Jun. 15, 1978, 78/3442
Int. Cl.³ B65G *45/00*
U.S. Cl. 198—499 **7 Claims**

1. A conveyor belt cleaner comprising at least one scraper blade adapted to clean the surface of a conveyor belt as a result of its being urged towards said conveyor belt surface, the conveyor belt being characterized in that the scraper blade extends transversely with respect to the belt and is rotatable about an effecive axis extending transversely with respect to the belt so that the scraper blade can assume either of two terminal positions in both of which the angle of approach is an acute angle and the scraper blade contacts the belt, said axis being formed by providing on the scraper blade at least one socket on its length which cooperates with a blade-like support, said socket having a larger interior dimension than the exterior dimension of said support to provide a loose coupling

of the two such that said axis is positioned within and extends along the length of said socket to allow the opposite edge of



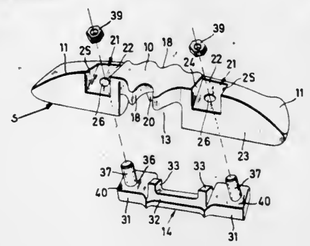
said scraper blade to be rocked back and forth about said axis to assume one of said terminal positions.

4,265,359

SCRAPER ASSEMBLY FOR A SCRAPER CHAIN CONVEYOR

Helmut Temme, Waltrop, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,509
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2807883
Int. Cl.³ B65G *19/24*
U.S. Cl. 198—731 **26 Claims**
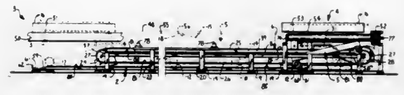


1. In a scraper chain arrangement for a scraper chain conveyor, the scraper chain arrangement comprising a conveyor drive chain and a plurality of scraper assemblies, each scraper assembly comprising a scraper and a locking member which are connected together by means of threaded elements, the scraper and the locking member being formed with cooperating shaped parts which define a bed for a link of the chain of the conveyor, each scraper assembly being attached to the chain with a respective chain link clamped in the bed defined by cooperating shaped parts of the connected scraper and locking member of each said scraper assembly, the improvement comprising inclining each said threaded element at an acute angle to the plane of said bed and in the direction of movement of the scraper chain arrangement, said threaded elements passing through aligned holes of the scraper and the locking member, said holes being inclined at said acute angle with respect to the plane of said bed and terminating in inclined recesses formed in the upper surface of said scraper.

4,265,360

ARTICLE TRANSFER ARRANGEMENT

Yulian Khodos, Overland Park, Kans., assignor to Mid-West Conveyor Co., Inc., Kansas City, Kans.

Filed Apr. 23, 1979, Ser. No. 32,121
Int. Cl.³ B65G *25/02, 17/48*
U.S. Cl. 198—774 **16 Claims**



1. In an article transfer arrangement, the combination comprising:
(a) a movable article carrier having first and second spaced apart ends;
(b) a drive member arranged in an elongated endless loop having an upper run and a lower run and spaced apart end turns;
(c) motor means operatively connected to said drive member and propelling same in said endless loop;
(d) means connecting said drive member to said carrier to thereby move said first end about said loop by lifting said first end upon movement thereof about one of said end turns for effecting supporting engagement of said carrier with an article and for movement thereof toward the other of said end turns with said first end lifted during movement of said first end along said upper run; and to thereby lower said first end upon movement about the other of said end turns for disengagement of said carrier from said article and for return of said carrier toward said one end turn with said first end lowered; and
(e) track means extending substantially parallel with said drive member and supporting said second end.

4,265,361

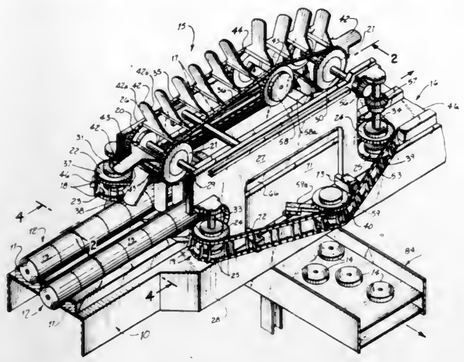
APPARATUS FOR HANDLING WOUND ROLLS OF FIBROUS WEBS

Roger A. Schroeder, Green Bay, Wis., assignor to American Can Company, Greenwich, Conn.

Filed Oct. 10, 1979, Ser. No. 83,525
Int. Cl.³ B07C *5/36*
U.S. Cl. 209—617 **16 Claims**

1. An apparatus for transporting elongate rolls of material cut into short rolls of predetermined uniform lengths, and having end rolls of trim of different lengths therefrom to be discarded, comprising: means defining a pair of parallel paths along which a pair of cut rolls may move longitudinally; means for moving said parallel cut rolls simultaneously along said parallel paths including a plurality of movable paddle members extending between said cut rolls and so spaced in the direction of movement of the latter as to engage the confronting sides of each roll, and a plurality of movable saddle members extending into engagement with sides of said short rolls opposite the sides engaged by said paddle members, there being a pair of saddle members for each said paddle member, the recited engagement by said members being effective to support only said short rolls

and not said end rolls of trim; and means accommodating gravitational removal of said end rolls of trim to discard the same, upon movement of said cut rolls along said parallel paths.

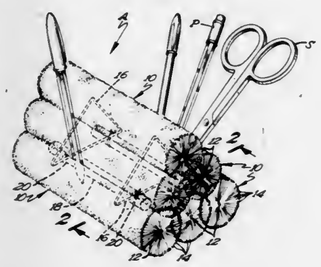


4,265,362

DEVICE FOR RELEASABLY HOLDING RELATIVELY SLIM ARTICLES

Elaine Suonvieri, 3rd Ave. & Hickory Sts., Floodwood, Minn. 55736

Filed Jun. 8, 1979, Ser. No. 46,649
Int. Cl.³ A47F *7/00*
U.S. Cl. 211—60 R **1 Claim**



1. A device for releasably holding relatively slim articles comprising in combination:

(a) at least three elongated segments any two of which forms a base, each segment including a multiplicity of bristles extending radially, from

(b) an elongated axial core with the bristles of each segment in overlapping interengagement with the bristles of each of the other segments in triangular formations and

(c) means holding said segments together

including at least one band secured about the cores of the segments normal to the longitudinal axis of the cores.

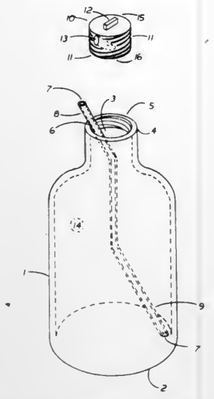
4,265,363

CONTAINER WITH DRINKING TUBE

John L. Conn, P.O. Box 4501 - Sta. B, Spartanburg, S.C. 29303

Filed Nov. 26, 1979, Ser. No. 97,828
Int. Cl.³ B65D *25/38*
U.S. Cl. 215—229 **2 Claims**

1. In combination, a hollow container having a cylindrically shaped side wall, a bottom and an internally threaded neck having an opening and a rim area and a solid externally threaded closure cap for threaded engagement with said internally threaded neck, said cap having a centrally mounted, raised, finger grip on the top surface of said cap, said cap having an opening for receiving a flexible drinking tube, said opening extending through the top outer threaded perimeter of said cap and extending downwardly and diagonally through the bottom central area of said cap.

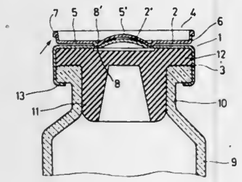


4,265,364

BOTTLE CAP

Isamu Baba, Ikoma, Japan, assignor to Zenyu Kinzoku Co., Ltd., Osaka, Japan

Filed Aug. 16, 1979, Ser. No. 67,186
Claims priority, application Japan, Aug. 25, 1978, 53-117173[U]
Int. Cl.³ B65D *41/42*
U.S. Cl. 215—249 **8 Claims**



1. A bottle cap comprising;

a cap main body having a circular top plate and a side wall downwardly depending from the peripheral edge of said top plate and adapted to be rolled in toward the outer surface of the neck of a bottle,

a removable member having a circular base plate and a peripheral edge thereof to which a removing force is to be applied,

said cap main body and said removable member being of metallic material,

said base plate of said removable member being overlapped onto said top plate of said cap main body,

said top plate of said cap main body and said base plate of said removable member being securely fixed to each other by cold pressure welding forming pressed concave portions of annular shape in said top plate and said base plate, and

upwardly expanded portions formed within said pressed concave portions of said top plate and said base plate.

4,265,365

MOISTURE RESISTANT ELECTRICAL OUTLET BOX

William C. Boteler, Northport, N.Y., assignor to Slater Electric Inc., Glen Cove, N.Y.

Continuation of Ser. No. 900,697, Apr. 28, 1978, abandoned. This application Nov. 29, 1979, Ser. No. 98,509
Int. Cl.³ H02G *3/08*
U.S. Cl. 220—3.3 **16 Claims**



1. A moisture resistant electrical outlet box which comprises:

an integral wall structure including a backwall member and a generally continuous sidewall member extending from said backwall to define a chamber in said box and said sidewall providing an opening to said chamber at its front edges, said front edges including a mounting flange member therearound;

cable-access port means formed in said wall structure adapted to provide access to the chamber in said box for one or more electrical cables; and

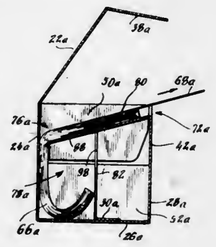
deflecting means formed on said sidewall member, integrally therewith, said deflecting means substantially surrounding said box and being located generally rearward of said mounting flange, yet in front of all said port means, said deflecting means comprising a continuous drip rail projecting outwardly from the exterior surface of said sidewall member around the entire box to prevent any moisture collected on said sidewall member in front of said deflecting means from entering said box through said port means.

4,265,366

DISPENSING CONTAINER

Joseph F. Schillinger, Morrison, and Arthur R. Nielsen, Hickory Hills, both of Ill., assignors to Champion International Corporation, Stamford, Conn.

Filed Nov. 21, 1979, Ser. No. 96,504
Int. Cl.³ B65D *85/48*
U.S. Cl. 221—33 **7 Claims**



1. A container for dispensing a stack of flexible sheets of material, comprising:

a front, rear, top, bottom and end walls joined together to form an enclosure having open interior areas,

said enclosure including a dispensing opening therein in an upper section thereof through which individual ones of said sheets of material may be dispensed,

a platform disposed within said interior areas of said enclosure and joined to certain of said walls,

said platform extending essentially coextensive with said opening and having one edge thereof disposed proximal to said front wall adjacent upper portions of the latter,

said platform being disposed in an inclined position extending rearwardly downward away from said front wall toward said rear wall,

the opposite edge of said platform being spaced from said rear wall and defining a slot therebetween communicating with said opening,

said stack of sheets being adapted to be disposed in overlaying relationship to said platform whereby to be supported at an elevated position within said enclosure adjacent said opening,

portions of said stack extending through said slot into an area of said enclosure beneath said platform, and

a support panel extending between said bottom wall and said platform for supporting the latter in said inclined position thereof,

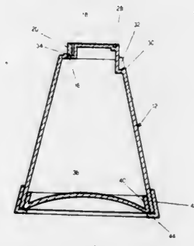
said opposite edge of said platform being defined by an extension formed integral with said platform, said support panel being connected to said platform by spaced fold lines on opposite lateral sides of said extension.

4,265,367

EASY OPENING TOP CLOSURE MEMBER FOR A CONTAINER

Kuno J. Vogt, 4250½ Fairmount Ave., San Diego, Calif. 92105

Filed Feb. 28, 1980, Ser. No. 125,649
Int. Cl.³ B65D *17/34*
U.S. Cl. 220—269 **12 Claims**



1. A container comprising:

a body portion having a closure wall member of a predetermined thickness, said closure wall member having an outer surface and an inner surface;

groove means on said inner surface defining a tab-like closure member; amd

gripping means on said outer surface which is frangibly connected to the outer surface of said closure wall member whereby when said gripping means is frangibly separated from the outer surface of said closure wall member, said tab-like closure member can be lifted upwardly to expose the interior of the body portion of the container.

4,265,368

HOPPER FOR MECHANICAL SEED PLANTERS

Floyd L. Feltrop, 203 E. Shawnee, Paola, Kans. 66071

Filed Dec. 26, 1978, Ser. No. 972,695
Int. Cl.³ A01C *7/18*
U.S. Cl. 221—10 **1 Claim**

1. A hopper for a mechanical seed planter, said hopper comprising:

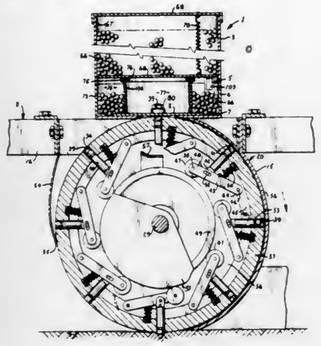
(a) an upper reservoir shaped for retaining seed therein and including a side wall and a bottom, said bottom having an aperture therethrough;

(b) a lower reservoir disposed below said upper reservoir, shaped for retaining seed therein, and including a side wall

and a bottom; said lower reservoir being rotatably mounted in said hopper, said seed therein rotating substantially with said lower reservoir whereby abrasion to said seeds is minimized; the bottom of said lower reservoir including at least one metering aperture therethrough shaped to receive one of said seeds therein;

(c) a valve positioned in said upper reservoir bottom aperture, said valve including an arcuately shaped upper portion rotatably mounted in said upper reservoir bottom and having an open position wherein seeds are allowed to flow under gravitational forces from said upper reservoir into said lower reservoir and having a closed position;

(2) a lower portion integrally connected to said upper portion and extending into said lower reservoir whereby engagement with the seeds therein causes said upper portion to rotate to said closed position;



(3) means connected to said upper reservoir bottom resiliently urging said valve to rotate to said closed position; and

(4) said valve being adapted for maintaining the level of seed in said lower reservoir at a height below and spaced apart from said upper reservoir bottom;

(d) means rotating said lower reservoir with respect to said upper reservoir; and

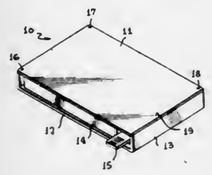
(e) a stationary base plate disposed directly below said lower reservoir bottom and including a discharge aperture therethrough which is circumferentially aligned to mate with said metering aperture; whereby rotation of said lower reservoir sequentially aligns said metering and discharge apertures for accurate seed planting without abrading the seeds.

4,265,369

TAPE CARTRIDGE DISPENSER

Michel F. Aboussouan, 10609 Jimenez St., Lakeview Terrace, Calif. 91342

Filed Feb. 9, 1979, Ser. No. 10,819
Int. Cl.[1] B65D *85/672*
U.S. Cl. 221—87 **8 Claims**



1. A holder apparatus for storing a tape cartridge or cassette comprising the combination of:

a holder having opposite side panels separated by a U-shaped spacer so as to define a storage compartment for storing the tape cartridge or cassette between the opposing surfaces of said side panels and said U-shaped spacer;

actuator means operably carried on said holder movable within said storage compartment to slide back and forth for limited movement to accept or eject the tape cartridge or cassette;

latch means operably carried on said holder and cooperatively connected to said actuator means for selectively releasing said actuator means; and

resilient means interposed between said spacer and said actuator means for forcibly urging said actuator means to eject the tape cartridge or cassette from said storage compartment in reponse to release by said latch means;

said holder side panels including a selected side panel detachably connected to said spacer and said connection including pins and holes indexed in registry in an interference fit;

said actuator means includes a push member carried on the end of said resilient means;

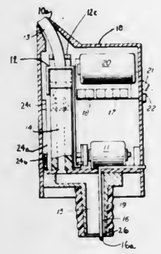
guide means carried on said side panel opposite to said selected side panel for guiding sliding movement of said push member in a rectilinear manner.

4,265,370

PORTABLE LIQUID METERING DEVICE

David H. Reilly, 508 Solar Dr., Fort Lauderdale, Fla. 33301

Filed Mar. 22, 1979, Ser. No. 22,984
Int. Cl.[1] B67D *5/30*
U.S. Cl. 222—25 **4 Claims**



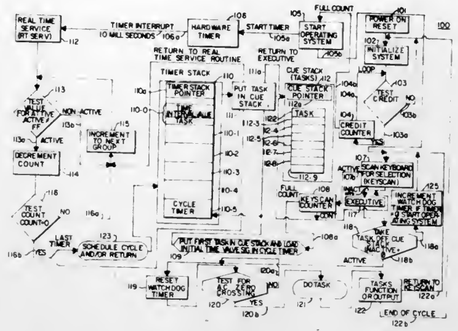
1. A self-contained portable liquid metering and dispensing device comprising: a housing (**10**) having upper pouring means (**10***a*) and lower inlet means (**19**) for detachably securing to the opening of a liquid container; air means (**16**) extending through said housing into said lower means (**19**); conduit means connecting said pouring and lower means and including a flexible resilient portion (**13**), means (**12***a*) for pinching off flow in said resilient portion (**13**), a reverse polarity motor means (**11**) connected to and actuating said pinching means (**12***a*); power means (**20**) for actuating said motor means (**11**); movable magnet means (**24***b*) moved by tipping of the device; switch means (**24**) actuated by said magnet means (**24***g*); logic means (**100**) actuated by said switch means (**24**) to cause said motor means to rotate to release said pinching means (**12***a*) from said resilient portion (**13**), stop rotation for a predetermined period of time and then rotate on reverse to pinch off said resilient portion (**13**); and means (**17**) for counting and displaying the number of actuations of said switch means (**24**); all of said means being carried completely by said housing.

4,265,371

FOODSTUFF VENDING APPARATUS EMPLOYING IMPROVED SOLID-STATE TYPE CONTROL APPARATUS

Mahendrakumar D. Desai, Colonia, N.J., and Drew Henderson, Georgetown, Conn., assignors to Trafalgar Industries Inc., New York, N.Y.

Filed Oct. 6, 1978, Ser. No. 949,052
Int. Cl.[1] B67D *5/06*
U.S. Cl. 222—70 **42 Claims**



1. Means for dispensing a predetermined quantity of material comprising:

a source of said material;

normally disabled dispensing means for dispensing a measured amount of said material from said source when enabled;

means responsive to a dispensing request signal for enabling said dispensing means;

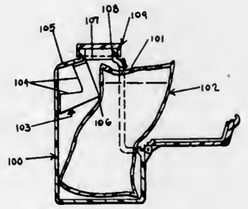
timing means responsive to the enabling of said dispensing means for disabling said dispensing means a selectable time interval after enablement, said timing means including switch means comprising an input, a plurality of outputs and a settable switch arm for selectively coupling said input to one of said outputs in accordance with the selected time interval, counter means and transfer means responsive to the setting of the switch means for setting a count in the counter means representing the length of time said dispensing means is enabled, and means for altering the count in said counter means.

4,265,372

CONTAINER AND DISPENSER-CUTTER UNIT COMBINATION FOR CONTAINING AND HOLDING DETACHABLE FLEXIBLE FORM-FILL-SEAL PLASTIC POUCHES

Lawrence Wainberg, 66 Forden Crescent, Westmount, Montreal, Quebec, Canada (H3Y 2Y4)

Filed Mar. 30, 1979, Ser. No. 25,728
Int. Cl.[1] B67B *7/28*
U.S. Cl. 222—82 **5 Claims**



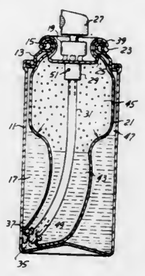
1. In a container and a dispenser-cutter unit combination adapted to contain and hold a detachable flexible form-fill-seal plastic pouch containing fluids, granules and the like, a container having top and bottom walls and a dispenser side-fill entrance, a spout formed integrally with said top wall and projecting upwardly therefrom, a side hinged closure wall forming a part of said container and adapted to close and open the dispenser side-fill entrance, a dispenser pouch cutter forming an operative part of said container and projecting inwardly therein, and a closure cap for said spout, said dispenser pouch cutter being formed in a V-shaped knife secured to the inner surfaces of said container and the apex of said knife being directed toward said dispenser side-fill entrance of said container.

4,265,373

PRESSURIZED DISPENSER WITH DIP TUBE EXTENDING THROUGH SAC-IN-CAN

William R. Stoody, 15472 Collins Ave., Romulus, Mich. 48174

Filed May 23, 1979, Ser. No. 41,867
Int. Cl.[1] B65D *35/28*
U.S. Cl. 222—94 **4 Claims**



1. A portable self-contained pressurized aerosol type dispenser comprising a rigid walled closed buttom container including a top closure having an outwardly curled annular opening;

a dispensing valve mechanism having at least a retaining cup secured in closing relation with the curled annular opening;

a valve body having shut-off components housed therein and product inlet passage;

an outwardly protruding movable discharge nozzle in communication with the shut-off components;

a dip tube having an open end depending from the valve body in communication with the inlet passage for delivery of a fluid product therethrough from the container;

a pliable impervious sac within the container adapted to expand to the internal extremities of the container, and having an annular open end secured in sealing engagement with the valve mechanism;

said container adapted to store a dispensible product, under pressure, intermediate the container and exterior surfaces of the sac;

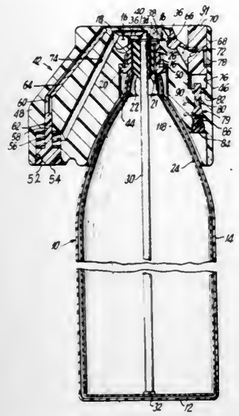
said sac adapted to receive and confine therein a propellant gas that acts upon internal surfaces of the sac expanding the sac thereby exerting an expulsion force upon the product;

the open end of the dip tube extending through and sealed relative to the sac, providing an enclosed passageway within the sac for the conveyance of the product therethrough;

the valve mechanism being in communication with the interior of said container through said dip tube for dispensing said product from said container and into said dip tube and valve mechanism;

the valve mechanism having limited communication with the interior of the sac for releasing propellant vapors as well as said product through said nozzle.

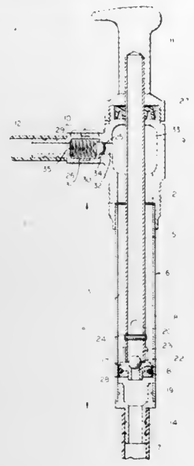
4,265,374
PRESSURE LIQUID DISPENSER
Adam Sebalos, 3467 Kennedy Blvd., Jersey City, N.J. 07307
Filed Apr. 2, 1979, Ser. No. 25,852
Int. Cl.³ B65D *35/28, 47/00*
U.S. Cl. 222—95 **9 Claims**



1. A liquid dispenser assembly for a container having liquid therein comprising: an insert plug having a passageway associated therewith being disposed within the inlet to said container, said passageway extending from said insert plug into said container toward the bottom thereof adapted for having liquid passing therethrough, a main dispenser body securely fastened with said container overlying said insert plug, liquid expulsion passageway means in communication with said insert passageway and terminating in said dispenser body at an end thereof comprising a liquid outlet port and having normally closed valve means at said end, first means coupling a first source of pressurized gas in said main dispenser body for operable communication with said liquid, actuatable button means mounted on said main body and connected with said valve means for causing said valve means to open said liquid outlet port whereupon liquid flows through said liquid passageway out from said container and said dispenser assembly, said button means operably associated with a valve assembly within said first means and causing said pressurized gas to assist in expulsion of liquid from said container upon activation of said button means to open said valve means in expulsion of seal means between said insert plug and said main body for confining the liquid to said liquid passageway during expulsion thereof from said container and through said liquid dispenser, relief valve means mounted within said liquid dispenser body in communication with the interior of said container for exhausting pressurized gas from said container to the atmosphere in the event of excessive pressurization within said container, and second means coupling a second source of pressurized gas in said main body for cooperation with said first source to assist in expulsion of said liquid when needed.

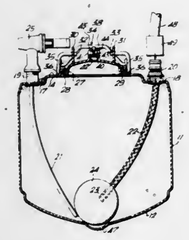
4,265,375
SAFETY DISPENSING APPARATUS FOR FLAMMABLE LIQUIDS
Frank S. Flider, Mattoon, Ill., assignor to Justrite Manufacturing Company, Mattoon, Ill.
Continuation-in-part of Ser. No. 752,397, Dec. 20, 1976, abandoned. This application Sep. 21, 1978, Ser. No. 944,585
Int. Cl.³ B67D *5/42*
U.S. Cl. 222—189 **2 Claims**

1. In a safety dispensing apparatus for dispensing flammable liquids from a container, said apparatus of the type having a reciprocating piston within a body, a piston rod attached at one end to said piston and at another end to a handle, said piston moveable by operating said handle through an upstroke and a downstroke, said apparatus defining a flow path for said liquids from said container, through said apparatus to a spout structure, the improvement comprising:
means positioned within said spout structure to check the flow of said liquid therethrough;
means operable to defeat said check means only when said handle is moved through said upstroke;
a liquid chamber positioned intermediate said spout structure and said piston,
said piston fitting liquid-tightly within said chamber, wherein liquid is drawn into said chamber when said handle is moved through said downstroke,



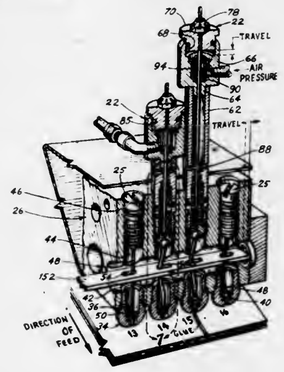
said defeat means including a one-way valve formed through said piston whereby liquid in said chamber may pass from upstream of said piston to downstream of said piston during said downstroke, but is prevented from flowing back when said handle is moved through said upstroke; and
means to arrest combustion of said liquid within said chamber,
said arresting means including an annular perforated disk positioned intermediate said spout structure and said piston, and
said arresting means positioned about said piston rod.

4,265,376
BEVERAGE CARBONATION AND DISPENSING CONTAINER
Seymour S. Skidell, 3400 Pine Tree Dr., Miami Beach, Fla. 33140
Filed May 16, 1979, Ser. No. 39,513
Int. Cl.³ B01F *3/04*
U.S. Cl. 222—189 **5 Claims**



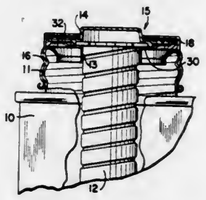
1. A portable beverage carbonation and dispensing container comprising, in combination, a substantially cylindrical container member having integrally formed side wall, bottom wall and top wall portions, said bottom wall portion being convexly-rounded in the outwardly-projecting direction, and having a central, relatively small-diameter spheroidal protrusion serving as a pivotal point for the rocking and rotative spinning of said cylindrical container about its axis of symmetry, said top wall portion having an ellipsoidal access opening, an ellipsoidal closure cap member having a marginal, peripheral upper surface portion of such size as to overlay a marginal inside portion of said top wall access opening when said closure cap member is concentrically disposed with respect to said access opening at the inside of said container member, releasable means for sealingly constraining said closure cap against the underside of said access opening, a beverage dispensing spigot communicating with the interior of said container member through a first opening in said container member top wall portion and fixed with respect to said top wall portion, carbon dioxide gas coupling means communicating with the interior of said container member through a second opening in said container member top wall portion, a spherical, porous stone member, a flexible conduit communicating between a central portion of said spherical porous stone member and said carbon dioxide gas coupling member at the inside of said container member, and handle means secured to said container member top wall portion to facilitate turning and rocking said container member about said spheroidal protrusion.

4,265,377
MULTIPLE NOZZLE FLUID DISPENSER HAVING UNIFORM OPENINGS IN AN OPERATING BAR
Lenard E. Moen, 7914 Michigan, Whittier, Calif. 90602
Continuation-in-part of Ser. No. 846,899, Oct. 31, 1979, Pat. No. 4,157,149. This application Jan. 12, 1979, Ser. No. 3,081. The portion of the term of this patent subsequent to Jun. 5, 1996, has been disclaimed.
Int. Cl.³ B67D *3/00*
U.S. Cl. 222—486 **6 Claims**



1. In a multiple valve assembly having:
a body including a plurality of valves with a corresponding plurality of valve seats;
a first one of said valves including a laterally flexible valve stem having a valve element at one end movable into and from engagement with a corresponding valve seat by lateral deflection of said valve stem to open and close the corresponding valve;
a second, independently actuable one of said valves including a valve rod having a valve element at one end movable into and from seating engagement with a corresponding valve seat by axial movement of said valve rod to open and close the corresponding valve;
a valve actuator for said independently actuable valve secured to the opposite end of said valve rod to move the latter axially;
said body containing a bore traversed by said valve stem and said valve rod; and
operating means for said first valve movable in said body bore for exerting lateral deflecting forces of said flexible valve stem only;
the improvement wherein:
said valve operating means comprises an operating bar movable longitudinally in said body bore through a given stroke and having clearance openings through which said valve stem and valve rod extend, and
means for accommodating said operating bar openings to said stem and to said rod such that the bar exerts lateral deflecting forces on said flexible valve stem only during movement of the bar through said given stroke,
said accommodating means comprising uniform bar openings and cooperating shape characteristics of said valve rod.

4,265,378
REVERSIBLE CLOSURE-SPOUT ASSEMBLY
Andrew S. Bianco, Lima, Ohio, assignor to Huffy Corporation, Miamisburg, Ohio
Filed Jan. 31, 1979, Ser. No. 8,119
Int. Cl.³ B65D *47/06*
U.S. Cl. 222—539 **16 Claims**



1. A reversible closure-spout assembly including a tube having an outwardly projecting flange mounted thereon adjacent an inlet thereof, said flange including an inner annular portion immediately adjacent said tube and an outer annular portion disposed outwardly of said inner annular portion, a sealing member mounted on said flange, said sealing member including a central section, an inner annular section and an outer edge section surrounding said inner annular section, said central section including an axially extending annular wall projecting away from said tube and a lid spanning said annular wall, a plurality of ribs positioned between and spacing said inner annular portion of said flange from said inner annular section of said sealing member, and means defining openings through said inner annular section of said sealing member whereby liquid may flow through said openings in said inner annular section, around said ribs and between said inner annular portion of said flange and said inner annular section of said sealing member and into said inlet end of said tube.

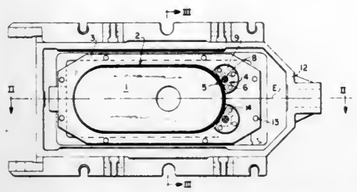
4,265,379
CLOSURE ELEMENT OF A SLIDE CLOSURE FOR USE IN LIQUID MELT CONTAINERS
Ernst Meier, Wollerau, Switzerland, assignor to Stopinc Aktiengesellschaft, Zug, Switzerland
Filed May 8, 1979, Ser. No. 37,147
Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821839
Int. Cl.³ B22D *41/08*
U.S. Cl. 222—600 **12 Claims**

1. A closure element of a slide closure for use in liquid melt containers, said closure element comprising:
a plate member including a refractory element which is

subject to wear, said plate member having spaced sides and spaced ends;

a support frame for supporting said plate member; and

eccentric means, mounted on said support frame, for detachably fastening said plate member within said support frame, said eccentric means comprising at least one eccentric member located adjacent one of said ends of said plate member, at a position offset from a longitudinal plane



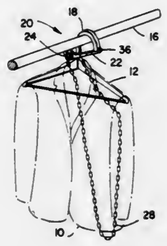
extending centrally of said sides and transverse to the plane of said plate member, said eccentric member having eccentric surface means, directly bearing on said one end of said plate member, for imparting to said plate member forces including a force component extending parallel to the longitudinal direction of said plate member and a force component extending transverse to such longitudinal direction.

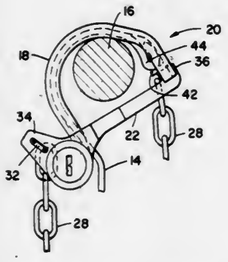
4,265,380

GARMENT HANGER LOCK

Noel E. Webster, 4811 Alhambra Ave., Martinez, Calif. 94553, and Gary D. McLaughlin, 4051 Fairfax Dr., Napa, Calif. 94588

Filed Jul. 26, 1979, Ser. No. 61,017
Int. Cl.³ A47J *51/08*; E05B *65/00*
U.S. Cl. 223—85 **9 Claims**





1. A security device for individually securing the hanging hook of a conventional clothes hanger to a hanger bar, comprising:

(a) a generally hook-shaped first portion for engaging said hanger bar, said first portion being shaped to releasably encompass a substantial portion of the hook of said clothes hanger when said first portion engages said hanger bar;

(b) a second portion movable into and out of a position where it cooperates with said first portion to prevent disengagement of said first portion from said hanger bar; and

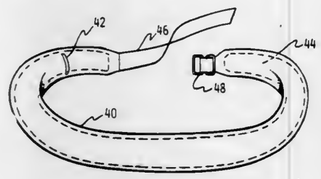
(c) locking means arranged to selectively lock said second portion to said first portion into said disengagement-preventing position.

4,265,381

BEVERAGE AND LIQUIFIED FOOD BELT

Steven C. Muscatell, 288 Douglas Ave., Boulder Creek, Calif. 95006

Continuation-in-part of Ser. No. 937,105, Aug. 25, 1978. This application Feb. 26, 1979, Ser. No. 15,464
Int. Cl.³ A45C *1/04*
U.S. Cl. 224—148 **3 Claims**



1. A belt for carrying beverages and liquified food comprising:

a flexible hollow tube for containing the beverage and liquified food, having a first closure means mounted at one end of the tube for liquid tight seal thereof and a second closure means mounted at the other end of the tube for liquid tight seal thereof;

said first and second closure means each having removable caps for filling and draining of beverage and liquified food from the tube; and

an outer sleeve for containing the hollow tube, having fastening means continuously formed at one end thereof for circumferentially attaching one end of the sleeve to the other, and having an opening adjacent an end of said sleeve for withdrawal of the tube therefrom and insertion of the tube therein;

said opening in the sleeve being substantially aligned with the first closure means for filling or emptying the tube with beverage or liquified food when the tube is contained in the sleeve.

4,265,382

MULTI PURPOSE CARRIER FOR VEHICLE

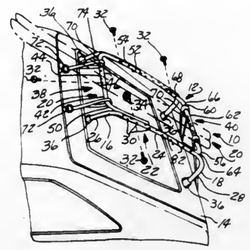
Thomas M. Edwards, 6405 Smoke Rise Trail, Flint, Mich. 48507

Filed Oct. 12, 1979, Ser. No. 84,375
Int. Cl.³ B60R *19/02*
U.S. Cl. 224—320 **11 Claims**

1. A multi-purpose carrier for vehicles comprising:

a pair of opposed spaced apart telescoping end pieces spaced above the vehicle with ends meeting a vehicle surface, the telescoping end pieces being extensible and retractable to adjust the length of said carrier;

a pair of opposed spaced apart telescoping transverse members spaced above the vehicle surface and extending between end pieces, the telescoping transverse members



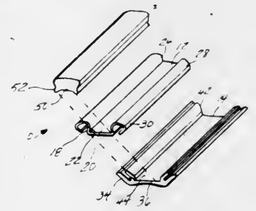
extensible and retractable to selectively adjust the spacing of the end pieces.

4,265,383

SLAT ASSEMBLY

Douglas J. Ferguson, Davisburg, Mich., assignor to Four Star Corporation, Troy, Mich.

Filed Apr. 27, 1979, Ser. No. 33,882
Int. Cl.³ B60R *9/04*
U.S. Cl. 224—326 **6 Claims**



1. A slat assembly for an automobile luggage rack comprising:

a slat,

a mounting pad, the mounting pad being configured to nestingly receive the slat,

the slat comprising an elongated member, and including channel means for interengaging said mounting pad,

said pad comprising:

a base,

a pair of spaced apart, upwardly diverging side walls extending upwardly from the extending base,

a pair of spaced apart mounting flanges extending upwardly from the base, the flanges comprising means for interengaging the slat.

4,265,384

AIR BAR HAVING ASYMMETRICAL INLET

Robert A. Daane, Green Bay, Wis., assignor to W. R. Grace & Co., New York, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,804
Int. Cl.³ B65H *17/32*
U.S. Cl. 226—97 **4 Claims**

4. In an air bar by which a pair of air streams are directed forwardly to impinge against a surface of a running web, said air bar being elongated to extend in a direction widthwise of the web and having a hollow interior from which a pair of sidewardly spaced apart outlets at the front of the air bar open forwardly, said outlets extending along the length of the air bar and being parallel to a plane which lies midway between them and which extends in a forward and rearward direction through the air bar,

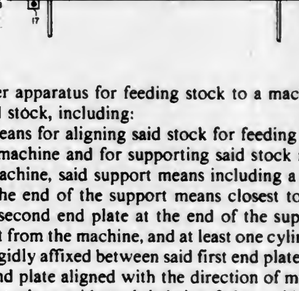
flow controlling means for causing like streams of air to issue from said outlets even though pressure air is introduced into the hollow interior of the air bar asymmetrically to said plane, said flow controlling means comprising:

partition means in the interior of the air bar, disposed symmetrically to said plane and of uniform cross-section all along the length of the air bar, said partition means being arranged to define in the air bar interior

(1) a flow-directing chamber which has

(a) a rear portion with substantially forwardly extending walls that are spaced apart by a distance substantially less than the distance between said outlets and including port means and

(b) a front portion substantially wider than said rear portion and into which said rear portion opens forwardly, said front portion having laterally opposite



extremity zones, each of which is communicated with one of said outlets and is rearwardly substantially in line with the outlet with which it is communicated; and

(2) an inlet chamber which is behind said front portion of the flow-directing chamber and a portion of which is behind said rear portion of the flow-directing chamber, said inlet chamber

(a) having an inlet through which pressure air enters the interior of the air bar and

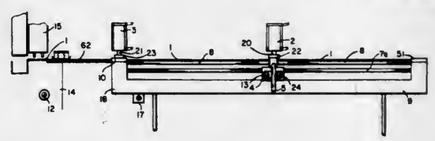
(b) being communicated with said flow-directing chamber through said port means at the rear of the flow-directing chamber, arranged symmetrically to said plane and extending along the length of the air bar.

4,265,385

MANUAL STOCK FEEDER

Robert A. Hills, P.O. Box 152, Rincon, Ga. 31326

Filed Jul. 13, 1979, Ser. No. 57,393
Int. Cl.³ B21D *43/18*
U.S. Cl. 226—127 **12 Claims**



1. A stock feeder apparatus for feeding stock to a machine for processing said stock, including:

(a) A support means for aligning said stock for feeding said stock to said machine and for supporting said stock relative to said machine, said support means including a first end plate at the end of the support means closest to the machine and second end plate at the end of the support means furthest from the machine, and at least one cylindrical member rigidly affixed between said first end plate and said second end plate aligned with the direction of movement of said stock as said stock is being fed to said machine;

(b) a carriage in sliding communication with said cylindrical

member, said carriage further including a handle rigidly affixed to said carriage;

(c) a first stock engagement means for mechanically engaging said stock at a first starting point relative to said support means, said first stock engagement means being capable of being moved into engagement with said stock and disengaged from said stock, and said first stock engagement means being carried by said carriage;

(d) a second stock engagement means for mechanically engaging said stock at a second point relative to said support means, said second point being collinearly located with the path of said stock as said stock is fed into said machine, and located between said first starting point and said machine, and said second stock engagement means being capable of being moved into engagement with said stock and disengaged from said stock;

(e) a first stock engagement control means for alternatively moving said first stock engagement means into engagement with said stock and for moving said second stock engagement means into engagement with said stock, said first stock engagement control means being responsive to an actuator means for actuating said first stock engagement control means, and said actuator means being carried by said carriage; and

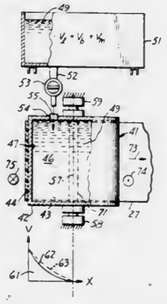
(f) a second stock engagement control means for disengaging both said first stock engagement and said second stock engagement means from said stock.

4,265,386

TORSIONAL FLUID DAMPER SYSTEM

Avner Levy, Irvine, and Irving Karsh, Costa Mesa, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed Jul. 2, 1979, Ser. No. 54,371
Int. Cl.³ B65H *17/20*
U.S. Cl. 226—190 **24 Claims**



17. In apparatus for advancing an elongate information carrier with an information carrier drive and dampening vibrations of said advancing information carrier in the kHz region, the improvement comprising in combination:

means for containing an inertial mass and viscous fluid friction boundary layer comprising a rotatable container having an internal space bounded by a circumferential wall;

means for providing in said container an inertial mass and a viscous fluid friction boundary layer encompassing said inertial mass, comprising a viscous liquid extending through said internal space to said circumferential wall and forming both said inertial mass and said boundary layer as one continuous entity;

means for advancing said information carrier with said carrier drive; and

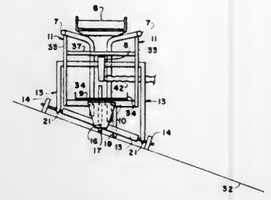
means coupled to said advancing information carrier for rotating said fluid container, boundary layer and inertial mass with said advancing information carrier and dampening vibrations of said advancing information carrier in the kHz region with said viscous liquid inertial mass and boundary layer.

4,265,387

APPARATUS FOR INSTALLING SHINGLES ONTO A ROOF

Earl Strouse, 16026 N. 67th Ave., Peoria, Ariz. 85345

Filed Nov. 26, 1979, Ser. No. 97,243
Int. Cl.³ B27F *7/00*
U.S. Cl. 227—7 **5 Claims**



1. A cart-like apparatus for applying shingles to a roof comprising:

(a) a rigid framework having front, rear and upper portions and uphill and downhill side portions,

(b) a pair of rear wheels positioned at opposite extremities of an axle pivotably mounted adjacent its center to the lower rear portion of said framework, said axle being disposed substantially perpendicularly to said side portions,

(c) a storage compartment positioned adjacent the upper portion of said framework and adapted to hold flexible roofing shingles,

(d) handle means associated with said framework and disposed substanially above said rear wheels,

(e) a conduit guide adapted to receive and direct said shingles downwardly into proper position on a roof,

(f) a stabilizer wheel mounted adjacent the lower front portion of said framework, the plane of rotation of said wheel being substantially perpendicular to said pivotably mounted axle,

(g) an activator wheel positioned in opposed relationship to said stabilizer wheel, mounted so as to have a vertically adjustable axis of rotation, and adapted to roll upon a roof in non-slipping engagement therewith,

(h) spaced control means associated with said activator wheel and

(i) automatic fastener means associated with said framework in a manner adapted to undergo repetitive lifting and falling movement in response to said spaced control means, whereby fasteners are forced at spaced intervals into underlying shingles with each falling movement of said fastener means.

4,265,388

PROCESS FOR MANUFACTURE OF ASSEMBLED CAM SHAFT

Akio Takahashi, Toyota; Chiaki Tsumuki, Aichi; Hitoshi Nakamura, and Juro Ozaki, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Sep. 5, 1978, Ser. No. 939,857
Claims priority, application Japan, Sep. 8, 1977, 52/108174
Int. Cl.³ B23K *39/225;* **B23P** *11/00*
U.S. Cl. 228—135 **9 Claims**

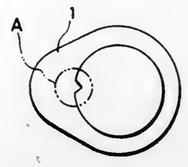
1. A method of making a cam-shaft assembly comprising

providing a shaft having an axially extending groove formed in its outer surface,

providing a cam having an opening of a diameter slightly greater than the diameter of the shaft and having an inwardly extending projection of a profile generally similar to the profile of the groove in the shaft, said projection forming an interference fit with the groove when aligned therewith and assembled on the shaft,

aligning said projection with said groove and forcing said cam axially onto said shaft to a predetermined position on the shaft,

said cam gripping said shaft in said position by virtue of the interference of the projection in the groove to restrain the cam against movement both axial and circumferentially relative to the shaft and said projection spacing portions of the surface of the opening in the cam from the surface of the shaft at said position to provide a clearance space, and reducing said clearance space thereby further securing the cam to the shaft at said position.

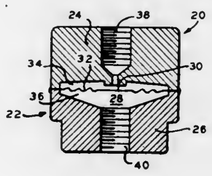


4,265,389

METHOD OF WELDING A DIAPHRAGM ASSEMBLY

Michael Mastromatteo, 53B Ridge Rd., Valley Cottage, N.Y. 10989

Filed Oct. 30, 1978, Ser. No. 956,229
Int. Cl.³ B23K *15/00, 9/00*
U.S. Cl. 228—219 **3 Claims**



1. The method of welding a diaphragm assembly including removing or supplying gases in a welding chamber, comprising:

(a) providing a housing having at least two sections each having at least one portal opening;

(b) providing a diaphragm between the two sections; the two sections defining a cavity with the housing; the diaphragm dividing the housing cavity into two chambers;

(c) disposing the diaphragm and housings into a welding chamber;

(d) removing or supplying gases to the welding chamber at a rate sufficient to normally create an undesired unbalance pressure in said housing chambers;

(e) welding the diaphragm and housings together; and

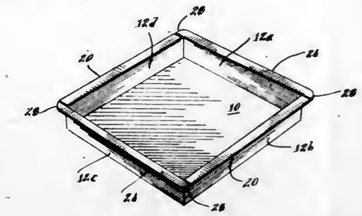
(f) preventing said undesired unbalance of pressure by maintaining predetermined pressure relationships within and between the housing chambers during the removal or supply of gases by controlling the flow of gas through the respective portal openings to thereby retain the diaphragm in a predetermined position with reference to the housing before and after welding.

4,265,390

PAPERBOARD TRAY

Rudolph A. Faller, Edina, and William M. Tolaas, Shoreview, both of Minn., assignors to Champion International Corporation, Stamford, Conn.

Filed Jan. 16, 1978, Ser. No. 869,655
Int. Cl.³ B65D *5/28*
U.S. Cl. 229—30 **8 Claims**



1. A tray, constructed of a material which is stiffer and more resistant to bending in one direction than in the direction transverse to said one direction, comprising:

a bottom wall panel;

a plurality of generally upright side wall panels extending from the edges of the bottom wall panel; and

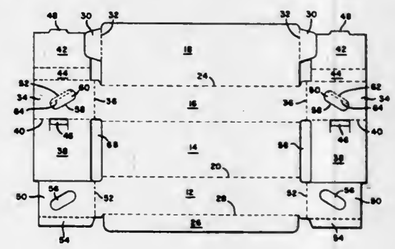
a plurality of flange panels lying in the same plane, each extending from one edge of said side wall panels and being connected thereto along a fold line which is scored as a function of the bending resistance of the panel material at the fold line, the fold lines in said one direction being selectively more heavily scored than in the transverse direction.

4,265,391

NESTABLE BOX AND BOX BLANK

Larry Zornes, Cincinnati; Lloyd J. Farley, Batavia, and Edward J. Powlenko, Cincinnati, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Aug. 30, 1979, Ser. No. 70,942
Int. Cl.³ B65D *5/24*
U.S. Cl. 229—34 R **5 Claims**



1. In a box blank including rear, bottom and front walls hingedly interconnected and end panels connected to said walls and adapted to interleave to form end walls, the improvement comprising:

means defining notches at opposite ends of said bottom wall whereby said bottom wall is shorter in length than said front and rear walls,

a top wall hingedly connected along a longitudinal edge thereof to a longitudinal edge of said rear wall,

said end panels include first end panels hingedly connected to opposite ends of said rear wall and second end panels hingedly connected to said first end panels and adapted to overlie said bottom wall in a box constructed from said blank, means defining notches in said second panels adjacent their connections to said first panels, third ends panels hingedly connected to said first end panels opposite said second end panels, said third end panels carrying tabs

adapted to engage said notches in said second end panels, and fourth end panels hingedly connected to opposite ends of said front walls,

said front and rear walls are hingedly connected to opposite sides of said bottom wall and have notches formed therein at corners thereof conincident with corners of said bottom wall, and

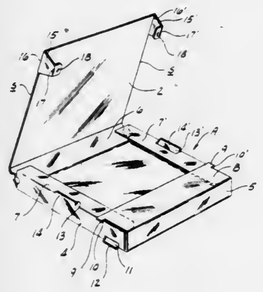
said second end panels have notches formed therein in edges thereof adjacent opposite ends of said bottom wall.

4,265,392
Patent Not Issued For This Number

4,265,393
BOX CONSTRUCTION

Edgar L. Orchard, St. Louis County, Mo., assignor to Orco Sales Co. Inc., St. Louis, Mo.

Filed Oct. 10, 1979, Ser. No. 83,237
Int. Cl.³ B65D *5/10*
U.S. Cl. 229—40 **10 Claims**

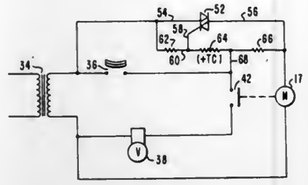


1. A box construction having a bottom wall, parallel side walls, front and back walls, a top wall closure swingable about its rearward end upon said rear wall for movement between raised, box-open and lowered, box-closed condition, latch tabs extending downwardly from said top wall when in closed condition, keeper-forming means provided in said side walls for accepting said latch tabs when the box is in closed condition, and stop means projecting laterally of said box immediately rearwardly of said latch tabs when the box is in closed condition for detent relationship with the rearward edges of said latch tabs to inhibit accidental opening of said box.

4,265,394
FLUE DAMPER CONTROL SYSTEM

George W. Nagel, Forest Hills Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 28, 1979, Ser. No. 79,679
Int. Cl.³ F23N *3/00*; F23L *11/00*; G05D *23/00*
U.S. Cl. 236—1 G **5 Claims**



1. In a flue damper control system of the type which includes electrically energized damper motive means required to be fully energized to hold the damper plate in a closed position in the flue, and including interlock means provided to normally permit fuel flow only when said damper plate is in an open position, first switch means provided to control energization of said damper motive means, and a circuit including a thermostatic switch operable in accordance with demand for heat, the improvement comprising:

said first switch means comprises a semiconductor switch in the damper motive means circuit; and

a trigger circuit for said semiconductor switch including a thermistor responsive to flue temperatures upstream of said damper plate, said trigger circuit turning on said semiconductor switch to fully energize said damper motive means only when said flue temperature is below a predetermined value and there is no demand for heat as indicated by the positions of said thermostatic switch.

4,265,395
TEMPERATURE CONTROL APPARATUS FOR AN AUTOMOBILE AIR CONDITIONER

Seizi Sumikawa, Namekawa, and Takesi Harada, Higashimatsuyama, both of Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Nov. 20, 1979, Ser. No. 96,201
Claims priority, application Japan, Nov. 20, 1978, 53-142172
Int. Cl.³ G05D *23/00*; G06F *7/38*
U.S. Cl. 236—13 **10 Claims**

1. A temperature control apparatus for controlling air temperature in an air conditioner for an automobile including:

a temperature setting circuit for generating a signal indicative of a temperature set by manual operation, said temperature setting circuit having a manual operating means for setting air temperature;

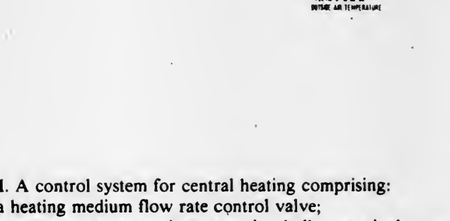
a temperature detecting circuit for generating a signal indicative of an actual air temperature in the air conditioner, said temperature detecting circuit being arranged so as to detect the air temperature;

a control amplifier for comparing the signal from said temperature setting circuit with the signal from said temperature detecting circuit and generating a signal according to the result of the comparison; and

an actuater for opening or closing an air mixing door, said actuater being operated according to the signal from said control amplifier, said air mixing door being arranged so as to control air temperature by adjusting the mixing ratio of a heated air flow rate with a cooled air flow rate,

wherein an improvement is characterized in that said temperature setting circuit comprises

two self-return type push button switches operating as said manual operating means, one of said switches for elevating and the other of said switches for lowering the set temperature,



an up-down counter for counting signals from said switches and feeding out a digital signal, and

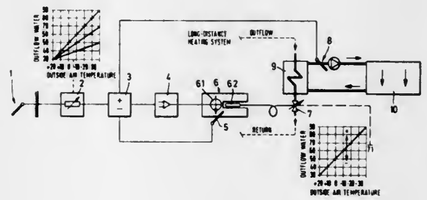
a digital-analog converting circuit for carrying out a digital-analog conversion of the output of said up-down counter to generate a signal to be put into said control amplifier,

said temperature control apparatus further comprises an indicator means for receiving said output of said up-down counter and digitally and visually displaying said set temperature.

4,265,396
CONTROL SYSTEM FOR CENTRAL HEATING

Raimo Vaananen, Tampere, Finland, assignor to Lonnstrom Oy, Rauma, Finland

Filed Nov. 21, 1978, Ser. No. 962,606
Claims priority, application Finland, Nov. 21, 1977, 773511
Int. Cl.³ G05D *15/00*
U.S. Cl. 236—68 R **1 Claim**



1. A control system for central heating comprising:

a heating medium flow rate control valve;

a temperature responsive measuring bulb operatively connected to said control valve by a capillary tube for effecting self-powered control of valve position as a function of bulb temperature;

an outdoor temperature sensor for producing a feedback signal representative of outdoor temperature;

a bulb temperature sensor for producing a feedback signal representative of valve position;

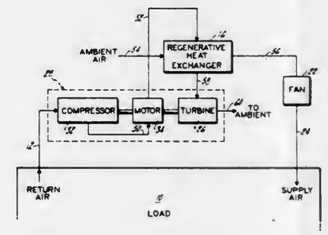
electronic central control means having bulb heating means, including a power transistor as an active component in the circuitry of the central control means and as a heat source, said heating means detachably holding said bulb, said bulb and capillary tube being so constructed so that said bulb can be removed from said heating means and repositioned to measure the temperature of the heating medium downstream of said valve and control said valve independently of said control means

said central control means being operatively connected to said outdoor temperature sensor and to said bulb temperature sensor to accurately power said bulb heating means responsive to said outdoor temperature signal and said valve position feedback signal when said bulb is positioned in said bulb heating means.

4,265,397
COMBINED FRESH AIR REGENERATOR AND AIR CYCLE HEAT PUMP

George C. Rannenberg, Canton, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jun. 28, 1979, Ser. No. 52,886
Int. Cl.³ G05D *23/00*
U.S. Cl. 237—2 B **2 Claims**



1. A regenerative air cycle heat pump system for supplying heated fresh air to a load, said heat pump system comprising:

a compressor;

a turbo-expander mechanically connected to said compressor to provide power thereto;

an electric motor mechanically connected to said compressor for providing additional power thereto;

means for supplying stale air from said load to said compressor where said load air is increased in temperature and pressure;

a source of ambient air;

a regenerative heat exchanger connecting, through heat transfer surfaces within said heat exchanger, the source of ambient air without prior expansion thereof, with the load air compressed by said compressor, said load air rejecting some of its heat to said ambient air in said heat exchanger;

means for passing said compressed load air through said electric motor prior to supplying said load air to said regenerative heat exchanger, said load air simultaneously cooling said motor and recovering the heat of motor inefficiencies;

means for supplying said heated ambient air from said regenerative heat exchanger to said load;

means for supplying said compressed load air from said regenerative heat exchanger to said turbo-expander where said load air is expanded and cooled substantially below ambient temperature; and

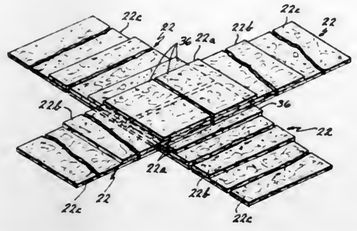
means for rejecting said expanded load air from said turbo-expander to ambient.

4,265,398

VARIABLE THICKNESS MAT FOR STRESS TRANSITION ZONES OF RAILROAD TRACK CROSSINGS, SWITCHES, AND THE LIKE, AND METHOD OF USE

Robert W. Luebke, Hudson, Ohio, assignor to True Temper Corporation, Cleveland, Ohio

Filed Nov. 9, 1979, Ser. No. 92,709
Int. Cl.³ B32B 5/06, 5/26; E01B 3/44
U.S. Cl. 238—1 **34 Claims**



1. A method of providing for the spreading of stress from wheeled traffic on a railroad track structure including a track crossing, switch or the like, over an increased area, comprising the steps of placing a variable thickness, stepped fabric mat on an earthen support surface along the stress transition zones of the track crossing, switch or the like, placing a layer of ballast on said mat and placing the track structure including the ties and the rails on the ballast, with said mat extending sufficiently lengthwise along the track structure so as to progressively transmit the stress due to wheeled traffic on the tracks to the underlying earth bearing surface via said mat from the minimum stress zone to the maximum stress zone and vice versa.

7. A variable thickness stepped mat of non-woven fabric material adapted for use at stress transition zones of railroad track, such as at crossings and switches thereof.

23. In combination with a railroad track crossing, a resilient mat disposed beneath said crossing and extending therefrom along the tracks for a predetermined distance to provide a resilient base, for the stress transition zones of the track to thereby progressively absorb the stress forces from a train passing over said crossing, a layer of ballast disposed on top of said mat and supporting thereon the ties of the railroad track, said mat comprising a multi-layer fabric member of stepped configuration, with the thicknest portion thereof being disposed immediately beneath the crossing and with the thinner portions thereof extending outwardly away from said thickest portion and in general alignment with the respective entry and/or exit track portions of the crossing.

4,265,399

SNOW CHAIN

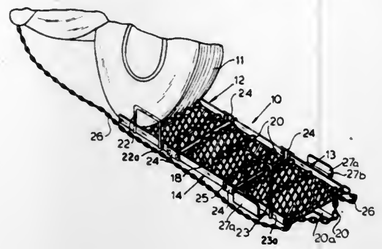
Joseph C. Covington, 7000 S. Wasbash, Chicago, Ill. 60637

Filed Aug. 23, 1979, Ser. No. 69,176
Int. Cl.³ E01B 23/00
U.S. Cl. 238—14 **5 Claims**

1. A heavy duty anti-skid device of the type that can be folded into a compact unit for storage comprising:

a series of three open framed sections each being parallel-sided and comprised of L-shaped angled members having upright legs and inwardly extending legs with a mesh type member having four edges secured in assembly with the inwardly extending legs of the L-shaped angled members,

links pivotally secured at opposite ends to said upright legs disposed at opposite sides of said sections providing means for joining said sections together and providing means for enabling said sections to be folded at the areas of said links and positioned in stacked relation for ready transport so the open framed sections can be unfolded and positioned in end-to-end linear relation for coaction with a vehicle wheel to assist in extraction of the wheel from an immobilized position and with said open-framed sections being pivotal at their connections with said links for disposition of the sections in superimposed folded relatively flat relation with respect to one another for ease of storage, the three sections including a middle open frame section and a pair of end open frame sections at opposite ends of the



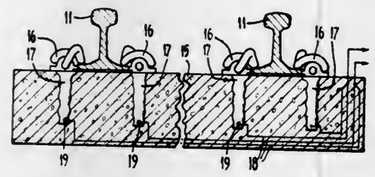
middle open frame section, an upright U-shaped handle on each of said end sections and said handles being so connected to the associated end section to allow them to be disposed in side-by-side relation when said end sections are in stacked relation to said middle section to facilitate transport of said sections.

4,265,400

CONCRETE SLEEPER FOR TRACK CIRCUITRY

John V. W. Jordon, Perth, Australia, assignor to Humes Limited, Melbourne and Hamersley Iron Pty. Limited, Perth, both of, Australia

Filed Apr. 6, 1979, Ser. No. 30,611
Int. Cl.³ E01B 3/32; H02G 3/26
U.S. Cl. 238—14.4 **8 Claims**



1. A concrete sleeper for track systems of the type having at least two rails and incorporating electrical circuitry, said sleeper having electrically conducting insulating cables embedded therein, and therefore protected thereby, at least one of said cables being adapted in use for electrical connection to one rail of an associated track, and at least one other of said cables being adapted in use for electrical connection to at least one other rail of said track system, said cables also being adapted in use for electrical connection to associated electrical track circuitry externally of said sleeper.

4,265,401

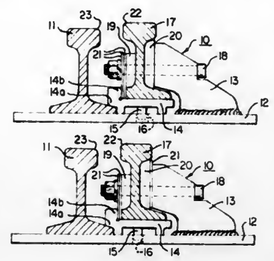
ADJUSTABLE GUARD RAIL STRUCTURES

Bertie Jackson, Cincinnati, Ohio, assignor to L. B. Foster Company, Pittsburgh, Pa.

Filed Mar. 9, 1979, Ser. No. 18,885
Int. Cl.³ E01B 5/18
U.S. Cl. 238—17 **6 Claims**

1. An adjustable guard rail assembly for use with a running rail comprising a plurality of spaced base plates each having one end extending beneath the running rail, brace means fixed to each base plate adjacent the other end, a guard rail supported on said spaced base plates and abutting said braces,

fastening means extending through said brace and guard rail and interchangeable spacer means on said fastening means



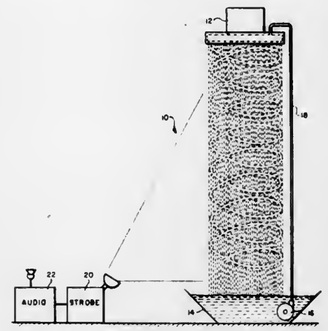
interchangeable on said fastening means from one side of the guard rail to the other whereby the position of said guard rail with respect to the brace may be changed.

4,265,402

STROBED LIQUID DISPLAY DEVICE AND HEAD THEREFOR

Wen-Ying Tsai, 154 Hester St., New York, N.Y. 10013

Filed Jul. 13, 1979, Ser. No. 57,340
Int. Cl.³ F21P 7/00
U.S. Cl. 239—20 **19 Claims**



1. A head for incorporation in a strobed liquid display comprising:

a housing defining a chamber, said housing having an inlet opening therein suitable for connection to a liquid supply for filling said chamber with liquid, said housing including a top wall having a vent, a substantially horizontally oriented bottom wall having a plurality of apertures spaced from and distributed about the center thereof for accommodating the outflow of liquid droplets from said chamber, and a side wall extending between said top and bottom walls; and

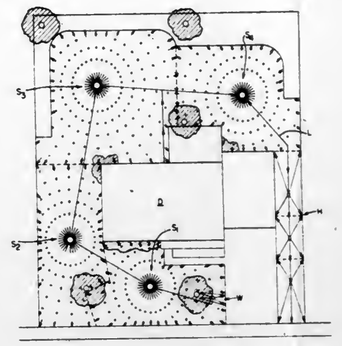
vibrating means rigidly connected to said housing for imparting a periodic wobble thereto for dispensing said droplets from said apertures in sequential fashion with substantially uniform spacing between successive droplets dispensed through each aperture, whereby said dispensed droplets substantially define a helix.

4,265,403

CONTROLLED IRRIGATION SYSTEM FOR A PREDETERMINED AREA

Ralph A. Bonetti, Littleton, Colo., assignor to Advanced Products Development Corporation, Littleton, Colo.

Filed May 9, 1979, Ser. No. 37,388
Int. Cl.³ A01G 25/16; B05B 3/04, 15/04
U.S. Cl. 239—66 **30 Claims**



1. A sprinkler system comprising in combination:

a source of water supply under pressure and a common water supply line connected thereto;

a plurality of sprinkler heads at spaced intervals along said water supply line, each sprinkler head having timer control valve means interposed between an inlet port adapted to receive water from said water supply line and a discharge port connected to said sprinkler head, said control valve means being responsive to rotation of said sprinkler head to be movable between a first position diverting water from said water supply line through said inlet and discharge ports and a second position closing said discharge port and permitting water to flow through said supply line to each next sprinkler head in succession;

a rotatable nozzle assembly in each sprinkler head communicating with said discharge port; and

water operated drive means in each sprinkler head responsive to the flow of water under pressure through said discharge port to continuously rotate said sprinkler head.



4,265,404

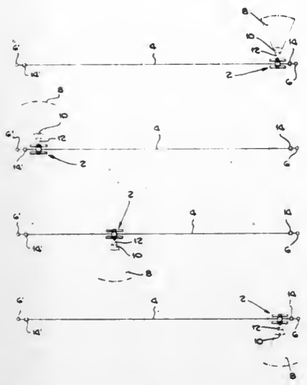
SUPPORT STRUCTURE FOR TRAVELING SPRINKLER

Edwin J. Hunter, Rancho Santa Fe, Calif., assignor to The Toro Company, San Marcos, Calif.

Division of Ser. No. 827,787, Oct. 13, 1977, Pat. No. 4,204,642.
This application Dec. 19, 1979, Ser. No. 105,398
Int. Cl.³ A01G 25/09
U.S. Cl. 239—186 **9 Claims**

1. In a traveling sprinkler system having a directional sprinkler means, a base for said sprinkler means, means for propelling said base in at least two directions over a field, and means for supplying irrigation water to said sprinkler means, the improvement comprising a tubular support pedestal rotatably

mounted to said base and carrying said sprinkler means, and means for rotating said pedestal only in connection with a



change in the direction of travel of said base to alter the sprinkler direction.

4,265,405

SPRINKLER NOZZLE

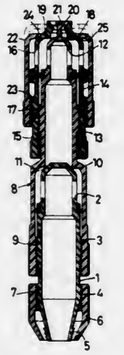
Tosio Takagi, 316-2, Wakazonominami-machi, Kokuraminami-ku, Kitakyushū-shi, Fukuoka-ken, Japan

Filed Oct. 1, 1979, Ser. No. 81,081

Claims priority, application Japan, Oct. 9, 1978, 53-138791[U]; Mar. 2, 1979, 54-24644

Int. Cl.³ B05B *1/16, 1/32*

U.S. Cl. 239—440 **2 Claims**



1. A sprinkler nozzle comprising:

a base tube having a closed tip and a lower end adapted to receive a hose,

a tubular nozzle body having a closed tip and screwed on said base tube and communicating with said base tube, said nozzle body being formed with an inside shoulder which engages the closed tip of said base tube to serve as a first valve,

an inner tube screwed on said nozzle body and communicating with said nozzle body, said inner tube being formed with an inside shoulder which engages said nozzle body to serve as a second valve, said inner tube having an open end which cooperates with a projection extending from the top of said nozzle body to serve as a nozzle opening, and

an outer tube screwed on said inner tube and communicating with said inner tube, said outer tube having an open top edge which engages said inner tube to serve as a third valve.

4,265,406

COMMINUTION PROCESS

Derek A. Palgrave, Doncaster; Frederick A. Walte, Farnham Common; James D. Birchall, Chester, all of England; John Cooper, and James A. Enever, both of Kilmarnock, Scotland, assignors to Imperial Chemical Industries Limited, London, England

Filed May 31, 1979, Ser. No. 44,161

Claims priority, application United Kingdom, Mar. 30, 1979, 11207/79

Int. Cl.³ B02C *19/00*

U.S. Cl. 241—16 **11 Claims**

1. A process for the preparation of a stable suspension of a fine crystalline substance suspended in a saturated solution thereof comprising comminuting the substance by grinding in the presence of a saturated solution of the substance in a liquid in which the substance has a solubility greater than 1% by weight, the mixture of said solution and said substance being in fluid condition with the substance being a separate solid phase during grinding, and said solution having dissolved therein an additive which is a crystal growth inhibitor for the substance whereby crystal growth is inhibited at both existing crystal surfaces and new crystal surfaces created by the breaking down of relatively coarse particles.

4,265,407

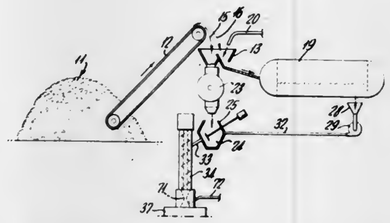
METHOD OF PRODUCING A COAL-WATER SLURRY OF PREDETERMINED CONSISTENCY

Richard V. Kessler, and Roger J. Corbeels, both of Wappingers Falls, N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 13, 1979, Ser. No. 57,222

Int. Cl.³ B02C *17/00*

U.S. Cl. 241—21 **4 Claims**



1. Efficient method of preparing a coal and water slurry having a predetermined thickness from mined coal and a predetermined total quantity of water, comprising the steps of,

feeding less of said mined coal than required for said slurry into a ballmill,

introducing said total quantity of water required for said slurry into said ballmill to produce a relatively thin powdered coal slurry,

grinding the remaining quantity of said mined coal required for said slurry in a dry grinder to produce dry powdered coal, and mixing said thin slurry with said dry powdered coal to produce said coal and water slurry having a predetermined thickness.

4,265,408

SORTING MACHINE

Peter Voelskow, Kiefernweg 18, 6550 Bad Kreuznach, Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 51,364

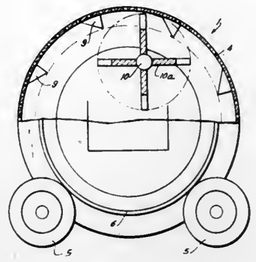
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839604

Int. Cl.³ B02C *17/02*

U.S. Cl. 241—87 **12 Claims**

1. A sorting machine, particularly for refuse particles comprising a rotatable screen drum having a diameter within the

range of about 1:1 to 1:2 relative to its axial length; a plurality of axially spaced annular sets of strip shaped baffles arranged in and rotatable with said drum, and having inwardly directed ripping portions; a plurality of axially spaced annular baffles in said drum and each having an inner diameter smaller than the inner diameter of the drum; means for rotating said drum at an



angular velocity which is smaller by between about 20-50% than the velocity at which the drum contents are pressed by centrifugal force against the circumferential drum wall; and at least one turnable processing shaft extending through said drum parallel to and laterally offset from the axis of rotation of said drum.

4,265,409

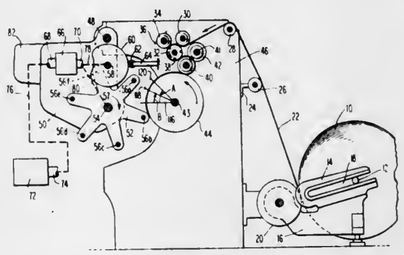
WEB REWINDER TURRET SWING CONTROL

Jon N. Cox, Oakland, Me., and Balbir Singh, Media, Pa., assignors to Scott Paper Company, Philadelphia, Pa.

Filed Nov. 13, 1979, Ser. No. 93,529

Int. Cl.³ B65H *19/20*

U.S. Cl. 242—56 A **17 Claims**



1. An improved automatic web rewinding machine having a pivotally mounted frame, a turret mounted for rotation within the frame, said turret including a plurality of rotatable mandrel assemblies, means including a rotating cam for controlling the angular position of the frame, and index means for intermittently rotating the turret wherein the improvement comprises means for intermittently rotating the cam so that a major portion of the cam rotation coincides with the rotation of the turret.

4,265,410

MACHINE FOR WINDING STRIP MATERIAL

William J. Fanning, Glen Ellyn, Ill., assignor to Western Electric Company, Inc., New York, N.Y.

Division of Ser. No. 974,153, Dec. 28, 1978, Pat. No. 4,229,865. This application Apr. 21, 1980, Ser. No. 142,590

Int. Cl.³ B65H *39/16, 17/02*

U.S. Cl. 242—56.1 **17 Claims**

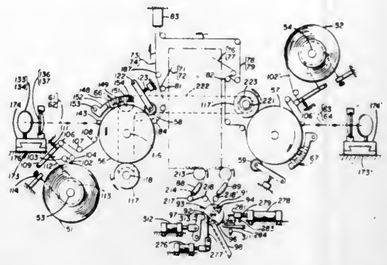
1. A winding apparatus, which includes:

a pair of physically displaced, separate means for applying advancing forces to a pair of strips of material;

a mandrel for simultaneously winding the pair of strips with one strip overlaying the other;

means for guiding said strips from said force applying means to the mandrel;

means for rotating the mandrel to apply forces to said strips which take up the strips; and



means for setting the separate force applying means to advance the strips at different rates of advance to compensate for the differences in diameters of the successive convolutions of the pair of wound strips.

4,265,411

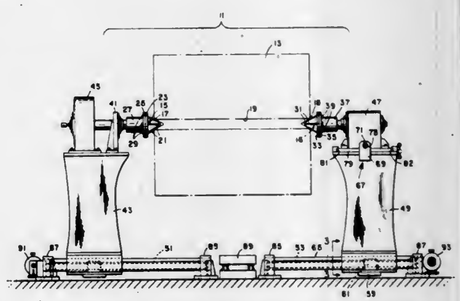
PAPER ROLL BACKSTAND

Ambrozy J. Fasolak, 124 W. Venango St., Philadelphia, Pa. 19140

Filed Jul. 18, 1979, Ser. No. 58,500

Int. Cl.³ B65H *19/12*

U.S. Cl. 242—58.6 **3 Claims**



1. A backstand for unwinding all or part of a roll of paper, comprising

a pair of chucks facing each other and adapted to enter opposite ends of a core of a roll of paper,

a housing for each of the chucks,

chuck support means for rotatably supporting each of said chucks,

housing support means slideably supporting each housing for movement toward and away from each other,

each of said housings having a pair of legs with a space in between,

power means for moving said housings toward and away from each other so that said chucks spread apart to receive a roll of paper and move toward each other to engage the ends of the core of the roll and rotatably support the roll,

said power means including a rotatable worm mounted beneath each housing in the opening between the housing legs,

a support plate connected between the legs of each housing,

a worm nut mounted on top of each support plate and engaging its associated worm, and

a guard mounted over each worm and passing through the opening between the housing legs to protect the worm

from damage from objects which are dropped, such as rolls of paper;

brake means mounted on one of said housings and connected to its chuck for braking the rotational speed of said chuck and any paper roll it may be supporting,

said guard being a channel-shaped member having a web connecting a pair of depending flanges with the web protecting the worm from any objects falling from above and the flanges providing protection to the sides;

each of said housing support means including a cylindrical opening in each leg of each housing, said cylindrical openings being parallel to each other and to the worm between them, a shaft positioned in each cylindrical opening, with the ends of each shaft and worm being supported by an end support;

the worm of one housing being driven by a motor and the worm of the other housing being driven by another motor with the motors being in synchronism with each other so that the housings are moved in unison; and

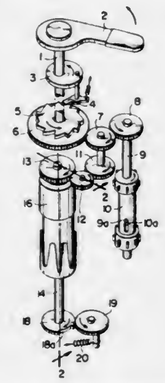
lift table means positioned between the chucks and below the level of the chucks and between said worms for lifting the paper roll into position to be engaged and rotatably supported by said chucks.

4,265,412

FILM WIND-UP DEVICE FOR A CAMERA

Motoyoshi Furusawa, Shobumachi; Motohiko Horio, Iwatsuki; Shyuichi Togashi, Tokyo, and Akio Ohmiya, Omiya, all of Japan, assignors to Fuji Photo Optical Co., Ltd., Saitama, Japan

Filed Sep. 11, 1979, Ser. No. 74,309
Claims priority, application Japan, Sep. 13, 1978, 53-112842
Int. Cl.[1] G03B *1/06*
U.S. Cl. 242—71.4 **5 Claims**



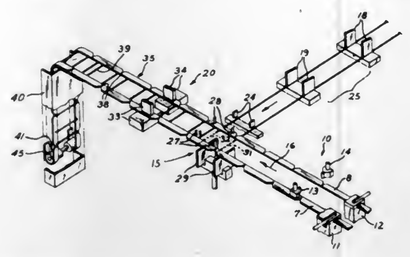
1. A film wind-up device for a photographic camera comprising a wind up shaft having separate upper and lower shaft portions, a wind up lever operatively connected to said upper shaft portion for rotating said upper shaft portion in a first direction to wind up film in the camera, a take up spool gear secured to said lower shaft, gear train means for drivingly connecting said upper shaft portion to said take up spool gear, a take up spool rotatably mounted on said lower shaft portion, friction means for frictionally coupling said spool to said spool gear to permit respective movement therebetween; and a film drive sprocket directly driven by said gear train whereby the drive sprocket is driven through a predetermined angle of rotation on operation of the wind up lever while the take up spool will rotate with a decreasing angle of rotation as the diameter of the film convolution on the spool increases.

4,265,413

TAKE-UP APPARATUS FOR ELECTRICAL PHASE INSULATOR FABRICATING EQUIPMENT

Richard D. Burns, and Albert J. Wesseldyk, both of Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.

Filed Feb. 27, 1980, Ser. No. 125,123
Int. Cl.[1] B65H *23/16*
U.S. Cl. 242—75.3 **6 Claims**



1. In equipment for fabricating electrical phase insulators for dynamoelectic machines, the equipment having exit guide means for supplying a continuous belt of preformed phase insulators lying in a predetermined feed plane having a longitudinal feed axis, said phase insulators including spaced apart parallel insulator strips moving at substantially equal relative feed rates, the insulator strips being interconnected by cross connector strips to form substantially rectangular windows; take-up apparatus therefor comprising:

a take-up reel spaced from said exit guide means and having an axis of rotation substantially parallel with said feed plane and substantially orthogonal to said longitudinal feed axis;

a guide roll having a belt bearing surface with a longitudinal dimension parallel with the take-up reel axis and being positioned between said exit guide means and said take-up reel to form a downwardly depending loop of said insulator belt as the belt moves from the exit guide means to the take-up reel;

an adjustable width, constant mass roll adapted to be positioned within said loop;

drive means for alternatively rotating said take-up reel at a low speed adapted to cause the length of the loop to grow toward a first extended position and at a higher speed adapted to cause the loop to contract toward a second retracted position;

and sensing means responsive to said belt loop for changing the rotational speed of said take-up reel between said low and high speeds when the loop reaches said first and second positions.

4,265,414

APPARATUS FOR WINDING FIRE HOSE

Michael D. Spradling, 860 Montana, Marysville, Mich. 48040

Filed Jun. 19, 1980, Ser. No. 161,212
Int. Cl.[1] B65H *75/40*
U.S. Cl. 242—86.2 **5 Claims**

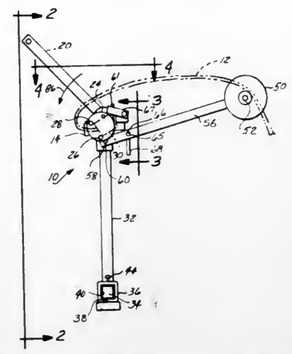
1. A collapsible apparatus for winding a hose, said apparatus comprising:

a vertically disposed disc member supported for rotation about a horizontal axis;

means for rotating said disc member about said horizontal axis;

a pair of spaced tines extending laterally from said disc member and being eccentrically spaced from said horizontal axis, said tines being spaced to receive said hose therebetween and align a portion of said hose with said horizontal axis; and

a spool guide supported for rotation about a second horizontal axis radially spaced from said horizontal axis and cooperating with said tines to guide said hose as said hose is spirally wound about said tines as said disc member is rotated, said spool guide being vertically displaced above said first horizontal axis.

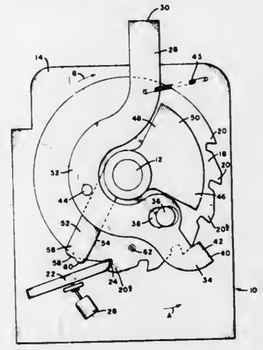


4,265,415

EMERGENCY RELEASE DEVICE FOR SEAT BELT RETRACTOR

Terry R. Harrell, and Robert C. Pfeiffer, both of Rochester, Mich., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Apr. 16, 1979, Ser. No. 30,193
Int. Cl.[1] A62B *35/02*; B65H *75/48*
U.S. Cl. 242—107.4 A **12 Claims**



1. In a vehicle seat belt retractor comprising a shaft rotatable in the protraction and retraction directions; seat belt webbing associated with said shaft; locking means actuable to prevent rotation of said shaft in said protraction direction, said locking means comprising a ratchet wheel, a pawl adapted to lockingly engage said ratchet wheel and a sensor for moving said pawl into locking engagement with said ratchet wheel, said sensor being sensitive to an orientation of said vehicle other than the normal upright orientation of said vehicle, the improvement comprising:

actuator means associated with said retractor and movable from a first position to a second position and from said second position to a third position;

contact means associated with said actuator means and having a ratchet wheel engaging surface, said contact means being movable into contact with said ratchet wheel upon motion of said actuator means from said first to second positions of said actuator means, said contact means operable to move said ratchet wheel in said retraction direction upon movement of said actuator means to said third position of said actuator means; and

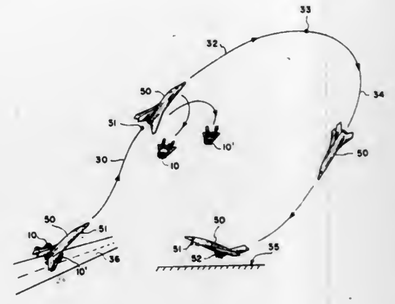
pawl release means movable from a disengagement position into engagement with said pawl and operable to move said pawl out of engagement with said ratchet wheel upon movement of said ratchet wheel in said retraction direction in response to said movement of said contact means, whereby said shaft is free to rotate in said protraction direction to pay out said seat belt webbing.

4,265,416

ORBITER/LAUNCH SYSTEM

Liam R. Jackson; John P. Weidner, both of Newport News; William J. Small, Seaford, and James A. Martin, Gloucester, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed May 30, 1978, Ser. No. 910,794
Int. Cl.[1] B64C *37/02*; B64D *5/00*
U.S. Cl. 244—2 **5 Claims**



1. An orbiter vehicle launching system comprising in combination:

(a) an orbiter vehicle having aerodynamic orbiter wings; and

(b) a plurality of booster vehicles each having aerodynamic booster wings and powered by turbojet engine means, each said booster vehicle being releasably connected to said orbiter vehicle for propelling the combination thereof during takeoff and ascent to staging altitude and speed, each said booster vehicle being capable of powered post-staging descent and horizontal landing;

each said booster vehicle further comprising sufficient aluminum heat sink structure supporting said turbojet engine means therein and having sufficient aerodynamic surfaces to enable controlled powered flight of each said booster vehicle, each said booster vehicle further comprising a pylon extending from said heat sink structure to said orbiter vehicle, and each said pylon being attached to said orbiter vehicle with explosive bolts.

4,265,417

HYDRAULIC NOSE LANDING GEAR STEERING ACTUATOR FOR AN AIRPLANE

John Watts, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

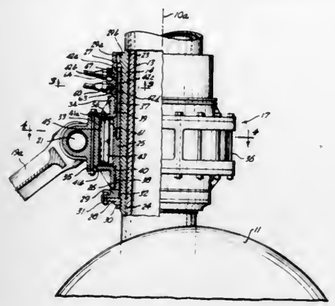
Filed Feb. 26, 1979, Ser. No. 15,119
Int. Cl.[1] B64C *25/50*
U.S. Cl. 244—50 **5 Claims**

1. In an aircraft nose landing gear assembly having a landing wheel journalled to a shock strut, said shock strut including telescoping inner and outer shock strut cylinders and shock absorber means contained therein, said outer shock strut cylinder being nonrotatable and said inner shock strut cylinder being rotatable about its longitudinal axis within said outer strut cylinder, said landing wheel being connected to the lower end of said inner shock strut cylinder, a steering actuator comprising:

a stator ring coaxially affixed about said outer shock strut cylinder and a rotor ring coaxially engaged about said

stator ring for relative rotational motion, said stator ring having at least one stator vane projecting radially outwardly and said rotor ring having at least one rotor vane projecting radially inwardly, said rotor vane and said stator vane slidably abutting respectively said stator ring and said rotor ring, means sealably connecting said stator ring and said rotor ring to form pressure chambers separated by said vanes into which hydraulic fluid may be selectively pumped to rotate said rotor ring about said stator ring, said stator ring including an integral tubular extension portion having a cylindrical outer surface;

a tubular hydraulic manifold affixed about said outer shock strut cylinder adjacent said integral extension portion of said stator ring, said manifold including an annular portion having a cylindrical inner surface sized to snugly enclose said cylindrical outer surface of said extension portion of



said stator ring in sealing relationship, said manifold including a pair of axially spaced hydraulic feed galleries recessed into and extending circumferentially about said cylindrical inner surface of said annular portion of said manifold, said stator ring further including internal hydraulic feed lines opening on said cylindrical outer surface of said extension portion of said stator ring in alignment with said feed galleries of said manifold and connecting said feed galleries in fluid communication with said pressure chambers, said manifold further including a pair of external hydraulic ports in communication with said feed galleries for connection to conventional hydraulic supply and return lines; and,

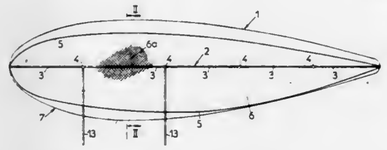
flexible torsion link means operably connecting said rotor ring to said inner shock strut cylinder for transmitting steering torque from said rotor ring to said inner shock strut cylinder and landing wheel.

4,265,418

ELONGATED INFLATABLE STRUCTURES FOR FLYING DEVICE BODIES

Michel Eymard, Toulouse, France, assignor to ZODIAC, Saint Cloud, France

Filed May 9, 1979, Ser. No. 37,920
Claims priority, application France, May 11, 1978, 78 14093
Int. Cl.[3] B64B *1/58, 1/02*
U.S. Cl. 244—125 **9 Claims**



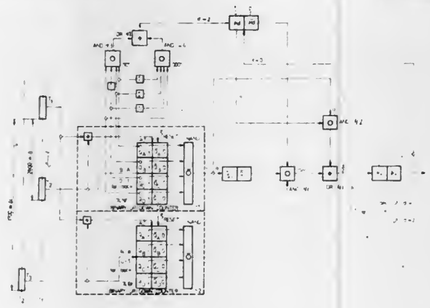
1. An elongated inflatable structure forming the body of a flying device such as a balloon or airship, comprising: an inflatable flexible envelope; a central axial compression means surrounded by said inflatable envelope; a plurality of uniformly spaced traction means; connected to said envelope: and a plurality of flexible mechanical coupling means interposed between each of the compression means and each of the traction means, said compression means comprises a beam formed from a plurality of rigid sections arranged end to end and articulatingly connected, each of said traction means comprising a beam, and said mechanical coupling means comprising diagonal mechanical networks, said inflatable envelope, compression beam, traction beams and diagonal mechanical networks being connected together so that the inflation of said envelope maintains all of these elements in shape.

4,265,419

APPARATUS FOR CAR COUNTING AND DISCRIMINATION

Ionel R. Scorteanu, Bucharest, Romania, assignor to Institutul De Cercetart Si Proiectari Tehnologice In Transporturi, Bucharest, Romania

Filed Apr. 4, 1979, Ser. No. 27,048
Claims priority, application Romania, May 10, 1978, 93970
Int. Cl.[3] G61L *25/02*
U.S. Cl. 246—247 **8 Claims**



1. An apparatus for counting and discriminating railway cars irrespective of their type, speed or running direction comprising:

means for detecting an axle passing thereby along a two rail track comprising three transducers including a pair of transducers at one rail and spaced apart 2600 mm along said one rail and a third transducer disposed at the other rail and spaced apart 3700 mm from the furthest transducer of the pair, said transducers producing an electrical pulse signal in response to the passing thereby of a car axle; and

circuit means for processing the signals from the three transducers to effect the counting of railway cars passing thereby during use.

4,265,420

CLIP FOR FIXING AN ELECTRIC CABLE TO A SUPPORT STRUCTURE

Mathew McCormick, East Didsbury, England, assignor to Bowthorpe-Hellermann Limited, Crawley, England

Filed Oct. 22, 1979, Ser. No. 87,210
Claims priority, application United Kingdom, Nov. 27, 1978, 46109/78
Int. Cl.[3] F16L *5/00*
U.S. Cl. 248—56 **3 Claims**

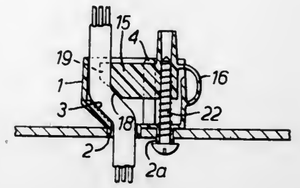
1. A clip for securing an electrical cable to a support panel containing a pair of adjacent openings, comprising

(a) a body member (**1**) the upper portion of which contains a recess defining a chamber, the bottom wall of said chamber containing first and second openings (**2**, **2*a***) aligned with the support panel openings, respectively, said first body member opening and the corresponding panel opening being adapted to receive the cable, a portion of the

chamber bottom wall having an upwardly inclined surface (**3**) adjacent said first opening;

(b) a clamping member (**15**) arranged within said body chamber, said clamping member containing a vertical bore (**20**) aligned with said second body member opening, the lower surface of said clamping member including a clamping surface (**18**) opposite said inclined surface, one side surface of said clamping member adjacent said clamping surface containing a vertical groove (**19**) having in horizontal cross-section a tapered configuration, said clamping member one side surface being adjacent and spaced from the adjacent chamber side wall; and

(c) a vertical screw (**22**) having at its lower end a head portion, said screw extending upwardly through said



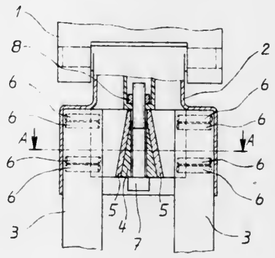
second opening and having a threaded portion threadably connected within said clamping member bore, whereby when the cable extends upwardly through said first body member opening via the associated panel opening, between said inclined and clamping surfaces and upwardly in said groove, and when said screw extends upwardly through said second body member opening via the associated panel opening and into threaded engagement with said bore, tightening of the screw simultaneously secures the body member to the support panel and draws the clamping member downwardly to securely clamp the cable between said clamping and inclined surfaces, the cable being clamped in said groove by said chamber side wall.

4,265,421

INSTRUMENT STAND

Ludwig Buchmayer, Au, Switzerland, assignor to Wild Heerbrugg Aktiengesellschaft, Heerbrugg, Switzerland

Filed Apr. 10, 1979, Ser. No. 28,709
Claims priority, application Switzerland, Apr. 19, 1978, 4212/78
Int. Cl.[3] F16M *11/16*
U.S. Cl. 248—188 **7 Claims**



1. Instruments support stand having

a mounting plate (**1**);

a leg cap (**2**) rotatably secured to the mounting plate;

at least one leg rod (**3**) received within the leg cap;

a clamping means (**4**, **5**, **7**, **8**) effecting clamping connection of the at least one leg rod within the leg cap, and pressing the respective leg rod against the leg cap,

and comprising, in accordance with the invention

a plurality of spacing and reinforcing pins (**6**) extending within the portion of the leg rod which is subjected to clamping force by the clamping means,

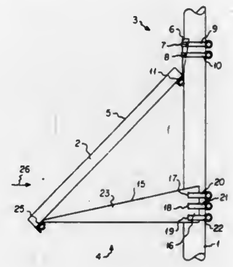
said pins being of a material having inherently stable dimensions and being more rigid in their longitudinal direction than the material of which the leg rods are made, said pins being in close contact at one end with, and perpendicular to the surfaces between which the leg is clamped by the clamping means.

4,265,422

POLE MOUNTING SOLAR PANEL ASSEMBLY

Matthew J. Van Leeuwen, Beverly Hills, Calif., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Sep. 10, 1979, Ser. No. 74,173
Int. Cl.[3] E04G *3/00*
U.S. Cl. 248—219.1 **4 Claims**



1. A single pole mounting solar panel assembly comprising at least one solar panel and upper and lower brackets fixed to upper and lower, respectively, portions of said solar panel and being adapted to be fixed to said pole, said upper bracket having first flange means which encompasses a portion of the circumference of said pole and has means for fixing said flange means to said pole, said first flange means carrying a laterally extending first base plate which is fixed to said panel and angles away from said pole, said lower bracket having a plane surface which extends from said pole to said panel, said plane surface having a width adjacent said pole which is about the same as the width of said pole and which width flares out laterally as said plane surface approaches said panel until such width adjacent said panel approaches the width of said panel, second flange means carried by said plane surface adjacent said pole which flange means encompass a substantial portion of the circumference of said pole and has means for fixing said flange means to said pole, said second flange means having upstanding side means extending longitudinally of said plane surface for essentially the full length of said plane surface, said plane surface and side means terminating in a second laterally extending base plate which is fixed to said panel, said second base plate angles away from said pole to about the same degree as said first base plate, said plane surface being of such length as to hold the lower end of said panel further from said pole than the upper end of said panel.

4,265,423

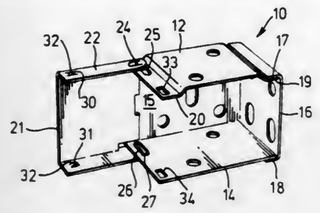
SUPPORT BRACKET FOR A VENETIAN BLIND HEAD RAIL

Francis Vecchiarelli, River Edge, N.J., assignor to Hunter Douglas International N.V., Curaco, Netherlands

Filed May 30, 1979, Ser. No. 43,697
Int. Cl.[3] A47M *1/10*
U.S. Cl. 248—264 **7 Claims**

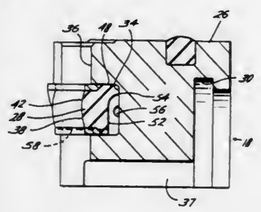
1. A support bracket for a venetian blind headrail in the form of an open sided box structure comprising, in combination:

(a) a side wall;
(b) a top wall connected to the side wall;
(c) a bottom wall connected to the side wall;
(d) a front wall having rearwardly extending top and bottom flanges running over substantially the complete width thereof;
(e) a vertical pivotal connection disposed adjacent said side wall between the top and bottom flanges and the top and bottom walls, respectively, said pivotal connection including
(1) an elongate slot formed in one of said top wall and top flange and bottom wall and bottom flange, and
(2) a hinge element in the other of said members engaged in each said slot, said slot having an axis extending substantially perpendicular to said side wall; and



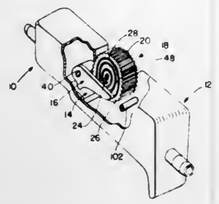
(f) latch means including
(1) a locking surface extending substantially perpendicular to said side wall, and
(2) an aperture into which said locking surface is lockingly engaged in the closed position of the bracket, and from which said locking surface is disengaged by displacing the front wall perpendicular to and away from the side wall, said locking surface disposed on at least one of said top and bottom walls or said top and bottom flanges and said aperture on the other, said latch means being spaced from said side wall and effective to prevent pivoting of said front wall away from the closed position of the bracket.

4,265,424
BLOWOUT PREVENTER AND IMPROVED RAM PACKER STRUCTURE
Marvin R. Jones, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed Feb. 1, 1979, Ser. No. 8,249
Int. Cl.³ E21B *33/06*
U.S. Cl. 251—1 A **12 Claims**



1. A blowout preventer comprising a housing having a bore extending therethrough and opposed guideways intersecting the bore,
a ram slidably mounted in each of the guideways,
a packer positioned in the face of each of the rams,
each packer having on its face a surface for sealing against an opposite packer or a tubular member in the bore,
at least one recess between the adjacent faces of each ram and packer, and
at least one passage communicating from the housing bore below the rams to each recess and thereby to the back of the packer,
each recess being sufficiently large to allow movement of its packer to reduce the sealing pressures on the face of the packer to approximate an increment above well pressure.

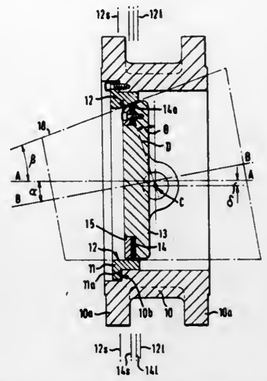
4,265,425
FLOW CONTROL DEVICE
Marius J. Morin, Rancho Palos Verdes, Calif., assignor to Cutter Laboratories, Inc., Berkeley, Calif.
Filed Nov. 6, 1978, Ser. No. 957,778
Int. Cl.³ F16K *7/06*
U.S. Cl. 251—9 **16 Claims**



1. In a flow control device having a body member with a passage for receiving flexible tubing and which provides a clamping surface for the tubing and having a clamping member associated with the body member for urging the tubing against the clamping surface, the improvement which comprises the clamping member being pivotally attached to the body member and having a tubing-engaging surface, the tubing-engaging surface and the clamping surface having configurations such that rotational movement of the clamping member in one direction causes the tubing to be progressively compressed, the clamping member further comprising an angular body having a first extension and a second extension, the second extension being shorter than the first extension relative to the point of pivotal attachment, the ends of the first and second extensions in relation to the point of pivotal attachment of the clamping member forming an angle of about 90 degrees, the clamping member further having means for coacting with a force-inducing member fixedly mounted on the body member and adapted for rotational movement, the force-inducing member having means for activating the coacting means of the clamping member; the outer end of the second extension bearing the tubing-engaging surface and the outer end of the first extension bearing the coacting means for the clamping member to be actuated by the force-inducing member; the force-inducing member comprising a generally cylindrical body offset to a side on the first extension of the clamping member, the cylindrical body having the activating means on an outer surface for communication with the coacting means, the distance between the coacting means and the pivotal attachment of the clamping member being at least twice the distance between the pivotal attachment and the tubing-engaging surface.

4,265,426
BUTTERFLY VALVE
Victor N. Thurston, Manor Lodge, and Geoffrey B. Marshall, Malwood, both of England, assignors to Solent & Pratt (Engineering) Limited, Southampton, England
Filed Sep. 5, 1979, Ser. No. 72,594
Claims priority, application United Kingdom, Sep. 19, 1978, 37326/78
Int. Cl.³ F16K *1/226*
U.S. Cl. 251—306 **3 Claims**

1. A butterfly valve comprising a valve body and a ring mounted for axial detachment within the valve body and providing an annular valve seat having a contact surface, the axial limits of which are defined by boundary planes which are normal to the axis of the body, a valve disc, a peripheral seal on the disc which seal has a contact surface to co-operate with the contact surface of the seat, the contact surfaces of the seat and the peripheral seal lying, when the valve is closed, on a common cone, the axis of which cone is inclined to the axis of the valve body, at least one generatrix of the cone being parallel to the axis of the valve body, said contact surface of the seat thereby ending in said boundary planes in a larger end boundary and a smaller end boundary, the disc being mounted for



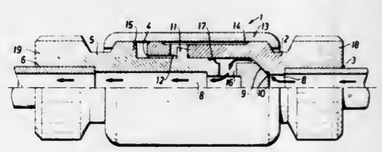
rotation about an axis which is so offset from the boundary planes beyond the larger end boundary of the contact surface of the seat and from the axis of the cone that, with the valve closed, a line extending from the rotational axis through the furthermost point of the smaller end boundary of the contact surface of the seal makes an angle to a plane normal to the body axis which is less than the angle between said body axis and the generatrix of the cone through that point.

4,265,427
SPHERICAL SEALTIGHT VALVE FOR FLUIDS
Costantino Vinciguerra, Florence, Italy, assignor to Nuovo Pignone, S.p.A., Florence, Italy
Filed Jun. 28, 1979, Ser. No. 52,795
Claims priority, application Italy, Jul. 5, 1978, 25352 A/78
Int. Cl.³ F16K *5/00*
U.S. Cl. 251—315 **2 Claims**



1. A spherical valve having a welded outer body comprising a valve body composed by two pieces welded together and equipped with inlet and outlet cylindrical conduits, a spherical shutter equipped with a channel and rotatable about an axis of rotation perpendicular to the valve axis, and with floating rings with sealing gaskets between said shutter and said cylindrical conduits, characterized in that said two pieces which compose the valve body are two hemispherical hoods which are welded together along a shortest-path circumferentially line and within each hood are welded, equally spaced apart from the valve axis, two half-rings having their concave forces oriented along the valve axis and in such a way that, as the two hoods are welded together, the half-rings of either hood abut edgewise the corresponding half-rings of the confronting hood so as to provide two annular housings for guiding and for bearing the thrust of the spherical shutter inserted therebetween by two specially provided circular projections formed thereon at the diametrical ends thereof in correspondence with the axis of rotation of said shutter, said projections being contained within the peripheral surface of the spherical shutter.

4,265,428
CONNECTION DEVICE FOR PROVIDING SELECTIVE FLUID COMMUNICATION BETWEEN FIRST AND SECOND CONDUITS
Friedrich Rosemeier, Hechingen, and Horst Killmaier, Hechingen-Boll, both of Fed. Rep. of Germany, assignors to Gambro Dialysatoren GmbH & Co. KG, Fed. Rep. of Germany
Filed Sep. 11, 1979, Ser. No. 74,323
Claims priority, application Sweden, Sep. 13, 1978, 7809624
Int. Cl.³ F16K *31/44*
U.S. Cl. 251—346 **9 Claims**



1. A connecting device for providing selective fluid communication between first and second fluid conduits, said connecting device comprising:
a first member having a first open end for connection to a first fluid conduit, a second open end, and a first fluid passageway defined between said first and second open ends of said first member, said first fluid passageway including a seating surface between said first and second ends and a hollow interior between said second open end and said seating surface;
a second member having a first open end for connection to a second fluid conduit, and a second end disposed within said hollow interior of said first end and including a substantially closed end surface having a corresponding seating surface for sealingly mating against said seating surface of said first member, said second member being rotatable relative to said first member, and said second member having a bore extending along substantially the length thereof and further including at least one hole in the sidewall thereof disposed adjacent said second end for providing communication between said hollow interior of said first member and said bore in said second member;
cooperating guide pins and inclined guide grooves on said first and second members, said guide pins extending radially from one of said first and second members toward the other of said first and second members, and said inclined grooves being provided in the wall of the other of said first and second members for receiving said guide pins so that upon relative rotational movement between said first and second members, said inclined grooves positively axially shift said guide pins and said one member to provide relative axial movement between said first and second members between a closed position in which said seating surface and said cooperating seating surface sealingly mate to prevent fluid communication between said first ends of said first and second members and an open position in which fluid communication is provided from said first end of said first member to said first end of said second member through the gap between said seating surface and said corresponding seating surface of said first and second members, said hollow interior of said first

member, said at least one hole in said second member and said bore in said second member;

sealing means interposed in said hollow interior of said first member between the sidewalls of said first and second members for sealingly enclosing said second end of said second member in said hollow interior of said first member; and

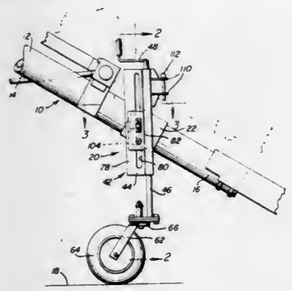
a resilient sleeve engagable with said first and second members adjacent said first ends thereof for sealingly enclosing said second ends of said first and second members while at the same time permitting relative axial and rotational movement between said first and second members.

4,265,429

GRAIN AUGER JACK

Gary G. Formhals, R.R. #1, Smithfield, Ill. 61477

Filed Nov. 16, 1979, Ser. No. 94,919
Int. Cl.³ B66F *3/36*
U.S. Cl. 254—100 **3 Claims**



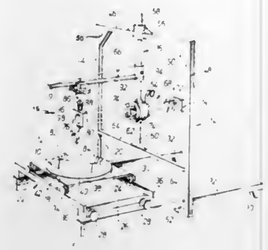
1. In combination with an inclined elongated tubular auger conveyor housing, a combined support wheel and jack assembly for the lower end of said housing, said housing including a mount supported from one side of said housing, a first vertically elongated jack base section and a second vertically elongated jack section guidingly supported from said base section for vertical adjustment relative thereto, manually operable jack means connected between said first and second sections for vertical adjustment of the second section relative to the first section, said second section including a lower end portion projecting downwardly below said first section and having a support wheel structure supported from its lower end, support means pivotally supporting said first section from said mount for adjustable angular displacement of said first section relative to said mount about a horizontal axis disposed generally normal to a vertical plane containing said housing, said mount including a substantially vertical mounting plate, said first jack section including an outstanding vertical plate portion having a slot formed therein generally paralleling said first jack section, one side of said vertical plate portion opposing and contacting the outer side of said mounting plate, a slide and clamp plate overlying the other side of said vertical plate portion, releasable clamp-type pivot fastener means secured through said slot and between said mounting plate and slide and clamp plate oscillatably supporting the latter and said plate portion from said mounting plate for angular displacement relative to said mounting plate about said pivot fastener means, said mounting plate and slide and clamp plate including coacting latch means engageable with each other through and slidable along said slot for retaining said plate portion in adjusted angular displacement relative to said mounting plate, said clamp-type pivot fastener means serving not only as a pivot connection between said mounting plate and said slide and clamp plate as well as upstanding plate portion, but also as structure for retaining said vertical plate portion in adjusted longitudinally shifted position relative to said mounting plate and slide and clamp plate.

4,265,430

DEVICE FOR MARKING AND/OR CUTTING PIPES

Bengt O. Eriksson, P.B. 7951, 860 20 Njurunda, and Bror E. Pahnke, Sibirienvägen 17, 852 53 Sundsvall, both of Sweden

Filed Nov. 15, 1977, Ser. No. 851,763
Claims priority, application Sweden, Nov. 24, 1976, 7613164
Int. Cl.³ B23K *7/04*
U.S. Cl. 266—54 **13 Claims**



1. A device for marking or cutting a pipe to have a straight, curved or conical shape, along a predetermined line which corresponds to a line at which a branch pipe is subsequently connected to a main pipe comprising:

a boom being pivotally mounted on an axis passing through the pivot center of said boom;

a fixture means for holding said branch pipe stationary at a desired position relative to said axis during operation of said device;

an operating means connected to said boom and swingable therewith for marking or cutting said branch pipe, said boom being adjustable relative to said axis to position said operating means at a predetermined distance from said axis corresponding to the radius of said main pipe;

a mounting unit for said boom including a piston unit being coaxial with and corresponding to said axis, said piston unit being mounted within a frame to permit axial movement of said piston unit in a direction perpendicular to said boom and in conformity with the movement of said operating means across the outside surface of said pipe; said operating means being positioned at an angle to a mounting element that projects at right angles from the boom; and

said fixture means including a detachable revolvable disc being provided with supports for said branch pipe and being pivoted at its center to permit rotation to a desired angle.

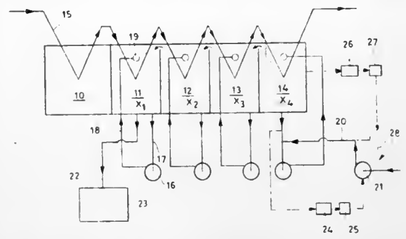
4,265,431

APPARATUS FOR WASHING DEVELOPED PHOTOGRAPHIC AND LIKE FILMS

Lodovico Falomo, Via Codroipo 5, Orcenigo Inferiore, Zoppola (Pordenone), Italy

Filed May 14, 1979, Ser. No. 38,852
Claims priority, application Italy, May 19, 1978, 23608 A/78
Int. Cl.³ C22B *11/02*
U.S. Cl. 266—101 **5 Claims**

1. Apparatus for treating a material with washing liquid to remove a soluble constituent from the material by washing, said apparatus comprising: a plurality of washing tubs including a first tub, a last tub and at least one intermediate tub; means for conveying the material through all of said tubs in sequence beginning with the first tub; overflow passages for the washing liquid between each tub and the next; means for feeding fresh washing liquid to the last tub; means for discharging washing liquid from the first tub; and control means responsive to the concentration of solutes in the last tub for controlling said feeding means in a mode to feed liquid when



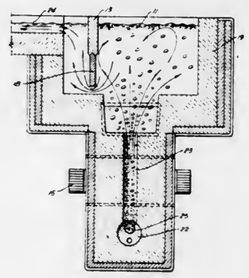
the concentration exceeds a preselected value whereby the volume of washing liquid is minimized.

4,265,432

DEGASSING MOLTEN METALS

Dimitri E. Lajovic, Strathfield, and Hans Lassner, Winston Hills, both of Australia, assignors to Impact International Pty. Limited, Smithfield, Australia

Filed Jun. 19, 1979, Ser. No. 50,094
Claims priority, application Australia, Jun. 21, 1978, PD4810
Int. Cl.³ C21C *5/48*
U.S. Cl. 266—220 **15 Claims**



1. Apparatus for the continuous treatment of molten metal comprising an inlet chamber adapted to receive untreated metal, an outlet chamber from which treated metal may be removed, a channel extending beneath and interconnecting said chambers to provide a metal flow path therebetween, said chambers being separated at least in part by an electrically conductive wall for defining with the molten metal in said channel an electrically conductive loop, means for inducing a flow of current in said loop sufficient to maintain metal within said chambers and channel in a molten form and means for introducing a purging gas beneath the surface of the molten metal.

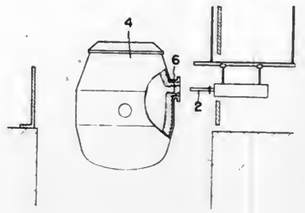
4,265,433

APPARATUS FOR REPAIRING THE TAP HOLE OF A CONVERTER

Sueki Kubo, Kitakyushu, Japan, assignor to Kurosaki Refractories Co., Ltd., Fukuoka, Japan

Filed Mar. 20, 1979, Ser. No. 22,254
Claims priority, application Japan, Feb. 3, 1979, 54/11700
Int. Cl.³ C21B *7/12*
U.S. Cl. 266—273 **24 Claims**

1. In an apparatus for repairing a tap hole of a converter comprising (i) a refractory material injection pipe which is provided with a refractory material charging inlet at a proximal portion thereof and at least one refractory material injection opening at a distal portion thereof, (ii) the distal portion of said injection pipe being of a construction which allows the replaceable attachment of a hole-refining cutter thereto, (iii) means for charging refractory material into said injection pipe, (iv) means for extruding refractory material from said injection pipe to the inner wall of said tap hole, (v) means for supporting



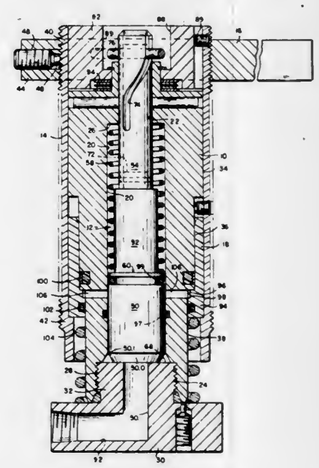
said injection pipe, said charging means and said extruding means, and (vi) cooling means provided with said refractory material injection pipe which cools said injection pipe substantially through the entire length thereof.

4,265,434

HYDRAULIC CLAMP

Harold V. Hamilton, Bedford, Mass., and Harold A. Melendy, Northridge, Calif., assignors to Barry Wright Corporation, Watertown, Mass.

Filed Aug. 8, 1979, Ser. No. 65,006
Int. Cl.³ B23Q *3/08*
U.S. Cl. 269—27 **16 Claims**



1. A hydraulic clamp comprising a clamp body, a clamp sleeve mounted to the body for rotation about a predetermined axis and for axial movement thereon, a clamp arm fixed to the clamp sleeve at right angles to said axis and means for successively effecting rotation of the clamp sleeve and axial movement thereof on the clamp body comprising a piston movable axially of the clamp body, means connecting one end of the piston to the clamp sleeve so that axial movement of the piston effects rotation of the clamp sleeve, a piston sleeve movable axially of the clamp body operable by such axial movement to effect a corresponding axial movement of the clamp sleeve and means for first supplying a pressure fluid to the piston to move it axially in a direction to effect rotation of the arm to a clamp position and then to the piston sleeve to effect axial movement of the arm to apply clamping action thereto.

4,265,435

HOME WORK BENCH

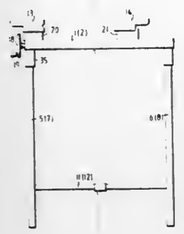
Erwin Stiltz, Winnenden-Schelmenholz; Heinz Lindenmayer, Hegnach; Wilhelm Geis, Leutenbach, and Otto Wolf, Kirchheim-Teck, all of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 965,888

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753685

Int. Cl.³ B25B *1/22*

U.S. Cl. 269—139 **9 Claims**



1. In a work bench including a frame formed of interconnected longitudinal and transverse section beams defining a frame plane; a vise including at least one movable vise jaw being arranged on the transverse beams and being displaceable in a direction generally parallel to the length of the transverse beams; threaded spindles supported in the frame; guide members affixed to said movable vise jaw and threadedly mounted on respective said threaded spindles for displacing said movable vise jaw; each guide member having a central plane being parallel to the length of the transverse beams and being perpendicular to the frame plane; the improvement wherein each transverse beam has first and second leg parts extending parallel to the length of the respective transverse beam and joining one another; further wherein said first leg part has inner and outer wall faces situated parallel to said frame plane; said outer wall face of said first leg part being oriented towards said movable vise jaw; further comprising means defining a groove-like recess in each guide member; said recess having a length extending parallel to the length of the transverse beams and a depth extending perpendicular to the length dimension of the transverse beams and parallel to said frame plane; the depth dimension extending from one side of the respective guide member to a point beyond said central plane thereof; said first leg part of each said transverse beam being longitudinally slidably received in said recess; the respective said first leg part of said transverse beam projecting into said recess from said one side of the respective said guide member to a point beyond said central plane thereof; each said threaded spindle being situated within a space defined by said first and second leg parts of the respective said transverse beam; said first leg part of each transverse beam fully overlapping the respective said threaded spindle as viewed from the direction of said movable vise jaw.

4,265,436

WORKPIECE SUPPORT DEVICE AND AUXILIARY SUPPORT BODY ARRANGEMENT

Robert P. Wagster, Greensboro, and Russell Pizzuto, Easton, both of Md., assignors to Black & Decker Inc., Towson, Md.

Filed Aug. 10, 1979, Ser. No. 65,732

Int. Cl.³ B25B *1/24*

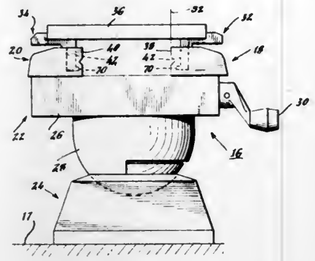
U.S. Cl. 269—274 **16 Claims**

1. An improved arrangement for supporting a workpiece comprising:

(a) a workpiece support device having first and second workpiece gripping jaw members and means for varying the spacing between said members for gripping a workpiece therebetween;

(b) first and second auxiliary support bodies;

(c) said first and second auxiliary support bodies demountably and rotatably supported on said first and second jaw members respectively; and,



(d) restraining means for selectively inhibiting and enabling demounting of said auxiliary bodies at predetermined rotational locations of said body.

4,265,437

METHOD AND APPARATUS FOR FOLDING MULTI-SHEET PAPER PRODUCTS, ESPECIALLY FOR THE FURTHER LONGITUDINAL FOLDING OF NEWSPAPERS HAVING A TRANSVERSE BREAK

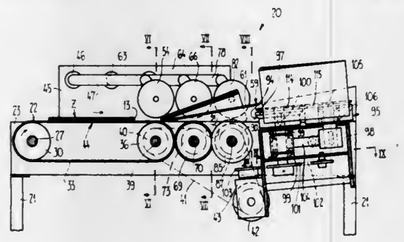
Walter Reist, and Werner Glatz, both of Hinwil, Switzerland, assignors to Ferag AG, Hinwil, Switzerland

Filed Oct. 10, 1978, Ser. No. 949,503

Claims priority, application Switzerland, Oct. 24, 1977, 12896/77

Int. Cl.³ B65H *45/00, 45/22*

U.S. Cl. 493—435 **17 Claims**



1. A method of folding individual multisheet paper products along a folding line, particularly for applying a further longitudinal fold to newspapers having an existing fold running transversely to said fold line, comprising the steps of:

applying pressure along two distinct parallel lines located on opposite sides of said folding line to that side of the paper product forming the inside of the fold to be formed;

moving the paper products in a predetermined direction during the pressure application to induce between said two parallel lines a bend in a portion of the sheets located at the inside of the fold to be formed;

said bend having a curvature opposite to the curvature of the fold to be formed; and

initiating the folding of the paper product along the folding line while said bend is still present.

3. An apparatus for folding individual multi-sheet products along a folding line, particularly for applying a further longitudinal fold to newspapers having a transverse break, comprising:

at least one pressure element having two spaced parallel pressure edges for applying a pressure along two parallel lines located on opposite sides of said folding line to that side of the paper product forming the inside of the fold to be formed;

means located adjacent said pressure element to form said fold;

said pressure element including two rotatable folding disks each having a peripheral portion;

each pressure edge being formed at the peripheral portion of a related one of said two rotatable folding disks; and

a counter disk cooperating with said two rotatable folding disks for forming therebetween a folding and conveying gap.

4,265,438

TUCKER CYLINDER

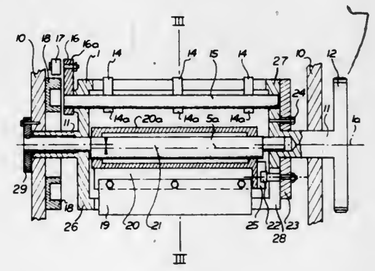
Serge Lanvin, Cires-les-Mello, France, assignor to Societe Marinoni, Montataire, France

Filed Jul. 24, 1979, Ser. No. 60,197

Claims priority, application France, Aug. 1, 1978, 78 22690

Int. Cl.³ B65H *45/16*

U.S. Cl. 493—428 **7 Claims**



1. A tucker cylinder rotatable about a first axis and which cooperates with a folding cylinder to fold a sheet, said tucker cylinder including a carrier for a tucker blade, said carrier being rotatable about a second axis which is parallel to and off set from said first axis, and guide means coacting between said tucker cylinder and said carrier for causing said carrier to rotate about said second axis when said tucker cylinder rotates about said first axis and for guiding said carrier in sliding and rotary motion relative to a third axis fixed with respect to said tucker cylinder and parallel to and spaced from said second axis.

4,265,439

METHOD AND APPARATUS FOR FOLDING A TUBULAR LENGTH OF HOSE MATERIAL TO FORM A PACKAGE

Sture Sundberg, Malmö, Sweden, assignor to Aktiebolaget Platmanufaktur, Malmö, Sweden

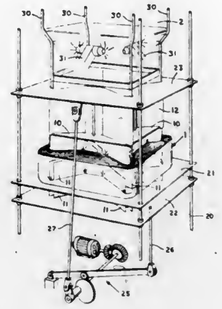
Division of Ser. No. 776,652, Mar. 11, 1977, Pat. No. 4,134,892. This application May 22, 1978, Ser. No. 907,956

Int. Cl.³ B65H *45/20*

U.S. Cl. 493—451 **13 Claims**

1. A method of folding a tubular length of hose material to form a package with superposed annular layers, said method comprising the steps of feeding a first length of tubular hose material longitudinally past a pulling device onto a retaining guide such that the tubular hose is held open and said first length extends annularly, said device being longitudinally and transversely movable and being in an initial position when the hose material is fed therepast, clamping the material to said guide, displacing said pulling device to pull a further length of tubular hose material and fold the same as an annular layer onto the first length of tubular material clamped to said guide, releasing the clamping of the material to said guide, withdrawing the retaining guide from between said first length of material and said annular layer and positioning the guide adjacent the outer surface of the annular layer, withdrawing the pulling device by longitudinally displacing the same in reverse direction to its initial position and repeating the above steps to form successive annular folds of material to constitute the superposed annular layers of the package.

7. Apparatuus for folding a tubular length of hose material to form a package with superposed annular folds, said hose material having inner and outer surfaces, said apparatus comprising reciprocably movable pulling means having opposite sides and positioned to permit passage of one of the surfaces of the hose material in open annular formation on one side of the pulling means, retaining means movable in reciprocation in first and second mutually perpendicular directions adjacent the other of



the surfaces of said openn annular material, means for moving said retaining means in a first direction of reciprocation from a first position on a first side of the pulling means to a second position on an opposite side of said pulling means, locking means for clamping the hose material against the retaining means in said first position , means for moving said locking means between a first position in which the hose material is clamped against the retainer means and a second position in which the hose material is released from the retainer means, and means for moving said pulling means from a first release position to a second operative position to form an annular fold in the hose material when the material is clamped by the locking means and retainer means.

4,265,440

COMPUTER-CONTROLLED PAPER FEEDER

Kenji Shibazaki, Nukata; Kenichi Arai, Nakano; Tsuneo Kitagawa, Toyohashi; Tomoji Murata, Toyokawa, and Kenzo Nagata, Okazaki, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Mar. 12, 1979, Ser. No. 19,893

Claims priority, application Japan, Mar. 25, 1978, 53/34424

Int. Cl.³ B65H *1/26, 3/44*

U.S. Cl. 271—9 **4 Claims**

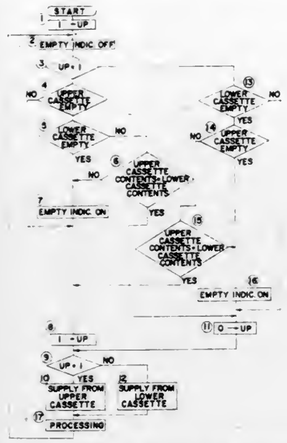
1. In a machine comprising at least first and second supply units for accommodating respective recording materials; first and second paper feeders for successively supplying the recording materials respectively from said first and second supply units; selecting means for causing either one of said first and second paper feeders to supply the recordingmaterials successively from the corresponding supply unit; first detecting means for detecting the size of the recording materials contained in each of said first and second supply units; second detecting means for detecting the presence or absence of the recording materials in each of said first and second supply units; and a control device provided for controlling the operation of at least said first and second paper feeders, the improvement wherein said control device comprises:

first discriminating means for discriminating the presence or absence of the recording materials in the selected one supply unit on the basis of a signal fed from said second detecting means;

second discriminating means for discriminating the presence

or absence of the recording materials in the other supply unit, said second discriminating means being operable when said first discriminating means discriminates that said one supply unit has become empty;

comparing means, operable when said second discriminating means discriminates that said other supply unit is loaded with the recording material, for comparing, on the basis of a size signal fed from said first detecting means the size of the recording material in said one supply unit with the size of the recording materials in said other supply unit; and



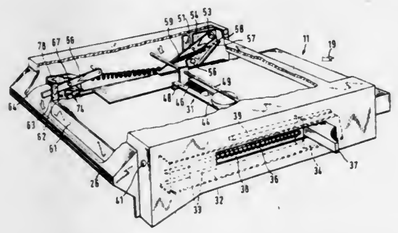
means, operable only when the sizes of the respective recording materials in said one and said other supply units have been determined to be identical with each other by said comparing means, for generating a command signal for causing the respective paper feeder to supply the recording materials from said other supply unit, such that the recording materials are fed from said other supply unit until said other supply unit is empty.

4,265,441

SHEET DISPENSING DEVICE FOR USE WITH COPYING MACHINES, AND A CONTAINER FOR THE STACK OF SHEETS

Walter K. Jonas, Neuss, Fed. Rep. of Germany, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 865,942, Dec. 30, 1977. This application Sep. 21, 1979, Ser. No. 77,672
Int. Cl.³ B65H *3/30*
U.S. Cl. 271—19 **13 Claims**



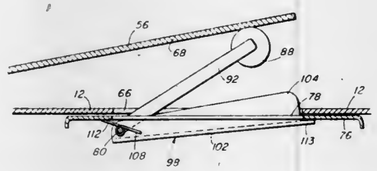
1. A sheet dispensing device for dispensing sheets from a container exposing the upper sheet in a stack, comprising spaced lateral guides inside a housing defining a space for receiving the container, conveyor means for advancing the uppermost sheet, a separator adapted to retain all the sheets with the exception of the uppermost sheet, means supporting said conveyor means and said separator for them to be raised and lowered for adaptation to the height of the stack of sheets and for affording the forward movement of said conveyor, and means for lifting the conveyor means and the separator upon insertion of the container along said guides, said lifting means comprising at least one lifting device supported in said housing which is actuated by the insertion of the container into said space and released as soon as the container has reached an end position in said housing, whereby upon being released, said conveyor means and said separator fall downward against the uppermost sheet and exert a force against the uppermost sheet which is independent of each other and of the lifting device.

4,265,442

CASSETTE LOCKING AND ALIGNMENT ASSEMBLY

Raymond G. Cormier, Nashua, N.H., and Walter C. Allen, Ipswich, Mass., assignors to Nashua Corporation, Nashua, N.H.

Filed Sep. 17, 1979, Ser. No. 76,310
Int. Cl.³ B65H *3/06, 1/12*
U.S. Cl. 271—127 **9 Claims**



1. A photocopier sheet holding assembly comprising:

a tray for holding sheet material in a stack and adapted to be inserted into a receiving opening in the frame of a photocopier for engagement of said sheets and a plurality of feed rollers.

a shaft,

a lift member, and

means for rotatably mounting said lift member on said shaft for movement between a first position in which said lift member positions said sheets for engagement with said feed rollers and a second position in which said lift member is out of contact with said tray,

first biasing means for biasing said lift member toward said first position,

wherein the improvement comprises:

a lock means for positively engaging said tray to prevent the removal of said tray from said frame when said member is in said first position,

means for rotatably, coaxially mounting said lock means on said shaft for movement between a first position in which said lock means engages said tray and a second position in which said lock means does not engage said tray, and

second biasing means for biasing said lock means toward said first position,

positioning means cooperatively connected at least to said lift mounting means for releasably maintaining said lift member in said first and second positions,

said lift member and said lock means being mounted for direct physical contact and cooperative movement whereby said lift member and said lock means move together between said first and second positions.

9. A photocopier sheet holding assembly comprising:

a tray for holding sheet material in a stack and adapted to be inserted into a receiving opening in the frame of a photocopier for engagement of said sheets and a plurality of feed rollers,

a ramp plate supported by said tray, said ramp plate supporting said stack, and

means for pivotally moving said ramp plate about a rear edge of said plate to move said stack into an engagement position with said feed rollers,

wherein the improvement comprises:

said tray including a base surface on which is formed an elongate projection extending transversely to said ramp plate edge, said projection having a protruding upper surface,

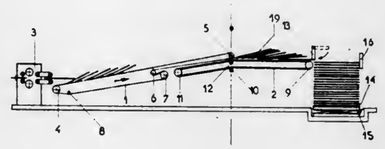
said ramp plate edge resting on said projection and being pivotable about said projection.

4,265,443

AUTOMATIC LENGTHWISE RECEIVER FOR STACKING PANELS OF DIFFERENT FORM AND SIZE AND METHOD OF USE

Daniel Berthelot, Montluel, France, assignor to S.A. Martin, Villeurbanne, France

Filed May 11, 1979, Ser. No. 38,303
Int. Cl.³ B65H *29/18, 29/68*
U.S. Cl. 271—182 **1 Claim**



1. A device intended for receiving and stacking panels with a view to their delivery at the output from a continuously operating production or processing machine having a transmission, the machine being such that it has to deal with panels capable of undergoing at least once a change of form and size, and said device being of the type employing between the output from the feeder machine and the stack formation station a system of at least two continuous conveyors, a first conveyor (1) having a downstream telescopic portion, capable of being retracted and advanced, and receiving at its upstream end the panels leaving the feeder machine and depositing them at its downstream end onto a second and final conveyor (2) which in turn deposits them at the stack formation station, the said device being moreover equipped with means enabling a change of stack to be carried out, these means enabling a stop device to be interposed at the output from the final conveyor when a stack is finished, the speed of the final conveyor to be reduced, the finished stack to be discharged, and finally the stop device to be retracted and normal speed of the final conveyor to be reestablished when the stacking station is ready to receive the next stack, said device comprising

a first detector (D1) providing a number of pulses proportional to the distance covered by a last panel (19) of a first form and size on said first conveyor (1),

means, connected to said machine transmission, for triggering the operation of said first detector (D1) when said last panel (19) of a first form and size arrives on said first conveyor (1);

a second detector (D3) operating permanently and providing, by an action identical to that of the first detector (D1), a number of pulses proportional to the distance travelled by the downstream telescopic portion (5) of the first conveyor,

a first counter (C1) having a presetting, a counting input for the first detector (D1) and a counting or deducting input for the second detector (D3) depending respectively upon whether the telescopic portion (5) is being retracted or advanced;

an output (17) having a presetting and providing a signal when said first counter (C1) posts a number (N1) corresponding to the maximum length (L1) of travel of a panel on said first conveyor, said first counter being set to be normally at zero, in the absence of the operation of the first detector (D1), when the telescopic portion (5) is advanced to the maximum,

means connected to said output (17) of said first counter (C1) enabling, at a signal from said output, to command the slowing down of the first conveyor (1) to a speed less than its normal speed, the stopping of the operation of the first detector (D1), the stopping of any retraction of the telescopic portion (5) and the triggering of the operation of a third detector (D2) providing, by an operation identical to that of the first detector (D1), a number of pulses proportional to the distance traveled by a panel on the second and final conveyor (2),

a second counter (C2) having a counting input for said third detector (D2), a counting or deducting input for the second detector (D3) depending respectively upon whether the telescopic portion is being retracted or advanced, and an output (18) having a presetting and providing a signal when said second counter (C2) posts the number (N2) corresponding to the maximum length (L2) of the distance covered by a panel on said second conveyor (2), said second counter being set to be normally at a value (N) corresponding to the maximal distance (l) covered by said telescopic portion, in the absence of the operation of the third detector (D2) and when the telescopic portion (5) is advanced to the maximum, and

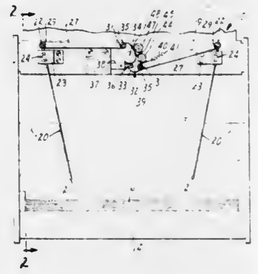
means connected to said output (18) of said second counter (C2) enabling, upon a signal from said output of said second counter, to command the stopping of said third detector (D2) and the triggering of a change of stack.

4,265,444

PAPER SHEET STACKER

David E. Berglund, Denmark Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 4, 1979, Ser. No. 72,476
Int. Cl.³ B65H *31/08*
U.S. Cl. 271—207 **5 Claims**



1. A paper sheet stacker for use in a paper feeder comprising:

a frame,

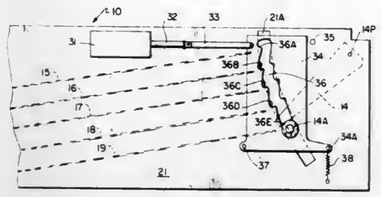
a pair of bails having their proximate ends pivotally mounted in a predetermined spaced relationship on said frame for movement about an axis generally parallel to the direction of feed of a sheet of paper, each bail having an arcuate portion extending downward and generally in the direction opposite that of the feed of the sheet for supporting and directing the dispensed sheet of paper as it falls from the paper feeder, and each bail terminating in a distal end,

means for pivoting said bails about said axis between a first position where said distal ends are closely spaced so as to afford support of a falling sheet of paper by said bails and a second position where said distal ends are separated so as to release the sheet of paper when the sheet has reached a predetermined position, and

an output tray disposed beneath said distal end so as to catch the falling sheet of paper upon the release of the sheet by

said bails, said tray including an end portion which one edge of the falling sheet contacts.

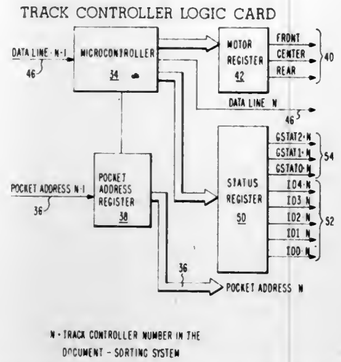
4,265,445
PHOTOCOPIER COLLATOR
Fred R. Langner, 48 Hillcrest La., Williamsport, Pa. 17701
Filed Jun. 8, 1979, Ser. No. 46,673
Int. Cl.[3] B65H *29/60, 31/24*
U.S. Cl. 271—296 **11 Claims**



1. A collator adapted for use with an electrostatic photocopy machine comprising:
a plurality of bins mounted within a housing;
a movable chute operatively positioned to receive photocopies from a discharge slot of said electrostatic photocopy machine and divert said photocopies to each of said plurality of bins, said movable chute being selectively pivoted from an initial position;
means for selectively pivoting said movable chute including an electrical connection adapted to receive a first pulse from said electrostatic photocopy machine indicating that a photocopy has been discharged therefrom, said pulse actuating said means for selectively pivoting said movable chute to lower said movable chute for diverting photocopies to each successive bin, said means for selectively pivoting said movable chute including a first solenoid actuated by said first pulse and operatively connected to a cam latch, said cam latch including a tortuous path with flanges for guiding a follower connected to said movable chute to lower said movable chute with each actuation of said first solenoid; and
means for returning said movable chute including an electrical connection adapted to receive a second pulse from said electrostatic photocopy machine indicating the completion of a predetermined number of copies, said second pulse actuating said means for returning said movable chute to return said chute to its initial position for diverting a photocopy to a first bin of said plurality of bins.

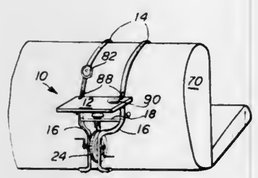
4,265,446
SELF CONFIGURING CONTROLLER FOR THE STACKER AREA OF A DOCUMENT SORTING SYSTEM
Andrew H. McMillan, Wayne, and John M. Chambors, Canton, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed Jul. 2, 1979, Ser. No. 54,290
Int. Cl.[3] B65H *29/58*
U.S. Cl. 271—305 **3 Claims**

1. In the stacker area of a document sorting system having a host processor generating a document destination code and a repeated track controller position code,
a plurality of stacker modules where each module contains a plurality of pockets in which documents are sorted, and
a plurality of diverter gates directing documents to appropriate pockets, a self configuring track controller for each diverter gate, each track controller comprising:
an identical and interchangeable logic card responsive to the document destination code and to the track controller position code, the logic card including:
means for receiving the document destination code indicating the pocket to which a document is to be sorted;
a microcontroller for receiving the track controller position code and for generating diverter gate movement commands, the track controller position code designating the sequential position of the track controller in the document sorting system by a number of voltage transitions;
a motor register, responsive to the diverter gate movement commands, for positioning the diverter gates;



means for translating the track controller position code to an identification service code for testing the logic card; and
means, responsive to the microcontroller, for generating a status code to the host processor to indicate a malfunction and to cease continued track controller position code transmissions when the repeatedly generated track controller position codes differ.

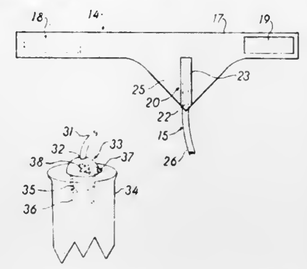
4,265,447
CAR TRAY AND EXERCISING APPARATUS
Bernice A. Shafer, 700 W. Predmore, Lake Orion, Mich. 48035
Filed Jan. 12, 1979, Ser. No. 3,005
Int. Cl.[3] A63B *23/04;* **A47B** *37/00*
U.S. Cl. 272—73 **4 Claims**



1. A car tray and exercising apparatus for a vehicle comprising:
a vertical support means, said support means having a lower end resting on the vehicle floor;
an exercise wheel supported by an axle passing through the vertical support means, the axle having at each end a pair of radial arms, an arm for each axle end extending in opposed directions, each arm at its end is bent at a right angle projecting outward from the wheel to form a pedal, and wherein said vertical support means comprises:
two upper support members each with an upper end curving forward in an arcuate manner forming a hook to engage the top of a front seat of the vehicle, the lower end of each of the upper support members telescopingly mating with a respective lower support member, means for adjustably attaching the telescoped members;
the lower support members extending downward and inward to meet the axle, then downward with the lower end of the lower support members including floor engaging means; and

a bore through the lower support members to rotatably support the axle;
a tray rotatably supported by the upper support members, said tray being rotatable between a horizontal and a vertical position.

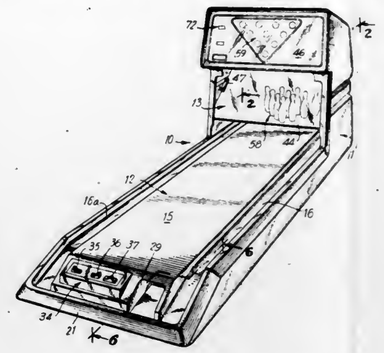
4,265,448
RACQUET SAFETY TETHER ASSEMBLY
Carl Anderson, Jr., Rte. 4, Missoula, Mont. 59801
Filed Dec. 18, 1978, Ser. No. 970,544
Int. Cl.[3] A63B *69/38*
U.S. Cl. 273—29 A **7 Claims**



1. A racquet safety tether assembly including a wrist-encircling portion and a racquet handle-connecting portion, said wrist-encircling portion comprising a flexible band member, fastening means associated with each end of said band member, said band member having a section of greater width extending from one edge of said band member, cord-holding means disposed adjacent said section of greater width of said band member, said racquet handle-connecting portion comprising a single cord having structural integrity, one end of said cord being affixed to said cord-holding means of said wrist-encircling portion, said cord-holding means maintaining said one cord end in a fixed perpendicular position with respect to said band member and in substantially the same plane thereof, and the opposite free end of said cord including fastening means capable of connection to the end of a racquet handle, said fastening means including a male socket portion engageable with a cavity in the butt end of a racquet handle and extending longitudinally thereof, said male socket portion including an end cover with an opening into which a cord end is inserted and including a shank section of substantial thickness with securing means for affixing said shank section to said cavity, whereby when said wrist-encircling portion is positioned around a player's wrist and fastened, said cord-holding means will maintain said one cord in a fixed perpendicular position extending toward the player's hand.

4,265,449
SIMULATED BOWLING GAME
Lawrence L. Reiner, Woodbury, N.Y.; Michael Marra, Huntington, Conn., and Michael F. Hennig, Fort Lee, N.J., assignors to Louis Marx & Co., Inc., Stamford, Conn.
Filed Feb. 10, 1978, Ser. No. 876,788
Int. Cl.[3] A63D *3/00*
U.S. Cl. 273—41 **13 Claims**

1. In a simulated bowling game including a bowling alley and a bowling pin means at a rear end of said alley toward which a bowling ball is adapted to be rolled from a front end of the alley, the improvement comprising bowling pin means including a plurality of fixed illuminating bowling pin means disposed in a ten pin pattern, each of said fixed illuminating bowling pin means being adapted to be illuminated and produce a bowling pin image, a surface that is at least partly-reflective at an incline with respect to said alley, said partly-reflective surface being spaced apart from said alley to provide a clearance for said ball and further disposed in facing relationship with respect to said plurality of illuminated bowling pin means so that said partially-reflective surface can produce a reflective illuminated image of each of said illuminating bowling pin means at said front end of said alley, a plurality of electrical contact means positioned in a predetermined pattern at the rear end of said alley, each of said contact means being adapted to produce a contact signal when a bowling ball is displaced into contact with same, and control circuit means for receiving each of said contact signals produced by said contact means when a ball is rolled toward said rear end of said alley



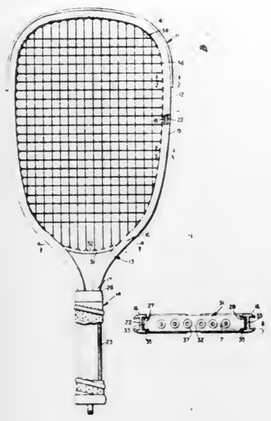
and in response thereto is adapted to selectively deenergize certain of said fixed illuminating bowling pin means to thereby prevent a reflective image of same from being produced, a display panel being disposed proximate to said plurality of fixed illuminating bowling pin means disposed in a pattern, and said panel being positioned intermediate each of said fixed illuminated bowling pin means and the front end of said bowling alley, to thereby provide a display coordinated with the image of the fixed illuminating bowling pins off the reflective surface.

4,265,450
METAL RACKETBALL RACKETS
Charles A. Drake, and Raymond M. Bayer, both of San Diego, Calif., assignors to Leach Industries, San Diego, Calif.
Filed Jun. 4, 1979, Ser. No. 45,406
Int. Cl.[3] A63B *49/12*
U.S. Cl. 273—73 G **7 Claims**

1. A racketball racket comprising a metal frame in the form of a single strip of metal of substantially uniform cross-section bent intermedially to provide a head portion that defines the striking area and merges through a reversely curved throat portion to terminate in side by side parallel end portions, a rigid throat element extending across said frame at the throat portion and defining the inner margin of said striking area, means frictionally mounting opposite ends of said throat element in said frame at said throat portion in connection regions wherein the lateral flexibility of the frame is maintained substantially the same as in other parts of the frame in the head portion, and a handle assembly enclosing said end portions for maintaining said end portions in parallelism and urging opposite sides of said throat portion towards said throat element thereby positively maintaining said throat element in tight assembly with said frame, said handle assembly being the sole means by which said throat element is retained by said frame.

7. A method of manufacturing a racketball racket comprising the steps of bending a strip of lightweight metal intermediate its ends to provide a head portion, a reversely curved throat portion and adjacent side by side ends providing a handle portion, said strip being of channel cross-section with the base of the channel defining the margin of the striking area within the head portion, holding said strip in the bent condition that corresponds with that it will occupy in final assembly, and while the strip is so held (a) forming in said base along the head portion and adjacent sections of the throat portion a series of

string or string eyelet receiving holes and (b) forming opposed recesses in the base at the throat portion for frictionally mounting a throat piece, placing a throat element in the throat portion with its opposite ends frictionally received in said recesses,



and fitting a handle housing onto said side by side frame ends to effectively urge the strip ends and the sides of said throat toward each other and hold the throat piece in assembly whereby said handle assembly constitutes the sole means by which said throat element is retained by said frame.

4,265,451
GOLF PUTTER
Floyd V. Bernhardt, 5532 N. High School Rd., Indianapolis, Ind. 46254
Filed May 3, 1979, Ser. No. 35,613
Int. Cl.[3] A63B *53/04*
U.S. Cl. 273—167 G **12 Claims**



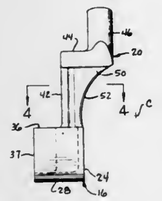
1. An offset-style golf putter for putting a golf ball along a path of desired golf ball travel, said golf putter comprising:

a shaft member having a gripping portion adjacent a first end and a primary longitudinal axis;

a clubhead having a rear surface, a ball-striking surface, a sole portion between said rear surface and said ball-striking surface and a top surface between said rear surface and said ball-striking surface, said ball-striking surface defining and coincident with a ball-striking geometric plane; and

a neck member joined to and extending between said shaft member and said clubhead, said neck member having a weight-balancing portion disposed in the direction of desired golf ball travel forward of said ball-striking surface and forward of said primary longitudinal axis, said weight-balancing portion acting as a weight compensation to the clubhead for improving the overall balance of the offset-style golf putter.

4,265,452
GOLF CLUB
Tony J. Vella, 3504 Wesleyan Ave., Rockford, Ill. 61108, assignor to Tony J. Vella, Rockford, Ill.
Filed Jul. 6, 1979, Ser. No. 55,265
Int. Cl.[3] A63B *53/02*
U.S. Cl. 273—167 G **10 Claims**



1. A golf club comprising:

a head having a frontal striking surface, a top surface, a bottom surface, a rear surface, and toe and heel portions;

an offset shank including a lower leg, an intermediate leg and an outer leg; the lower leg being connected to the top surface of the head and extending perpendicularly therefrom; the intermediate leg extending forwardly of the striking surface a distance which is at least a fraction of the radius of a golf ball; the outer leg extending upwardly from the outer end of the intermediate leg and inclined toward the heel portion at an acute angle from a plane defined by the other two legs;

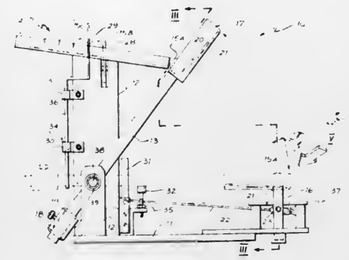
a reinforcing rib interconnecting the lower and intermediate legs and extending substantially the entire length of each of said legs; and the outer extremity of the rib defining a concave, arcuate edge, the lower end of which is contiguous with the frontal striking surface;

an elongate shaft generally coextensive with said outer leg and having one end connected to the outer leg and a grip at its other end; and

said outer leg and said elongate shaft being arranged at an angle slightly less than 90° to the intermediate leg so that the center of the grip is substantially in line with the lower leg.

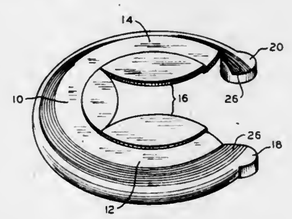
4,265,453
AUTOMATIC GOLF TEEING DEVICES
Rupert H. C. Loof, 3 Rous Crescent, Forrest, Canberra, Australian Capital Territory, 2603, Australia
Filed Dec. 15, 1978, Ser. No. 970,062
Claims priority, application Australia, Dec. 16, 1977, PD2799; Nov. 3, 1978, PD6625
Int. Cl.[3] A63B *57/00*
U.S. Cl. 273—201 **10 Claims**

1. A golf ball teeing apparatus comprising a frame, a tee fixed stationary with respect to the frame, said tee being constructed and mounted so as to be deflected from a ball receiving position upon a ball or portion of the tee being struck by a golf club, a magazine elevated with respect to said tee and adapted to receive a supply of balls, a carrier to receive a ball from said magazine and deposit said ball on said tee, said carrier including a horizontally pivoted arm with a receptacle adjacent one end to retain a ball during movement of the carrier between said magazine and said tee, said arm being balanced so that a ball deposited in said receptacle causes said arm to pivot under the weight of said ball, control means to regulate the delivery of balls from said magazine to said receptacle, said control means includes a first ball retaining means which upon actuation thereof allows a ball to leave said magazine to enter said receptacle, a second ball retaining means to control the delivery of balls within said magazine, said first ball retaining means being actuated by said deflection of said tee and said second ball retaining means being actuated by the



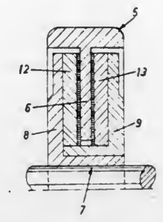
pivoting movement of said arm, and wherein said first ball retaining means comprises a first gate projecting into said magazine so as to prevent exit of balls from the magazine, and a pivot mounting said gate on said frame so that said gate is pivotally movable between a first position projecting into said magazine and a second position allowing balls to leave said magazine, said first gate including an elongated part having adjacent one end a projection to enter said magazine and a counter-weight at the other end biasing said projection to said first position, and said first gate being pivoted about a horizontal axis intermediate the ends of said elongated part, and wherein said second ball retaining means includes a second gate movable between a first position engaging a ball in said magazine and a second position clear of the balls in said magazine thereby allowing balls to engage said first ball retaining means.

4,265,454
DISC SHAPED PROJECTILE HAVING NOTCHED PORTION
Mark S. Bayless, Rte. 2, Napoleon, Ohio 43545
Filed Jun. 29, 1979, Ser. No. 53,697
Int. Cl.[3] A63B *65/10*; A63H *27/00*
U.S. Cl. 273—427 **6 Claims**



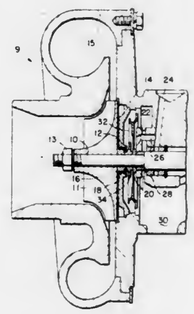
1. A game comprising a disc projectile having a generally convex upper surface and a generally concave lower surface, said projectile having a periphery defining a circular edge extending through an arc segment greater than 180°, said periphery having a notch formed therein, said circular periphery segment and said notch defining between them a main body portion and two spaced apart leg portions, said notch having a radially inward extent greater than the radius of said projectile, and a scoring stake as a target for said projectile.

4,265,455
SEALING DEVICE
Bengt Lundgren, Lerum, Sweden, assignor to SKF Nova AB, Goteborg, Sweden
Filed Nov. 14, 1978, Ser. No. 960,660
Claims priority, application Sweden, Dec. 1, 1977, 7713599
Int. Cl.[3] F16J *15/44*
U.S. Cl. 277—53 **3 Claims**



1. A seal for sealing the annular space between confronting annular surfaces in inner and outer machine members which are rotatable relative to one another comprising an outer annular support ring of generally T-shaped cross section, the cross bar of the outer annular support ring engaging in the annular surface of said outer machine member, a pair of side ring members of L-shaped cross section which are nested and secured together to form a U-shaped annular ring mounted on the confronting surface of said inner machine member which circumscribes and encloses substantially the entire body portion of said outer annular support ring, a pair of disc-like sealing members in the annular space between the sidewalls of said U-shaped annular ring members and the shank of said outer annular support ring including flexible air permeable sealing elements filling the space between the shank of said outer support ring and the opposing spaced legs of the inner annular member, said inner and outer supporting rings together with said sealing means forming an integral unit and said seal being symmetrical through a transverse center plane.

4,265,456
SEALING ASSEMBLY
Howard S. Atkin, Leeds, England, assignor to Holset Engineering Company Limited, Huddersfield, England
Filed Jun. 7, 1979, Ser. No. 46,410
Int. Cl.[3] F16J *15/34*
U.S. Cl. 277—95 **1 Claim**



1. A turbocharger assembly comprising:

a compressor housing having an internal cylindrical surface.

a shaft for a compressor wheel, said shaft having an externally facing cylindrical surface having an annular groove therein, the shaft being disposed and rotatable within the compressor housing, and

a sealing ring disposed in said annular groove in said second member and having an interference fit with the internal cylindrical surface of said compressor housing, said sealing ring being continuous and formed from polytetrafluoroethylene having sufficient elasticity to enable the inner diameter of the ring to be temporarily expanded to be positioned within said groove.

4,265,457

SHAFT SEALS

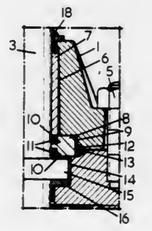
John W. Lambie, Kilmarnock, Scotland, assignor to Neptune Glenfield Limited, Kilmarnock, Scotland

Filed Oct. 12, 1979, Ser. No. 84,064

Claims priority, application United Kingdom, Feb. 14, 1979, 05276/79

Int. Cl.³ F16K *41/16, 43/00;* F16J *15/26*

U.S. Cl. 277—105 **6 Claims**



1. A shaft seal which incorporates a casing formed with a stepped bore having a small diameter portion extending from one end of the casing, the diameter of said portion being greater than the diameter of the shaft to be sealed, and a large diameter portion extending from the other end of the casing, a bearing sleeve arranged to fit the shaft held against rotation within the smaller diameter portion of the bore, a seal-carrying ring contained within the larger diameter portion of the bore, each end face of the ring being formed with an annular notch which penetrates some distance along the inner surface of the ring, a resilient sealing ring contained in each notch and a resilient sealing ring located between the outer surface of the ring and the casing.

4,265,458

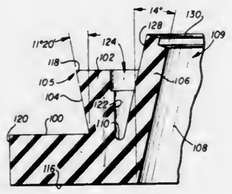
SEAL FOR ELEVATOR DRIVE MECHANISM

John H. Wheeler, Dallas, Tex., assignor to The Texacone Company, Dallas, Tex.

Filed Sep. 6, 1979, Ser. No. 73,024

Int. Cl.³ F16J *15/32*

U.S. Cl. 277—205 **4 Claims**



1. A seal for use in an elevator hoist drive mechanism comprising:

an annular body of elastomeric material consisting of a synthetic rubber such as butyl, viton, nitrile and coated or milled urethane, natural rubber or plastic such as Teflon having a substantially radially disposed external wall;

a substantially axially disposed outer wall extending internally from the outer radial edge of said external wall;

a substantially radially disposed bonding wall extending inwardly from the axially internal edge of said outer wall to a point lying radially outward from the inner radial edge of said external wall for attaching said seal to the external surface of the gear housing of said elevator hoist drive mechanism;

a first seal surface extending angularly radially outwardly and axially internally from the inner radial edge of said bonding wall at an angle of substantially 78° 40′ from said bonding wall;

a substantially radially disposed first seal surface end wall extending radially inwardly from the radially outer and axially internal edge of said first seal surface to a point radially outward from the inner radial edge of said external wall, the intersection of said first seal surface and first seal surface end wall defining a first sealing lip at the radially outer and axially internal edge of said first seal surface;

a substantially axially disposed outer groove wall extending externally from the radially inner edge of said first seal surface end wall to a point substantially coplanar with said bonding wall;

a groove bottom wall of substantially uniform radius and an arc length of substantially 166°, with the first edge of said groove bottom wall coinciding with the axially external edge of said outer groove wall and with the radius of curvature of said groove bottom wall lying radially inwardly and axially externally from the outer groove wall;

an inner groove wall extending angularly radially inwardly and axially internally from the second edge of said groove bottom wall at an angle of substantially 14° from the inner surface of a cylindrical surface formed by extending the edge formed by the intersection of said second edge of said groove bottom wall and the radially outward and axially external edge of said inner groove wall in an axially internal direction;

a second seal surface end wall extending angularly radially inwardly and axially externally from the radially inner and axially internal edge of said inner groove wall and formed substantially perpendicular to said inner groove wall; and

a second seal surface extending angularly radially outwardly and axially externally from the radially inner and axially external edge of said second seal surface end wall to intersect with the radially inner edge of said external wall, said second seal surface substantially perpendicular to said second seal surface end wall and substantially parallel to said inner groove wall with the intersectiion of said second seal surface and second seal surface end wall defining a second sealing lip at the radially inward and axially internal edge of said second seal surface.

4,265,459

SWAB CUP REINFORCING MEMBER SUPPORT

Donald R. Greenlee, and Bill J. Hyde, both of Dallas, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed May 8, 1979, Ser. No. 36,970

Int. Cl.³ F16J *15/56, 9/00*

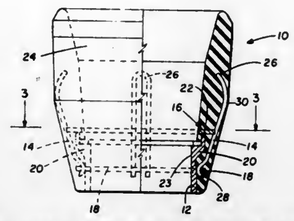
U.S. Cl. 277—212 C **7 Claims**

1. A well swab cup comprising:

(a) an annular bushing adapted to be disposed on a supporting mandrel, said bushing having a cup like elastomeric material body molded thereon and extending upward;

(b) said body including a plurality of circumferentially spaced longitudinally extending reinforcing members mounted with said bushing and extending upward in said body; and

(c) a reinforcing member positioning support means having means adapted to be positioned above said bushing within said body to position said reinforcing members in a spaced relation to each other around the circumference of said swab cup and to support these reinforcing members in this spaced relation;



said support means having an annular member having a plurality of spaced recesses around and opening radially outwardly from the outer periphery thereof to receive said reinforcing members.

4,265,460

TOOL HOLDER

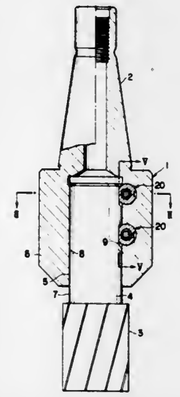
Chikara Senzaki, Nara, Japan, assignor to Manyo Tool Kabushiki Kaisha, Nara, Japan

Filed Jul. 23, 1979, Ser. No. 59,750

Claims priority, application Japan, Jul. 26, 1978, 53-90450

Int. Cl.³ B23B *5/22*

U.S. Cl. 279—97 **11 Claims**



1. A tool holder for holding a shank, said shank having a flat surface on the outer circumference thereof, comprising:

a holder body having an axial bore therein adapted to receive said shank;

a tangential hole extending through said holder body in a direction substantially tangential to said bore, said tangential hole intersecting said bore to define an aperture between said hole and said bore, said aperture being positioned to register with the flat surface of a shank received in said bore;

a locking element displaceable within said tangential hole, said locking element including a locking cotter having a sloping surface, said sloping surface being adapted to wedgingly engage through said aperture with the flat surface of a shank received in said bore, said locking cotter having an axial groove on an outer peripheral surface thereof;

means for limiting the movement of said locking cotter mounted in said holder body, said means for limiting being engaged with said axial groove whereby said sloping surface is maintained in engaging alignment with said flat surface; and

thrust means for moving said locking cotter within said tangential hole, said thrust means including a locking screw threadably reeived in an axially extending threaded opening in said locking cotter, whereby rotation of said locking screw moves said locking cotter along said tangential hole into or away from engagement with a shank received in said bore.

4,265,461

COMBINED PLAYTHING AND RECEPTACLE FOR INFANTS

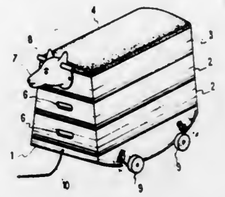
Masahisa Okubo, 837-I, Hachigasaki, Matsudo-shi, Chiba-ken, Japan

Filed Jan. 19, 1979, Ser. No. 4,893

Claims priority, application Japan, Jan. 21, 1978, 53-6068[U]

Int. Cl.³ A63G *13/10;* B62B *13/18*

U.S. Cl. 280—1.13 **5 Claims**



1. A combined receptable and plaything comprising a truck, a box-like structure, removably mounted on said truck, formed of a bottom frame membber, a top frame member, and at least one intermediate member, each of said frame members having sides inclined inwardly to the vertical, defining a truncated pyramid shape of successively reduced size in height, length and width, the upper edge of each frame member having a pyramidal dimension conforming to the pyramidal dimension of the lower edge of the next successive frame member of reduced size enabling said frame members, in one condition, to be stacked successively edge to edge from bottom to top one upon the other to form an enlarged truncated pyramid-shaped box and in a second condition to be nested successively from top to bottom completely one within the other, said top frame having a cover, said truck having side walls formed with a curved lower edge forming runners, and wheels journalled on shafts mounted on said truck and movable to secure said wheels alternatively in an operative position outward of the curved edge and an inoperative position within the curved edge, whereby said truck may be selectively employed as a sledge or wagon.

4,265,462

SUPPORT DEVICE FOR SKIERS

Hans-Anton Willi, Gassa Sure 25, 7013 Domat/Ems, Switzerland

Continuation of Ser. No. 953,354, Oct. 23, 1978, abandoned, which is a continuation of Ser. No. 855,085, Nov. 28, 1977, abandoned. This application Aug. 9, 1979, Ser. No. 64,990

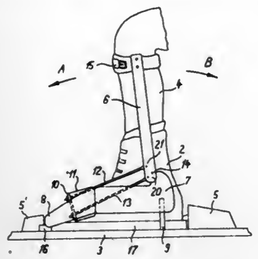
Claims priority, application Switzerland, Nov. 26, 1976, 14913/76

Int. Cl.³ A63C *9/00, 3/02*

U.S. Cl. 280—11.36 **19 Claims**

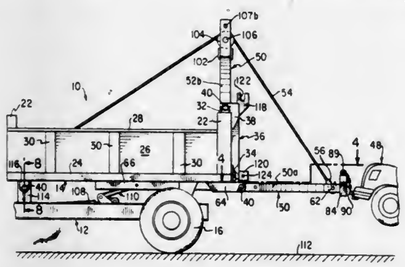
1. A support device for the shank of a skier's leg comprising a frame adapted to be fixed with respect to a ski and to extend on opposite sides of ski boot, two lever arrangements respectively separately and independently pivoted to opposite sides of said frame in positions to extend along opposite sides of the skier's shank approximately parallel thereto, said lever arrangements being separately pivoted about separate pivot positions approximately at the height of the skier's ankle for said lever arrangements to swing forwards and backwards with respect to the length of the ski, each lever arrangement comprising at least one lever, means for securing said lever

arrangements to the skier's shank in the calf region thereof, spring means mounted on said frame and mechanical means interposed between said lever arrangements and said spring



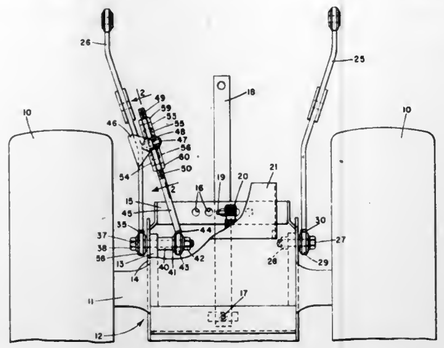
means whereby said spring means oppose swinging movement of said lever arrangements both forwards and backwards with respect to a zero position.

4,265,463
COMBINATION VEHICLE FOR TOWING, DUMPING AND THE LIKE
Robert S. Perruso, 150 Maple St., West Orange, N.J. 07052
Filed Jan. 19, 1979, Ser. No. 4,862
Int. Cl.³ B60P *3/06*
U.S. Cl. 280—402 **14 Claims**



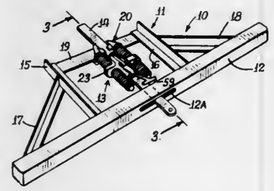
1. A vehicle system including a vehicle adapted for alternative use either in a capacity of a dump truck or a tow truck and readily converted from one use to the other, comprising:
(a) a chassis;
(b) a bed above and extending along said chassis;
(c) means on said chassis for mounting said bed whereby said bed normally resides in a first substantially horizontal position relative to said chassis, yet is adapted for movement pivotally, said mounting means including a pivot axis located at the rear end of said chassis and said bed, whereby said bed in movement, moves pivotally to a second inclined position;
(d) lifting means including a boom carried by said bed and extending rearwardly of the bed to define substantially a parallel extension, said bed and boom moving as a unit from said first to said second position so as to cause said boom to be inclined downwardly thereby positioning the end of said boom in position for releasably connecting said lifting means to a disabled vehicle to be lifted and towed; and
(e) means connected between said chassis and bed for moving said bed from said first to said second position so that said disabled vehicle may be connected to said lifting means and utilizing the leverage of said bed and boom in return to said first position thereby to lift said disabled vehicle for towing, said moving means acting on said bed within the end adapted to be inclined upwardly.

4,265,464
TRACTOR DRAFT LINK STRUCTURE
Henry J. Lange, Juneau, Wis., assignor to Deere & Company, Moline, Ill.
Filed Aug. 17, 1979, Ser. No. 67,230
Int. Cl.³ B60D *1/16*
U.S. Cl. 280—460 A **5 Claims**



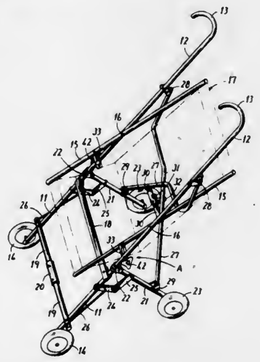
1. The lower link structure of a tractor hitch comprising: a transverse pivot pin supported intermediate its ends on the tractor; a draft link extending rearwardly from one end of the pin; a rigid stabilizer element extending rearwardly from the opposite end of the pin and converging toward the draft link; ball and socket joints between the ends of the pin and the draft link and the element respectively; a ball and socket structure supported on an intermediate portion of the draft link composed of a socket member fixed to the draft link and a ball freely articulated in the socket member, said ball having a diametrically extending opening for slidably receiving the rearwardly extending element; and an adjustable joint between the ball and rearwardly extending element composed in part of a threaded surface portion on the element with threaded surfaces extending to opposite sides of the ball; a pair of nut members threadedly mounted on the respective threaded surfaces and adjustable therealong, each of said nut members being composed of a threaded nut portion with internal threads carried on the respective threaded surface and a collar extending axially from the nut portion toward the ball to an end that is engageable with the ball, said collar being external of and in protective relation to a portion of the respective threaded surface.

4,265,465
TRAILER BUMPER HITCH
William J. Deitrich, Sr., Congerville, Ill., assignor to DMI, Inc., Goodfield, Ill.
Filed Aug. 17, 1979, Ser. No. 67,468
Int. Cl.³ B60D *1/14;* **F16G** *7/10*
U.S. Cl. 280—478 A **8 Claims**



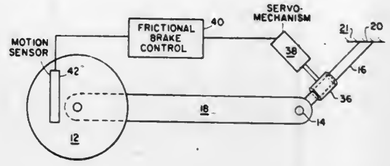
1. In a trailer hitch apparatus including a mounting frame adapted to mount the apparatus beneath a towing vehicle including horizontal frame means, and further including a draw bar, a movable member releasably securable to and receiving said draw bar for moving longitudinally of the axis of said draw bar when secured to said draw bar, and spring means carried with said member for urging said member to a rest position and for cushioning draw bar forces, the improvement comprising mounting means for mounting said spring means and said member carried therewith to said horizontal frame means including at least one horizontal element adapted to be assembled to said horizontal frame means; fastener means for securing said element to said frame means; said mounting means including receptacle means at least partially defined by said horizontal element and adapted to receive said horizontal frame means for mounting said spring means and said movable member to said horizontal frame means in such a manner that as said fastener means is tightened to secure said element to said horizontal frame means, said spring means and said movable member are raised relative to said draw bar.

4,265,466
BABY CARRIAGE
Kenzou Kassai, Osaka, Japan, assignor to Kassai Kabushikikaisha, Osaka, Japan
Filed Aug. 2, 1979, Ser. No. 62,911
Claims priority, application Japan, Dec. 15, 1978, 53-155283
Int. Cl.³ B62B *7/08*
U.S. Cl. 280—648 **11 Claims**



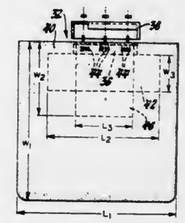
1. A baby carriage, comprising:
a carriage body including a pair of left and right members,
a plurality of wheels rotatably mounted to the lower ends of said carriage body for rotation on the ground,
a pair of left and right hammock supporting rods extending in parallel with each other and pivotally provided to said pair of left and right members, respectively, the axis of said pivotal provision extending along a line running between said pair of left and right members, said pair of hammock supporting rods being turnable about said axis of said pivotal provision,
means for selectively fixing said turning of said pair of hammock supporting rods,
a hammock supported by and spread between said pair of left and right hammock supporting rods, and
a hammock shaping member coupled to said carriage body extending substantially in the lateral direction thereof to be in selective contact with the lower surface of said hammock for shaping said hammock,
said hammock comprising
a sheet fixed at the both side edges to said pair of left and right hammock supporting rods so as to be curved in a dish shape with a slack between said pair of left and right hammock supporting rods,
a sitting portion including a relatively hard core member fixed at a central portion of said sheet between said pair of hammock supporting rods, and
a back portion including a relatively hard core member fixed adjacent to said sitting portion and at a central portion of said sheet between said pair of hammock supporting rods, whereby a tilt angle of said back portion is changed in accordance with turning of said pair of left and right hammock supporting rods as pivotally provided and thus the crossing angle between said sitting portion and said back portion is changed while said hammock shaping member is in contact with and supports said hammock.

4,265,467
FRICTIONAL SUSPENSION DAMPING SYSTEM
Benjamin J. Aleck, Jackson Heights, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.
Filed Apr. 4, 1979, Ser. No. 26,932
Int. Cl.³ B60G *11/18*
U.S. Cl. 280—721 **19 Claims**



1. A system to vary the energy absorbing characteristics of a torsion bar system, said means comprising:
suspension apparatus for supporting a platform upon a moveable member, said apparatus including a torsion bar fixed at a first end to said platform, and a connecting member coupling a second end of said torsion bar to a moveable member;
frictional braking means operatively connected to said torsion bar; and
motion sensor apparatus operably connected to said moveable member and further connected to said braking so as to vary the application of frictional restraint to the surface of said torsion bar in accordance with movement of said moveable member.

4,265,468
INFLATABLE RESTRAINT SYSTEM
Donald H. Suszko, Warren, and John F. Zens, Algonac, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Jul. 3, 1979, Ser. No. 54,633
Int. Cl.³ B62D *21/08*
U.S. Cl. 280—729 **4 Claims**



1. In combination with a vehicle body including a seat having a seat cushion and a seat back for supporting a driver, a center seat occupant and a right-hand seat occupant in seated positions, an instrument panel having a front surface juxtaposed to the seat back and torsos of the seated occupants, an inflatable restraint system for said center seat occupant and said right-hand seat occupant, said inflatable restraint system being located in said instrument panel substantially opposite

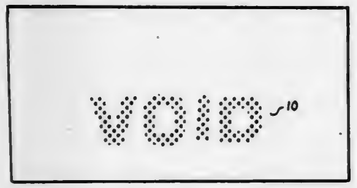
said right-hand seat occupant and comprising a housing fixedly mounted to said instrument panel, a gas generator carried by said housing and including a diffuser of a predetermined length with the longitudinal axis thereof being disposed transversely of the vehicle body, an inflatable cushion attached to said diffuser, said diffuser having a plurality of openings for allowing gas to flow into said inflatable cushion for inflating the latter whereby said inflatable cushion assumes a position for receiving impact of said center seat and right-hand seat occupants' torsos, said inflatable cushion having a transverse length substantially greater than the longitudinal length of said diffuser, and expandable baffle means made of a flexible material located within said inflatable cushion and positioned in the path of gas flow from said diffuser, said baffle means having openings at the opposite ends thereof and being spaced from said diffuser and having a transverse dimension substantially equal to the length dimension of said diffuser so as to cause the gas flowing from said diffuser to be directed sideways to fill the side portions of said inflatable cushion to quickly locate said inflatable cushion in front of said center seat occupant.

4,265,469

PROTECTED DOCUMENT AND METHOD OF MAKING SAME

William H. Mowry, Jr., Ionia; Michael J. McElligott, Rochester; Victor J. Tkalenko, Jr., Rochester, and Joseph Baran, Rochester, all of N.Y., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 18, 1977, Ser. No. 798,219
Int. Cl.³ B42D *15/00*
U.S. Cl. 283—8 B **14 Claims**



1. A security document adapted for use with a xerographic color copier having a lens reproduction system which has a reproduction density threshold which at normal operator accessible copier settings reproduces dots of a tone density which are larger than the reproduction density threshold and which does not resolve and consequently does not reproduce dots of a tone density which are smaller than the threshold, the security document preventing the faithful reproduction of all portions of the original image printed on the surface thereof on copies made at the normal operator accessible copier settings on said color copier and which instead, when copied using said lens reproduction system, is reproduced with a warning mark which is part of the original printed image on the document, the appearance of which warning mark indicating that the copy is not the original security document, said security document comprising:

a substrate; and

a security background printed on said substrate;

said security background comprising;

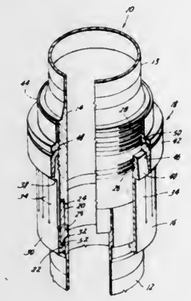
a warning mark composed of a dot pattern of a plurality of relatively large dots patterned so as to comprise said warning mark, which pattern is surrounded by a plurality of spaced smaller dots which are so small as to be unresolved by the lens reproduction system of the copier such as not to reproduce on copies made on said xerographic color copier and wherein the large dots and small dots are printed in non-cumulative mode, the dots being registered so as to be in phase with the large dots being spaced a distance which is a multiple of the distance between the small dots, and which large dots and smaller dots are camouflaged by a camouflage overlay pattern printed as a visually confusing and obscuring pattern at and between said large and small dots on said substrate such that the large and small dots appear interspersed with said camouflage patterns so as to be substantially indistinguished by the human eye and yet such that the warning mark portion may be distinguished by the color copier.

4,265,470

TUBULAR CONNECTOR

Bailey L. Danner, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Filed Sep. 21, 1979, Ser. No. 77,643
Int. Cl.³ F16L *21/08, 37/12*
U.S. Cl. 285—39 **6 Claims**



1. A preloaded tubular connector comprising

a first tubular section having an enlargement on one end forming an external shoulder facing away from said one end,

a second tubular section adapted to engage with said first tubular section and having a plurality of exterior annular ridges spaced a short distance from said first tubular section,

an annular collet having a plurality of axially extending fingers and a base ring with an internal shoulder facing the outer ends of said fingers,

each of said fingers having an external loading shoulder facing said base ring and a plurality of internal ridges, said internal collet shoulder engaging said external shoulder of said first tubular section and the internal finger ridges mating with said ridges on said second tubular section,

the length of said fingers when unloaded being short of engagement with the mating annular ridges on said second tubular section with said base ring shoulder in engagement with said first tubular section shoulder and sufficiently long for such mating engagement when said tubular connector is preloaded,

a lock ring having a depending outer skirt surrounding the exterior of the end of said fingers to retain said finger ridges in engagement with said section ridges,

a lock nut threaded on the exterior of said second tubular section and engaging said lock ring to hold said lock ring in position surrounding the ends of said fingers,

the mating surfaces on the exterior of said fingers and the interior of said lock ring skirt being tapered at a selflocking taper angle, and

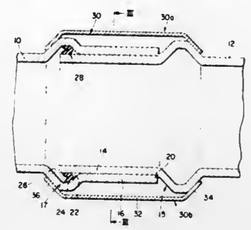
said finger external loading shoulder providing a support area for said collet and said first tubular member for exertion of a preload force during assembly.

4,265,471

PIPE JOINT

David D. Nash, Brownhills, England, assignor to Durapipe Limited, Staffordshire, United Kingdom

Filed Feb. 13, 1979, Ser. No. 11,854
Int. Cl.³ F16L *17/04*
U.S. Cl. 285—111 **3 Claims**



1. A mechanical pipe joint comprising,

a first pipe having an end portion defining one end of the first pipe,

a second pipe having an end portion within which said end portion of said first pipe is snugly-received, said end portion of said second pipe defining one end of said second pipe,

each said pipe having, on its exterior, a raised annular rib extending around the pipe and coaxial therewith, each said rib being at a location spaced from the end of the respective pipe defined by the respective end portion,

said first pipe having shoulder means on its outer surface adjacent the respective rib for positioning the terminal end of said second pipe and thereby limiting movement of the first and second pipes toward each other,

said joint further including a clamping ring encircling the two pipes and spanning said annular ribs of the two pipes, said clamping ring including a respective flange, extending toward the axis of the pipes and provided at each of the two axial ends of the clamping ring,

each said flange engaging that flank of a respective one of said annular ribs which is furthest from the other of said annular ribs,

each second pipe having an internal annular groove at an axial position corresponding to the external annular rib thereon,

said end portion of said first pipe extending at least partly across said annular groove in said second pipe to define an annular space between the wall of said annular groove in said second pipe and the adjacent part of the exterior of said end portion of the first pipe,

and an annular seal disposed in said annular space.

4,265,472

PIPE ELBOW CONNECTION

Peter G. Ipsen, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,327
Int. Cl.³ F16L *51/02*
U.S. Cl. 285—179 **4 Claims**

1. A pipe elbow connection for a fluid conduit comprising:

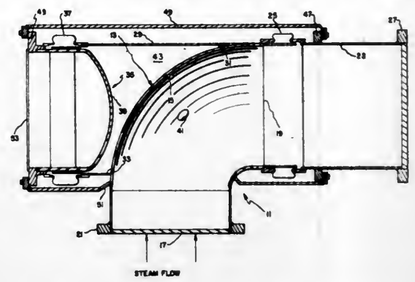
a pipe elbow;

a pipe connected to one end of said pipe elbow by means of a first bellows joint;

a liner connected to said pipe elbow in fluid communication with said elbow;

a dished-head end cap connected to said liner by means of a second bellows joint, said dished-head end cap substantially located within said liner; and,

an annular wrapper positioned around said pipe elbow and said liner interconnecting the dished-head end cap with



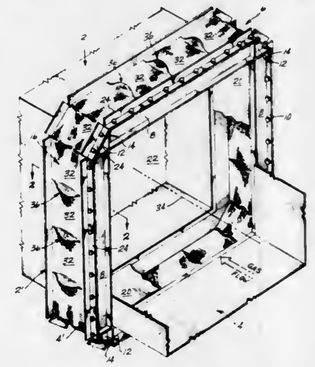
the pipe, said wrapper being movable with respect to said pipe elbow.

4,265,473

MEANS AND TECHNIQUE FOR INTERCONNECTING THE ENDS OF SPACED COAXIAL CONDUITS WITH AN EXPANSION JOINT HAVING A REDUCED AXIAL DIMENSION

Baldassare Russo, 17575-6th Pl. SW., Seattle, Wash. 98166

Filed Feb. 5, 1979, Ser. No. 9,101
Int. Cl.³ F16L *51/02*
U.S. Cl. 285—229 **39 Claims**



16. In combination, means defining a pair of spaced coaxial conduits which undergo relative deflection along parallels to a line crosswise the axis thereof, and a flexible expansion joint interconnecting the same, said joint comprising an annular casing which is interposed on the line of deflection in the space between the opposing ends of the conduits and connected with the ends coaxially of the conduits, the body of said casing when seen in profile to the line of deflection having opposing relatively top and bottom outlines and interconnecting sides therebetween, and said sides being divided along generally axially extending lines symmetrically arrayed about the line of deflection in spaced relationship to the outlines of the casing to form an equal number of discrete casing sections on the respective sides having substantially equal widths circumferentially of the casing, there being generally U-shaped fold-like pleats of bendably flexible material interconnecting the axial edges of adjacent sections, the folds of which project peripherally inwardly or outwardly from the body of the casing in the neutral condition of the joint and are adapted so that when the conduits undergo relative deflection as indicated, the casing accomodates to the deflection at a lesser dimension axially of the joint than that required by the diametral dimension of the joint.

4,265,474

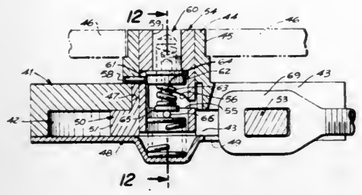
FLUSH TYPE ROTARY DRIVE FOR LATCHES

L. Richard Poe, Long Beach, Calif., assignor to Hartwell Corporation, Placentia, Calif.

Continuation of Ser. No. 856,504, Dec. 1, 1977, abandoned. This application Mar. 14, 1979, Ser. No. 20,506

Int. Cl.³ E05C *3/04;* E05B *17/00*

U.S. Cl. 292—241 **4 Claims**



1. A rotary latch comprising:

a. a keeper means;

b. an outer sleeve;

c. an inner indicating member received within said outer sleeve, said inner indicating member being adapted for axial movement within said outer sleeve;

d. a latch arm operatively connected to said inner indicating member and arcuately movable between a secured position and a released position with respect to said keeper means;

e. a projecting element positioned within said outer sleeve and extending inwardly therefrom;

f. a retaining aperature means at the exterior of said inner indicating member for engaging said projecting element when said latch arm and keeper are in said secured position, thereby locking said latch arm and said keeper in said secured position by preventing rotational movement of said inner indicating member within said outer sleeve, and for disengaging said projecting element upon axial movement of said inner indicating member within said outer sleeve in order to permit rotational and axial movement of said inner indicating member and movement of said latch relative to said keeper.

4,265,475

SNOW HANDLING APPARATUS

Eugene R. Jarvis, 1049 Glenwood Ave., Hagerstown, Md. 21740

Filed Mar. 31, 1980, Ser. No. 135,788

Int. Cl.³ E01H *5/02*

U.S. Cl. 294—54 **15 Claims**

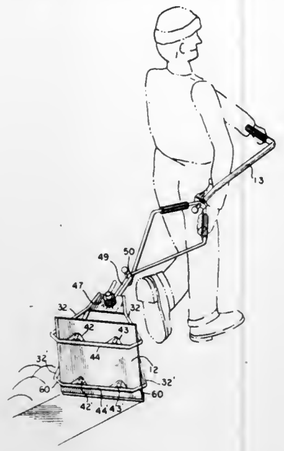
1. A device for moving snow comprising a blade, handle frame, and intermediate frame, a third frame and a blade frame,

said handle frame, intermediate frame, third frame and blade frame being connected together and to said blade,

said handle frame having a laterally extending hand engaging member thereon,

adjustable means connecting said handle frame to said intermediate frame whereby said laterally extending hand engaging member and said handle frame can be adjusted to bring said handle to selected laterally extending positions relative to said hand engaging member,

rigid means connecting said intermediate frame to said third frame and adjustable means connecting said third frame to said blade frame whereby said blade frame with said



blades can be adjusted in an arc having a center at said third frame.

4,265,476

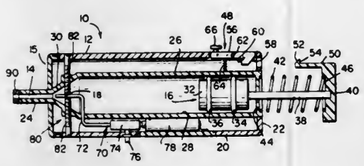
WORK-HOLDING DEVICE

Alan Elgart, R.D. 4, P.O. Box 70B, Beakes Rd., New Windsor, N.Y. 12550

Filed Aug. 13, 1979, Ser. No. 66,011

Int. Cl.³ B25B *11/00;* B66C *1/02;* F21V *33/00*

U.S. Cl. 294—64 R **10 Claims**



1. A work holding device, comprising:

an outer rigid member having disposed within;

an inner rigid member concentric with said outer member having;

an aperture on a first end of said inner member; and vacuum producing means, including a cylinder as said inner member connected to said aperture and a piston reciprocably received within said inner member for creating a vacuum at said aperture when said piston moves away from said aperture; and

illumination means disposed within said outer member for illuminating said aperture.

4,265,477

FOLDING SIDEBOARD GOOSENECK TRAILER

Thornton D. Hall, Rte. 2, Ft. Cobb, Okla. 73038

Filed Jul. 5, 1979, Ser. No. 55,106

Int. Cl.³ B60P *3/04*

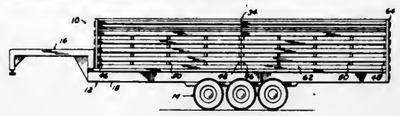
U.S. Cl. 296—14 **5 Claims**

1. A folding sideboard trailer, comprising:

trailer frame means defined by spaced-apart elongated beams interconnected adjacent their depending limit to form a trailer bed;

opposing pairs of sideboard sections hingeldy connected with said trailer box wall forming position to a trailer flatbed position overlying said trailer bed,

each section of said pairs of sections having a bottom portion hingedly connected with the upper limit of the respective said beams and having a coextensive top portion hingedly connected with the upper limit of said bottom portion for vertical pivoting movement of said top portion toward and away from said trailer bed from the plane of said bottom portion,



said hinged top portion having a vertical dimension substantially equal to the vertical dimension of the elongated beams and forming a support extending vertically between said trailer bed and said bottom portion when said bottom portion is in said flatbed position; and,

end gate means extending between said sideboard sections when the latter are in said box wall position.

4,265,478

SAFETY LOCKING MECHANISM FOR WHEELCHAIRS

Carl E. Korsgaard, Rte. 2, Smith Rd., Concord, Tenn. 37922

Filed May 9, 1979, Ser. No. 37,521

Int. Cl.³ B60N *1/02*

U.S. Cl. 296—65 R **6 Claims**

1. Apparatus working in combination with a wheelchair for securing the wheelchair in a transport system, a vehicle or a structure subject to unpredictable motion, bouncing, and acceleration forces comprising;

a mounting standard securely mounted to the floor of said transport vehicle or structure, said mounting standard including a substantially horizontal bar permanently mounted thereto at a preselected distance above said floor;

a latching mechanism securely mounted to said wheelchair at said preselected location above said floor, said latching mechanism including means for mounting to said wheelchair, a latching portion and a latching tongue pivotally mounted to said latching portion such that said latching portion and said latching tongue cooperate to form a channel which channel may be selectively closed by said pivoting latching tongue such that said tongue and latching portion define an aperature suitable for receiving said horizontal bar, said latching mechanism further including a spring loaded locking pin for locking said tongue in said closed position; and

means for moving said locking pin from said locking position to release said latching tongue.

4,265,479

SIDE OPENING, SHIFTABLE COVER FOR TRUCKS OR WAGON BEDS

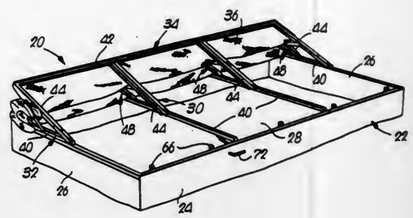
Larry D. Langston, 211 St. John, Vandalia, Mo. 63382

Continuation of Ser. No. 816,325, Jul. 18, 1977, Pat. No. 4,168,096. This application May 7, 1979, Ser. No. 36,866

The portion of the term of this patent subsequent to Sep. 18, 1996, has been disclaimed.

Int. Cl.³ B60P *7/02*

U.S. Cl. 296—100 **7 Claims**



1. A shiftable cover assembly for covering a truck bed or the like defined at least in part by a pair of opposed, spaced, substantially parallel margins, said cover assembly comprising:

a flexible sheath presenting, when the sheath is extended to cover said truck bed or the like, a pair of interconnected, diverging, downwardly extending side panels giving a gabled configuration, the outermost side periphery of each side panel being adjacent to and extending along the length of the proximal bed-defining margin; and

means for supporting said sheath in said extended position, and for retracting the sheath as desired for opening said truck bed or the like, including—

a pair of elongated, spaced struts disposed transversely of said bed-defining margins and of lesser length than the spacing between the latter;

means operatively securing the outermost ends of said struts to a common one of the side peripheries of said sheath for movement thereof in unison;

means pivotally supporting the innermost ends of said struts at respective points between said bed-defining margins;

a pair of scissor linkages respectively disposed adjacent each strut and having a pair of diverging, downwardly extending first and second links pivotally interconnected at a point above the corresponding strut and below said sheath, when the latter is in its extended position;

means pivotally supporting the lowermost ends of said first links at respective points between the innermost ends of said struts and the other of said bed-defining margins; and

means pivotally connecting the lowermost ends of said second links to the corresponding struts at respective points between the opposite ends of the struts,

said struts being pivotally shiftable upwardly and toward said other of the bed-defining margins for retraction of said cover,

said scissor linkages being oriented such that the links thereof pivot together during said upward pivoting of said struts for folding said sheath around the scissor linkages when the sheath is fully retracted.

4,265,480

PASSIVE SEATBELT SYSTEM

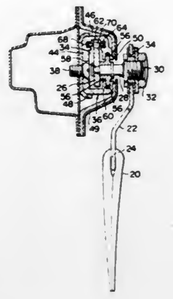
Ichiro Suzuki; Masanao Motonami, and Hisashi Ogawa, all of Aichi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Apr. 25, 1979, Ser. No. 33,055

Claims priority, application Japan, Aug. 17, 1978, 53-113245[U]

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—803 **10 Claims**



1. A passive seatbelt system for a motor vehicle which includes a runner piece which anchors one end of a passenger restraining belt, a guide rail fastened to a vehicle body which guides the runner piece, a wheel which is mounted on a side of said runner piece opposite the vehicle body and which contacts said guide rail and driving mechanism which moves said runner piece along the length of said guide rail, said guide rail comprising a base part which is fastened to said vehicle body and a pair of guide arm parts coupled to said base part and which forms a runner piece housing space between said guide arm parts and said base part and said housing space houses said runner piece, said guide arm parts further including guide parts which are in contact with said wheel of said runner piece for guiding said runner piece along the guide rail.

4,265,481

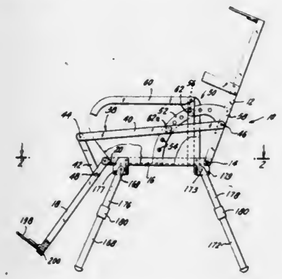
FOLDING BABY CARRIERS

Henry Fleischer, 18 Notch Park Rd., Little Falls, N.J. 07424

Continuation-in-part of Ser. No. 759,066, Jan. 13, 1977, Pat. No. 4,181,356. This application Jul. 24, 1978, Ser. No. 927,107

Int. Cl.³ A47C *4/00, 1/02*

U.S. Cl. 297—30 **40 Claims**



1. A collapsible three-way carrier for infants comprising, in combination, a head-back portion, a seat portion pivotally connected to said head-back portion, and a leg-foot portion pivotally connected to said seat portion, and control means connected to said head-back portion and leg-foot portion, whereby when said head-back portion is pivoted in one direction with respect to said seat portion, said control means imparts corresponding movement of said leg-foot portion in a direction opposite to the movement of said head-back portion, said control means comprising a first member and a second member pivotally connected to each other, said first member also being fixedly connected to said head-back portion and said second member also being fixedly connected to said leg-foot portion, and a longitudinal hinge disposed in at least two of said head-back portion, seat portion and leg-foot portion and running along a substantial length of each of said portions dividing said portions into two sections, one of each of said sections including a lip which overhangs said longitudinal hinge whereby said lip permits pivoting of said sections about said longitudinal hinge in one direction but limits pivotal movement of said sections about said longitudinal hinge in the other direction below the horizontal whereby said portion may be folded about said longitudinal hinges to collapse said portion for storage.

4,265,482

HEAD-REST ADJUSTING DEVICE

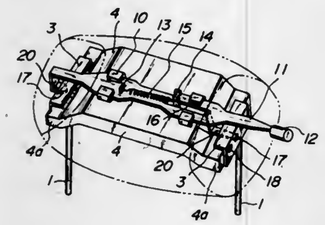
Shinichi Nishimura, Yokohama, and Satoshi Izumida, Koshigaya, both of Japan, assignors to Nissan Motor Company Limited and Ikeda Bussan Co. Ltd., both of Yokohama, Japan

Filed Aug. 3, 1979, Ser. No. 63,368

Claims priority, application Japan, Aug. 23, 1978, 53/116078[U]

Int. Cl.³ A47C *1/10, 7/12, 7/36*

U.S. Cl. 297—391 **8 Claims**



1. A head-rest adjusting device comprising a base plate fixed to stays extending above a back of a seat and provided at its ends with lower rails in the form of channels including anchoring apertures, a slide formed on its upper surface with guides and on both sides with upper rails to be fitted with said lower rails, a flat plate-like locking lever traversely slidable within said guides of said slide and having a pair of anchoring pieces extending downwardly to engage in said anchoring apertures, a spring for urging said locking lever in one direction, and a cover for covering said base plate and said slide.

4,265,483

MODULAR SEATING ARRANGEMENT

William B. Raftery, Ann Arbor; Ronald L. Whitwam, Caledonia, and Joseph M. Wisniewski, Marne, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed Jun. 11, 1979, Ser. No. 47,110

Int. Cl.³ A47C *7/02*

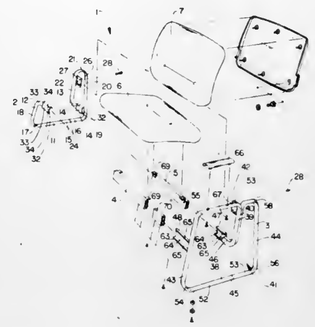
U.S. Cl. 297—440 **23 Claims**

1. A modular seating system including at least one chair seat means, a pair of left and right end frames selected from arm and armless end frame alternatives, said end frames being located on either side of said seat means, and cross support means secured to and extending between said end frames and supporting said seat means, the improvement in said modular seating system comprising:

each of said right and left arm and armless end frames respectively including an identical rear frame portion defining at least a rear leg and a forwardly extending runner portion;

each said arm frame also including a forward frame portion defining an arm, a forward leg and a rearwardly extending runner portion, said rearwardly extending runner portion and said forwardly extending runner portion having a common lateral cross sectional configuration and being secured together in abutted relationship to give the appearance of a continuous frame runner extending from said rear leg to said front leg;

each said armless end frame also including a forward frame portion defining a forward leg and a rearwardly extending



runner portion, said rearwardly extending runner portion also having a common lateral cross sectional configuration with said forwardly extending runner portion and being secured in abutted relationship to said forwardly extending runner portion to give the appearance of a continuous frame runner extending from said rear leg to said front leg whereby said arm and armless end frames can be made using a common rear frame portion and yet have an integral rather than tacked on appearance.

4,265,484

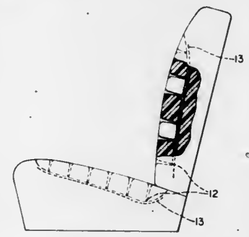
REINFORCED FOAMED BODY SUPPORT MEMBER

Robert J. Stalter, Bowling Green, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 10, 1979, Ser. No. 37,785

Int. Cl.³ A47C *23/00*

U.S. Cl. 297—452 **10 Claims**



1. A polyurethane foam body support member having a mesh reinforcing member positioned at a predetermined depth below the top surface thereof and the foam has a density of less than 2.8 and less than 2.2 when the body support member is, respectively, a mattress, or a seat and a seat back, said mesh reinforcing member stopping before reaching any edge of the foam.

4,265,485

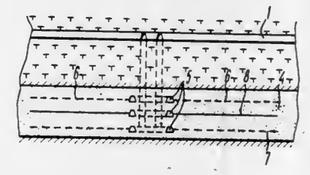
THERMAL-MINE OIL PRODUCTION METHOD

Arkady A. Boxerman, 1 Dmitrovsky proezd, 8, kv. 29; Nikolai S. Kuvshinov, ulitsa akademika Millionschikova, 11, kv. 192; Naftula L. Rakovsky, Vorobievskoe shosse, 11, kv. 31; Vladimir P. Tabakov, ulitsa Sofii Kovalevskoi, 4a, kv. 125; Lev D. Churilov, Yasenevo, 2 mikroraion, korpus 3a, kv. 685, all of Moscow; Ostap O. Sheremeta, ulitsa Mira, 1, kv. 43, Komi ASSR, Ukhta; Viktor P. Pilatovsky, 1 Dmitrovsky proezd, 8, kv. 137, Moscow; Evgeny I. Gurov, poselok Yarega, ulitsa Mira, 2, kv. 3, Komi ASSR, Ukhta; Pavel G. Voronin, poselok Yarega, ulitsa Mira, 4, kv. 6, Komi ASSR, Ukhta; Alexandr I. Obrezkov, ulitsa Oplesnina, 30, kv. 35, Komi ASSR, Ukhta; Vitaly S. Sukrushev, poselok Yarega, ulitsa Neftyanikov, 1, kv. 14, Komi ASSR, Ukhta; Vitaly S. Zubkov, poselok Yarega, ulitsa Mira, 2, kv. 12, Komi ASSR, Ukhta; Valery M. Tutarinov, poselok Yarega, ulitsa Mira, 4, kv. 3, Komi ASSR, Ukhta; Vladimir N. Mishakov, poselok Yarega, ulitsa Neftyanikov, 1, kv. 25, Komi ASSR, Ukhta; Grigory G. Miller, ulitsa Pushkinskaya, 1, kv. 4, Komi ASSR, Ukhta; Leonid M. Ruzin, poselok Yarega, ulitsa Kosmonavtov, 4, kv. 59, Komi ASSR, Ukhta, and Vladimir N. Judin, poselok Yarega, ulitsa Kosmonavtov, 5, kv. 26, Komi ASSR, Ukhta, all of U.S.S.R.

Filed Jan. 14, 1979, Ser. No. 4,274

Int. Cl.³ E21B *43/24;* E21C *41/10*

U.S. Cl. 299—2 **14 Claims**



1. A method of thermal-mine oil production, which comprises

providing a system of underground mine workings and at least one operation gallery;

drilling at least one production well from said operation gallery into at least one of the upper and lower portions of an oil-bearing bed;

drilling at least one injection well from said operation gallery into the central portion of the oil-bearing bed;

injecting a heat carrier through said injection and production wells into the oil-bearing bed to heat the latter to a temperature at which the oil attains the required fluidity within the oil-bearing bed;

injecting a heat carrier through said injection well into the central portion of the bed, for distributing the heat carrier uniformly through the volume of the oil-bearing bed and thus forcing the oil into said production well;

collecting the oil from the oil bearing bed through said production well in said operation gallery; and

directing the oil from said operation gallery via the mine workings to the ground surface.

4,265,486

APPARATUS FOR IN-SITU RETORTING

Anthony T. Durbin, Didcot, England, and Bruce A. Kennedy, Golden, Colo., assignors to Gulf Oil Corporation, Pittsburgh, Pa. and Standard Oil Company, Chicago, Ill.

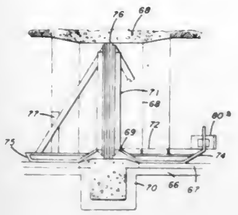
Filed Aug. 20, 1979, Ser. No. 68,228

Int. Cl.³ E21F *5/00, 17/00*

U.S. Cl. 299—2 **15 Claims**

1. Apparatus for isolating a retort for the in-situ retorting of carbonaceous deposits from an adjacent retort in a row of retorts, each retort having an outlet at its lower end, and delivering products from the in-situ retorting in the retorts to a collection tunnel, comprising an exhaust tunnel communicat-

ing with the outlets of the retorts extending longitudinally of the row of retorts at a level below the outlet of the retort to provide communication between each of the retorts and the collection tunnel, a doorway in the exhaust tunnel between adjacent retorts, said doorway extending inwardly from the walls of the exhaust tunnel around the periphery thereof to



provide a sealing surface, a door movable in the exhaust tunnel from one doorway to an adjacent doorway, an expandable seal around the periphery of the door adapted to engage the doorway, means for introducing a fluid into the sealing means to expand the sealing means against the doorway, and means for moving the door from a doorway to an adjacent upstream doorway.

4,265,487

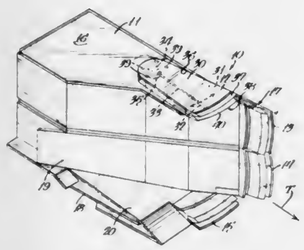
HIGH PRESSURE WATER JET MINING MACHINE

Clark R. Barker, Rolla, Mo., assignor to The Curators of the University of Missouri, Columbia, Mo.

Continuation-in-part of Ser. No. 894,769, Apr. 10, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,537

Int. Cl.³ E21C *25/60*

U.S. Cl. 299—34 **6 Claims**



1. A machine for mining coal and other geologic materials comprising:

a generally wedge-shaped body portion having a leading edge and adapted to be moved parallel to a working face of material being excavated;

at least one nozzle module mounted on said body portion adjacent said leading edge and containing an arcuately movable nozzle oriented to oscillate in a vertical plane for cutting a vertical slot in the material in advance of the direction of motion of said leading edge;

said module having a housing with a pair of parallel oppositely facing hardened convexly arcuate blades on the leading edge thereof defining an exit slot for water jets ejected from the said nozzle and for protecting said nozzle from contact with the material being cut.

4,265,488

TRACK ON A CONVEYOR FOR A MINING MACHINE

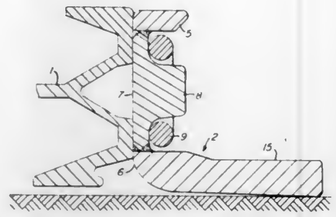
Herbert Schupphaus, Bochum, and Hugo Klimeck, Velbert, both of Fed. Rep. of Germany, assignors to Gerb. Eickhoff Maschinenfabrik und Eisengiesserei m.b.H., Bochum, Fed. Rep. of Germany

Filed Nov. 20, 1979, Ser. No. 96,081

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1978, 2851941

Int. Cl.³ E21C *35/12*

U.S. Cl. 299—43 **6 Claims**



1. A track on the working face side of a face conveyor to carry support means for a drum cutter mining machine upon a mine floor for movement along a mine face, said track including a plurality of track sections each having an L-shaped cross section defining an upright limb on the working face side of said face conveyor and a generally lateral limb projecting for support upon the mine floor, a track coupling member secured within a cavity in the upright limb at each terminal end portion of a track section, each coupling member including a mounting plate section having a thickness less than the thickness of the upper limb and a coupling section projecting from said mounting plate section, coupling means to interconnect track coupling members on upright limbs of adjacent track sections on the working face sides thereof for pivotal movement of the track sections, said upper limb including a bead along the top longitudinal portion projecting above the lateral limb to overlie said coupling means and said track coupling member, said bead including an inclined surface extending to the surface of the upright limb facing toward the mine face, the upper limb of each track section merging with the lateral limb by a transition section having an inclined top surface at least partially underlying said bead and sloped downwardly toward the mine floor to the lateral limb.

4,265,489

ELECTROPNEUMATIC BRAKE FOR RAIL VEHICLES

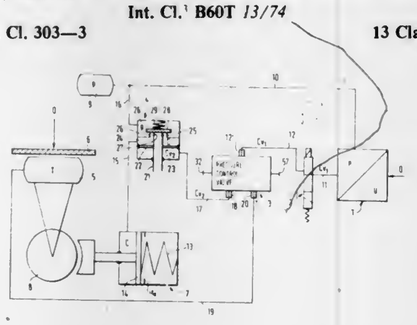
Hans-Peter Meinicke, Potomac, Md., assignor to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed Jan. 11, 1979, Ser. No. 2,961

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1978, 2801778

Int. Cl.³ B60T *13/74*

U.S. Cl. 303—3 **13 Claims**



1. In an analogue controlled electro-pneumatic brake particularly for rail vehicles wherein an operator selected electrical brake signal is converted into a load-responsive pneumatic braking signal, voltage-pressure transducer means for converting an electrical brake control signal into a first pneumatic control pressure signal, pressure control valve means connected by a pneumatic line to said transducer means to be controlled by said first pneumatic control pressure signal for generating a second pneumatic control pressure singal, relay valve means connected between a source of pressure fluid and at least one brake cylinder and to said pressure control valve means to receive said second pneumatic control pressure signal for regulating pressure in the brake cylinder, said brake cylinder being a spring-loaded brake cylinder, an emergency brake valve connected in the pneumatic line between said transducer means and said pressure control valve means to interrupt the pneumatic line connected between said pressure control valve means and said transducer means in response to a faulty electrical brake control signal, means for supplying a pneumatic load-responsive signal to said pressure control valve means, said pressure control valve means being monitored by said pneumatic load-responsive signal such that in response to a pneumatic load-responsive signal and a faulty electrical brake control signal a said second pneumatic pressure control signal is supplied to said relay valve means to brake the vehicle as a function of its load and to avoid overbraking, said relay valve means introducing a load-responsive residual pressure into said spring-loaded brake cylinder, only in the absence of a pneumatic load-responsive signal will said pressure control valve means supply a second pneumatic control pressure signal to said relay means in response to which said relay means independent of the vehicle load regulates the pressure in the brake cylinder to apply full braking with maximum braking force to said spring-loaded brake cylinder.

4,265,490

PRESSURE CONTROL VALVE FOR A VEHICLE HYDRAULIC BRAKE SYSTEM

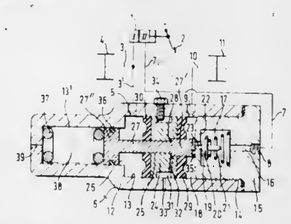
Jochen Burgdorf, Offenbach am Main, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jul. 26, 1979, Ser. No. 61,110

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1978, 2836453

Int. Cl.³ B60T *8/26*

U.S. Cl. 303—6 C **6 Claims**



1. A pressure control valve for a vehicle hydraulic brake system including a first brake circuit connected between front wheel brake cylinders of a vehicle and one pressure chamber of a tandem master cylinder and a second brake circuit associated with rear wheel brake cylinders of said vehicle comprising:

a housing having a longitudinal axis and a first bore coaxial of said axis;

a pressure chamber disposed in said first bore adjacent one end thereof coupled to said one chamber;

a regulator inlet chamber disposed in said first bore adjacent the other end thereof coupled to the other chamber of said master cylinder;

a regulator outlet chamber disposed in said first bore spaced from and communicating with said regulator inlet chamber through a fluid passageway within said first bore coaxial of said axis, said regulator outlet chamber being coupled to said rear wheel brake cylinders;

a valve having a closure member disposed in a controlling relationship with said fluid passageway;

an annular piston disposed in said first bore slidable therein between limits, said annular piston having one annular surface thereof providing a boundary for said regulator oulet chamber and subject to regulated pressure of said second brake circuit, the other annular surface thereof providing a boundary for said pressure chamber and subjected to pressure of said first brake circuit, and a second bore in said annular piston coaxial of said axis; and

a control piston preloaded by a spring extending through and slidable in said second bore having one end thereof in a controlling relationship with said closure member and bearing on said annular piston in the direction of said spring, and the other end thereof bearing against said spring and having an annular surface providing the other boundary for said pressure chamber and being subjected to pressure of said first brake circuit.

4,265,491

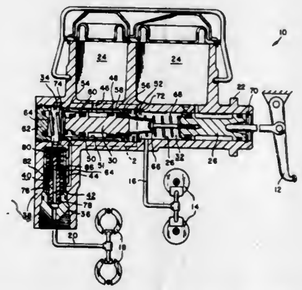
MASTER CYLINDER AND SLEEVE FOR CONTROLLING A PROPORTIONING VALVE

Paul B. Shutt, St. Joseph, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 4, 1979, Ser. No. 81,721

Int. Cl.³ B60T *13/00*

U.S. Cl. 303—6 C **16 Claims**



1. A master cylinder comprising a housing defining a reservoir, said housing furter defining a bore for movably receiving a pair of pistons, the pair of pistons cooperating with the housing to substantially define a pair of pressure chambers communicating with brake circuits, one of the pair of pressure chambers communicating with a valve assembly, said valve assembly being responsive to a predetermined pressure level within said one pressure chamber to vary fluid communication from the one pressure chamber to one of the brake circuits, said valve assembly also communication with said reservoir, and a sleeve slidably and sealingly engaging said housing, said sleeve having a bore sealingly and slidably receiving one of the pair of pistons, said sleeve being movable in response to a pressure differential between the pair of pressure chambers to close said communication of said valve assembly with said reservoir so as to deactivate the valve assembly.

4,265,492

BRAKING APPARATUS FOR VEHICLES

Hans Pöllinger, Munich, Fed. Rep. of Germany, assignor to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed May 8, 1979, Ser. No. 37,128

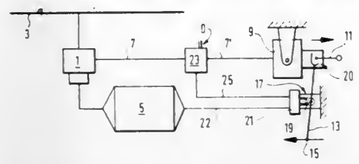
Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2820921

Int. Cl.³ B60T *11/24*

U.S. Cl. 303—14 **7 Claims**

1. A braking apparatus for vehicles comprising a service

brake having a fluid pressure operated brake cylinder, control device means connected to said brake cylinder for controlling said brake cylinder, an actuating member extending from said brake cylinder and adapted to be connected to a braking member, a selectively operable parking brake, a lever operatively connecting said parking brake and said service brake actuating member, a switching device connected to said control device



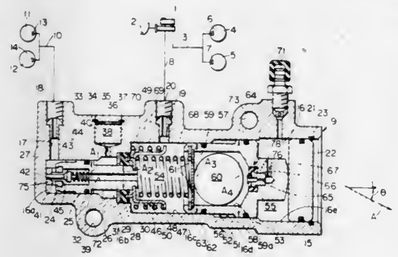
means to control the admission of fluid pressure to said brake cylinder, means for defining a bearing of said lever on said switching device, said switching device being actuated by a reaction force acting upon said bearing means through said lever when the reaction force exceeds a predetermined level such that a predetermined braking force is generated by the parking brake when said parking brake is actuated to a locking position.

4,265,493

BRAKE FLUID PRESSURE CONTROL VALVE RESPONSIVE TO DECELERATION

Tanaka Ryuichi, Yokosuka, Japan, assignor to Nippon Air Brake Co., Ltd., Kobe, Japan

Filed Jun. 21, 1979, Ser. No. 50,682
Claims priority, application Japan, Jun. 29, 1978, 53-79164
Int. Cl.³ B60T *8/14*
U.S. Cl. 303—24 C **20 Claims**



1. A brake fluid pressure control valve responsive to deceleration comprising:

(A) a main body having a cylindrical bore;

(B) a first piston slidably fitted to said cylindrical bore;

(C) a second piston having a hollow, slidably fitted to said cylindrical bore;

(D) a first fluid pressure chamber formed between said first and second pistons in said cylindrical bore;

(E) a second fluid pressure chamber formed at the opposite side of said first piston to said first fluid pressure chamber in said cylindrical bore;

(F) a third fluid pressure chamber formed at the opposite side of said second piston to said first fluid pressure chamber in said cylindrical bore;

(G) a first passage through which said first and second fluid pressure chamber communicate with each other;

(H) a second passage through which said first and third fluid pressure chambers communicate with each other, said second passage including said hollow of the second piston;

(I) a first valve member for opening and closing said first passage;

(J) a second valve member responsive to deceleration, for opening and closing said second passage, arranged in said hollow of the second piston;

(K) a first spring extending between said first and second pistons, for urging said first piston from the side of said first fluid pressure chamber to the side of said second fluid pressure chamber and urging said second piston from the side of said first fluid pressure chamber to the side of said third fluid pressure chamber; and

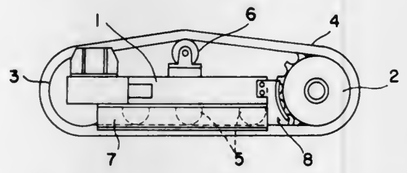
(L) a second spring extending between said main body and said first piston, for urging said first piston from the side of said second fluid pressure chamber to the side of said first fluid pressure chamber, whereby said second passage is closed by said second valve member responsive to deceleration when said deceleration has reached a predetermined valve.

4,265,494

CRAWLER TRAVELLING APPARATUS

Yoshitaka Matsubara, Osaka; Shizuo Shimoie, Sakai; Takao Watanabe, Osaka, and Yoshio Tomiyama, Sakai, all of Japan, assignors to Kubota, Ltd., Osaka, Japan

Filed Mar. 20, 1979, Ser. No. 22,267
Claims priority, application Japan, Apr. 4, 1978, 53-44722[U]
Int. Cl.³ B60S *1/66*
U.S. Cl. 305—12 **7 Claims**



1. A crawler travelling apparatus comprising: a take-up wheel (3) and a drive wheel (2) disposed forwardly and rearwardly of a frame (1) respectively, a crawler (4) entrained about said two wheels (2) (3) and having a series of crawler links (4*a*) upstanding on an inner surface thereof, said two wheels (2) (3) being located inwardly with respect to said links (4*a*), guide wheels (5) disposed under said frame (1), adapted to guide a lower portion of said crawler (4), a main earth and sand fending cover (7) having a lower edge adjacent to an upper surface of the lower portion of said crawler (4), wherein: said main cover (7) provides an interval in side view between one end thereof and said drive wheel (2) to form an earth and sand discharge opening (A) with said crawler links (4*a*) at an inward side thereof, and an auxiliary earth and sand fending cover (8), said auxiliary cover is disposed between said one end of the main cover (7) and said drive wheel (2) and at an inward position with respect to said main cover (7) for covering said interval in side view, whereby earth and sand inadvertently entering said main cover (7) is caused to flow out of said opening (A) outwardly of said auxiliary cover without reaching said drive wheel (2) and said drive wheel (2) is positively protected by said auxiliary cover (8) from intrusion and accumulation of the earth and sand.

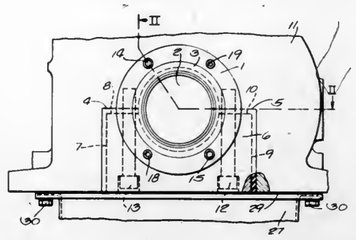
4,265,495

ENGINE BLOCK AND CRANKSHAFT BEARING SEAL

Robert R. Backlin, Dolton, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Aug. 20, 1979, Ser. No. 68,173
Int. Cl.³ F16C *9/02, 35/02*
U.S. Cl. 308—23 **10 Claims**

1. A main bearing and crankshaft seal assembly comprising, a housing forming a bearing support, a crankshaft, a bearing cap, bearing shells received in said housing and bearing cap forming a journal for said crankshaft when said bearing cap is fastened to said housing, lateral and horizontal interfaces between said bearing cap and housing and extending to a point adjacent said crankshaft defining seal grooves, linear seals received in said seal grooves, a seal carrier ring embracing said crankshaft, an inner peripheral seal sealing said seal carrier ring



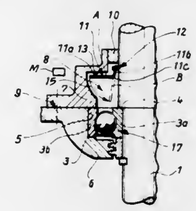
with said crankshaft, an outer peripheral seal on said seal carrier ring sealing said seal carrier ring with said bearing cap and said housing and engaging said linear seals to provide a continuous seal around the crankshaft and said bearing cap for said bearing assembly.

4,265,496

APPARATUS FOR LONG-TERM BEARING LUBRICATION

Wolfgang Kofink, Aichwald, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 22, 1979, Ser. No. 5,489
Claims priority, application Fed. Rep. of Germany, Mar. 1, 1978, 2808698
Int. Cl.³ F16C *33/66*
U.S. Cl. 308—122 **9 Claims**



1. An apparatus for long-term lubrication of a bearing (3) connecting a rotary shaft (1) and a stationary part (6), comprising:

a housing (7) for holding said bearing and for defining a lubricant reservoir (8) to retain lubricant therein communicating with said bearing (3); and

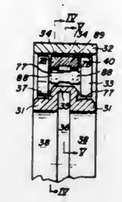
an elastic movable lubricant transport element (11), disposed within said reservoir and being capable of movement between at least a first, preparatory position (A) and a second, rest position (B), movement of said lubricant transport element between said first position (A) and said second position (B) being in a direction to move and transport lubricant by engagement of said transport element with lubricant in the reservoir from said reservoir (8) toward said bearing (3), said transport element being subjected to application of a moving force which depends on the rotation of the shaft.

4,265,497

RADIAL BEARING

Karl Eickmann, 2420 Isshiki, Hayama-machi, Kanagawa-ken, Japan

Continuation-in-part of Ser. No. 765,221, Feb. 3, 1977, Pat. No. 4,193,336, which is a continuation-in-part of Ser. No. 528,346, Nov. 29, 1974, Pat. No. 4,037,523. This application Feb. 16, 1979, Ser. No. 12,625
Int. Cl.³ F16C *19/26, 33/36*
U.S. Cl. 308—215 **7 Claims**



1. A radial bearing including an inner ring, an outer ring, at least one cylindrical inner face on said outer ring, outer face means on said inner ring, and rolling members between said rings for rolling along said inner face and along portions of said outer face means for revolvingly bearing one of said rings on the other of said rings,

wherein said inner ring includes a medial portion,

wherein said medial portion is provided between two end portions,

wherein said end portions have outer faces of equal radii around a common axis,

wherein said medial portion extends radially outwardly beyond said end portions,

wherein said rolling members include bearing portions located radially of said outer faces,

wherein said bearing portions of said rolling members are able to engage and to roll along said faces,

wherein said inner ring is hollow and has inner face means,

wherein a radially extending annular groove is provided in the said medial portion of said inner ring, extending radially outwardly beyond said inner face means into said inner ring,

wherein a retainer is provided between said rings,

wherein said retainer has radially directed recesses,

wherein said members are guided in said recesses of said retainer,

wherein one group of said members is located radially of one of said outer faces and another group of said members is located radially of an other of said outer faces,

wherein said medial portion has a medial outer face,

wherein said retainer has a medial inner face, and

wherein said medial inner face is guided on said medial outer face.

4,265,498

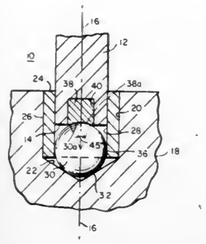
THRUST BEARING

Carl T. Luce, Thousand Oaks; Edwin L. Banks, Jr., Lake View Terrace, and Terrence P. Dowell, Van Nuys, all of Calif., assignors to Barry Wright Corporation, Watertown, Mass.

Filed Apr. 6, 1979, Ser. No. 28,046
Int. Cl.³ F16C *19/50*
U.S. Cl. 308—230 **10 Claims**

1. A thrust bearing assembly for an end of a shaft for supporting the shaft for rotation about its longitudinal axis comprising a ball bearing confined in concentric relation with the end of the shaft and a part recessed into the end of the shaft which rests against the ball bearing characterized in that the part at high pressure functions as a solid lubricant and at low pressures functions as a solid, thus maintaining substantially the

same efficiency throughout the range of loading and velocity of rotation to which the structure is subjected, and wherein the

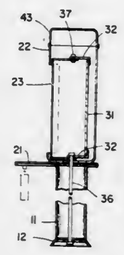


part contains a recess having a radius of curvature corresponding to that of the ball bearing.

4,265,499
PROTECTIVE TELEPHONE STAND

Rollie B. Nawman, Pleasant Hill, Calif., assignor to Benner-Nawman, Inc., Pleasant Hill, Calif.

Filed Aug. 30, 1979, Ser. No. 70,970
Int. Cl.³ A47B *81/06*
U.S. Cl. 312—100 **6 Claims**



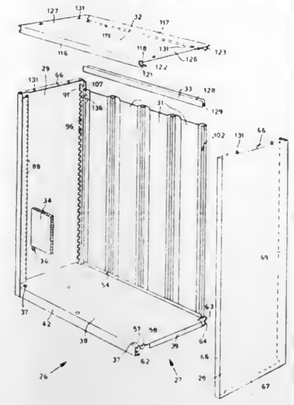
1. A protective telephone stand, including an upwardly extending tubular base member, an upper tubular member secured atop said base member and aligned therewith, a window disposed in said upper tubular member, a curved door disposed in said window in said upper tubular member, pivotting bracket means extending from said door to permit said door to be rotated to occlude or open said window, support means in said upper tubular member for supporting and retaining a telephone instrument, a laterally extending shelf member interposed between said base member and said upper tubular member, and tie rod means extending through and joining said upper tubular member, said pivotting bracket means, said support means, said shelf member, and said base member in compressive fashion.

4,265,500
METAL FURNITURE IN SECTIONAL UNITS

Marcello Berton, Ronchi di Massa, and Pietro Ceccarelli, Massa, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea Turin, Italy

Filed Jun. 19, 1978, Ser. No. 916,838
Claims priority, application Italy, Jul. 4, 1977, 68541 A/77
Int. Cl.³ A47B *87/00;* **F16B** *12/00*
U.S. Cl. 312—107 **16 Claims**

1. A metal furniture comprising a series of parts assembled together, wherein two of said series of parts include coupling means for coupling said parts together upon relative rotation thereof, alignment means comprising complementary elements for determining a fixed predetermined relative angular position of said two parts when they are assembled and locked together, locking means movable from an initial position corresponding to an engaged relative angular position of said two parts near said predetermined angular position, to successive locking positions in which said locking means locks said two parts together with the complementary elements in engagement with one another, and spring means for urging said locking

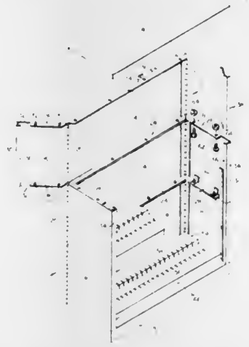


means from said initial position to said successive position for taking up any relative play between said complementary elements throughout the range of said successive locking positions between said engaged and predetermined angular positions upon assembly of said two parts.

4,265,501
MODULAR SHELVING

Charles R. Halliburton, 310A Barbara Cir., Chattanooga, Tenn. 37411

Filed Feb. 25, 1980, Ser. No. 124,143
Int. Cl.³ A47B *87/00, 43/00*
U.S. Cl. 312—108 **6 Claims**

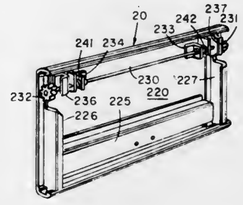


1. A shelf cabinet comprising at least two adjacent superposed shelving modules interconnected with corresponding shelves into an upstanding structure, each of said modules comprising a rear panel and a pair of side panels, connecting means for securing a substantially vertical edge of the rear panel at each side thereof to a corresponding vertical edge of the side panels to form an open front frame, the upper and lower edge of each side panel having a substantially horizontal flange facing toward the opposite side panel and extending from adjacent said rear panel toward and spaced from the front vertical edge of the side panel, said front vertical edge of each side panel having a substantially vertical flange facing towards the opposite side panel substantially the same distance as said horizontal flanges and terminating in a lip spaced from the plane of the respective side panel, a vertically extending channel being defined within the space between said horizontal and vertical flanges and the lip and the corresponding side panel, a splicing member receivable within each channel and extending vertically into the channel of an adjacent superposed module, said splicing member having surfaces for engaging said vertical flange and lip and for engaging a horizontal flange of the adjacent superposed modules, a shelf secured to adjacent horizontal flanges of said adjacent modules and having an edge abutting said splicing member to secure it in said channel.

4,265,502
PANEL WALL SYSTEMS WITH MODULAR COMPONENT BUILD-UP

Leif Blodee, Holland; Robert L. Knapp, and Simon W. Oppenhuizen, both of Grand Rapids, all of Mich., assignors to American Seating Company, Grand Rapids, Mich.

Division of Ser. No. 810,578, Jun. 27, 1977, Pat. No. 4,123,879.
This application Aug. 18, 1978, Ser. No. 934,729
Int. Cl.³ A47B *88/00, 67/02;* **E05D** *15/58*
U.S. Cl. 312—109 **14 Claims**



1. In a panel wall system, the improvement comprising a panel including a frame having upright tubular supports at the sides thereof, each defining a set of vertically spaced hanging slots; and a cabinet assembly secured to said panel comprising: first and second side panel assemblies secured to said hanging slots of said panel, said cabinet side panels being interchangeable and including a front and a rear vertical channel recess on the inner side thereof, each channel recess providing a set of vertically spaced adjustment slots, the rear edges of said cabinet side panels defining symmetrical upper locking tab means and lower locking tab means, and including a spring-urged locking member defining a bifurcated tongue for straddling the material on said frame between two adjacent hanging slots, the spacing of said locking tab means on said cabinet side panel and said locking member being such that when a side panel is engaged with said hanging slots on at least one side of said frame, said locking member extends into adjacent hanging slots and said side panel cannot be removed; a top having first and second mounting brackets at the sides thereof for connecting to the adjustment slots of said cabinet side panels; and a bottom shelf having first and second side mounting brackets connected in the adjustment slots of said cabinet side panels.

4,265,503
AIRCRAFT/PYLON MULTI-CONTACT ELECTRICAL CONNECTOR

Robert Baur, Los Angeles, Calif., assignor to Automation Industries, Inc., Greenwich, Conn.

Filed Dec. 20, 1979, Ser. No. 105,513
Int. Cl.³ H01R *13/62*
U.S. Cl. 339—45 M **6 Claims**

1. A multi-contact electrical connector adapted for sequential engagement/mating/ locking of the receptacle/plug assemblies and for sequential unmating/unlocking/disengagement of the receptacle/plug assemblies, which connector comprises:

(1) a receptacle assembly including

(a) a receptacle shell provided with a receptacle barrel;

(b) electrical socket contacts carried within said receptacle barrel;

(c) recesses in the exterior surface of said receptacle barrel; and

(d) orientation means on said receptacle barrel for relative positioning of said receptacle assembly and said plug assembly;

(2) a plug assembly having a plug housing including

(a) a collet shell having

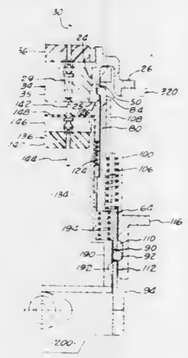
(i) a collet guide ring located at the end nearest said receptacle assembly, having orientation means at the upper end of said guide ring for relative positioning, in cooperation with said receptacle orientation means, of said receptacle and said plug assemblies;

(ii) a plurality of collet fingers terminating below said guide ring, said fingers ending in tips for meshing into said receptacle recesses to engage said receptacle assembly and said plug housing; and

(iii) a plurality of openings in said collet shell located on a common circumference of said collet shell, for positioning balls, which balls have a diameter substantially larger than the thickness of said collet shell at the locus of said ball openings;

(b) a locking/release sleeve assembly surrounding said collet shell,

(i) having spring means to move said locking/release sleeve assembly in the direcion of said collet fingertips,



said locking/release sleeve assembly overlapping the back of each of said fingertips when said fingertips mesh with said receptacle recesses, thereby giving locking engagement of said receptacle/plug assemblies;

(ii) said locking/release sleeve assembly being restrained from said overlapping movement, when said collet fingertips are outside of said receptacle recesses, by the rear of said fingertips;

(iii) having an inner annular channel for receiving a substantial amount of each of said collet shell balls and of a width such that the initial overlapping movement of said locking/release sleeve assembly stops with said balls still in the inner annular channel;

(iv) the length of said locking/release sleeve assembly providing a portion beyond the inner annular channel for covering said collet sleeve ball openings when said locking/release sleeve assembly reaches it farthest upward movement; and

(v) having trip ears for contacting tripping means;

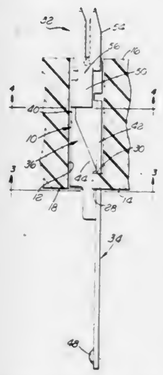
(c) a stayback sleeve assembly positioned inside of said collet shell having a stayback sleeve extending to said collet fingertips; and

(i) including spring means which urge the stayback sleeve toward said collet fingertips, and

(ii) said stayback sleeve is adapted for stop motion contact with the end of said receptacle barrel nearest said plug assembly;

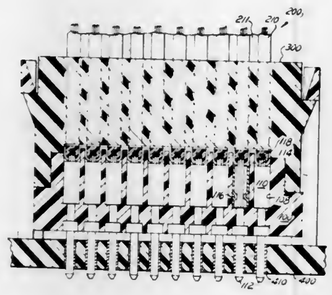
(3) said plug assembly further including a capsule assembly comprising,
(a) a plug contact insert for receiving electrical pin contacts for mating with receptacle electrical socket contacts; and
(b) a plug contact shell fitting closely inside said plug housing
(i) for carrying said plug contact insert at one end;
(ii) providing access to the rear of said plug contact insert;
(iii) providing contact surface for a backshell cam assembly to move said capsule assembly into mated relation with said receptacle assembly; and
(iv) a plurality of spring cages positioned on the exterior of said plug contact shell so as to be compressed when said capsule assembly is moved into mated relation;
(4) said capsule assembly further including a receiver sleeve positioned closely inside said collet shell,
(a) having an outer annular channel for receiving a substantial width of said collet shell balls;
(b) positioned so that the outer annular channel is juxtaposed with said collet shell ball openings and with said locking-/release sleeve assembly covering said collet sleeve ball openings, when the capsule assembly is moved to mated relation; and
(c) spring means for compression by said capsule assembly movement, for later imparting reverse movement to said receiver sleeve;
(5) a backshell cam assembly below said capsule assembly for movement of said capsule assembly into mated relation, said cam assembly including yieldable cam means to limit upward movement of said capsule assembly after the mated relation has been achieved; and
(6) a mounting means to position and to maintain said plug housing on a support means.

4,265,504
CONTACT RETENTION ASSEMBLY
Edgar Burns, Los Angeles, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Sep. 4, 1979, Ser. No. 71,875
Int. Cl.[3] H01R *13/432*
U.S. Cl. 339—97 R **18 Claims**



1. An electrical contact adapted to be mounted in a contact cavity in an insulator of an electrical connector comprising:
an electrically conductive body having a forward section and a generally U-shaped retention section behind said forward section;
said retention section having a generally flat, elongted base with a pair of upstanding sidewalls along the edges thereof;
a spring retention tine formed from one of said sidewalls extending rearwardly and inwardly toward the other of said sidewalls whereby the end of said tine may engage a forwardly facing corner shoulder in said contact cavity adjacent to said other sidewall; and
said other sidewall blocking said tine from extending outwardly beyond the perimeter of said U-shaped retention section, thereby protecting said tine from damage during handling of the contact.

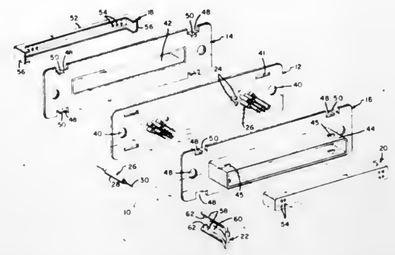
4,265,505
ELECTRICAL CONNECTOR
Normand C. Bourdon, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.
Continuation of Ser. No. 847,451, Feb. 2, 1978, abandoned. This application Apr. 6, 1979, Ser. No. 28,131
Int. Cl.[3] H01R *11/20, 13/514*
U.S. Cl. 339—99 R **5 Claims**



1. An electrical connector assembly comprising:
a body of insulative material including a plurality of passages extending therethrough;
a contact disposed for mating in one of said passages, said contact including a sleeve and a plurality of axially aligned contact wires of conductive material, each of said contact wires having a tapered forward end portion and a tapered rearward end portion, said sleeve being disposed medially said end portions of the contact wires and including means for securing medial portions of said wires within said sleeve to prevent the wires from displacing axially with respect to the sleeve, the forward end portions of said contact wires being disposed for mating with another contact and the rearward end portions of said contact wires being exposed for impaling an insulated conductor wire; and
means for securing the insulated conductor wire to the tapered rearward end portions of said aligned contact wires, said insulated conductor wire having a portion mounted transverse to the contact wires with the rear tapering end of the contact wires piercing through the insulation and into the conductor wire, the impaling resulting in said another contact making electrical contact with the central wire of the insulated conductor.

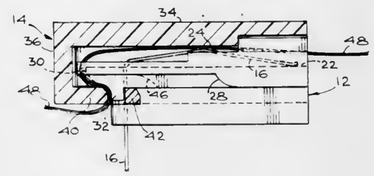
4,265,506
FILTERED CONNECTOR ASSEMBLY
Robert D. Hollyday, Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Aug. 17, 1979, Ser. No. 67,270
Int. Cl.[3] H01R *13/66, 33/80;* **H03H** *7/09*
U.S. Cl. 339—147 R **13 Claims**

1. A filtered connector assembly comprising:
an elongate ground plate having filtered pin means centrally disposed therethrough and discrete longitudinal slot means adjacent opposite ends;
a pair of identical elongate mounting plates abutting opposite faces of said ground plate in an aligned relationship, and each said mounting plate having notch means adjacent each end, and integral tab means adjacent each end directed inwardly through said ground plate slot means in complementary position with said opposite mounting plate tab means, and said tab means having remote ends



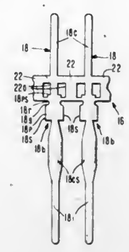
folded into said opposite mounting plate notch means and against an opposite said face of said ground plate to hold said ground and said mounting plates in said aligned relationship.

4,265,507
ELECTRICAL CONNECTOR FOR STRIP CONDUCTORS
Donald L. Johnson, Olivenhain, Calif., assignor to Teledyne Industries, Inc., Los Angeles, Calif.
Filed Aug. 6, 1979, Ser. No. 64,002
Int. Cl.[3] H01R *13/36*
U.S. Cl. 339—176 MF **4 Claims**



1. A connector for making electrical connection to a flexible conductor cable comprising:
a body member including a plurality of resilient electrical terminals supported in parallel by the body member and extending from a first surface thereof, each of the terminal members having a free end, and
a shell which fits over the first surface of the body member and depresses a cable to which electrical connection is to be made into positive contact with the terminals, thereby depressing the free ends of the terminals against the body member, thereby providing high contact force against the cable, the shell including a top, an end molded to the top at a right angle thereto, a pair of sides molded to the top and end, and a lip parallel to the top molded to the sides and end, with the top depressing the cable into positive contact with the terminals and the lip being positioned on the surface of the body member opposite the first surface thereof, whereby the tendency of the shell to warp from forces exerted on the top by the resilient terminals is resisted by the lip being compressed against the opposite surface of the body member.

4,265,508
INTERMEDIATE-WEB HELD TERMINAL PINS
William M. Chisholm, Midlothian, Va., assignor to Western Electric Company, Inc., New York, N.Y.
Filed Nov. 30, 1978, Ser. No. 965,219
Int. Cl.[1] H01R *13/40*
U.S. Cl. 339—221 R **16 Claims**

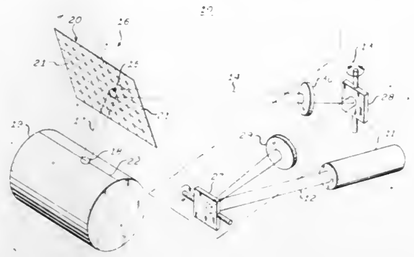


1. A terminal pin strip, which comprises:
a plurality of spaced elongated terminal pins;
each of the terminal pins including a body portion having an elongated stem extending in one direction from the body portion along a longitudinal axis of the terminal pin, the elongated stem having a free unobstructed end defining an extremity of the terminal pin, the body portion including a planar intermediate portion and the elongated stem having opposite essentially parallel side surfaces facing laterally in opposite directions away from each other and spaced apart essentially uniformly along the length of the stem in opposed spaced relationship to respective ones of the side surfaces of the elongated stems of adjacent terminal pins in the strip;
lateral projections formed integrally with the planar intermediate portion of each pin in the plane of the planar intermediate portion on opposite sides of the pin, at least one of the lateral projections including a shoulder which projects laterally beyond an adjacent one of the essentially parallel side surfaces of the elongated stem in the direction in which the one side surface faces laterally away from the other side surface; and
a plurality of pin-linking webs, each web being formed integrally with and extending between the lateral projections of the planar intermediate portions of an associated adjacent pair of terminal pins.

4,265,509
HIGH SPEED HOLOGRAPHIC OPTICAL PRINTING SYSTEM
Donald H. McMahon, Carlisle, Mass., assignor to Sperry Corporation, New York, N.Y.
Continuation of Ser. No. 810,245, Jun. 27, 1977, abandoned. This application Jan. 10, 1979, Ser. No. 2,475
Int. Cl.[3] G03H *1/30;* **B41B** *13/00*
U.S. Cl. 350—3.78 **5 Claims**

1. An apparatus for projecting characters along recording lines of a continuously rotating photoconductive drum comprising:
an array of character generating elements wherein each column of elements corresponds to a preassigned position on said recording lines whereat a character is formed when an element in said column is illuminated by a substantially collimated light beam, said array constructed and arranged such that said character generating elements in each column are positioned to provide characters along a slanted print line to provide compensation for said continuous rotation of said photoconductive drum thereby establishing non-slanted recording lines;

means for directing a light beam to be incident to a selected element in a selected column; and



means positioned between said directing means and said array of image generating elements for substantially collimating said incident light beam.

4,265,510

THREE MIRROR ANASTIGMATIC OPTICAL SYSTEM

Lacy G. Cook, Hawthorne, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed May 16, 1979, Ser. No. 39,530
Int. Cl.³ G02B 17/00
U.S. Cl. 350—55 **18 Claims**



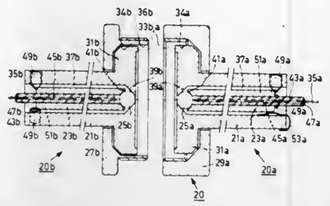
1. A three mirror anastigmatic optical system comprising:
a primary mirror defining an optical axis, said primary mirror having a conic ellipsoid reflective surface on one side of said optical axis;
an image surface on the other side of said optical axis;
a secondary mirror having a conic hyperboloid reflective surface which is tilted and decentered with respect to said optical axis; and
a tertiary mirror having a conic ellipsoid reflective surface which is tilted and decentered with respect to said optical axis, said primary, secondary and tertiary mirrors having surfaces shaped to form an image of an object at said image surface, said optical system being off-axis in aperture and field to determine said positions of said primary mirror and said image surface.

4,265,511

DETACHABLE CONNECTOR FOR OPTICAL FIBRES

Antonius J. A. Nicia, and Cornelis J. T. Potters, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 7, 1979, Ser. No. 46,539
Claims priority, application Netherlands, Jun. 26, 1978, 7806829
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.18 **4 Claims**



1. A detachable connector, for coupling the ends of optical fibers, comprising two connector portions, each connector portion comprising:
a housing, rotationally symmetrical about a central axis, said housing having a first end and a second end and a bore, which is coaxial to the central axis, extending from the first end to the second end, said housing further comprising a reference face at the first end, said reference face being perpendicular to the central axis, and a seat in the bore at the first end of the housing, said seat facing the second end of the housing;
a tube, rotationally symmetrical about an axis of the tube, said tube having a first end and a second end and a seat, said seat being at the first end and facing away from the second end, said tube having a bore in which an end of a fiber to be coupled is secured, said tube being secured in the bore of the housing with the seat of the bush facing the seat of the housing at the first end of the housing and with the second end of the bush at the second end of the housing;
a ball lens, said ball lens being accommodated in the bore of the housing between the seat of the housing and the seat of the tube and forming a bearing between the tube and the housing;
means for adjusting the position of the second end of the tube radially with respect to the central axis of the housing, said adjusting means enabling an optical axis of the fiber secured in the tube to be adjusted at least parallel to the central axis of the housing by pivoting the second end of the tube about the ball lens; and
means for detachably connecting the connector portions to each other with their reference faces in contact.

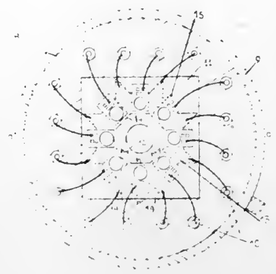
4,265,512

OPTOELECTRONIC CONVERTING TERMINATION FOR OPTICAL-FIBRE TRANSMISSION CABLE

Bernard Chiron; Jean-Louis Foure, and Michel de Vecchis, all of Paris, France, assignors to Societe Lignes Telegraphiques et Telephoniques, Paris, France

Filed Mar. 2, 1979, Ser. No. 16,810
Int. Cl.³ G02B 5/16
U.S. Cl. 350—96.20 **5 Claims**

1. An optoelectronic converting termination for an n-optical fibre transmission cable including a mechanical core, a surrounding grooved sheath and a fibre laid in each groove of the sheath, the termination comprising
a. a base having a plurality of pins and containing a first bore;
b. an insulating substrate fixed on the base and containing a second bore extending along the axis of the first bore;
c. an annular conductive film on the substrate and having an internal contour in the form of a convex, regular, n-sided polygon centered on the axis of the first bore; and
d. n discrete optoelectronic components, each having at least a first electrode connected to the film and a second electrode connected to one of the pins,



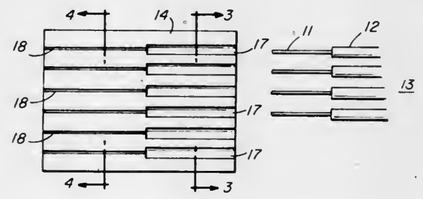
e. each of said components being positioned on the film at the point of intersection of extensions of two-sides of said polygon which are adjacent a common side of the polygon.

4,265,513

LIGHT SWITCH

Shigeo Matsushita; Ro Ishikawa; Kazuhisa Kaede; Ikuo Mito, and Shigetoki Sugimoto, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Aug. 16, 1979, Ser. No. 67,013
Claims priority, application Japan, Aug. 17, 1978, 53-113005[U]; Aug. 30, 1978, 53-106551; Aug. 30, 1978, 53-119340[U]; Sep. 14, 1978, 53-127348[U]; Sep. 14, 1978, 53-127349[U]; Sep. 18, 1978, 53-128537[U]
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 **9 Claims**



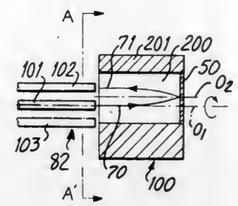
1. A light switch comprising: a light-focusing transmission body, said transmission body having a central axis and having opposite end faces normal to the axis thereof and having a refractive index radially graded to decrease in proportion to the square of the distance from said axis and an axial length substantially equal to an odd multiple of one quarter of the pitch of light beam undulation in said transmission body; reflecting means provided on one of said end faces of said transmission body; a bundle of optical fibers arranged adjacent to the other end face of said transmission body in parallel relation to said axis thereof; and means for moving said transmission body relative to said bundle of optical fibers in a plane normal to the axis of said transmission body.

4,265,514

GUIDE CAPSULE FOR OPTICAL FIBER CONNECTORS

Charles K. Wellington, Tyngsboro; Mark L. Dakss, Sudbury, both of Mass., and John E. Benasutti, Oil City, Pa., assignors to GTE Laboratories Incorporated, Waltham, Mass. and Sylvania Inc., Stamford, Conn.

Filed Jun. 18, 1979, Ser. No. 49,691
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 **7 Claims**



1. A housing for supporting a plurality of partially jacketed optical fibers, wherein jacketed optical fibers have larger cross-sections than the corresponding optical fibers without jackets, comprising
a pair of matable members, each having a mating surface extending from a first edge to a second edge, which, when their mating surfaces are mated together, with said plurality of optical fibers, acts as said housing,
at least one of said members comprising
a like plurality of formed grooves located on a mating surface thereof extending from said first edge of such mating surface to said second edge of such mating surface,
each of said formed grooves from said first edge of such mating surface to a respective point between the two edges of such mating surface having a cross-section of a first configuration and being formed to at least partially hold on unjacketed optical fiber therein, and each of said formed grooves from said respective point to said second edge of such mating surface having a cross-section of a second configuration and being formed to at least partially hold a jacketed optical fiber therein, said cross-section of said second configuration being larger than said cross-section of said first configuration.

4,265,515

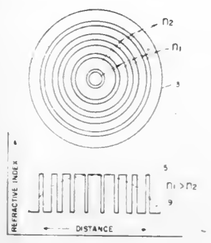
OPTICAL FIBER WAVEGUIDE WITH EFFECTIVE REFRACTIVE INDEX PROFILE

Charles K. Kao, Roanoke, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation of Ser. No. 904,092, May 8, 1978, abandoned, which is a continuation-in-part of Ser. No. 632,046, Nov. 14, 1975, abandoned. This application Dec. 11, 1978, Ser. No. 968,326
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.33 **9 Claims**

1. An optical waveguide core having an effective graded index of refraction profile, comprising:
a plurality of first and second alternating, concentric regions of light transmissive material, each of said first regions having a first index of refraction and substantially equal thicknesses, each of said second regions having a second index of refraction lower than said first index and successively increasing thicknesses in an outwardly direction from the innermost region of said core so that the effective index of refraction correspondingly decreases outwardly

from the core center, the relationship of the thicknesses of said first and second concentric regions of light transmissive material being such as to produce a single waveguide core having an effective graded index of refraction profile.



4,265,516

DISPLAY DEVICE WITH A LIGHT VALVE OPERATED IN A TIME DIVISION MULTIPLEX METHOD

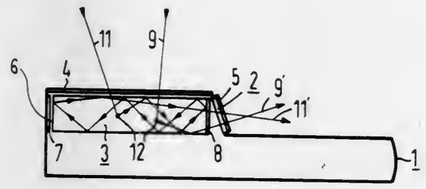
Waldemar Greubel, and Hans Krueger, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,536

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1978, 2808440

Int. Cl.³ G02F *1/133*

U.S. Cl. 350—345 **9 Claims**



1. A display device comprising a light valve display operated in a time division multiplex process, a plate-shaped body of a material having an index of refraction greater than 1 and containing fluorescent particles, said body having narrow sides, one of said sides forming an outlet window through which fluorescent light passes from said body to said light valve display, a diffusely reflective layer spaced from the opposite side of said body from said outlet window for producing focussed backscattering of fluorescent light so that the fluorescent light which is emitted through said outlet window to said light valve display is emitted over a narrow angular range, and a dielectric multiple layer adjacent said one side for further constricting the angular range of the emitted fluorescent light.

4,265,517

ACOUSTO-OPTIC DEVICE AND METHOD USING TELLURITE GLASS COMPOSITION

Gerald E. Blair, Pittsford, N.Y.; J. Bradford Merry, Springfield, Va., and James M. Wylot, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 11, 1979, Ser. No. 29,094

Int. Cl.³ G02F *1/11*

U.S. Cl. 350—358 **9 Claims**

1. In an acousto-optic device having an acousto-optic element acoustically coupled to means for generating acoustic waves in said element so that upon generation of an acoustic wave in said element at least a portion of a beam of electromagnetic radiation incident on said element is diffracted as it is transmitted through said element, the improvement wherein said acousto-optic element comprises an alkali metal oxide-tellurite glass composition comprising at least 92 wt % tellurium dioxide and one or more alkali metal oxides selected from the group of sodium oxide and potassium oxide.



4,265,518

VARIABLE MAGNIFICATION APPARATUS HAVING ILLUMINATION COMPENSATING ABILITY

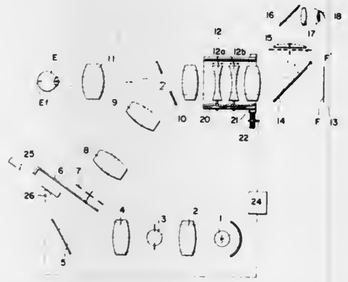
Isao Matsumura, Yokosuka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 26, 1978, Ser. No. 919,149

Claims priority, application Japan, Jun. 30, 1977, 52-78401; May 12, 1978, 53-56257

Int. Cl.³ A61B *3/14*

U.S. Cl. 351—7 **34 Claims**



1. A variable magnification system with ability for compensation of change in quantity of light, said system comprising:

a variable focal length optical system for imaging the radiation energy reflected from an object onto an image surface;

detecting means, connected with said optical system, for detecting the focal length of said optical system;

an observing finder system connected with said optical system;

an illuminating system including at least one radiation source, for illuminating the object; and

control means driven in response to said detecting means and adapted for controlling energy entering the image surface of said optical system.

4,265,519

WIDE-ANGLE OPHTHALMOSCOPE

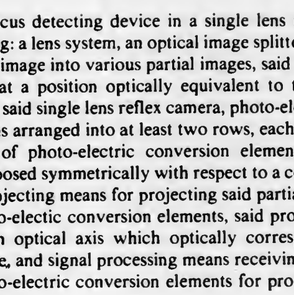
Oleg Pomerantzeff, Brookline, Mass., assignor to Retina Foundation, Boston, Mass.

Filed Sep. 25, 1972, Ser. No. 292,150

Int. Cl.³ A61B *3/10*

U.S. Cl. 351—16 **30 Claims**

1. An ophthalmoscope comprising a lens through which the interior of an eye can be viewed and a plurality of light-guiding optical fibers positioned in relationship to said lens so as to form a circular pattern of fibers around said lens, said fibers being positioned in relationship to said lens to prevent said fibers from intruding into the solid angle of the image of the retina from the posterior pole to the equator and with the tips of said fibers that face a patient when the ophthalmoscope is in use forming a ring of a pre-determined radius, said pre-determined radius of said ring formed by said tips and the positioning of said fibers in relationship to said lens being calculated to maximize the illumination of the interior of an eye with light traveling through said fibers, prevent blockage of an image of the interior of an eye seen by a viewer when looking through said lens and reduce the amount of reflection of the image of said fiber tips caused by the crystalline lens of the eye being viewed to enable an observer to view a retina from the posterior pole to the equator as a single image.



4,265,520

FOCUS DETECTING DEVICE IN SINGLE LENS REFLEX CAMERA

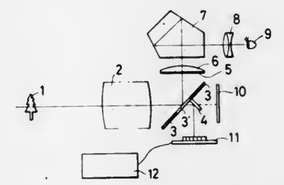
Seijiro Tokutomi, Tokyo; Masao Jyojiki, Tsurugashima, and Kazuo Nakamura, Tokyo, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 27, 1978, Ser. No. 964,110

Claims priority, application Japan, Nov. 28, 1977, 52-142464; Nov. 28, 1977, 52-142465

Int. Cl.³ G03B *3/10*

U.S. Cl. 354—23 D **16 Claims**



1. A focus detecting device in a single lens reflex camera comprising: a lens system, an optical image splitter for splitting an object image into various partial images, said image splitter disposed at a position optically equivalent to that of a film surface in said single lens reflex camera, photo-electric conversion means arranged into at least two rows, each row having a plurality of photo-electric conversion elements, said rows being disposed symmetrically with respect to a center line and, image projecting means for projecting said partial images onto said photo-electic conversion elements, said projecting means having an optical axis which optically corresponds to said center line, and signal processing means receiving signals from said photo-electric conversion elements for providing an output value:

$$\sum_{p=1}^{l}\sum_{m=1}^{n-p} | i_m - i'_{m+p} | + \sum_{p=1}^{l}\sum_{m=1}^{n-p} | i'_m - i_{m+p} | ,$$

said output value of said signal processing means having a maximum value when proper focus is obtained,

where: n is the number of said photo-electric conversion elements in each row, p is the parameter of the mutual positional relationship of said photo-electric conversion elements for obtaining output difference, m is the element number of said photo-electric conversion elements, i and i' are outputs corresponding to incident light quantities of photo-electric conversion elements in said rows, and l is an integer defined by $1 \leqq l \leqq (n-1)$ and in the range of p.

4,265,521

DIGITAL CONTROL CAMERA

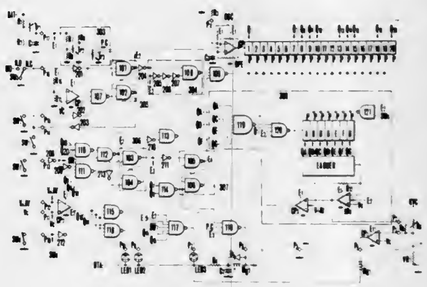
Masanori Uchidoi, Yokohama; Tomonori Iwashita, Fuchu; Tetsuya Taguchi, Kawasaki; Yukio Iura, Yokosuka; Toshikazu Ichiyanagi, Tokyo, and Hiroshi Aizawa, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 19, 1976, Ser. No. 733,794

Claims priority, application Japan, Oct. 21, 1975, 50-126559

Int. Cl.² G03B *7/08*

U.S. Cl. 354—23 D **4 Claims**



1. A digital control camera comprising:

a pulse generator;

release operation means for effecting shutter release;

counting means coupled to the pulse generator for counting pulses generated by the pulse generator when the release operation means is operated;

a first shutter release signal forming circuit conconnected to the counting means to form a shutter release signal when the value counted by the counting means reaches a first value;

a second shutter release signal forming circuit connected to said counting means to form a shutter release signal when the value counted by the counting means reaches a second value which is greater than the first value;

selecting means coupled to said forming circuits for selecting either the first or the second shutter release signal forming circuit and for making the selected circuit operative;

shutter means coupled to said forming circuits for opening in response to the shutter release signal produced either by the first or the second release signal forming circuit;

a light measuring circuit for producing an analog output corresponding to the intensity of light measured; and

an A-D conversion circuit coupled to said measuring circuit and responsive to said release operation means for converting the analog output into a digital output, said circuit becoming operative when the release operation means is operated, the time duration between the moment when the counting means starts to count and the moment when contents of the counting means reaches said first value being longer than the time duration required for an ana-

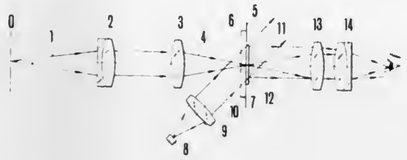
log-to-digital conversion operation of the A-D conversion circuit.

4,265,522

CAMERA HAVING A HOLOGRAPHIC INDICATOR

Kazuya Matsumoto, Yokohama; Susumu Matsumura; Noriyuki Nose, both of Kawasaki, and Youichi Okuno, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 830,036, Sep. 2, 1977, Pat. No. 4,165,930. This application Apr. 26, 1979, Ser. No. 33,687
Claims priority, application Japan, Sep. 7, 1976, 51-106886
The portion of the term of this patent subsequent to Aug. 28, 1996, has been disclaimed.
Int. Cl.³ G03B *17/20*
U.S. Cl. 354—53 **7 Claims**



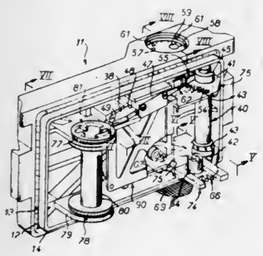
1. A camera comprising:
objective lens means for forming a first image of an object on the recording means;
exposure control means for determining the amount of exposure of the recording means, and
a view finder having
image-forming optical means for forming another image of the object on a plane,
a volume and phase type focused image hologram having at least one item of information representing one indicating mark recorded thereon,
carrier means for holding said focused image hologram on the plane of the other image of the object formed by the image-forming optical means,
illuminating means for illuminating the hologram and reconstructing the recorded mark, and
optical means for viewing the reconstructed mark overlapping the other image of the object.

4,265,523

UNDERWATER STILL CAMERA

Jean-Louis Defuans, Meylan, France, assignor to Formaplex S.A., Meylan, France

Filed May 28, 1980, Ser. No. 153,874
Claims priority, application France, Jun. 7, 1979, 79 14536
Int. Cl.³ G03B *11/08, 19/04, 17/36*
U.S. Cl. 354—64 **13 Claims**



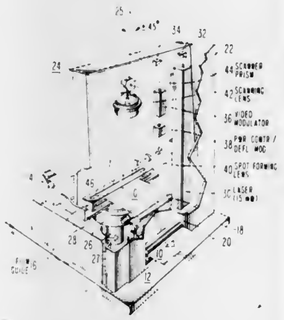
1. A "still" camera comprising a watertight body having an interior light tight chamber adapted to be back-loaded with a film, a lens closing off the front end of the light-tight chamber, a shutter adapted to selectively cover and uncover the lens, a cocking lever for bringing the shutter to its cocked position, a push rod adapted to release the shutter, the shutter, cocking lever and the push rod all being disposed outside the camera body, the camera body comprising a body member sealingly traversed by a transport spindle and a removably mounted bottom wall, a retaining pawl slidably and pivotally mounted inside the camera body and having a tooth cooperable with toothed wheel carried by the transport spindle for blocking the rotation thereof under the control of means responsive to the transport of a film, wherein the improvement comprises the means responsive to the transport of a film comprising a rotatably mounted intermediate spindle carrying at least one sprocket adapted to engage perforations of a film and at least one stop or ratchet tooth cooperable with the retaining pawl.

4,265,524

OPTICAL SCANNER WITH VARIABLE SCAN LINE ANGLE

Bertram L. Compton, Cherry Hill, and Paul B. Pierson, Delran, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Apr. 4, 1980, Ser. No. 137,824
Int. Cl.³ G01D *15/14;* **H04N** *1/24;* **G03B** *27/68*
U.S. Cl. 354—65 **11 Claims**



11. In a system including an aircraft having camera means operative to scan a path on terrain passed over by the aircraft by scan lines which have angles within a range of about ±45 degrees from a direction perpendicular to the direction of flight of the aircraft, the improvement comprising
recorder means operative to scan a moving elongated flat web of recording material by scan lines having the same angle within a range of about ±45 degrees to the direction of movement of the web as the camera scan lines have to the direction of flight of the aircraft.

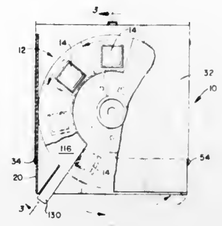
4,265,525

DISC CAMERA

Joseph A. Stella, Peabody, and Joseph H. Wright, Marblehead, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 26, 1979, Ser. No. 106,766
Int. Cl.³ G03B *17/52, 29/00*
U.S. Cl. 354—76 **13 Claims**

1. A photographic apparatus comprising:
a camera having a housing to provide a light-tight chamber and an optical system for exposing a film unit to a light image of a subject to be photographed;
a movable carrier insertable into said camera, said carrier coplanarly mounting a plurality of film units each providing, upon exposure and processing, a positive image transparency, a pod of processing fluid being located on said carrier in association respectively with each said film unit, each said film unit and its respective pod of processing fluid being supported by said carrier for movement therewith in said housing to an exposure position relative to said optical system and for subsequent movement from said exposure position to a viewing position spaced from said exposure position; and



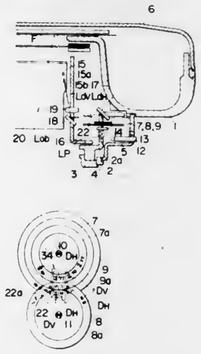
spreader means adapted to be fixed in said housing between said exposure position and said viewing position and operative to spread processing fluid from each said pod over the exposed area of its associated film unit during movement of said associated film unit from said exposure position to said viewing position.

4,265,526

CAMERA PROVIDED WITH A DATA RECORDING DEVICE

Hiroshi Ueda, Nara, and Mitsuru Saito, Kaizuka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Jul. 20, 1978, Ser. No. 926,176
Claims priority, application Japan, Jul. 22, 1977, 52/88488
Int. Cl.³ G03B *17/24*
U.S. Cl. 354—106 **8 Claims**



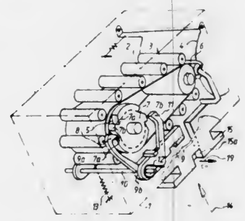
1. A camera having an objective lens and a focal plane onto which objective light traversing the objective lens is focused, said camera comprising:
data carrying means carrying at least two pieces of data oriented in relatively different directions;
illuminating means including a light source for concurrently illuminating said data pieces;
light projector means for directing said focusing images of said illuminated data onto said focal plane; and
data transfer means for alternatively disabling the projection of one of said data images onto said focal plane whereby only one of the data images is incident on said focal plane;
said data transfer means including a light blocking member movable between a first position for blocking light from one of said data pieces and a second position for blocking the light from the other of said data pieces; and
a biasing member urging said blocking member to its first position, a drive member movable between a rest position and a drive position for moving said blocking member to its second position against the influence of said biasing member, an operating member movable in response to the camera shutter-release operation, a spring member intercoupling said drive and operating members so as to move said drive member to its second position when said operating member is moved and a control member movable into and out of the path of movement of said drive member in response to the angular position of said camera body to respectively prevent and permit the movement of said drive member from movement of its drive position.

4,265,527

FLASH UNIT AND CAMERA

Dieter Engelsmann, Unterhaching; Karl Wagner, Munich, and Hubert Hackenberg, Holzkirchen, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed May 19, 1980, Ser. No. 150,994
Claims priority, application Fed. Rep. of Germany, May 22, 1979, 2920751
Int. Cl.³ G03B *15/03*
U.S. Cl. 354—144 **12 Claims**



1. In a multiple-lamp flash unit, a combination comprising a casing having a flashlamp firing station; transporting means for transporting a plurality of flash-lamps seriatim to said firing station; means for advancing said transporting means, including a sprocket operatively connected with said transporting means and a pawl alternately disengageable from and reengageable with said sprocket so that the latter can perform a stepwise advance of said transporting means during each disengagement of the pawl; and triggering means movable from a rest position to an operating position in which it disengages said pawl from said sprocket, said casing having an opening to afford access to said triggering means by an actuating element of a camera to which said flash unit is connectable.

4,265,528

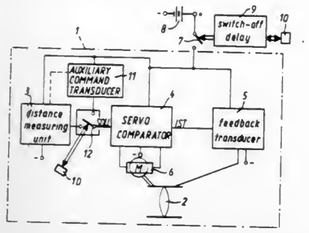
PHOTOGRAPHIC CAMERA WITH AUTOMATIC FOCUSSING SYSTEM

Friedrich Bestenreiner, Gründwald, and Klaus Birgmeir, Munich, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Mar. 13, 1979, Ser. No. 20,240
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1978, 2811279
Int. Cl.³ G03B *3/00, 7/08*
U.S. Cl. 354—195 **16 Claims**

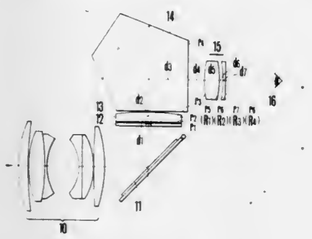
1. In a photographic camera provided with means for initiating and terminating shooting, an improved focussing system of the type comprised of an exposure objective, drive means operative when actuated for changing the distance-setting of the exposure objective, and actuating means operative for actuating the drive means to cause the latter to change the exposure objective's distance-setting, the improvement com-

prising the further provision of return-to-start means automatically operative upon the termination of shooting for returning



the exposure objective to a variable predetermined starting distance-setting.

4,265,529
CAMERA VIEWFINDER
Hideo Yokota, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 2, 1979, Ser. No. 16,724
Claims priority, application Japan, Mar. 9, 1978, 53-27054
Int. Cl.[3] G03B *13/08;* **G02B** *3/04*
U.S. Cl. 354—224 **9 Claims**



1. A camera viewfinder comprising:

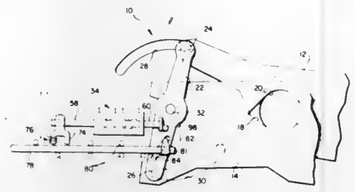
a roof type pentagonal prism for reflecting light from a scene; and an eyepiece having a positive lens arranged to face the exiting face of said pentagonal prims and, after an air space, a negative lens, said positive lens being biconvex and being made of a synthetic resin, and said negative lens being meniscus and concave toward the pentagonal prism, being made of an optical glass, said lenses fulfilling the following inequalities:

$$-1 < \left(\frac{1}{R_1} + \frac{1}{R_4}\right) \cdot f < 1.5$$

$$0.18 < \frac{\left|\frac{1}{R_3} - \frac{1}{R_4}\right|}{\left|\frac{1}{R_1} - \frac{1}{R_2}\right|} < 0.3$$

wherein R_1, R_2, R_3 and R_4 are the radii of curvature of the individual lens surfaces of the eyepiece; and f is the focal length of the eyepiece; at least one of the surfaces of said positive lens being an aspherical surface.

4,265,530
SHUTTER BLADE DRIVE SYSTEM
Christian C. Petersen, Westwood, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Jun. 5, 1979, Ser. No. 45,830
Int. Cl.[3] G03B *9/14;* **H02K** *41/00, 41/02*
U.S. Cl. 354—235 **15 Claims**



1. Photographic apparatus for controlling the opening and closing of a photographic shutter during an exposure interval comprising:

a photographic shutter including a pair of blades mounted for movement between a closed orientation and an open orientation in which scene light may pass to a focal plane;

means for connecting said blades for simultaneous movement between said closed and open orientations;

a linear motor adapted to be coupled to said connecting means for sequentially incrementally moving said blades from said closed orientation toward said open orientation, and for rapidly returning said blades to said closed orientation;

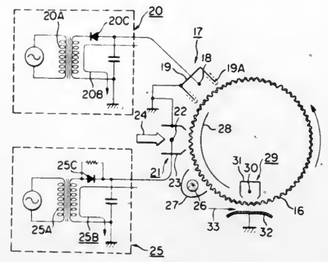
means for coupling said linear motor to said connecting means; and

means for generating a sequence of electrical pulses to energize said linear motor in a first directional sense to stepwise displace said blades from said closed orientation toward said open orientation and for generating an electrical pulse to energize said linear motor in an opposite directional sense to rapidly return said blades to said closed orientation thereby terminating the exposure interval.

4,265,531
ELECTROPHOTOGRAPHY
Katsunobu Ohara, Kawasaki, and Nobutoshi Yoshida, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 792,094, Apr. 29, 1977, abandoned. This application Oct. 24, 1978, Ser. No. 954,782
Claims priority, application Japan, May 19, 1976, 51-57465
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 SC **28 Claims**

1. A method of forming an image on a chargeable member by conducting an ion flow through a screen type photosensitive member having a large number of fine through openings, wherein a conductive member is disposed adjacent said photosensitive member, said method comprising the steps of forming a primary electrostatic latent image on said screen type photosensitive member, applying a corona ion flow from corona ion source means through said photosensitive member to the chargeable member, wherein said corona ion flow is modulated through said screen type photosensitive member by said primary latent image, applying a bias voltage to said screen and maintaining, at least during the application of the bias voltage

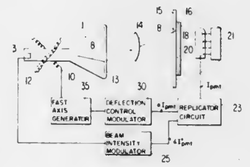
to said screen, the conductive member adjacent said screen type photosensitive member in a state to prevent the genera-





tion of discharge from one of said conductive and photosensitive members to the other.

4,265,532
PHOTO PRINTING BY INTENSITY AND VELOCITY MODULATION
Walter L. McIntosh, Woodbridge, Va., assignor to LogEtronics Inc., Springfield, Va.
Filed Jun. 21, 1979, Ser. No. 50,901
Int. Cl.[3] G03B *27/80*
U.S. Cl. 355—20 **42 Claims**



1. A photographic printer to expose an image receiving media from an image carrying media by scanning said image carrying media with a beamed spot of radiant energy, said printer including:

a. means for supporting said image receiving media and said image carrying media in registration, for printing,

b. means for exposing said image receiving media by scanning said image carrying media with a beamed spot of radiant energy,

c. single photosensor means for measuring the radiant energy passing through the image carrying media to generate a density related signal that is predictably related to said radiant energy,

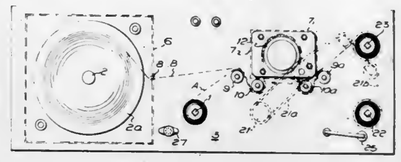
d. replicator means for producing predictably related first and second output currents in response to the output signal received from said photosensor means,

e. modulator means responsive to said first output current to modulate the intensity of the beamed spot of radiant energy in response to variations in the first output current,

f. deflection control means responsive to said second output current to modulate the velocity or dwell period of said beamed spot of radiant energy in response to variations in the second output current,

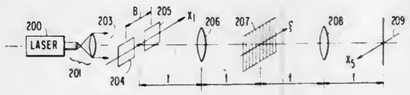
whereby both the beamed spot intensity and the spot velocity or the spot dwell time are varied in response to variations in the level of radiant energy received by said photosensor means.

4,265,533
APPARATUS FOR THE PRODUCTION OF DUPLICATE, AND OTHER FILMS FROM ORIGINAL FILMS
Robert W. Gasse, Burnley, England, assignor to Hunt & Moscrop (Textile Machinery) Limited, Lancaster, England
Filed Nov. 15, 1979, Ser. No. 94,386
Claims priority, application United Kingdom, Nov. 17, 1978, 45127/78
Int. Cl.[3] G03B *27/10*
U.S. Cl. 355—110 **4 Claims**



1. Apparatus for the production of duplicate micro and other films from original films comprising a base board, a spindle passing through the base board, a spool containing an original developed film mounted on the spindle, a second spindle, a magazine containing a duplicate film mounted thereon of substantially greater length than the original film, a light tight casing enclosing the magazine, a lamp-house surrounding the casing, a lamp in the lamp-house, a transparent cylinder surrounding the lamp and a slotted opaque sleeve interposed between the lamp and the cylinder, an endless belt passing over the cylinder, means for driving the endless belt, the endless belt maintaining the films in contact on the cylinder, a meter for registering the length of film remaining in the magazine, a sensor for activating the meter and a sensor for stopping the apparatus after the last image on the original film has been exposed.

4,265,534
OPTICAL APPARATUS AND METHOD FOR PRODUCING THE SAME
Paul W. Remijan, 425 Park Ave., Rochester, N.Y. 14607
Filed Dec. 23, 1977, Ser. No. 863,948
Int. Cl.[3] G01B *11/24*
U.S. Cl. 356—2 **27 Claims**



1. An interferometer for producing a high-contrast, low-noise interference pattern, said interferometer comprising:

A. quasi-monochromatic, spatially coherent light source means, and

B. holographically recorded, single-frequency, optically thin, phase grating means responsive to energy from said light source means for producing a first diffraction and a second diffraction of different order and equal strength that overlap thereby to produce the high-contrast, low-noise interference pattern in the area of overlap of said first and second diffractions.

4,265,535

OIL-IN-WATER METHOD AND DETECTOR

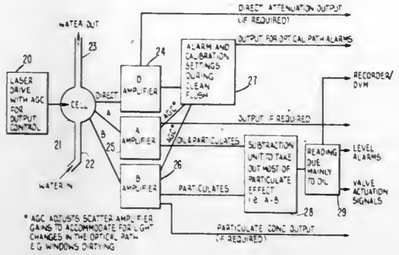
Gillies D. Pitt, Saffron Walden, England, assignor to ITT Industries, Inc., New York, N.Y.

Filed Apr. 25, 1979, Ser. No. 33,159

Claims priority, application United Kingdom, Sep. 11, 1978, 19046/78

Int. Cl.³ G01N *33/28, 21/00*

U.S. Cl. 356—70 **10 Claims**



1. In the scatter cell apparatus for an oil-in-water meter of the type in which oil concentration is determined by the scattering effect of the oil on an incident light beam, a scatter cell comprising: a housing having an input window for said light beam and a plurality of output windows arranged each at a different angle to said light beam at least one of, said output windows being disposed with respect to the incident beam at an angle at which the intensity of light scattered from the oil has a minimum value.

4,265,536

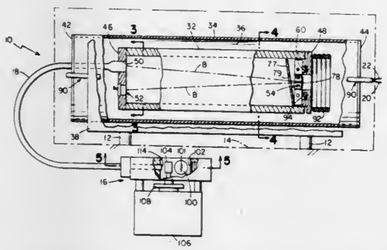
ELECTRICAL ZEROING OF LIGHT BEAM

William W. Carson, Mendon, and Norman F. Rolfe, Carlisle, both of Mass., assignors to Waters Associates, Inc., Milford, Mass.

Filed Jun. 25, 1979, Ser. No. 51,809

Int. Cl.³ G01N *21/41*

U.S. Cl. 356—130 **9 Claims**



1. In apparatus for measuring deflection of a light beam by sensing said beam with means providing two optical measurements, and providing an electrical output dependent upon the difference between said two measurements, the instantaneous magnitude of each said measurement being dependent upon the instantaneous deflection of said beam and upon the instantaneous intensity of said beam, that improvement comprising

electrical circuitry for including in said output an offset term dependent upon a scale factor and upon the instantaneous magnitude of at least one of said measurements,

thereby making said offset term dependent upon the instantaneous intensity of said light beam, and

means for initially zeroing said apparatus by adjusting said scale factor so as to make said output equal to a predetermined base value,

whereby changes in said measurements due to changes in light beam intensity are offset by corresponding changes in said offset term, so as to thereby reduce the influence of beam intensity on said output.

4,265,537

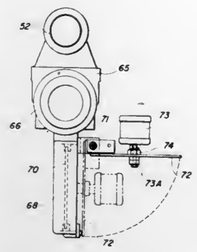
VEHICLE WHEEL ALIGNMENT DIAGNOSING APPARATUS

Lee Hunter, 13501 Ladue Rd., Creve Coeur, Mo. 63141

Filed Sep. 14, 1978, Ser. No. 942,302

Int. Cl.³ G01B *11/26*

U.S. Cl. 356—155 **11 Claims**



1. In vehicle wheel and wheel to body alignment diagnosing apparatus for a vehicle having an elongated body supported by first and second sets of wheels spaced longitudinally relative to the vehicle body and having alignment positions related selectively to wheel center line, body center line, and wheel thrust line references, wheel position sensing means carried by each of a first set of the vehicle wheels in position to represent the plane of wheel rotation, said sensing means having first photosensitive means positioned to face transversely between said first set of wheels, second photosensitive means positioned to face longitudinally toward said second set of wheels, and radiant energy projectors in position to direct separate radiant energy beams sweeping across paths generally perpendicular to and generally parallel with the plane of rotation of said first set of wheels such that the sweep of the perpendicular beams scan the positions of said first photosensitive means on said first wheel set, and the sweep of the beams parallel with the plane of rotation of said first set of wheels scans toward the positions of said second set of wheels; the improvement which comprises radiant energy reflective means adapted to be detachably carried by each of the second set of wheels, said detachable means including a mirror located to be substantially perpendicular to the plane of wheel rotation, means movable selectively to uncover and cover said mirror, and retro-reflector means selectively positionable on the vehicle body adjacent said second set of wheels and on said movable element, said radiant energy reflective means being scanned by the sweep of said radiant energy beams directed generally parallel with the plane of rotation of said first set of wheels; and signal generating means responsive to the scanning by said perpendicularly directed radiant energy beams of said first photosensitive means and the scanning of said radiant energy reflective means by said longitudinally directed radiant energy beams reflected back toward said second photosensitive means.

4,265,538

OPTICAL SAMPLE CELL FOR ANALYSIS OF PARTICLES IN LIQUID SUSPENSION

Alan L. Wertheimer, North Wales, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Oct. 18, 1979, Ser. No. 86,227

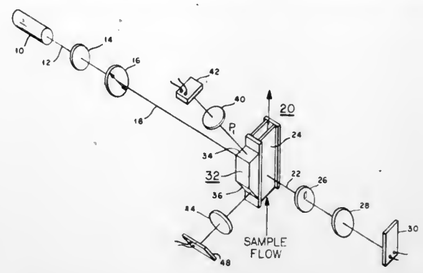
Int. Cl.³ G01N *21/05, 15/02*

U.S. Cl. 356—246 **8 Claims**

1. A straight path sample cell for the optical analysis of the light scattered by particles suspended in a flowing sample of

liquid by measuring the components of light scattered in three mutually orthogonal directions from an incident light beam directed in one of those directions, and polarized in another, comprising:

entrance and exit windows for said cell which are spaced to form a front and back for respectively receiving said light beam and transmitting as one of said orthogonal compo-



nents the forward scattered light from the particles in said sample;

prism means having at least one of its faces optically contacting said sample along a side of said cell and at least two other faces oriented so that said other faces each pass another of said orthogonal components of the scattered light, one of which is that component in the direction of polarization.

4,265,539

DEVICE WHICH MEASURES THE MUTUAL COHERENCE FUNCTION OF A LASER BEAM

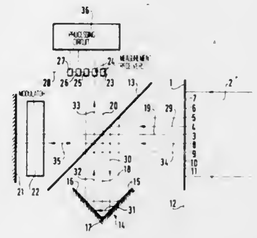
Jean-Paul Gaffard, Fontainebleau, France, assignor to Compagnie Generale d'Electricite, Paris, France

Filed Jun. 7, 1979, Ser. No. 46,293

Claims priority, application France, Jun. 16, 1978, 78 18058

Int. Cl.³ G01B *9/02*

U.S. Cl. 356—345 **4 Claims**



1. A device for measuring the mutual coherence function of a laser beam, said device including:

a plane screen constituted by a material capable of blocking the energy of the laser beam, said screen being disposed perpendicular to the axis of the beam and having $2n+1$ openings so as to pass $2n+1$ pencils of laser light taken from the beam, said openings being disposed along a straight line of said screen and including a central opening, a first group of n openings situated to one side of the central opening and a second group of n openings disposed on the other side of the central opening symmetrically in relation to the central opening, n being an integer;

a partially reflecting optical plate disposed to pass a fraction of the energy of each pencil of light therethrough and to reflect the other fraction of the energy of each pencil of light at 90 degrees parallel to said straight line;

a rectangular dihedron having opposed inner reflecting surfaces, said surfaces comprising a first surface and a second surface respectively parallel and perpendicular to the plane of the optical plate with the edge of the dihedron being perpendicular to said straight line, the reflecting surfaces of the dihedron being disposed to receive the pencils of light which are reflected by the optical plate, the pencil of light which emerges from the central opening reaching the edge of the dihedron and being returned on its own path so that part of its energy passes through the plate to form a reference pencil of light;

a plane mirror disposed to return on its own path said fraction of energy of the pencils of light which has passed through the optical plate;

a modulator for modulating the phase of said fraction of energy of the pencils of light, said modulator being situated on the path of the pencils of light after passing through the optical plate;

$n+1$ photoelectric receivers including a reference receiver disposed to receive the reference pencil of light and n measuring receivers disposed to receive respectively the n pencils of light which emerge from the openings of the first group after they have been successively reflected on the optical plate, said first surface and said second surface of the dihedron and after they have subsequently passed through the optical plate with the n pencils of light being respectively superposed on the n pencils of light which emerge from the openings of the second group having passed through the optical plate then having been reflected successively on the plane mirror and on the optical plate; and

a processing circuit for determining over a predetermined time the amplitude of the signals delivered by each of the n measuring receivers and over said predetermined time the average values of the phase difference between the signals delivered by each of the n measuring receivers and the signal delivered by the reference receiver, whereby these average amplitude values and average phase values are representative of the amplitude and of the phase of the mutual coherence function relating to the points of the cross-section of the laser beam which correspond to the openings of the screen.

4,265,540

REFRACTIVELY SCANNED INTERFEROMETER

Walter M. Doyle, Laguna Beach, Calif., assignor to Laser Precision Corporation, Utica, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,287

Int. Cl.³ G01B *9/02*

U.S. Cl. 356—346 **22 Claims**



1. A spectral analysis interferometer, of the type having a first arm in which the optical path leads to a first reflector and a second arm in which the optical path leads to a second reflector, comprising:

a movable scanning prism having a wedge angle to vary its refractive path length and movable across the optical path of the first interferometer arm;

a fixed prism having a wedge angle substantially equal to

that of the scanning prism and located in the second arm of the interferometer in such a way as to substantially balance the refractive effects in the two arms when the scanning wedge is in its centered position; and

a beamsplitter surface supported on one of the prisms.

4,265,541

INTERFEROMETRIC LASER GYROMETER

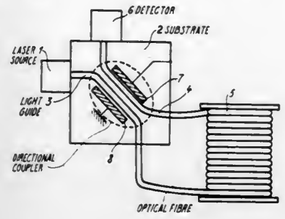
Pierre Leclerc; Claude Puech; Michel Papuchon, and Pierre Lallemand, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 17, 1978, Ser. No. 961,856

Claims priority, application France, Nov. 22, 1977, 77 35039

Int. Cl.³ G01C *19/64*

U.S. Cl. 356—350 **13 Claims**



1. An interferometric laser gyrometer comprising a laser source having an emissive face, a wound light guide having two end faces, detection means having a receiving face, and an integrated optical circuit formed on a solid substrate and having four ports, said ports having further faces in straight abbutal with said faces; said integrated circuit comprising integrated waveguide means for interconnecting said four ports; said laser source supplying radiant energy to said end faces, and said detection means being fed with the sum of radiant energies emerging from said end faces; said integrated waveguide means comprising directional coupler means for preventing radiant energy emerging from said end faces from interfering with energy supplied by said laser source.

4,265,542

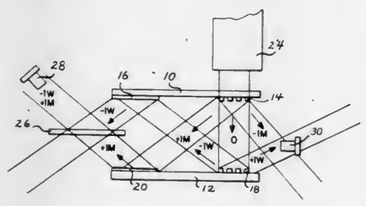
APPARATUS AND METHOD FOR FINE ALIGNMENT OF A PHOTOMASK TO A SEMICONDUCTOR WAFER

Kenneth A. Snow, San Jose, Calif., assignor to Computervision Corporation, Bedford, Mass.

Continuation of Ser. No. 848,476, Nov. 4, 1977, abandoned. This application Mar. 14, 1979, Ser. No. 20,294

Int. Cl.³ G01B *9/02*

U.S. Cl. 356—356 **10 Claims**



4. A method for aligning a mask having first and second repetitive alignment patterns to a semiconductor wafer having corresponding first and second repetitive alignment patterns, said method comprising the steps of:

(1) initially positioning the mask in superposed, spaced relation to the wafer with at least a portion of each of said first and second mask alignment patterns overlying at least a portion of the corresponding first and second wafer alignment patterns;

(2) illuminating the first mask alignment pattern with coherent light from a source of coherent light to produce first and second mask diffracted orders, +1M and −1M, respectively;

(3) reflecting said first mask diffracted order +1M from the second wafer alignment patterns;

(4) illuminating the first wafer alignment patterns with coherent light from said coherent light source to produce first and second wafer diffracted orders +1W and −1W, respectively;

(5) reflecting said second wafer diffracted order −1W from the second mask alignment pattern;

(6) combining said reflected mask and wafer diffracted orders +1M and −1W to produce an interference;

(7) extracting the phase relationship of the +1M and −1W diffracted orders from said interference;

(8) combining said mask and wafer diffracted orders −1M and +1W to produce another interference;

(9) extracting the phase relationship of said diffracted orders −1M and +1W from said another interference;

relatively moving said mask and wafer to produce a predetermined relationship with respect to the two extracted phase relationships.

4,265,543

KERR EFFECT APPARATUS

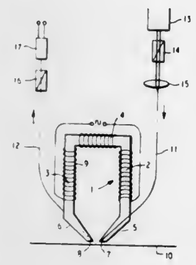
Donald J. Barclay, Winchester, and Christopher T. Prowting, Eastleigh, both of England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 24, 1978, Ser. No. 936,417

Claims priority, application United Kingdom, Aug. 24, 1977, 35572/77

Int. Cl.³ G01J *4/04;* **G02F** *1/05*

U.S. Cl. 356—369 **12 Claims**



1. A Kerr magneto-optic effect probe having a tip portion which may be inserted into an electroplating bath or vacuum deposition chamber and positioned adjacent to a surface upon which magnetic material may be deposited, for examination thereof, comprising:

a magnetic core having adjacent magnetic pole tips for generating a magnetic field therebetween and along an adjacent surface to be examined;

an input light path including an input light waveguide and a polarizer for directing polarized light onto the surface in the region of the magnetic field; and

an output light path including an output light waveguide and an analyzer for conducting light reflected from the surface to a light detector, at least one end of said input and output light waveguides being supported in predetermined relationship to said pole tips for common movement thereof with respect to and within an electroplating or vacuum deposition chamber.

4,265,544

LIQUID AGITATION APPARATUS FOR AN ABSORBANCE MEASURING APPARATUS

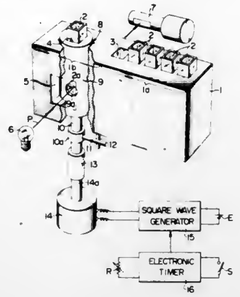
Taiichi Banno, and Hideaki Ida, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Japan

Filed Mar. 5, 1979, Ser. No. 16,959

Claims priority, application Japan, May 24, 1978, 53/70911[U]

Int. Cl.³ G01N *21/00, 21/75*

U.S. Cl. 356—427 **5 Claims**



1. A liquid agitation apparatus for an absorbance measuring apparatus, comprising:

at least one transparent reaction vessel for containing a reaction solution to be examined;

a holder for removably containing one said vessel for agitating said reaction solution contained in said one vessel for photometry, said holder being formed with opposing photometric openings for allowing a photometric radiation flux to pass through said reaction solution contained in said one vessel;

a thermostat block having means for receiving said holder, said thermostat block including means for heating said vessel;

means for vibrating said holder in order to agitate said reaction solution in said one vessel, said vibrating means being connected to said holder via a resilient joint and said holder further comprising a support shaft connected to said resilient joint; and

means for positioning said holder so that when said holder is not being vibrated, its photometric openings have a set alignment, said positioning means comprising:

a positioning member rigidly connected to said support shaft;

a stationary lug for blocking rotary motion of said positioning member past a set position corresponding to said set alignment of said holder;

and means for biasing said positioning member against said stationary lug when said holder is not being vibrated.

4,265,545

MULTIPLE SOURCE LASER SCANNING INSPECTION SYSTEM

Frank A. Slaker, Norwalk, Conn., assignor to Intec Corporation, Trumbull, Conn.

Filed Jul. 27, 1979, Ser. No. 61,451

Int. Cl.³ G01N *21/89*

U.S. Cl. 356—431 **5 Claims**

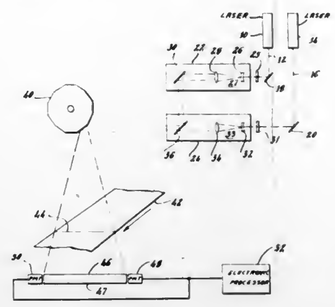
1. A multiple source laser scanning inspection system for scanning a moving web of material with a plurality of laser sources and detecting flaws in a web of moving material being inspected in accordance with the characteristics of the laser light emanating therefrom comprising:

a plurality of laser sources for generating a plurality of laser beams,

common scanning means for simultaneously scanning said plurality of laser beams across said moving web of material being inspected,

optical means for directing said plurality of laser beams onto said common scanning means,

receiver means for collecting laser beam radiation, applied by said plurality of laser beams from the web of material being inspected, and



detector means coupled to said receiver means for generating signals based on the intensity of said radiation applied thereto by said receiver means, said signals including characteristics associated with each of said plurality of laser beams and said signals being used to detect and characterize flaws in said material.

4,265,546

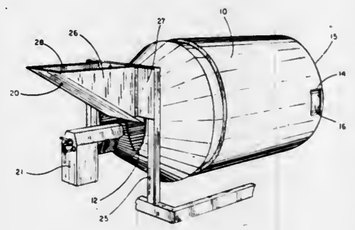
ASPHALT-AGGREGATE DRUM MIXING APPARATUS

Robert L. Mendenhall, 1770 Industrial Rd., Los Vegas, Nev. 89102

Division of Ser. No. 1,051, Jan. 8, 1979, Pat. No. 4,219,278, and a continuation-in-part of Ser. No. 871,351, Jan. 23, 1978, Pat. No. 4,208,131, and a continuation-in-part of Ser. No. 906,734, May 17, 1978. This application Jun. 2, 1980, Ser. No. 155,502

Int. Cl.³ B28C *5/46*

U.S. Cl. 366—7 **3 Claims**



1. A continuous process for recycling asphaltic concrete composition comprising recovering said composition from a paved surface to form a material including asphaltic concrete particles which will not pass a 4" sieve, feeding said composition onto a chute and gravitationally introducing said composition from said chute into a drum having an open port at one end and a closed recovery port adjacent the opposite drum end, introducing hot gases of combustion into said open port while rotating the drum until the composition therein is at a temperature of at least 225° F., opening said recovery port and continuously recovering composition therefrom while simultaneously continuously feeding a like amount of composition onto said chute.

4,265,547

REVERSE DEGASIFICATION SCREW EXTRUDER WITH VACUUM SEAL

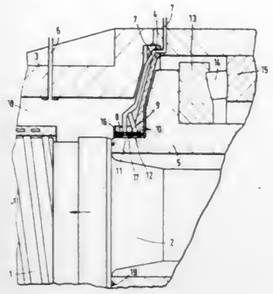
Gerhard Martin, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Fed. Rep. of Germany

Filed Jan. 5, 1979, Ser. No. 1,240

Claims priority, application Fed. Rep. of Germany, Jan. 7, 1978, 2800632

Int. Cl.³ B29B *1/00*; B29F *3/03*

U.S. Cl. 366—79 **2 Claims**



1. A screw extruder for processing thermoplastic materials fed thereto, comprising a cylinder; a screw mounted in the cylinder; first vacuum means for applying a vacuum to the cylinder in the region where material is fed to the extruder for the purpose of reverse degasification of the material to be processed in the extruder; back pressure bearing means; a pressure member rotatable with the screw and located between said screw and said back pressure bearing means; an annular non-rotatable end member disposed in front of said rotatable pressure member relativey adjacent said screw, sealing means comprising at least two radial sealing rings surrounding the rotatable pressure member and mounted within said end member, said sealing rings being spaced axially from each other to form an annular interspace therebetween, and second vacuum means for applying a vacuum to said annular interspace, the vacuum applied to said annular interspace being higher than the vacuum applied to the cylinder for the purpose of reverse degasification.

4,265,548

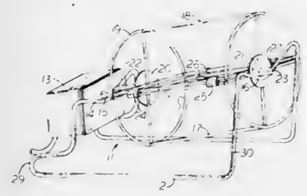
HOME ROTARY PAINT MIXER

Clarence J. Hall, 1104 Holiday La., Kewanee, Ill. 61443

Filed Sep. 6, 1979, Ser. No. 72,974

Int. Cl.³ B01F *3/10, 9/02*

U.S. Cl. 366—208 **2 Claims**



1. A rotary paint mixer comprising:

a cylindrical cage proportioned to fit quite closely about a cylindrical can that contains paint to be mixed, first and second axles connected respectively to opposite ends of said cage, said axles extending outwardly in line with the axis of said cage,

a frame supporting said cage, an electric gear-reduction motor with an output shaft connected to an end of said frame, means for connecting said first axle to said shaft, said motor being operable to rotate said cage within said frame, said second axle of said cage being rotatively supported by the other end of said frame, one of said axles being supported at a substantially higher level than the other of said axles,

said cage having a first part to which said axles are connected and a second part hinged to said first part, each of said parts being half of a cylinder with a plane side through the axis of the cylinder, each of said parts being fabricated from a plurality of spaced rods, said plane side of each of said parts being a rectangular frame having first and second side portions, said first side portions being positioned side by side,

hinge means connecting said first side portions, said second part of said cage being rotatable about said hinge means to an open position of said cage to permit insertion of a can of paint therein, and

latching means connecting said second side portions of said plane sides while said second part of said cage is rotated to a closed position where said second side portions are adjacent and said can is retained within said cage.

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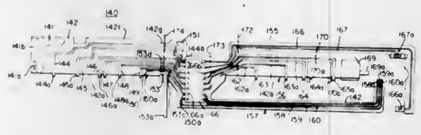
FLAT FLEXIBLE PRINTED CIRCUIT CABLE FOR A PRINT HEAD

Henry L. Cote, Bedford, N.H., assignor to Centronics Data Computer Corp., Hudson, N.H.

Filed May 21, 1979, Ser. No. 40,890

Int. Cl.³ B41J *3/12*; H05K *1/00*

U.S. Cl. 400—124 **9 Claims**



8. A thin flat flexible printed circuit cable for use with a print head assembly having a plurality of solenoid assemblies arranged in a substantially circular array, said cable comprising:

a thin flat elongated flexible insulating sheet having a plurality of flexible conductors imbedded therein;

one end of each of said flexible conductors terminating along a longitudinal side of said sheet;

each such termination comprising an exposed conductive terminal for electrical connection to each terminal of the solenoid coils of each solenoid assembly;

said flexible printed circuit cable being wrapped around said array of solenoid assemblies to position the opposite ends of said sheet substantially adjacent one another;

means for coupling said ends together to retain said sheet about said array.

4,265,550

INK RIBBON CARTRIDGE INCLUDING A MOVABLE RIBBON TENSIONING GUIDE FOR A PRINTING MACHINE

Gian P. Donnis, Montalto Dora, and Giancarlo C. Borca, Ivrea, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Italy

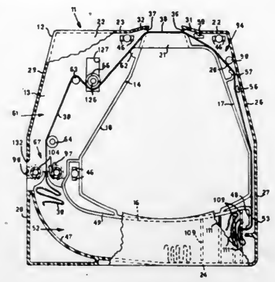
Filed Mar. 26, 1979, Ser. No. 24,051

Int. Cl.³ B41J *33/10*

U.S. Cl. 400—196.1 **12 Claims**

1. An ink ribbon cartridge for a printing machine of the type which includes a platen to support a record medium having variable thickness, a carriage movable parallel to the platen along a printing line and comprising a support member whereon the cartridge can be fitted, a needle printing head actuatable for the printing, a dragging element, and means supporting said head and said dragging element for movement

thereof with respect to the carriage perpendicular to said printing line for causing said head to advance and retract with respect to said platen but remaining at a constant distance from the record medium; said cartridge comprising an inked ribbon, a container having means housing the ink ribbon and including two guides between which passes an external length of the ribbon for engagement with the head, and a movable tensioning guide which is movably fitted onto the container between said housing means and one of said two guides, which movably



engages the ribbon and which comprises means for engaging said dragging element when the cartridge is fitted on the support member of said carriage, wherein said movable tensioning guide follows said dragging element toward the platen to pay out the ribbon to the external length as the head is advanced toward the platen and to take up slack from the external length as the head is retracted from the platen, thereby holding constant the tension and the length of said external length of the ribbon in spite of the movement of the needle printing head with respect to the support member of the carriage.

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DRIVE FOR TRANSPORTING AND REVERSING AN INK RIBBON, AND FOR WITHDRAWING THE PRINTING HEAD IN PRINTING DEVICES

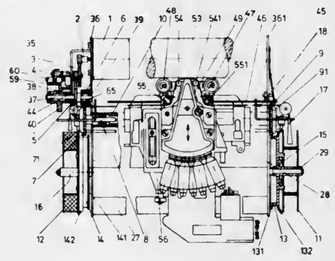
Manfred Adamek, Freusburg-Struth, and Horst Würscher, Wilusdorf, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 23, 1978, Ser. No. 918,406

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1977, 2731593; Jul. 13, 1977, 2731607

Int. Cl.³ B41J *33/44*

U.S. Cl. 400—221.1 **5 Claims**



1. A printing device which includes: an ink ribbon, a printing head, a platen and means for transporting and reversing the transport direction of said ink ribbon and for withdrawing said printing head from said platen which comprises first and second gear wheels, a control shaft fixed to each of said gear wheels, first and second gear rings on reel holders disposed on the sides of said printing device, said gear wheels alternately engaging, by sliding of the control shaft in the longitudinal direction, one of said gear rings, said device further including a cord and guide rollers on said printing head, said cord being guided over said printing head via said guide rollers, the withdrawal of said printing head being effected by the tensioning of said cord, one of said gear wheels cooperating with said gear rings on said reel holders being coupled via a first pawl-and-ratchet device to a common drive shaft, said device further including a deflection lever and a cam mechanism which includes a cam disc, said cam disc being connected to said common drive shaft via a second pawl-and-ratchet device, said first and second pawl-and-ratchet devices being arranged to drive in opposite directions, and said common shaft being drivable in a reversible manner by means of a single electric motor.

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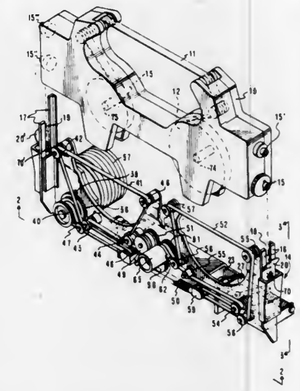
RIBBON DRIVE MECHANISM FOR HIGH SPEED PRINTER

John D. Bemis, and Willie Goff, Jr., both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 2, 1979, Ser. No. 234

Int. Cl.³ BA1J *33/14*

U.S. Cl. 400—236 **6 Claims**



1. Apparatus for rotatably driving a take-up reel and a supply reel, each reel supporting a portion of an inventory of a web member running from the supply reel to the take-up reel at a constant speed differential between said respective portions of said web member comprising:

a first inelastic drive belt for peripherally non-slip driving the web portion on said take-up reel,

a second inelastic drive belt unattached to said first drive belt for peripherally non-slip driving the web portion on the supply reel,

means for driving said first belt at a constant selected speed, and

drive coupling means non-slip driven by said first belt for non-slip driving said second belt at a constant speed which is slower than said first belt,

whereby the web member between the supply reel and take-up reel is maintained under a constant strain.

4,265,553

RIBBON THREADING ASSEMBLY FOR AN IMPACT PRINTER

William A. Hatsell, Hatfield, Pa., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 833,273, Sep. 14, 1977, abandoned. This application Dec. 28, 1979, Ser. No. 107,935

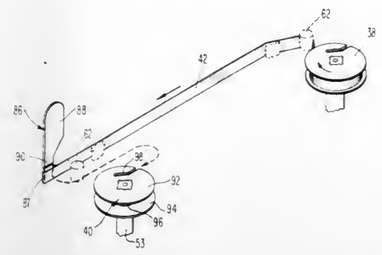
Int. Cl.³ B41J *31/02*

U.S. Cl. 400—238 **9 Claims**

1. A ribbon assembly for an impact printer comprising:

a ribbon, one end of which is stored at a ribbon storage means;

a tab having a proximate and a distal end, the proximate end being attached to the other end of said ribbon, the longitudinal dimension of said tab being substantially perpendicular to the longitudinal dimension of said ribbon; and



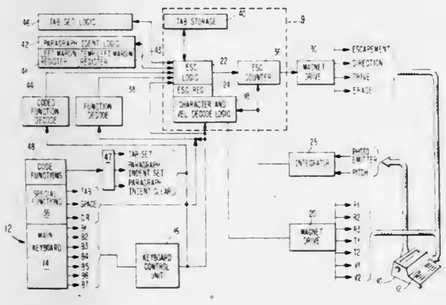
a ribbon take-up reel having flanges separated from one another by a hub, one of said flanges having a slot therein for mating with the proximate end of said tab, said proximate and said distal ends being separated by a score line whereat said distal end may be removed from said proximate end.

4,265,554

PARAGRAPH INDENT

Douglas E. Clancy, Austin, Tex.; Carl F. Johnson; William R. McCray, both of Lexington, Ky., and Danny M. Neal, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 22, 1978, Ser. No. 908,325
Int. Cl.³ B41J *25/18*
U.S. Cl. 400—316 **4 Claims**



1. A paragraph indentation control for a typewriter, said typewriter and control comprising a print point defining means movable with respect to a writing line, return means for returning said print point defining means to a line beginning position, line beginning defining means for defining the line beginning, comprising:

a keyboard line beginning control key for creating a line beginning command;

said line beginning defining means further comprising:

control means including line beginning storage means for storing an indication of said line beginning position;

a temporary line beginning storage means for storing a line beginning position and accessable by said control means;

means for indicating the position of said print point defining means;

escapement logic means for determining the difference between said line beginning indication and said print point position indication and escapement counter means for receiving said difference and controlling said return means in response to operation of said keyboard line beginning control key;

said line beginning defining means further comprising:

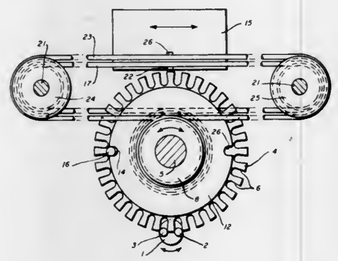
means for temporarily replacing the contents of said temporary line beginning storage means with an indication differing from that previously stored therein, in response to a control signal from said line beginning control key whereby said print point defining means is escaped directly to a print line position corresponding to the value stored in said temporary line beginning storage means in response to the operator of said return means.

4,265,555

DUAL PITCH CARRIAGE DRIVE MECHANISM

Gottfried Burkhardt, Am Bahndamm 29, 8500 Nuremberg 1, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 70,148
Claims priority, application Fed. Rep. of Germany, Sep. 14, 1978, 2839944
Int. Cl.³ B41J *19/00*
U.S. Cl. 400—320 **6 Claims**



1. In a business machine having a carriage mounted for character spacing movement and an escapement mechanism for controlling the character spacing movement of said carriage comprising

a uniform rotary stepping mechanism,

first means coupled to said carriage operative when driven by said stepping mechanism to effect a character spacing movement of said carriage through a first incremental distance,

second means coupled to said carriage operative when driven by said stepping mechanism to effect character spacing movement of said carriage through a second incremental distance, and

means for selectively coupling said stepping mechanism to either said first or second means according to the character spacing movement desired.

said stepping mechanism comprising a Geneva movement including a pinwheel and a coacting slotted disc,

a shaft rotatably supporting said slotted disc,

said pinwheel being rotatable through a predetermined angle incident to a spacing signal and operative to rotate said slotted disc,

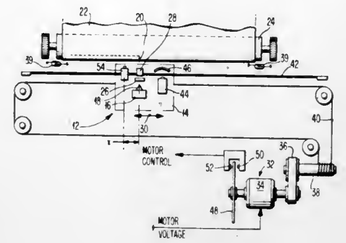
said means for selectively coupling said stepping mechanism to said first or second means comprising means on said slotted disc for engaging either said first or second means.

4,265,556

APPARATUS FOR SETTING PROPORTIONAL MARGINS BASED UPON THE WIDTH OF A SCANNED SHEET OF PAPER

Michael L. Krieg, and Paul A. Quinn, Jr., both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 21, 1978, Ser. No. 971,982
Int. Cl.³ B41J *21/02*
U.S. Cl. 400—342 **15 Claims**



1. An automatic proportional margin setting apparatus for a typewriter including:

a platen for supporting a sheet of paper thereon;

a carrier mounted for relative movement with respect to said platen in a substantially parallel path;

printing means mounted on said carrier for printing indicia on the sheet of paper supported on said platen;

sensing means mounted on said carrier for defining the location of the left and right edges of the sheet of paper supported on said platen;

means responsive to the defined location of the left and right edges of said sheet of paper for determining the width of said sheet of paper;

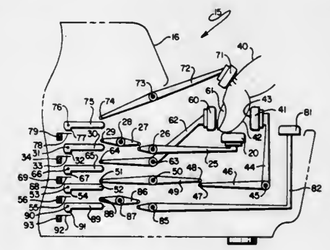
margin setting means for defining margin locations in accordance with the defined edge locations and in accordance with a predetermined proportional distance; said margin setting means comprising means for establishing a fraction of said width as said proportional distance of said width, and means for combining said proportional distance with said right and left edge locations for determining the margin locations.

4,265,557

KEYBOARD APPARATUS

J. Marvin Runge, 20547 Evergreen Rd., Detroit, Mich. 48219

Filed Jan. 22, 1979, Ser. No. 5,096
Int. Cl.³ B41J *5/08*
U.S. Cl. 400—479 **10 Claims**



1. A keyboard for a key actuated device including a plurality of keys constructed to be actuated by movement of the fingers of an operator downward, forward, backward, and upward against the keys, comprising at each finger position:

(a) a first key disposed among the plurality of keys and having a substantially horizontal contact surface and disposed for downward actuation;

(b) a second key disposed beside and at an angle with respect to the first key, and disposed for forward actuation;

(c) a third key disposed beside, at an angle, and oppositely facing with respect to the second key, and disposed for backward actuation; and

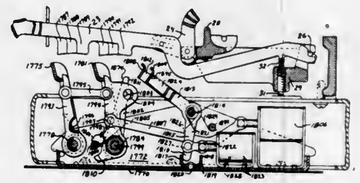
(d) a fourth key disposed above the first key and disposed for upward actuation.

4,265,558

DIFFERENTIAL KEY LOCK MECHANISM FOR JUSTIFYING TEXT WRITING COMPOSING MACHINE

William S. Gubelmann, deceased, late of Convent, N.J.; by Walter S. Gubelmann, executor, Palm Beach, Fla., and William R. Grier, New Vernon, N.J., assignors to Realty and Industrial Corporation, Morristown, N.J.

Division of Ser. No. 732,973, Oct. 15, 1976, Pat. No. 4,140,403, which is a division of Ser. No. 213,045, Dec. 28, 1971, Pat. No. 3,993,179. This application Sep. 25, 1978, Ser. No. 945,801
Int. Cl.³ B41J *5/20*
U.S. Cl. 400—672.2 **18 Claims**



1. A differential key lock mechanism for a composing machine including a carriage wherein groups of proportional character and space keys have allocated thereto different numbers of spacing units, comprising key lock means for differentially locking the character and space keys in said groups, amount left in a line measuring means for ascertaining the number of spacing units left in a line ahead of a predetermined right margin, indexing means for controlling said key lock means according to the number of units left in a line, actuating means connected to said indexing means for rendering said indexing means effective, counting circuit means responsive to said amount left in a line measuring means and connected to said actuating means for operating said indexing means in accordance with the amount left in a line whereby said key lock means block against further operation of any of said proportional character and space keys which have a space unit requirement exceeding the number of space units remaining in a line while at the same time permitting operation of other said proportional character and space keys.

4,265,559

ASPHALT SPREADING MACHINE

Craig R. Mellen, 4248 S. 900 East, Salt Lake City, Utah 84117

Continuation-in-part of Ser. No. 644,976, Dec. 29, 1975, Pat. No. 4,165,192. This application May 10, 1979, Ser. No. 37,895
The portion of the term of this patent subsequent to Aug. 21, 1996, has been disclaimed.
Int. Cl.³ A46B *17/02*
U.S. Cl. 401—48 **9 Claims**

1. Apparatus for carrying and applying hot roofing asphalt compositions comprising:

a vessel mounted to an axle journaled in and supported by a pair of wheels constituting means for carrying a quantity of liquid asphalt from a source to application zones of a roof;

handle means at one side of the vessel for pulling said vessel to cause it to travel on said axle across an application zone;

filling means at the top of said vessel including an open reservoir with a bottom plate constituting the top of said

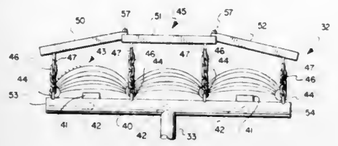
vessel, including an opening to permit flow of liquid asphalt from said reservoir into said vessel;

discharge means at the bottom of said vessel operable to regulate the flow of liquid asphalt out from the bottom of said vessel at a selected rate; and

application means fixed to said vessel to receive liquid asphalt from said discharge means and adapted to spread said asphalt uniformly within said application zone, including:

a supply conduit extending from said discharge means generally away from said handle,

a manifold mounted to follow said axle and connected to receive asphalt from said supply conduit,



skid means associated with said manifold to bear upon the roof when the vessel is pulled across an application zone; thereby fixing the slope of said manifold with respect to horizontal,

discharge ports in said manifold, constituting means for depositing spaced streams of liquid asphalt on the roof within said application zone, spreading means mounted to follow said manifold as the vessel is pulled, thereby to spread said streams of asphalt across the width of the said application zone; and

rake means mounted to follow said spreading means and adapted to form said spread asphalt into a plurality of approximately parallel ridges, thereby to meter a predetermined quantity of asphalt per unit area applied to said application zone.

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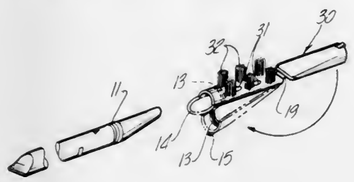
DISPOSABLE TOOTHBRUSH WITH SELF-CONTAINED TOOTHPASTE SUPPLY

Joseph P. Spica, Livonia, Mich., assignor to The 2500 Corporation, Lathrup Village, Mich.

Filed Apr. 30, 1979, Ser. No. 34,659

Int. Cl.³ A46B *11/02*

U.S. Cl. 401—183 **8 Claims**



1. A disposable toothbrush with a self-contained toothpaste supply including a flexible hollow cylindrical handle having a closed end and an open flexible end, said open flexible end adapted to assume a conical shape upon insertion into a brush head, said flexible end having at least one handle opening in the wall thereof, dentifrice material stored in said cylindrical handle and adapted to be discharged through said handle opening, a hollow snap on adjustable brush head having bristles depending therefrom and having at least one discharge opening therein adapted to be aligned directly opposite said handle opening, and means to rotatably attach said adjustable brush head to said cylindrical handle, wherein said adjustable brush head is of a one-piece construction having two halves connected by a living hinge, one of said halves having bristles depending therefrom and having at least one discharge opening therein adapted to be aligned with said handle opening, a retaining ring formed integrally with one of said halves, and the other half of said adjustable brush head having a tab member depending therefrom, all adapted when closed to provide an adjustable brush head having an opening complimentary in shape to said cylindrical handle, and adapted when closed, and said retaining ring is placed over said tab, to cause a rotatable but sealing connection between said adjustable brush head and said transparent cylindrical handle.

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HOLDERS FOR MEDICAL APPARATUS

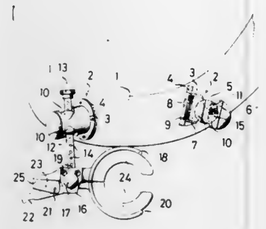
Helmut Heckele, Knittlingen, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

Filed Aug. 2, 1979, Ser. No. 63,035

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1978, 7824396[U]

Int. Cl.³ F16B *2/10*; A61B *1/00, 10/00*

U.S. Cl. 403—3 **4 Claims**



1. In a holder for medical apparatus of the kind comprising a head band provided with a ball and socket joint to receive a ball provided with a carrier and which can move slightly in all directions but is held under friction, the improvement which consists in that said head band has two ball socket joints spaced circumferentially apart thereon by a distance approximately equal to the human interocular distance, said joints including rigidly supported sockets in which are swivelled balls each of which in turn is bored non-circularly to receive a retaining rod arranged to be passed selectively through and axially adjustable in the bore in one of said balls, said retaining rod being provided with a clamping device at its free end for receiving and clamping an endoscope, whereby the surgeon may support the endoscope at the better eye and may raise or lower the rod and swivel it to adjust the endoscope for elevation and range in front of the better eye.

4,265,562

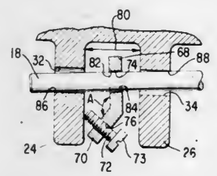
LOCKING DEVICE FOR MOUNTING PINS AND THE LIKE

Ralph G. Seel, Anderson, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Feb. 4, 1980, Ser. No. 118,280

Int. Cl.³ F16B *7/04*

U.S. Cl. 403—374 **1 Claim**



1. In combination, a pin, a support for the pin including

parallel shoulders defining a well therebetween and having aligned holes therein wherein the pin is received, and a locking device for the pin located in said well, the locking device including one leg with an opening through which the pin extends, and another leg disposed at an angle to the said one leg, the locking device also including an adjustable force applying screw extending through a threaded hole in said another leg and engageable at one end with one of the shoulders of the support for tilting the said one leg on the pin and the pin in the openings in the shoulder of the support to thereby affix the pin axially and rotationally in the support, the other end of the screw being separated from the walls and accessible from outside the well.

4,265,563

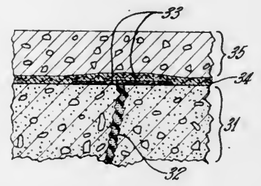
ROAD PAVEMENT AND REPAIR

Alfred Marzocchi; Michael G. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 778,415, Mar. 17, 1977, Pat. No. 4,175,978. This application Sep. 10, 1979, Ser. No. 74,378

Int. Cl.³ E01C *11/04*

U.S. Cl. 404—75 **1 Claim**



1. A method of repairing a crack in a substrate concrete layer of a road pavement comprising filling the crack with a composition composed of rubberized asphalt and 0.5 to 10% glass flake and applying a thin layer approximately 1/16 inch of glass flake over the upper surface of the substrate layer adjacent the crack and over the said composition to provide a multi-layer thickness of slip plane for movement of overlying courses of the pavement.

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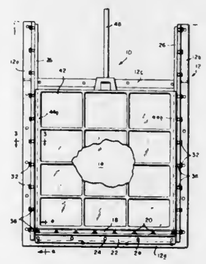
SLUICE GATE ASSEMBLY

Robert P. Watelet, Greenfield, Mass., assignor to Rodney Hunt Company, Orange, Mass.

Filed Oct. 24, 1979, Ser. No. 87,654

Int. Cl.³ E02B *7/28*

U.S. Cl. 405—105 **6 Claims**



1. A sluice gate assembly having a frame surrounding an opening and a gate disc mounted on the frame for movement between an open position permitting fluid flow through said opening and a closed position obstructing said fluid flow, said frame and gate disc having seat facings which are arranged in parallel planes and which cooperate in sealing engagement when the gate disc is in the closed position, said planes being arranged at an angle relative to the path of movement of said gate disc, and adjustment means for shifting the path of movement of said gate disc relative to the seat facing of said frame.

4,265,565

TUNNEL DRIVE SHIELD

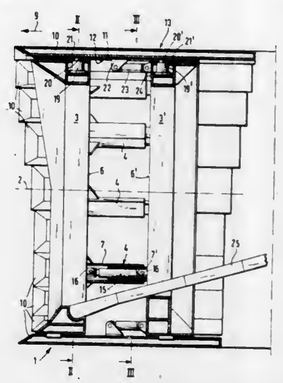
Dieter Stuckmann, Selm, and Hans Jütte, Dortmund-Brechten, both of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Sep. 11, 1978, Ser. No. 941,337

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1977, 2743046

Int. Cl.³ E01G *3/02*

U.S. Cl. 405—145 **21 Claims**



1. A drive shield for use in tunneling, the drive shield comprising:

(a) a generally cylindrical shell supported by two frames spaced apart along the axis of the shell,

(b) the two frames being movably mounted to be displaceable with respect to one another in the direction of said axis, and

(c) guide means interconnect the two frames to permit relative movement therebetween only in the direction of said axis,

(d) said guide means being effective to prevent the two frames from rotating with respect to each other.

4,265,566

APPARATUS FOR SUPPORTING PIPES SUSPENDED OVER DEPRESSIONS IN THE SEA BED, INCLUDING THOSE SITUATED AT GREAT DEPTH, AND THE METHOD FOR INSTALLING IT

Ambrogio Scodino, San Donato Milanese (Milan), Italy, assignor to Saipem, S.p.A., Italy

Filed Mar. 7, 1979, Ser. No. 18,429

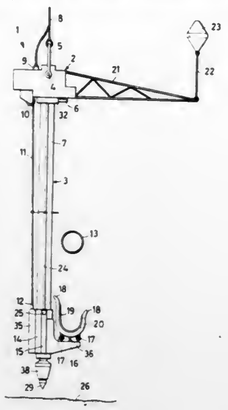
Claims priority, application Italy, Jul. 28, 1978, 26235 A/78

Int. Cl.³ E02D *27/46*; B63C *11/52*

U.S. Cl. 405—172 **3 Claims**

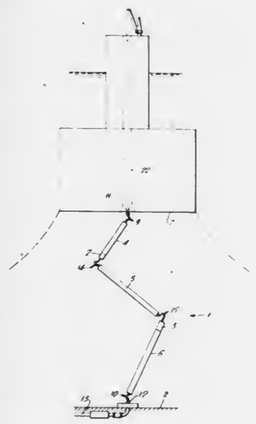
1. An apparatus for supporting pipes suspended over depressions in the sea bed, including those situated at great depth, comprising a completely recoverable service module and a support module for supporting the pipe, these modules being connected together in such a manner that they can be separated by simple controls from the depot ship, wherein the support module is constituted by an internally hollow pile of circular cross-section provided on its outside with two diametrically opposing longitudinal toothed guides along which a slide can slide and be fixed in the required position, this slide

being provided with a bracket on which is disposed an inclinable seat, covered on its inner surface with a layer having a high coefficient of friction, which serves to receive and lock the pipe to be supported, inside the pipe there being disposed a rod, the lower end of which emerges from the pile and is fitted with a cutter having a diameter slightly greater than the outer diameter of the pile, the pile being connected to the service



module by a collar provided with a clamp by means of which the pile can be coupled to or uncoupled from said module, whereas the top end of the rod provided with the cutter is connected by a coupling or a suitable reducer to an electric motor housed in the service module, the slide which is slidable along the pile being connected by a cable to a constant tension winch disposed on said service module.

4,265,567
RISER DEVICE
Reidar Nybo, Hvalstad, Norway, assignor to A/S Akers Mek. Verksted, Oslo, Norway
Filed Nov. 16, 1978, Ser. No. 961,413
Claims priority, application Norway, Nov. 30, 1977, 774098
Int. Cl.³ E02B *17/00*
U.S. Cl. 405—195 **5 Claims**



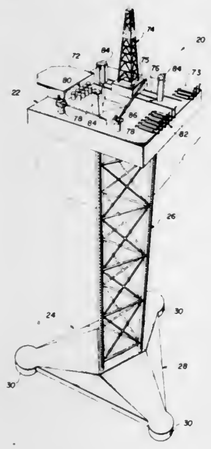
1. A riser device extendable between an underwater installation and a structure near the water's surface, said riser device comprising

at least three rigid elongated members which can be attached end-to-end to extend between an underwater installation and a structure near the water's surface, the total length of said elongated members being greater than the distance between the underwater installation and the structure, said members supporting interconnected fluid flow lines,

the upper end of the uppermost elongated member being connected to the structure by means of a universal joint, the lower end of the lowermost elongated member being connected to the underwater installation by means of a universal joint, and the remaining ends of the elongated members being connected to each other by means of universal joints, and

at least the uppermost elongated member having a weight along its length which allows it to operate as a suspended pendulum, at least the lowermost elongated member having a weight along its length which allows it to operate as a standing pendulum, and at least one of the remaining members has a weight which allows it to operate as a strut.

4,265,568
GRAVITY BASE, JACK-UP PLATFORM - METHOD AND APPARATUS
Robert P. Herrmann; Floyd T. Pease, both of London, England, and Donald R. Ray, Houston, Tex., assignors to The Offshore Company, Houston, Tex.
Filed Aug. 6, 1979, Ser. No. 64,264
Int. Cl.³ E02B *17/08*
U.S. Cl. 405—196 **16 Claims**



1. An offshore platform for flotation to an offshore site and installation in a posture supported upon the bed of the body of water, said offshore platform comprising:

deck means for supporting offshore operations and having a plurality of ballast/buoyancy chambers within the interior of said deck means;

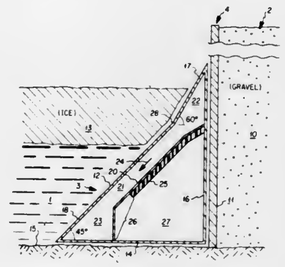
gravity base means having lateral side walls and substantially continuous upper and lower polygonal shaped members connected to said lateral side walls for forming a generally monolithic gravity hull, said gravity hull having a plurality of internal ballast/buoyancy compartments whereby the gravity base may function in a flotation mode during movement of the platform from site to site and in a submerged ballast mode at a desired waterbed site adjacent to but operably spaced above and out of load bearing contact with the waterbed;

a plurality of reaction means downwardly extending from a plurality of generally peripheral locations of said gravity base means for engaging and penetrating into the bed of the body of water and reacting against vertical and lateral loads and overturning moments imposed upon said offshore platform;

leg means fixedly connected to said gravity base means and extending upwardly therefrom for connection to said deck means; and

each of said reaction means having a longitudinal dimension and cross-sectional configuration of sufficient magnitude such that in combination said plurality of reaction means cooperate to maintain the offshore platform in an operative posture wherein the lower surface of said gravity hull is positioned adjacent to but operably spaced above and away from load bearing contact with the surface of the waterbed.

4,265,569
ICE BARRIER FOR ISLANDS
Leland V. Gefvert, Anchorage, Ak., assignor to Atlantic Richfield Company, Los Angeles, Calif.
Filed Sep. 21, 1979, Ser. No. 78,311
Int. Cl.³ E02B *15/02*
U.S. Cl. 405—217 **5 Claims**



1. An ice barrier module for disposition around at least part of the periphery of an island in an ice bearing body of water comprising a triangular shaped, closed, hollow body composed of an hypotenuse side and first and second sides opposite said hypotenuse side, said first side being adapted to rest on a support in said water body, said second side being adapted to abut said island, said hypotenuse side having upper and lower sections, said upper section having a steeper angle of inclination with respect to said first side than the angle of inclination of said lower section, said hypotenuse side carrying means for heating said upper and lower sections which comprises a plurality of heating fluid conduit means covering said hypotenuse side and manifold means near the top of said upper section and near the bottom of said lower section for circulating heating fluid through said conduit means, said upper section and a substantial portion of the upper part of said lower section are thermally insulated from the interior of said module, and the remaining lower part of said lower section is not thermally insulated thereby providing for heat flow from said conduit means into the interior of said module.

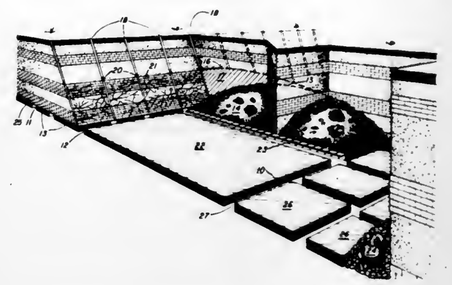
4,265,570
MINE ROOF CONTROL
Dai S. Choi, Ponca City, Okla., and Hilmar A. von Schonfeldt, Lexington, Ky., assignors to Conoco, Inc., Ponca City, Okla.
Filed Jun. 1, 1979, Ser. No. 44,817
Int. Cl.³ E21D *19/00*
U.S. Cl. 405—258 **13 Claims**

1. A method of controlling a mine roof comprising:

(a) drilling at least one borehole through a mine roof formation from the surface to a point adjacent a mineral seam, said borehole being at an angle of from 0 to 30 degrees to a vertical reference axis;

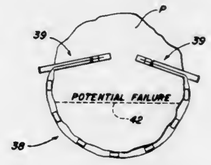
(b) sealing off a portion of said borehole from a vertical height of from 20 to 400 meters above the top of said mineral seam to said point adjacent said seam; and

(c) injecting fluid into the sealed off portion of said borehole at a pressure sufficient to create fractures in the mine roof



formation along the sealed off portion of said borehole whereby the caving zone over a mined out portion of said mineral seam is greater than the natural caving zone over said portion.

4,265,571
CABLE SLING FOR SUPPORT AND STABILIZATION OF UNDERGROUND OPENINGS
James J. Scott, Rolla, Mo., assignor to Midcontinent Specialties Manufacturing, Inc., Rolla, Mo.
Filed Oct. 22, 1979, Ser. No. 86,709
Int. Cl.³ E21D *21/00, 20/00*
U.S. Cl. 405—259 **21 Claims**



1. In support means for underground passages, the improvement which comprises: cable sling means in the underground passage and having terminal ends penetrating substantially uniform size holes in the material adjacent the underground passage; anchor means engaged with the terminal ends of said cable sling means; and split sleeve members surrounding said cable sling adjacent said anchor means, said split sleeve members being in position for driving said anchor means into the underground passage material and to react in compression upon penetrating the holes in the material for establishing frictional engagement with such material adjacent the underground passage, whereby the cable sling means is tensioned and the anchor means are stabilized in position by said split sleeve members and said split sleeve members actively load the side wall of the holes in the underground passage material radially long substantially the entire length thereof.

4,265,572

PROCESS FOR THE PNEUMATIC TRANSFER OF A PULVERULENT MATERIAL

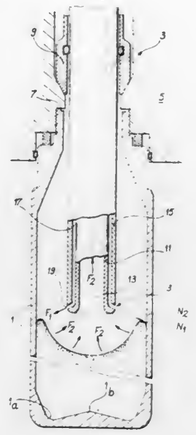
Claude Bourdois, Palaiseau; Maurice Decolle, Morangis; Michel Ferard, Sartrouville, and Paul Marchal, Gif-Sur-Yvette, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 8, 1979, Ser. No. 64,873

Claims priority, application France, Aug. 11, 1978, 78 23733

Int. Cl.³ B65G *53/24*

U.S. Cl. 406—114 **7 Claims**



1. An apparatus for the pneumatic transfer of a pulverulent material comprising a container containing the pulverulent material and pneumatic means for emptying said container, wherein said pneumatic emptying means comprise a suction member which can be sealingly mounted in the axis of the container and can be displaced in translation along said axis, the suction member having two coaxial tubes, called the first tube and the second tube, open at their lower ends, said first tube defining in the suction member a central duct for the extraction of the pulverulent material to be transferred and the said second tube defines with the first tube an annular duct for introducing a fluid into said container, said first and second tubes having at their lower end a shape such that when the suction member is mounted in the axis of the container the annular duct issues into the container by an annular nozzle which can direct a gas jet onto the side walls of the container by orienting the jet towards the bottom of the container, means for supplying gas to the annular duct and suction means for extracting the said gas and the said pulverulent material by the central extraction duct, the said first and second tubes comprising means for controlling the dimension of the nozzle opening so that the gas jet having the annular nozzle converges on the side wall of the container, these means controlling the translation of said first and second tubes with respect to each other, whereby when the suction member is mounted in the axis of the container the convergence level of the gas jet on the container walls is maintained substantially level with the pulverulent material level in the container.

4,265,573

PARTICULATE MATTER DISPERSING AND TRANSPORTING SYSTEM

Imants Reba, Vancouver, Wasn., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Nov. 5, 1979, Ser. No. 91,634

Int. Cl.³ B65G *53/14, 53/42*

U.S. Cl. 406—152 **12 Claims**

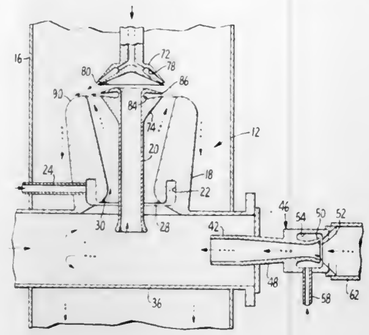
1. Apparatus for dispensing and transporting particulate matter comprising, in combination:

means defining a flow path for said particulate matter;

a conduit defining an interior in fluid flow communication with said flow path and having an outlet;

means for inducing a flow of said particulate matter from said flow path defining means through said conduit and out of said outlet;

fluid curtain generating means positioned adjacent said conduit for directing converging multiple curtains of high



velocity fluid against said particulate matter as it exits from said conduit outlet; and

fluid flow directing means spaced from said fluid curtain generating means, said fluid flow directing means having a generally smoothly curved flow-attachment surface to which said converting fluid curtains and particulate matter entrained thereby will become attached due to the Coanda effect and flow therealong in a predetermined direction.

4,265,574

COMBINED BORING AND MILLING TOOL

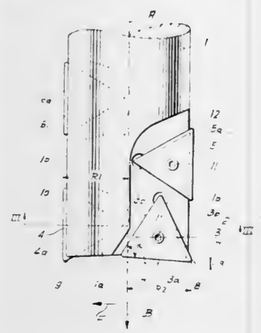
Otto Eckle, Loechgau, Fed. Rep. of Germany, assignor to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH, Besigheim, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,488

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1978, 7833000[U]

Int. Cl.³ B23B *51/00;* **B26D** *1/12*

U.S. Cl. 408—188 **9 Claims**



1. In a combined boring and milling tool, including a shank having cutting edges on its front end and on its periphery, the improvements comprised in that the cutting edges are respectively formed by one cutting edge each of turnable cutter blades each shaped like an equilateral triangle, a first said turnable cutter blade being located on the front end of the shank so that its effective cutting edge extends as a bit radially inward from the periphery of the shank toward the shank axis, overlaps said shank axis slightly and slopes slightly rearward as it extends radially inward, a second said turnable cutter blade offset 180° peripherally from the first turnable cutter blade and located on the front end of the shank so that its effective cutting edge extends as a cutter edge parallel to the shank axis and projects slightly beyond the periphery of the shank.

4,265,575

TOOTH-EDGE GEAR WORKING MACHINE

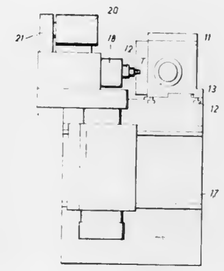
Manfred Erhardt, Puchheim, and Max Stoeckl, Munich, both of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik, Munich, Fed. Rep. of Germany

Filed Aug. 11, 1978, Ser. No. 932,705

Claims priority, application Fed. Rep. of Germany, Aug. 20, 1977, 2737598

Int. Cl.³ B23F *19/10*

U.S. Cl. 409—8 **7 Claims**



1. In a tooth edge working machine for working the face edges of spur, bevel and similar type gears, said machine having a workpiece spindle mounted on a workpiece headstock and a tool spindle, said workpiece spindle being adapted to receive a workpiece thereon, a first motor for driving said workpiece spindle, at least one tool clampingly received in said tool spindle and a second motor for driving said tool spindle, the improvement comprising wherein said workpiece headstock is selectively provided with at least one of **(1)** a first gear train and gear drive means coupling said first gear train to said workpiece spindle and said first motor for effecting a continuous rotary drive of said workpiece spindle driven by said first motor and **(2)** a second gear train which contains a means for effecting an intermittent rotation of the said workpiece spindle drivingly coupled to said gear drive means coupled to said workpiece spindle and said first motor, said first gear train including at least one gear and means for removably supporting said one gear in said first gear train and when removed a space is defined, said second gear train being insertable into said space of said removed gear to thereby effect the change from a continuous rotary drive of said workpiece spindle to an intermittent drive thereof.

4,265,576

MILLING MACHINE SYSTEM

Erwin P. Ditsler, Diamond Bar, Calif., assignor to Textron, Inc., Providence, R.I.

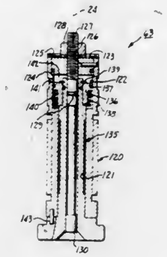
Filed Aug. 27, 1979, Ser. No. 70,006

Int. Cl.³ B23Q *35/16*

U.S. Cl. 409—129 **12 Claims**

1. In a multiple-mode tracer valve for simultaneously controlling the operation of a plurality of motors in order to drive machine tool components along selected ones of three orthogonally related axes, said tracer valve including body, a first, second and third spool valve, a stylus having a central axis, a tip, and a dimension of length, first mounting means mounting said stylus at a first location spaced from said tip along its length, whereby said stylus can be shifted axially and also said tip can be deflected in any lateral direction relative to said axis, adjustment means for adjusting said first mounting means adjustably to determine the lowermost permissible position of the stylus, second mounting means coupling said stylus to said second and third spool valves at a second location along its length to shift the spools of said second and third spool valves along their respective axes by distances proportional to components of displacement of the stylus tip along said axes, and to permit free vertical movement of said stylus, the improvement comprising:

said first spool valve comprising a cylindrical first sleeve and a cylindrical first spool slidably fitted in said sleeve, said spool and sleeve having a common axis, said axis being aligned with said axis of said stylus when said stylus is in a centralized position, said first sleeve and said first spool having grooves and lands to form a coordinating sector, a first directional control sector, and a second directional control sector, said spool valve being ported to supply and



receive fluid to and from motors at regulated and directionally selected rates and to receive pressurized fluid, and to pass fluid to exhaust; and

a transmission interposed between said first spool and said stylus, said transmission comprising a first conical surface in the end of said stylus adjacent to and opening toward said first spool, a ball resting on said first conical surface, a rod having a planar converter surface on its end facing said ball normal to said first axis, said rod being rigidly fixed to said spool, a converter plunger axially slidably mounted in said first spool surrounding said rod, a second conical surface opening toward said ball, converter means for shifting said converter plunger to a position where the ball can bear against said converter surface, or to a position where said ball bears against said second conical surface but not against said converter surface, and converter means to shift said converter plunger to a selected one of said positions.

4,265,577

TWO-PIECE CURTAIN-LIKE LADING-RESTRAINING DEVICE

Russell M. Loomis, Palos Heights, Ill., assignor to Unarco Industries, Inc., Chicago, Ill.

Filed May 31, 1979, Ser. No. 44,054

Int. Cl.³ B60P *7/00*

U.S. Cl. 410—118 **4 Claims**

1. Lading-engaging curtain means for use in a lading-carrying container, such as a truck-trailer, which has a pair of spaced sidewalls, a bottom wall and a top wall, wherein the improvement comprises:

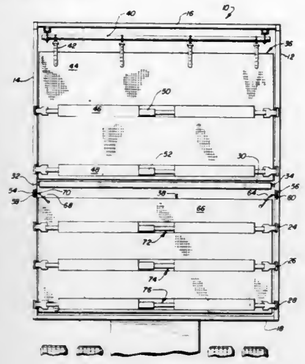
said vehicle having deck means for positioning in spaced relation to said bottom wall for carrying a load or cargo;

said curtain means being constructed of a flexible, fabric like material and further including upper curtain means for positioning above said deck means and lower curtain means for positioning below said deck means, restraining belt means cooperatively associated with each of said upper and lower curtain means and adapted for releasable engagement only with said sidewalls for cooperation with

said curtain means in restraining longitudinal movement of said lading;

each of said curtain means constructed to extend transversely of said side top and bottom walls for engaging and restraining lading;

trolley means adjacent said top wall means for suspending said upper curtain means therefrom and for positioning said upper curtain means across the face of lading carried on said deck means;



track channel means associated with each of said sidewalls below and adjacent said deck means and extending therealong, each of said channel means including a box-like section having means defining a slot;

slider means positioned within each of said channels for longitudinal movement therein and having a curtain-connecting portion extending through said slot; and

said lower curtain means including connector means for securing said curtain to said connecting portion of slider means so as to support and suspend said curtain means from said slider means.

4,265,578

SHEET FEEDING APPARATUS

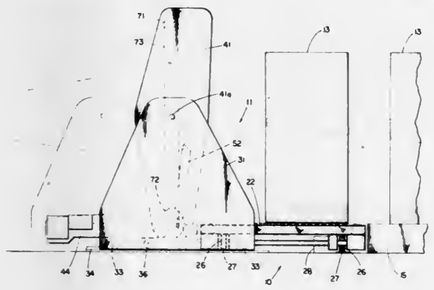
Louis J. Frederick, Fairmount; Kenneth E. Hoke, Marion; Jerrold W. Greene, Marion, and Stephen D. Miller, Marion, all of Ind., assignors to Greene Line Mfg. Corporation, Marion, Ind.

Continuation-in-part of Ser. No. 771,456, Feb. 24, 1977, Pat. No. 4,119,220. This application Sep. 18, 1978, Ser. No. 943,456

The portion of the term of this patent subsequent to Oct. 10, 1996, has been disclaimed.

Int. Cl.[3] **B65H** *1/22*

U.S. Cl. 414—130 **8 Claims**



1. Apparatus for feeding sheets in a shingled condition comprising:

support means for supporting sheets in a stack in an upright position, a cradle for the stack formed by spaced, generally L-shaped members, means for pivotally supporting said cradle on a horizontal pivotal axis, one set of legs of the L-shaped members carrying conveying means therebetween, additional means for pivoting the cradle about said axis between a load position in which said conveying means and said one set of legs are horizontal and receive the stack moving horizontally from said supporting means, the stack entering between the other set of legs positioned vertically, and a feed position in which said other set of legs is horizontal, and load support means moved laterally into the space between said other set of legs of said cradle prior to pivotal movement of the cradle toward said feed position, a first conveyor means aligned with said cradle and having means operable to convey said sheets away from said cradle in said feed position, a gate positioned over said first conveyor means having a bottom end and defining an upwardly extending plane against which sheets upon said first conveyor means may form a second stack of sheets, and means connected to said gate operable to move said bottom end to and from said first conveyor means defining a varible passage through which sheets move from the bottom of said second stack in shingled fashion.

4,265,579

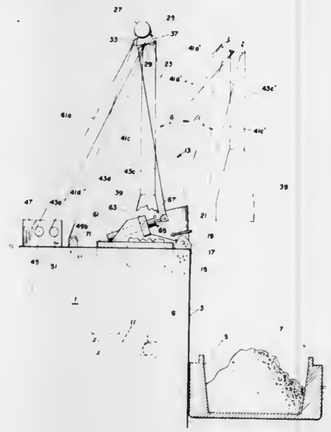
BULK MATERIAL UNLOADER

Laimons Naruns, Pittsburgh; Dennis W. Terry, Coraopolis, and Samuel K. Stellfox, Pittsburgh, all of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Jun. 27, 1979, Ser. No. 52,621

Int. Cl.[3] **B63B** *27/00*; **B66B** *9/20*

U.S. Cl. 414—138 **10 Claims**



1. A bulk material unloader comprising:

a base along one side of which a container of bulk material is positioned for unloading;

a bulk material receiving hopper mounted in said base;

a boom hinged at one end to the base for rotation about a horizontal pivot axis which is parallel to said one side of said base and located between said hopper and the one side of the base;

means for pivoting said boom from a first side of said horizontal pivot axis wherein the boom extends outward over the container to be unloaded, through the vertical to a second side wherein the boom extends inward over the hopper;

a clamshell bucket;

hold and close ropes for supporting and operating said clamshell bucket respectively;

sheaves rotatably mounted near the free end of said hinged boom and over which said hold and close ropes are reeved; and

hold and close hoists for operating said hold and close ropes respectively mounted on said base and spaced from the pivot axis of said boom in the direction of said hopper.

4,265,580

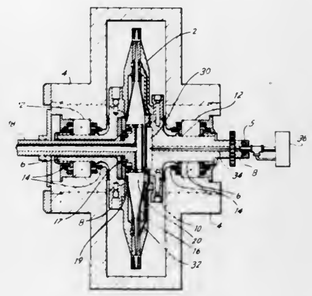
SYSTEM FOR THROTTLING AND COMPENSATION FOR VARIABLE FEEDSTOCK PROPERTIES

John W. Meyer, Palo Alto, Calif., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Apr. 23, 1979, Ser. No. 32,651

Int. Cl.[3] **F23D** *11/06*

U.S. Cl. 414—217 **6 Claims**



1. Apparatus for the control of the continuous feeding of relatively fine particulate material into a high pressure container, comprising:

(a) a rotor disposed in a high pressure housing and having a central hub and a plurality of sprues providing a passageway through which the particulate material is passed and which extend radially outward from an inner periphery to the edge of the rotor where the particulate material is discharged,

(b) each sprue having a wide opening at the inner periphery defining the entrance for the particulate material,

(c) the walls of the sprues defining a rapidly converging first section as they extend radially outward from the inner periphery to provide a low pressure gradient section for receiving loosely packed particulate material,

(d) the sprues having a second section extending radially outward beyond and in line with the first section to terminate adjacent an orifice opening at the periphery of the rotor, the walls thereof having a substantial change from the rapid angular convergence of the walls of the first section as the outer edge of the rotor is approached to define a high pressure gradient section of the sprue through which a bed of densely packed particulate material is passed, and

(e) variable high pressure gas supply means externally of the housing for varying the high pressure gradient in the second section of the sprue to thereby adjust for changes in flow rate or permeability of the particulate material and having an elongated closed gas feed line connected thereto, the discharge end of which extends through the walls of the second section of the sprue.

4,265,581

AUTOMATED PARKING SYSTEM AND SUBASSEMBLIES THEREFOR

Frank E. Ives, Kent, and Albert C. Saurwein, Seattle, both of Wash., assignors to Venus Products, Inc., Kent, Wash.

Filed Jul. 16, 1979, Ser. No. 57,814

Int. Cl.[3] **F04H** *6/22*

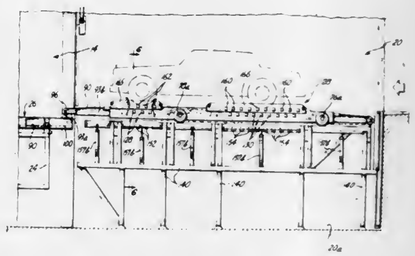
U.S. Cl. 414—228 **4 Claims**

1. In an automated parking system for vehicles, said vehicles having tires, said parking system including a ramp capable of supporting a vehicle, said ramp including a plurality of sets of spaced finger members for supporting each of the tires of a vehicle resting on said ramp,

shuttle means for carrying said vehicle to and from said ramp, said shuttle means including a plurality of sets of fingers corresponding to the plurality of sets of fingers on said ramp, said shuttle means having wheels,

means for moving said shuttle means from a position located under said ramp to a position removed from said ramp,

means associated with said set of fingers on said shuttle means for moving the sets of fingers thereon above and below the ramp when said shuttle means is positioned below said ramp, the sets of fingers on said shuttle means being constructed and spaced to interdigitate with the corresponding sets of fingers on said ramp as said fingers on said shuttle means are raised and lowered past said fingers on said ramp,



a platform associated with said ramp, said platform having a plurality of sets of fingers corresponding to the plurality of sets of fingers on said ramp, said fingers on said platform being constructed and spaced to interdigitate with said fingers on said ramp, and

means for raising said platform into substantially coplanar relationship with said ramp so that said fingers on said platform interdigitate with said fingers on said ramp to form a substantially continuous upper surface for supporting pedestrian traffic, and for lowering said platform so that said shuttle means can be positioned above said platform and below said ramp, and

a member joined to said plurality of sets of fingers on said platform, said member having a flat surface on the upper side therof for receiving the wheels of said shuttle means in rolling relationship when said platform is in the lowered position, thereby supporting said shuttle means under said ramp.

4,265,582

ARRANGEMENT FOR STORING OF PALLETS USED FOR HOLDING MATERIAL

Adolf Theobald, Merschstrasse 5, 5758 Fröndenberg-Warmen, D, Fed. Rep. of Germany

Filed Jun. 5, 1978, Ser. No. 912,466

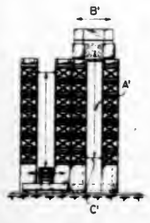
Claims priority, application Fed. Rep. of Germany, Jun. 8, 1977, 2725789

Int. Cl.[3] **B65G** *1/00, 65/00*

U.S. Cl. 414—279 **8 Claims**

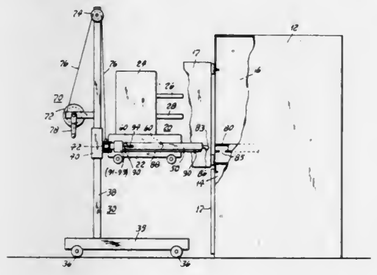
4. An arrangement for storing pallets used for holding material, particularly lengthy material, comprising a plurality of shelves located and fixed next to one another and having vertical members on said shelves, said shelves being above floor level and forming a plurality of stacked compartments for accommodating pallets and said compartments being accessible from at least one broad side of the shelves; a loading and removal device travelling transversely to said shelves under-

neath the shelves and including a travelling lifting table with means for loading and removal of said pallets; and guide means



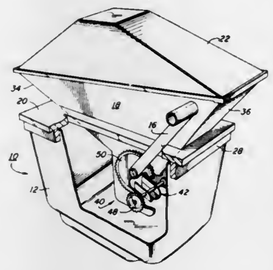
fixed to said vertical members for lateral support of a platform of said lifting table.

4,265,583
LIFT TRUCK FOR FACILITATING INSERTION AND REMOVAL OF HORIZONTAL DRAW-OUT SWITCHGEAR UNIT
Leslie L. Baird, and Gary M. Stolz, both of Burlington, Iowa, assignors to General Electric Company, Philadelphia, Pa.
Filed Aug. 15, 1978, Ser. No. 933,934
Int. Cl.³ B65G *65/00*
U.S. Cl. 414—284 **5 Claims**



1. A lift truck for transporting a movable switchgear unit into a position where said unit can be inserted horizontally into an upper-level space within a metal-clad switchgear cubicle, said cubicle having horizontally-spaced, substantially horizontally-extending rails in said upper-level space along which said unit is rolled during insertion thereof into said cubicle, said truck comprising:
(a) a pair of horizontally-spaced, substantially horizontally-extending truck rails along which said switchgear unit can be rolled as the switchgear unit is moved toward its inserted position within said cubicle,
(b) means for selectively raising and lowering said truck rails while said switchgear unit is positioned thereon,
(c) locking means operable after said truck rails have been raised for locking said truck rails in a fixed position with respect to said cubicle rails wherein said truck rails and said cubicle rails are substantially axially aligned said locking means being operable to lock said truck rails to said cubicle rails only when said truck rails and said cubicle rails are substantially axially aligned,
(d) insertion-blocking means carried by said truck and movable with said truck rails while said truck rails are being raised or lowered, said insertion-blocking means being effective when in a first position for blocking insertion motion of said movable switchgear unit on said truck rails, and effective in a second position to provide no blocking of insertion motion of said switchgear unit on said truck rails, said insertion-blocking means being operable between said first and second positions, and
(e) means also movable with said truck rails while said truck rails are being raised or lowered for preventing operation of said insertion-blocking means from said first to said second position until said locking means has been operated into a position for locking said truck rails to said cubicle rails in substantially axially-aligned relationship.

4,265,584
SYSTEM FOR OPENING AND EMPTYING CONTAINERS
Michael J. Duwell, Chicago, and Paul B. Specht, Wilmette, both of Ill., assignors to Heartland Chemicals, Farmer City, Ill.
Filed Apr. 13, 1979, Ser. No. 29,782
Int. Cl.³ B65G *65/40*
U.S. Cl. 414—412 **13 Claims**

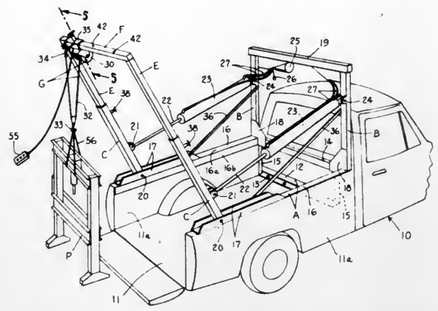


1. Apparatus for use in opening and emptying a container holding a flowable material, comprising
a housing,
support means for supporting said container in a predetermined position in said housing, and
piercing and cutting means rotatably mounted to said housing for rotation between a first position displaced from a container supported in said predetermined position and a second position,
said piercing and cutting means being configured so as to pierce the wall of said container at two spaced locations and to cut two slots therein as said piercing means is rotated from said first to said second position.

4,265,585
LOADING DEVICE FOR VEHICLE BEDS
Wallace H. Hawkins, Rte. 7, Old Buncombe Rd., Greenville, S.C. 29609
Filed Jul. 9, 1979, Ser. No. 55,896
Int. Cl.³ B60P *1/54*
U.S. Cl. 414—541 **4 Claims**

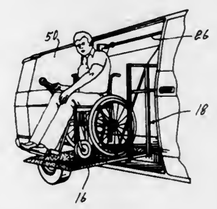
1. A loading device for wheeled vehicles having an elongated loading bed comprising:
a supporting frame having marginal portions adjacent marginal portions of said bed;
a pair of spaced transversely aligned standards fixed adjacent respective forward marginal portions of said supporting frame and extending upwardly therefrom;
a pair of transversely aligned boom members each pivotally carried on one end thereof adjacent said supporting frame rearwardly of said standards in longitudinal alignment therewith;
a pair of aligned fluid operated piston and cylinder assemblies each having pivotal connection on opposite ends thereof on a respective standard and boom member;

a transverse bridging member joining said boom members; and



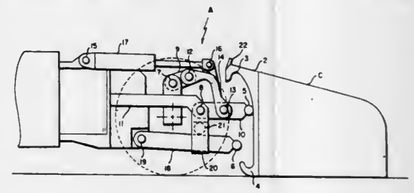
a load securing means carried adjacent said bridging member independent of said standards.

4,265,586
LIFT ASSEMBLY
Jacques Couture, Rte. 277, St. Claire, County of Bellechasse, Province of Quebec, Canada (G0R 2V0)
Filed Oct. 5, 1978, Ser. No. 948,800
Int. Cl.³ B60P *1/00*
U.S. Cl. 414—545 **2 Claims**



1. A lift assembly for use on a vehicle comprising:
(a) a pair of vertically-spaced support posts adapted to be mounted within the vehicle just inwardly of a side or rear doorway;
(b) a platform pivotable between an operative substantially horizontal position and an inoperative upright stored position, said platform, while in said operative position, adapted to be moved from ground to an intermediate position outside the vehicle which is substantially level with the floor of the vehicle, said platform having an inner end portion closer to said vehicle and an outer end portion extending away from said vehicle when in said operative position;
(c) a pair of linkages interconnecting said platform and said posts, each linkage comprising two rigid, parallel supporting arms pivotally connected to and slidably mounted at their inner end along a respective post, an inner and an outer upright rigid arm, parallel to each other, and pivotally connected at their top end to said parallel, supporting arms at points spaced outwardly from the inner ends of said supporting arms, and at their lower end to the inner end portion of said platform, said parallel supporting arms and said platform forming parallelograms with upright parallel arms and with said respective posts, so that the linkages and platform may be folded to a stored position inside the vehicle;
(d) inextensible, flexible tie means connected to the pivotal connection of one of said supporting arms with said inner upright arm, and to the outer portion of said platform for maintaining the platform level with the ground during movement of the platform from ground to said intermediate position, while allowing folding of said linkages and platform to said stored position;
(e) means for moving said platform from ground to said intermediate position, including a shaft journalled across the upper end of said posts, a pair of cables each attached at one end to said shaft and at its other end to said pivotal connection of a respective linkage, and means for rotating said shaft to cause said pair of linkages to slide on said posts and thus raise or lower the platform attached to the linkages and to allow the inner ends of said supporting arms to slide down along said posts during folding movement of said linkages and platform; and
(f) control means having actuation means mounted thereon for causing vertical adjustment of said platform, said control means comprising an arm pivotally mounted to the lower end of said inner upright arm of one of said linkages, a stop carried by said outer upright arm of said one linkage for releasably retaining said control means in an upwardly and outwardly inclined operative position and thus allowing folding of said control means during folding movement of said linkages and platform.

4,265,587
QUICK-COUPLING LOCKING MECHANISM
James W. Clark, Gladstone, Mich., assignor to Envirotech Corporation, Menlo Park, Calif.
Filed Jul. 25, 1979, Ser. No. 60,267
Int. Cl.³ E02F *3/81*
U.S. Cl. 414—723 **5 Claims**



1. A quick-coupling locking mechanism for attaching a service module to a mining service vehicle or the like, said service module having secured thereto attachment means formed to define a lifting hook at its top and a holding hook at its bottom, comprising:
a. a linkage assembly secured to said service vehicle, said linkage assembly having a lifting bar link having one end pivotally mounted to the frame of said vehicle and a distal end having a horizontally extending lifting bar fixed thereto, and a holding bar link having one end pivotally mounted to the frame of said vehicle and a distal end having a horizontally extending holding bar fixed thereto;
b. selectively extensible reciprocative actuator means connected to said lifting bar link to forceably move said lifting bar link to pivot said link in a vertical arc such that said lifting bar is moved into engagement with said lifting hook to lift said service module at its rear end, to draw said module toward said service vehicle and to lift said service module to the fixed carry position, such that said holding hook is brought into engagement with said holding bar;
c. separating means affixed for engagement between said holding bar link and said separating link to provide a separating force between said lifting bar and said holding bar to ensure that said lifting bar and said holding bar are securely engaged with said lifting hook and said holding hook, respectively; and
d. lockable toggle linkage connected at one end to said vehicle and at its other end to said lifting bar link such that said separating means operates to lock said toggle linkage so that said lifting bar and said holding bar are held in secure engagement with said lifting hook and said holding

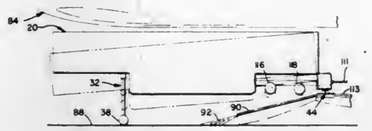
hook, respectively, independent of the influence of any hydraulic system.

4,265,588

METHODS FOR LOADING AN AIR TRANSPORTABLE TRAILER ABOARD AN AIRCRAFT AND FOR UNLOADING IT THEREFROM

J. Bryan Oshel, Spring Valley, and Robert J. Bennett, San Diego, both of Calif., assignors to International Harvester Company, Chicago, Ill.

Filed Aug. 21, 1979, Ser. No. 68,384
Int. Cl.³ B64C *1/22*; B64D *9/00*
U.S. Cl. 414—786 **5 Claims**



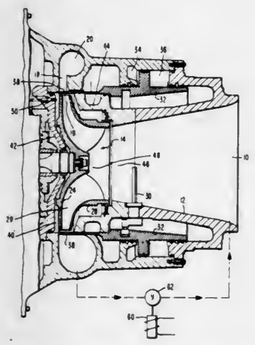
1. A method of loading a trailer coupled to a tractor and having vertically extensible landing gear at one end thereof, a jacking and support means at the opposite end thereof, and retractable running gear including roadable wheels into an aircraft having a cargo deck and equipped with an onboard winch and a cargo ramp, said method including the steps of: positioning said trailer with said jacking and support means over and in contact with said cargo ramp or said cargo deck; extending said landing gear into contact with the surface on which said aircraft and said trailer are standing; disconnecting said tractor from said trailer; removing the wheels from said running gear; winching said trailer into said aircraft until said landing gear approach said ramp; retracting said landing gear; and completing the winching of said trailer into said aircraft.

4,265,589

METHOD AND APPARATUS FOR SURGE DETECTION AND CONTROL IN CENTRIFUGAL GAS COMPRESSORS

Thomas E. Watson, Staunton, and Paul R. Smallwood, Jr., Grottoes, both of Va., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 18, 1979, Ser. No. 49,686
Int. Cl.³ F01D *21/12*
U.S. Cl. 415—47 **8 Claims**



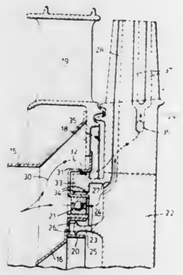
1. A centrifugal gas compressor comprising:
a rotatable impeller having a front central inlet, and a peripheral outlet, and having a gas flow path defined between said inlet and outlet;
casing means including wall means defining an impeller chamber in which said impeller is situated and further defining an inlet passage space upstream of said central inlet of said impeller;
capacity control means in said inlet passage space for controlling the degree of open area of said passage space; and
surge control means including temperature sensing means carried by said casing means and exposed to a space in said impeller chamber exterior of said flow path through said impeller, and in a location generally downstream of said capacity control means and generally upstream of said peripheral outlet of said impeller, said surge control means being operable, in response to said temperature sensitive means responding to a temperature rise in said space to which it is exposed beyond a predetermined value which corresponds to a surging condition of said compressor, to change the operating condition of said compressor to a non-surging condition.

4,265,590

COOLING AIR SUPPLY ARRANGEMENT FOR A GAS TURBINE ENGINE

David O. Davies, Duffield, England, assignor to Rolls-Royce Limited, London, England

Filed May 14, 1979, Ser. No. 38,707
Claims priority, application United Kingdom, May 20, 1978, 20951/78
Int. Cl.³ F02G *7/18*
U.S. Cl. 415—110 **8 Claims**



1. An improved gas turbine engine comprising a rotor, a source of cooling air at a high supply pressure, a cooling air supply arrangement for delivering cooling air from said source to said rotor, said cooling air supply arrangement including a first passage for supplying a first flow of said cooling air from said source to a first area of said rotor to be cooled, said first flow being at a first pressure lower than said high supply pressure, a second passage for supplying a second flow of said cooling air to a second area of said rotor, said second flow being at a reduced second pressure lower than said first pressure, and sealing means between said first area and said second area for resisting flow of cooling air at said first pressure from said first area to said second area, wherein the improvement comprises a part of said second passage being incorporated into said sealing means, said part of said second passage including nozzles provided in said second passage and oriented in a direction to discharge at least part of said second flow of cooling air in an upstream direction directly against leakage flow in said sealing means from said first area toward said second area to reduce such leakage flow and to simultaneously reduce pressure of said second flow of cooling air to said second area.

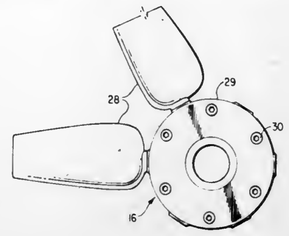
4,265,591

ADJUSTABLE PITCH FAN

Florian Gurbin, 331 Gosfield Ave., Essex, Ontario, Canada

Filed Dec. 12, 1978, Ser. No. 968,759
Int. Cl.³ B63H *3/04*
U.S. Cl. 415—148 **8 Claims**

1. Adjustable pitch fan apparatus comprising:
a hub having an annular base with upstanding inner and outer walls concentrically disposed thereon defining a channel;
a plurality of openings equally spaced apart and radially disposed in the outer wall;
a plurality of fan blades radially disposed along the outer wall in the plane of the hub, each blade having a stem rotatably journalled in a corresponding opening, an inner end, and a cam rotatably disposed in the channel; and



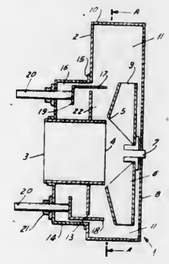
a plurality of discrete rigid link members freely disposed in the channel and slidably interlinking adjacent pairs of cams, individual ones of said members being curved to conform to the channel and interposed between the cams of adjacent pairs of fan blades whereby rotation of at least one blade rotates its cam and slidably displaces said link members to rotate the other cams which correspondingly adjust the pitch of the blades.

4,265,592

CENTRIFUGAL FAN

Gerardo P. V. Carlini, Gavilan 4552, Buenos Aires, Argentina

Filed May 9, 1979, Ser. No. 37,454
Int. Cl.³ F04D *27/00*
U.S. Cl. 415—157 **5 Claims**



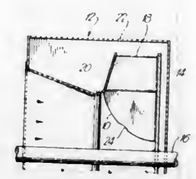
1. A centrifugal fan, comprising a casing defining a substantially cylindrical jacket having a tangentially directed outlet duct and lateral walls, one of said walls being formed with a tubular inlet duct partially projecting into the casing; an impeller supported for rotation in said casing opposite the opening of said inlet duct, the diameter of said impeller exceeding the diameter of said inlet duct; and axially adjustable tubular partition means passing through said one wall around said inlet duct, said tubular partition means being spaced apart from the periphery of said inlet duct to define therewith an annular diffusing antechamber communicating via a variable gap with the main diffusing chamber formed between said jacket and the periphery of said impeller.

4,265,593

STALL STABILIZER FOR A CENTRIFUGAL ROTOR

C. W. Hatton, 88A Avondale Ave. S., Waterloo, Ontario; J. C. Orr, 194 Winston Blvd., and R. G. Stevenson, 52 Alderwood Crescent, both of Cambridge, Ontario, all of Canada

Filed Mar. 21, 1979, Ser. No. 22,543
Claims priority, application Canada, Sep. 14, 1978, 311314
Int. Cl.³ F04D *29/30*
U.S. Cl. 416—183 **3 Claims**



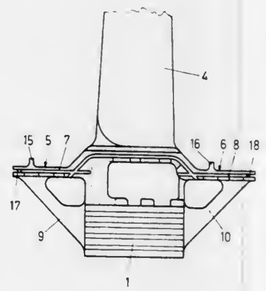
1. In a centrifugal rotor of the type having a plurality of backwardly inclined blades secured to a backplate in spaced relation and defining cells between each blade, said backplate being mounted on a shaft for rotation within a rotor housing and wherein said centrifugal rotor is susceptible to stall; the improvement comprising means for preventing said stall from rotating around the rotor from one cell to another comprising an aerodynamic extension to at least one blade but less than all of said plurality of blades of the rotor, said extension being directed from the lower or inner edge of said at least one blade into the eye of the rotor; the configuration of said blade being of exacting profile and being defined by the aerodynamics of the rotor.

4,265,594

TURBINE BLADE HAVING HEAT LOCALIZATION SEGMENTS

Jean Eggmann, Baden, Switzerland, assignor to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed Feb. 28, 1979, Ser. No. 15,890
Claims priority, application Switzerland, Mar. 2, 1978, 2252/78
Int. Cl.³ F01D *11/08*
U.S. Cl. 416—193 A **6 Claims**



1. A blade for a turbine section, of a gas turbine, comprising:
a blade root;
a blade member extending directly from the blade root;
first and second heat localization segments including first and second covering elements respectively, the first and second covering elements being formed as one piece with the blade member and the blade root, said covering elements impeding access of a working medium to a rotor of the turbine;
each covering element including a cover plate and support-

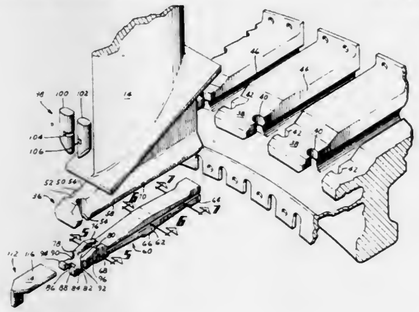
ing means for stiffening the cover plate, a portion of the cover plate adjacent the blade member and blade root being angled toward the blade member, said supporting means connecting the cover plate to an axial end face of the blade root.

4,265,595

TURBOMACHINERY BLADE RETAINING ASSEMBLY

Raymond W. Bucy, Jr., Terrace Park; Vicente C. Gallardo, Jr., Hamilton; Ronald C. Hollett, and Eric A. Young, both of Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Jan. 2, 1979, Ser. No. 474
Int. Cl.³ F01D *5/32*
U.S. Cl. 416—220 R **10 Claims**



1. An improved blade retaining assembly for locking a generally radially extending blade in a turbomachinery rotor, the blade having a dovetail at its radially inward end and the rotor having a dovetail slot extending generally axially across its periphery from one side of the rotor to the other, the blade dovetail being received within the dovetail slot including:

a first notch extending generally radially along a first lateral side of the blade dovetail;

a second notch extending generally radially along the other lateral side of the blade dovetail;

a third notch extending generally radially along a first dovetail slot side wall corresponding to the first blade dovetail lateral side, said third notch being axially aligned with said first notch;

a fourth notch extending generally radially along the other dovetail slot side wall, said fourth notch being axially aligned with said second notch;

axial retention means disposed within the aligned notches for axially retaining the blade dovetail in place within the dovetail slot wherein the improvement comprises:

spring spacer means interposed between the radial interior of the blade dovetail and the dovetail slot for exerting a radially outwardly directed force upon the blade dovetail;

a fifth notch extending radially along a first lateral side of the spring spacer means, said fifth notch being axially and radially aligned with said first notch;

a sixth notch extending radially along the other lateral side of the spring spacer means, said sixth notch being axially and radially aligned with said second notch; and

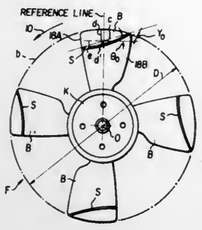
wherein said axial retention means is disposed within the fifth and sixth notches for retaining the spring spacer means in place within the dovetail slot.

4,265,596

AXIAL FLOW FAN WITH AUXILIARY BLADES

Haruo Katagiri; Kenji Fujikake, and Katsuhito Yamada, all of Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya, Japan

Filed Nov. 21, 1978, Ser. No. 962,695
Claims priority, application Japan, Nov. 22, 1977, 52-140135
Int. Cl.³ F04D *29/38, 29/58*
U.S. Cl. 416—236 A **64 Claims**



1. An axial flow fan having auxiliary blades which comprises:

a drive source;

a hub rotatably supported and driven by said drive source,

a plurality of fan blades extending radially outwardly from said hub, and including a suction surface and a pressure surface; and

at least one auxiliary blade projecting from an outer part of at least one of said suction and pressure surfaces of said fan blade, said auxiliary blade having a leading and trailing edge extending in a chordlength direction such that a leading region of the auxiliary blade is located nearer the central axis of the fan than a trailing region of the auxiliary blade wherein,

a supplementary angle θ_0 of an angle formed between a chord line connecting the leading edge and a trailing edge of said auxiliary blade and a reference line extending from the central axis of the fan has the relation

$$5° \leqq \theta_0 \leqq 40°$$

wherein a distance Y_0 from said trailing edge of said auxiliary blade to the radial outermost part of said fan blade has the relation to the diameter D of said fan

$$0 \leqq Y_0 \leqq .1D; \text{ and}$$

wherein the maximum height H of said auxiliary blade in a direction perpendicular to said suction or pressure surface of each of said fan blades has the relation to diameter D of said fan

$$0.02D \leqq H \leqq 0.055D.$$

4,265,597

BLOWER SYSTEMS CIRCUIT INTERRUPTING APPARATUS AND METHOD

Harris F. Payne, Arlington, and Michael G. Evans, Houston, both of Tex., assignors to A.R.A. Manufacturing Co., Grand Prairie, Tex.

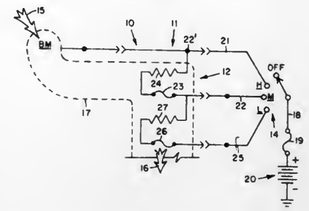
Filed Aug. 11, 1978, Ser. No. 933,639
Int. Cl.³ F04B *49/06;* **F25B** *1/04*
U.S. Cl. 417—32 **9 Claims**

1. A blower motor control for a vehicular air conditioning and heating system comprising:

a circuit interrupting means positioned in the blower air stream;

said circuit interrupting means, having circuit heating means responsive to current flowing in the circuit for causing the circuit interrupting means to interrupt when the stream of air stops or does not sufficiently cool the heating means and the heating means over-heats from an overload in the circuit, to protect the circuit from overloading and to prevent fires;

the heating means includes a resistance heater which is a blower motor speed-dropping resistor; and



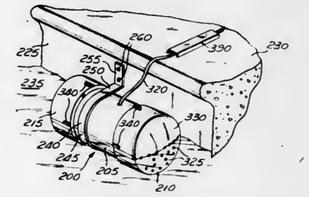
the circuit interrupting means includes a fuse which is heated by the heating means to cause the fuse to interrupt the circuit at a current flow less than the rated current carrying capability of the fuse.

4,265,598

APPARATUS AND METHOD FOR DE-ACTUATING SWIMMING POOL EQUIPMENT

Stanley W. Brand, 13102 Woodlawn Ave., Tustin, Calif. 92680

Continuation-in-part of Ser. No. 900,511, Apr. 27, 1978, abandoned. This application Sep. 15, 1978, Ser. No. 942,488
Int. Cl.³ F04B *49/04;* **F04H** *3/18*
U.S. Cl. 417—40 **1 Claim**



1. A device for automatically deactuating an electrically powered water pump for a swimming pool in response to a predetermined drop in the level of water in the pool, comprising:

an open-ended tubular member horizontally disposed in said pool;

first and second cap members covering the open ends of said tubular member and removably attached thereto;

said tubular member with said cap members forming a chamber in communication with said pool filled with water from said pool to the same level as the water in said pool, at least one of said cap members having means for permitting the flow of water from said pool into and out of said chamber;

electrical switching means for electrically coupling said pump to an electrical power source when said switching means is in a first state and decoupling said pump when said switching means is in a second state;

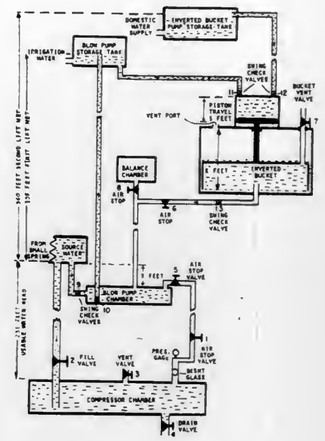
float means floating in the water in said chamber and connected to said switching means for maintaining said switching means in said first state when said float means is supported by the water in said chamber at least at a predetermined level, and changing said switching means to said second state when said float means falls below said predetermined level in response to a corresponding drop in the level of water in said pool.

4,265,599

HYDROPNEUMATIC ENERGY SYSTEM

Paul H. Morton, 180 Berkeley St., Satellite Beach, Fla. 32937

Filed Jan. 31, 1979, Ser. No. 7,913
Int. Cl.³ F04F *1/08*
U.S. Cl. 417—54 **11 Claims**



1. A method of extracting energy from a non-surging fluid source of potential energy, including the steps of:

permitting fluid from said non-surging source to enter a container;

venting into a pressurized gas system gas displaced by said fluid entering said container; and draining said fluid from said container via pneumatic valve means controlled by pilot valve means responsive to fluid displaced magnetic means while permitting a fresh charge of gas to enter said container.

4. An apparatus for extracting energy from a non-surging fluid source of potential energy, comprising:

a container;

control means to admit fluid from said source into said container;

vent means to allow gas displaced by said fluid in said container to exit said container as compressed gas;

drain control means responsive to said fluid entering said container and reaching a predetermined volume for closing said means to admit said fluid;

said drain control means including, a pneumatic valve, a pilot valve for controlling said pneumatic valve, a pilot valve actuator including a lever arm supporting a magnetic mass, a non-ferrous tube positioned adjacent to said lever arm, a ferrous mass adapted to move within said non-ferrous tube as a function of the fluid level in said container;

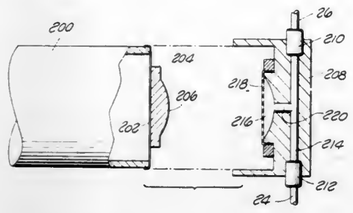
drain means responsive to said drain control means for permitting said fluid to drain from said container;

vent means to permit a fresh charge of gas to enter said container as said fluid drains from said container;

fill control means responsive to the removal of said fluid from said container; and

means responsive to said fill control means for closing said drain means and opening said control means to admit fluid from said source into said container.

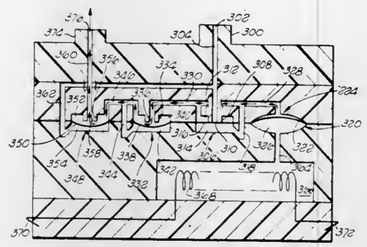
4,265,600
PUMP APPARATUS
Harold Mandroian, 2137 Los Amigos, La Canada, Calif. 91011
Filed Sep. 5, 1978, Ser. No. 939,924
Int. Cl.³ F04B *43/06*
U.S. Cl. 417—379 **1 Claim**



1. A pumping system comprising:
pumping apparatus coupled for pumping fluid from a reservoir to a destination along a flow path comprising a passageway means, a volume defining pumping chamber in the passageway means, the pumping chamber having a predetermined volume, and a diaphragm means for defining at least a pumped fluid portion of the pumping chamber, the diaphragm means comprising:
a first diaphragm having a first surface area against which the variable gas pressure is applied; and
a pressure increasing means which comprises a first member having a member surface with a raised region whose cross-sectional area in the plane of the member is smaller than the first surface area, the raised region having a shape substantially the reciprocal of the shape of the pumping chamber surface in the pumped fluid portion, and a second diaphragm positioned for defining an enclosed volume comprising the pumped fluid portion of the pumping chamber, the second diaphragm positioned adjacent to the raised region for being depressed by the raised region to decrease the volume of the pumped fluid portion of the pump chamber in response to an increase in the pressure of the pumping fluid;
heater apparatus comprising a quantity of pumping fluid, a heating chamber for containing said quantity of pumping fluid, the heating chamber coupled for applying a force to the diaphragm to decrease the volume of the pumped fluid portion of the pumping chamber when the pressure of the quantity of pumping fluid increases, and a heater in the heating chamber for heating the quantity of pumping fluid and thereby increasing the pressure and volume of the quantity of pumping fluid; and
heater control means for providing electrical pulses for intermittently energizing the heater.

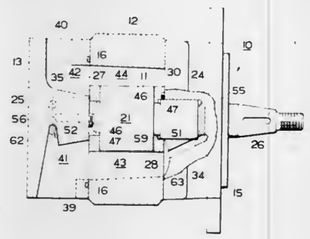
4,265,601
THREE VALVE PRECISION PUMP APPARATUS WITH HEAD PRESSURE FLOWTHROUGH PROTECTION
Harold Mandroian, 2137 Los Amigos, La Canada, Calif. 91011
Continuation-in-part of Ser. No. 939,924, Sep. 5, 1978. This application Jul. 26, 1979, Ser. No. 60,955
Int. Cl.³ F04B *21/02, 17/00, 43/02*
U.S. Cl. 417—379 **8 Claims**

1. A pumping apparatus for moving a pumped fluid from a reservoir to a destination in response to variations of the pressure of a pumping fluid comprising:
a pump member means having
an input port for receiving pumped fluid from the reservoir,
an exit port for expelling pumped fluid to the destination,
a pumping chamber,
an input passageway,
an exit passageway, and
a passageway network between the input passageway and the exit passageway;
a diaphragm means bifurcating the pumping chamber for defining a first chamber volume for receiving the pumped fluid and a second chamber volume for receiving the pumping fluid,
variable pressure means for intermittently varying the pressure of the pumping fluid for alternately increasing the second chamber volume to increase the pressure of the pumped fluid and expel it from the first chamber volume and decreasing the second chamber volume to decrease the pressure of the pumped fluid and draw it into the first chamber volume;
first valve means positioned between the input passageway and the passageway network and responsive to the pressure of the pumped fluid in the first chamber volume;



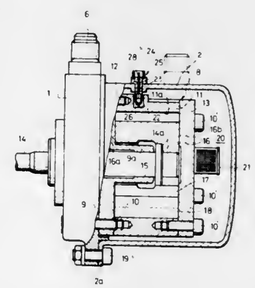
second valve means positioned in the passageway network for being responsive to the pressure of the pumped fluid in the first chamber volume, the first valve means being opened when the second valve means closes and the first valve means being closed when the second valve means opens in response to the variations in pumping fluid pressure;
third valve means coupled between the exit passageway and the second valve means in the passageway network for preventing pumped fluid flow-through the pump in response to a pressure head at the input or exit ports, the third valve means coupled for closing at least one of the first, second, or third valves in response to the head pressure at the input and exit ports.

4,265,602
GEAR PUMP WITH LOW PRESSURE SHAFT LUBRICATION
Hideo Teruyama, Shobu, Japan, assignor to Kayabakogyokabushikikaisha, Tokyo, Japan
Filed Nov. 15, 1978, Ser. No. 960,940
Int. Cl.³ F04C *2/18, 15/00*
U.S. Cl. 418—1 **5 Claims**



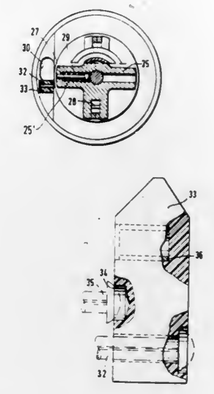
1. A method of lubricating trunnions and bearings of a gear pump, comprising the steps of rotating gears of said gear pump in such a way that liquid under low pressure may be drawn through a low pressure port extended substantially at right angles to the axes of gear trunnions toward one end thereof and then be redirected to flow through a low pressure passage extended in parallel with said axes of said trunnions so as to be impounded in the spaces between the teeth of said gears; and utilizing the kinetic energy due to the flow velocity of said liquid under low pressure in such a way that part of said liquid under low pressure may be forced into lubrication or oil passages through communication passages which open at the closed end of said low pressure port adjacent to the inlet to said low pressure passage and at the closed end of said low pressure passage and return said liquid under low pressure to said low pressure passage after it has been distributed to bearings of said gears, thereby effecting forced lubrication and cooling of said trunnions of said gears.

4,265,603
REFRIGERANT COMPRESSOR FOR AIR CONDITIONING OF VEHICLES
Tsuneyuki Chiyoda, and Masami Ohtani, both of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan
Filed Apr. 10, 1979, Ser. No. 28,890
Claims priority, application Japan, Apr. 28, 1978, 53/56235[U]
Int. Cl.³ F04C *15/04*
U.S. Cl. 418—2 **13 Claims**



1. A refrigerant compressor for use in an air conditioner for vehicles, which comprises:
a refrigerant intake port;
a refrigerant delivery port;
a rotary shaft arranged to be rotated by an associated engine;
a rotor secured to said rotary shaft for rotation therewith, the rotor having a plurality of slits formed in an outer peripheral surface thereof;
a plurality of vanes radially movably inserted in said slits;
a housing accommodating said rotor and said vanes, the rotor, the vanes and the housing cooperating to define pump working chambers between them, the housing having a peripheral wall formed with a blind hole opening in an outer peripheral surface thereof and terminating in the interior of said wall;
a covering enclosing said housing, the covering having an inner peripheral wall thereof, part of said inner peripheral wall cooperating with an outer peripheral wall of said housing to define a refrigerant delivery chamber which is in communication with both the interior of the housing and said refrigerant delivery port, said covering having a through hole arranged in alignment with said opening;
a support member inserted in said hole of said housing, said support member extending through said through hole of said covering outwardly thereof;
a temperature sensor arranged in contact with the bottom of said hole of said housing and supported by said support member; and
sealing means provided around the support member for keeping airtightness between said support member and said covering.

4,265,604
ROTARY PNEUMATIC TOOL WITH VALVE-CLOSING PIN ACTUATED UPON OVERSPEED
Ernst Dreher, Reutlingen; Reinhold Stroezel, Leinfelden-Echterdingen; Siegfried Spittler, Wiesenstetten, and Richard Wolf, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Mar. 28, 1979, Ser. No. 24,778
Claims priority, application Fed. Rep. of Germany, May 13, 1978, 2821074
Int. Cl.³ F01C *21/12*; G05D *13/04*
U.S. Cl. 418—43 **10 Claims**



1. In a pneumatic tool, a combination comprising a fluid motor including a rotor; passage means connecting said rotor with a source of fluid under pressure; normally open valve means interposed in said passage means and movable to a closed position in which it interrupts the flow of fluid to said rotor; actuating means on said rotor operative in response to said rotor exceeding a predetermined speed of revolution, to move from a neutral into an actuating position in which it engages said valve means and moves the same to said closed position thereof, said valve means including a valve plate movable between an open and said closed position; said actuating means including a pin operatively connected to said rotor for rotation therewith and movable between said neutral and actuating positions relative to said rotor; and means for reinforcing said valve plate, said reinforcing means including a metallic reinforcing element pressed into said valve plate, said reinforcing element being formed as a cotter spring.

2. In a pneumatic tool, a combination comprising a fluid motor including a rotor; passage means connecting said rotor with a source of fluid under pressure; normally open valve means interposed in said passage means and movable to a closed position in which it interrupts the flow of fluid to said rotor; actuating means arranged on said rotor and operative in response to said rotor exceeding a predetermined speed of revolutions to move from a neutral into an actuating position, said valve means including a valve plate movable between an open and said closed positions, said actuating means including a pin operatively connected to said rotor for rotation therewith and movable between said neutral and actuating positions relative to said rotor, said valve plate being located adjacent said rotor so that when said pin is in said actuating position it engages said valve plate during the rotation of said rotor to thereby move said valve plate to said closed position; means for preventing movement of said pin between said neutral and actuating positions until the speed of revolutions of said rotor exceeds said predetermined speed level; and means for preventing spontaneous movement of said plate between said open and closed positions, said valve plate being provided with a hole, and said spontaneous-movement-preventing means including a stationary pin engageable with said hole on said

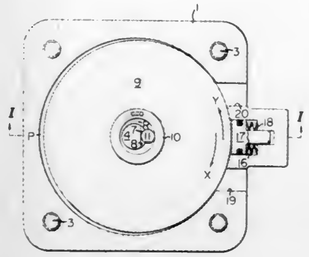
valve plate with a snapping action when said valve plate is in said open position.

4,265,605

ROTARY PUMP WITH WEDGE ROLLER ECCENTRIC MEANS DRIVING THE ROTOR

Kazuichi Ito, 4, 1463-banchi, Ichibu-cho, Ikoma-shi, Nara-ken, Japan

Filed Mar. 20, 1979, Ser. No. 22,265
Claims priority, application Japan, Apr. 11, 1978, 53/42824
Int. Cl.³ F04C *18/00, 27/00*
U.S. Cl. 418—63 **6 Claims**



1. A rotary pump comprising: a pump casing having a cylindrical chamber formed therein; a pump shaft rotatably carried by said pump casing and provided at its portion extending in said cylindrical chamber with a groove having a bottom surface extending in parallel with the central axis of said pump shaft; an eccentric rotor surrounding said pump shaft at a portion of the latter where said groove is formed and adapted to make an eccentric movement in relation to said pump shaft while keeping a contact with the inner peripheral surface of said cylindrical chamber; a roller bearing positioned coaxially within a central bore of said rotor; wedge roller means disposed between said bottom surface of said groove and said bearing for imparting through said bearing an eccentric movement to said bearing and thus to said rotor, said wedge roller having a diameter of greater extent than the depth the groove; a partition means adapted to divide a pump chamber formed between said pump casing and said eccentric rotor in a fluid-tight manner into a suction chamber and a delivery chamber; and a suction port and a delivery port formed in said pump casing and communicating with said suction chamber and said delivery chamber, respectively.

4,265,606

FOSITIVE DISPLACEMENT PULSE FREE ROTARY FLUID PUMP

Edward L. Lehnus, 5549 Westwood Northern Blvd., Cincinnati, Ohio 45211

Filed Nov. 21, 1979, Ser. No. 96,451
Int. Cl.³ F04C *2/16*
U.S. Cl. 418—201 **4 Claims**

1. A positive displacement rotary pump for providing substantially pulse-free fluid transfer comprising:

a pump casing having a pair of parallel end walls spaced by a continuous side wall enclosing a pair of substantially circular intersecting pump chamber cavities;

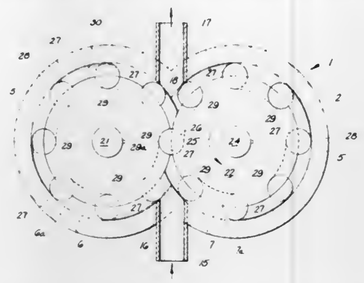
an inlet port extending through said side wall and coaxial with the points of intersection of said cavities;

an outlet port extending through said side wall opposite to and coaxial with said inlet port;

a substantially cylindrical rotor member rotatably mounted by said end walls within each of said cavities such that the outer peripheries of said counterrotating rotor members are in rolling contact with each other at a point substantially tangential with the axes of said inlet and outlet ports, each of said rotor members including:

a plurality of equally spaced parallel semi-cylindrical helically arranged ribs extending outwardly from the outer periphery of said rotor member a distance equal to the radius of said rib, the outermost edges of said ribs making a sliding seal with the inner surface of said side walls between said inlet and outlet ports;

a semi-cylindrical helically arranged flute positioned in parallel equidistant relationship between each pair of adjacent ribs, each of said flutes extending to a depth equal to the radius of the flute, the rib of one rotor member intermeshing with the flute of the other rotor member to form a substantially fluid-tight seal as said rotor members are rotated, the ribs and flutes of each rotor member being pitched in opposite directions, the pitch of said ribs and flutes being in opposite directions



such that the outermost point of each rib adjacent one side wall directly overlies the innermost point on the adjacent flute adjacent the opposite side wall to insure that a rib-flute pair just breaks contact as the adjacent rib-flute pair makes contact.

a gear coaxial with and non-rotatably affixed to said rotor member, said gears being positioned outside of the fluid flow path and intermeshing to drive one of said rotor members from the other;

means for providing a seal between the outer faces of said rotor member and the adjacent inner surfaces of said end wall as said rotor member is rotated; and

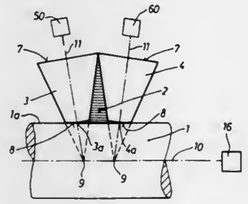
means associated with one of said rotor members for driving said rotor members in a direction to transfer fluid in a pulse-free manner from said inlet port to said outlet port.

4,265,607

APPARATUS FOR MANUFACTURING A PLASTIC INSULATOR EQUIPPED WITH HELICAL-SHAPED SHIELDS

Hans Kläy, CH-1171 Bougy-Villars, Switzerland

Filed Feb. 5, 1980, Ser. No. 118,758
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1979, 2905874
Int. Cl.³ B29C *23/00;* **B29D** *9/00, 31/00*
U.S. Cl. 425—113 **4 Claims**



1. An apparatus for manufacturing a plastic insulator provided with substantially helical-shaped shields which radially protrude from an insulator rod, comprising:

two oppositely rotating substantially truncated conical-shaped rolls;

said rolls forming therebetween and the outer surface of a neighboring insulator rod an infeed gap for the infeed of a shield-forming material which is to be infed in kneadable condition in transverse direction with respect to the rolls;

said rolls being arranged at one side of the insulator rod and the imaginary cone apexes of the substantially truncated conical-shaped rolls being located essentially at the lengthwise axis of the insulator rod;

drive means for rotating the rolls about their roll axes and the insulator rod about its lengthwise axis;

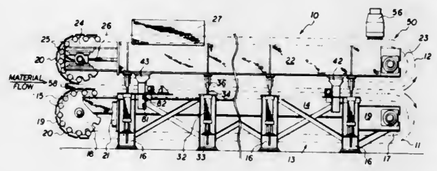
means for imparting a relative movement between the pair of rolls and the insulator rod in the direction of the lengthwise axis of the insulator rod or essentially parallel thereto in order to simultaneously form the shield and to apply the shield to the insulator rod.

4,265,608

ENDLESS BELT MOLDING APPARATUS

Malik Tunador, and Manoj K. Wangu, both of Pittsburgh, Pa., assignors to Tunador Engineering, Inc., Oakdale, Pa.

Filed Jun. 30, 1980, Ser. No. 164,804
Int. Cl.³ B30B *3/00;* **B29C** *3/06;* **B30B** *15/16*
U.S. Cl. 425—149 **9 Claims**



1. An endless belt molding apparatus comprising:

a. first and second adjustably spaced rotatable endless belts, said first and second belts being mounted to first and second frame members and said first frame member including support means to support said second frame thereon during molding;

b. means for vertically adjusting said second frame member relative to said first frame member, said means for adjusting being mounted to said first and second frames member;

c. a plurality of sensing means mounted on selected support means of said first frame member to support in combination with said support means said second frame member during molding operation, said sensing means providing an output signal proportional to the pressure asserted by said second frame during contact therewith;

d. drive means including first and second belt drive sprockets operably connected to respective first and second belts and rotatably mounted to said first and second frames; first and second speed reducers operably connected to said respective drive sprockets; a splined, vertically extendable drive coupler connected to said first and second speed reducers; and motor means operably connected to one of said first or second speed reducers for driving said reducer, said drive means including a torque take-up means between said first speed reducer and said first frame,

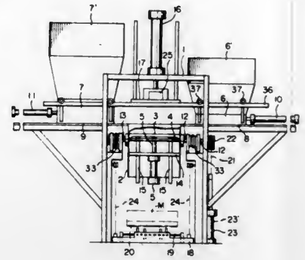
e. control means for operating said means for vertically adjusting said second frame, said control means being responsive to said output signals from said sensing means.

4,265,609

METHOD AND APPARATUS FOR MOLDING CONCRETE BLOCK PRODUCTS

Yutaka Kitahara, 2329-1 Abe, Ochiaicho, Takahashi-shi, Okayama, Japan

Filed Dec. 13, 1978, Ser. No. 968,904
Claims priority, application Japan, Jul. 19, 1978, 53-87116; Jul. 19, 1978, 53-87117
Int. Cl.³ B30B *9/28*
U.S. Cl. 425—260 **10 Claims**



1. A concrete block molding apparatus comprising: an upright frame; an upright molding box defining a vertical mold cavity for molding a concrete block, said mold cavity being open at one vertical end thereof; means rotatably mounting said molding box on said frame for rotation about a horizontal axis and means for rotating said molding box about said horizontal axis through an arc of about 180° between a first position in which said one vertical end of said mold cavity opens upwardly and a second position in which said one vertical end of said mold cavity opens downwardly; a vertically reciprocable bottom plate disposed within said molding box, means for moving said bottom plate vertically relative to and within said molding box toward and away from said open end of said mold cavity between a plurality of vertically spaced positions in said mold cavity, said bottom plate being rotatable about said horizontal axis with said molding box, said bottom plate defining the bottom wall of said mold cavity in said first position of said molding box, said bottom plate defining the upper wall of said mold cavity in said second position of said molding box; a plurality of movable feed boxes alternately movable above the upper end of said mold cavity in said molding box when said molding box is in said first position for feeding concrete mixes into said mold cavity; and press plate means movably supported on said frame above the upper end of said molding box for pressing downwardly on the upper surface of a charge of concrete mix in said mold cavity in said molding box when said molding box is in said first position in order to mold said charge, whereby a concrete block can be molded when said molding box is in said first position and then said molding box can be inverted so that the concrete block can be ejected downwardly from said mold cavity by moving said bottom plate downwardly in said mold cavity.

4,265,610

PRESS FOR COMPRESSING REFRACTORY MATERIAL AND INCLUDING A QUICK CHANGE MOLD BOX

Robert J. Dorsey, Chicago, Ill., assignor to Wehr Corporation, Milwaukee, Wis.

Filed Dec. 4, 1978, Ser. No. 965,794
Int. Cl.³ B29C *1/16*
U.S. Cl. 425—411 **19 Claims**

1. A press for molding refractory material and comprising:

a bed,

a plunger assembly supported by said bed and including one upwardly projecting plunger,

a mold table supported for movement toward and away from said bed, said mold table including a central aperture,

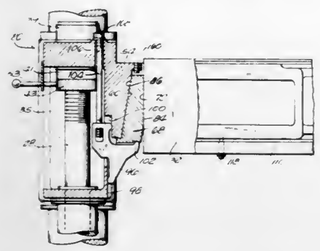
a mold box supportable in said central aperture, said mold

box including at least one mold cavity for receiving said plunger, said mold box and said central aperture of said mold table forming at least two downwardly diverging cavities therebetween,

means for releaseably wedging said mold box in said central aperture when said mold box is housed in said central aperture and when said mold table is forced downwardly with respect to said mold box and for selectively releasing said mold box when said mold box is restrained against upward movement and said mold table is forced upwardly with respect to said mold box, said means for releaseably wedging said mold box including at least one wedge positionable in one of said downwardly diverging cavities and clampingly engaging said mold box in response to downward movement of said mold table with respect to said mold box until said mold box is housed in said central aperture and said wedge being movable away from said mold box to release said mold box in response to upward movement of said mold table with respect to said mold box,

means for selectively restraining said mold box from upward movement and,

means for causing upward movement of said mold table with respect to said mold box.



4,265,611

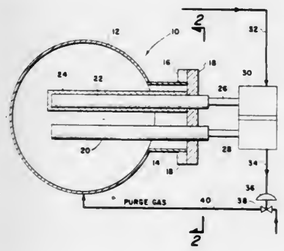
CONTROL SYSTEM FOR PURGE GAS TO FLARE

Robert D. Reed, and Merle A. Bengston, both of Tulsa, Okla., assignors to John Zink Company, Tulsa, Okla.

Filed Mar. 15, 1979, Ser. No. 20,920

Int. Cl.³ F23D *13/20*

U.S. Cl. 431—3 **7 Claims**



1. In a flare gas system for the demand burning of waste gases, apparatus for controlling the flow of purge gas into the flare gas line, comprising;

(a) a source of purge gas connected to a purge gas line, which is connected to said flare gas line; and means for controlling the flow of purge gas in said purge gas line;

(b) means for detecting a change in temperature comprising;

a fast response temperature sensor means positioned in said flare gas line, a slow response temperature sensor means positioned in said flare gas line close to said fast response sensor means; and

(c) control means responsive to both said fast response and said slow response sensor means to control said flow of purge gas.

4,265,612

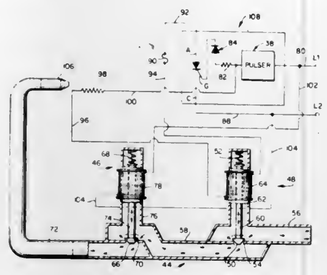
INTERMITTENT PULSING GAS IGNITION SYSTEM

Pat Romanelli; Robert J. Romanelli, both of Harrington Park, N.J., and Richard W. Shutt, Central Square, N.Y., assignors to Ram Products, Inc., Northvale, N.J.

Filed Mar. 8, 1979, Ser. No. 18,795

Int. Cl.³ F23N *5/00*

U.S. Cl. 431—66 **14 Claims**



1. A pulsing ignition system for gas fired devices having a source of electrical power, a burner provided with an outlet, and a fuel valve for controlling the flow of gas to said burner; said system comprising

an electrical ignition element of resistance material adaptable for connection to said source of electrical power, and located in proximity to said burner outlet for igniting gas flowing thereto when said ignition element is energized and brought to a gas ignition temperature,

electrical pulse generating means in circuit with said electrical ignition element, said pulse generating means having a predetermined on/off cycle and being adapted to provide energizing current to said electrical ignition element during said on cycle, of a value sufficient to energize and heat said electrical ignition element to a gas ignition temperature, and current of reduced value during said off cycle thereby permitting said electrical ignition element to cool during said off cycle,

said pulse generating means including a gate controlled rectifier, and a flip flop circuit having its output connected to the gate of said gate controlled rectifier,

and electrical control means connecting said fuel valve and said electrical pulse generating means for operation of said electrical pulse generating means when said fuel valve is open.

4,265,613

SAFETY DEVICE FOR AN OIL BURNER

Rolf Oppenberg, Wesel, Fed. Rep. of Germany, assignor to Deutsche Babcock Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 5, 1979, Ser. No. 17,233

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1978, 2809962

Int. Cl.³ F23D *11/38*

U.S. Cl. 431—121 **5 Claims**

1. A safety device for an oil burner having an oil lance, comprising, a fuel oil supply line connected to said oil lance, a fuel oil shutoff valve in said supply line, a pump comprising a pump housing having a drive cylinder space, a suction piston space, a double-acting drive piston movable in said drive cylinder space, a suction piston movable in said suction piston space, a piston rod connected to said drive piston and suction piston having at least a portion disposed therebetween, a suction line extending between said suction space and said shutoff valve in said supply line and control means connected between said burner lance and said fuel oil shutoff valve in said supply line and connected between said pump and said burner lance to move said drive piston to cause movement of said suction piston and withdrawal of the oil through said supply line from said burner lance when said burner is shut off.



4,265,614

COMBUSTION APPARATUS

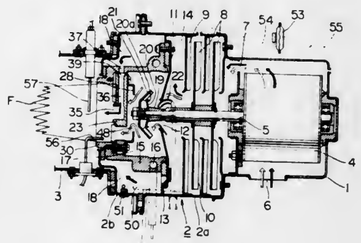
Hajime Satoda, Yamatokoriyama; Hiromi Ohta, and Yoshiyuki Ushirokajitani, both of Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 28, 1979, Ser. No. 52,984

Claims priority, application Japan, Jun. 28, 1978, 53-78859; Jun. 28, 1978, 53-78860

Int. Cl.³ F23D *13/14, 7/00*

U.S. Cl. 431—329 **13 Claims**



1. A combustion apparatus comprising:

i. a burner case;

ii. means for producing a mixture of fuel and air to be burned;

iii. a fuel supply for feeding said fuel to said producing means;

iv. means for supplying primary air to said producing means;

v. means for supplying secondary air; and

vi. a burner head unit, disposed in said burner case, including a secondary air ejecting nozzle and flame port means surrounding said secondary air ejecting nozzle, said burner head unit burning said mixture fed from said producing means so as to form a flame having an inner lateral surface and an outer lateral surface, said secondary air ejecting nozzle being arranged to feed a laminated flow of said secondary air into contact with the inner lateral surface of said flame.

4,265,615

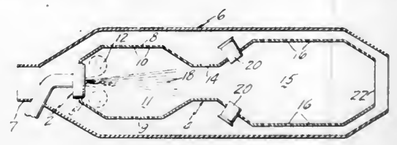
FUEL INJECTION SYSTEM FOR LOW EMISSION BURNERS

Robert P. Lohmann, South Windsor, and Stanley J. Markowski, East Hartford, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 11, 1978, Ser. No. 968,652

Int. Cl.³ F23D *15/02*

U.S. Cl. 431—353 **10 Claims**



1. A burner construction including:

an inlet end cap having at least one central opening therein;

side walls extending downstream from the end cap and having openings therein, said walls converging in a downstream direction to form a throat spaced from the end cap, and diverging again downstream of the throat;

an annular nozzle in the opening in the end cap for directing fuel at a large angle relative to the axis of the burner to cause primary combustion in an annulus closely adjacent to the end cap; and

a second nozzle within the annulus of the first nozzle directing fuel at a small angle and substantially parallel to the axis of the burner through the primary combustion, this small angle and the spacing of the throat from the end cap being such that substantially all the fuel from this nozzle passes through the throat without impingement on the converging walls for secondary combustion downstream of the throat.

4,265,616

PROCESS FOR PRODUCING A HEAT-WEAKENED STRIP IN POLYOLEFIN FILM

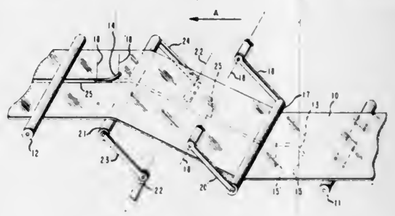
Brian L. Hetherington, Kingston, Canada, assignor to Du Pont Canada, Inc., Montreal, Canada

Filed Oct. 18, 1979, Ser. No. 86,265

Claims priority, application Canada, Oct. 19, 1978, 313759

Int. Cl.³ F27B *9/28*

U.S. Cl. 432—8 **6 Claims**



1. A process for heat-weakening cross-lapped oriented polyolefin film, comprising:

(a) pulling a web of a cross-lapped oriented polyolefin film, having a thickness between 38 μm and 150 μm, in a longitudinal direction past first and second heat sources, said first and second heat sources being spaced apart from and in line with one another along a line parallel to the direction of travel of the web;

(b) directing heat from the first heat source to a transversely narrow area on one side of the film;

(c) directing heat from the second heat source to a second transversely narrow area on the other side of the film, said

second transversely narrow area being longitudinally in line with said first transversely narrow area;

(d) controlling the heat from the first and second heat sources to effect heat-weakening of the film along a strip passing through the first and second transversely narrow area to such an extent that the transverse tensile breaking strength at the heat-weakened strip is in the range of 20 to 100 Newtons per centimeter of length of film.

4,265,617

APPARATUS FOR SPRAY DRYING OF LIQUID AND PASTE-LIKE MATERIALS

Georgy P. Piterskikh, ulitsa Garibaldi, 4, korpus 1, kv. 11; Stanislav A. Sukhov, Gostinichny proezd, 4A, kv. 71; Vladimir B. Slobodchikov, ulitsa Tukhachevskogo, 33, kv. 21, all of Moscow; Ivan S. Sutyagin, Krasnoperekopsky raion, poselok Armyansk, I mikroraion, 10, kv. 62, and Albert M. Terentiev, Krasnoperekopsky raion, poselok Armyansk, I mikroraion, 3, kv. 97, both of Krymskaya oblast, all of U.S.S.R.

Filed Oct. 18, 1979, Ser. No. 86,071
Int. Cl.³ F27B *15/00*
U.S. Cl. 432—58 **8 Claims**



1. An apparatus for spray drying liquid and paste-like materials, comprising:

a chamber for combustion of a gaseous drying medium passing therein in a pulsating flow;

an inlet pipe for feeding the gaseous drying medium into said chamber, disposed on the axis thereof;

a pipe for injecting said materials into said chamber, a portion of the pipe being disposed on the centerline of said chamber in the direction of travel of the gaseous drying medium flow;

an exhaust pipe mounted in a coaxial relationship to said chamber at the end thereof opposite to the inlet pipe for feeding the gaseous drying medium;

at least one baffle in the form of a truncated cone facing by its smaller base the interior of said chamber and positioned in a coaxial relationship thereto, at least the first baffle in the direction of travel of the material flow being positioned directly in said exhaust pipe in a spaced relationship thereto to define a gap therebetween;

at least one toroidal resonator chamber encompassing said baffle, at least the first resonator chamber in the direction of travel of the material flow partly encompassing also the exhaust pipe and communicating with the inner space thereof through the gap between the baffle and said exhaust pipe; and

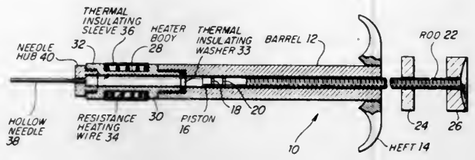
a passage for withdrawing the unatomized material from the inner space of the resonator chamber, provided in the wall thereof.

4,265,618

ELECTRICALLY HEATED ENDODONTIC SYRINGE FOR INJECTING THERMOPLASTIC MATERIAL INTO A ROOT CANAL CAVITY

Sheldon B. Herskovitz, Acton; Jay Marlin, Leominster, and Martin R. Stiglitz, Lexington, all of Mass., assignors to Solar Energy Technology, Inc., Bedford, Mass.

Filed Sep. 9, 1977, Ser. No. 831,714
Int. Cl.³ A61C *5/04;* **A61M** *5/18;* **H05B** *3/00*
U.S. Cl. 433—32 **2 Claims**



1. A dental syringe for injecting a heated thermoplastic material into a root canal cavitity comprising:

a hollow syringe barrel for holding a supply of thermoplastic material and having a plunger therein, the syringe barrel and plunger being of materials of low coefficient of thermal conductivity of less than about 20 Btu/(hr)(ft²)(°F./ft), and a plunger operating mechanism associated therewith extending into one end of the barrel for pushing said plunger to the other end to eject thermoplastic material from said other end of the barrel;

a heater body of a material of high coefficient of thermal conductivity of at least about 200 Btu/(hr)(ft²)(°F./ft) and supporting an electrical resistance heating element for heating the heater body and thermoplastic material therein, and having a bore therein concentric with the interior of said barrel and of the same internal diameter, the heater body having one end removably connected to said other end of said barrel with the bore of the heater body communicating with the interior of the barrel by means of complementary threads on the heater body and barrel, a thermally insulating washer being positioned between the end of the heater body and the barrel;

a high conductivity hub of a material having a high coefficient of thermal conductivity of at least about 200 Btu/(hr)(ft²)(°F./ft) removably attached to the end of said heater body opposite to said barrel by means of complementary threads on said hub and said barrel and having a bore therein in communication with the bore in said heater body; and

a thin, elongated, tubular needle having a length of at least about one inch, and sized within the range of sizes from that of an 18 gauge needle to that of a 30 gauge needle, attached to said high conductivity hub opposite to the heater body in communication with said bore of said hub, the needle being manually malleable and suitable for insertion into a root canal cavity to inject thermoplastic material into the root canal cavity, said needle being fabricated from a material which has a coefficient of thermal conductivity of at least about 200 Btu/(hr)(ft²)(°F./ft), and the hub providing a high conductivity thermal path from the heater body to the needle, the heater providing sufficient heat to heat the end of the needle adjacent said hub to a temperature which is sufficient to maintain the entire length of said needle above about 230° F. at which said thermoplastic material will flow but below the temperature at which the material is thermally decomposed.

4,265,619

METHOD AND APPARATUS FOR PROCESSING DENTAL MODELS

John L. Lucki, Edison, N.J., and Alan B. Naha, Parma, Ohio, assignors to Dental Essentials, Inc., Edison, N.J.

Filed Jul. 9, 1979, Ser. No. 55,502
Int. Cl.³ A61C *11/00*
U.S. Cl. 433—54 **28 Claims**



13. A system for processing one or more hardened castings for teeth and jaws which comprises in combination:

an articulator comprising upper and lower platforms hingedly connected to simulate the human jaw;

a prefabricated precision molded combination including:

a mounting plate having opposite major surfaces, one said major surface designed to support said castings in bonded relation thereto, and the other said major surface being embossed with a first complex configured geometric pattern having a plurality of repetitive facets;

a lower mating plate having opposite major surfaces, one said major surface being embossed with a second complex configurated geometric pattern having a plurality of repetitive facets constructed to precisely mate with the facets of said first configured geometric pattern in fixed interlocking registration when said mounting plate and said lower mating plate are in a preselected spatial relationship, so that the principal planes of said mounting plate and said lower mating plate are locked in substantially parallel relation;

the other major surface of said lower mating plate being constructed to be supported on one of the platforms of said articulator.

4,265,620

SYSTEM FOR SIMULATING THE CONDYLE MOVEMENTS

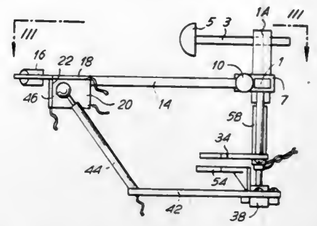
Gianni Moro, Viale Nazario Sauro 81, and Mario Picchi, Corso Mazzini 18, both of Leghorn, Italy

Filed Jul. 31, 1979, Ser. No. 62,330
Claims priority, application Italy, Aug. 8, 1978, 9556 A/78
Int. Cl.³ A61C *19/04*
U.S. Cl. 433—69 **6 Claims**

1. A system for simulating the condyle movements, comprising a sensing apparatus and a reproducing apparatus which imposes the mastication movements on two arch moulds as determined by the sensing apparatus, wherein:

said sensing apparatus comprises a structure for fitting to the cranium and thereby to the maxillary arch, a structure engageable with the mandible arch, means for generating a signal representing the relative distance between points of the two structures and the front of the arches, at a distance from the condyles, and two induction means each disposed adjacent to a respective one of the two condyles, each said induction means comprising a group of three flat mutually perpendicular reference electrodes mounted on one of the structures, and a ball mounted on the other structure and cooperating with the electrodes in such a manner that a set of three relative positioning signals is generated by induction between the ball and the individual electrodes during the free movements; and

said reproducing apparatus comprises two structures movable relative to each other, a base supporting one of said



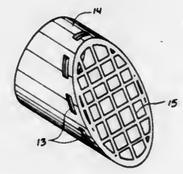
structures, and three extendable articulated members supporting the other of said structures, two of said members each having an end displaceable in two directions under the control of two of the signals of the two sets of three signals, the third signal controlling the extension of said members.

4,265,621

TIP FOR DENTAL ASPIRATOR

Kenneth E. McVey, Paulsen Medical and Dental Bldg., Spokane, Wash. 99201

Filed Oct. 19, 1979, Ser. No. 86,583
Int. Cl.³ A61C *17/04*
U.S. Cl. 433—91 **1 Claim**



1. The removable protective tip for placement over the axial outer end of a dental aspirator in the form of a rigid cylindrical tube with one end connected to a flexible hose and the remaining end having an outer edge, comprising:

a cylindrical sleeve molded of thermoplastic resin, said sleeve having an inner diameter substantially equal to the outer diameter of the tube;

one end of the sleeve being open;

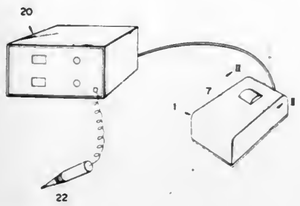
the remaining end of the sleeve being partially closed by a transverse open-mesh screen molded integrally with said sleeve, said screen being located in a plane complementary to the plane of the outer edges of the tube, said screen being recessed inwardly from the outer edge of the sleeve about its remaining end;

and a plurality of open transverse vents formed through the sleeve immediately adjacent the screen, said vents being formed as inwardly directed notches through the outer edge of the sleeve and overlapping the outer surface of the screen.

4,265,622
FOOT CONTROLLER FOR ELECTRICAL DENTAL INSTRUMENTS

Hiroshi Hasegawa, Tokyo, Japan, assignor to Tokyo Engine Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 11, 1979, Ser. No. 38,003
Claims priority, application Japan, May 17, 1978, 53-66299[U]
Int. Cl.³ A61C 1/02
U.S. Cl. 433—101 1 Claim

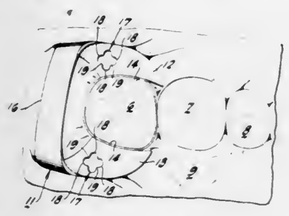


1. A foot controller for electrical dental instruments, comprising in combination: a case consisting of a body and a cover having at its upper portion an opening; a rotor shaft having no self returning force at all and supported within said case horizontally by means of a bearing member; a roller having a disk fixed to said rotor shaft and a flange extending along the outer periphery of said disk, an upper portion of said outer periphery of said flange protruding through said opening of said cover; a gear installed in a space defined by said disk and said flange of said roller; a rotary variable resistor installed in said case; a pinion fixed to a rotor shaft of said variable resistor and installed in a position to engage with said gear in said space defined by said disk and said flange of said roller; and a cord connected to said variable resistor and having at its forward end a plug.

4,265,623
CLAMP FOR A DENTAL DAM

Kenneth B. Soelberg, Menlo Park; Marvin M. Stark, Los Altos Hills, both of Calif.; Tommy H. Thompson, Missoula, Mont., and Akia Yamaguchi, Los Angeles, Calif., assignors to Marvin M. Stark Research Foundation, Santa Clara, Calif.

Filed Feb. 8, 1980, Ser. No. 120,009
Int. Cl.³ A61C 5/12
U.S. Cl. 433—139 6 Claims



1. A clamp for a dental dam of flexible material adapted at least partially to surround and extend along the surface of a tooth, said clamp comprising:

a. a substantially C-shaped springy member including a pair of lateral, substantially planar wings adapted to abut the lateral portions of said dam;

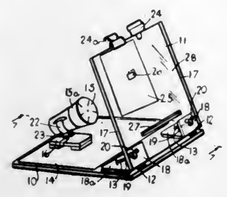
b. a bridge upstanding from and joined to said wings; and,

c. means defining a pair of tool apertures, one in each of said wings, the margins of each of said apertures having a shape and size such that the nose of a tool inserted therein can be moved to a number of different tool positions in the plane of said wings for close engagement with at least a portion of said margins in each of said different tool position.

4,265,624
MAGNETIC TRACING STAND

Lester S. Krulwich, 241 Central Park West, New York, N.Y. 10024

Filed Jan. 15, 1980, Ser. No. 112,186
Int. Cl.³ B43L 5/02
U.S. Cl. 434—88 7 Claims

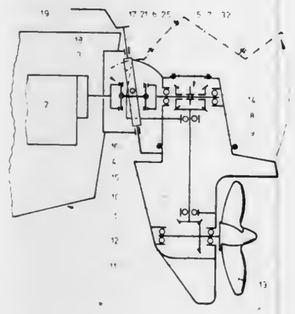


1. A magnetic tracing stand comprising a thin, fairly rigid transparent sheet fastened to a rectangular magnetically attractable base, said transparent sheet slanting adjustably backwards, and a light member adjustably mounted on a magnetic base capable of adhering magnetically and movably to said magnetically attractable base and having the light member focus its light on and through said transparent sheet permitting tracing on the other side of said transparent sheet.

4,265,625
Z-DRIVE FOR WATERCRAFTS

Johann Eichinger, Vaterstetten, Fed. Rep. of Germany, assignor to Carl Hurth Maschinen-und Zahnradfabrik, Munich, Fed. Rep. of Germany

Filed Dec. 22, 1978, Ser. No. 971,731
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 2802541
Int. Cl.³ B63H 5/12
U.S. Cl. 440—53 6 Claims



1. A Z-drive arrangement for watercrafts, comprising:

an inboard mounted engine having an output shaft;

an outboard mounted housing means located at the rear end of said watercraft and extending rearwardly therefrom and first means swingably suspending said housing means for movement about two orthogonally related axes located rearwardly of said rear end of said watercraft, said housing means including an upper housing part extending rearwardly from said rear end of said watercraft and a lower housing part, said lower housing part having a propeller shaft rotatably mounted therein, said upper housing part including second means defining an upwardly opening access opening extending generally the full horizontal length of said upper housing part;

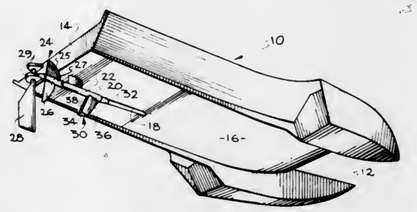
drive means mounted in said housing means and including a first drive shaft extending parallel to said propeller shaft, a second drive shaft oriented at a right angle to said first shaft and said propeller shaft, a first angle drive means including means defining a reversing mechanism connecting said first and second drive shafts, and a second angle drive means connecting said second drive shaft and said propeller shaft, said first drive shaft and said first angle drive means being mounted in said upper housing part, said first drive shaft being connected through a universal joint means to said output shaft of said engine so that said first and second drive shafts and said propeller shaft and the interconnecting first and second angle drive means move together with said housing means about said orthogonally related axes, said universal joint means, said first drive shaft and said first angle drive means all being accessible through said access opening; and

cover means removably secured across said access opening said cover means comprising a first cover covering said first drive shaft and said first angle drive means and a second cover covering said first cover and said universal joint means, wherein a handle of an oil dip-stick is provided adjacent said first cover, said second cover only covering said handle and wherein operating means for said reversing mechanism is also provided adjacent said first cover, said second cover only covering said operating means.

4,265,626
TRIMMING DEVICE TO CONTROL PROPELLER FORCES AFFECTING PROPELLER DRIVEN BOATS

John C. Perry, 3170 Falcan Dr., Carlsbad, Calif. 92008

Filed Mar. 8, 1979, Ser. No. 18,781
Int. Cl.³ B63H 1/28
U.S. Cl. 440—66 9 Claims



1. A boat trim device for a power boat having at least one propeller wherein at least one of said devices controls the direction of the propeller forces propelling said boat through the water comprising:

at least one substantially rectangular trim wedge device positioned upstream of said at least one propeller, said trim device having a first base end secured to said boat substantially in line with at least one blade of said propeller, said trim device being cantilevered from said secured first base end, a second tip end of trim device terminating substantially adjacent the tip of said blade of said propeller, said substantially rectangular trim wedge forms a sharp upstream leading edge from the first base end to the second tip end of said trim wedge, the downstream trailing edge being blunt, said trim wedge substantially forming a wedge shaped triangle when viewed in cross-section, said device serves to split said water creating a void air space through a section of a 360° track of said propeller, as a blade of said propeller rotates through said void, its driving force is substantially obviated while within said void space, thus substantially removing any undesirable propeller driving force affecting said boat as said boat is propelled through said water.

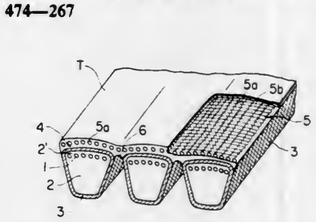
9. A method of controlling the direction of the forces developed by one or more rotating propellers of a propeller driven boat comprising the step of:

attaching one or more wedge shaped void producing means having a sharp upstream leading edge and a blunt downstream trailing edge adjacent one or more propeller drive shaft housings upstream of said one or more propellers in various positions around a clock face normal to said drive shaft housings to cause the rotating force producing propellers to lift, depress or move the stern of said boat to the left or right of any combination of these forces when a blade of said one or more propellers passes through said void created by said one or more void producing means.

4,265,627
POWER TRANSMISSION BELT

Junji Imamura, Kobe, Japan, assignor to Mitsuboshi Belting Ltd., Kobe, Japan

Filed Jun. 26, 1979, Ser. No. 52,273
Claims priority, application Japan, Apr. 5, 1979, 54-41679
Int. Cl.³ F16G 5/08
U.S. Cl. 474—267 7 Claims



1. In a power transmission belt having a plurality of V-belt bodies arranged side by side and driven simultaneously by a pulley, the upper surfaces of said V-belt bodies being connected with at least one ply of rubbered stretchable fabric, the improvement comprising:

said stretchable fabric including crimped nylon yarns subjected to wooly treatment and extending in a direction at an angle θ with respect to the longitudinal axis of the transmission belt, where $0° < \theta \leqq 40°$, whereby with $0° < \theta$ entire crimped nylon yarns will not be eliminated from said belt due to abrasion, and with $\theta \leqq 40°$ said crimped nylon yarns will enhance the longitudinal stretchability of said belt.

4,265,628

PROCESS FOR THE MANUFACTURE OF FIRE RESISTANT ACRYLIC POLYMER YARNS AND FILMS

Pier P. Rossi, Garlasco; Aldo Tempesti, Milan, and Aldo Filippi, Bergamo, all of Italy, assignors to SNIA Viscosa Societa' Nazionale Industria, Milan, Italy

Filed Jul. 27, 1979, Ser. No. 61,468

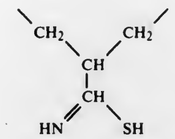
Claims priority, application Italy, Jul. 28, 1978, 26232 A/78

Int. Cl.[3] **D01F** *11/06, 6/38;* **C08F** *220/44*

U.S. Cl. 8—115.5 **6 Claims**

1. A process for the preparation of fire resistant formed bodies, such as yarns and filaments, of acrylonitrile polymers containing from 35 to 85% by weight of acrylonitrile units in the molecule, comprising the steps of:

(a) subjecting the acrylonitrile polymers to a sulfuration treatment in a heterogeneous phase by treatment with a 10 to 20% aqueous solution of an amine sulfide at a temperature of about 80° C. for a period of about 25 minutes to form a polymer of the formula:



(b) treating the sulfurated polymer formed during step (a) with an alkali metal hydroxide, at a temperature between 30° C. and 100° C.; and

(c) removing the alkali metal hydroxide from the sulfurated polymer before drying said polymer.

4,265,629

PROCESS FOR THE PRODUCTION OF RESIST EFFECTS ON POLYESTER/CELLULOSE MIXED FIBRE TEXTILES

Joachim Ribka, Offenbach am Main; Horst Tappe, Dietzenbach; Kurt Roth, Hofheim, and Hans-Jürgen Weyer, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

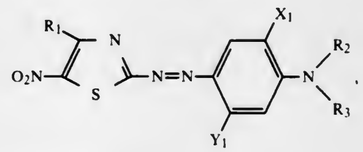
Filed Dec. 19, 1979, Ser. No. 105,204

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856283

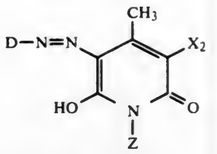
Int. Cl.[3] **D06P** *5/12*

U.S. Cl. 8—449 **6 Claims**

1. In the process for production of resist effects on textile materials of mixed fibers of polyester and cellulose comprising impregnating the materials with a dye liquor containing disperse dyestuffs and reactive dyestuffs which react with the resisting agents, drying or partially drying the padded materials and subsequently printing a resist paste on the material, and heat-treating the materials the improvement comprises the dischargeable disperse dyestuffs being of the formula



one of the tautomeric forms of the formula,



or disperse dyestuffs which are free from groups conferring solubility in water and which contain at least two carboxylic acid ester moieties wherein

R_1 is hydrogen, alkyl with 1-6 carbon atoms, cyano, trifluoromethyl or unsubstituted or substituted phenyl, the substituent being selected from the group consisting of chlorine, bromine, nitro and alkyl with 1-4 carbon atoms;

X_1 is hydrogen, chlorine, bromine, alkoxy with 1-4 carbon atoms, hydroxyalkoxy with 2-4 carbon atoms, alkoxyalkoxy with a total of 3-6 carbon atoms, unsubstituted or substituted alkyl with 1-4 carbon atoms, the substituent being selected from the group consisting of chlorine, bromine, cyano and hydroxyl;

Y_1 is hydrogen, chlorine, bromine, alkoxy with 1 to 4 carbon atoms, hydroxyalkoxy with 2-4 carbon atoms, alkoxyalkoxy with a total of 3-6 carbon atoms, —NH—CO—Y_2, —NH—SO_2—Y_2 or unsubstituted or substituted alkyl with 1 to 4 carbon atoms, the substituent being selected from the group consisting of chlorine, bromine, cyano and hydroxyl;

Y_2 is phenyl, amino, N-alkylamino with 1 to 4 carbon atoms, or alkyl with 1-4 carbon atoms unsubstituted or substituted by a substituent selected from the group consisting of phenyl, chlorine, bromine, cyano, hydroxyl, alkoxy with 1 to 2 carbon atoms and phenoxy;

R_2 is hydrogen, hydroxyalkyl with 2-4 carbon atoms, alkenyl with 3-6 carbon atoms or alkyl with 1-6 carbon atoms unsubstituted or substituted by chlorine, bromine, cyano, hydroxyl, alkoxy with 1-4 carbon atoms, hydroxyalkoxy with 1 to 4 carbon atoms, phenyl, alkanoyloxy with 2-4 carbon atoms, alkoxycarbonyl with 1 to 4 carbon atoms, hydroxycarbonyl with 2-4 carbon atoms, alkoxycarbonyl with 1 to 4 carbon atoms, hydroxycarbonyl with 2-4 carbon atoms, alkylaminocarbonyloxy with 2-4 carbon atoms or phenylaminocarbonyloxy;

R_3 is hydroxyalkyl with 2 to 4 carbon atoms, alkenyl with 3 to 6 carbon atoms, phenyl or unsubstituted or substituted alkyl with 1 to 6 carbon atoms, the substituent being selected from the group consisting of chlorine, bromine, cyano, hydroxyl, alkoxy with 1 to 4 carbon atoms, hydroxyalkoxy with 1-4 carbon atoms, phenyl, alkanoyloxy with 2 to 4 carbon atoms, alkoxycarbonyl with 1 to 4 carbon atoms, hydroxycarbonyl with 2 to 4 carbon atoms; and, if R_2 is hydrogen, R_3 may also be —$C(CH_3)_2$—$COOR_4$, methoxy-, ethoxy- or propoxy-alkyl with a total of 4 to 8 carbon atoms; wherein R_4 is alkyl with 4 to 8 carbon atoms;

D is phenyl unsubstituted or substituted by at least one substituent selected from the group consisting of chlorine, bromine, nitro, cyano, trifluoromethyl, thiocyano, lower alkyl, lower alkoxy, lower alkylcarbonyl, lower alkylsulphonyl, lower alkylcarbonylamino, carbamoyl, N-lower alkyl carbamoyl, N,N-di-lower alkyl carbamoyl, sulphamoyl, N-lower alkyl sulphamoyl, N,N-di-lower alkyl sulphamoyl, sulphamato, N-lower alkyl sulphamato, N,N-di-lower alkyl sulphamato, lower alkoxycarbonyl, lower alkoxy-lower alkoxycarbonyl, lower alkoxy-lower alkoxy-lower alkoxycarbonyl, hydroxy-lower alkoxy-lower alkoxycarbonyl and lower alkoxycarbonyl-lower alkyl;

X_2 is hydrogen, lower alkyl, carbamoyl, cyano, chlorine, bromine, nitroso, nitro, lower alkylcarbonyl, sulphamoyl, lower alkylsulphonyl, lower alkylcarbonylamino or lower alkoxycarbonyl; and

Z is hydrogen or lower alkyl;

the dischargeable reactive dyestuffs being those containing reactive moieties of the formula

$-SO_2-CH_2-CH_2-hal$

$-SO_2-CH_2-CH_2-O-SO_3M$

$-NH-SO_2-CH_2-CH_2-O-SO_3M$

$-SO_2-CH=CH_2$

wherein M is hydrogen or a metal cation and hal is halogen, and

the resist paste contains an alkali metal sulphite or an alkali metal bisulphite in combination with an alkali metal carbonate or alkali metal bicarbonate.

4,265,630

THERMOTRANSFER PROCESS FOR PRINTING SYNTHETIC FIBRE MATERIALS WITH MULTI-COLOR EFFECTS, AND CARRIER FOR PERFORMING THE PROCESS

Rolf Bäuerle, Riehen, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Filed Nov. 8, 1979, Ser. No. 92,780

Claims priority, application Switzerland, Nov. 17, 1978, 11830/78

Int. Cl.[3] **D06P** *5/12*

U.S. Cl. 8—456 **14 Claims**

1. A thermal dry transfer printing process for printing synthetic fibre materials with multi-colour effects, in which process an intermediate carrier is printed, in any chosen sequence,

(1) in places with a reserve printing paste or reserve printing ink, and

(2) with a printing paste or printing ink for printing the ground, the reserve printing paste or ink (1) containing

(a) 10 to 25 percent by weight of a reserving agent which is pentamethylolmelaminetetramethyl ether or hexamethylolmelaminehexamethyl ether,

(b) 0.2 to 15 percent by weight of a thickener,

(c) 0 to 10 percent by weight of a non-reservable, sublimable disperse dye, which is a nitro-dye of the aniline series; an azo dye of the benzene series; or an anthraquinone, quinoline, pyrazolone, triazole, pyridone or styryl dye, each being convertable to the vapour state at 160° to 220° C.,

(d) 0 to 2.5 percent by weight of a curing catalyst and

(e) 50 to 90 percent by weight of water or an organic solvent and the printing paste or ink (2) for printing the ground containing (b) 0.2 to 15 percent by weight of a thickener, (e) 40 to 98 percent by weight of water or an organic solvent,

(f) 0 to 5 percent by weight of a binder and

(g) 1 to 20 percent by weight of a reservable dye which is a nitro dye of the aniline series; an azo dye of the benzene series; or an anthraquinone, quinoline, pyrazolone, triazole, pyridone or styryl dye which is convertable into the vapour state at 160° to 220° C.;

said non-reservable dye, (c) being devoid of an amino or hydroxyl group capable of reacting with the component (a) at 160° to 220° C. or contains a hydroxyl group, a secondary amino group or a primary amino group, each of which is bound to an aromatic nucleus and is inert to the component (a) the hydroxyl group being capable of forming adjacent carbonyl, azo or nitro groups, a hydrogen bridge with the primary amino group being sterically hindered by a substituent in the o-position and in which the reservable dye

(g) contains as a reactive amino or hydroxyl group, capable of reacting with the component (a) at 160° to 220° C. a hydroxyl group or an amino group each bound to an aromatic nucleus, or a secondary amino group present as a member of a pyrazolone, triazole or pyridone ring, the hydroxyl group being free from adjacent carbonyl, azo or nitro groups, and the primary amino group being free from substituents in the o-position, the intermediate carrier is dried, brought into contact with the fibre material to be printed, and both are then subjected to a heat treatment at elevated temperature, optionally with the application of pressure, until the unreserved dyes are transferred from the intermediate carrier to the fibre material, the intermediate carrier being thereupon separated from the printed fibre material.

4,265,631

AQUEOUS DYESTUFF PREPARATIONS OF WATER-INSOLUBLE OR SPARINGLY WATER-SOLUBLE DYES

Carl Becker, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 25, 1979, Ser. No. 60,425

Claims priority, application Switzerland, Aug. 2, 1978, 8238/78

Int. Cl.[1] **D06P** *1/56, 1/58, 1/613*

U.S. Cl. 8—471 **32 Claims**

1. An aqueous dyestuff preparation of a water-insoluble or sparingly water-soluble dye having a particle size of less than 10μ, which contains at least 10% by weight of water, 25 to 60% by weight, of a finely dispersed water-insoluble or sparingly water-soluble dye, 0.1 to 5% by weight of at least one water-soluble aminoplast precondensate and 0.5 to 5% by weight of a non-ionic copolymer of ethylene oxide and a further olefin oxide, said copolymer having an ethylene oxide content of at least 65% by weight and a molecular weight of more than 12,000.

4,265,632

PROCESS FOR THE COLORATION OF THERMOPLASTIC POLYMERS AND POLYCONDENSATES IN THE MASS WITH WATER-INSOLUBLE DISAZOMETHINE COMPOUNDS

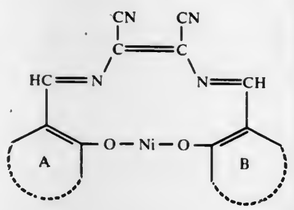
Theodor Papenfuhs, Frankfurt am Main, and Wolfgang Teige, Kelkheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 21, 1979, Ser. No. 96,473

Int. Cl.[3] **D06P** *3/52;* **C08J** *5/00*

U.S. Cl. 8—512 **14 Claims**

1. In a process for coloring a water-insoluble thermoplastic polymer or polycondensate in the mass which comprises incorporating, at least partially incorporating, a coloring compound into the mass of said material or into the reaction mass for preparing said material, the improvement which comprises incorporating, as the coloring compound, a disazomethine compound of the formula (1)



(1)

in which

A and B have the same meaning or are different from each other and each is an isocyclic or heterocyclic residue, and dissolving the coloring compound in that mass.

4,265,633

PROCESS FOR THE MANUFACTURE OF VAT DYES

Athanassios Tzikas, Pratteln, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

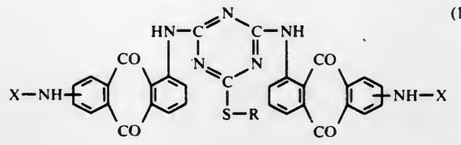
Filed Jan. 15, 1979, Ser. No. 3,327

Claims priority, application Switzerland, Jan. 18, 1978, 515/78

Int. Cl.[3] **C09B** *67/28;* **C07D** *251/00*

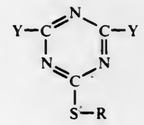
U.S. Cl. 8—650 **4 Claims**

1. A process for the manufacture of vat dyes of the formula wherein R is alkyl of 1 to 4 carbon atoms and X is an acyl radical, which comprises condensing a diaminoanthraquinone of the formula



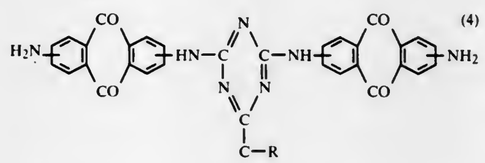
(1),

or mixtures of diaminoanthraquinones of the formula (2), with a 2,4-dihalogeno-6-alkylthio-s-triazine of the formula



(3)

wherein Y is halogen and R is as defined for formula (1), in the molar ratio 2:1, and condensing the resulting intermediate of the formula



(4)

with an acylating agent containing the acyl radical X which is as defined for formula (1), in the molar ratio 1:2.

4,265,634

CHROMATOGRAPHIC SEPARATION AND QUANTITATIVE ANALYSIS OF IONIC SPECIES

Christopher A. Pohl, Castro Valley, Calif., assignor to Dionex Corporation, Sunnyvale, Calif.

Filed Mar. 10, 1980, Ser. No. 128,836

Int. Cl.[3] **G01N** *31/04, 31/06, 31/08*

U.S. Cl. 23—230 R **30 Claims**

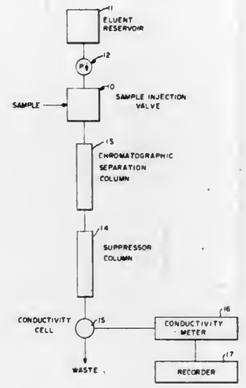
1. The method of chromatographic separation and quantitative analysis of at least a first and second ionic species of ionizable compounds in a polar mobile liquid phase, all of said ionic species being of a positive or negative charge, comprising the steps of:

(a) directing said mobile liquid phase, including an ion exchange site-forming compound, through a first column including a porous, hydrophobic chromatographic bed with essentially no permanently attached ion exchange sites, said ion exchange-site forming compound including a counter ion of opposite charge to said ionic species and also including a co-ion of the same charge as said ionic species, so that said counter ion forms reversible adsorptive bonds with said chromatographic bed to create ion exchange sites therein, and so that said first and second ionic species are differentially retarded by said ion exchange sites and are chromatographically resolved in the eluent from said first column, said eluent also including counter ions and co-ions,

(b) directing the eluent from said first column through a second column containing an ion exchange resin of a type which substantially precludes passage of said counter ions and co-ions in ionic form, and

(c) directing the eluent from said second column through a conductivity cell having associated readout means to quantitatively detect said first and second ionic species.

28. Apparatus for the chromatographic separation and quantitative analysis of species in a polar mobile liquid phase, including a common counter ion for said ionic species, all of said ionic species being of a positive or negative charge, said apparatus comprising:



(a) a first column containing a porous hydrophobic chromatographic bed with essentially no permanently attached ion exchange sites, said bed including hydrocarbon chains capable of forming reversible adsorptive bonds with organic moieties in said polar mobile liquid phase,

(b) means for supplying said polar mobile liquid phase to said first column,

(c) a second column containing an ion exchange resin bed of a type and capacity to substantially preclude passage of said counter ion in ionic form,

(d) first conduit means between first and second columns,

(e) conductivity measurement means and associated readout means, said measurement means including at least a first flowthrough conductivity cell, and

(f) second conduit means between said second column and said conductivity cell.

4,265,635

GASEOUS CONTAMINANT DOSIMETER WITH DIFFUSION DEVICE THEREFOR AND METHOD

Elbert V. Kring, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 922,546, Jul. 7, 1978, Pat. No. 4,208,371. This application Oct. 11, 1979, Ser. No. 83,645

Int. Cl.[3] **G01N** *31/22, 33/00;* **B01P** *53/22;* **B01D** *59/10*

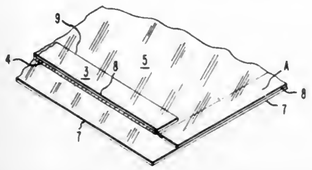
U.S. Cl. 23—232 R **2 Claims**

1. A method for the determination of integrated exposure to a gaseous contaminant in the atmosphere comprising:

sampling said gaseous contaminant in proportion to its atmospheric concentration over a given period of time by allowing diffusion of said contaminant through the channels of a plurality of hollow fibers wherein the fibers have an inside diameter of 15–1000 microns;

collecting the gaseous contaminant so diffused in a predetermined quantity of a collecting medium therefor wherein the collecting medium is an absorbing solution or an adsorbing material; and

causing said collecting medium to change color by contacting said medium with at least one color-forming reagent



such that the intensity of the color so produced is proportional to the amount of contaminant collected.

4,265,636

USE OF FORMALDEHYDE AS A CHEMICAL EMBRITTLING AGENT FOR WASTE

Theodore C. Frankiewicz, Westminster, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 23, 1979, Ser. No. 59,873
Int. Cl.³ C10L *9/02*
U.S. Cl. 44—1 C **17 Claims**

1. A method of converting the solid organic fraction of waste into a powdered fuel which comprises heating said solid organic fraction in the presence of formaldehyde for a time and at a temperature sufficient to embrittle said solid organic fraction, comminuting said embrittled solid organic fraction to a powder having a predetermined particle size, and recovering said powder.

10. A method for separating municipal solid waste (MSW), comprising an inorganic fraction; including glass, ferrous mtals and aluminum; and a solid organic fraction, into valuable materials which comprises:

(a) shredding the MSW to provide a comminuted MSW;
(b) separating a ferrous metal fraction from said comminuted MSW and recovering a substantially ferrous metal-free fraction;
(c) subjecting said substantially ferrous metal-free fraction to air-classification to separate a solid organic fraction overhead, and leave an inorganic fraction, which includes glass and aluminum;
(d) comminuting said inorganic fraction to provide an aluminum-rich fraction having a particle size greater than 0.5 inches and a glass-rich fraction having a particle size of less than 0.5 inches;
(e) separating such aluminum-rich fraction from said glass-rich fraction;
(f) recovering glass from said glass-rich fraction;
(g) recovering aluminum from said aluminum-rich fraction;
(h) heating said separated solid organic fraction in the presence of formaldehyde for a time and at a temperature sufficient to embrittle said separated solid organic fraction;
(i) comminuting said embrittled solid organic fraction to a powder having a predetermined particle size; and
(j) recovering said powder.

4,265,637

PROCESS FOR PREPARING BLENDING FUEL

Ardis L. Anderson, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Jan. 16, 1980, Ser. No. 112,590
Int. Cl.³ C10L *9/10, 1/10*
U.S. Cl. 44—51 **2 Claims**

1. A process of preparing a blended fuel comprising:

(a) subjecting lignite containing its natural bed moisture to a drying step in which the moisture content of the lignite is reduced to from 10 to 20 percent by weight water;
(b) applying a hydrocarbon liquid having a flash point of greater than 65° C. to the dried lignite in an amount of from 2 to 20 liters of liquid per metric ton of dried lignite, wherein said hydrocarbon liquid is comprised of 50 to 75 volume percent decant oil from a fluidized bed catalytic cracking operation having a K factor of not more than 10.5 and 50 to 25 volume percent asphalt;
(c) storing the liquid treated lignite from step (b); and
(d) removing stored lignite and blending it with sufficient hydrocarbon fuel oil to provide a pumpable mixture.

4,265,638

SYNTHETIC FUEL FORMULATION AND PROCESS FOR PRODUCING THE SAME

Courtney L. Burke, Simi Valley, Calif., assignor to Albert M. Eisner, Los Angeles, Calif., a part interest

Filed Jan. 4, 1980, Ser. No. 109,550
Int. Cl.³ C10L *1/18*
U.S. Cl. 44—56 **11 Claims**

1. A synthetic fuel comprising, based on the total weight of said fuel, approximately fifty to about seventy-five weight percent of an aliphatic hydrocarbon alcohol containing from two to eleven carbon atoms, about five to about twelve weight percent water, approximately two to about twenty weight percent of an aromatic hydrocarbon solvent compatible with said alcohol, and about one to about seven weight percent each of a hydrocarbon glycol selected from the group consisting of ethylene and propylene glycol, acetone and methyl ethyl ketone.

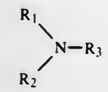
4,265,639

COMBUSTION CATALYSTS

Myndert T. Scholtz, 2437 Edenhurst Dr., Mississauga, Ontario, Canada (L5A 2L2)

Filed Mar. 20, 1980, Ser. No. 132,119
Int. Cl.³ C10L *1/22*
U.S. Cl. 44—57 **15 Claims**

1. A stabilized fuel additive consisting essentially of (i) an iron (II)/EDTA chelate and (ii) a complex of picric acid with at least one amine of the formula



wherein R_1, R_2 and R_3 are hydrocarbyl groups having 1 to 12 carbon atoms, or hydrogen, provided that said amine has at least 3 carbon atoms.

4,265,640

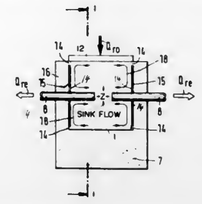
METHOD AND APPARATUS FOR SEPARATING PARTICLES FROM A FLOW BY CENTRIFUGAL FORCE

Ernst-August Bielefeldt, Hollenstedt, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 910,580, May 30, 1978, Pat. No. 4,205,965, which is a continuation-in-part of Ser. No. 717,148, Aug. 24, 1976, abandoned. This application Jul. 9, 1979, Ser. No. 56,052
Claims priority, application Fed. Rep. of Germany, Aug. 30, 1975, 2538664; Jul. 21, 1978, 2832097
Int. Cl.³ B01D *45/12*
U.S. Cl. 55—1 **10 Claims**

1. In a method for separating heavier particles from a lighter gas flow by centrifugal force in an eddy chamber of given length having axially extending eddy chamber wall means and end walls, a central longitudinal axis and a flow entrance extending tangentially into the eddy chamber substantially entirely along said given length, and two suction pipes extending in axial alignment through said end walls substantially mirror-symmetrically into said eddy chamber close to a central zone in

said eddy chamber, the improvement comprising the steps of driving said lighter gas flow with the heavier particles suspended therein tangentially into said flow entrance whereby the lighter gas flow with the heavier particles suspended therein enters the eddy chamber substantially along the entire given chamber length and generates a primary substantially circular eddy flow which rotates around said longitudinal axis of the eddy chamber, spacing the inner ends of said suction pipes from each other to cause a sink flow between these inner suction pipe ends, axially withdrawing the flow at least partially through said suction pipes, maintaining in said eddy chamber a secondary flow which travels axially outwardly adjacent the inner surface of the axially extending eddy chamber wall means, radially inwardly along said end walls and axially inwardly upon changing the flow direction from radially inwardly to axially inwardly, locating particle discharge openings in said end walls at least at one location where said secondary flow changes its flow direction, and removing said particles through said discharge openings solely by said secondary flow without any suction applied to said particle discharge openings in said end walls.

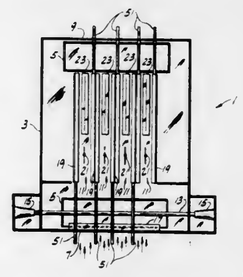


4,265,641

METHOD AND APPARATUS FOR PARTICLE CHARGING AND PARTICLE COLLECTING

Subbiah Natarajan, Fenton, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed May 18, 1979, Ser. No. 40,260
Int. Cl.³ B03C *3/00*
U.S. Cl. 55—2 **68 Claims**



1. A method for charging submicron and larger particles in a gas stream, comprising:

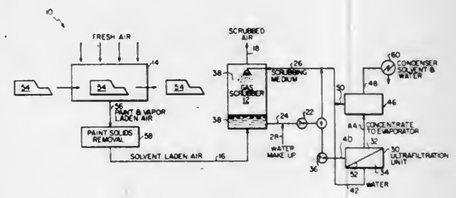
providing a plurality of substantially evenly spaced-apart needles secured to a tube of insulative material disposed generally perpendicular to the direction of flow of the gas stream forming a corona discharge electrode,
arranging said needles in at least first and second groups, the needles of the first group being offset with respect to the needles of the second group longitudinally to the direction of flow of the gas stream,
providing plate electrodes spaced from said corona discharge electrode to define a passage for flow of said gas stream therethrough,
connecting said plate electrodes to one terminal of a high voltage, unidirectional-current source and said corona discharge electrode to the other terminal of said source,
generating an electrostatic field between said corona discharge electrode and said plate electrodes having a high voltage gradient of at least 6 KV/cm and extending along a path of the gas stream for a predetermined distance,
generating a first spatially discontinuous corona generally towards the upstream end of the electrostatic field to create a first band of ionization in said path and extending transversely thereacross, said band containing regions of relatively low ionization bordered by regions of relatively high ionization, said low ionization regions being substantially evenly spaced along said band transverse to the path of the gas stream,
generating a second spatially discontinuous corona downstream of the first corona in the electrostatic field to create a second band of ionization in said path and extending transversely thereacross, said second band containing regions of relatively low ionization bordered by regions of relatively high ionization, the regions of relatively high ionization of the second band being aligned along the path of the gas stream with the regions of relatively low ionization of the first band and the regions of relatively low ionization of the second band being aligned along the path of the gas stream with the regions of relatively high ionization of the first band, the total corona current density of the discontinuous coronas being at least approximately 4 ma/m^2, and
passing the gas stream containing particles to be charged along the path through said electrostatic field and said bands of ionization to highly charge substantially all the submicron and larger particles in the gas stream.

4,265,642

PROCESS OF REMOVAL OF SOLVENT VAPORS

Leon Mir, Newton, and Joseph Zahka, Dracut, both of Mass., assignors to Abcor, Inc., Wilmington, Mass.

Continuation of Ser. No. 16,419, Mar. 1, 1979, abandoned. This application Feb. 14, 1980, Ser. No. 121,638
Int. Cl.³ B01D *47/02*
U.S. Cl. 55—85 **9 Claims**



1. A process for the removal of a volatile organic solvent from a solvent-laden air stream, which process comprises:

(a) intimately contacting and scrubbing the solvent-laden air stream with an aqueous, multiple-phase scrubbing media to provide a solvent-lean air stream and a solvent-rich scrubbing media, the scrubbing media comprising a surfactant-containing oil-in-water emulsion which forms micelles in the water phase of the emulsion, and wherein the solvent is dissolved in the oil portion of the oil-in-water emulsion in the solvent-rich scrubbing media;
(b) discharging the solvent-lean air stream;
(c) concentrating the solvent-rich scrubbing media in a low-pressure ultrafiltration-membrane unit having a feed zone and a permeate zone separated by a membrane which permits the passage of water, but retards the passage of the micelle portion of the oil-in-water emulsion of the scrubbing media, to provide a concentrated, solvent-rich scrubbing media in the feed zone and permeate water which passes through the membrane into the permeate zone;
(d) heating the concentrated solvent-rich scrubbing media to

a temperature to volatilize the solvent, but insufficient to destabilize the oil-in-water emulsion from which the solvent is removed, to form a solvent vapor and a concentrated solvent-lean scrubbing media;

(e) condensing the solvent vapor; and

(f) continuously recycling the concentrated solvent-lean surfactant oil-in-water scrubbing media and the permeate water from the permeate zone for use in the contacting and scrubbing of the solvent-laden air stream, to reconstitute a scrubbing media for use in the contacting and scrubbing steps,

whereby the volatile organic solvent is condensed, a solvent-lean air stream is discharged and the multiple-phase scrubbing media is continuously recycled and reused in removing the solvent from the solvent-laden air stream.

4,265,643

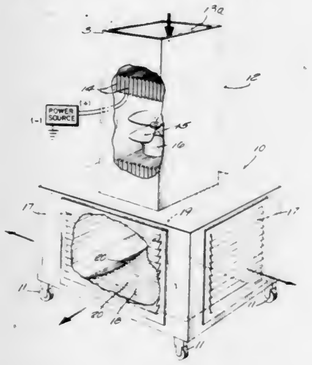
AIR PURIFIER

Edward S. Dawson, 2927 Hillsboro Ave, North, Minneapolis, Minn. 55427

Continuation-in-part of Ser. No. 840,915, Oct. 11, 1977, abandoned. This application Mar. 9, 1979, Ser. No. 19,070

Int. Cl.³ B03C *3/12, 3/36, 3/45*

U.S. Cl. 55—130 **1 Claim**



1. An air purifier consisting of a body, a chimney extending above the body and connected thereto, a passageway between the body and the chimney, an air-intake opening at the top of the chimney, an air-moving fan disposed in the chimney for drawing air and particles entrained therein through said chimney and moving the air and particles through the chimney, passageway and body, an ionizing member disposed in said chimney, electrical means operatively connected to the ionizing member for creating a positive charge on the ionizing member whereby to create a positive charge on any particles moved through said ionizing member by said air-moving fan, at least one collector disposed within the body at a distance from the ionizing member, the collector being electrically grounded, at least one discharge opening in the body, the discharge opening having a total area substantially greater than the area of the air-intake opening, the collector being a lightweight, corrugated, metallic, multi-sided cone with sloping sides to direct the air from the chimney and passageway to the discharge opening.

4,265,644

CONDENSATION OF METAL VAPOR

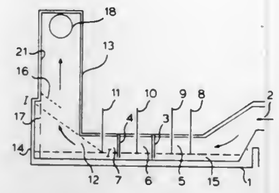
Michael W. Gammon, Oen, England, assignor to Metallurgical Processes Limited and I.S.C. Smelting, both of, The Bahamas

Filed Nov. 1, 1979, Ser. No. 90,125

Claims priority, application United Kingdom, Nov. 24, 1978, 45975/78

Int. Cl.³ B01D *47/06;* **C22B** *19/04*

U.S. Cl. 55—257 NP **5 Claims**



1. A lead-splash condenser for condensing metal vapor from a hot gas stream, comprising a plurality of intercommunicating condensation chambers; spray generating means provided in each condensation chamber; an inlet for passage of a hot gas containing metal vapor to the first condensation chamber, said inlet communicating with said first condensation chamber; an outlet for passage of the gas from the last condensation chamber, said outlet communicating with said last condensation chamber; and a stack communicating with said outlet, wherein the stack is provided with gas deflector means for deflecting the gas stream from the side wall of the stack facing said outlet so as to obtain a more uniform gas distribution in the stack.

4,265,645

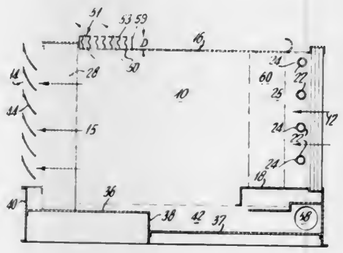
INJECTOR TYPE COOLING TOWER HAVING AIR DISCHARGE SLOTS

Richard P. Merrill, Columbia, Md., assignor to Baltimore Aircoil Co., Inc., Jessup, Md.

Filed Jan. 21, 1980, Ser. No. 114,000

Int. Cl.³ B01D *47/06*

U.S. Cl. 55—257 PV **5 Claims**



1. In combination with an injector type liquid cooling system which comprises an air conduit open at both ends to the atmosphere, a plurality of liquid spray nozzles positioned near one end of the conduit and distributed over its cross-section, said nozzles being oriented to direct liquid sprays toward the other end of said conduit, said sprays intersecting to form a pumping or pressure region, liquid-air separator means positioned in said conduit near its said other end for intercepting the liquid sprayed by said nozzles and for causing said liquid to flow downwardly along said liquid-air separator means, a liquid collection sump positioned to collect liquid which flows down from the liquid-air separator means; an air slot with adjacent air-liquid separator means distributed over said slot downstream of said pressure or pumping region, said slot being arranged to allow air to escape from said conduit.

4,265,646

FOREIGN PARTICLE SEPARATOR SYSTEM

Barry Weinstein, Georgetown, and William Steyer, Ipswich, both of Mass., assignors to General Electric Company, Lynn, Mass.

Filed Oct. 1, 1979, Ser. No. 80,854

Int. Cl.³ B01D *39/00*

U.S. Cl. 55—306 **6 Claims**

1. In a gas turbine engine having an inlet, a compressor, a combustor, and a turbine operatively connected to form a primary flow path means in which a gaseous flowing stream of fluid is compressed, combusted, and expanded, an inlet particle separator system comprising:

particle separating means disposed proximate said inlet for removing foreign particles from the primary flow path;

conduit means connected to said particle separating means for receiving (said) particles removed from the primary flow path by said particle separating means;

ejector means operatively connected to said conduit means to effect a flow of a second gaseous stream of fluid in said conduit for drawing said particles through said conduit means away from said particle separating means; and

mixing means disposed proximate said ejector means (and) downstream of said turbine and (in fluid communication with said conduit means for receiving said second stream of fluid and for mixing said second stream of fluid with said stream of fluid flowing in said primary flow path) comprising means for axially directing said stream of fluid flowing in said primary flow path means aft of said turbine, and a plurality of axially and radially extending chutes disposed circumferentially about said primary flow path means and in fluid communication with said conduit means for receiving said second gaseous stream of fluid including contained particles therefrom and discharging said second stream of fluid into said stream of fluid flowing in the primary flow path in a plurality of discrete rivulets.

4,265,647

AIR PREFILTER

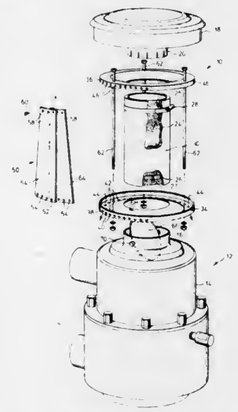
James P. Donachiue, 28 Helene St., Apt. 804, Mississauga, Ontario, Canada (L5G 3B7)

Filed May 14, 1979, Ser. No. 38,543

Claims priority, application Canada, Apr. 6, 1979, 325108

Int. Cl.³ B01D *50/00;* **B60J** *13/02*

U.S. Cl. 55—315 **28 Claims**



1. A prefilter for use with an engine air filter of the type having a filter housing containing a filter element, and an intake housing having an air inlet opening, the prefilter comprising: a perforated, generally rigid sleeve having opposite air inlet and air outlet end portions, the sleeve inlet and outlet end portions being adapted to be connected respectively to said intake housing and said filter housing, so that air may pass from said air inlet opening axially through the sleeve to said filter housing, and air may also pass transversely through the sleeve to said filter housing; a foraminous filter medium enveloping the sleeve, the filter medium being in the configuration of a hollow frustum having a thicker, larger diameter base located adjacent to the sleeve outlet end portion and of such porosity that engine intake air primarily passes therethrough and thus transversely through the sleeve to said filter housing; and means for releasably coupling the sleeve end portions of the filter housing and to the intake housing.

4,265,648

CENTRIFUGE FOR SEPARATING GAS MIXTURES

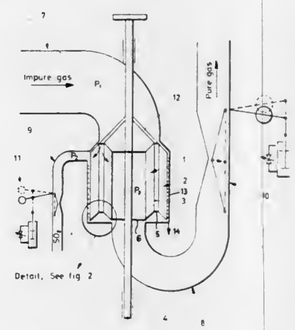
Erling Wedege, Langbolgen 21, Oslo 11, Norway

Filed Nov. 8, 1979, Ser. No. 92,557

Claims priority, application Norway, Nov. 15, 1978, 783842

Int. Cl.³ B01D *45/14*

U.S. Cl. 55—409 **3 Claims**



1. A centrifuge for separating gas mixtures, comprising a rotor means rotatable about an axis and including frustoconical plates spaced from one another in the direction of the rotor axis, said frustoconical plates comprising two separate radially spaced, concentric sets of frustoconical plates, the plates of one set being oppositely inclined from the plates of the other set, the inlet for the gas mixture being arranged in the annular space between the two concentric sets.

4,265,649

METHOD FOR PREPARING A PREFORM FOR OPTICAL WAVEGUIDES

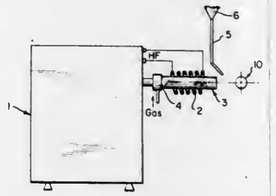
Claude Achener, Paris, France, assignor to Saint-Gobain Industries, Neuilly-sur-Seine, France

Filed Jan. 9, 1980, Ser. No. 110,774

Claims priority, application France, Jan. 10, 1979, 79 00525

Int. Cl.³ C03C *25/02*

U.S. Cl. 65—18 **6 Claims**



1. A method for producing a preform for an optical waveguide having a core surrounded by a sheath with a lower refractive index which varies radially, said method comprising

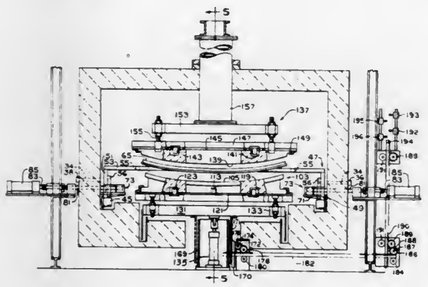
depositing by means of a plasma torch a plurality of layers of different composition on a bar forming a core region, wherein glass powder is fed to the torch by gravity transversely to the jet of said torch, said bar being drawn after the deposition of each layer so that its diameter is brought to a value equal or at least close to the initial diameter, the chemical composition of the glass powder being modified after each layer is deposited.

4,265,650

METHOD OF BENDING GLASS SHEETS IN UNISON TO COMPLICATED SHAPES

Thomas J. Reese, Sarver, and Dean L. Thomas, Glenshaw, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 2, 1979, Ser. No. 90,819
Int. Cl.³ C03B *23/025, 23/03*
U.S. Cl. 65—104 **9 Claims**



1. A method of bending a glass sheet to a predetermined shape, comprising the steps of:

positioning the glass sheet in a substantially horizontal orientation over upper surface of an outline mold;

heating the supported sheet to its deformation temperature to gravity sag the sheet to develop a shape generally correlated to the shape of the outline mold;

transferring the hot sheet onto a solid mold having a continuous shaping surface conforming to to the predetermined shape for a time sufficient for the sheet to conform to the shaping surface of the solid mold;

transferring the hot shaped sheet to the upper surface of the outline mold while the sheet is at its deformation temperature: and

cooling the sheet.

4,265,651

ROTARY FIRE-FINISHING MACHINE FOR GLASS ARTICLES

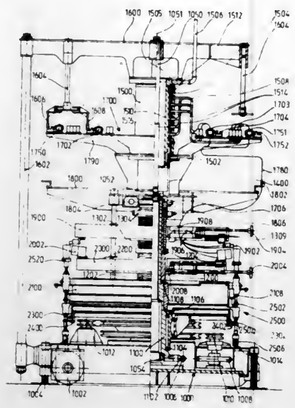
Jean Morel, Reims, France, assignor to Verreries Mecaniques Champenoises, Reims, France

Continuation-in-part of Ser. No. 936,196, Aug. 24, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,808
Claims priority, application France, Aug. 26, 1977, 77 26063
Int. Cl.³ C03B *29/04*
U.S. Cl. 65—252 **12 Claims**

1. In a fire-finishing machine of the type comprising:

a frame, a central vertical shaft mounted on the frame, a central column mounted to rotate on the shaft, a vertical rotary assembly fast with the column, said assembly comprising article supporting cups and burners disposed in the vicinity of said cups, separate support means being provided for the cups and for the burners, and drive means for ensuring the rotation of the vertical assembly so that the cups describe a circular path,

valves are additionally provided to supply said burners, said valves being fast with the rotary assembly and supplied by a rotary distributor mounted on the shaft, and fixed opening and closure control means, fast with the frame, and actuatable separately, are provided to allow selective



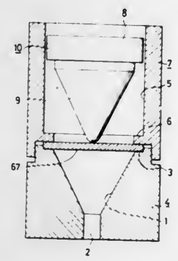
control of the valves when they cooperate with said control means upon rotation of the assembly.

4,265,652

APPARATUS FOR PRODUCING BRAUN TUBES

Hajime Goto; Ikuzo Amemiya, and Masanobu Nakayama, all of Yokohama, Japan, assignors to Kabushikikaisha Kanagawa Seisakusho, Tokyo, Japan

Filed Jan. 10, 1980, Ser. No. 111,026
Claims priority, application Japan, Jan. 26, 1979, 54/7211
Int. Cl.³ C03B *23/02, 23/03*
U.S. Cl. 65—273 **1 Claim**



1. An apparatus for producing Braun tubes characterized in that a holder is removably fitted at the lower end to the upper end of a female mold provided with a fitting recess, a male mold is vertically slidably arranged in said holder, each overlapped body with a glass plate arranged between the above mentioned female mold and male mold is formed, a cylinder is vertically provided above a heating molding chamber section of a heating molding apparatus, the lower end of a pressing shaft connected to a piston rod of said cylinder is present so as to be free to move up and down in the heating molding chamber section, a conveying base plate is provided through the heating molding apparatus, each overlapped body of the female mold and male mold with the above mentioned glass plate arranged between them is mounted on said conveying base plate and is successively intermittently moved and, whenever the intermittently moved overlapped body stops just below the cylinder of the heating chamber section, the cylinder is operated to depress and undepress the male mold with the lower end of the pressing shaft.

4,265,653

MANGANESE MICRONUTRIENT SOLUTIONS

Hazen L. Hoyt, 4th, Niantic, and Daniel R. Uhr, Jr., Stonington, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,542
Int. Cl.³ C05C *3/00*
U.S. Cl. 71—11 **10 Claims**

1. An aqueous plant nutrient solution consisting essentially of (a) a soluble ferrous compound in an amount sufficient to provide between 0.1 and 2.0 wt. % ferrous ion; (b) a soluble manganous compound in an amount sufficient to provide about 5 wt. % of manganous ion; (c) between 1 and 1.5 moles of citric acid anion per mole of manganous ion; and (d) ammonia in an amount sufficient to maintain said solution at a pH between 7.5 and 12.

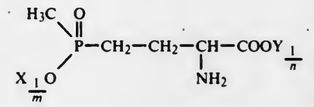
4,265,654

HERBICIDAL COMPOSITIONS

Tetsuo Takematsu; Makoto Konnai, both of Utsunomiya; Kunitaka Tachibana, Yokohama; Takashi Tsuruoka, Kawasaki; Shigeharu Inouye, and Tetsuro Watanabe, both of Yokohama, all of Japan, assignors to Meiji Seika Kaisha Ltd., Tokyo, Japan

Filed Dec. 20, 1978, Ser. No. 971,636
Claims priority, application Japan, Dec. 28, 1977, 52-157421; Dec. 28, 1977, 52-157422; Dec. 29, 1977, 52-158932; Mar. 30, 1978, 53-36059
Int. Cl.³ A01N *57/12*
U.S. Cl. 71—86 **11 Claims**

1. A method for controlling perennial weeds which comprises applying heribicidal compositions containing a herbicidally effective amount of the L-isomer of a compound of the formula



wherein X and Y are the same or different and each represents a hydrogen atom, a mono- or di-valent metal atom, a mono-, di- or tri-lower-alkylammonium, a mono-, di- or tri-ethanolammonium, or a mono-, di or tri-lower-alkenylammonium, and m and n represent valencies of X and Y, respectively or an acid-addition salt thereof to land selected from the group consisting of crop land, non-crop land, orchard, forest land and meadow.

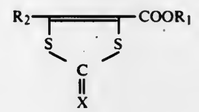
4,265,655

2-OXO- AND 2-THIOXO-1,3-DITHIOL COMPOUNDS AS ACTIVE SUBSTANCES FOR REGULATING PLANT METABOLISM AND THEIR USE

Saleem Farooq, Ettingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

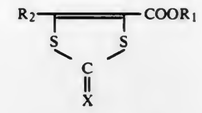
Filed May 31, 1979, Ser. No. 44,297
Claims priority, application Switzerland, Jun. 7, 1978, 6224/78
Int. Cl.³ A01N *43/02, 43/00*
U.S. Cl. 71—90 **5 Claims**

1. A method of regulating plant metabolism which comprises applying to said plant an effective amount of a compound of the formula



wherein R_1 represents C_1-C_8alkyl which can be interrupted by one or more oxygen atoms or substituted by halogen, phenyl or phenoxy, whilst the phenyl nucleus can be substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, or phenoxy; C_3-C_8alkenyl which is unsubstituted or substituted by halogen; C_3-C_8alkynyl; C_3-C_6cycloalkyl; phenyl which is unsubstituted or substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, C_1-C_4alkoxy or phenoxy, C_1-C_4alkoxycarbonyl, acetyloxy or dioxy-C_1-C_2alkylene; R_2 represents hydrogen, methyl, C_1-C_8alkoxycarbonyl, or phenyl which is unsubstituted or substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, C_1-C_4alkoxy or phenoxy, X represents oxygen or sulfur.

2. A method of promoting the abscission of fruit which is ripe for harvesting which comprises applying to said fruit an effective amount of a compound of the formula



wherein R_1 represents C_1-C_8alkyl which can be interrupted by one or more oxygen atoms or substituted by halogen, phenyl or phenoxy, whilst the phenyl nucleus can be substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, or phenoxy; C_3-C_8alkenyl which is unsubstituted or substituted by halogen; C_3-C_8alkynyl; C_3-C_6cycloalkyl; phenyl which is unsubstituted or substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, C_1-C_4alkoxy or phenoxy, C_1-C_4alkoxycarbonyl, acetyloxy or dioxy-C_1-C_2alkylene; R_2 represents hydrogen, methyl, C_1-C_8 alkoxycarbonyl, or phenyl which is unsubstituted or substituted by halogen, cyano, nitro, trifluoromethyl, C_1-C_4alkyl, C_1-C_4alkoxy or phenoxy, X represents oxygen or sulfur.

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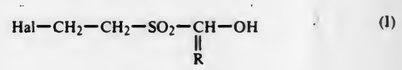
COMPOSITIONS AND METHODS FOR INHIBITING THE GROWTH OF CEREALS

Klaus Lürssen, Berg.-Gladbach, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,593
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842220
Int. Cl.³ C07D *293/08*
U.S. Cl. 71—103 **15 Claims**

1. Composition for inhibiting the growth of cereals comprising, as active ingredients,

(a) one haloethylsulfone of the formula



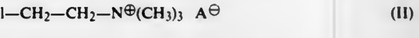
(I)

wherein

Hal is halogen and

R is hydrogen or alkyl of 1 to 6 carbon atoms and

(b) one (2-chloroethyl)-trimethylammonium compound of the Formula



(II)

wherein

$A^{\ominus}$ is a halide, tetrafluoroborate or alkylsulphate, and

the proportion of ingredient (a) to ingredient (b) is from 1:0.04 to 1:2.

4,265,657

HERBICIDAL COMPOSITIONS CONTAINING α-HALO ACETANILIDES AND SUBSTITUTED BICYCLO(3.3.1)NON-2-ENE COMPOUNDS AS SAFENING AGENTS

James A. Kloek, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 1, 1979, Ser. No. 80,750
Int. Cl.³ A01N *25/32*
U.S. Cl. 71—106 **6 Claims**

1. A composition comprising a herbicidally effective amount of 2-chloro-2',6'-diethyl-N-(methoxymethyl) acetanilide and an effective safening amount of a compound selected from the group consisting of 2,4-dichlorophenyl ester of 9-oxo-bicyclo[3.3.1]non-3-ene-1-carboxylic acid, 3-(trifluoromethyl)phenyl ester of 9-oxo-bicyclo[3.3.1]non-3-ene-1-carboxylic acid and 2,4-diphenyl-bicyclo[3.3.1]non-2-en-9-semicarbazone.

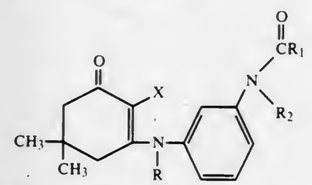
4,265,658

NOVEL CYCLOHEXENONE AMINO PHENYL AMIDES AND THEIR USE AS HERBICIDES

Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Richmond, Calif.

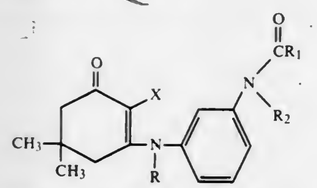
Filed Sep. 20, 1978, Ser. No. 944,047
Int. Cl.³ A01N *37/18, 47/30*; C07C *127/15, 103/27*
U.S. Cl. 71—118 **15 Claims**

1. A compound having the formula



in which X is hydrogen, chloro or bromo; R is hydrogen or lower alkanoyl; R_1 is lower alkyl, cyclopropyl or NR_3R_4; R_2 is hydrogen or lower alkanoyl and R_3 and R_4 are independently hydrogen or lower alkyl.

12. A method of controlling undesirable vegetation comprising applying to the vegetation a herbicidally effective amount of a compound having the formula



in which X is hydrogen, chloro or bromo; R is hydrogen or lower alkanoyl; R_1 is lower alkyl, cyclopropyl or NR_3R_4; R_2 is hydrogen or lower alkanoyl and R_3 and R_4 are independently hydrogen or lower alkyl.

4,265,659

MOLTEN METAL FILTER

James C. Blome, Florissant, Mo., assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Oct. 9, 1979, Ser. No. 83,193
Int. Cl.³ B01D *39/16*; C04B *21/00*
U.S. Cl. 75—93 R **4 Claims**

1. A ceramic foam molten metal filter for use in filtering molten metal having an open cell structure characterized by a plurality of interconnected voids surrounded by a web of said ceramic, said ceramic having a plurality of ceramic fibers dispersed therein and protruding out of the web of said ceramic and into said plurality of interconnected voids thereby providing a fuzzy surface in the pores of said filter for aiding in filtering said molten metal.

4,265,660

HIGH-STRENGTH FREE-CUTTING STEEL ABLE TO SUPPORT DYNAMIC STRESSES

Henrik Giflo, III Ujitok u.5, 3532 Miskolc, Hungary

Filed Jul. 3, 1979, Ser. No. 54,527
Int. Cl.³ C22C *33/00*
U.S. Cl. 75—123 B **3 Claims**

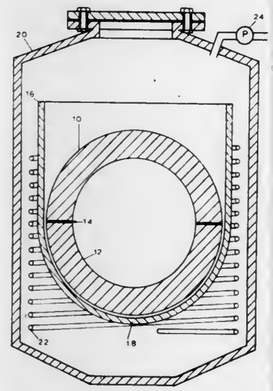
1. A free-cutting steel able to support dynamic stresses and exhibiting a high strength, even without hardening, and an excellent aptitude for machining by material removal, which is intended for making machine elements subjected to great stresses, consisting essentially of, besides iron, 0.1 to 0.7% (by weight) of C, 1.2 to 3% (by weight) of Mn, 0.1 to 1% (by weight) of Si, at most 0.1% (by weight) of P, 0.05 to 0.15% (by weight) of S, at least 0.1% (by weight) of Pb, 0.001 to 0.03% (by weight) of Ca, 0.001 to 0.005% (by weight) of B, 0.007 to 0.035% (by weight) of N, 0.03 to 0.2% (by weight) of Nb or V or their mixture, 0.01 to 0.25% (by weight) of Zr or Ce or their mixture, at most 0.2% (by weight) of Be or Bi or their mixture, and at most 1% (by weight) of Mo or Ni or their mixture.

4,265,661

DIRECT SYNTHESIS OF INTERMETALLIC COMPOUNDS

Rowland M. Ware, Cottenham, England, assignor to Cambridge Analyzing Instruments Ltd., Hertfordshire, England

Filed Sep. 21, 1979, Ser. No. 77,550
Claims priority, application United Kingdom, Oct. 25, 1978, 41826/78
Int. Cl.³ C01G *15/00*; C01B *27/00*
U.S. Cl. 75—135 **13 Claims**



1. In a process of forming a compound of two elements at least one of which has a high vapor pressure at the required reaction temperature comprising:

placing the elements in a suitable vessel together with a solid encapsulant material which will melt at a temperature below the temperature at which reaction occurs between the elements;

increasing the temperature and pressure so that the solid encapsulant melts to form a liquid seal over the elements; and,

further increasing the temperature and pressure to cause a reaction between the elements thus forming the desired compound,

the improvement which comprises providing a hollow container of the solid encapsulant material, sealing the elements in the container, and placing the sealed contained into the vesel.

4,265,662

HARD ALLOY CONTAINING MOLYBDENUM AND TUNGSTEN

Masaya Miyake; Minol Nakano; Takaharu Yamamoto, and Akio Hara, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Dec. 19, 1978, Ser. No. 971,835
Claims priority, application Japan, Dec. 29, 1977, 52-159298; Jan. 18, 1978, 53-4703; Feb. 8, 1978, 53-13894; Feb. 24, 1978, 53-21371; Feb. 28, 1978, 53-23237; Mar. 10, 1978, 53-28014
Int. Cl.³ B22F *3/00*
U.S. Cl. 75—238 **16 Claims**

1. A hard alloy comprising a hard phase consisting of at least one compound having a crystal structure of simple hexagonal MC type (M: metal; C: carbon) selected from the group consisting of mixed carbides, carbonitrides and carboxynitrides of molybdenum and tungsten as a predominant component, and a binder phase consisting of iron, cobalt, nickel and chromium, in which a hard phase consisting of a compound of M_2C type, wherein M and C are as defined above, having a crystal structure of the hexagonal type is uniformly dispersed in a proportion of at most 30% by volume based on all the hard phases, said compound of M_2C type being in a granular or globular form with a size of at most 10 microns, and wherein the carbon content in the hard phases of the alloy is in an atomic proportion of 0.98 to 0.8 with respect to the theoretical carbon content of the MC type compound.

4,265,663

WAX FORMULATIONS

George A. Gilicinski, Tulsa, Okla., and Rodney G. Lawrence, Howell, Mich., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Sep. 27, 1979, Ser. No. 79,271
Int. Cl.³ C09G *1/04, 1/12*
U.S. Cl. 106—10 **6 Claims**

1. A wax formulation characterized by containing a liquid poly(alpha-olefin) and a fluid silicone.

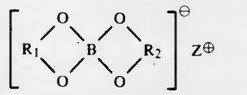
4,265,664

SPIROCYCLIC BORON COMPOUNDS, A PROCESS FOR THEIR MANUFACTURE AND THEIR USE AS A FLAME-RETARDANT ADDITIVE

Gerald Saischek, Wels; Karlheinz Wegleitner, Linz; Ferdinand Heu, Linz, and Roman Wohlmuth, Linz, all of Austria, assignors to Chemie Linz Aktiengesellschaft, Linz, Austria

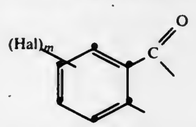
Filed May 11, 1979, Ser. No. 38,300
Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2820909
Int. Cl.³ C07F *5/04*
U.S. Cl. 106—18.13 **16 Claims**

1. A spirocyclic boron compound of the formula



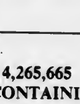
(I)

wherein R_1 and R_2, which may be the same or different, each are dihalogeno alkylene, having 2 to 6 carbon atoms, a halogen-substituted bis-methyleno-bicycloheptene-radical, tetrahalogeno-o,o'-phenylene, tetrachloro-o,o'-biphenylene, tetrabromo-o,o'-biphenylene or a group of the formula



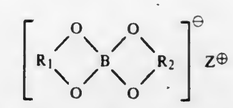
(II)

in which Hal is chlorine or bromine and m is the integer 3 or 4, and Z^+ is alkali metal ion, an equivalent of an alkaline earth metal, a guanidinium or hydrazinium ion or an ion of the formula



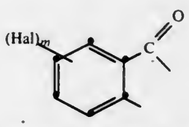
wherein R_3, R_4, R_5 and R_6, which may be the same or different, each are hydrogen, alkyl with 1 to 8 carbon atoms, cycloalkyl with 5 or 6 carbon atoms or phenyl, whereby in the case where one of the radicals R_3, R_4, R_5 or R_6 is phenyl, the other ones have a meaning other than phenyl.

16. A flame retarding agent which comprises a spirocyclic boron compound of the formula



(I)

wherein R_1 and R_2, which may be the same or different, each are dihalogeno alkylene, having 2 to 6 carbon atoms, a halogen-substituted bis-methyleno-bicycloheptene-radical, tetrahalogeno-o,o'-phenylene, tetrachloro-o,o'-biphenylene, tetrabromo-o,o'-biphenylene or a group of the formula



(II)

in which Hal is chlorine or bromine and m is the integer 3 or 4, and Z^+ is alkali metal ion, an equivalent of an alkaline earth metal, a guanidinium or hydrazinium ion or an ion of the formula



wherein R_3, R_4, R_5 and R_6, which may be the same or different, each are hydrogen, alkyl with 1 to 8 carbon atoms, cycloalkyl with 5 or 6 carbon atoms or phenyl, whereby in the case where one of the radicals R_3, R_4, R_5 or R_6 is phenyl, the other ones have a meaning other than phenyl and Sb_2O_3 as synergistic agent.

4,265,665

FOUNDRY MOLDS CONTAINING GLASSY METAL ALLOY FILAMENTS

John R. Bedell, Madison, N.J., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Oct. 1, 1979, Ser. No. 80,372
Int. Cl.³ B28B *7/28*
U.S. Cl. 106—38.9 **12 Claims**

1. In a foundry mold containing an admixture of sand and a binder, the improvement comprising about 0.2 to 9.9 percent by weight of glassy metal alloy reinforcing filaments dispersed in said admixture, said filaments having an aspect ratio in the range of 5 to 300 and having a composition selected from the group consisting of:

(a) about 35 to 45 atom percent iron, about 35 to 45 atom percent nickel, about 12 to 16 atom percent phosphorus, and about 4 to 8 atom percent boron;

(b) about 35 to 45 atom percent iron, about 35 to 45 atom percent nickel, and about 15 to 25 atom percent boron;

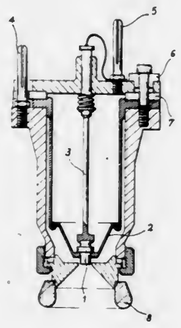
(c) about 35 to 45 atom percent iron, about 35 to 45 atom percent nickel, about 15 to 25 atom percent boron and about 3 to 5 atom percent molybdenum;
(d) about 70 to 80 atom percent iron, about 10 to 20 atom percent phosphorus, 0 to about 15 atom percent carbon, about 2 to 5 atom percent aluminum, and 0 to about 2 atom percent silicon;
(e) about 75 to 85 atom percent iron, about 8 to 15 atom percent boron, 0 to about 5 atom percent carbon, and 0 to about 12 atom percent silicon;
(f) about 75 to 85 atom percent iron, about 8 to 12 atom percent boron, and about 5 to 15 atom percent silicon;
(g) about 75 to 85 atom percent iron, and about 15 to 25 atom percent boron; and
(h) about 75 to 85 atom percent iron, and about 15 to 25 atom percent phosphorus.

4,265,666

BORON CARBIDE LA, SR AND/OR BA HEXABORIDE CERAMIC MATERIAL FOR A LOW TEMPERATURE DIRECT HEATING ELECTRIC GUN CATHODE

Michel Contre, Verriere-le-Buisson; Philippe Martin, Orsay, and Monique Quetier, Paris, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 17, 1979, Ser. No. 67,365
Claims priority, application France, Aug. 18, 1978, 78 24109
Int. Cl.³ C04B *35/52, 35/58, 35/50*
U.S. Cl. 106—43 **2 Claims**



1. A ceramic material for a low temperature direct heating electron gun cathode consisting essentially of boron carbide and at least one hexaboride selected from the group consisting of the hexaborides of of lanthanum, strontium and barium, and mixtures thereof, said ceramic material being produced by co-fritting the aforesaid components at an elevated temperature for a time and in the proportions sufficient to result in a product having a proportion of hexaboride of from about 10% to 70% by volume thereof.

4,265,667

STEP-TYPE LIGHT-TRANSMITTING BODY HAVING EXCELLENT WATER RESISTANCE

Yoshirou Ikeda, and Yoshikazu Kaite, both of Nishinomiya, Japan, assignors to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Filed Apr. 25, 1980, Ser. No. 145,455
Int. Cl.³ C03C *3/08, 3/10, 13/00;* **G02B** *5/14*
U.S. Cl. 106—47 Q **1 Claim**

1. A step-type light-transmitting body having excellent water resistance, said light-transmitting body comprising a core material of a glass having a refractive index of 1.60 to 1.66 and the following composition in % by weight:

(1) SiO_2	15–40,
(2) ZrO_2	8–15,
(3) B_2O_3	7–12,
(4) BaO	30–45,
(5) Na_2O	5–12,
(6) GeO_2	0–30,
TiO_2	0–3,
Al_2O_3	0–5,
La_2O_3	0–5,
MgO	0–5,
CaO	0–7,
ZnO	0–7,
SrO	0–5,
Li_2O	0–8,
K_2O	0–10,
Rb_2O	0–5, and
Cs_2O	0–8;
provided that	
SiO_2+GeO_2	15–50,
ZrO_2+BaO	38–50,
$Na_2O+Li_2O+K_2O+Rb_2O+Cs_2O$	5–15, and
$MgO+CaO+ZnO+SrO+TiO_2+Al_2O_3+La_2O_3$	0–12.

4,265,668

HIGH DIELECTRIC CONSTANT TYPE CERAMIC COMPOSITION

Shinobu Fujiwara, Nikahomachi; Kiyoshi Furukawa; Nobuaki Kikuchi, both of Akita; Osamu Iizawa, Honjo, and Hitoshi Tanaka, Nikahomachi, all of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Oct. 29, 1979, Ser. No. 89,245
Claims priority, application Japan, Oct. 30, 1978, 53/133518; Mar. 2, 1979, 54/24243; Mar. 7, 1979, 54/24246; Mar. 7, 1979, 54/26448
Int. Cl.³ C04B *35/46, 35/00;* **H01B** *3/12*
U.S. Cl. 106—73.3 **21 Claims**

1. A high dielectric constant type ceramic composition, characterized in that said composition consists essentially of a basic ceramic composition of from 68.67 to 69.19% of PbO, from 3.67 to 4.09% of MgO, 24.17 to 26.99% of Nb_2O_5 and from 0.25 to 2.97% of TiO_2, all percentages being by weight.

4,265,669

SHRINK-FREE CERAMIC AND METHOD AND RAW BATCH FOR THE MANUFACTURE THEREOF

Lynn B. Starling, Rolla, Mo.; James E. Stephan, Arvada, and Robert D. Stroud, Boulder, both of Colo., assignors to Coors Porcelain Company, Golden, Colo.; Ralph B. Sozio, Boston and Edwin J. Riley, Milton, both of, Mass., part interest to each

Filed Dec. 14, 1979, Ser. No. 103,771
Int. Cl.³ C04B *35/44, 35/04, 35/10*
U.S. Cl. 106—73.4 **25 Claims**



1. A fired substantially nonporous and shrink-free ceramic body containing crystalline material in an amount of from about 70% to 95% by weight of the body and the remainder interstitial glass, said crystalline material containing aluminum oxide and magnesium aluminate spinel in an aggregate amount of at least about 70% by weight of the crystalline material, said magnesium aluminate spinel being formed in situ during the firing of said ceramic body thereby to cause expansion which compensates for shrinkage which would otherwise occur.

4,265,670

METHOD AND APPARATUS FOR THE THERMAL TREATMENT OF FINE-GRAINED MATERIAL WITH HOT GASES

Kunibert Brachthäuser, Bergisch-Gladbach, and Horst Herchenbach, Troisdorf, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Division of Ser. No. 932,902, Aug. 11, 1978. This application Feb. 5, 1980, Ser. No. 118,779
Claims priority, application Fed. Rep. of Germany, Aug. 13, 1977, 2736607
Int. Cl.³ C04B *7/44*
U.S. Cl. 106—100 **11 Claims**

1. A method for the thermal treatment of particulate raw material having relatively fine and relatively coarse particles in the calcination of cement which comprises:
feeding said particulate raw material to cause suspension of said relatively fine particles in a first combustion zone,
introducing a relatively rapidly oxidizing fuel into said first combustion zone to thereby oxidize the same and transfer its heat to such finely divided particles,
feeding the at least partially deacidified finely divided particles from said first combustion zone into a second combustion zone,
contacting the at least partially deacidified relatively fine particles and the relatively coarse particles in said second combustion zone with relatively slowly oxidizing fuel, and
subsequently sintering the material thus treated in said second combustion zone in a sintering zone.

4,265,671

METHOD OF UTILIZING FLY ASH FROM POWER WORKS AND REFUSE DISPOSAL PLANTS IN THE PRODUCTION OF CEMENT CLINKERS, AND A PLANT FOR CARRYING OUT SAID METHOD

Karl K. K. Kroyer, Engtoften 3, DK-8260 Viby J., Denmark

Continuation of Ser. No. 865,153, Dec. 28, 1977, abandoned. This application Mar. 23, 1979, Ser. No. 23,496
Claims priority, application United Kingdom, Jan. 4, 1977, 47/77
Int. Cl.³ C04B *7/36*
U.S. Cl. 106—103 **3 Claims**

1. In a method for producing cement clinkers in a rotary kiln fed from both ends with calcareous, siliceous, ferriferous and argillaceous raw materials with a composition adapted as necessary for clinker formation, said kiln being stoked with fuel injected from the lower end together with a gas supporting the combustion, and where the clinkers produced after nodulization and subsequent sintering are removed from the lower end of the kiln and cooled, while the added gases and those produced during the process are removed from the upper end of the kiln and are freed of entrained dust in a filter, the improvement which comprises introducing exclusively to a firing zone in the lower end of the rotary kiln co-currently with the injected combustion-supporting gas fly ash, said fly ash and calcareous minerals added therewith being in an amount such as to constitute 30 to 50% by weight of the total raw materials, said fly ash having a mineral composition which together with the total of the calcareous minerals corresponds with the desired composition of the clinkers.

4,265,672

POWDERED TELEPHONE CABLE FILLING COMPOUND

Basil V. E. Walton, 54 Melrose Crescent, and William E. J. Wannamaker, 121 Avondale Rd., both of Belleville, Ontario, Canada

Filed Nov. 19, 1979, Ser. No. 95,515
Claims priority, application Canada, Nov. 16, 1978, 316343
Int. Cl.³ C04B *11/24*
U.S. Cl. 106—115 **17 Claims**

1. A composition in powder form, adapted for use in filling telecommunications cables, said composition comprising: (A) from about 80% to about 99% by weight of a pulverulent material having a high water absorption capacity, comprising: (i) a finely divided cellulosic material, and (ii) at least one of the following: (a) gypsum; (b) a hydrous aluminum silicate; (c) a sodium aluminosilicate; (d) magnesium oxide; (e) magnesium carbonate; (f) mica powder; (g) talc; (h) a diatomaceous clay; (i) anhydrous aluminum silicate; and (j) finely divided silica; and (B) from about 1% to about 20% by weight of a water-modifying and immobilizing material.

4,265,673

POLYMER SOLUTIONS FOR USE IN OIL RECOVERY CONTAINING A COMPLEXING AGENT FOR MULTIVALENTIONS

Gary W. Pace, and Trevor J. Holding, both of Knowsley, England, assignors to Talres Development (N.A.) N.V., Curacao, Netherlands Antilles

Filed Jun. 20, 1979, Ser. No. 50,322
Claims priority, application United Kingdom, Jun. 23, 1978, 27803/78
Int. Cl.³ C08L *33/26*
U.S. Cl. 106—177 **18 Claims**

1. A process for preparing a polymer solution for use in "polymer based" oil recovery, which comprises, in the absence of surfactant, combining water, a polymer selected from the group consisting of polyacrylamide and cellulose derivative and a complexing agent for multivalent ions and, where the solution so formed does not already contain an alkali metal salt, incorporating therein an alkali metal salt.

4,265,674

ADDITIVE FOR CONCRETE OR MORTAR AND THE USE THEREOF

Gerhard Debus, Rüdesheim; Friedrich Girg, Idstein, and Volker Knittel, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 7, 1979, Ser. No. 64,515
Claims priority, application Fed. Rep. of Germany, Aug. 12, 1978, 2835423
Int. Cl.³ C04B *7/353*
U.S. Cl. 106—314 **3 Claims**

1. An additive-mixture as a pumping aid for concrete and cement mortar consisting essentially of a water-soluble, non-ionic cellulose ether selected from the group consisting of methylhydroxyethyl cellulose, methylhydroxypropyl cellulose, ethylhydroxyethyl cellulose and hydroxyethyl cellulose, and a non-ionic, low-foaming surface-active agent selected from the group consisting of an optionally modified block polymer of propylene oxide and ethylene oxide, and an alkylaryl poly-(ethylene glycol)ether having a small proportion of ethylene oxide molecules, said surface-active agent being present in a proportion of about 0.5 to 20% by weight, based on the weight of said cellulose ether.

4,265,675

NONTOXIC CELLULOSE SOLVENT AND PROCESS FOR FORMING AND UTILIZING THE SAME

George T. Tsao, West Lafayette, Ind.; Bruce E. Dale, Fort Collins, Colo., and Michael R. Ladisch, West Lafayette, Ind., assignors to Purdue Research Foundation, West Lafayette, Ind.

Continuation-in-part of Ser. No. 884,477, Mar. 8, 1978, abandoned. This application Oct. 3, 1979, Ser. No. 81,539
Int. Cl.³ C13K *1/02*
U.S. Cl. 127—37 **30 Claims**

1. A substantially nontoxic cellulose solvent, comprising:
a metal chelating agent;
a metal compound;
a caustic swelling agent;
and an oxygen scavenging stabilizing agent.

22. A process for recovering cellulose from cellulosic materials, said process comprising:

contacting a cellulosic material with an oxygen scavenger stabilized chelating metal caustic swelling solvent to dissolve the crystalline native cellulose contained in said cellulosic material and to transform the crystalline cellulose to an amorphous state; and

precipitating said amorphous cellulose from said solvent.

29. A process for recovering cellulose from a cellulosic material, said process comprising:

providing a chelating metal caustic swelling solvent, said solvent comprising sodium tartrate, ferric chloride, caustic, and sodium sulfite;

contacting a cellulosic material with said solvent in about a 10:1 to 1:10 weight ratio of cellulosic material to solvent; and

adding water to precipitate cellulose from the solution formed by contacting the cellulosic material with said solvent.

30. The process of claim **29**, wherein said cellulose is hydrolyzed by acid and/or cellulase enzyme to yield glucose.

4,265,676

PROCESS FOR MANUFACTURE OF STRIP-CASTED AL-SHEET MATERIAL WITH IMPROVED MECHANICAL AND THERMOMECHANICAL QUALITIES

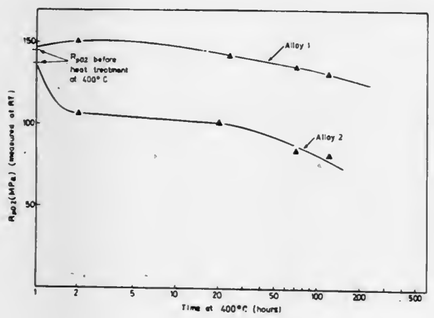
Aasmund E. Nes, Rykkinn, and Sverre Slevolden, Kopervik, both of Norway, assignors to Norsk Hydro a.s., Oslo, Norway

Filed Jun. 4, 1979, Ser. No. 45,267

Claims priority, application Norway, Jun. 27, 1978, 782215

Int. Cl.³ C22F *1/04*

U.S. Cl. 148—2 **10 Claims**



1. A process for the manufacture of half-hard aluminun sheet materials having a combination of high strength and high ductility which comprises

casting by continuous strip-casting as a plate a commercially available Al-wrought alloy containing less than 0.5 weight % of at least one recrystallization modifying element selected from the group consisting of Zr, Nb, Ta, Hf, Ni, Cr, Ti, V and W, said modifying element being present substantially in solid solution,

directly cooling the thus casted material to ambient temperature and cold rolling said material to a required thickness,

heating the thus rolled material to a holding temperature of from 400°to 500° C. at a heating rate of less than 50° C./min, and

cooling the material to ambient temperature.

4,265,677

PHOSPHATIZING PRIOR TO CATHODIC ELECTROPAINTING

Gerhard Müller, Hanau, and Werner Rausch, Oberursel, both of Fed. Rep. of Germany, assignors to Oxy Metal Industries Corporation, Warren, Mich.

Filed Feb. 25, 1980, Ser. No. 124,504

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907094

Int. Cl.³ C23F *7/08*

U.S. Cl. 148—6.15 Z **5 Claims**

1. An aqueous acidic solution suitable for treating a metallic surface prior to cathodic electropainting comprising zinc and phosphate ions in a weight ratio of 1:12–110, an additional multivalent cation in an amount not more than 0.5 g/l, and from 0.3 to 2.0 g/l of fluoborate ions.

4,265,678

METAL WIRE CORD

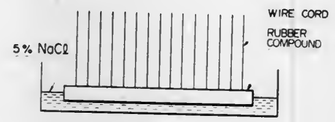
Shunji Hachisuka, Dejima; Shinji Kurashige, Kitakami, and Yasuo Saahiro, Chiyoda, all of Japan, assignors to Tokyo Rope Mfg. Co., Ltd., Tokyo, Japan

Filed Dec. 8, 1978, Ser. No. 967,647

Claims priority, application Japan, Dec. 27, 1977, 52-159908; Nov. 22, 1978, 53-143282

Int. Cl.³ C21D *9/52*

U.S. Cl. 148—12 B **8 Claims**



1. A method of manufacturing a metal wire cord, which comprises the steps of:

forming on the surface of a metal wire a coating layer formed of a ternary alloy of copper, zinc and between 0.1 and 50% by weight cobalt to produce a metal wire; and

drawing said metal wire.

4,265,679

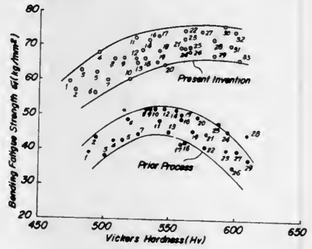
PROCESS FOR PRODUCING STAINLESS STEELS FOR SPRING HAVING A HIGH STRENGTH AND AN EXCELLENT FATIGUE RESISTANCE

Nobuo Ohashi, Funabashi; Yutaka Ono, Ichihara; Kiyohiko Nohara, Chiba; Junichi Shimomura, Chiba, and Tetsuo Miyawaki, Chiba, all of Japan, assignors to Kawasaki Steel Corporation, Kobe and Nippon Kinzoku Co., Ltd., Tokyo, both of, Japan

Filed Aug. 23, 1979, Ser. No. 69,050

Int. Cl.³ C21D *7/02*

U.S. Cl. 148—12 E **2 Claims**



1. A process for producing stainless steels for springs having a high strength in the range of about 550–600 Vickers Hardness, and an excellent fatigue resistance of at least 70 kg/mm², which comprises heat treating austenitic stainless steels having such a composition that austenite stability index Md_{30} is 0° C. to +80° C. at a temperature from 750° C. to 1,150° C., subjecting the thus treated steels to a primary working at a temperature from Md_{30} to 500° C. at a reduction rate of not less than 20%, and then subjecting said steels to a secondary working at a temperature from −10° C. to Md_{30} at a reduction rate of not less than 30%, and after the secondary working, tempering the obtained steel sheet at a temperature from 200° C. to not higher than the austenite forming temperature.

4,265,680

METHOD FOR MAKING HOLLOW MAGNETIC PIPE

Robert J. Pelser; Lewis M. Pelser, both of Newbury Park; Robert W. Hill, Westlake Village; Sanford W. Brown, Los Angeles, and Robert G. Fischer, Oxnard, all of Calif., assignors to Astrolab Corp., Santa Ana, Calif.

Filed Mar. 10, 1980, Ser. No. 128,761

Int. Cl.³ H01F *1/02*

U.S. Cl. 148—103 **9 Claims**

1. A method for making hollow magnetic pipe having a magnetic field extending across the hollow of the pipe, which comprises:

(a) forming first and second substantially similar pipe halves from ductile and magnetizable sheet metal;

(b) placing said pipe halves in a pipelike configuration having first and second pairs of adjacently disposed open edges and joining each of said pairs of adjacently disposed open edges with a nonmagnetic seam to form a hollow pipe;

(c) conditioning said hollow pipe to receive and maintain a permanent magnetic state; and

(d) subjecting said conditioned hollow pipe to a magnetic field whereby each side wall of the pipe abutting one nonmagnetic seam acquires a permanent north magnetic pole configuration and each side wall of the pipe abutting the other nonmagnetic seam acquires a permanent south magnetic pole configuration.

4,265,681

METHOD OF PRODUCING LOW LOSS PRESSED MAGNETIC CORES FROM MICROLAMINATIONS

Robert F. Krause, Murrysville; Norman M. Pavlik, Plum Boro, and Kurt A. Grunert, Beaver, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 896,525, Apr. 14, 1978, abandoned. This application Jul. 26, 1979, Ser. No. 60,942

Int. Cl.³ H01F *1/04*

U.S. Cl. 148—111 **12 Claims**

1. A method of making pressed magnetic core components having improved magnetic characteristics (a low core loss property) for use in electrical apparatus, comprising the steps of

(a) providing silicon-iron alloy sheet stock having a thin coating of silicate glass on two opposite sides thereof and having a silicon content of from about 2.5% to 3.5%, a carbon content of up to 0.01%, manganese of from about 0.01% to 0.2%, and sulfur in the amount of from 0.005% to 0.25%,

(b) forming microlaminations from the silicon-iron alloy sheet stock, which microlaminations comprise a coating of silicate glass on two opposite sides thereof,

(c) coating the microlaminations with a dielectric material,

(d) assembling the microlaminates within a mold of predetermined configuration,

(e) compacting the microlaminates into a magnetizable compact, and

(f) annealing the compacted microlaminates to relieve stresses.

10. A method of producing pressed magnetic core components having improved magnetic characteristics (a low core loss property) for use in electrical apparatus, comprising the steps of

(a) providing silicon-iron alloy sheet stock having a thin coating of silicate glass on two opposite sides thereof,

(b) forming particles of predetermined size and shape from said silicon iron alloy having a silicon content of from about 2.5% to about 3.5%, a carbon content of up to 0.01%, manganese of from about 0.01% to 0.2%, and sulfur in the amount of from 0.005% to 0.25%,

(c) annealing the particles in a deoxidizing atmosphere,

(d) coating the microlaminations with a dielectric material,

(e) assembling the particles within a container of predetermined configurations,

(f) compacting the particles into a magnetizable compact, and

(g) annealing the compact to relieve stresses.

4,265,682

HIGH SILICON STEEL THIN STRIPS AND A METHOD FOR PRODUCING THE SAME

Noboru Tsuya, 1-38, Kashiwagi 2-Chome, Sendai, Japan, and Kenichi Arai, Sendai, Japan, assignors to Norboru Tsuya, Sendai, Japan

Filed Dec. 29, 1978, Ser. No. 974,506

Claims priority, application Japan, Sep. 19, 1978, 53/114847; Nov. 15, 1978, 53/141290

Int. Cl.³ H01F *1/04*

U.S. Cl. 148—112 **15 Claims**

1. A method of producing a thin strip of high silicon steel having excellent magnetic properties and good workability comprising the combination of steps of:

preparing a high silicon steel melt having a composition consisting essentially of 4–10% by weight of silicon, less than about 2% of aluminum and the remainder being iron and incidental impurities,

cooling the melt to about 400° C. on a cooling substrate at a cooling rate of from about 10^3 to 10^6°C./sec. to form a thin strip having micro-structure comprising very fine crystal grains without ordered lattics of Fe_3Si.

9. A thin strip of high silicon steel having excellent magnetic properties and good workability, having composition consisting essentially of by weight 4–10% of silicon, less than about 2% of aluminum and the remainder being iron and incidental impurities and having a micro-structure consisting of very fine crystal grains without ordered lattices of Fe_3Si, wherein the fine crystal grains are essentially columnar grains aligned in a direction perpendicular to the surface of the thin strip and have a mean grain diameter of from about 1–100 μm.

4,265,683

DEVELOPMENT OF GRAIN-ORIENTED IRON SHEET FOR ELECTRICAL APPARATUS

Richard D. Blaugher, Churchill Boro, and Richard H. Hopkins, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 7, 1979, Ser. No. 10,112

Int. Cl.³ H01F *1/00*

U.S. Cl. 148—120 **9 Claims**

1. A process for preparing a textured, primary recrystallized, iron-based material suitable for magnetic applications, said process comprising:

(a) deoxidizing material consisting of at least about 99.9 wt.% iron to an oxygen content of less than 50 ppm, said material being substantially free of sulfur and aluminum;

(b) adjusting the carbon content of said material to 0.01–0.02 wt.%;

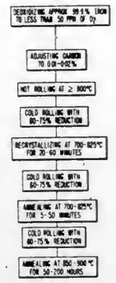
(c) hot rolling said material, maintaining a temperature of at least 800° C., throughout said hot rolling;

(d) cold rolling said material to provide a 60–75% reduction;

(e) recrystallizing said material at 700–825° C. for 20–60 minutes in a non-oxidizing atmosphere;

(f) cold rolling said material to provide a 60–75% reduction;

(g) annealing said material at 700–825° C. for 5–50 minutes in a non-oxidizing atmosphere;
(h) cold rolling said material to provide a 60–75% reduction to give a final thickness; and



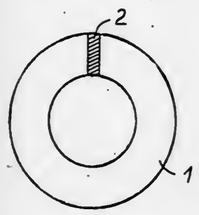
(i) annealing said material for 50–200 hours at 850–900° C. in a reducing atmosphere whereby a high magnetic saturating, primary recrystallized material is produced.

4,265,684

MAGNETIC CORE COMPRISED OF LOW-RETENTIVITY AMORPHOUS ALLOY

Richard Boll, Muhlheim, Fed. Rep. of Germany, assignor to Vacuumschmelze GmbH, Fed. Rep. of Germany

Filed Jul. 16, 1979, Ser. No. 57,971
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832731
Int. Cl.³ H01F *1/00*
U.S. Cl. 148—121 **8 Claims**



1. A magnetic core composed of an at least 50% amorphous low-retentivity metal alloy having at least one continuous zone composed of said alloy in crystalline form extending within said core in the manner of an air gap, over at least a portion of the cross-section of said core.

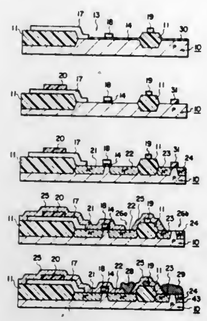
7. A method of producing a magnetic core from a low-retentivity amorphous metal alloy comprising:
forming a core body from an at least 50% amorphous low-retentivity metal alloy, and
converting at least one select continuous zone within said body into a crystalline state so that such zone extends over at least a portion of the cross-section of said body in the manner of an air gap by heating said zone to the crystallization temperature of said alloy.

4,265,685

UTILIZING SIMULTANEOUS MASKING AND DIFFUSION OF PERIPHERAL SUBSTRATE AREAS

Masatoshi Seki, Tachikawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,140
Claims priority, application Japan, Jan. 26, 1979, 54-7109
Int. Cl.³ H01L *21/20, 21/22*
U.S. Cl. 148—174 **5 Claims**



1. In a method of producing silicon gate-type MOS integrated circuit devices having polycrystalline silicon resistance, comprising:
a step for forming a field oxide on the main surface of a silicon semiconductor substrate so as to surround areas where transistors are to be formed;
a step for forming a gate oxide having a thickness smaller than that of said field oxide;
a step for forming an elongated strip of polycrystalline silicon which extends from an area selected from said areas onto said field oxide;
a step for forming a first masking layer on the surface of said elongated strip thereby to form a resistor region in said elongated strip;
a step for introducing impurities of a conductivity type opposite to that of said semiconductor substrate into the surface of said elongated strip exposed from said first masking layer and into the selected surfaces of said areas; and
a step for forming a first metal layer which comes into contact with said areas into which are introduced said impurities; the improvement characterized by;
forming a second masking layer on the peripheral surface of said silicon semiconductor substrate such that said impurities will not be introduced into said peripheral surfaces, said second masking layer being formed during said step for forming said first masking layer; and
forming a second metal layer on said peripheral surfaces of said silicon semiconductor substrate into which are not introduced said impurities, said second metal layer being formed during said step for forming said first metal layer, thereby to form a substrate electrode of said silicon semiconductor substrate.

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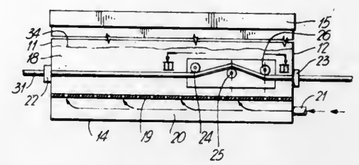
POWER FILLING OF CABLE CORE UNITS

John N. Garner, Pointe Claire, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Sep. 13, 1979, Ser. No. 74,970
Int. Cl.³ H01B *13/06*
U.S. Cl. 156—48 **8 Claims**

1. A method of powder filling a cable core unit having a plurality of conductors, said method comprising:
fluidizing a bed of filling powder to form a fluidized bed with a defined upper surface;

passing the core unit along a pass line through the fluidized bed and beneath its defined upper surface with the conductors closed together, the fluidized powder in the bed flowing between the conductors to fill voids within the unit while avoiding attracting the powder to the conductors electrostatically or with other attracting medium; and



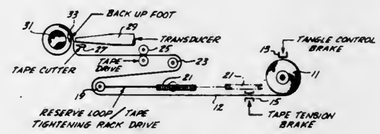
with the conductors closed together and in the fluidized bed, causing the unit to change its direction of movement along the pass line at least once to effect relative displacement of the conductors while maintaining them closed together.

4,265,687

ULTRASONIC TAPE TIE STRAPPING METHOD AND APPARATUS

Paul W. Mercer, Redmond, and Howard P. Stock, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 27, 1977, Ser. No. 864,814
Int. Cl.³ B32B *31/16;* B65B *13/32*
U.S. Cl. 156—73.1 **57 Claims**



1. A method of circumferentially applying strapping tape, bondable by heat and pressure when overlapped, around an article comprising the steps of:
guiding at least one tape convolution around said article and a backup foot such that said convolution includes a region of tape overlap located adjacent to said backup foot;
tightening said at least one tape convolution about said article and said backup foot;
moving said backup foot towards the tip of an ultrasonic transducer;
ultrasonically and transversely vibrating the tip of said ultrasonic transducer against said tape overlap region so as to heat said tape overlap region;
simultaneously with said step of ultrasonically vibrating said tape, pressing with said backup foot said tape overlap region against the tip of said ultrasonic transducer so as to bond together the layers of tape in said tape overlap region;
cutting the bonded tape convolution free in a region immediately adjacent to said bond; and,
removing the backup foot from the bonded tape convolution.

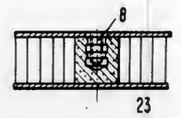
10. Apparatus for circumferentially applying strapping tape as claimed in claim 9 including tape supply means for supplying tape to said wrapping means, said tape supply means containing tape of indeterminate length.

4,265,688

METHOD FOR PRODUCING SANDWICH TYPE STRUCTURAL COMPONENTS

Ekkehard Gorski, Buchholz, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Jul. 28, 1978, Ser. No. 928,877
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1977, 2736132
Int. Cl.³ B32B *31/16, 3/12*
U.S. Cl. 156—73.1 **5 Claims**



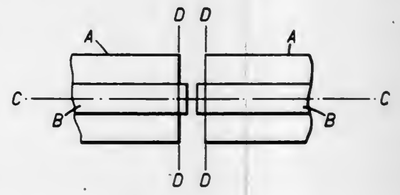
1. A method for manufacturing a sandwich type structural component, comprising the following steps:
(a) providing a prefabricated honeycomb core having open pockets therein,
(b) bonding a first cover layer to one surface of the honeycomb core,
(c) introducing a thermoplastic prepolymer including a foaming agent into said pockets at least at one predetermined location of the structural component, said thermoplastic prepolymer being capable of reacting with said foaming agent to become a thermoplastic foam type material,
(d) bonding a second cover layer to the opposite surface of the honeycomb structure,
(e) applying ultrasonic energy to said at least one location to melt said thermoplastic foam type material and to sufficiently soften one cover layer for the insertion of a connecting means directly through the cover layer without predrilling, and
(f) inserting said connecting means directly into the still soft location.

4,265,689

METHODS OF JOINING GLASS OBJECTS

Cyril Jeffrey, Beaconsfield, England, assignor to Plessey Handel und Investments AG, Zug, Switzerland

Filed Apr. 13, 1979, Ser. No. 29,880
Claims priority, application United Kingdom, Apr. 15, 1978, 14870/78
Int. Cl.³ B32B *31/16;* C03B *23/20, 37/10;* G02B *5/14*
U.S. Cl. 156—73.2 **5 Claims**



1. A method of joining glass objects comprising arranging said glass objects in abutting relationship, applying pressure to said glass objects, to urge them together and subjecting said glass objects to ultrasonic vibrations such that the abutting portions of said glass objects are heated by friction therebetween to the melting point of the glass whereby said glass objects are fused together on the cessation of said ultrasonic vibrations.

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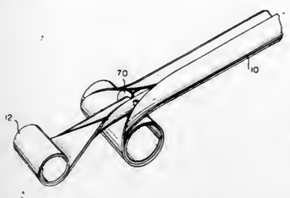
METHOD OF FORMING TRANSMISSION LINES USING TUBULAR EXTENDIBLE STRUCTURES

Herman Lowenhar, 422 Hudson St., New York, N.Y. 10014

Division of Ser. No. 713,289, Aug. 11, 1976, Pat. No. 4,096,459, which is a division of Ser. No. 400,201, Sep. 24, 1973, Pat. No. 3,975,581. This application May 15, 1978, Ser. No. 905,651

Int. Cl.³ H01Q *1/12*; C08J *5/04*

U.S. Cl. 156—161 **13 Claims**



1. The method of producing a web that is furlable when wound flat onto a spool and which will curl longitudinally into a curved tubular shape when unfurled comprising the steps of

forming a web of a composite of a resin having therein a plurality of fibers of two materials each having a selected and different coefficient of thermal expansion to reduce changes in dimension due to temperature variation,

curing to a set state the web of composite material in a curled condition with a desired stress, and winding the web along its length onto a spool.

4,265,691

PROCESS FOR PRODUCING A MULTI-LAYERED GLASS FIBER SHEET

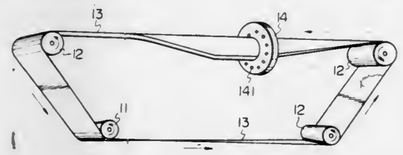
Fumio Usui, 441, Shimofusa, Tama-ku, Kawasaki-shi, Kanagawa-ken, Japan

Filed Oct. 19, 1978, Ser. No. 953,970

Claims priority, application Japan, Mar. 20, 1978, 53-31863

Int. Cl.³ B31C *13/00*

U.S. Cl. 156—172 **10 Claims**



1. A process for continuously producing a multi-layered glass fiber sheet, said process comprising the steps of:

circulating a flat endless belt along a predetermined endless path;

deforming said belt, along a selected section of said path, into a cylindrical shape, thereby forming a cylindrical belt portion;

feeding a first group of glass warps longitudinally along said cylindrical belt portion in a cylindrical pattern surrounding said cylindrical belt portion, thereby forming said first group of glass warps into a cylinder having an axis extending parallel to said warps;

winding at least one group of glass wefts around said cylinder of said first group of glass warps at said cylindrical belt portion at a predetermined helical angle with respect to said cylinder;

feeding a second group of glass warps longitudinally along said cylindrical belt portion in a cylindrical pattern surrounding said cylindrical belt portion, thereby forming a cylindrical product composed of said first and second groups of glass warps and said at least one group of glass wefts; and

cutting said cylindrical product along a line in the longitudinal direction of said cylindrical product, thereby providing a multi-layer glass fiber sheet.

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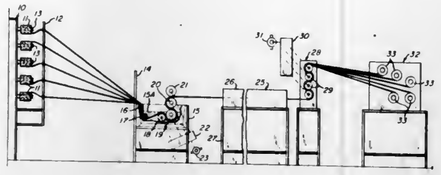
METHOD FOR PRODUCING TEAR TAPE AND SEAL AND TEAR LINE FOR PACKAGING

Arnold F. Stone, Franklin, and William D. Kinnard, Spring Hill, both of Tenn., assignors to CPS Industries, Franklin, Tenn.

Filed Feb. 21, 1979, Ser. No. 13,577

Int. Cl.³ B29C *19/00*; B32B *31/00*; B05C *3/02*; B05D *5/10*

U.S. Cl. 156—180 **10 Claims**



1. A method to produce line or tape for packaging or the like including the steps of:

selecting a fibrous yarn having a desired denier and tensile strength,

passing the selected yarn into a bath of hot-melt adhesive maintained at a desired temperature essentially above the liduidus temperature of the adhesive,

laterally spreading the yarn under a controlled tension within the bath of hot-melt adhesive to cause the adhesive to penetrate and surround the fibrous yarn,

thereafter extruding a coating of adhesive onto yarn in the bath,

passing the adhesive-coated yarn from the bath,

cooling the extruded coating of adhesive on the yarn,

forming the cooled adhesive coating on the yarn into a desired shape, and

coiling the adhesive-coated yarn.

4,265,693

METHOD OF MOLDING TUBULAR LAMINATE

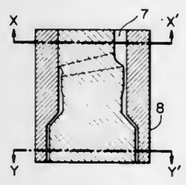
Yoshiharu Nishimoto, and Kengo Yamazaki, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,758

Claims priority, application Japan, Sep. 29, 1978, 53/119077

Int. Cl.³ B29D *23/04*

U.S. Cl. 156—218 **3 Claims**



1. A method of molding a tubular laminate, wherein a plurality of flow of thermoplasticized resin are caused to come together at a joining point to prepare a laminated composite flow having a plurality of layers and two side edges, and said composite flow is passed through an annular extrusion die so that said side edges come to abut within said die, thereby forming an integrated tubular flow, characterized in that at least one layer in said composite flow has a lower viscosity than the other layer(s) and said layer of the lower viscosity is formed into a convex cross sectional shape in the preparation step of said composite flow.

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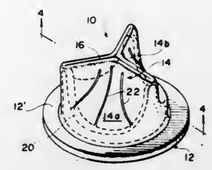
METHOD OF MAKING UNITIZED THREE LEAFLET HEART VALVE

John W. Boretos, Rockville, Md., and Norio Iriguchi, Fuji, Japan, assignors to The United States of America as represented by the Department of Health, Education and Welfare, Washington, D.C.

Division of Ser. No. 969,571, Dec. 14, 1978, Pat. No. 4,222,126. This application Jan. 22, 1980, Ser. No. 114,298

Int. Cl.³ B29C *27/00*

U.S. Cl. 156—242 **9 Claims**



1. A method of producing an artificial heart valve, comprising the steps of:

molding an artificial heart framework, including a base and struts, using polyurethane resin;

forming an elastomeric membrane, of polyurethane resin which is thin relative to said framework, and forming a thickened commissure along the leading edge of said membrane, and forming a plurality of lines, thicker than said membrane, radiating from the base of said membrane;

joining said framework with said elastomeric membrane using an adhesive cement, and permanently bonding said membrane to said framework.

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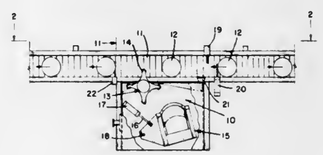
LABELING APPARATUS

Byron H. Hurley, Rte. 1, Box 214-B, Julian, N.C. 27283, and Walter G. Ricks, Rte. 1, Box 108C, Pleasant Garden, N.C. 27313

Filed Jun. 14, 1979, Ser. No. 48,317

Int. Cl.³ B65C *9/02*, *9/10*

U.S. Cl. 156—285 **11 Claims**



1. Labeling apparatus for a continuously moving object comprising: a base, a turnstile mounted of said base, said turnstile freely rotatable from a first label receiving to a second label dispensing position, said turnstile having a label engaging surface, said surface defining a fluid aperture, said turnstile having a cavity positioned aft of said surface and in fluid communication therewith, a fixed center post means, said turnstile rotatable about said post means, said post means including a fluid passageway communicating with the cavity of said turnstile when said turnstile is in the label receiving position, an upper cover member, said upper cover member including a fluid passageway communicating with the cavity of said turnstile when said turnstile is in the label dispensing position, whereby the continuously moving object rotates said turnstile.

4,265,696

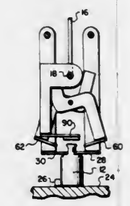
APPARATUS FOR HEAT SEALING

Daniel G. Graves; Vernard L. Graves, both of Duncanville, and Ernest W. Knudsen, Jr., Arlington, all of Tex., assignors to Universal Precision Machining Co., Dallas, Tex.

Filed Sep. 5, 1979, Ser. No. 72,648

Int. Cl.³ B65B *7/14*, *51/14*, *51/16*, *51/30*

U.S. Cl. 156—443 **14 Claims**



1. Apparatus for manually sealing heat sealable material in a manner requiring the use of only one of the two hands of an operator by incorporating a single actuation drive train to sequentially grip, heat and squeeze heat sealable material positioned therein, said apparatus comprising:

at least one actuation handle for manual engagement by an operator and select arcuate motion;

a drive shaft connected to said handle at one end and rotationally responsive to arcuate motion of said handle;

a support frame supporting said drive shaft for rotational movement;

a heat sealing element coupled to said drive shaft for movement in response to rotation of said drive shaft and the heating of material disposed adjacent thereto;

first and second gripping jaws pivotally mounted to said support frame;

first cam linkage secured upon said drive shaft adjacent said gripping jaws for cammed actuation, separation and engagement of said gripping jaws in response to rotation of said drive shaft;

means biasing said gripping jaws against said first cam linkage;

first and second squeezing jaws disposed between said gripping jaws and said heat sealing element and pivotally mounted to said support frame;

second cam linkage secured upon said drive shaft adjacent said squeezing jaws for cammed actuation, separation and engagement of said squeezing jaws in response to rotation of said drive shaft;

means biasing said squeezing jaws adjacent said second cam linkage;

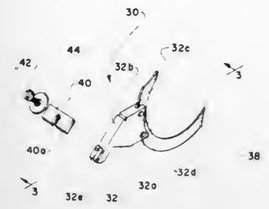
means for supporting said material to be sealed between said support jaws and said gripping jaws; and

said first and second cam linkages being connected to said drive shaft relative to said heat sealing element for sequential actuation of said gripping jaws and said squeezing jaws relative to the rotation of said drive shaft by said handle and the positioning of said heating element relative to said material to be sealed.

4,265,697
SPRING LOADED FREE FLOATING STRIPPER FINGER WITH STABILIZER FOR A WEB CORRUGATING MACHINE

Joseph A. King, 3020 Fields Dr., Raleigh, N.C. 27603

Continuation-in-part of Ser. No. 110,408, Jan. 8, 1980, abandoned. This application Jan. 24, 1980, Ser. No. 114,992
Int. Cl.³ B31F 1/00
U.S. Cl. 156—473 11 Claims

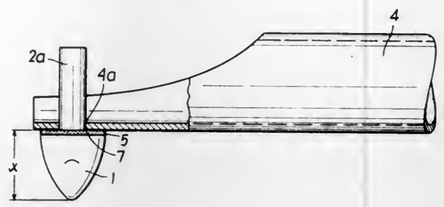


1. In a web corrugating machine including first and second rotating corrugated rollers operatively meshed at a corrugating nip through which a flat web passes to become transformed into a corrugated web as the web moves from a first rotating corrugated roller, through the corrugating nip and onto said second corrugated roller, a pressure roll operatively disposed adjacent said second corrugated roller at a pressure nip through which the corrugated web and another flat web pass and are joined to form single face board, the improvement comprising: a stripper finger holder assembly for positioning and supporting respective stripper fingers between said nips in a generally rigid posture such that each stripper finger extends normal with respect to the axes of said corrugated rollers, said stripper finger holder assembly including: a support bar extending adjacent said corrugated rollers and generally parallel with respect to the axes thereof and including a plurality of laterally spaced vertical cut outs formed therein; a plurality of axially spaced finger holders mounted to said support bar; securing means for securing said finger holder to said support bar; stripper finger means secured to respective finger holders and extending therefrom such that the stripper fingers generally engage the corrugated web passing through the corrugated nip between said first and second corrugated rollers and urge the corrugated web from the first corrugated roller to a path that causes the corrugated web to follow the second corrugated roller and wherein said finger means generally supports the corrugated web about a substantial portion of the second corrugated roller between the corrugated nip and pressure nip; and wherein each finger holder includes an attaching edge that generally lies directly against said support bar when the respective finger holder is attached thereto, and wherein said finger holder further includes upstanding locking member means that projects above the attaching edge of said finger holder for engagement with said support bar at a level above the interface of said attaching edge and said support bar for preventing said finger holder from twisting side to side and to assure that the finger holder and associated stripper finger means is maintained in a rigid posture with the finger means extending in a plane normal to the axes of said first and second corrugated rollers, said upstanding locking member means including an upstanding locking stud that projects upwardly from the attaching edge of said finger holder and wherein said locking stud is adapted to fit and mate within said vertical cut out such that the engagement of said locking stud with said vertical cut out prevents said finger holder from twisting side to side.

4,265,698
PROCESS OF FORMING A SOUND NEEDLE AND SOUND NEEDLE CONSTRUCTION

Gunter Nawrata, Mistelbach, Langendorf, Austria, assignor to AKG Akustische u. Kino-geräte Gesellschaft m.b.H., Austria

Filed Dec. 14, 1979, Ser. No. 103,493
Claims priority, application Austria, Oct. 12, 1979, 6663/79
Int. Cl.³ C23F 1/02
U.S. Cl. 156—630 3 Claims

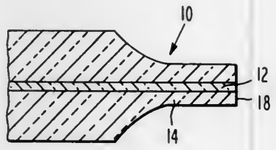


1. A process of forming a sound needle for the scanning of mechanical sound carriers preferably records after a needle has been secured to a holder which has a diameter comparable to the maximum diameter of the needle on a surface thereof opposite to the needle tip and using a carrier having an opening therethrough, comprising reducing the diameter of the holder until it is a fraction of its original diameter, inserting the holder into the opening of the carrier and applying a securing material between the surface of the needle adjacent to and radially outwardly of the holder and between the carrier and the needle so as to secure the needle to the carrier, and reducing at least a major portion of the holder after the needle is secured to the carrier.

4,265,699
ETCHING OF OPTICAL FIBERS

Ivan Ladany, Stockton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 4, 1979, Ser. No. 36,058
Int. Cl.³ B44C 1/22; C03C 15/00, 25/06
U.S. Cl. 156—657 5 Claims

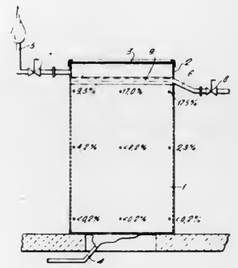


1. A method of etching a single mode optical fiber comprising a fused silica core with a borosilicate glass cladding and having a flat end face whereby a portion of the cladding is removed while leaving the end face flat or slightly concave which consists essentially of etching an end portion of the fiber in a concentrated aqueous hydrofluoric acid solution containing an amount of ammonium fluoride, ammonium bifluoride or mixtures thereof effective for reducing the diameter of the fiber while leaving the end face flat or slightly concave.

4,265,700
METHOD OF SEPARATING A SOLID AND A LIQUID PHASE OF A MASS

Per A. Billgren, Söderfors, and Stig A. Karlsson, Tierp, both of Sweden, assignors to Uddeholms Aktiebolag AB, Hagfors, Sweden

PCT No. PCT /SE78/00029, § 371 Date May 9, 1979, § 102(e) Date May 9, 1979, PCT Pub. No. WO79/00137, PCT Pub. Date Mar. 23, 1979.
This PCT application filed May 9, 1979, Ser. No. 61,292
Claims priority, application Sweden, Sep. 9, 1977, 7710126
Int. Cl.³ B01D 1/00; C22B 1/00, 7/00; F26B 3/00
U.S. Cl. 159—47 R 5 Claims



1. A method of separating a fine-grained close-packed solid material from a liquid with which the fine-grained solid material is saturated, said process comprising:

(a) collecting a mass of said fine-grained solid material saturated with said liquid in a container which is closed to the entry of air while in operation,

(b) heating the mass in the container from underneath to force the liquid in the upper part of said mass upwards through the mass towards the upper surface thereof by evaporating said liquid in an evaporation zone starting in the lower part of the mass,

(c) collecting the liquid at the upper part of the mass and discharging the liquid from the container,

(d) moving the evaporation zone successively upwards in the mass by continued heating of said container from underneath, and

(e) discharging gas obtained above the surface of said mass from the container, and

(f) controlling the heating of (b)

(1) such that the gas pressure Pgas in the lower part of the mass is higher than the hydrostatic pressure exerted by the mass, to satisfy the expression

$$P_{atm}+\rho liquid\cdot g\cdot(h_1+h_2) < P_{gas} < P_{atm}+\rho mass\cdot g\cdot h_2+\rho liquid\cdot g\cdot h_1$$

where ρ indicates density, g indicates gravity acceleration, h_1 indicates the height of liquid collected on the surface of the mass and h_2 indicates the height of the liquid saturated parts of the mass, and

(2) so as to satisfy the expression

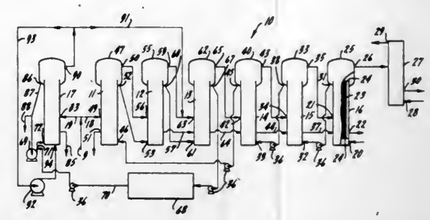
$$dv/dt = A\cdot\alpha\cdot(dp/dy)$$

where
A = horizontal section area
α = permeability
dp/dy = pressure gradient in a vertical direction.

4,265,701
LIQUID CONCENTRATION METHOD

Henry G. Lankenau, Fort Myers, Fla., assignor to Ecodyne Corporation, Lincolnshire, Ill.

Filed Jan. 7, 1980, Ser. No. 110,417
Int. Cl.³ B01D 1/28
U.S. Cl. 159—47 WL 9 Claims



1. The process for increasing the solids content of a liquid-solids mixture by evaporation, comprising:

A. passing said mixture from an entrance end to a discharge end of an concentrator;

B. passing a high temperature fluid through said concentrator in heat transfer relationship with said mixture so as to convert some of the liquid of said mixture to a heated vapor and to concentrate the solids in the remaining liquid;

C. removing said heated vapor from said concentrator;

D. recovering at least some of the removed heated vapor;

E. passing a sufficient amount of the recovered vapor into the entrance end of said concentrator so as to provide a predetermined fluid velocity through said concentrator sufficient to substantially prevent deposit of solids therewithin.

7. The method of preventing solids from depositing on a heat exchange surface of apparatus which increases the solids content of a liquid-solids mixture by evaporating liquid from said mixture thereby providing a vapor as it contacts said surface, comprising feeding a sufficient amount of said vapor into said mixture so as to provide a velocity greater than about 20 feet per second over said surface.

4,265,702
METHOD AND APPARATUS FOR THE TREATMENT OF HEAT-SENSITIVE MATERIALS

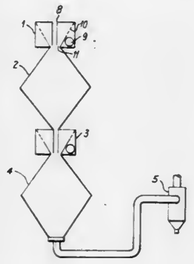
Francois Prudhon, Versailles, and Augustin Scicluna, Aubervilliers, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 921,073, Jun. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 872,151, Jan. 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 770,802, Feb. 22, 1977, abandoned, which is a continuation of Ser. No. 479,774, Jun. 17, 1974, abandoned. This application Mar. 12, 1979, Ser. No. 19,584
Claims priority, application France, Jul. 1, 1977, 77 20287
Int. Cl.³ B01D 1/16
U.S. Cl. 159—48 R 20 Claims

1. A process for the treatment of heat-sensitive materials by the intimate contacting of plural, physically disparate phases, comprising (1) (i) a first thermal flash treatment including establishing a vertically descending current of axially extending, axially symmetrical helical flow of a first gaseous phase, (ii) separately establishing a current of coaxially downwardly vertically extending, rectilinear continuous jet stream of a physically disparate second liquid paste or pulp phase, (iii) maintaining said currents of said first and said second phases physically separate from each other, (iv) circulating and directing said currents which comprise the plural phases to a zone of restricted flow passage with respect to said helical flow, (v) at said zone of restricted flow passage, converging and intimately, homogeneously admixing said plural currents, and

disintegrating into a multitude of substantially equally sized droplets and entraining said rectilinear jet stream within said helical current of gaseous flow, and maintaining at such zone of convergence a momentum of the first phase helical flow of at least 100 times greater than the momentum of the second phase, coaxial rectilinear jet stream, (vi) concurrently establishing a flow defining a layered horizontal stack of a plurality of hyperboloids by means of the trajectory of said helical current of gaseous flow, which, at a point downstream from said zone of restricted flow passage coestablishes a zone of narrower width than said zone of restricted flow passage, and whereby each entrained droplet is subjected to essentially the same historical processing profile; (2) subjecting the product of said first thermal treatment, in a distinct zone downstream therefrom, to a second thermal treatment including exposing same to a temperature less than that of said first thermal treatment, whereby liquid condensation is avoided in said downstream zone; and (3) phase separating the liquid/gaseous product admixture.

9. A phase contactor for the treatment of heat-sensitive materials by the intimate contacting of plural, physically disparate phases, which comprises (1) (i) a first thermal flash treatment zone including a distribution zone, said distribution zone being comprised of means for establishing a vertically descending current of axially extending, axially symmetrical helical flow of a first gaseous phase, means for separately establishing a current of coaxially downwardly vertically extending, rectilinear continuous jet stream of a physically disparate second liquid paste or pulp phase, and means for insuring physical separation from each other of said currents of said first and second phases, (ii) a contact zone, said contact zone being comprised of a zone of restricted flow passage with respect to the means for establishing the helical flow, means for the convergence and intimate homogeneous admixture of the separately supplied disparate phases, means for imparting a momentum to the gaseous first phase helical flow which is at least 100 times greater than the momentum of the second liquid phase, coaxial rectilinear jet stream, means for disintegrating into a multitude of substantially equally sized droplets and entraining said rectilinear jet stream within said helical current of gaseous flow, means for concurrently establishing a flow defining a layered horizontal stack of a plurality of hyperboloids via the trajectory of said helical current of gaseous flow, means for establishing, at a point downstream from said zone of restricted flow passage, a flow zone of narrower width than said zone of restricted flow passage, and whereby means are co-established as to subject each entrained droplet to essentially the same historical processing profile; (2) a second distinct thermal treatment zone, at a point downstream from said first thermal treatment zone, including means for subjecting the product of first thermal treatment to a temperature less than that of said first thermal treatment while avoiding liquid condensation in said second thermal treatment zone; and (3) a phase separation zone, including means for separating liquid/-gaseous product admixture.



4,265,703

METHOD OF PREPARING A FIBROUS STRUCTURE CONTAINING METALLIC FIBERS

Jacques Terliska, Rives, France, assignor to Arjomari-Prioux, Paris, France

Filed May 15, 1979, Ser. No. 39,151
Claims priority, application France, May 17, 1978, 78 14617
Int. Cl.³ D21H 5/18
U.S. Cl. 162—146 **4 Claims**

1. A method for the preparation of a fibrous structure comprising metallic fibers by the use of papermaking techniques, said method comprising the steps of:

(a) preparing agglomerates of metallic fibers and a hydrosoluble binding agent by coating said fibers with said binder by:

(i) subjecting a bundle of metallic fibers to a bath of the hydrosoluble binding agent to produce a coated bundle,

(ii) drying said coated bundle, and

(iii) cutting the coated bundle to produce said agglomerates comprising metallic fibers having a length less than or equal to about 10 mm, wherein said metallic fibers having a mean diameter less than or equal to about 30 microns, and said hydrosoluble binding agent is selected from the group consisting of polyvinyl alcohol and starch;

(b) preparing a homogeneous aqueous dispersion by mixing said agglomerates with non-metallic fibers and water to uniformly disperse said agglomerates into fibers; and

(c) forming a fibrous structure in the form of a sheet by wet papermaking process from said aqueous dispersion.

4,265,704

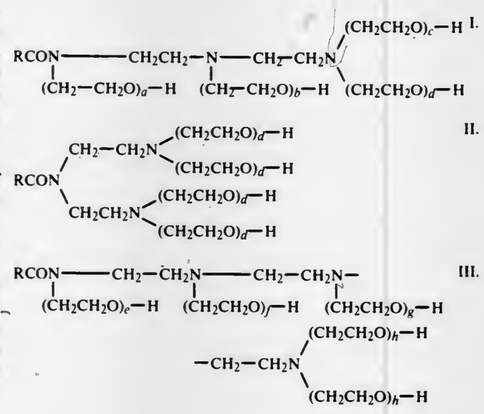
METHOD OF DISPERSING BUNDLES OF GLASS FIBERS FOR MAKING GLASS FIBER MATS BY THE WET-LAID PROCESS

Roop C. Nahta, Charlotte, N.C., assignor to GAF Corporation, New York, N.Y.

Filed Mar. 30, 1979, Ser. No. 25,536
Int. Cl.³ D21H 5/18
U.S. Cl. 162—156 **11 Claims**

1. In the manufacture of uniform glass mats at a high rate of production by the wet-laid process, the improved method which comprises:

forming an aqueous dispersion of glass fibers by mixing bundles of said fibers of about ¼ to 3 inches in length in an aqueous medium at a fiber consistency of about 0.001 to 3% with about 5-500 ppm of a dispersant which is a polyethoxylated derivative of an amide condensation product of fatty acids and polyethylenepolyamines, said product comprises predominately a mixture of the I–IV compounds as defined below:

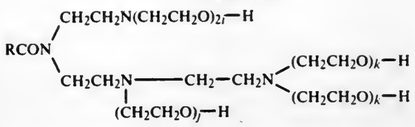


I.

II.

III.

-continued



IV.

wherein a through k are positive integers; a and e can be simultaneously or individually zero; b, f, g and j can be individually, simultaneously or in any combination, zero; b cannot be zero unless a is zero; f and g cannot be zero unless e is zero; $200 \geqq a+b+2c+4d+e+f+g+2h+2i+j+2k \geqq 10$; and R is alkyl, C_8–C_{30},

thereby to substantially disperse said bundles into individual fibers within the aqueous medium, and,

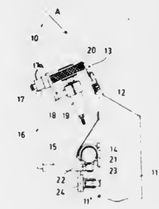
passing said dispersion through a mat-forming screen to form the desired uniform glass fiber mat.

4,265,705

APPARATUS FOR CLEANING DOCTOR BLADES IN PAPER MACHINES

Markku Pyykkönen, Jyväskylä, Finland, assignor to Valmet Oy, Finland

Filed Jun. 12, 1979, Ser. No. 47,868
Claims priority, application Finland, Jun. 16, 1978, 781935
Int. Cl.³ D21F 3/00
U.S. Cl. 162—272 **7 Claims**



1. In a paper making machine, apparatus for cleaning a doctor blade which extends across a roll thereof in the cross-machine direction in operative cleaning relationship therewith, comprising:

frame means mounted in the area of said doctor blade for oscillating movement with respect thereto in a manner such that said frame means can traverse over substantially the entire length of said doctor blade in the cross-machine direction;

drive means coupled to said frame means for causing the latter to oscillate in the cross-machine direction; and

means for cleaning the doctor blade carried by said frame means, said doctor blade cleaning means being adapted to come into cleaning contact with said doctor blade upon said frame means being caused to oscillate through the actuation of said drive means, said cleaning means comprising a rotatable, disc-shaped brush movably mounted with respect to said frame means; and

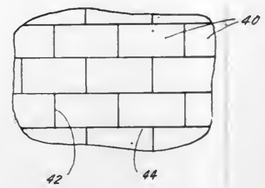
motor means attached to said frame means for rotating said brush with respect to said frame means as the latter undergoes oscillating movement, whereby impurities deposited on said doctor blade can be removed therefrom during operation of said paper making machine.

4,265,706

DRAINAGE DEVICE WITH BONDED WEAR SURFACE AND METHOD OF FABRICATION

William M. Fulton, Wellesley, Mass., assignor to Albany International Corp., Menands, N.Y.

Filed Nov. 2, 1978, Ser. No. 957,134
Int. Cl.³ D21F 7/00
U.S. Cl. 162—352 **4 Claims**



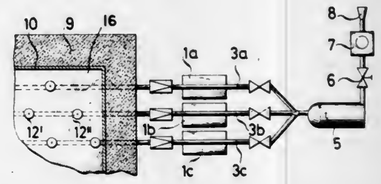
1. A drainage device adopted to be mounted on a papermaking machine under a moving web and positioned to support the web and to engage the undersurface of the web as it passes thereover to extract fluid downwardly from the web, the drainage device comprising; a main body portion, a multiplicity of wear resistant wafers, said main body portion and said wafers having substantially the same coefficient of thermal expansion, a bonding material affixing said wafers on the main body portion with the upper surface of the wafers forming a wear surface and an extraction surface for doctoring fluid from the moving web as it passes over said drainage device, and in which said wafers are rectangular and aligned in a multiplicity of rows.

4,265,707

METHOD AND APPARATUS FOR SEPARATING FISSION AND ACTIVATION PRODUCTS FROM GAS ATMOSPHERES

Klemens Schwarzer, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 965,910
Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2755881
Int. Cl.² G21C 9/00; B01D 57/00
U.S. Cl. 176—37 **7 Claims**



1. A method of separating nuclear fission and activation products from a gaseous atmosphere in which said products are found, said method comprising the step of introducing and dispersing, into said gaseous atmosphere containing said products, at least 1 kg, per 50 m^3 of atmosphere volume of fine dry particles of a substance inert with respect to said atmosphere having an average particle size in the range of from 0.3 to 5 μm.

4. Apparatus for separating nuclear fission and activation products from a gas atmosphere containing said products within the reactor building of a gas-cooled nuclear reactor having outer walls (**9**) of pre-stressed concrete equipped with a liner (**10**), comprising:

a supply hopper container containing fine dry particles of a substance inert with respect to said atmosphere and hav-

ing an average particle size in the range of from 0.3 to 5 μm (1) a pneumatic feed ine (3) and a source of compressed gas (4,5,6,7) for supplying to said atmosphere said fine dry particles pneumatically, said hopper container having a feed outlet (2) opening into said pneumatic feed line (3),

said feed line being connected at its external end to said source of compressed gas (4,5,6,7), and also passing through said concrete wall structure,

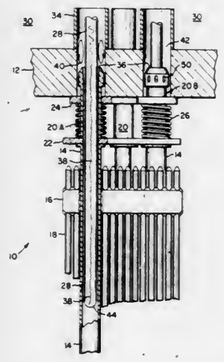
and having at least one dispersion nozzle for said particles connected to said feed line and which is situated in the internal space (11) of said reactor building within said concrete wall structure (9).

4,265,708

RADIALLY CHANNELED GUIDE POST FOR A NUCLEAR FUEL ASSEMBLY

Frederick D. Lawrence, Suffield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 26, 1978, Ser. No. 973,502
Int. Cl.³ G21C *3/30, 7/08*
U.S. Cl. 176—78 **4 Claims**



1. In a nuclear reactor fuel assembly having a control rod guide tube including a guide post at its upper end, the guide post having a uniform inner diameter, the tube and post adapted to receive a reciprocating control rod from above and a coolant flow from below, wherein the improvement comprises the guide post having an upper portion with a flow restriction having a smaller diameter than the remainder of the tube, and wall means defining a plurality of flow relief channels spaced around the circumference of the post, the channels extending in a generally radial direction from inside the tube below the flow restriction to openings on the surface of the guide post.

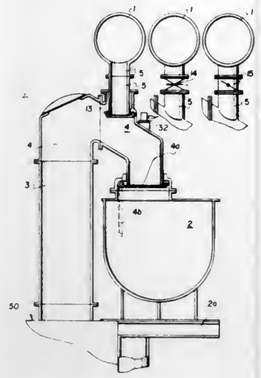
4,265,709

METHOD AND APPARATUS FOR SEPARATING GASES AND SOLIDS DURING THE CARBONIZATION OF COAL

Janos Bocsanczy, Recklinghausen; Ludwig Offermann, Datteln, and Dieter Stalherm, Recklinghausen, all of Fed. Rep. of Germany, assignors to Firma Carl Still, Fed. Rep. of Germany

Filed Feb. 5, 1979, Ser. No. 9,602
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1978, 2804934
Int. Cl.³ C10B *27/04, 27/06*
U.S. Cl. 201—4 **9 Claims**

1. A device for separating gases and solids, particularly coal dust, during the carbonization of coal, particularly predried and preheated fine coal in coke ovens which are arranged in a battery, comprising, a vertically extending standpipe extending upwardly from the top of a battery having a bend at the top thereof extending outwardly and downwardly towards a lower end, a longitudinally extending collecting main connected into the lower end of said bend, a solids discharge line overlying said bend and extending substantially parallel to said collecting main and having a connection extending downwardly into said bend, means for directing a spray of water into the bend over its connection to said collecting main and under said solids discharge line, a shutoff control in said connection,



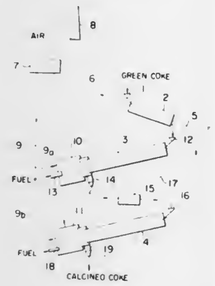
a combustion furnace adjacent the battery, and exhauster means connected between said solids discharge line and said combustion furnace for supplying solid-laden gases to said combustion furnace for a combustion therein whereby said solids discharge line with said laden gases remains substantially dry.

4,265,710

PROCESS FOR CALCINING COKE

Kosaku Noguchi, Tokyo, and Nobuyuki Komi, Mitaka, both of Japan, assignors to Koa Oil Company, Limited, Tokyo, Japan

Filed Jul. 16, 1979, Ser. No. 57,674
Claims priority, application Japan, Mar. 8, 1979, 54-26144
Int. Cl.³ C10B *7/00*
U.S. Cl. 201—27 **10 Claims**



1. A process for calcining green coke, obtained by a delayed coking process, in at least three stages of heating furnaces which are connected in series, the control of the temperature and the adjustment of the atmosphere in each furnace being independently carried out, which process comprises carrying out, in the respective furnaces in the below indicated order, the steps of:

(a) in the first stage, evaporating the water contained in the green coke, drying the resultant coke, and preheating the dried coke to a temperature of 300° to 400° C. by means of a gas having a temperature of 900° to 1,200° C. exiting from the below stated third stage, said gas flowing countercurrently with the green coke in the first stage;

(b) in the second stage, distilling off the volatile matter from the preheated coke, and preliminarily calcining the resultant coke at a temperature of 600° to 1,000° C.; and

(c) in the third stage, burning the volatile matter resulting from the step (b), and calcining the coke at a temperature of 1,200° to 1,500° C. for 10 to 30 minutes,

the coke from the step (b), after being once cooled to a temperature between room temperature and 200° C., being introduced into the step (c).

4,265,711

METHOD OF ENHANCING DISTILLATE YIELD IN A HYDROCARBONACEOUS MATERIAL THERMOCRACKING PROCESS

William K. T. Gleim, 1250 NW. 120th St., Seattle, Wash. 98177

Filed Oct. 23, 1979, Ser. No. 87,505
Int. Cl.³ B01D *3/34;* **C07G** *7/20;* **C10B** *57/18;* **G10K** *3/00*
U.S. Cl. 201—29 **17 Claims**

1. In the destructive distillation of a hydrocarbonaceous distilland to form a vaporous overhead phase which thereafter is condensed to form liquid distillate containing hydrocarbons boiling within the range of from about 190° C. to about 210° C., the improvement which comprises:

(a) introducing maleic anhydride into the vaporous overhead phase in an amount of from about 5% to about 20% by weight based on the amount of distillate obtained, said introduction being effected prior to condensation of the vaporous overhead phase to form said liquid distillate;

(b) recovering from said liquid distillate a fraction boiling within the range of from about 190° C. to about 210° C. containing unreacted maleic anhydride; and,

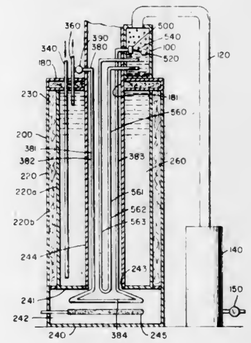
(c) recycling at least a portion of the fraction recovered in step (b) containing unreacted maleic anhydride and introducing same to the vaporous overhead phase of step (a) prior to condensation of said overhead phase to form liquid distillate.

4,265,712

WATER PURIFICATION SYSTEM

Peter J. McLean, 367 Askin Blvd., Windsor, Ontario, Canada (N9B 2X1)

Filed Mar. 9, 1979, Ser. No. 19,176
Int. Cl.³ C02F *1/04*
U.S. Cl. 202—166 **1 Claim**



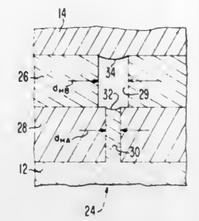
1. The combination with an upright domestic hot water tank having a gas burner adjacent the bottom of said tank for heating water in said tank, of a water container for containing water separate from the water in said tank, means providing a vertical passage extending generally centrally through said tank for the exhaust of gaseous products of combustion of said gas burner, a conduit to carry hot water from said tank to said container, said conduit having a U-shaped portion composed of vertical sections disposed lengthwise within said passage joined at their lower ends by a connecting portion spaced closely above said gas burner to be heated thereby, a valve for said conduit, a collection receptacle for condensed water, and a duct leading from said container to convey water vapor formed in said container to said receptacle.

4,265,713

METHOD AND APPARATUS FOR DISTILLATION

Dah Y. Cheng, Los Altos Hills, Calif., assignor to International Power Technology, Inc., Sunnyvale, Calif.

Filed Feb. 14, 1979, Ser. No. 12,047
Int. Cl.³ B01D *3/00, 13/00*
U.S. Cl. 203—10 **7 Claims**



1. A method of thermal membrane distillation for distilling aqueous solutions comprising:

providing a thin porous hydrophobic layer separating an aqueous solution from fresh water;

providing a sufficient temperature gradient across a porous hydrophobic layer so that liquid water evaporates on the aqueous solution side of the pores of the hydrophobic layer and condenses as pure water on the pure water side of the pores of the hydrophobic layer; and

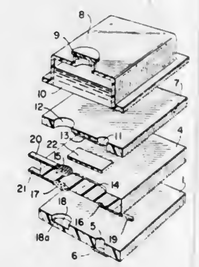
providing a hydrophilic layer on the aqueous solution side of the hydrophobic layer for preventing aqueous liquid intrusion within the pores of the hydrophobic layer.

4,265,714

GAS SENSING AND MEASURING DEVICE AND PROCESS USING CATALYTIC GRAPHITE SENSING ELECTRODE

Mary E. Nolan, Topsfield; John A. Kosek, Danvers, and Anthony B. La Conti, Lynnfield, all of Mass., assignors to General Electric Company, Wilmington, Mass.

Filed Mar. 24, 1980, Ser. No. 133,163
Int. Cl.³ G01N *27/52*
U.S. Cl. 204—1 T **41 Claims**



1. In an electrochemical gas-sensing device of the type having a hydrated, solid polymer electrolyte ion transporting membrane, catalytic sensing and reference electrodes positioned on one side of the membrane and a counter electrode positioned on the opposite side of the membrane, said electrodes being bonded to the ion transporting membrane, means for exposing the sensing electrode to a gas to be sensed and means for measuring a current which flows between the sens-

ing and counter electrodes while a voltage applied to the sensing electrode is maintained constant, the improvement being a sensing electrode comprising graphite bonded to the solid polymer electrolyte ion transporting membrane.

24. A method for the electrochemical detection of a gas comprising:

(a) passing a gaseous sample containing the gas to a catalytic graphite sensing electrode in an electrochemical gas-sensing cell having a hydrated, solid polymer electrolyte ion transporting membrane, the catalytic sensing electrode and a reference electrode positioned on one side of the membrane and a counter electrode positioned on the opposite side of the membrane, said electrodes being bonded to the ion transporting membrane;

(b) maintaining the catalytic graphite sensing electrode at a constant applied voltage; and

(c) detecting current flow between the catalytic graphite sensing electrode and the counter electrode.

4,265,715

SILVER ELECTRODEPOSITION PROCESS

Donald R. Rosegren, DuMont; Noreen C. Johnson (Bulsiewicz), Maywood, both of N.J., and Peter Stevens, Hacienda Heights, Calif., assignors to Oxy Metal Industries Corporation, Warren, Mich.

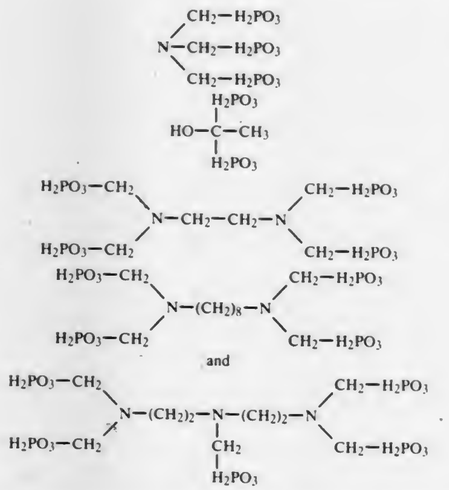
Filed Jul. 13, 1979, Ser. No. 57,471
Int. Cl.³ C25D *3/46*
U.S. Cl. 204—46 R **5 Claims**

1. A method for the electrodeposition of metallic silver which comprises the step of electrolizing an electroplating bath, which bath consists essentially of an aqueous solution of a composition consisting essentially of a mixture of:

(a) a soluble silver compound;

(b) a non-cyanide electrolyte; and

(c) An amount of an organic phosphonate compound effective to produce a smooth, adherent silver deposit, which compound is selected from among the group consisting of:



and

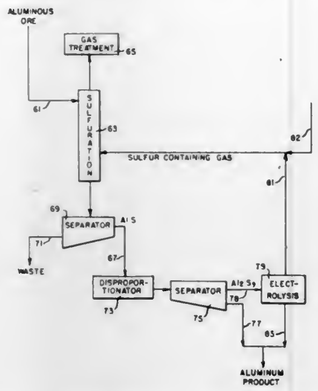
which aqueous solution has a pH above 7 and is at a temperature at which the bath produces galvanic deposits and wherein the electrolysis of said electroplating bath is carried out at a current density of at least 800 amperes/square foot to form a smooth adherent silver deposit.

4,265,716

METHOD OF WINNING ALUMINUM METAL FROM ALUMINOUS ORE

Raouf O. Loutfy; Rudolf Keller, both of Naperville, and Neng-Ping Yao, Clarendon Hills, all of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 14, 1979, Ser. No. 48,332
Int. Cl.³ C22B *21/02*; C25C *3/06*
U.S. Cl. 204—67 **10 Claims**



1. A method of winning aluminum metal from aluminous ore containing alumina comprising:

contacting said ore with a sulfur-containing gas and with carbon at a temperature of 1500–1600 K to produce aluminum monosulfide liquid and carbon monoxide gas;

separating in a solid-liquid type separation said aluminum monosulfide from a solid phase containing impurities and residual reactants;

cooling said aluminum monosulfide to a temperature of 1100–1370 K to cause it to disproportionate to aluminum sulfide and molten aluminum metal;

electrolytically decomposing said aluminum sulfide to molten aluminum metal and sulfur gas; and

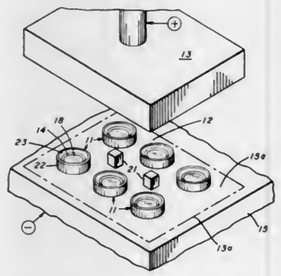
separating said molten aluminum metal as product.

4,265,717

METHOD AND APPARATUS FOR PROTECTING ELECTRODES FROM THERMAL SHOCK DURING START UP

Raymond D. Wiltzius, East Wenatchee, Wash., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Nov. 8, 1979, Ser. No. 92,441
Int. Cl.³ C25C *3/06, 3/08*
U.S. Cl. 204—67 **32 Claims**



1. A method for starting up an electrolytic cell operated at

an elevated temperature and comprising an anode and a cathode spaced from the anode, said cathode including at least one hollow body defining a cavity open at a distal end closest the anode and closed at a proximal end opposed to the distal end, said method comprising the steps of

inserting into the cavity a heat conductor means comprising a metal plug having a melting point less than the melting point of aluminum, and

heating the cell to its operating temperature.

4,265,718

METHOD FOR PRODUCING HYDROXYLATED NICKEL COMPOUNDS

Armand Limare, Rambouillet, and Francois Maillot, Versailles, both of France, assignors to Societe Metallurgique le Nickel S. L. N., Paris, France

Filed Jan. 9, 1980, Ser. No. 110,683
Claims priority, application France, Jan. 9, 1979, 79 00380
Int. Cl.³ C25B *1/00*
U.S. Cl. 204—96 **15 Claims**

1. A method for producing hydroxylated nickel compounds from a solution of nickelous ions comprising the steps of:

(a) electrolyzing a solution of nickelous ions while maintaining the catholyte at a pH of from about 1 to 6 and at a temperature of less than about 50° C., whereby a precipitate is formed in the solution; and

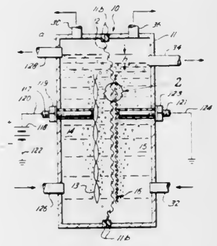
(b) recovering the precipitate from the solution.

4,265,719

ELECTROLYSIS OF AQUEOUS SOLUTIONS OF ALKALI-METAL HALIDES EMPLOYING A FLEXIBLE POLYMERIC HYDRAULICALLY-IMPERMEABLE MEMBRANE DISPOSED AGAINST A ROUGHENED SURFACE CATHODE

Bobby R. Ezzell, Lake Jackson; Jacquelyn M. Malone, Houston, and Marius W. Sorenson, Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 26, 1980, Ser. No. 134,244
Int. Cl.³ C25B *1/34, 9/00, 11/03*
U.S. Cl. 204—98 **17 Claims**



17. In the method of operating an electrolysis cell in which there is a catholyte compartment containing a vertical foraminous cathode and a volume of catholyte, in which there is an anolyte compartment containing a vertical anode and a volume of anolyte, in which there is a non-rigid, polymeric plastic, substantially hydraullically impermeable ion exchange membrane film separating the anolyte and catholyte compartments and being disposed between the anode and cathode which themselves are spaced from one another, the improvement which comprises:

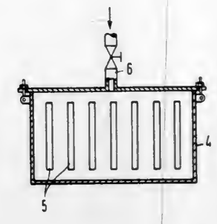
maintaining a higher pressure in the anolyte chamber than in the catholyte chamber so that the membrane is pushed toward the cathode, the surface of said cathode which faces the membrane in addition to being foraminous having protuberances and indentations on and in it so as to present a non-flat surface to the membrane.

4,265,720

STORAGE MATERIAL FOR HYDROGEN

Guenter Winstel, Ottobrunn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,590
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855413
Int. Cl.³ C25B *1/02, 9/00*
U.S. Cl. 204—129 **18 Claims**



6. A method of storing hydrogen in a material which absorbs atomic hydrogen, comprising:

providing a fluidic hydrogen-containing medium in a confined space;

positioning a storage body comprised of a silicon material in contact with said medium; and

generating atomic hydrogen from said medium by passing electrical energy through said medium whereby atomic hydrogen is generated and contacts said storage body and is absorbed therein for storage.

4,265,721

COMMERCIAL HYDROGEN GAS PRODUCTION BY ELECTROLYSIS OF WATER WHILE BEING SUBJECTED TO MICROWAVE ENERGY

Saul A. Hackmyer, 2335 N.E. 172nd St., North Miami Beach, Fla. 33160

Filed May 5, 1980, Ser. No. 147,060
Int. Cl.³ C25B *1/04*
U.S. Cl. 204—129 **2 Claims**

1. The method of commercially producing hydrogen and oxygen gases electrolytically from an aqueous electrolyte which comprises, placing an electrolytic cell within a resonant chamber, then feeding resonating microwave energy to said resonant chamber for subjecting the molecules of the electrolyte to vibration at the microwave energy frequency, and then collecting the hydrogen and oxygen gasses released at the two poles of the electrolytic cell.

4,265,722

METHOD OF PROCESSING THE SURFACE OF WORKPIECES INCLUDING PARTICULARLY THE ETCHING OF SURFACES CONTAINING COPPER OR COPPER ALLOYS

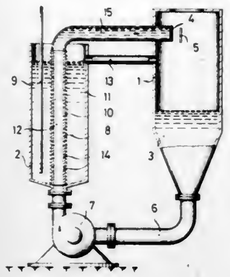
Wolfgang Faul; Leander Fürst, both of Jülich, and Bertel Kastening, Hamburg, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschrankter Haftung, Jülich, Fed. Rep. of Germany

Filed Nov. 20, 1979, Ser. No. 96,137
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850542
Int. Cl.³ C25F *3/14, 5/00*
U.S. Cl. 204—129.6 **6 Claims**

1. A method of electrochemically processing metallic surfaces of workpieces including particularly etching of copper and copper alloy, in an electrolysis cell having an anode in a compartment thereof and a cathode comprising in combination the steps of:

providing in said electrolysis cell an acidic solution contain-

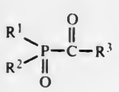
ing ferric sulfate as an oxidizing agent at a concentration of maximally 140 g Fe/l etching solution, and also containing at least 10 g Cu/l etching solution;
maintaining said solution free of chloride ions and at a current density of at least $2A/dm^2$ in said electrolysis cell;
processing a workpiece by etching a metal surface with said solution so that copper is removed therefrom, resulting in a used etching solution;



passing said used etching solution through said electrolysis cell again to regenerate used etching solution including the oxidizing agent thereof; and
depositing copper on said cathode of said electrolysis cell, suspending in said etching solution electrically conductive carbon particles added for transfer of electrical charge onto a pertaining surface to be processed for the purpose of regeneration of said used etching solution; and periodically charging suspended carbon particles at said anode of said electrolysis cell.

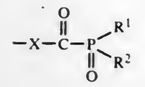
4,265,723
PHOTOCURABLE MOLDING, IMPREGNATING AND COATING COMPOSITIONS
Anton Hesse, Luetzelsachsen; Peter Lechtken, Frankenthal; Walter Nicolaus, Ludwigshafen, and Dankmar Scholz, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Jul. 6, 1979, Ser. No. 55,359
Int. Cl.³ C08F *2/50*
U.S. Cl. 204—159.23 **7 Claims**

1. A photocurable molding, impregnating and coating composition comprising a mixture of
(a) or more ethylenically unsaturated polyesters or vinyl ester resins having the characteristic group $-CO-OCH_2CHOH-CH_2O-$,
(b) one or more ethylenically unsaturated copolymerizable monomeric compounds,
(c) an inhibitor and
(d) an UV sensitizer,
with or without
(e) paraffins, thermally decomposable initiators, fillers, reinforcing agents, lubricants, inert solvents, shrinkage-reducing additives and other assistants usable in unsaturated polyesters,
wherein the UV sensitizer consists of one or more acylphosphine oxide compounds of the formula



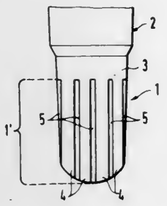
(I)

where R^1 is straight-chain or branched alkyl of 1 to 6 carbon atoms, cyclohexyl, cyclopentyl, aryl which is unsubstituted or substituted by halogen, alkyl or alkoxy, or a S-containing or N-containing five-membered or six-membered heterocyclic radical, R^2 has one of the meanings of R^1 (but R^1 and R^2 may be identical or different), or is alkoxy of 1 to 6 carbon atoms, aryloxy or aralkoxy, or R^1 or R^2 together stand for an o-phenylene-dioxy group, and R^3 is a substituted or unsubstituted straight-chain or branched alkyl of 2 to 18 carbon atoms, a cycloaliphatic radical of 3 to 10 carbon atoms, vinyl, phenyl, naphthyl or a S-, O- or N-containing five-membered or six-membered heterocyclic radical or is the group



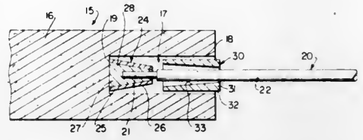
where R^1 and R^2 have the above meanings and X is phenylene or an aliphatic or cycloaliphatic divalent radical of 2 to 6 carbon atoms.

4,265,724
ELECTROCHEMICAL SENSOR, PARTICULARLY OXYGEN SENSOR TO DETERMINE EXHAUST GAS COMPOSITION FROM AUTOMOTIVE INTERNAL COMBUSTION ENGINES
Wolf-Dieter Haecker, Asperg; Karl-Hermann Friese, Leonberg, and Bernhard Topp, Gerlingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Jul. 5, 1979, Ser. No. 54,784
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830778
Int. Cl.³ G01N *27/58*
U.S. Cl. 204—195 S **6 Claims**



1. Electrochemical sensor, particularly to determine oxygen content in the exhaust gases from automotive internal combustion engines comprising
a solid electrolyte body (**1**) having a sensing portion (**1'**);
a thin-film electrode (**3**, **3'**) on said electrolyte body of a material which catalyzes the gas equilibrium of gases to which the sensor is exposed;
and a porous cover layer (**6**)
wherein, in accordance with the invention,
the thin-film electrode (**3**, **4**) consists of a material consisting of at least one: platinum; platinum alloy; platinum-rhodium and is located on and in direct contact with the solid electrolyte body (**1**) in form of partial, spacially interrupted and electrically interconnected covering portions thereon, leaving gaps (**3**) between the direct contact of said covering portions of thin-film electrode and on the solid electrolyte body (**1**); and
the porous cover layer (**6**) comprises at leasat one: a ceramic oxide; a mixture of several ceramic oxides and covers the entire sensing portion including the thin-film electrode material, and the solid electrolyte body in the region of the gaps (**5**) between the electrodes, to provide for direct contact of the porous cover layer (**6**) with the solid electrolyte body (**1**).

4,265,725
ANODE CONNECTION
Joe F. Tatum, Hattiesburg, Miss., assignor to C. E. Equipment Co., Inc., Hattiesburg, Miss.
Filed Jul. 20, 1979, Ser. No. 59,348
Int. Cl.³ C23F *13/00*; H01R *43/00*
U.S. Cl. 204—196 **6 Claims**

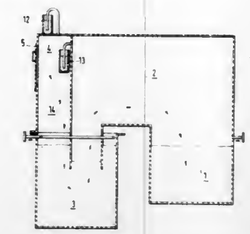


1. The combination of an anode and a connector for securing an electrical conductor to such anode comprising an elongated anode having a generally cylindrical bore therein of predetermined diameter, a connector for securing an electrical conductor within said bore including a first member of electrically conductive material carried within said bore of said anode, the outer wall of said first member being generally frusto-conical and having a major diameter which is less than said predetermined diameter of said bore of said anode, a second member of electrically conductive material carried within said bore and disposed around said outer wall of said first member of said connector, said second member having a generally cylindrical outer wall of a diameter less than said predetermined diameter of said bore of said anode and a generally frusto-conical inner wall, said frusto-conical inner wall of said second member having substantially the same angle of taper as the frusto-conical outer wall of said first member, said frusto-conical inner wall of said second member being in generally axially aligned relationship with the frusto-conical wall of said first member, means for connecting the electrical conductor to one of said first and second members, and said frusto-conical wall of said first member being engaged with said frusto-conical wall of said second member and causing said outer wall of said second member to expand into intimate engagement with the wall of the bore of the anode to form a low resistance electrical connection between the conductor and the anode.

5. The method of connecting an electrical conductor to an anode of a cathodic protection system comprising the steps of forming a bore in the body of said anode, electrically connecting said conductor to an electrically conductive male member having a generally frusto-conical outer wall, placing said male member within said bore, forcing a hollow electrically conductive female member having a generally frusto-conical inner wall and a generally cylindrical outer wall onto said frusto-conical outer wall of said male member to cause said female member to expand until said generally cylindrical wall of said female member intimately engages the wall of said bore and forms a low resistance connection therewith.

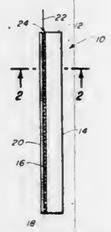
4,265,726
ALUMINUM PLATING CELL
Gunther Herrnring, Alvesloe, and Klaus P. Nussen, Hamburg, both of Fed. Rep. of Germany, assignors to Montblanc-Simplo GmbH, Hamburg, Fed. Rep. of Germany
Filed Jan. 7, 1980, Ser. No. 110,106
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1979, 2901586
Int. Cl.³ C25D *17/28, 21/00*; C25C *1/02, 3/06*
U.S. Cl. 204—202 **6 Claims**

1. An aluminum electroplating cell of the type comprising an electroplating vessel adapted to contain liquid electrolyte up to an electrolyte level and lock means through which workpieces pass in moving into and out of said vessel and by which electrolyte in said vessel is substantially shielded from oxygen and moisture, said electroplating cell being characterized by:
A. said lock means comprising
(1) a liquid lock chamber that is spaced from said vessel and adapted to hold aprotic solvent up to a predetermined level,
(2) means defining an inverted-U-shaped passage which
(a) at one of its ends opens to said liquid lock chamber at a level below said predetermined level and
(b) at its other end opens to said vessel at a level about said electrolyte level, and



(3) means for maintaining inert gas in said passage at an above-atmospheric pressure; and
B. means defining an antechamber that has a sealable door and which can be charged with inert gas at an above atmospheric pressure, said antechamber opening downwardly to said liquid lock chamber to be communicated therewith at a level above said predetermined level.

4,265,727
COMPOSITE ELECTRODES
Don A. Beckley, Newport Beach, Calif., assignor to Hitco, Irvine, Calif.
Filed Oct. 22, 1979, Ser. No. 87,206
Int. Cl.³ C25B *9/00, 11/12, 11/02*
U.S. Cl. 204—242 **20 Claims**



16. An electrolytic cell comprising in combination:
walls defining a housing having a compartment for receiving a body of electrolyte,
an anode electrode within the housing having a front face in a communication with the compartment and having a rear face,
a cathode electrode within the housing having a front face in a communication with the compartment and having a rear face,
contact means for connection to the rear faces of said electrodes, and
at least one of said electrodes comprising a composite of a uniform dispersion of randomly distributed graphite fibers having a diameter from 1 to 30 micron and a length no more than ½ the thickness of the electrode dispersed in a cured, oxidation and chemical resistant, continuous, matrix resin containing a dispersion of fine, particulate conductive filler having a diameter less than the diameter of the fibers and selected from carbon or graphite.

4,265,728

METHOD AND ELECTRODE WITH MANGANESE DIOXIDE COATING

Mary R. Suchanski, and Jeries I. Bishara, both of Mentor, Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Nov. 3, 1978, Ser. No. 957,474

The portion of the term of this patent subsequent to Jun. 7, 1994, has been disclaimed.

Int. Cl.[1] **C25B** *11/16;* **B05D** *5/12*

U.S. Cl. 204—290 F **10 Claims**

1. A method for manufacture of an electrode for use in an electrolytic cell comprising the steps of: selecting a valve metal substrate from the group consisting of aluminum, molybdenum, niobium, tantalum, titanium, tungsten, zirconium or alloys thereof; applying to at least a portion of the surface area of the valve metal substrate a semi-conductive intermediate coating of thermally decomposable compounds of tin and antimony containing 0.1 to 30 weight percent antimony, drying the semi-conductive intermediate coating; baking the semi-conductive intermediate coating in an oxidizing atmosphere at an elevated temperature to transform the tin and antimony compounds to their respective oxides; and applying to the surface of the semi-conductive intermediate coating a coating of thermally decomposable compounds of manganese, drying the top coating and baking the top coating in an oxidizing atmosphere at a temperature in the range of 380° to 420° C. to its oxide form.

10. An electrode for use in an electrolytic cell comprising: a solid titanium substrate; on at least a portion of the surface of said substrate, a semiconductive intermediate coating consisting of oxides of tin and antimony containing 0.1 to 30 weight percent antimony, in an amount greater than 2 grams per square meter of said substrate surface area; and on the surface of said semiconductive intermediate coating, an electrocatalytically active top coating consisting of an oxide of manganese electroplated thereon and converted to beta MnO_2 structure by baking in an oxidizing atmosphere having a temperature in the range of 380° to 420° C. to attain an amount greater than 300 grams per square meter.

4,265,729

MAGNETICALLY ENHANCED SPUTTERING DEVICE

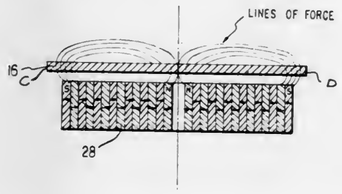
Charles F. Morrison, Jr., Boulder, Colo., assignor to Vac-Tec Systems, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 946,370, Sep. 27, 1978, Pat. No. 4,180,450, which is a continuation-in-part of Ser. No. 935,358, Aug. 21, 1978, Pat. No. 4,162,954. This application Mar. 9, 1979, Ser. No. 19,284

The portion of the term of this patent subsequent to Jul. 31, 1996, has been disclaimed.

Int. Cl.[1] **C23C** *15/00*

U.S. Cl. 204—298 **78 Claims**



1. A magnetically enhanced sputtering device comprising:
a cathode, at least a portion of which is provided with a planar sputtering surface;
an anode spaced from said cathode for establishing a discharge current therebetween; and
permanent magnet means for establishing a closed loop magnetic field where at least some of the lines of force of the field extend parallel to and over said planar sputtering surface, said permanent magnet means further establishing a closed plasma loop path over said planar sputtering surface thereby providing a Hall effect current which circulates around the closed plasma loop path, said permanent magnet means including means for causing the magnitude of the circulating current to be at least approximately five times as great as that of said discharge current.

4,265,730

SURFACE TREATING APPARATUS UTILIZING PLASMA GENERATED BY MICROWAVE DISCHARGE

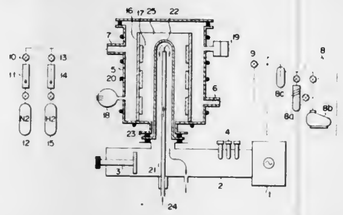
Masahiko Hirose, and Yoshimi Akai, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki K.K., Kawasaki, Japan

Filed Mar. 27, 1980, Ser. No. 134,502

Claims priority, application Japan, Mar. 30, 1979, 54/38215

Int. Cl.[1] **C23C** *15/00;* **B01J** *19/00*

U.S. Cl. 204—298 **10 Claims**



1. An apparatus for treating the surface of a material within a gas plasma generated by microwave discharge, comprising:
a microwave generator;
a waveguide for transmitting the microwaves generated from the microwave generator;
a closed vessel adapted to house at least one workpiece to be treated;
means for introducing a gas into the closed vessel;
means for withdrawing the gas from the closed vessel;
an antenna means inserted at least partially into the closed vessel, said antenna means serving to pick up the microwave from the waveguide and to deliver said microwave into the closed vessel for producing a gas plasma; and
a cylindrical body formed of a microwave-transmitting material, mounted to the closed vessel in an air-tight fashion, and surrounding the antenna means at the portion inserted into the closed vessel.

4,265,731

SEPARATION AND PROCESSING OF CRUDE OIL

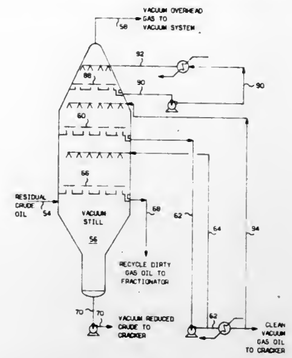
Norris W. Mitchell, Sweeny, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 8, 1980, Ser. No. 110,304

Int. Cl.[1] **B01D** *3/10;* **C10G** *51/06, 67/00*

U.S. Cl. 208—80 **50 Claims**

1. A method for separating a residual crude oil into a light oil fraction and a heavy oil fraction, comprising:
(a) separating said residual crude oil into a first light oil fraction and a first heavy oil fraction in a first separation step;
(b) separating said first heavy oil fraction into a second light oil fraction, an intermediate oil fraction and a second heavy oil fraction in a second separation step; and



(c) recycling said intermediate oil fraction to said first separation step (a).

4,265,732

PROCESS AND APPARATUS FOR ENDOTHERMIC REACTIONS

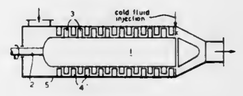
Mircea Dinulescu, Gouda, Netherlands, assignor to Kinetics Technology Intl. B.V., Zoetermeer, Netherlands

Filed Jul. 3, 1978, Ser. No. 922,168

Claims priority, application United Kingdom, Jul. 5, 1977, 28049/77

Int. Cl.[3] **C10G** *9/00, 15/00*

U.S. Cl. 208—106 **11 Claims**



1. A process for cracking hydrocarbons which comprises passing a preheated gaseous phase containing hydrocarbons into an axial type reactor having internal rotating blades, utilizing mechanical energy in the form of work performed by said rotating blades on said gaseous phase to provide heat for cracking said hydrocarbons, followed by rapidly cooling said gaseous phase containing cracked hydrocarbons.

4,265,733

DE-ASHING LUBRICATING OILS

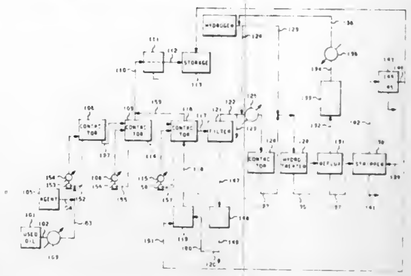
Donald C. Tabler, and Bobby G. Gray, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 1, 1979, Ser. No. 90,183

Int. Cl.[3] **C10M** *11/00*

U.S. Cl. 208—179 **8 Claims**

1. In a process for reducing the concentration of ash-forming components in a used lubricating oil wherein a feedstream comprising said lubricating oil and an aqueous ammonium salt treating agent is continuously passed into a first reaction zone wherein said treating agent reacts with ash-forming components in said oil and an effluent is continuously withdrawn from said first reaction zone and subjected to filtration after removal of water therefrom, the improvement comprising introducing said feedstream into said first reaction zone by



passing said feedstream through a centrifugal pump along with portions of the contents of said first reaction zone.

4,265,734

METHOD FOR REGENERATION OF USED LUBRICANT OILS

Lech G. Wielezynski, "Le Bocage", St. Pierre es Champs 60850 St. Germer de Fly, France

Filed Nov. 1, 1979, Ser. No. 90,465

Int. Cl.[3] **C10M** *11/00*

U.S. Cl. 208—180 **7 Claims**

1. A process for regenerating polluted lubricating oil comprising:
charging a reservoir with propane;
injecting polluted lubricating oil into the propane in said reservoir to intimately contact the oil with the propane;
holding the charged propane and injected oil in said reservoir for a time sufficient to permit the oil to dissolve into said propane to form an oil-propane mixture and to permit propane-insoluble impurities to precipitate in said reservoir;
after elapse of said sufficient time, withdrawing said oil-propane mixture from said reservoir, and delivering it into a purifying column;
introducing propane into said purifying column in countercurrent flow to said oil-propane mixture to further purify the oil in said mixture;
flowing said oil-propane mixture out of said column and through separating means to separate the propane from the oil by addition of heat;
recovering the separated oil;
recycling the separated propane to said column and to said reservoir; and
removing said propane-insoluble precipitated impurities from said reservoir.

4,265,735

ZSM-5 ZEOLITE CATALYZES DIALKYL DISULFIDE CONVERSION TO HYDROGEN SULFIDE

Costandi A. Audeh; Clarence D. Chang, both of Princeton, and William H. Lang, Pennington, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 21, 1979, Ser. No. 106,320
Int. Cl.³ C07C *19/00*
U.S. Cl. 208—234 **11 Claims**

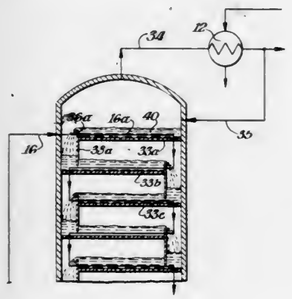
1. A method for disposing of a liquid stream consisting of a mixture of dialkyl disulfides wherein the alkyl groups individually have from one to about four carbon atoms, which method comprises contacting said stream under a combination of conditions that include a temperature of about 600° F. (305° C.) to about 1000° F. (538° C.), a liquid hourly space velocity of about 0.2 LHSV to about 20 LHSV, and a pressure of about 15 psig to 300 psig, with a crystalline zeolite catalyst having a silica to alumina ratio of at least 12 and a Constraint Index of 1 to 12, said combination of conditions being effective to convert said dialkyl disulfides to hydrogen sulfide and a mixture of hydrocarbons.

4,265,736

PROCESS AND APPARATUS FOR REDUCING THE ENERGY REQUIRED TO SEPARATE LIQUIDS BY DISTILLATION

Victor R. Thayer, 1251 Corner Ketch Rd., Newark, Del. 19711

Continuation-in-part of Ser. No. 960,577, Nov. 14, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,990
Int. Cl.³ B01D *3/00*; C10G *7/00*
U.S. Cl. 208—353 **3 Claims**



1. A method for reducing the amount of heat required to separate components of a liquid petroleum feed mixture, said components having different boiling points, in continuous fractional distillation, comprising preheating a portion of said feed mixture by passing it through heat exchange tubing located on at least a portion of the trays in a fractionating tower and positioned so that, when said tower is in operation, said tubes are covered by liquid in a state of agitation on said trays, said tubes being connected so as to carry said portion of said mixture over said trays downwardly in succession, and then feeding said portion of said feed mixture into said tower, fractionating said feed in said tower, and recovering overhead and bottoms products therefrom.

3. Apparatus for fractional distillation of petroleum comprising:

a fractionating tower having a multiplicity of horizontal trays spaced at suitable vertical intervals within said tower for effecting countercurrent contact between vapor passing upward through the trays and liquid passing downward through the trays,

feed and outlet means for introducing feed mixtures and withdrawing overhead and bottoms products, respectively,

necessary auxiliaries as required for fractional distillation including piping and heater means, and

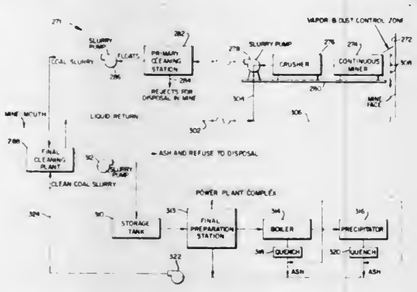
at least one internal heat exchange circuit comprising heat exchange tubing located on at least a portion of said trays within the tower and positioned such that, when the tower is in operation, said tubing is covered by agitated liquid present on the trays, said tubing being serially connected from tray to tray and to said feed means, and associated piping so as to receive and conduct a portion of the feed over said trays in succession downwardly, the tubing thereby providing means for transferring heat between the feed portion flowing within the tubing and the liquid flowing within the tower on the trays outside the tubing, and means for feeding said preheated portion of said feed into said tower for fractionation.

4,265,737

METHODS AND APPARATUS FOR TRANSPORTING AND PROCESSING SOLIDS

Clay D. Smith, and Douglas V. Keller, Jr., both of Lafayette, N.Y., assignors to Otisca Industries, Ltd., Syracuse, N.Y.

Continuation of Ser. No. 929,803, Jul. 31, 1978, abandoned, which is a division of Ser. No. 561,168, Mar. 24, 1975, Pat. No. 4,173,530, which is a continuation-in-part of Ser. No. 423,577, Jan. 14, 1974, abandoned. This application Apr. 23, 1980, Ser. No. 143,160
Int. Cl.³ B03B *5/30, 5/44*
U.S. Cl. 209—3 **9 Claims**



4. A coal handling and processing system which includes: means for forming a liquid slurry of coal to be cleaned, pumping means for effecting a flow of said slurry to a cleaning station, separator means at said cleaning station for effecting a gravity separation of the coal by a heavy liquid, and means for transporting the separated coal in slurry with said heavy liquid to a terminus.

4,265,738

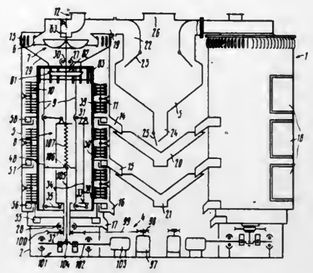
CLEANING AND/OR GRADING MACHINE FOR FREE-FLOWING MATERIALS

Evgeny S. Goncharov, ulitsa Lomonosova, 30/1, kv. 46; Anatoly N. Prilutsky, ulitsa Entuziastov, 29/2, kv. 36, both of Kiev, and Viktor I. Shevchuk, ulitsa Vokzalnaya, 23, kv. 33, Kievskaya oblast, Vasilkovsky raion, poselok Glevakha, all of U.S.S.R.

Filed Oct. 25, 1979, Ser. No. 87,830
Int. Cl.³ B07B *9/00*
U.S. Cl. 209—31 **10 Claims**

1. A separating machine for free-flowing materials comprising at least one separating unit; a frame on which said unit is mounted; an aspirating chamber connected with the outlet of said unit; said unit comprising a hollow housing; a feeding means located in the upper part of said housing; a first distributor for the free-flowing material located below said feeding means inside of said hollow housing; an air separating zone formed by said hollow housing and said first distributor; a rotor installed in said housing; a screening drum mounted on

said rotor with provision for movement relative thereto; a second distributor of the free-flowing material in the upper part of said screening drum mounted on said rotor; said screening drum comprising a plurality of sections, each section comprising a screen in the form of a body of revolution; supporting



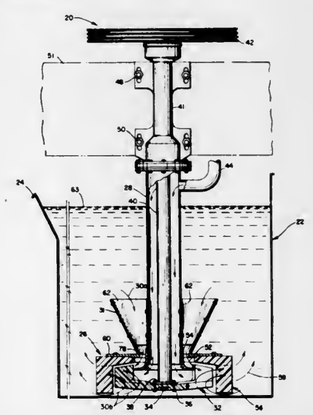
rings on which said screen is mounted; tie rods extending through said supporting rings of all said sections to connect them to one another; hole cleaners for said screen installed at the external side of said drum; a drive means mounted on said frame connected to said screening drum for simultaneously rotating and vibrating said screening drum.

4,265,739

FLOTATION MACHINES AND COMPONENTS THEREOF

Robert W. Dalton, 7530 E. Calle Agerrida, Tucson, Ariz. 85715

Continuation of Ser. No. 5,816, Jan. 23, 1979, abandoned, which is a continuation of Ser. No. 789,442, Apr. 20, 1977, abandoned. This application Jan. 18, 1980, Ser. No. 113,294
Int. Cl.³ B03D *1/16*
U.S. Cl. 209—169 **2 Claims**



1. A froth flotation machine of the subaeration type which comprises: a tank; an impeller rotatably supported in the bottom of said tank; and means for rotating said impeller; said impeller being fabricated without an internal supporting skeleton component from a non-metallic, abrasion and corrosion resistant, elastomeric material which has the following characteristics:

Minimum tensile strength	2000 psi
Minimum tear strength	125 PLI
Minimum modulus of elasticity at 100% elongation	400
Maximum percent elongation	600

-continued

Minimum durometer (Shore A)	40
Abrasion resistance (maximum 1055, Tabor index, H-18 wheel)	100
Maximum percent resilience	50;

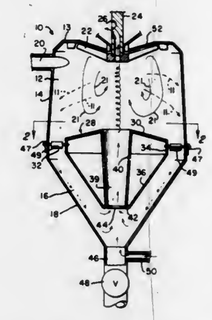
said impeller having a hub which is symmetrical with the axis of rotation of the impeller and has its major dimension extending at right angles to said axis, said impeller further including elongated, rectilinear blades integrated at one end only with said hub and extending from said hub along paths parallel to said axis of rotation, and said blades being located at the periphery of the impeller at equidistantly spaced intervals thereabout.

4,265,740

CENTRIFUGAL SEPARATOR

Oscar Luthi, Nashua, N.H., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Dec. 17, 1979, Ser. No. 104,541
Int. Cl.³ B04C *5/103*
U.S. Cl. 209—211 **5 Claims**



1. A separator for removing impurities from a pulp slurry comprising: a vertical vessel having an upper chamber and a lower chamber; means for feeding a pulp slurry tangentially into the upper chamber to impart a rotational movement to the pulp slurry to cause the impurities to move outwardly; a recirculation conduit coaxially mounted in the vessel; means for changing the rotational movement of the pulp slurry in the upper chamber into a primarily translational movement downwardly within the lower chamber so that impurities move downwardly within the lower chamber; an elutriation water inlet located to flow elutriation water into the lower chamber to wash pulp fibers from the impurities and flow the pulp slurry, free of impurities, upwardly with the recirculation conduit and into the upper chamber; and means for removing the impurities from the lower chamber.

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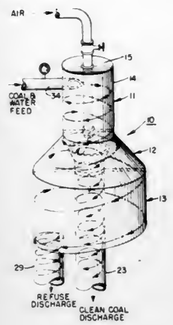
APPARATUS AND METHOD FOR SEPARATING DIVERSE PARTICLES OF A SLURRY

Chang J. Im, Rte. 6, Box 30, Abingdon, Va. 24210

Filed May 15, 1980, Ser. No. 149,990
Int. Cl.³ B04C *5/081, 5/107*
U.S. Cl. 209—211 **30 Claims**

1. An apparatus for separating lightweight particles from heavyweight and middling particles of a slurry comprising means defining an upper cylindrical chamber, means defining a frusto-conical chamber communicating at an upper end thereof with a lower end of said upper cylindrical chamber, means for tangentially injecting said slurry into an upper end of said upper cylindrical chamber to create a swirling vortex of said

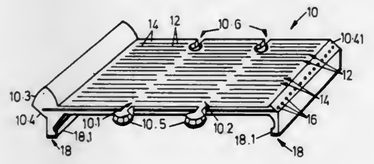
slurry descending through said upper cylindrical chamber and said frusto-conical chamber, providing an axially disposed, low pressure zone, means for discharging an overflow of said slurry containing said lightweight particles, said overflow discharging means including an intake orifice disposed in communication with said low pressure zone in said frusto-conical chamber and means for discharging an underflow of said slurry containing said heavyweight and middling particles, said underflow



discharging means having an intake orifice communicating with said frusto-conical chamber.

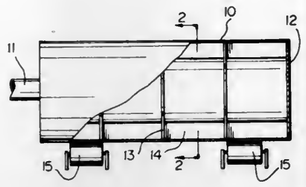
26. A method of separating lightweight particles from heavyweight and middling particles of a slurry comprising producing a descending vortex having a constant radius for a predetermined axial distance in the direction of flow and an increasing radius thereafter, aspirating an inner zone of said descending vortex at a region where the radius of said vortex increases, and withdrawing a residual portion of said slurry.

4,265,742
SCREEN ELEMENT
Fritz O. Bücker, Pretoria, and Henning F. W. M. A. Lambrecht, Johannesburg, both of South Africa, assignors to Hermann Screens Manufacturing Company (Proprietary) Limited, Edenvale, South Africa
Filed Jun. 25, 1979, Ser. No. 51,442
Int. Cl.³ B07B *1/46*
U.S. Cl. 209—399 **19 Claims**



1. A replaceable plastic or elastomeric screen element having an apertured body portion extending between two opposite sides and two opposite ends, each side including a continuous elongate protruding fastening means extending along substantially the entire length of the side for fastening the screen element along each side to a screen support member, each fastening means being adapted to form, with a corresponding fastening means of an adjoining similar screen element, a matching combined pair when two screen elements are fitted closely together in edge-to-edge relationship, the pair being adapted to be brought into releasable substantially unyielding positive engagement with a complementary elongate fastening recess of the screen support member.

4,265,743
METHOD OF AND APPARATUS FOR EXTRACTION OF GOLD FROM PLACER GRAVEL
Earl G. Younge, c/o P.O. Box 3156, No. 204 - 20559 Fraser Hwy., Langley, British Columbia, Canada (V3A 4R5)
Filed Jun. 20, 1979, Ser. No. 50,310
Claims priority, application Canada, Nov. 23, 1978, 316785
Int. Cl.³ B03B *5/56*
U.S. Cl. 209—452 **1 Claim**



1. In a method of extracting precious metal from a precious metal bearing ore deposit, the improvement comprising the steps of:

providing a rotatably mounted cylindrical drum having a substantially horizontally disposed axis, said drum having an input end, an output end, and an internal peripheral surface, said input end being substantially closed about an opening adapted for flowing a slurry of precious metal ore into said drum, the internal peripheral surface of said drum having a plurality of spaced annular riffles of predetermined height, and at the output end having a plurality of longitudinally circumferentially spaced riffles of a height less than said annular riffles,

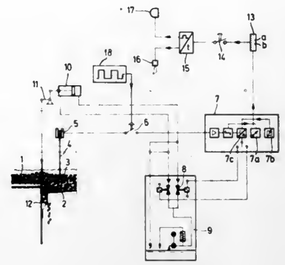
flowing a slurry of precious metal bearing ore through said opening in said input end at a predetermined flow rate while

simultaneously rotating said drum at a predetermined speed about its axis whereby, as the tank rotates, the slurry is caused to flow continuously in helical fashion over the longitudinal and annular riffles causing settling of precious metal fines, the fines being retained adjacent the inner peripheral surface of said drum due to centrifugal force caused by said drum rotation, and non-precious metal bearing material not affected by the same centrifugal force being flushed from the outlet of said drum.

4,265,744
DISCHARGE-CONTROLLED METHOD FOR A COMPRESSED AIR-CONTROLLED WET SETTLING MACHINE
Karl-Heinz Weiffen, Bochum, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany
Continuation of Ser. No. 930,390, Aug. 2, 1978, abandoned. This application Mar. 3, 1980, Ser. No. 126,219
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1977, 2734736
Int. Cl.³ B03B *5/22*
U.S. Cl. 209—457 **8 Claims**

1. In a discharge control method for controlling a compressed air-controlled settling machine for the preparation of mineral mixtures, in particular the washing of raw coal, in which air inlet and outlet valves are cyclically operated during respective spaced time intervals to introduce and exhaust air from a work chamber in which the mixture is carried on a perforate settling machine carrier to sinusoidally pulsate a separating liquid in the chamber and stratify the mixture into at least heavy and lighter layers of material, and in which a scanner senses the level of the heavy layer and controls a discharge device for controlling the discharge of the heavier layer in accordance with an actual-reference regulation control, the improvement comprising the step of: scanning the heavy layer

level and feeding an actual value to the regulation control during a measuring time interval which is asymmetrically time



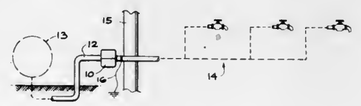
positioned with respect to the maximum density rest time of the material.

4,265,745
PERMSELECTIVE MEMBRANE
Takeyuki Kawaguchi; Yutaka Taketani; Yuzuru Hayashi; Tomoyoshi Ono, and Koh Mori, all of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan
Filed May 18, 1978, Ser. No. 907,194
Claims priority, application Japan, May 25, 1977, 52/59930; May 27, 1977, 52/60944; Sep. 13, 1977, 52/109401
Int. Cl.³ B01D *13/00*
U.S. Cl. 210—654 **43 Claims**

1. A permselective membrane having high water flux and perselectivity comprising a thin permselective film of a polymeric material, said polymeric material being prepared by cross-linking a polyaddition product between a polyepoxy compound and a polyamino compound having at least two amino groups capable of reacting with epoxy groups with a polyfunctional compound selected from the group consisting of aromatic, heterocyclic and alicyclic compounds containing at least two functional groups selected from acid halide, sulfonyl halide, isocyanate and acid anhydride groups.

42. In a method for desalination of saline or brackish water by reverse osmosis comprising contacting the saline or brackish water under pressure with a reverse osmosis membrane, the improvement wherein the membrane of claim **1** is used as the reverse osmosis membrane.

4,265,746
WATER TREATING APPARATUS AND METHODS
George M. Zimmerman, Sr., San Gabriel, and Herman E. Menold, Santa Fe Springs, both of Calif., assignors to Bon Aqua, Inc., Rancho, Calif.
Continuation of Ser. No. 859,831, Dec. 12, 1977, abandoned. This application Jul. 30, 1979, Ser. No. 61,930
Int. Cl.³ B01D *35/06*
U.S. Cl. 210—695 **29 Claims**

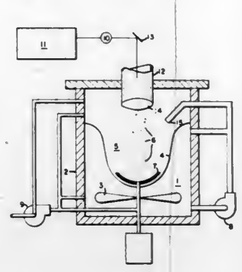


14. The method of treating water which comprises:

passing fresh water through a fluid conduit having an electrically conductive portion connected electrically to earth; and

subjecting the water to a magnetic field having north and south poles spaced apart in the direction of water flow, said magnetic field being oriented to have its overall effective south magnetic polarity located upstream of its overall effective north magnetic polarity.

4,265,747
DISINFECTION AND PURIFICATION OF FLUIDS USING FOCUSED LASER RADIATION
William M. Copa, Wausau, and Wayne B. Gitchel, Rothschild, both of Wis., assignors to Sterling Drug Inc., New York, N.Y.
Filed May 22, 1979, Ser. No. 41,526
Int. Cl.³ C02F *1/32, 1/78*
U.S. Cl. 210—758 **17 Claims**



1. A process for disinfecting an aqueous fluid contaminated with microorganisms, which comprises contacting said fluid with a gas selected from the group consisting of oxygen, nitrogen, argon, helium, neon, carbon dioxide, and a mixture of two or more of said gases in which a continuous plasma is generated by multiple pulses of focused laser radiation said plasma containing ultraviolet light, ions, X-ray, electrons and neutrons, and rapidly transferring said plasma to said aqueous fluid for a time sufficient to disinfect said aqueous fluid.

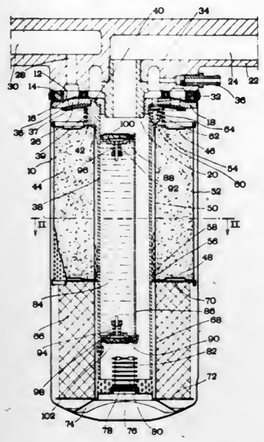
9. A process for reducing the chemical oxygen demand of a wastewater, which comprises contacting said wastewater with an oxygen-containing gas in which a continuous plasma is generated by multiple pulses of focused laser radiation said plasma containing ultraviolet light, ions, x-ray, electrons, neutrons, and ozone, and rapidly transferring said plasma to said waste-water for a time sufficient to reduce said chemical oxygen demand.

4,265,748
LUBRICANT FILTER FOR INTERNAL COMBUSTION ENGINES
Franco Villani, and Antonina Marciante, both of Turin, Italy, assignors to Tecnocar S p A, Grugliasco, Italy
Filed May 8, 1980, Ser. No. 147,843
Claims priority, application Italy, Jan. 11, 1980, 67035 A/80
Int. Cl.³ B01D *35/00*
U.S. Cl. 210—132 **14 Claims**

1. A lubricant filter of the type to be screwed on, for internal combustion engines, particularly for motor vehicles, comprising a cup-shaped member containing a first cylindrical crown-shaped filter cartridge closed upwardly by a cover having an eccentric inlet opening for the lubricant and an axial outlet opening for the filtered lubricant, said cup-shaped member being provided with a container for a mixture of liquid additives, having a wall subjected to the flow of lubricant through the filter and an opening closed by a diaphragm made of a material adapted to dissolve slowly under the action of the hot lubricant, said valve being biassed in the open position by a spring mounted in said opening and the diaphragm arranged to prevent the opening of the valve.

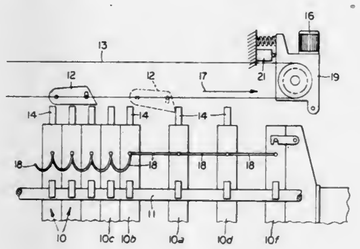
9. A lubricant filter as claimed in claim **1**, wherein said first filter cartridge extends substantially from the cover of said cup-shaped member over only a portion of the height thereof and arranged between said first filter cartridge and the bottom of said cup-shaped member is a second cylindrical crown-shaped filter cartridge, a tubular member is secured to said

cover and extends axially substantially over the entire length of said cup-shaped member and the gap between the inner surface of said first filter cartridge and the outer surface of said tubular member is closed by a sealing gasket toward the bottom of said cup-shaped member and communicates with the inside of the engine through an outlet opening located eccentrically in said cover between said inlet opening and the centre of said cover.



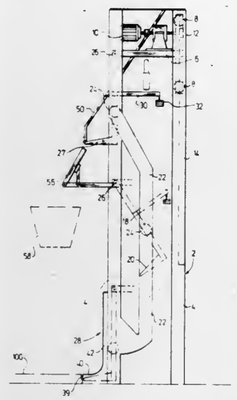
13. A lubricant filter as claimed in claim 9, wherein said outlet opening located eccentrically in said cover is provided with a valve controlled by a spring acting against the flow of the lubricant and dimensioned to permit opening of the valve only when a predetermined pressure is exceeded.

4,265,749
CHAMBER FILTER PRESS
Oswald Busse, and Hugo Klesper, both of Aarbergen, Fed. Rep. of Germany, assignors to Passavant-Werke Michelbacher Huette, Fed. Rep. of Germany
Filed Oct. 25, 1979, Ser. No. 88,017
Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850223
Int. Cl.³ B01D *25/12*
U.S. Cl. 210—138 **2 Claims**



1. In a chamber filter press having a plurality of movable linked filter plates suspended for movement along horizontal guides, each said filter plate carrying a cam, means for separating a plurality of said filter plates with the opening of said filter press, with an endless filter plate transporting assembly, driven by a reversible motor and carrying dogging members which move over said cams on abutted filter plates in both directions with the exception of the cam on a foremost filter plate while the press is being opened, said dogging members engaging said cams of said filter plates separated by said linkage and having a switch means which reverses the direction of rotation of the motor from forward to reverse motion when the filter plate which has just been moved rests against the previously moved filter plate, connection means operatively connecting said switch means to a time control means which is energized in response to switching over to said reverse motion and at the end of a preset time said time control means switches said reversible motor again from reverse to forward motion.

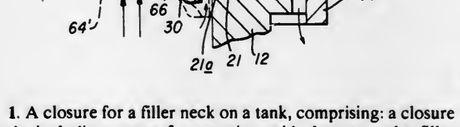
4,265,750
BAR SCREEN FILTERING DEVICE
Gabriel Meunier, 6290 Rue Perinault, Montreal, Quebec, Canada (H4K 1K5)
Filed Aug. 1, 1979, Ser. No. 62,703
Int. Cl.³ B01D *29/38, 35/02*
U.S. Cl. 210—159 **2 Claims**



1. A bar screen and cleaning mechanism in combination with a waste waterway for filtering and removing waste from the waterway comprising a plurality of bar members spaced across the width of the waterway, each bar member having a base component securable to and extending above the bed of the waterway and a free standing upright component extending from said base component to form an approximate L-shaped bar member with the free end of the base component being upstream of said upright component when secured in the waterway, said cleaning mechanism including a rake means and rake guide means, said rake means having a plurality of bar projections spaced for insertion between said base components, said guide means cooperating with said rake means to insert said bar projections from the downstream side of said screen between said bar members adjacent the bed of the waterway and below the upper surface of said base components in preparation for cleaning of said screen and subsequently, allowing said rake means to be drawn essentially vertically upward whereby, said bar projections extend through said upright components and lift waste accumulated on the upstream side of said screen with the movement of said rake means.

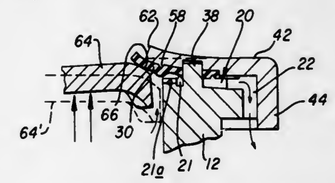
4,265,751
EXTERNAL BIOLOGICAL AQUARIUM FILTER
Allan H. Willinger, New York, N.Y., assignor to Willinger Bros., Inc., Englewood, N.J.
Filed Sep. 21, 1979, Ser. No. 77,660
Int. Cl.³ B01D *35/02*
U.S. Cl. 210—169 **9 Claims**

1. An aquarium filter assembly for installation externally of an aquarium tank, comprising:
a filter receptacle;
separation means within said receptacle for providing in said receptacle a filter chamber beneath said separation means and a clean water chamber above said separation means; said chambers being in fluid flow communication from said filter chamber up through said separation means to said clean water chamber;
an inlet port provided in said receptacle in communication with said filter chamber;
siphon tube means coupled to said inlet port for a siphon flow of contaminated water from the aquarium tank to said filter chamber;
conduit means in communication with said clean water chamber for supplying clean water from said clean water chamber to the aquarium tank;
said separation means including a filtering foam material;
support means disposed in said receptacle for supporting said filtering material;
said receptacle including an elongated closed container;
an outlet port provided in said receptacle in communication with said clean water chamber, said conduit means being coupled to said outlet port;
said closed container including a top wall, a bottom wall, side walls, and end walls;



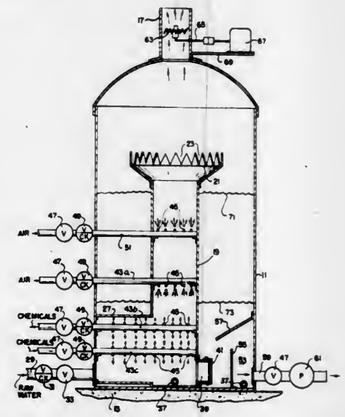
said inlet port being disposed adjacent to one of said end walls and said outlet port being disposed adjacent to the other end wall;
said support means including a first set of elongated ribs extending downwardly from said top wall to provide first elongated rib edges spaced from said bottom wall, and a second set of elongated ribs extending upwardly from said bottom wall to provide second elongated rib edges spaced from said top wall;
said first elongated rib edges being spaced from said second elongated rib edges to define therebetween a channel through said receptacle for receiving therein said filtering foam material;
said first and second elongated rib edges engaging said filtering foam material to retain said filtering foam material in said channel; and
a space between said channel and said top wall defining said clean water chamber, and an opposing space between said channel and said bottom wall defining said filter chamber.

4,265,752
SELF VENTING GAS CAP
John D. O'Banion, Arlington, Tex., assignor to E-Z Fill Corporation, Arlington, Tex.
Continuation-in-part of Ser. No. 765,452, Feb. 3, 1977, Pat. No. 4,091,959, and a continuation-in-part of Ser. No. 805,205, Jun. 9, 1977, Pat. No. Des. 250,468, and a continuation-in-part of Ser. No. 805,497, Jun. 10, 1977, Pat. No. Des. 250,466, and a continuation-in-part of Ser. No. 805,504, Jun. 10, 1977, Pat. No. Des. 250,467. This application May 19, 1978, Ser. No. 907,693
Int. Cl.³ B65D *51/16, 51/24*
U.S. Cl. 210—172 **18 Claims**



1. A closure for a filler neck on a tank, comprising: a closure body including means for securing said closure to the filler neck, a lower end adapted to fit within the filler neck, an upper surface having a vent groove formed therein, and a passage extending through the upper surface and through the lower end, the vent groove having a first end communicating with the passage through the closure body and a second end communicating with the periphery of the closure body; a cap secured to the closure body for covering the upper surface, said cap having an opening extending therethrough and communicating with the passage in said closure body; a convex surface on said cap disposed adjacent the vent groove; a resilient gasket disposed between said cap and said closure body, said gasket having a passage through which the passage in said closure body and the opening in the cap communicate, said resilient gasket being deflected by the convex surface on said cap to close the vent groove, and being sufficiently resilient to permit passage of a fluid through the groove when a pressure differential exceeding approximately one-half pound per square inch exists between the first and second ends of the groove; and means in said passage in the closure body to close the passage in the gasket to prevent flow of fluid therethrough from the tank.

4,265,753
AERATION FILTRATION TANK AND WATER TREATMENT SYSTEM
Maylam Manuel, 601 S. Armada Dr., Venice, Fla. 33595
Filed Jun. 16, 1980, Ser. No. 159,510
Int. Cl.³ C02F *1/20, 1/58*
U.S. Cl. 210—199 **7 Claims**



1. In apparatus for purifying raw feed water containing solid particulate matter and gases, the combination comprising:
(a) a first chamber for holding purified water,
(b) a second chamber disposed within said first chamber,
(c) means for flowing said raw feed water into said second chamber and upwardly in said second chamber,
(d) an overflow platform situated atop said second chamber and above the level of water in said first chamber with flow distributing means disposed around the perimeter of said platform,
(e) means for introducing fluid purifying reagents into the water in said second chamber,
(f) means for exhausting gases within said first chamber and therefrom, and
(g) means for withdrawing the treated and purified water from said first chamber.

7. In apparatus for purifying raw feed water containing solid particulate matter and entrained gases:
(a) a first water receiving chamber,
(b) a second chamber into which said raw feed water first enters disposed within said first chamber,
(c) an annular platform atop said second chamber disposed above the level of water in said first chamber, said annular

platform having an area that is at least four times the area of the cross section of said second chamber,

(d) means around the perimeter of said platform for reducing the speed of water flowing from said platform and for increasing the surface area of water particles exposed to the ambient air within said first chamber, thereby liberating entrained gases in the treated water flowing from said platform,

(e) means for introducing purifying reagents into the raw feed water in said second chamber,

(f) means for aerating said raw feed water in said second chamber,

(g) means for removing liberated gases from said first chamber, and

(h) means for removing treated and purified water from said first chamber.

4,265,754

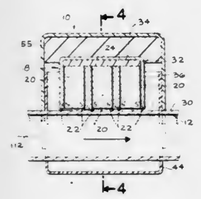
WATER TREATING APPARATUS AND METHODS

Herman E. Menold, Santa Fe Springs, Calif., assignor to Bon Aqua, Inc., Rancho, Calif.

Continuation of Ser. No. 859,831, Dec. 12, 1977, abandoned. This application Jun. 6, 1980, Ser. No. 62,065

Int. Cl.³ B01D *35/06*

U.S. Cl. 210—222 **5 Claims**



1. A device for treating fresh water flowing through a conduit comprising:

a first permanent magnet to be received at a side of the conduit and having north and south poles which are spaced apart in the direction of water flow through the conduit;

a second permanent magnet received at one axial side of the first permanent magnet and having north and south poles spaced apart in the direction of fluid flow, with the south pole of the second magnet facing axially toward the south pole of the first magnet;

a third permanent magnet located at a second axial side of said first magnet and having magnetic poles spaced apart in the direction of water flow, with the north pole of the third magnet facing axially toward the north pole of said first magnet;

a first ferromagnetic element received axially between said first and second magnets and forming a net south pole projecting radially inwardly beyond said first and second magnets for reception in close proximity to the conduit; and

a second ferromagnetic element received axially between said first and third magnets and forming a net north pole projecting radially inwardly beyond said first and third magnets for reception in close proximity to said conduit.

4,265,755

MAGNETIC FLUID TREATING UNIT

George M. Zimmerman, San Gabriel, Calif., assignor to Bon Aqua, Inc., Rancho, Calif.

Filed Aug. 23, 1979, Ser. No. 68,754

Int. Cl.³ B01D *35/06;* **B03C** *1/30*

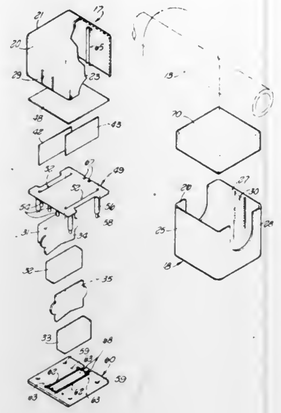
U.S. Cl. 210—222 **30 Claims**

1. A liquid treating device comprising:

a permanent magnet structure adapted to be received adjacent a conduit through which liquid to be treated is flowing;

a flux return plate of ferromagnetic material at an outer side of said magnet structure;

a part formed of nonmagnetic material interposed between and spacing apart said magnet structure and said flux



return plate and having portions projecting in opposite directions beyond said magnet structure and containing openings; and

two end plates of ferromagnetic material received adjacent opposite end faces of the magnet structure and extending through said openings respectively in said part of nonmagnetic material to said flux return plate.

4,265,756

CHANGE DEVICE FOR SIEVES FOR FILTERING PLASTIC MATERIALS

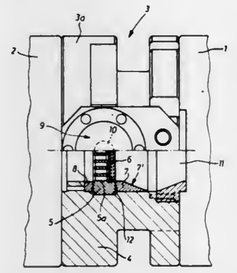
Walter H. Schiesser, Zürich, assignor to Schiesser AG, Switzerland

Filed Dec. 13, 1979, Ser. No. 103,169

Claims priority, application Switzerland, Jan. 29, 1979, 865/79

Int. Cl.³ B01D *35/12*

U.S. Cl. 210—236 **7 Claims**



1. A change device for sieves for straining or filtering plastic materials moving in a predetermined direction of material flow, comprising:

a sieve holder mountable in the direction of material flow; said sieve holder being provided with a bore for the throughflow of material;

a plurality of sieve supports;

a guide slot arranged transversely with respect to said bore for the passage therethrough of said sieve supports;

each of said sieve supports comprising a perforated plate and containing at least one sieve;

said sieve supports together with said sieves being insertable directly in succession into said sieve holder;

one of said sieve supports and its respective sieve being located in a work position;

a sleeve member arranged in said bore forwardly of said perforated plate for sealing said sieve support together with its sieve which is located in said work position in the direction of material flow;

said sleeve member bearing against said perforated plate;

a sealing ring bearing against said perforated plate and arranged following said perforated plate in said bore; and

means for selectively forwardly advancing the successively arranged sieve supports, in order to thereby place each successive sieve in a work position.

4,265,757

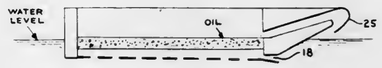
DEVICE FOR REMOVING OIL SLICKS

Alexander Ivanoff, 20 Brookside Dr., Greenwich, Conn. 06830

Filed Mar. 9, 1979, Ser. No. 19,000

Int. Cl.³ E02B *15/04*

U.S. Cl. 210—242.3 **16 Claims**



1. A skimmer vessel for skimming oil floating on open water, said vessel comprising: a hull having a forwardly facing broad and substantially flat bow wall surface rearwardly and downwardly slanted toward the stern of the hull, said bow surface including an elongate and substantially horizontally disposed inlet opening at the rear thereof; a hold within the hull communicated with said inlet opening for accumulating therein a pool of oil and water deflected along said slanted bow wall and entering into said opening upon forward drive of the vessel; and vane means extending from and across said slanted bow wall surface for reducing forward splashing of oil and water as caused by pitching of the hull thereby increasing the entry of oil and water into the hold within the hull, said vane means comprising a plurality of spaced vane members having upper edges secured to said bow surface and lower edges spaced from said bow surface rearwardly and downwardly such that the vane members are inclined with respect to said bow surface at an acute angle rearwardly and downwardly.

4,265,758

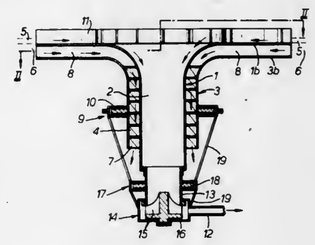
COLLECTION OF A SURFACE LAYER OF LIQUID

Charles J. Fox, Hesley Cottage, Selbourne, Hampshire, England

Filed Nov. 5, 1979, Ser. No. 90,974

Int. Cl.³ E02B *15/04*

U.S. Cl. 210—242.3 **18 Claims**



1. Apparatus for collecting the surface layer of a body of liquid, said apparatus comprising a buoyant body for floating in the liquid at a predetermined level therein, said body having a central passage for receiving the surface layer and having an axis which is substantially vertical and an upper end and a lower end, said upper end being open and lying in a plane substantially at the interface between the surface layer and the underlying layers of liquid and said lower end being connected to the inlet of first pump means for removing liquid therefrom, said body also having an annular passage for receiving liquid underlying the surface layer, said annular passage surrounding and being coaxial with said central passage and having an upper end and a lower end, said ends of said annular passage being open and said upper end lying in a plane below the interface between the surface layer and underlying layers, second pump means in said annular passage for driving liquid through said passage from the upper end to the lower end, and means connected to the outlet of said first pump means for receiving the liquid removed thereby from said central passage the plane of the upper end of said central passage being positioned relative to said interface that upon operation of said first pump means substantially only surface layer enters such central passage, the plane of the upper end of said annular passage being positioned relative to said interface that upon operation of said second pump means substantially only the underlying layer of liquid enters said annular passage.

4,265,759

DEVICE FOR SEPARATING A MIXTURE

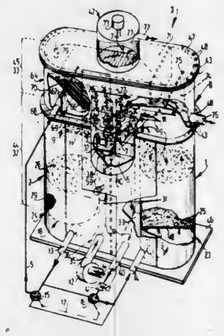
Willem A. Verpalen, and Theodorus A. J. Koot, both of Nieuwegein, Netherlands, assignors to Ballast-Nedam Groep N.V., Amsterdam and Skimovex B. V., Utrecht, both of, Netherlands

Continuation of Ser. No. 11,693, Feb. 12, 1979, abandoned. This application Feb. 20, 1980, Ser. No. 123,028

Claims priority, application Netherlands, Feb. 14, 1978, 7801685

Int. Cl.³ B01D *23/10*

U.S. Cl. 210—261 **8 Claims**



1. A device for separating a mixture of a carrier medium and at least one substance which is insoluble therein, for example, water and oil, said device comprising, in combination:

a housing having a top and a bottom and an intermediate wall sealing the interior of the housing into upper and lower compartments;

intermediate separator means in one of said compartments and post-separator means for promoting the separation of said mixture in the other of said compartments; said intermediate separator means comprising a first vertically elongate chamber having a bed of particulate filter material therein and a second vertically elongate chamber having a bed of particulate filter material therein, each such chamber terminating at its upper end at the same level within said housing, conduit means communicating said upper ends of the two chambers, the conduit means comprising the upper portion of the compartment in

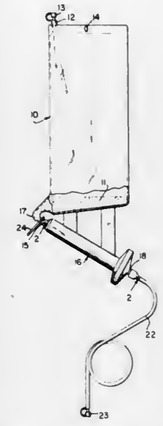
which said intermediate separator means is located and a horizontally extending partition within said housing bridging the upper ends and said first and second chamber, and there being first collection means in lateral communication with said conduit means at a point intermediate said first and second chambers, said collector means comprising a further chamber exterior to said housing laterally displaced and extending above said conduit means.

4,265,760

DEVICE FOR DILUTION AND DELIVERY OF IN VIVO CHEMICALS

Kenneth Abel, and Robert T. Buck, both of Raleigh, N.C., assignors to Becton Dickinson & Company, Paramus, N.J.

Filed Feb. 26, 1979, Ser. No. 15,480
Int. Cl.[3] B01D *27/02*
U.S. Cl. 210—282 **11 Claims**



1. A device for dilution and delivery of diluted chemicals for in vivo use, comprising:

a disposable, collapsible flexible container for dilution and delivery of diluted chemicals for in vivo use, said container having an inlet means at one end and an outlet means at a second opposite end; a cartridge having an inlet end and an outlet end, an adsorbent for adsorbing contaminants in said cartridge adjacent said inlet end, an absolute filter having a pore size of no greater than 0.45μ in said cartridge adjacent said outlet end, said outlet end of said cartridge being attached to said inlet means of said container, whereby unsterilized diluent can be introduced into the container by passing through the inlet end of the cartridge, the adsorbent, the absolute filter and the inlet means of the container for effecting sterilization and removal of endotoxins and organic contaminants from the diluent and diluted chemicals delivered from the container through the outlet means thereof for in vivo use.

4,265,761

FLUID FILTERING DEVICE

Borje O. Rosaen, 4031 Thornoaks Dr., and Dale P. Fosdick, 3000 Hunting Valley Dr., both of Ann Arbor, Mich. 48104

Continuation-in-part of Ser. No. 963,034, Nov. 22, 1978, Pat. No. 4,197,207. This application Sep. 17, 1979, Ser. No. 76,393
Int. Cl.[3] B01D *35/02*
U.S. Cl. 210—315 **9 Claims**

1. A fluid filtering device for connection with a fluid line, said device comprising:

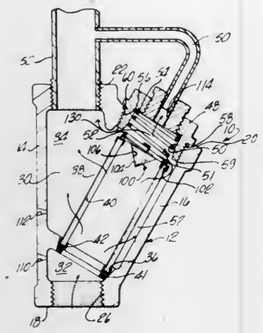
a housing having a fluid inlet and a fluid outlet substantially aligned with each other;

fluid passage means formed in said housing for connecting said inlet to said outlet, said passage means including a port formed along its length and adjacent the fluid inlet;

said housing further comprising a first substantially tubular cylindrical portion having said inlet formed at one end and said outlet formed at the other end, said housing further comprising a second substantially tubular cylindrical portion intersecting said first portion at said port and branching outwardly from said first portion at an acute angle, said first housing portion defining an outlet chamber open to said outlet and said second portion defining a filter chamber open along one entire side to said outlet chamber,

a tubular filter element open at one end;

means for axially slidably mounting said filter element in said filter chamber between a first and second axial position,



wherein in said first position the open end of said filter element abuts against said port so that the interior of said filter element is open to the housing inlet while the exterior of the filter element is open to the housing outlet, and wherein in said second position said open end of the filter element is spaced from the port to thereby enable fluid flow through the passage means to bypass the filter element;

means for resiliently urging said filter element toward said first position;

said mounting means further comprising a cap secured to the other end of the second housing portion, and

an air bleed conduit fluidly connected at one end to said outlet and fluidly connected at its other end to an opening formed through said cap wherein said cap opening is aligned with the interior of the filter element.

4,265,762

FILTER ASSEMBLY FOR USE IN THE FILTRATION OF MEDICAL TREATMENT LIQUIDS

David L. Brenholt, Dundas, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Nov. 24, 1978, Ser. No. 963,441
Int. Cl.[3] B01D *31/00*
U.S. Cl. 210—321.1 **6 Claims**

1. A filter assembly for use in the filtration of medical treatment fluids comprising:

a filter membrane, said membrane being comprised of a longitudinally extending piece of porous filter media having a first major surface and a second major surface;

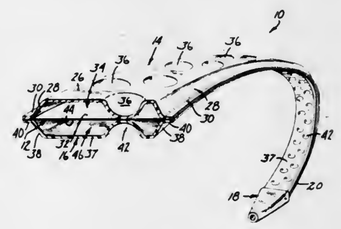
first enclosure means received about the first major surface of said filter media to define an inlet chamber between said first enclosure means and said filter media for a liquid to be filtered by said filter media;

second enclosure means received about the second major surface of said filter media to define an outlet chamber between said second enclosure means and said filter media for fluid filtered through said filter media;

said first enclosure means including a first wall member of flexible material having a first enclosure major surface extending over said first major surface, said flexible material being impermeable to liquid and gas;

said second enclosure means including a second wall member of flexible material having a second enclosing major surface extending over said second major surface, said last-mentioned flexible material being impermeable to liquid and gas, each wall member comprising a strip of flexible plastic material having opposed lengthwise edges, each lengthwise edge of said strip comprising said first enclosure means being attached to the first major surface of said filter media and each lengthwise edge of said strip comprising said second enclosure means being attached to the second major surface of said filter media;

means for preventing the ballooning of the flexible material of said first and second wall member away from said filter membrane, said ballooning preventing means including a first plurality of projections and a second plurality of projections, said first plurality of projections being formed in the first enclosing major surface and extending into said inlet chamber, contacting said first major surface of said filter membrane and being fixedly attached thereto, said



second plurality of projections being formed in the second enclosing major surface and extending into said outlet chamber, contacting said second major surface of said filter membrane and being fixedly attached thereto, said projections comprising dimples formed in said flexible plastic material;

inlet means for admitting fluid to be filtered into said inlet chamber;

outlet means for allowing filtered fluid to leave said outlet chamber;

means for venting from said filter assembly air entrained in a liquid being filtered by said filter assembly, said vent means including a plurality of apertures through the first enclosure means and discrete blocks of hydrophobic material disposed between said apertures and said filter media, said apertures being formed through a plurality of the dimples of said first enclosure means, each of the dimples having an aperture through it being bent outwardly away from said filter media, and one of said discrete blocks of hydrophobic material being disposed between each of said apertured dimples and said filter media, each of said blocks of hydrophobic material being in the shape of a sphere.

4,265,763

PERMEATOR APPARATUS

Wayne A. Bollinger, Cary, and Roger G. Guay, Apex, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 18, 1979, Ser. No. 86,211
Int. Cl.[3] B01D *31/00*
U.S. Cl. 210—323.2 **22 Claims**

1. An apparatus comprising

(a) an elongated tubular shell having at least one open end;

(b) an essentially fluid impermeable end closure cap fastened to and covering said elongated tubular shell at the open end, said end closure cap having at least one fluid communication port;

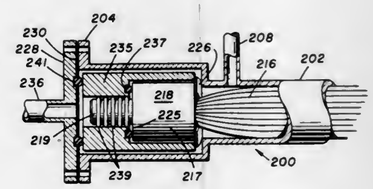
(c) a plurality of tubes which are generally parallel and extended longitudinally to form at least one bundle in the elongated tubular shell;

(d) a rigid, essentially fluid impermeable tube sheet in which the tubes of said at least one bundle are embedded in a fluid tight relationship in the tube sheet such that the lumens of the tubes provide fluid communication through the tube sheet wherein:

(i) the tube sheet has an end face, an opposing bundle face from which said at least one bundle extends in to the tubular shell, and a lateral surface extending between said faces,

(ii) the tube sheet has an expanded zone which expanded zone extends a portion of the lateral surface of the tube sheet, and at least one of said end face and said bundle face has at least one smaller cross-sectional dimension than the corresponding cross-sectional dimension of said expanded zone,

(iii) the at least one cross-sectional dimension of the expanded zone is greater than the corresponding cross-sectional dimension of the remainder of the tube sheet, and



(iv) the tube sheet has at least one rise region on the lateral surface of the tube sheet, which rise region is intermediate the expanded zone and a smaller face, wherein, over the rise region, at least one cross-sectional dimension of the tube sheet increases;

(e) a rigid tubular spacer substantially surrounding the lateral surface of the tube sheet for at least a portion of the distance between the faces and abutting at least one rise region of the tube sheet, wherein said tubular spacer defines an opening adapted to receive said tube sheet for said at least a portion of the distance between the faces and position the tube sheet within the spacer, said opening having a cross-section which is sufficiently large to provide space between the tubular spacer and the tube sheet to accommodate differentials in expansion between the tubular spacer and the tube sheet; and

(f) a sealing means positioned between (i) at least one of the tube sheet and tubular spacer and (ii) at least one of the end closure cap and tubular shell, such that the lumens of the tubes extending to the end face of the tube sheet are in a fluid tight relationship with respect to the exterior of the tubes extending from the bundle face of the tube sheet.

4,265,764

ROTARY DRUM VACUUM FILTER

Emilio Gallottini, Lodi, Italy, assignor to Esmil B.V., Amersfoort, Netherlands

Filed May 1, 1979, Ser. No. 34,931
Claims priority, application Netherlands, May 3, 1978, 7804735
Int. Cl.[3] B01D *33/04*
U.S. Cl. 210—390 **7 Claims**

1. Rotary drum vacuum filter, comprising

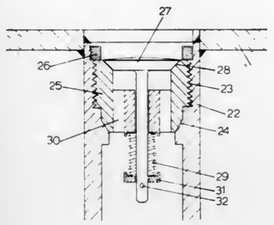
(a) a hollow drum having a cylindrical drum wall, end walls, and a drum axis and rotatable about the drum axis, the cylindrical drum wall, which in use supports filter material, being divided into a plurality of axially extending sectors,

(b) a rotary valve member mounted on an end wall on the

axis for rotation with the drum and having an axial face with a plurality of apertures divided in groups arranged respectively at different radial distances from the drum axis,

(c) a fixed valve member having an axial face axially opposed to said axial face of the rotary valve member and having apertures coincidable with said apertures of said rotary valve member, said fixed valve member having connectors communicating with said orifices for connecting to sources of vacuum and pressurized gas,

(d) a plurality of conduits for each said sector of the drum wall mounted within said drum, connecting the said sectors to the said apertures of the rotary valve member so that, when the drum rotates, the rotary and fixed valve



members act, by relative movement of their said apertures, to switch the respective sectors successively through a predetermined programme of connections to said vacuum and pressurized gas sources, the said conduits of the sectors being divided into a plurality of groups with all the conduits of a group being connected to one orifice of the rotary valve member and having the same function in relation to their respective associated sectors,

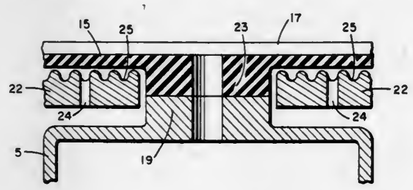
(e) the conduits of a first one of said groups of conduits each having, at its end and flush with the fluid collecting surface interiorly of the drum, a one-way valve which if closed prevents liquid from being collected by an otherwise open-ended conduit and then blown back into the filter with subsequent air discharge by the conduit.

4,265,765

VACUUM FILTERBELT APPARATUS

Emilio Gallottini, Lodi, Italy, assignor to Esmil S.p.A., Milan, Italy

Continuation of Ser. No. 3,399, Jan. 12, 1979, abandoned. This application Mar. 10, 1980, Ser. No. 128,564
Claims priority, application Italy, Jan. 10, 1978, 67032 A78
Int. Cl.³ B01D *33/04*
U.S. Cl. 210—401 **6 Claims**



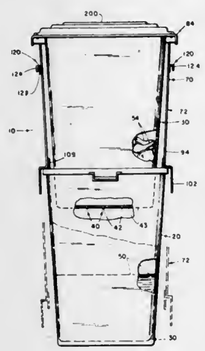
1. In a vacuum filterbelt apparatus comprising a continuous belt, driving means for moving said belt along a continuous path which includes an operative path portion at which the upper face of the belt is concave and apertures extend therethrough, at least one vacuum chamber extending beneath the belt in frictional contact with said belt and in communication with said apertures, whereby suction filtering of material on the belt is effected and independent stationary support members for said belt positioned beneath the belt and spaced from said vacuum chamber surface, said support members defining passages therethrough opening at their upper surfaces for supply of lubricating agent beneath the moving belt, the improvement that the upper surfaces of the support members have grooves running in the longitudinal direction of said belt for the entire length of the supports, the said passages opening into said grooves.

4,265,766

CHICKEN MARINADE DRAINING SYSTEM

Leonard S. Crossley, 3218 Nebraska Ave., Council Bluffs, Iowa 51501

Filed Nov. 15, 1979, Ser. No. 94,385
Int. Cl.³ B01D *23/06*
U.S. Cl. 210—455 **4 Claims**



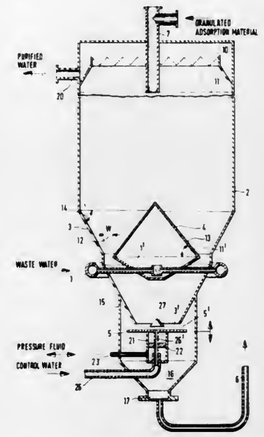
1. A chicken marinade drainer comprising: an outer receptacle having upwardly extending outer walls, an inner receptacle inside said outer receptacle and also having upwardly extending outer walls, said inner receptacle being capable of being maintained in a lower marinating position and in an upper draining position, said inner receptacle having a bottom wall extending transversely to the vertical, said bottom wall comprising marinade draining opening means constructed and arranged so as to be substantially under a level of marinade in said outer receptacle during marinating, said inner receptacle when in said lower position being adapted to contain chicken parts and marinade, said inner receptacle being capable of being raised to an upper position with respect to said outer receptacle in which the bottom of said inner receptacle is above the level of marinade in said outer receptacle so marinade can drain out of said opening means into said outer receptacle, said marinade draining opening means comprising a plurality of elongated slots, the elongation of said slots extending transversely to the vertical, said slots also extending directly downwardly from the top side completely through the bottom side of said inner receptacle bottom wall.

4,265,767

METHOD AND APPARATUS FOR PURIFICATION OF WASTE WATER

Günther Gappa, Gelsenkirchen-Buer; Harald Jüntgen, and Jürgen Klein, both of Essen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 663,986, Mar. 4, 1976, abandoned, which is a continuation-in-part of Ser. No. 602,000, Aug. 5, 1975, Pat. No. 4,202,770. This application Jun. 11, 1979, Ser. No. 47,201
Claims priority, application Fed. Rep. of Germany, Aug. 6, 1974, 2437745
The portion of the term of this patent subsequent to May 13, 1997, has been disclaimed.
Int. Cl.³ B01D *15/02*
U.S. Cl. 210—662 **8 Claims**



1. A method of purifying contaminated fluids in an upright vessel, comprising the steps of continuously admitting a flow of inorganic particulate purifying material into an upper end portion of the vessel, for downward movement therein; continuously admitting a flow of contaminated fluid into a confined space located in a lower end portion of the vessel and bounded in part by an upwardly tapering conical upper wall a generatrix of which includes with a horizontal line an angle of 40°-60°; continuously discharging the contaminated fluid from the confined space through a plurality of closely adjacent substantially uniformly arranged apertures in the upper wall, in form of individual upwardly flowing streams which are distributed over the entire cross-sectional area of the lower vessel end portion so that a purification front develops at which the downwardly moving inorganic particulate material is laden over the entire vessel cross-section with impurities removed from the upwardly moving contaminated fluid; and maintaining the location of the purification front substantially steady relative to the downwardly moving particulate material and to the vessel at a preselected level of the vessel.

4,265,768

ION EXCHANGE MATERIAL PREPARED FROM PARTIALLY PYROLYZED MACROPOROUS POLYMER PARTICLES

Glenn H. Beasley, Newtown; Berni P. Chong, Dresher, both of Pa.; Warren T. Ford, Stillwater, Okla., and James W. Neely, Dresher, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Dec. 26, 1979, Ser. No. 107,114
Int. Cl.³ B01J *39/24, 41/18*
U.S. Cl. 210—682 **22 Claims**

18. A process for removing ions from solution which comprises contacting the solution, for sufficient time to permit ion exchange, with macroporous, carbonaceous, particles bearing ion exchange functional groups, the particles being derived from carbonaceous, macroporous polymer adsorbent particles which

(a) comprise the product of controlled thermal degradation, at a temperature of about 300° C. to about 800° C., of a macroporous, synthetic polymer containing macropores ranging from about 5 to about 10,000 nanometers in average critical dimension and containing a carbon-fixing moiety,

(b) are themselves derived from one or more ethylenically unsaturated monomers, or monomers which may be condensed to yield macroporous polymers, or mixtures thereof, one of the monomers being styrene, and

(c) have at least 85% by weight of carbon, multimodal pore distribution with macropores ranging in size from about 5 to about 10,000 nanometers in average critical dimension, and a carbon-to-hydrogen atom ratio of between about 1.5.1 and about 20:1.

4,265,769

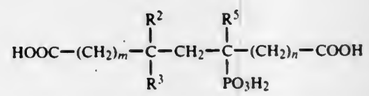
METHOD OF TREATING AQUEOUS SYSTEMS WITH PHOSPHONOADIPIC ACIDS

John G. Dingwall, Sale; Barry Cook, Manchester, and Alan Marshall, Macclesfield, all of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 15,016, Feb. 26, 1979, Pat. No. 4,208,344, which is a continuation of Ser. No. 862,795, Dec. 21, 1977, abandoned. This application Oct. 22, 1979, Ser. No. 87,133
Claims priority, application United Kingdom, Dec. 24, 1976, 54106/76
Int. Cl.³ B01D *21/01*
U.S. Cl. 210—699 **14 Claims**

1. A method of treating an aqueous system in order to provide the inhibition of corrosion of ferrous metals in contact therewith; the inhibition of precipitation of calcium, magnesium, barium or strontium salts from said aqueous system; and the dispersion of inorganic materials present in said aqueous system which comprises

adding to an aqueous system (a), per million parts by weight of said aqueous system, from 0.1 to 1000 parts of (b) a compound or mixture of compounds of the formula



in which m and n may be 0 or 1, but both cannot be 1, and R^2, R^3 and R^5 are independently hydrogen or methyl; or the water-soluble inorganic or organic salts thereof; with the proviso that at least one of R^2, R^3 and R^5 must be methyl, and when m and n are both 0, all of R^2, R^3 and R^5 are methyl.

4,265,770

SEPARATION OF SUSPENDED SOLIDS FROM PHOSPHATE TAILINGS

James P. Thomas, Woodland, Calif., assignor to Amstar Corporation, New York, N.Y.

Filed Nov. 9, 1979, Ser. No. 93,005
Int. Cl.³ B01D *21/01;* **C02F** *1/56*
U.S. Cl. 210—715 **5 Claims**

1. A process for separating suspended solid clay particles from phosphate tailing slimes comprising:

a. adding an amount of finely divided sand particles to the slimes such that the resulting slimes contain clay and sand in a ratio of about 1:1 by weight;

b. forming a slurry by treating the resulting slimes with an anionic polyelectrolyte flocculating agent to bring about at least partial agglomeration of clay and sand particles;

c. introducing the slurry as an influent feed into a seperation

vessel beneath the upper boundary of a solids settling zone containing previously formed agglomerates of solid clay and sand particles at a concentration higher than the concentration in the influent feed;

d. deflecting the path of the influent feed radially outwardly from the point of influent feed introduction through the settling zone without additional agitation, thereby effecting increased contact between clay and sand particles in the influent fee and agglomerated clay and sand particles in the settling zone, additional agglomeration of clay and sand particles within the settling zone, and the formation of clarified liquid in the upper portion of the separation vessel;

e. continuously removing a relatively dense sludge containing agglomerated clay and sand particles from the settling zone at a rate which maintains the upper boundary of the settling zone substantially stationary; and

f. continuously removing clarified liquid from the upper portion of the separation vessel.

4,265,771

ALLUVIAL FILTER CANDLE APPARATUS AND A METHOD OF CLEANING THE SAME

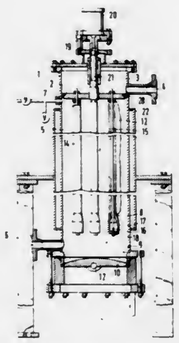
Rüdiger Lennartz, Pulheim, and Ingo Romey, Hünxe, both of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 54,481

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 2828976

Int. Cl.³ B01D *25/32*

U.S. Cl. 210—769 **22 Claims**



1. An alluvial candle filter apparatus, comprising a housing; a substantially horizontal partition in an upper part of said housing and subdividing the latter into an upper filtrate chamber having a filtrate outlet for discharging a filtrate, and a lower filtrant chamber having a filtrant inlet located in the lowest region of said filtrant chamber and arranged for admitting a filtrant, a pressure gas opening located in the uppermost region of said filtrant chamber and arranged for admitting a pressure gas for expelling residual filtrate and filtrant and drying a filter cake, and a closeable filter cake discharge outlet located in the lowermost region of said filtrant chamber for discharging the filter cake, said partition being sealed against and displaceable relative to said housing; a plurality of filtering element for filtering the filtrant and each having a substantially upright axis and including a filter candle body extending in said filtrant chamber in an axial direction, a riser extending in the interior of said filter candle body in the axial direction and mounting the latter to said partition, said riser having a lower end portion provided with at least one filtrate inlet opening and an upper end portion being open into said filtrate chamber, and a return casing surrounding said lower end portion of said riser and preventing backflow of the filtrate through the filter cake, said return casing having a volume substantially corresponding to that of said riser; and means for releasing the dried filter cake from said filter candle bodies and including an arrangement which is connected with said partition in the upper part of said housing and operative for forcedly displacing the latter together with said filter candle bodies in the axial direction of the latter and with acceleration.

4,265,772

ANTISTATIC, FABRIC-SOFTENING DETERGENT ADDITIVE

Kenneth L. Jones, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 961,446, Nov. 16, 1978, abandoned. This application Aug. 8, 1979, Ser. No. 64,955

Int. Cl.³ D06M *13/46*

U.S. Cl. 252—8.6 **25 Claims**

1. The particulate detergent additive for preventing static buildup on textiles and softening fabrics when applied thereto from a laundry solution, said particulate additive being produced by the at least partial complexing of:

(a) from about 1% to about 90% by weight of an anionic complexing component selected from the group consisting of anionic synthetic surfactants; soaps; nonsurfactant electrolytes selected from the group consisting of alkali metal phosphates, borates, carbonates, silicates, sulfates, and citrates; and mixtures thereof; and

(b) from about 10% to about 99% by weight of a quaternary ammonium compound of formula $[R_1R_2R_3R_4N]^+Y^-$ wherein at least one, but not more than two, of R_1, R_2, R_3, and R_4 is an organic radical containing a group selected from a C_{16}–C_{22} aliphatic radical, or an alkyl phenyl or alkyl benzyl radical having 10 to 16 carbon atoms in the alkyl chain, the remaining group or groups being selected from C_1–C_4 alkyl, C_2–C_4 hydroxyalkyl, and cyclic structures in which the nitrogen atom forms part of the ring, Y constituting an anionic radical selected from the group consisting of hydroxide, halide, sulfate, methylsulfate, ethylsulfate and phosphate ions;

wherein said complex constitutes at least 25% of the surfaces of said particulate additive and wherein substantially all of the additive particles have a size of about 10 microns to about 500 microns, a solubility in water of about 50 ppm maximum at 25° C., and a softening point of from about 75° F. to about 250° F.

4,265,773

PROCESS OF PREPARING MOLYBDENUM COMPLEXES, THE COMPLEXES SO-PRODUCED AND LUBRICANTS CONTAINING SAME

Louis deVries, Greenbrae, and John M. King, San Rafael, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Jun. 28, 1979, Ser. No. 53,013

Int. Cl.³ C10M *1/54*

U.S. Cl. 252—46.4 **11 Claims**

1. A process for preparing a sulfurized molybdenum-containing composition which comprises (1) reacting an acidic molybdenum compound, and an oil-soluble basic nitrogen compound selected from the group consisting of a succinimide, carboxylic acid amide, Mannich base, phosphonamide, thiophosphonamide, phosphoramide, dispersant viscosity index improver or mixtures thereof to form a molybdenum complex wherein from 0.01 to 2.00 atoms of molybdenum are present per basic nitrogen atom; and (2) reacting said complex with carbon disulfide in an amount to provide 0.1 to 4.0 atoms of sulfur per atom of molybdenum, to form a sulfur- and molybdenum-containing composition.

9. The product prepared by the process of claim **1**, **2**, **3**, **4**, **5**, **6**, **7** or **8**.

10. A lubricating oil composition comprising an oil of lubricating viscosity and from 0.05 to 15% by weight of the product of claim **9**.

4,265,774

OXYALKYLATED POLYGLYCEROLS AND WATER-BASED LUBRICANTS PREPARED THEREFROM

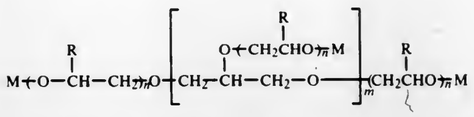
William K. Langdon, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Oct. 29, 1976, Ser. No. 736,948

Int. Cl.³ C10M *1/06*

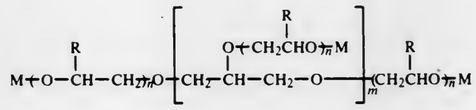
U.S. Cl. 252—49.3 **4 Claims**

1. A composition of matter comprising a mixture of compounds having the formula:



where R is hydrogen or a methyl group and in which at least 75% of the R groups are hydrogen, M is hydrogen or an alkali metal, m is an integer having an average value greater than 5, and n is an integer having an average value high enough to provide a compound mixture having an average molecular weight greater than about 20,000.

3. A hydrolube composition consisting essentially of from about 62 to about 92% by weight of water, from about 1 to about 3% by weight of additives, and from about 2 to about 20% by weight of a mixture of compounds having the formula:



where R is hydrogen or a methyl group and in which at least 75% of the R groups are hydrogen, M is hydrogen or an alkali metal, m is an integer having an average value greater than 5, and n is an integer having an average value high enough to provide a compound mixture having an average molecular weight greater than about 20,000.

4,265,775

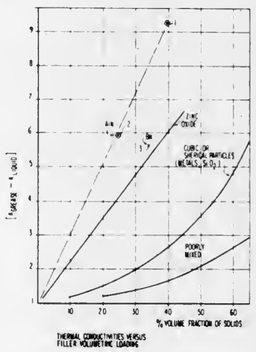
NON-BLEEDING THIXOTROPIC THERMALLY CONDUCTIVE MATERIAL

Nandakumar G. Aakalu, Poughkeepsie, and Lawrence A. Rittmiller, Saugerties, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 16, 1979, Ser. No. 67,481

Int. Cl.³ H01B *3/46, 3/20, 3/10*

U.S. Cl. 252—573 **10 Claims**



1. A non-bleeding thixotropic thermally conductive material comprising a liquid organo-silicone carrier, substantially spherical silica in an amount effective to prevent bleeding of said liquid carrier, substantially all of said silica being less than 5 microns in size, and one or more thermal filler powders selected from the group consisting of dendritic zinc oxide, lamellar aluminum nitride, lamellar boron nitride and a mixture of two or more thereof, said silica being added to said liquid organo-siicone carrier prior to the adding of said one or more thermal filler powders, whereby said material is rendered non-bleeding.

4,265,776

DETERGENT AND CLEANING COMPOSITIONS

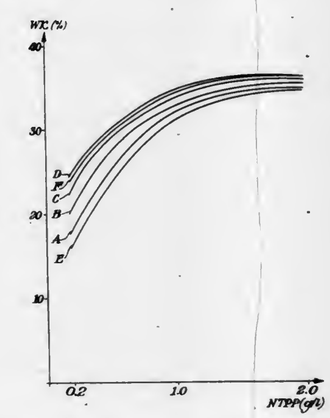
Werner Gohla, Niederkassel; Klaus Hestermann; Joachim Kandler, both of Erftstadt; Horst-Dieter Wasel-Nielen, Hürth; Klaus Sommer; Hans-Adolf Rohlfs, both of Heidelberg, and Karl Merkenich, Rimbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 968,295, Dec. 11, 1978, abandoned. This application Mar. 13, 1980, Ser. No. 130,156

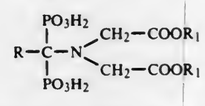
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1977, 2756516

Int. Cl.³ C11D *3/30, 7/56, 9/42*

U.S. Cl. 252—98 **1 Claim**



1. Cleaning and detergent composition containing from 0.2–5 weight % of at least one compound of the formula



wherein **R** is hydrogen or methyl and R_1 is hydrogen or an alkali metal or NH_4 ion,

15–30 weight % of an alkali metal triphosphate,

6–25 weight % of at least one surfactant selected from the group consisting of dodecylbenzenesulfonate, tallow fatty alcohol ethoxylated with 11 mols of ethylene oxide and hardened tallow soap, and

30–78.8 weight % of sodium perborate tetrahydrate alone or together with at least one substance selected from the group consisting of magnesium silicate, sodium silicate, sodium sulfate and carboxymethylcellulose.

4,265,777

DETERGENT COMPOSITIONS CONTAINING AN ALUMINOSILICATE DETERGENCY BUILDER AND AN UNSATURATED FATTY ACID SOAP

Stanton L. Boyer, Fairfield, and Denzel A. Nicholson, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 17, 1980, Ser. No. 141,222
Int. Cl.³ C11D *3/12, 9/18, 10/04*
U.S. Cl. 252—113 **15 Claims**

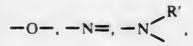
1. A detergent composition consisting essentially of:
(a) from about 1% to about 20% of synthetic detergent surfactant which is an efficient soap curd dispersant, said surfactant being selected from the group consisting of:
(1) water-soluble nonionic detergent surfactants;
(2) water-soluble synthetic anionic detergent surfactants;
(3) water-soluble zwitterionic detergent surfactants;
(4) water-soluble amphoteric detergent surfactants;
(5) water-soluble semi-polar nonionic detergent surfactants; and
(6) mixtures thereof;
(b) from about 5% to about 60% of water-soluble soap of unsaturated fatty acids containing from about 16 to about 22 carbon atoms; and
(c) from about 5% to about 50% of a water-insoluble inorganic detergency builder selected from the group consisting of:
(1) zeolite A;
(2) zeolite X;
(3) zeolite P;
(4) amorphous hydrated aluminosilicate material of the empirical formula $M_z(zAlO_2.ySiO_2)$ wherein M is sodium, potassium or ammonium; z is from about 0.5 to about 2; and y is 1, said zeolites A, X and P having a particle size diameter of from about 0.01 microns to about 25 microns and containing at least 10% water of hydration and said amorphous material having a particle size diameter of less than about 25 microns, and magnesium ion exchange capacity of at least about 50 milligram equivalents of calcium carbonate hardness per gram of anhydrous aluminosilicate, and a magnesium ion exchange rate of at least about 1 grain/gallon/minute/gram/gallon; and
(5) mixtures thereof; and
(d) the balance being selected from the group consisting of water, sodium sulfate, C_{1-4} alcohols, sodium silicates, sodium carbonate, and mixtures thereof, and the level of any saturated soap present being limited so that it does not exceed the level of said unsaturated soap.

2. The composition of claim 1 wherein the water-insoluble inorganic detergency builder is selected from the group consisting of zeolite A, zeolite X, and mixtures thereof containing at least about 10% water of hydration and having a particle size of from about 0.1 micron to about 10 microns in an amount from about 15% to about 40% by weight of the composition.

6. The detergent composition of claim 2 wherein the synthetic detergent surfactant is selected from the group consisting of:
(a) nonionic surfactants having the formula:

$$R(Z)(C_2H_4)_xO—R^1$$

wherein R is an alkyl, hydroxy alkyl, alkylene, hydroxy alkylene, acyl, or hydroxy acyl group containing from about 8 to about 22 carbon atoms or an alkylbenzene group wherein the alkyl group contains from about 6 to about 15 carbon atoms and mixtures thereof; Z is selected from the group consisting of



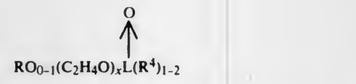
and mixtures thereof; X is a number from 0 to about 30; and R′ is selected from the group consisting of H, alkyl groups containing from 1 to about 4 carbon atoms, acyl groups containing from 2 to about 4 carbon atoms and mixtures thereof;
(b) anionic surfactants having the formula:

$$R(O)_y(R^2O)_xSO_3M$$

wherein R has the meaning given hereinbefore; Y is 0 or one, but is always one when x is more than 0; R^2 is selected from the group consisting of $—C_2H_4—$, $—CH_2CHOH—CH_2—$, $—CH_2CH(CH_3)—$, and mixtures thereof; x can vary from 0 to about 30; and M is selected from the group consisting of Na, K, $—N(C_2H_4OH)_{0-3}(H)_{1-4}$, Ca, Mg, and mixtures thereof;
(c) zwitterionic detergent surfactants having the formula $RL^{\oplus}R^3_{2-3}$ wherein R has the meaning given hereinbefore; R^3 is an alkyl group containing from 1 to about 22 carbon atoms; R or one of the R^3 groups is substituted with T; the portion of R or R^3 between L and T is interrupted by one to about ten groups selected from the group consisting of ether, ester, and amide groups and mixtures thereof; L is N, P or S; and T is $—SO_4^{\ominus}$, $—COO^{\ominus}$, or $—SO_3^{\ominus}$, there being no more than one hydrophobic group;
(d) amphoteric detergent surfactants having the formula:

$$RLR^3_{1-2}$$

wherein R, L and R^3 have the meanings given hereinbefore;
(e) semi-polar nonionic detergent surfactants having the formula:



wherein R, L and x are as stated hereinbefore and each R^4 is selected from the group consisting of C_{1-4} alkyl and hydroxy alkyl groups and polyethoxylate groups containing from 1 to about 10 ether linkages; and said R^3 groups can be connected through an oxygen or a nitrogen atom; and
(f) mixtures thereof.

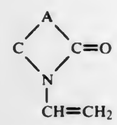
4,265,778

SOAP BAR

Gerard G. Sonenstein, Yardley, Pa., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation of Ser. No. 825,350, Aug. 17, 1977, abandoned. This application Apr. 23, 1979, Ser. No. 32,793
Int. Cl.³ C11D *9/30, 15/04*
U.S. Cl. 252—117 **9 Claims**

1. A soap bar comprising a water soluble alkali metal, ammonium, or lower molecular weight amine salt of a C_8 to C_{24} fatty acid and from about 0.1 to about 15% by weight based on the weight of said fatty acid salt of an interpolymer of (1) about 10 to 90 mole % of maleic anhydride, maleic acid, or a partial C_1 to C_4 or partial-(hydroxy-substituted C_1 to C_4 alkyl) maleate with (2) about 90 to 10 mole % of a vinyl lactam, of the formula:



wherein A represents 2, 3 or 4 atoms selected from the group consisting of carbon, nitrogen, oxygen and sulfur atoms; a vinyl ester of a C_2 to C_6 mono carboxylic acid; or a C_1 to C_4 alkyl vinyl ether; or mixtures thereof or of (1).

4,265,779

SUDS SUPPRESSING COMPOSITIONS AND DETERGENTS CONTAINING THEM

Daniel Gandolfo, Levallois Perret, France, and David J. Cooper, Wezembeek-Oppem, Belgium, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Sep. 4, 1979, Ser. No. 72,254
Claims priority, application United Kingdom, Sep. 9, 1978, 36242/78
Int. Cl.³ C11D *7/24, 7/16;* **B01D** *19/04*
U.S. Cl. 252—135 **9 Claims**

1. A particulate suds suppressing composition comprising a ternary mixture of:
(a) a substantially water-insoluble hydrocarbon which is a member selected from the group consisting of aliphatic, alicyclic, aromatic and heterocyclic saturated or unsaturated hydrocarbons having from about 12 to about 40 carbon atoms and which is liquid at room temperature and atmospheric pressure;
(b) a nonionic ethoxylate having an HLB in the range from 14 to 19; and
(c) a compatibilizing agent which is a member selected from the group consisting of urea, thiourea, desoxycholic acid, the water-soluble salts of desoxycholic acid, α-cyclodextrin, β-cyclodextrin, 4,4′-dinitrobiphenyl and mixtures thereof;
the weight ratio of component (a) to component (b) being in the range from 5:1 to 1:4 and that of components (a)+(b) together to component (c) being in the range from 20:1 to 1:2.

4,265,780

PROCESS FOR CLEANING OF TIN-PLATED STEEL CANS

Masao Kimura; Tamotu Sobata, and Hideo Wada, all of Neyagawa, Japan, assignors to Nippon Paint Co., Ltd., Japan

Filed Feb. 8, 1980, Ser. No. 119,776
Claims priority, application Japan, Feb. 15, 1979, 54-16834
Int. Cl.³ C23G *1/14, 1/18;* **C11D** *7/06*
U.S. Cl. 252—156 **2 Claims**

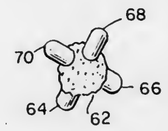
1. A process for cleaning a tin-plated steel can by washing its surface with an alkaline solution comprising an alkaline builder in an amount sufficient to clean the surface, wherein the alkaline solution additionally comprises at least one of esters of myoinositol with 2 to 6 molecules of phosphoric acid and their alkali metal salts, alkaline earth metal salts, ammonium salts and amine salts in a concentration of not lower than 0.05 g/l and has a pH of 8 to 13.

4,265,781

LOW DENSITY SPRAY DRIED PRODUCT

William S. Gross, West Caldwell; Edward J. Gibbons, Fanwood, and Joseph B. Wraga, Secaucas, all of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 944,380, Sep. 21, 1978, abandoned, which is a continuation of Ser. No. 844,860, Oct. 25, 1977, abandoned, which is a continuation of Ser. No. 614,461, Sep. 18, 1975, abandoned. This application Oct. 1, 1979, Ser. No. 80,836
Int. Cl.³ C11D *17/06, 17/00*
U.S. Cl. 252—174 **5 Claims**



1. A low density spray dried product comprising a body in the form of an irregular shaped bead having a plurality of spaced nodules protruding therefrom.

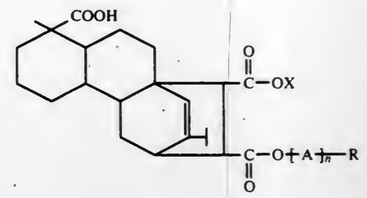
4,265,782

DETERGENT COMPOSITION

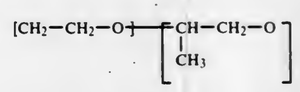
David P. Armstrong, Parsippany, and Robert J. Verdicchio, Succasunna, both of N.J., assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Sep. 25, 1979, Ser. No. 78,633
Int. Cl.³ C11D *10/02, 1/94*
U.S. Cl. 252—174.19 **9 Claims**

1. A detergent composition wherein the active surfactant ingredients consist essentially of from about 1 to 30% by weight of the total composition of a modified rosin ester of the formula



wherein R is hydrogen, alkyl containing from about 8 to 22 carbon atoms, hydroxyalkyl containing from about 8 to 22 carbon atoms, sorbitan monoesters of fatty acids containing from 8 to 22 carbon atoms or alkyl phenoxy containing from about 8 to 22 carbon atoms; X is hydrogen or an alkali metal salt; A is $CH_2—CH_2—O$ or



and n is an integer from 4; and from about 0.5 to 30.0% by weight of the total composition of at least one additional surfactant selected from the group consisting of anionic, nonionic, cationic and amphoteric surfactants with the proviso that the total amount of active surfactant ingredients should not be greater than about 40% by weight of the total composition and the proviso that the total amount of anionic and amphoteric surfactants should not be greater than about 20% by weight of the total composition.

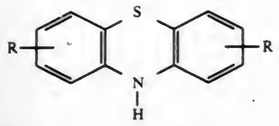
4,265,783

STABILIZATION OF POLYETHER POLYOLS AND POLYURETHANE FOAMS PREPARED THEREFROM

Kenneth J. Hinze, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Apr. 21, 1980, Ser. No. 141,853
Int. Cl.³ C08G *18/14*
U.S. Cl. 252—182 **9 Claims**

1. In a polyether polyol or mixture of polyether polyols stabilized against oxidative degradation with a stabilizing quantity of a synergistic antioxidant composition containing
(A) from about 15 to about 85 percent by weight of a hindered phenolic antioxidant and
(B) from about 85 to about 15 percent by weight of 4,4′-bis-(α,α-dimethylbenzyl)diphenyl amine;
the improvement which comprises replacing a portion of either of the components (A) or (B) or a portion of both of the components (A) and (B) with from about 25 to about 1000 parts per million parts by weight of polyether polyol of a phenothiazine compound represented by the formula



wherein each R is independently hydrogen or an alkyl group having from 1 to about 12 carbon atoms.

4,265,784

AZINE LIQUID CRYSTAL COMPOUNDS FOR USE IN LIGHT-CONTROL DEVICES

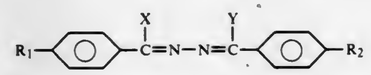
Hugh Mailer, Lyndhurst, and Stanley Laskos, Jr., Diamond, both of Ohio, assignors to General Electric Company, Syracuse, N.Y.

Division of Ser. No. 26,781, Apr. 3, 1979, Pat. No. 4,196,975, which is a continuation-in-part of Ser. No. 937,507, Aug. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 861,954, Dec. 19, 1977, abandoned. This application Jul. 27, 1979, Ser. No. 61,376

Int. Cl.³ C09K *3/34*; G02F *1/13*

U.S. Cl. 252—299 **7 Claims**

1. A liquid crystal material comprising an azine having the general formula:



wherein R_1 and R_2 are different para-substituents whereby to produce an asymmetrical molecular structure, wherein R_1 and R_2 are selected from the group comprising cyano, halogen, alkyl, and substituted alkyl radicals in which the alkyl radical has from one to nine carbon atoms, and at least one of the R_1 and R_2 radicals is alkyl or substituted alkyl when the other radical is halogen or cyano, and wherein X and Y are selected from the group consisting of hydrogen and methyl radicals, said azine having a transition temperature from its nematic phase to its isotropic liquid phase of at least about 50° C. and a melting point from its crystalline phase to a liquid crystal phase of no higher than about 75° C.

4,265,785

POLYMERIZATION CATALYST

Umberto Giannini; Paolo Longi; Domenico Deluca, and Angelo Pricca, all of Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Continuation of Ser. No. 963,179, Nov. 24, 1978, abandoned, which is a continuation of Ser. No. 814,936, Jul. 12, 1977, abandoned, which is a continuation-in-part of Ser. No. 530,205, Dec. 6, 1974, abandoned, which is a continuation of Ser. No. 167,872, Jul. 30, 1971, abandoned. This application Aug. 10, 1979, Ser. No. 65,430

Claims priority, application Italy, Jul. 31, 1970, 28131 A/70

Int. Cl.³ C08F *4/02, 4/64*

U.S. Cl. 252—429 B **4 Claims**

1. In the preparation of components of catalysts for the polymerization of olefins comprising (1) a Ti compound selected from the group consisting of halides, oxyhalides, haloalcoholates and alcoholates, supported on (2) an activated anhydrous Mg or Mn dihalide, the improvement of supporting said Ti compound (1) on a mixture of the anhydrous Mg or Mn dihalide (2) and (3) an anhydrous compound of silicium or boron or of a metal belonging to one of Groups III or IV of the Mendelyeev Periodic Table, in an amount of from 1 to 80 parts by weight per 100 parts of the total mixture of (2) and (3), said compound (3) being selected from the group consisting of aluminum oxide, silicium oxide, tin oxides, titanium dioxide, zirconium dioxide, aluminum sulphate, titanyl sulphate, aluminum stearate, tin basic sulphate, lead sulphate, aluminum phosphate and boric anhydride, said Ti-containing component supported on (2) and (3) having a surface area exceeding 3 m^2/g or an X-rays powder spectrum which does not show the most intense diffraction lines as they appear in the X-rays powder spectrum of normal Mg or Mn dihalides, and anhydrous compound (3) being one which does not interact with the active Mg or Mn dihalide to a substantial extent which would alter the activity of the activated Mg or Mn dihalide.

4,265,786

REFORMING WITH MULTIMETALLIC CATALYSTS

Paul E. Eberly, Jr.; Charles H. Mauldin, and William C. Baird, Jr., all of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jun. 29, 1979, Ser. No. 53,375

Int. Cl.³ B01J *27/02*

U.S. Cl. 252—439 **12 Claims**

1. A reforming catalyst which comprises from about 0.1 to about 2 percent platinum, from about 0.01 to about 0.1 percent copper, from about 0.001 to about 3 percent selenium, and from about 0.1 to about 2.5 percent halogen, composited with an inorganic oxide support.

4,265,787

CRACKING CATALYST

Albert B. Schwartz, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 642,884, Dec. 22, 1975, which is a continuation-in-part of Ser. No. 399,008, Sep. 20, 1973, abandoned, and a continuation of Ser. No. 440,890, Feb. 4, 1974, abandoned. This application Apr. 17, 1978, Ser. No. 897,077

Int. Cl.² B01J *29/06*

U.S. Cl. 252—455 Z **28 Claims**

1. A solid, acid, porous hydrocarbon cracking catalyst that contains about 0.01 to 100 parts per million, based on said catalyst, of at least one metal of the group consisting of platinum, palladium, iridium, osmium, rhodium, ruthenium and rhenium in a form inherently capable of dehydrogenating gas oil; which catalyst has substantial activity to catalyze the endothermic cracking, in a cracking zone, of gas oil boiling range hydrocarbons at elevated temperatures and in the absence of added hydrogen, with concomitant deactivation during said cracking by reason of the deposition of coke thereon, in an amount not substantially higher than the amount of coke, based upon feed, which would have been deposited on said catalyst under the same operating conditions in the absence of said incorporated metal; which catalyst in its coked condition is adapted to be transported to a regeneration zone and therein, in combination with sufficient oxygen, to be exothermically regenerated and heated by burning coke thereoff to produce a heated, reactivated catalyst and a flue gas having a higher ratio of carbon dioxide to carbon monoxide than said flue gas would have using said catalyst without said metal; and which heated, reactivated catalyst is adapted to be returned to said cracking zone.

4,265,788

ADSORBENT FOR SEPARATING PARA-XYLENE, AND PROCESS FOR THE PREPARATION THEREOF

Atsushi Ebitani, Kamakura; Takehisa Inoue, Tokyo, and Kazuo Tsunoi, Kamakura, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed May 4, 1979, Ser. No. 36,157

Claims priority, application Japan, May 9, 1978, 53-54735

Int. Cl.³ B01J *29/08*

U.S. Cl. 252—455 Z **11 Claims**

1. An adsorbent for separating para-xylene from C_8 aromatic hydrocarbons, comprising a faujasite zeolite which contains:

(a) potassium ion;

(b) zirconium ion; and

(c) hydrogen ion or ammonium ion as cations.

2. The adsorbent according to claim 1, wherein said cations are cation exchanged and wherein the degree of cation exchange for each cation is:

K About 60–96%

Zr About 2–25% and

H or NH_4 About 2–25%, based on the total exchangeable cation sites originally present.

4,265,789

CONDUCTIVE POLYMER PROCESSABLE AS A THERMOPLASTIC

Phillips Christopherson, Sterling, and Rene Aelion, Concord, both of Mass., assignors to Polymer Cencentrates, Inc., Clinton, Mass.

Filed Oct. 22, 1979, Ser. No. 86,741

Int. Cl.³ H01B *1/06*

U.S. Cl. 252—511 **17 Claims**

1. A flexible conductive plastic composite processable as a thermoplastic resin by injection molding or extrusion and having a volume resistivity of less than 10 ohm per cm, a Brabender torque of less than 1500 meter per grams at a temperature of 20° C. above melt, a minimum elongation at break of 50% and a brittleness temperature at failure of less than −10° C., the composition comprising a matrix of two phases, one an elastomeric amorphous polymer of glass transition temperature of less than 10° C., the other phase a crystalline polymer or copolymer with a glass transition temperature above 25° C., the two phases being bound together, the crystalline phase comprising less than 60% of the total of the two phases by mole concentration, and a dispersion in said two phase matrix of conductive particles characterized by a volume resistivity of 0.01 to 1 ohm/cm and a dibutylphthalate/oil absorption of at least 150 cc per 100 grams and comprising as a percentage by weight of the composite of 15% to 75%.

4,265,790

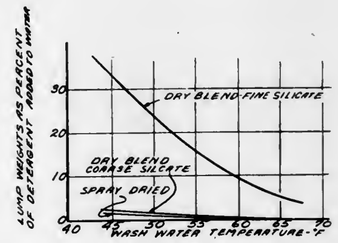
METHOD OF PREPARING A DRY BLENDED LAUNDRY DETERGENT CONTAINING COARSE GRANULAR SILICATE PARTICLES

Anthony E. Winston, East Brunswick; Francis R. Cala, North Brunswick; Stephen P. Lengyel, Bridgewater; Lawrence Kirschner, Flanders, and Dragomir Bracilovic, Edison, all of N.J., assignors to Church & Dwight Co., Inc., Piscataway, N.J.

Filed Aug. 9, 1979, Ser. No. 65,203

Int. Cl.³ C11D *17/06, 3/08, 3/10*

U.S. Cl. 252—532 **6 Claims**



1. A method of substantially completely preventing the formation of undissolved laundry detergent masses in cold wash water having a temperature of the order of about 35° F. to about 75° F., said laundry detergent being a dry blended carbonate detergent formulation of finely-divided powders and containing unhydrated or partially hydrated builder salts; from 2–10% by weight of a pH buffering or pH lowering compound; and from 5–20% by weight of a synthetic anionic, nonionic, amphoteric or zwitterionic detergent active compound;

said method consisting essentially in adding from about 3 to about 25 percent by weight of coarse, hydrous granular water soluble silicate particles of which

about 100% pass a 10 mesh screen, about 95% are retained on a 100 mesh and no greater than about 4% pass through a 100 mesh screen, and wherein

the ratio of SiO_2:Na_2O in said silicate is in the range of about 1:1 to about 3.5:1.

4,265,791

NOVEL PHOSPHORIC ACID

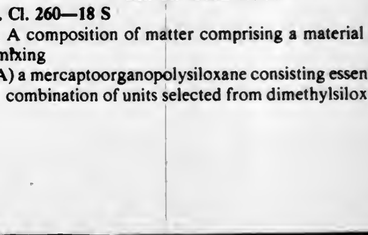
Richard R. Nicholson; Ray E. Smith, and Jayendra G. Shukla, all of Ann Arbor, Mich., assignors to Velsicol Chemical Corporation, Chicago, Ill.

Division of Ser. No. 939,629, Sep. 5, 1978, Pat. No. 4,205,022. This application Dec. 6, 1979, Ser. No. 101,323

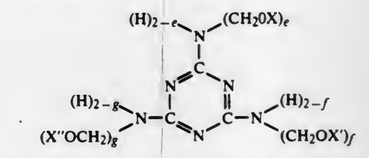
Int. Cl.³ C09K *3/28*

U.S. Cl. 252—8.1 **5 Claims**

1. An intumescent composition consisting essentially of from about 8 to about 55 percent by weight of a compound selected from the group consisting of:



wherein a, b, c, and n are integers; a is from 1 to 3; b and c are independently selected from the group consisting of 0 and 1; n is selected from the group consisting of 1 and 2; R^1 and R^4 are independently selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms and haloalkyl of 1 to 4 carbon atoms and 1 to 2 halogen atoms; and R^2 and R^3 are independently selected from the group consisting of haloalkyl containing 1 to about 4 carbon atoms and 1 to about 2 halogen atoms selected from the group consisting of chlorine, bromine, and mixtures thereof; from about 20 to about 40 percent by weight of water, and from about 10 to about 70 percent by weight of a cyclic nitrogen compound of the formula



wherein e, f, and g are integers selected from the group consisting of 1 and 2, e plus f plus g equal about 3 to 6, and X, X', and X'' are independently selected from the group consisting of hydrogen and $-CH_3$.

4,265,792

COMPOSITIONS INCLUDING MERCAPTOORGANOPOLYSILOXANES AND STANNIC SALTS OF CARBOXYLIC ACIDS

Gary R. Homan, and Chi-Long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,299

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—18 S **7 Claims**

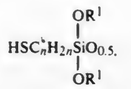
1. A composition of matter comprising a material prepared by mixing

(A) a mercaptoorganopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units,

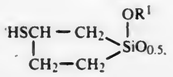
trimethylsiloxane units, hydroxydimethylsiloxane units, units of the formula



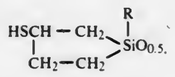
units of the formula



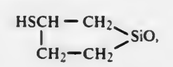
units of the formula



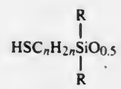
units of the formula



units of the formula



and units of the formula

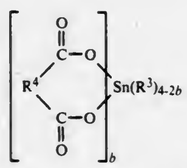


wherein: R is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive and phenyl radicals; R^1 is methyl or ethyl; and, n has a value of from 1 to 4 inclusive, there being in said mercaptoorganopolysiloxane an average of at least two mercapto-containing siloxane units per molecule and no more than 10 mole percent mercapto-containing siloxane units based on the total number of siloxane units in the mercaptoorganopolysiloxane;

(B) a stannic salt of a carboxylic acid selected from the group consisting of those represented by the formula

$(R^2O)_aSn(R^3)_{4-a}$

wherein: R^2 is a monovalent acyl radical; R^3 is a monovalent hydrocarbon radical; and a has a value of from 1 to 4 inclusive, and those represented by the formula



wherein R^3 is defined above; R^4 is a divalent hydrocarbon radical; and b is 1 or 2, said stannic salt being present in an amount sufficient to provide at least 1/a stannic salt molecules per mercaptoorganopolysiloxane molecule or at least 1/2b stannic salt molecules per mercaptoorganopolysiloxane molecule; and

(C) a filler in an amount of from 0 to 200 parts by weight per 100 parts by weight of (A).

4. The composition according to claim 1 in which (B) is dibutyltindilaurate.

4,265,793

CATHODE-PRECIPITATING ELECTRODEPOSITION COATING COMPOSITION

Hiroyoshi Omika, Yokohama; Hajime Hara, Fujisawa; Yutaka Otsuki, Yokohama; Yoshihiko Araki, Kawasaki, and Kazuho Aoyama, Tokyo, all of Japan, assignors to Nippon Oil Company, Ltd., Japan

Filed Oct. 26, 1979, Ser. No. 88,653

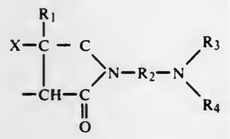
Claims priority, application Japan, Nov. 1, 1978, 53-133772; Sep. 17, 1979, 54-117857

Int. Cl.[3] **C08G** *59/50;* **C09D** *5/40;* **C25D** *13/06*

U.S. Cl. 260—23 EP **8 Claims**

1. A coating composition for cathode-precipitating electrodeposition consisting essentially of

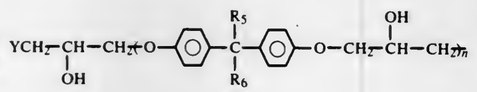
(A) 100 parts by weight of an unsaturated organic compound having a molecular weight of 300 to 5,000 containing a carbon-carbon double bond in an amount corresponding to an iodine value of 100 to 500, said unsaturated organic compound being selected from the group consisting of (a) a polymer of a conjugated diolefin containing 4 to 8 carbon atoms, (b) a copolymer of at least two conjugated diolefins containing 4 to 8 carbon atoms, (c) a copolymer of at least one conjugated diolefin containing 4 to 8 carbon atoms and a vinyl monomer having ethylenic unsaturation containing 2 to 20 carbon atoms, (d) a natural oil, (e) a natural fat and (f) a petroleum resin produced by cationic polymerization of petroleum cracking fractions containing 4 to 10 carbon atoms with a Friedel-Crafts catalyst, said unsaturated organic compound having bonded thereto, through a carbon-carbon bond, basic groups of the formula



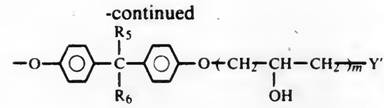
wherein R_1 represents a hydrogen or halogen atom or a hydrocarbon group having 1 to 3 carbon atoms, R_2 represents a hydrocarbon group having 1 to 20 carbon atoms, R_3 and R_4 represent a hydrogen atom or a hydrocarbon group having 1 to 20 carbon atoms which may be partly replaced by a hydroxyl group, at least one of R_3 and R_4 is said hydrocarbon group, X represents a hydrogen atom, or a bond, and when X represents a bond, the carbon atom to which R_1 is attached and the adjacent carbon atom to which hydrogen is attached may form a part of the main chain,

the amount of said basic groups in said component (A) being 0.05 to 0.5 mole per 100 g of said component (A), and

(B) 3 to 100 parts by weight of at least one compound represented by the general formula



-continued



wherein R_5 and R_6, independently from each other, represent a hydrogen atom or an alkyl group having 1 to 10 carbon atoms, n is an integer of from 0 to 20, m is 1 or 0, Y is a group of the formula



in which R'_3 represents an organic radical having 1 to 10 carbon atoms and R'_4 represents a hydrogen atom or an organic radical having 1 to 10 carbon atoms, a residue of a carboxylic acid having 1 to 20 carbon atoms, or a residue of a phenolic compound having 6 to 20 carbon atoms, and Y' represents a hydrogen atom when m is O and Y when m is 1,

said component (A) and said component (B) being neutralized with an organic acid or an inorganic acid and dissolved or dispersed in water.

4,265,794

MOLDABLE MIXTURE OF SACRIFICIAL BINDER AND SINTERABLE PARTICULATE SOLIDS

Robert A. Pett, Franklin; V. Durga N. Rao, Bloomfield Township, Oakland County, and S. Burhan A. Qaderi, Livonia, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 905,316, May 12, 1978, abandoned, which is a division of Ser. No. 810,464, Jun. 27, 1977, Pat. No. 4,158,689, which is a continuation-in-part of Ser. No. 644,779, Jan. 1, 1976, abandoned. This application Aug. 10, 1979, Ser. No. 65,702

The portion of the term of this patent subsequent to Jun. 19, 1996, has been disclaimed.

Int. Cl.[3] **C08L** *91/00*

U.S. Cl. 260—28.5 R **5 Claims**

1. In a moldable mixture for preparing sintering articles which consists essentially of about 30 to about 70 volume percent of sinterable particulate solids and about 70 to about 30 volume percent of an organic sacrificial binder, the improvement wherein said organic sacrificial binder consists essentially of an intimate mixture of about 10 to about 90 parts by weight of resinous material and about 90 to about 10 parts by weight of a plasticizer for said resinous material wherein

(1) said resinous material is a block polymer having the structural formula $AB\{AR\}_\eta A$, wherein "η" is 0 or a positive integer, "A" is a linear or branched polymer that is glassy or crystalline at 20°–25° C., has its softening point in the range of about 80° to about 250° C. and "B" is a polymer of different chemical composition than A that behaves as an elastomer at temperatures between about 15° C. below the softening point of A and about 100° C. above the softening point of A, and

(2) said plasticizer is selected from the group consisting of

(a) an oil at least 75 percent by weight of which boils in the range of about 550° F. to about 1038° F., has viscosity at 210° F. in the range of about 30 to about 220 Saybolt Universal Seconds and an aniline point in the range of about 170° F. to about 255° F.

(b) a wax melting at a temperature in the range of about 130° F. to about 170° F. at least 75 percent by weight of which boils at temperatures in the range of about 600° F. to about 900° F., and

(c) an oil in accordance with (a) and a wax in accordance with (b)

and wherein 0 to between 49 and 50 weight percent of said block polymer is replaced by a first replacement polymer meeting the limitations of polymer "A" in said structural formula, and 0 to about 49 and 50 weight percent of said block polymer is replaced with a second replacement polymer meeting the limitations of polymer "B" in said structural formula, the sum of said replacements of said block polymer comprising in combination less than 50 weight percent of said block polymer.

4,265,795

CATIONIC AMINE-FUNCTIONAL COPOLYMER MIXTURE WITH AMINOPLAST RESIN AND AQUEOUS BATHS CONTAINING THE SAME

Kazys Sekmakas, Palatine, and Raj Shah, Schaumburg, both of Ill., assignors to DeSoto, Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 20,688, Mar. 15, 1979, Pat. No. 4,198,495. This application Oct. 16, 1979, Ser. No. 85,199

Int. Cl.[3] **C08L** *61/12, 61/26*

U.S. Cl. 260—29.3 **12 Claims**

9. Cationic amine-functional copolymer mixtures as recited in claim 1 in which said copolymer is present in stable dispersion in water to provide a bath having a pH in excess of pH 5.0.

4,265,796

PREPARATION OF AQUEOUS POLYACRYLATE DISPERSIONS HAVING IMPROVED FLOW CHARACTERISTICS

Rudolf Mueller-Mall, Karlsruhe; Kurt Wendel, Ludwigshafen; Hans J. Geelhaar, Frankenthal, and Michael Melan, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,300

Claims Priority, Application Fed. Rep. of Germany, Sept. 30, 1978, 2842719

Int. Cl.[3] **C08L** *33/08, 33/10*

U.S. Cl. 260—29.6 R **8 Claims**

1. In a process for the preparation of aqueous polyacrylate dispersions having improved flow characteristics by emulsion polymerizing at least 20 weight % of an ester of acrylic acid and/or methacrylic acid and an alkanol of 1 to 10 carbon atoms at from 30° to 95° C. in the presence of a free radical polymerization inhibitor, a protective colloid, from 0.5 to 5% by weight of a nonionic emulsifier and a molecular weight regulator, the percentages by weight each being based on the total amount of monomer, the improvement which comprises: admixing at least a portion of the protective colloid present in a total amount of 0.05 to 1.5% by weight and a portion of the water soluble molecular weight regulator present in a total amount of 0.1 to 0.5% by weight with from 10–30 weight % of the total number to form an initial charge, and admixing the remainder of the monomer and of the said water-soluble molecular weight regulator and any remainder of the protective colloid with said initial charge.

4,265,797

AEROSOL WATER-BASED PAINT COMPOSITION

Albert Suk, Richmond Hill, Canada, assignor to Conn Chem Group, Limited, Toronto, Canada

Continuation-in-part of Ser. No. 968,277, Dec. 11, 1978, abandoned. This application Nov. 26, 1979, Ser. No. 97,152

Int. Cl.[3] **C08K** *5/05*

U.S. Cl. 260—29.6 E **5 Claims**

1. An aerosol composition having a pH of about 7.2 to about 10 and suitable for spray application to a substrate surface and air drying to a continuous film thereon which has high gloss and excellent durability including high flexibility retention and high gloss retention, said composition consists essentially of:

(a) about 10 to about 30% by weight of at least one propellant,

(b) about 15 to about 35% by weight of at least one aliphatic monohydric alcohol of the formula: R-OH wherein R is an unsubstituted straight or branched chain alkyl group, and containing 1 to 4 carbon atoms,

(c) about 10 to about 45% by weight of water,

(d) about 8 to about 25% by weight of an insoluble film forming acrylic polymer in particulate form suspended in

said composition, said acrylic polymer consisting of a water-insoluble interpolymer of (A) units from at least one neutral free-radical polymerizable ester having a vinylidene group attached to the functional group, which ester by itself yields a soft linear polymer, (B) units from at least one polymerizable aromatic monovinylidene compound which by itself yields a hard polymer, and (C) units from at least one neutral polymerizable aliphatic monovinylidene compound substituted by a cyano group and which by itself yields a hard polymer,

(e) up to about 3% by weight of at least one surfactant present in an amount at least sufficient to maintain solids suspended in the liquid phase,

(f) 0 to about 15% by weight of a pigment,

(g) 0 to about 5% by weight of a coalescing solvent,

(h) 0 to about 1% by weight of a pH stabilizer,

(i) 0 to about 2% by weight of an antifoam agent, and

(j) 0 to about 2% by weight of a plasticizer.

4,265,798

ISOCYANURATE PRODUCTS AND POLYURETHANES THEREFROM

Anupama Mishra, Guelph, Canada, assignor to Uniroyal Ltd., Ontario, Canada

Filed Feb. 11, 1980, Ser. No. 120,027

Claims priority, application Canada, Jan. 28, 1980, 344509

Int. Cl.[3] C08L *75/04*

U.S. Cl. 260—32.4 **24 Claims**

1. A method of cyclotrimerizing an organic diisocyanate comprising contacting the organic diisocyanate with a small but effective amount of potassium salt of 2-pyrrolidinone as a cyclotrimerization catalyst, whereby the organic diisocyanate is cyclotrimerized to an isocyanurate-containing product soluble in organic solvents.

4,265,799

ALCOHOL-WET PARTICLES OF ETHYLENE-VINYL ESTER INTERPOLYMER

Dorothee M. McClain, Cincinnati, Ohio, assignor to National Distillers and Chemical Corp., New York, N.Y.

Division of Ser. No. 934,647, Aug. 17, 1978, Pat. No. 4,217,423. This application Sep. 24, 1979, Ser. No. 78,530

Int. Cl.[3] C08K *5/05*

U.S. Cl. 260—33.4 R **4 Claims**

1. Substantially aggregate-free alcohol-wet interpolymer particles produced by the process which comprises adding to an aqueous dispersion of finely divided particles of non-hydrolyzed ethylene-vinyl ester interpolymer containing at least about 30% by weight of copolymerized vinyl ester in admixture with a surface active dispersing agent, an anti-coalescing amount of a lower saturated aliphatic monohydroxyl alcohol accompanied by, or followed with, agitation prior to recovering the ethylene-vinyl ester interpolymer particles from the media and thereafter recovering the interpolymer particles from the media in the alcohol-wet condition.

3. A blend of free-flowing powder comprising particles of less than 500 microns of alcohol-wet ethylene-vinyl ester copolymer, said copolymer comprising at least about 30% by weight of combined vinyl ester units, and said alcohol being a lower saturated aliphatic monohydroxyl alcohol, with particulate polyvinyl chloride.

4,265,800

STABILIZED HEAT CURABLE SILICONE ELASTOMERS

Harry V. Newton, Tecumseh, Mich., assignor to SWS Silicones Corporation, Adrian, Mich.

Filed Nov. 13, 1979, Ser. No. 93,368

Int. Cl.[3] C08L *83/04*

U.S. Cl. 260—37 SB **7 Claims**

1. A heat curable organopolysiloxane composition composed of an organopolysiloxane polymer, an organic peroxide curing agent, an amphorous silica filler and at least 0.005 percent by weight based on the weight of the organopolysiloxane polymer of tellurium.

4,265,801

POLYMERIC BLENDS CONTAINING A MONOORGANIC POLYSILOXANE RESIN

Anthony G. Moody, Stratton, and Richard J. Penneck, Lechlade, both of England, assignors to Raychem Limited, London, England

Filed Jul. 17, 1978, Ser. No. 925,238

Claims priority, application United Kingdom, Jul. 27, 1977, 31608/77

Int. Cl.[3] C08L *83/06, 67/02, 23/08*

U.S. Cl. 260—40 R **34 Claims**

1. A flame retarded, melt processable polymer composition, comprising a blend of (a) non-silicone polymer that is an elastomer or a thermoplastic polymer, (b) solid, non-elastomeric, monoorganic polysiloxane resin comprising at least 80% by weight of polymerized units of the formula $RSiO_{1.5}$ where R is hydrogen or an organic group, at least 85% of the R groups being organic groups, the non-silicone polymer and the monorganic siloxane resin being present in a weight ratio of from 10:1 to 1:1, wherein the monoorganic polysiloxane resin has a number average molecular weight in the range of from 2000 to 6000 and a hydroxyl content of less than 2% by weight, and (c) an effective amount of filler providing enhanced fire retardant properties.

4,265,802

POLYESTER OF PARA-HYDROXY BENZOIC ACID, 1,4-BIS(PARA-CARBOXYPHENOXY) BENZENE, AROMATIC DIOL AND AROMATIC DIACID CAPABLE OF UNDERGOING MELT PROCESSING

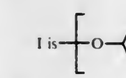
Eui W. Choe, Morris, N.J., assignor to Celanese Corporation, New York, N.Y.

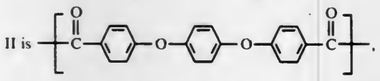
Filed Jan. 4, 1980, Ser. No. 109,573

Int. Cl.[3] C08G *63/60, 63/66*

U.S. Cl. 260—40 P **26 Claims**

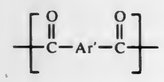
1. A melt processable wholly aromatic polyester capable of forming an anisotropic melt phase at a temperature below approximately 400° C. consisting essentially of the recurring moieties I, II, III, and IV wherein:

I is  ,

II is  ,

III is a dioxy aryl moiety of the formula —O—AR—O— where Ar is a divalent radical comprising at least one aromatic ring wherein at least one hydrogen atom present upon an aromatic ring optionally may be substituted with methyl, chloro, bromo, phenyl, alkoxy having 1 to 4 carbon atoms, and mixtures of the foregoing, and

IV is a dicarboxy aryl moiety of the formula



where Ar' is a divalent radical comprising at least one aromatic ring wherein at least one hydrogen atom present upon an aromatic ring optionally may be substituted with methyl, chloro, bromo, phenyl, alkoxy having 1 to 4 carbon atoms, and mixtures of the foregoing,

and wherein said polyester comprises approximately 30 to 60 mole percent of moiety I, approximately 10 to 30 mole percent of moiety II, approximately 20 to 35 mole percent of moiety III, and approximately 10 to 25 mole percent of moiety IV.

4,265,803

POLYMERS CONTAINING POLYALKYLPIPERIDINES AND USE THEREOF AS STABILIZERS

Nobuo Soma; Syoji Morimura; Takao Yoshioka, and Tomoyuki Kurumada, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

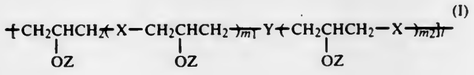
Filed Aug. 7, 1978, Ser. No. 931,535

Claims priority, application Japan, Aug. 8, 1977, 52/94808

Int. Cl.[3] C08L *23/00;* **C08G** *73/06;* **C07D** *221/00, 221/20*

U.S. Cl. 260—45.8 NZ **27 Claims**

1. A polymer represented by the formula (I):

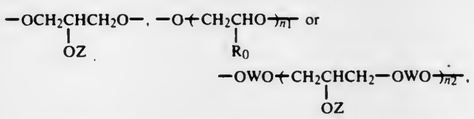
 (I)

wherein;

l is an integer of from 2 to 50,

m_1 and m_2 are 0, or one of them is 1 and another is 0,

X represents a group of formula

 ,

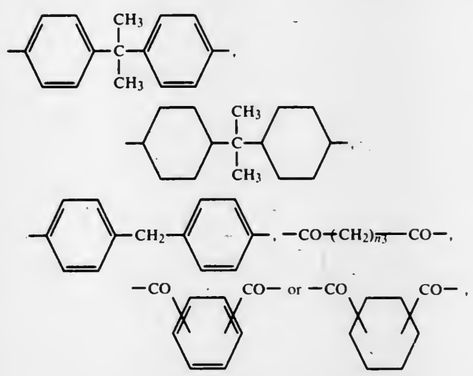
in which:

R_0 is hydrogen atom or methyl group,

n_1 is an integer of from 1 to 10,

n_2 is 0 or an integer of from 1 to 10,

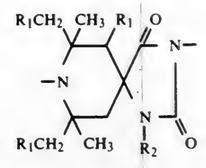
W represents a group of formula



in which n_3 is an integer of from 1 to 10, and,

Z has the meaning defined below,

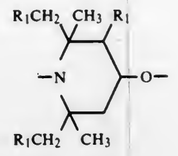
Y represents, when m_1 and m_2 are 0, a group of following formulae II to IV:

 (II)

in which:

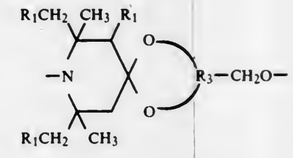
R_1 represents hydrogen atom or methyl group,

R_2 represents hydrogen atom or an alkyl group having from 1 to 18 carbon atoms,

 (III)

in which:

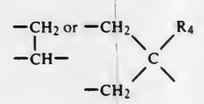
R_1 has the meaning defined above,

 (IV)

in which:

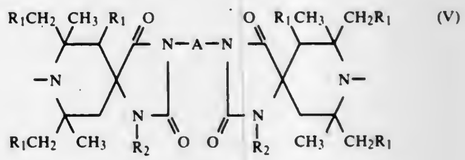
R_1 has the meaning defined above,

R_3 represents a group of formula



in which,

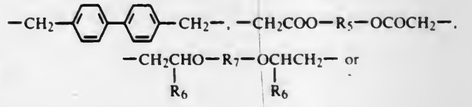
R_4 represents methyl group or ethyl group, and, Y represents, when one of m_1 and m_2 is 1 and another is 0, a group of following formulae V to XI:

 (V)

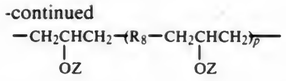
in which:

R_1 and R_2 have the meanings defined above,

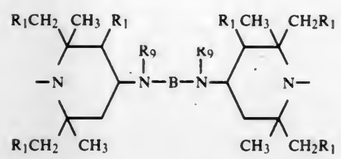
A represents an alkylene group having from 2 to 12 carbon atoms, xylylene group, a group of formula



-continued

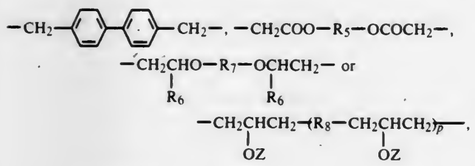


in which,
R_5 represents an alkylene group having from 2 to 8 carbon atoms,
R_6 represents hydrogen atom, methyl group or phenyl group,
R_7 represents an aliphatic, aromatic or alicyclic diacyl group having up to 12 carbon atoms,
R_8 has the same meaning as above defined X,
p is 0 or 1, and
Z has the meaning defined below,

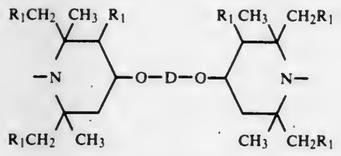


(VI)

in which:
R_1 has the meaning defined above,
R_9 represents an alkyl group having from 1 to 18 carbon atoms, phenyl group, benzyl group, cyclohexyl group, or an aliphatic, aromatic, araliphatic or alicyclic acyl group having up to 18 carbon atoms,
B represents an alkylene group having from 2 to 10 carbon atoms, xylylene group a group of formula

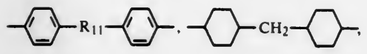


in which,
R_5, R_6,R_7, R_8 and p have the meanings defined above, and
Z has the meaning defined below,

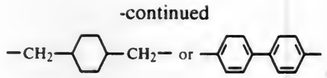


(VII)

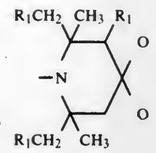
in which:
R_1 has the meaning defined above,
D represents an aliphatic, aromatic, araliphatic or alicyclic diacyl group having up to 36 carbon atoms or a group of formula —CONH—R_{10}—NH-CO— in which, R_{10} represents an alkylene group having from 2 to 10 carbon atoms, a phenylene group optionally substituted with methyl, a napthylene group, a xylylene group, a cyclohexylene group optionally substituted with methyl, a group of formula



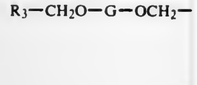
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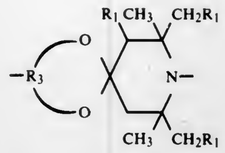


in which,
R_{11} represents oxygen atom or methylene group,

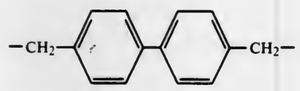


(VIII)

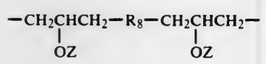




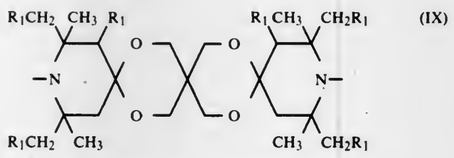
in which: R_1 and R_3 have the meanings defined above, G has the same meaning as above-defined D, or represents an alkylene group having from 3 to 10 carbon atoms, a xylylene group, a group of formula



or a group of formula

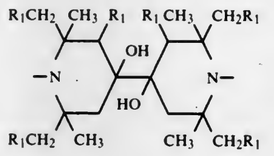


in which,
R_8 has the meaning defined above, and,
Z has the meaning defined below,



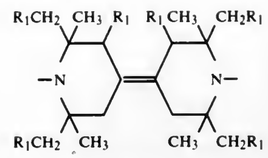
(IX)

in which: R_1 has the meaning defined above,



(X)

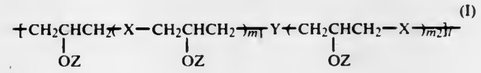
in which: R_1 has the meaning defined above,



(XI)

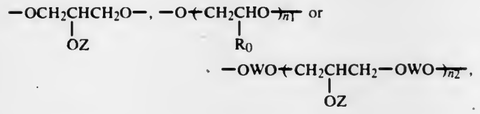
in which: R_1 has the meaning defined above, and, all of Z in the molecule represent hydrogen atom, an alkyl group having from 1 to 18 carbon atoms, an aliphatic, aromatic, araliphatic or alicyclic acyl group having up to 18 carbon atoms or a group of formula —CONHR_{12} in which, R_{12} represents an alkyl group having from 1 to 18 carbon atoms, phenyl group or cyclohexyl group, or a part of Z represent hydrogen atom and the remaining Z represent above-defined groups other than hydrogen atom.

16. A synthetic polymer composition stabilized against light- and heat degradation thereof, which is characterized in that there is incorporated into a synthetic polymer to be stabilized from 0.01 to 5.0% by weight of said synthetic polymer of at least one polymer represented by the formula (I):

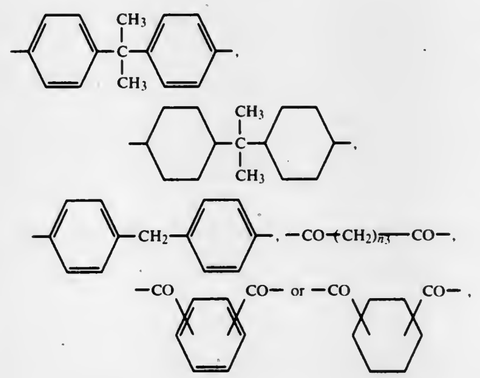


(I)

wherein;
l is an integer of from 2 to 50,
m_1 and m_2 are 0, or one of them is 1 and another is 0, X represents a group of formula

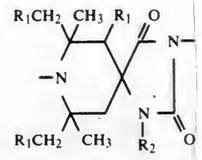


in which:
R_0 is hydrogen atom or methyl group,
n_1 is an integer of from 1 to 10,
n_2 is 0 or an integer of from 1 to 10,
W represents a group of formula



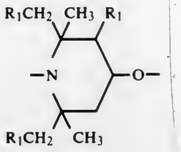
in which
n_3 is an integer of from 1 to 10, and,
Z has the meaning defined below,

Y represents, when m_1 and m_2 are 0, a group of following formulae II to IV:



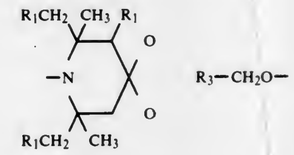
(II)

in which:
R_1 represents hydrogen atom or methyl group,
R_2 represents hydrogen atom or an alkyl group having from 1 to 18 carbon atoms,



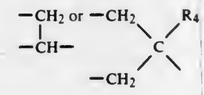
(III)

in which:
R_1 has the meaning defined above,

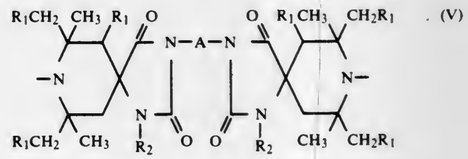


(IV)

in which
R_1 has the meaning defined above,
R_3 represents a group of formula

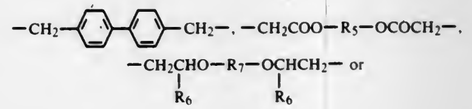


in which,
R_4 represents methyl group or ethyl group, and, Y represents, when one m_1 and m_2 as 1 and another is 0, a group of following formulae V to XI:

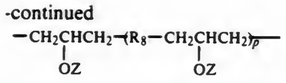


(V)

in which:
R_1 and R_2 have the meanings defined above,
A represents an alkylene group having from 2 to 12 carbon atoms, xylylene group, a group of formula



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in which,

R_5 represents an alkylene group having from 2 to 8 carbon atoms,

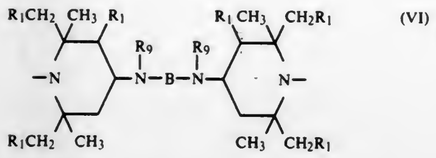
R_6 represents hydrogen atom, methyl group or phenyl group,

R_7 represents an aliphatic, aromatic or alicyclic diacyl group having up to 12 carbon atoms,

R_8 has the same meaning as above defined X,

p is 0 or 1, and

Z has the meaning defined below,



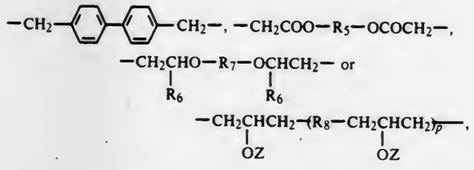
(VI)

in which:

R_1 has the meaning defined above,

R_9 represents an alkyl group having from 1 to 18 carbon atoms, phenyl group, benzyl group, cyclohexyl group, or an aliphatic, aromatic, araliphatic or alicyclic acyl group having up to 18 carbon atoms,

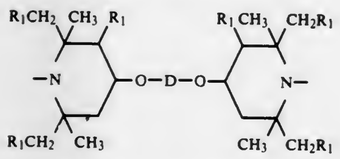
B represents an alkylene group having from 2 to 10 carbon atoms, xylylene group a group of formula



in which,

R_5, R_6, R_7, R_8 and p have the meanings defined above, and

Z has the meaning defined below,

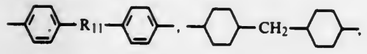


(VII)

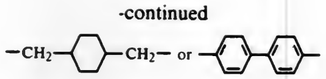
in which

R_1 has the meaning defined above,

D represents an aliphatic, aromatic, araliphatic or alicyclic diacyl group having up to 36 carbon atoms or a group of formula —CONH—R_{10}—NHCO— in which, R_{10} represents an alkylene group having from 2 to 10 carbon atoms, a phenylene group optionally substituted with methyl, a naphthylene group, a xylylene group, a cyclohexylene group optionally substituted with methyl, a group of formula

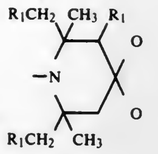


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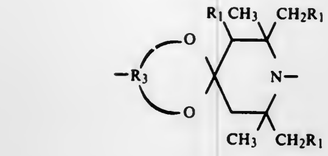


in which,

R_{11} represents oxygen atom or methylene group,



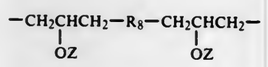
(VIII)



in which: R_1 and R_3 have the meanings defined above, G has the same meaning as above-defined D, or represents an alkylene group having from 3 to 10 carbon atoms, a xylylene group, a group of formula



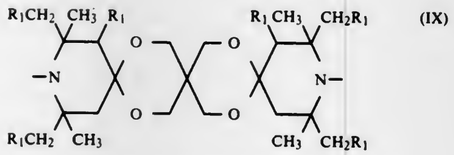
or a group of formula



in which,

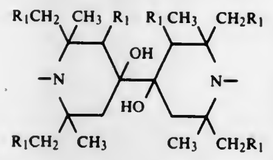
R_8 has the meaning defined above, and,

Z has the meaning defined below,



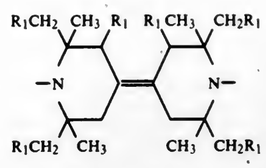
(IX)

in which: R_1 has the meaning defined above,



(X)

in which: R_1 has the meaning defined above,



(XI)

in which: R_1 has the meaning defined above, and, all of Z in the molecule represent hydrogen atom, an alkyl group having from 1to 18 carbon atoms, an aliphatic, aromatic, araliphatic or alicyclic acyl group having up to 18 carbon atoms or a group of formula —CONHR_{12} in which, R_{12} represents an alkyl group having from 1 to 18 carbon atoms, phenyl group or cyclohexyl group, or a part of Z represent hydrogen atom and the remaining Z represent above-defined groups other than hydrogen atom.

4,265,804

ORIENTED POLYESTER ARTICLES HAVING IMPROVED ULTRAVIOLET STABILITY (III)

Joseph S. Zannucci, Kingsport, and John M. Wininger, Blountville, both of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 5, 1979, Ser. No. 1,112

Int. Cl.³ C08K *5/34, 5/35*

U.S. Cl. 260—45.8 NT **21 Claims**

1. A process for improving the weatherability and ultraviolet light stability of polyester objects comprising (1) forming said object from a polyester extrudable composition having an inherent viscosity of at least 0.4 and a 264 psi heat deflection temperature greater than 60° C. containing about 0.01 to about 10 percent by weight of at least one multichromophoric ultraviolet light stabilizer compatible with said polyester composition and (2) orienting said polyester object thereby improving the ultraviolet stability at least twice of said unoriented object.

4,265,805

POLYMERIC LIGHT STABILIZERS CONTAINING TETRALKYL PIPERIDINE MOIETIES

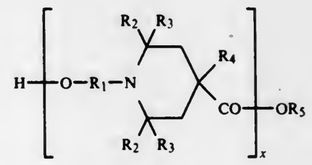
Richard W. Thomas, Piscataway, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Apr. 1, 1980, Ser. No. 136,207

Int. Cl.³ C07D *401/14;* C08G *18/38;* C08K *5/34*

U.S. Cl. 260—45.8 N **14 Claims**

1. A polymer of the formula



wherein R_1 is alkylene (C_2-C_8) or cycloalkylene (C_5-C_6); R_2 and R_3 are each alkyl (C_1-C_8) or together with the carbon to which they are attached form a cycloalkyl ring having 5 or 6 carbon atoms; R_4 is hydrogen, hydroxyl, alkoxy (C_1-C_8), or acyloxy (C_1-C_8); R_5 is alkyl (C_1-C_8) or cycloalkyl (C_5-C_6); and, x is an integer from 4 to about 10.

6. A composition comprising a polymer normally subject to degradation by ultraviolet light and an ultraviolet stabilizingly effective amount of a polymer of claim 1.

4,265,806

FLAME RETARDANT THERMOPLASTIC SYNTHETIC RESIN

Raban Grundmann, and Günther Maahs, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 167,599

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928349

Int. Cl.³ C08F *9/65;* C08K *5/34*

U.S. Cl. 260—45.8 NT **7 Claims**

1. A flame-retardant composition comprising a thermoplastic synthetic resin and an intumescent phosphorous-containing flame retardant prepared by the process comprising evaporating to dryness the reaction product of (a) 1 mole of phosphoric acid, phosphoric acid or polyphosphoric acid, (b) 0.5–2 moles of ethylene oxide or ethylene glycol, and (c) 0.2–1 mole of melamine, and tempering the thus-obtained solid at 100°–250° C.

4,265,807

DISPROPORTIONATION OF ROSIN IN THE PRESENCE OF DITHIIN DERIVATIVES

David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Jan. 22, 1980, Ser. No. 114,159

Int. Cl.³ C09F *1/04;* C07C *39/08*

U.S. Cl. 260—97.5 **16 Claims**

1. A method of disproportionating rosin comprising heating said rosin in the presence of a dithiin derivative at a temperature of from about 150° C. to about 300° C. for from about 1 hour to about 10 hours.

4,265,808

PHARMACOLOGICALLY ACTIVE PEPTIDES

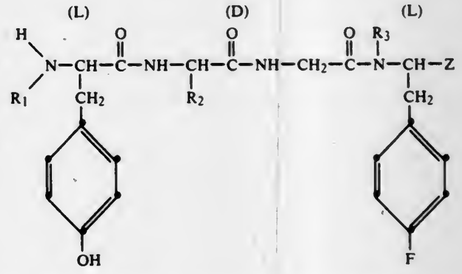
Paul D. Gesellchen, Indianapolis, and Robert T. Shuman, Greenwood, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Dec. 17, 1979, Ser. No. 104,529

Int. Cl.³ C07C *103/52*

U.S. Cl. 260—112.5 R **29 Claims**

1. A compound of the formula



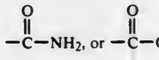
and pharmaceutically acceptable non-toxic acid addition salts thereof, in which L and D define the chirality;

R_1 is hydrogen or C_1-C_3 primary alkyl;

R_2 is C_1-C_4 primary or secondary alkyl, allyl, cyclopropylmethyl, C_1-C_2 hydroxyalkyl, or —$(CH_2)_m$—U—CH_3 in which U is —S— or >S—O and m is 1 or 2;

R_3 is hydrogen, C_1-C_4 primary or secondary alkyl, cyclopropylmethyl, allyl or propargyl; and

Z is —CH_2OR_4,



in which R_4 is hydrogen, acetyl, or acetoxymethyl and R_5 is C_1–C_3 alkyl.

4,265,809

METHOD OF MAKING EPOXIDE-LIGNIN RESINS

Dale B. Holsopple, 12908 Thraves Rd., Garfield Heights, Ohio 44125; Wasyl W. Kurple, 110 W. Grace Ave., Bedford, Ohio 44146; William M. Kurple, 16607 N. 34th Ave., Phoenix, Ariz. 85023, and Kenneth R. Kurple, 9533 Springborn Rd., Anchorville, Mich. 48004

Filed Sep. 4, 1979, Ser. No. 72,244
Int. Cl.[3] C07G *1/00*; C08L *97/00*
U.S. Cl. 260—124 R **24 Claims**

1. The method of producing unsaturated reactive end groups on lignin obtained by contacting aqueous waste black liquor from the kraft pulping process with an organic chemical solvent, and adding an acid to the mixture to lower the pH to thereby separate a layer which layer contains extracted or separated lignin in said organic solvent separate from an aqueous layer, wherein such method comprises either reacting the said separated layer of lignin in said organic solvent with a carbonyl compound containing active hydrogen and a compound selected from the group consisting of alpha, beta-unsaturated carbonyl compounds and acrylonitrile, or reacting said lignin in said organic solvent with a compound selected from the group consisting of cyanoacetic acid, esters of cyanoacetic acid, malonic acid and esters of malonic acid, to produce alpha, beta-unsaturated reactive end groups on said lignin which end groups are amenable to epoxidation.

4,265,810

PROCESS FOR RECOVERING ZWITTERIONIC DIAZONIUM SALTS BY AGGREGATION

Donald L. Bauman, Wilmington, Del., and Masuo Toji, Barnsboro, N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

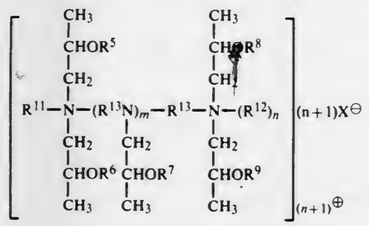
Continuation-in-part of Ser. No. 954,824, Oct. 26, 1978, abandoned. This application Jun. 6, 1980, Ser. No. 157,002
Int. Cl.[3] C07C *113/04*
U.S. Cl. 260—141 **22 Claims**

1. A process for recovering solid zwitterionic diazonium salts derived from diazotizable aromatic amines capable of forming zwitterionic diazonium salts which consists essentially in:

(a) diazotizing said amine to a zwitterionic diazonium salt in the presence of a cationic surfactant or

(b) diazotizing said amine and thereafter treating the resulting zwitterionic diazonium salt with a cationic surfactant, said cationic surfactant being

(1) an ammonium compound of the formula:



wherein

R^1–R^4 are alkyl containing 1–18 carbons, alkenyl containing 8–18 carbons, or benzyl; at least one of R^1–R^4 is a C_{10}–C_{18} alkyl or alkenyl; provided that no more than one of R^1–R^4 is benzyl;

R^5–R^9 are hydrogen or $R^{10}CO$—, at least two thereof being $R^{10}CO$—;

R^{10} is alkyl or alkenyl containing 11–17 carbons;

R^{11} and R^{12} are C_1–C_4 alkyl;

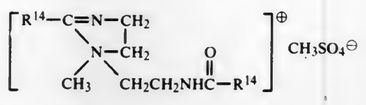
R^{13} is a bivalent alkylene having 2 to 6 carbons;

m is 0 to 2;

n is 0 or 1; and

$X^{\ominus}$ an anion; or

(2) imidazolium compounds of the formula:



wherein R^{14} is a C_{15}–C_{17} aliphatic hydrocarbon.

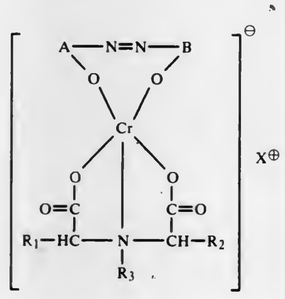
4,265,811

NOVEL AZO DYES

Elbert M. Idelson, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 8, 1979, Ser. No. 1,448
Int. Cl.[3] C09B *45/26, 45/16*
U.S. Cl. 260—147 **8 Claims**

1. A compound which is represented by the structural formula:



wherein A is a radical of benzene or naphthalene, B is a radical of benzene or naphthalene or a nitrogen containing heterocyclic radical, X is a cation, R_1 and R_2 may be H or when taken together may represent the carbon atoms necessary to complete a five or six member heterocyclic moiety and R_3 may be H or alkyl having from 1 to 6 carbon atoms.

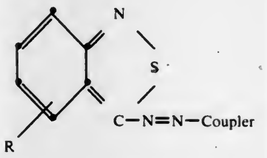
4,265,812

AZO DYES DERIVED FROM 3-AMINO-2,1-BENZISOTHIAZOLES AND AROMATIC AMINE COUPLERS CONTAINING SULFO GROUPS, OR SALTS THEREOF

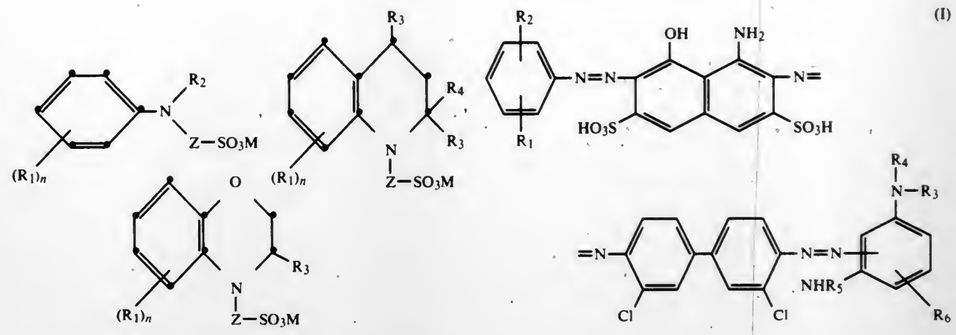
Max A. Weaver; Clarence A. Coates, Jr., and Jean C. Fleischer, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 1, 1979, Ser. No. 44,439
Int. Cl.[3] C09B *29/22, 62/08*
U.S. Cl. 260—158 **6 Claims**

1. A dye of the formula:

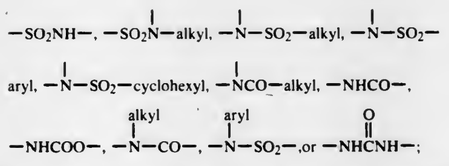


wherein the Coupler is of the formulae



(I)

wherein R may be hydrogen or one to three substituents selected from lower alkyl, lower alkoxy, chlorine, bromine, iodine, lower alkylsulfonyl, sulfamoyl, and sulfamoyl substituted with lower alkyl; R_1 is selected from hydrogen, lower alkyl, aryl, alkylamino, 2-furyl, halogen, lower alkoxy, aryloxy, —NHCO—R_5 and —NHSO$_2$—R_5 wherein R_5 is selected from lower alkyl which may be substituted with hydroxy, lower alkoxy, cyano, aryloxy, aryl, halogen, cycloalkyl, lower alkylcarbonyloxy, or carbamoyl; R_2 is selected from hydrogen, aryl, cycloalkyl, and lower alkyl which may be substituted with alkoxy, alkoxyalkoxy, aryl, cycloalkyl, lower alkylcycloalkyl, 2-furyl, NHCOR_5, NHSO$_2R_5$, aryloxy, alkylcarbonyl, carbamoyl, lower alkyl substituted carbamoyl, cyano, alkanoyloxy, halogen, alkoxycarbonyl, succinimido, glutarimido, phthalimido, 2-pyrrolidono, sulfamoyl, lower alkyl substituted sulfamoyl, lower alkylsulfonamido, NHSO$_2$-aryl, NHCOO-alkyl, NHCONH-alkyl, formamido, alkylsulfonyl, arylsulfonyl, alkylthio, arylthio or SO_3M; R_2 may in conjunction with R_1 form a 1,2,3,4-tetrahydroquinoline or benzomorpholine derivative; n is 0, 1 or 2; M is Na^+, K^+, NH_4^+, or H^+; R_3 and R_4 are each selected from hydrogen or lower alkyl; Z is selected from straight or branched chain lower alkylene, lower alkylene substituted with aryl, aryloxy, alkoxy, halogen, aryloxy or SO_3M, —$CH_2(CH_2)_m$—X—$CH_2(CH_2)_p$, where m is 1, 2, or 3, p is 0, 1, 2, or 3, and X is O, S, SO$_2$,



and the various aryl groups may be substituted with lower alkyl, lower alkoxy, or halogen.

4,265,813

AZO DYESTUFFS

Horst Nickel, and Karl H. Schündehütte, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 27, 1978, Ser. No. 955,493
Claims priority, application Fed. Rep. of Germany, Oct. 29, 1977, 2748719
Int. Cl.[3] C09B *35/36*
U.S. Cl. 260—170 **5 Claims**

1. Dyestuffs which, in the form of the free acid, correspond to the formula

(I)

wherein

R_1 denotes hydrogen, methyl or chlorine,

R_2 denotes hydrogen, chlorine, acetylamino, methoxy, ethoxy, nitro or carboxyl,

R_3 denotes hydrogen, sulpho-C_1–C_2-alkyl, carboxy-C_1–C_2-alkyl or C_1–C_4-alkyl,

R_4 denotes hydrogen or C_1–C_4-alkyl,

R_5 denotes hydrogen or acyl and

R_6 denotes hydrogen, methyl, methoxy, ethoxy, chlorine, carboxyl, nitro or sulpho.

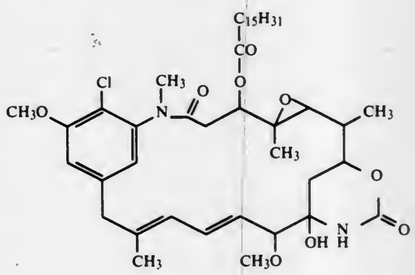
4,265,814

MATANSINOL 3-N-HEXADECANOATE

Naoto Hashimoto, Suita, and Toyokazu Kishi, Nara, both of Japan, assignors to Takeda Chemical Industries, Osaka, Japan

Filed Mar. 19, 1979, Ser. No. 21,702
Claims priority, application Japan, Mar. 24, 1978, 53-34644; Apr. 13, 1978, 53-43946; Oct. 12, 1978, 53-125989
Int. Cl.[3] C07D *498/18*
U.S. Cl. 260—239.3 P **1 Claim**

1. A maytansinoid of the formula:



(I)

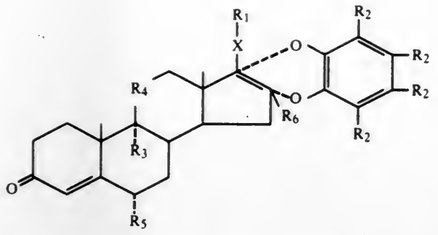
4,265,815

17-(SUBSTITUTED THIO)ANDROST-4-ENE[16,17,b]-[1,4]BENZODIOXIN-3-ONES

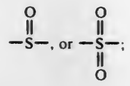
Ravi K. Varma, Belle Mead, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Mar. 31, 1980, Ser. No. 135,823
Int. Cl.[3] C07J *1/00*
U.S. Cl. 260—239.55 R **10 Claims**

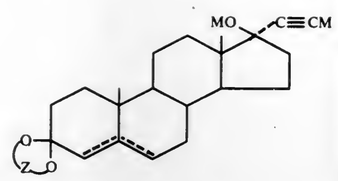
1. A steroid having the formula



or the 1,2-dehydro derivative thereof, wherein
X is S,

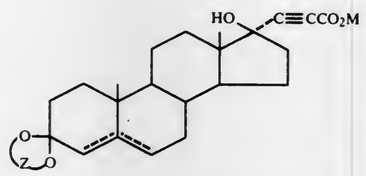


R_1 is alkyl, aryl, arylalkyl or acyloxyalkyl;
R_2 is fluoro, chloro, bromo or iodo (all R_2 groups are the same);
R_3 is hydrogen, fluoro, chloro, bromo or iodo;
R_4 is carbonyl, or β-hydroxymethylene;
R_5 is hydrogen, methyl or fluorine; and
R_6 is chloro, bromo, alkoxy, aryloxy, alkylthio, or arylthio.



(III)

wherein Z, M and the dotted lines in rings A and B are as defined in the above formulas (I) and (II), and reacting the compound of formula (III) with carbon dioxide followed by hydrolysis to give an alkali metal salt of a 3-(17β-hydroxyandrosten-3-one 3-acetal-17α-yl)propiolic acid having the formula:



(IV)

wherein Z, M and the dotted lines in rings A and B are as defined in the above formulas (I) and (II).

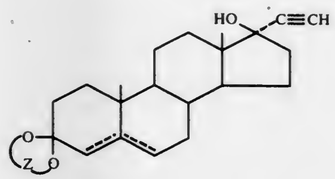
4,265,816

PROCESS FOR PREPARING STEROID-CARBOXYLATES

Hiromi Okushima, Kawasaki; Shinichiro Fujimori, Machida; Rikizo Furuya, and Shuzo Hayakawa, both of Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

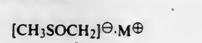
Filed May 1, 1980, Ser. No. 145,693
Claims priority, application Japan, May 14, 1979, 54-58969
Int. Cl.[3] C07J 9/00
U.S. Cl. 260—239.55 C **1 Claim**

1. A process for preparing a steroid-carboxylate comprising reacting a 17α-hydroxypregnen-20-yn-3-one 3-acetal of the formula:



(I)

wherein Z is an alkylene group having not more than 10 carbon atoms and the dotted lines in rings A and B represent a double bond at the 4- or 5-position, with an alkali metal dimsyl of the formula:



(II)

wherein M is an alkali metal atom, to give an alkali metal salt of the 17β-hydroxypregnen-20-yn-3-one 3-acetal having the formula:

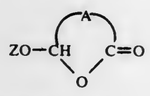
4,265,817

NOVEL CHIRAL ETHERS AND THEIR USE IN RESOLUTION OF ALCOHOLS AND PHENOLS

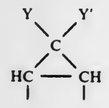
Jacques Martel, Bondy; Jean Tessier, Vincennes, and Andre Teche, Nanterre, all of France, assignors to Roussel Uclaf, Paris, France

Filed Mar. 19, 1979, Ser. No. 21,833
Claims priority, application France, Mar. 17, 1978, 78 07778
Int. Cl.[3] C07D 307/77
U.S. Cl. 260—343.3 R **4 Claims**

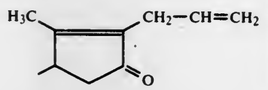
1. An ether containing chiral atoms of the formula



wherein chain A has the structure



Y and Y' are individually selected from the group consisting of hydrogen, fluorine, bromine, chlorine and alkyl of 1 to 6 carbon atoms and Z is



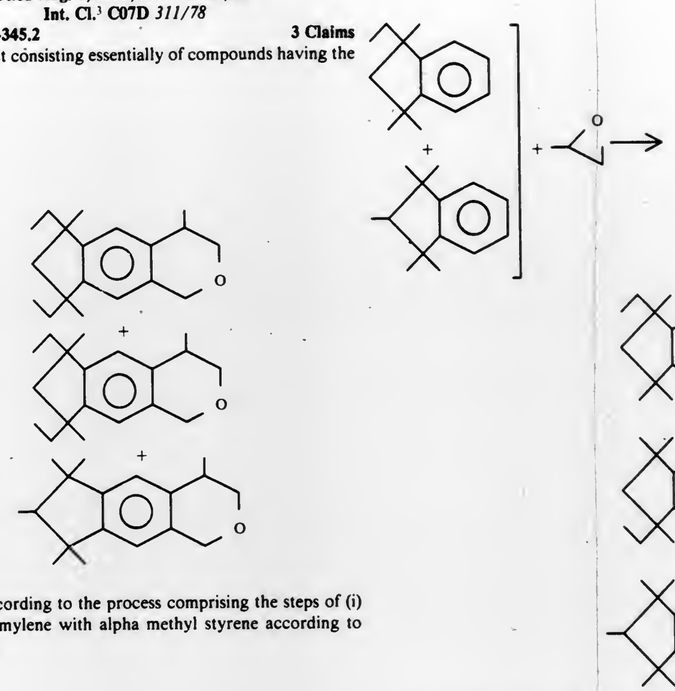
4,265,818

INDANE ALKANOLS AND TRICYCLIC ISOCHROMANS AND ORGANOLEPTIC USES THEREOF

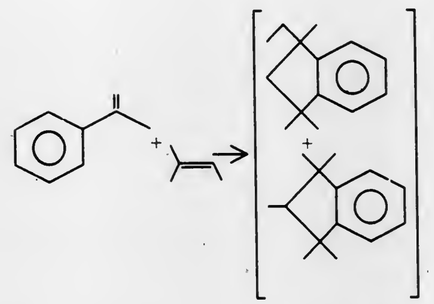
Wilhelmus J. Wiegers, Red Bank; Mark A. Sprecker, Sea Bright; Hugh Watkins, Lincroft; Manfred H. Vock, Locust, and Frederick L. Schmitt, Holmdel, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Aug. 3, 1979, Ser. No. 63,518
Int. Cl.[3] C07D 311/78
U.S. Cl. 260—345.2 **3 Claims**

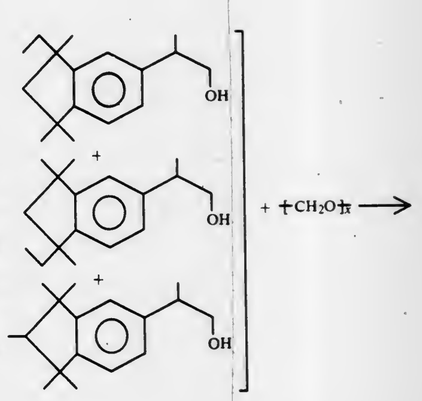
1. A product consisting essentially of compounds having the structures:



produced according to the process comprising the steps of (i) reacting isoamylene with alpha methyl styrene according to the reaction:

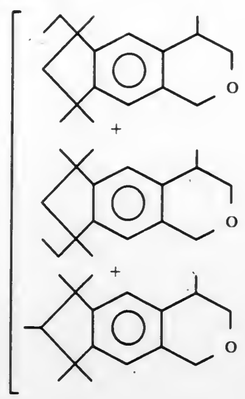


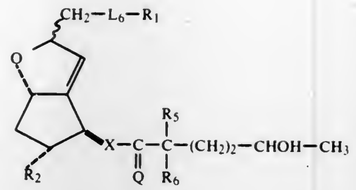
in the presence of a heterogeneous solid catalyst selected from the group consisting of acid clays and acid ion exchange resins, the mole ratio of isoamylene to alpha methyl styrene being between 1:1 and 2:1; the ratio of catalyst to reactants being from 0.1% up to 8% of the total weight of alpha methyl styrene and isoamylene; the reaction temperature being between 75° C. and 250° C.; the reaction pressure being between 50 p.s.i.g. and 300 p.s.i.g.; (ii) reacting the resulting product with propylene oxide in the presence of a catalyst to produce a mixture consisting essentially of indane alkanols according to the reaction:



and (iii) reacting the mixture consisting essentially of indane alkanols with a formaldehyde or a formaldehyde source according to the reaction:

-continued

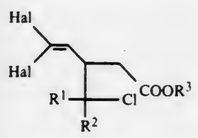




wherein L_6 is
(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive, or
(2) $-CH_2-CH=CH-$;
wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_1 is
(1) $-COOR_3$,
(2) $-CH_2OH$,
(3) $-CH_2N(R_7)(R_8)$,
(4) $-CO-N(R_7)(R_8)$,
(5) $-CO-NH-SO_2-R_{15}$, or
(6) tetrazolyl,
wherein R_3 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;
(g) $-(p\text{-}Ph)-CO-CH_3$,
(h) $-(p\text{-}Ph)-NH-CO-(p\text{-}Ph)-NH-CO-CH_3$,
(i) $-(p\text{-}Ph)-NH-CO-(Ph)$,
(j) $-(p\text{-}Ph)-NH-CO-CH_3$,
(k) $-(p\text{-}Ph)-NH-CO-NH_2$,
(l) $-(p\text{-}Ph)-CH=N-NH-CO-NH_2$,
(m) β-naphthyl,
(n) $-CH_2-CO-R_{16}$,
wherein —(p-Ph)— is Para-phenylene and —(Ph) is phenyl;
wherein R_{16} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different, and wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl-substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive,
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and
wherein X is
(1) trans-CH=CH—,
(2) cis-CH=CH—,
(3) —C≡C—, or
(4) $-CH_2CH_2-$.

4,265,819
PREPARATION OF DIHALOGENOVINYLCYCLOPROPANECARBOXYLIC ACIDS AND ESTERS
Reinhard Lantzsch, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Division of Ser. No. 879,424, Feb. 21, 1978. This application Sep. 13, 1979, Ser. No. 75,363
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1977, 2710174
Int. Cl.[3] C07D *307/80;* **C07C** *69/65, 57/52*
U.S. Cl. 260—346.22 **2 Claims**

1. A 3-chloro-2-(2',2'-dihalovinyl)propanecarboxylic acid or ester of the formula



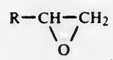
in which each Hal independently is fluorine, chlorine or bromine, R^1 and R^2 each independently is hydrogen or C_{1-4}-alkyl, or R^1 and R^2 together with the adjacent carbon atom form a cycloaliphatic ring with up to 7 carbon atoms, and R^3 is hydrogen or is (a) C_{1-4}-alkyl or (b) benzyl, α- or β-naphthylmethyl, furylmethyl or benzofurylmethyl, in which each is optionally substituted in the aromatic ring or at the α-carbon atom by halogen, CN, alkyl of 1–4 carbon atoms, halogenated with 1–4 carbon atoms and 1–5 halogen atoms, phenyl, or phenoxy.

4,265,820
19-HYDROXY-7,8-DIDEHYDRO-PGI$_1$ COMPOUNDS
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 54,811, Jul. 5, 1979, Pat. No. 4,225,508. This application Mar. 3, 1980, Ser. No. 126,472
Int. Cl.[3] C07D *307/935*
U.S. Cl. 260—346.22 **9 Claims**

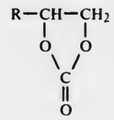
1. A prostacyclin-type compound of the formula

4,265,821
SUBSTITUTED ALKYLENE OXIDES FROM SUBSTITUTED ALKYLENE CARBONATES
Edward E. McEntire, and Robert M. Gipson, both of Austin, Tex., assignors to Texaco Dev. Corp., White Plains, N.Y.
Division of Ser. No. 920,908, Jun. 29, 1978, abandoned. This application Nov. 7, 1979, Ser. No. 92,126
Int. Cl.[1] C07D *301/02*
U.S. Cl. 260—348.16 **6 Claims**

1. A process for the preparation of a substituted ethylene epoxide of the formula



wherein R is alkyl, aryl, substituted alkyl, substituted aryl, alkaryl or aralkyl which comprises heating the corresponding substituted ethylene carbonate having the formula



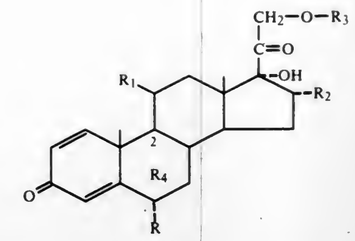
wherein R is defined as above in the presence of a catalytic amount of lanthanum iodide.

4,265,822
PROCESS FOR PREPARING 1-HYDROXYLATED VITAMIN D COMPOUNDS FROM 5,6-TRANS-VITAMIN D COMPOUNDS
Hector F. DeLuca; Heinrich K. Schnoes; David E. Hamer, all of Madison, and Herbert E. Paaren, Verona, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.
Filed Sep. 10, 1979, Ser. No. 73,840
Int. Cl.[3] C07J *9/00*
U.S. Cl. 260—397.2 **11 Claims**

1. In a process for preparing 1α-hydroxylated vitamin D compounds comprising allylically oxidizing a vitamin D compound utilizing SeO_2 as the oxidant and exposing the oxidized product to actinic radiation, the improvement which comprises
utilizing a 5,6-trans vitamin D compound corresponding to the 1α-hydroxylated vitamin D compound which it is desired to obtain as the vitamin D compound subjected to the allylic oxidation
conducting the allylic oxidation in the presence of an organic nitrogenous base
exposing the oxidation products to actinic radiation having a wave length greater than about 310 nm in the presence of a photosensitizing agent and
recovering the 1α-hydroxylated vitamin D compound.

4,265,823
AUROTHIOSTEROIDS
Arthur Nobile, West Caldwell, N.J., assignor to Robert E. Kosinski, Rye, N.Y., a part interest
Continuation of Ser. No. 810, Jan. 4, 1979, abandoned, which is a continuation of Ser. No. 847,011, Oct. 31, 1977, abandoned, which is a continuation-in-part of Ser. No. 663,160, Mar. 2, 1976, abandoned. This application Mar. 10, 1980, Ser. No. 129,069
Int. Cl.[3] C07J *5/00*
U.S. Cl. 260—397.4 **8 Claims**

1. A compound selected from the group represented by the formula



wherein R represents hydrogen, alkyl or halide, R_1 represents hydroxy or oxo, R_2 represents hydrogen, hydroxy or alkyl, R_3 represents an organic aurothio moiety and R_4 represents hydrogen or halide.

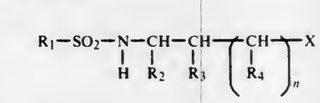
2. A compound having a formula according to claim 1 in which R represents hydrogen, methyl or flourine, R_1 represents hydroxy or oxo, R_2 represents hydrogen, methyl or hydroxy, R_3 represents aurothiomalate and R_4 represents hydrogen or fluorine.

4,265,824
PROCESS FOR THE ISOLATION OF β-SITOSTEROL CONTAINING A LOW PERCENTAGE OF α-SITOSTEROL
Lasse A. Koskenniska, and Marie M. Puhakka, both of Oulu, Finland, assignors to Farmos-Yhtyma Oy, Turku, Finland
Filed Dec. 5, 1979, Ser. No. 100,502
Claims priority, application Finland, Dec. 12, 1978, 783807
Int. Cl.[3] C07J *9/00*
U.S. Cl. 260—397.25 **6 Claims**

1. A process for the isolation of β-sitosterol which is substantially free of α-sitosterol, from a material comprising a mixture of α- and β-sitosterol, comprising:
(a) dissolving said mixture in a first organic solvent selected from the class consisting of ethanol, acetone, isopropanol, toluene, xylene, chloroform, and mixtures thereof;
(b) reacting the solution of (a) with a strong acid selected from the class consisting of hydrogen chloride, hydrogen bromide, phosphoric acid, methanesulfonic acid, and p-toluenesulfonic acid, to form a crude reaction product;
(c) recovering the reaction products from (b) from said first organic solvent;
(d) dissolving the reaction products of (c) in a second organic solvent selected from the class consisting of ethanol, isopropanol, chloroform, methylene chloride, toluene, ethylacetate, acetone, heptane, methylethylketone, and mixtures thereof; and thereafter
(e) selectively crystallizing β-sitosterol from said second solvent.

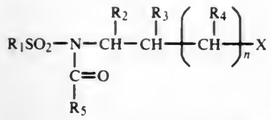
4,265,825
PROCESS FOR THE PREPARATION OF N-(HALOALKYL)SULFONAMIDE
Peter W. Owen; Zita K. Harmon, and Donald A. Tomalia, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Filed Sep. 17, 1979, Ser. No. 76,111
Int. Cl.[3] C07C *143/72*
U.S. Cl. 260—401 **8 Claims**

1. A process for preparing N-(haloalkyl)sulfonamides represented by the formula



I

which comprises reacting an N-(haloalkyl)sulfonyl imide represented by the formula



II

with a C_1-C_6 alkanol, so as to prepare the N-(haloalkyl)sulfonamide, wherein, at each occurrence, R_1 is aryl, alkaryl, aralkyl or alkyl having up to 20 carbon atoms; R_2-R_4 are each independently hydrogen or methyl; R_5 is hydrogen, aryl, alkaryl, aralkyl or alkyl having up to 20 carbon atoms; n is the integer 0 or 1 and X is chloro, bromo or iodo.

4,265,826

METHOD FOR FRACTIONATING AN OIL OR FAT TO SEPARATE THE HIGH MELTING POINT COMPONENTS THEREOF

Masaaki Iida; Chihiro Kato, both of Yokohama; Shigemitsu Ohshima, Chigasaki, and Yoshiyuki Yazawa, Kawasaki, all of Japan, assignors to Ajinomoto Company, Incorporated, Tokyo, Japan

Continuation-in-part of Ser. No. 962,974, Nov. 22, 1978, abandoned. This application Dec. 21, 1979, Ser. No. 106,011
Claims priority, application Japan, Dec. 1, 1977, 52/144294
Int. Cl.[3] C09F *5/10*; C11B *3/00*
U.S. Cl. 260—428 **9 Claims**

1. A method for fractionating an oil or fat to separate high melting point components thereof, which consists of the steps of:

(a) adjusting the temperature of an oil or fat to a temperature from the complete melting point to thirty Celsius degrees above the slip melting point of the oil or fat;

(b) seeding the temperature-adjusted oil or fat with seed crystals of the high melting point components of said oil or fat, wherein said seed crystals are in the form of raidal β, radial β' or large radial β' crystals and are produced by slowly cooling a portion of said oil or fat from a temperature above its slip melting point to a temperature at which crystals of the high melting point components of said oil or fat are formed;

(c) cooling said seeded oil or fat below said slip melting point temperature to crystallize said high melting point components; and

(d) separating the crystals of said high melting point components from the slurry obtained in step (c).

4,265,827

CATALYTIC ASYMMETRIC HYDROGENATION

William S. Knowles, Milton J. Sabacky, Ballwin, Both of Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 122,116, Mar. 8, 1971, abandoned, which is a continuation-in-part of Ser. No. 36,471, May 11, 1970, abandoned, which is a continuation-in-part of Ser. No. 758,603, Sep. 9, 1968, abandoned. This application Sep. 5, 1978, Ser. No. 939,569
Int. Cl.[3] C07F *9/68*
U.S. Cl. 260—440 **1 Claim**

1. Methylcyclohexyl-o-anisylarsine.

4,265,828

MANUFACTURE OF ETHYLENE GLYCOL FROM SYNTHESIS GAS

John F. Knifton, Austin, Tex., assignor to Texaco Development Corp., White Plains, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,745
Int. Cl.[3] C07C *27/06*
U.S. Cl. 260—449 L **12 Claims**

1. A process of making ethylene glycol which comprises the steps of contacting a mixture of CO and H_2 with a catalyst system comprising a ruthenium-containing compound dispersed in a low melting quaternary phosphonium or ammonium base or salt and heating said resultant reaction mixture under a pressure of 500 psi or greater at a temperature of at least 180° C. for a sufficient time to provide said ethylene glycol.

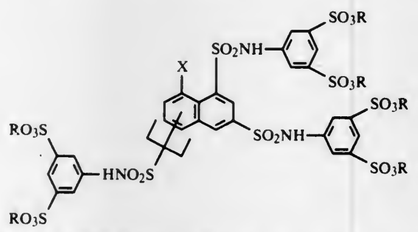
4,265,829

HALOGENATED-NAPHTHALENETRIYLTRIS(SULFONYLIMINO)-ARYL DISULFONIC ACIDS AND SALTS THEREOF

Seymour Bernstein, New City, and John F. Poletto, Nanuet, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 26, 1979, Ser. No. 106,609
Int. Cl.[3] C07C *143/60*
U.S. Cl. 260—510 **3 Claims**

1. A compound of the formula:



wherein R is selected from the group consisting of hydrogen and a pharmaceutically acceptable salt cation; and X is halogen.

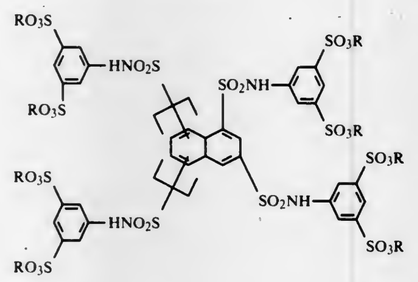
4,265,830

NAPHTHALENETETRAYLETRAKIS(SULFONYLIMINO)-ARYL DISULFONIC ACIDS AND SALTS THEREOF

Ransom B. Conrow, Pearl River, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 26, 1979, Ser. No. 106,615
Int. Cl.[3] C07C *143/60*
U.S. Cl. 260—510 **4 Claims**

1. A compound of the formula:



wherein R is selected from the group consisting of hydrogen and a pharmaceutically acceptable salt cation.

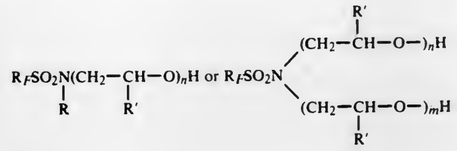
4,265,831

PROCESS FOR THE PREPARATION OF HYDROXYALKYLPERFLUOROALKANE SULPHONAMIDES

Karl-Heinz Mitschke, Odenthal; Klaus Geisler, Bonn-Beuel, and Hans Niederprüm, Monheim, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 54,338
Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 2832346
Int. Cl.[3] C07C *143/74*
U.S. Cl. 564—96 **4 Claims**

1. A process for the preparation of a hydroxy-alkylperfluoroalkane sulphonamide of the formula

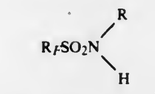


wherein

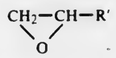
R_F is a perfluoroalkyl group having from 1 to 20 carbon atoms;

R and R' each independently is hydrogen or an alkyl, hydroxyalkyl, haloalkyl, cycloalkyl, aralkyl, alkenyl or aryl radical; and

m and n each independently is an integer from 1 to about 30, comprising reacting a perfluoroalkylsulphonamide of the formula



with an epoxide of the formula



in the presence of a basic catalyst and in the absence of a solvent.

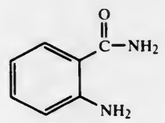
4,265,832

PREPARATION OF ANTHRANILAMIDES

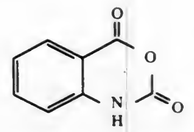
Klaus-Werner Krebs, and Carl Metzger, both of Dormagen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 895,316, Apr. 11, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 83,882
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1977, 2719020
Int. Cl.[3] C07C *102/00*
U.S. Cl. 564—163 **3 Claims**

1. A process for the preparation of anthranilamide of the formula



comprising reacting isatoic anhydride of the formula



with an approximately equimolar amount of ammonia in a solvent consisting of water at a pH of about 7 to 10.5 and a temperature of about 20° to 100° C., and maintaining the pH with the aid of a buffer system comprising ammonia, an ammonium halide and carbonate, about 0.9 to 1.4 mols of ammonia, about 0.05 to 0.5 mol of the ammonium carbonate and about 0.05 to 0.5 mol of the ammonium halide being used per mol of isatoic anhydride.

4,265,833

PROCESS FOR THE PREPARATION OF HYDROXY-DIPHENYLAMINES

Friedrich Werner, Cologne, and Heinz U. Blank, Odenthal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 5, 1979, Ser. No. 91,625
Claims priority, application Fed. Rep. of Germany, Nov. 21, 1978, 2850391
Int. Cl.[3] C07C *85/06, 121/64, 137/00, 101/04*
U.S. Cl. 564—435 **4 Claims**

1. A process for the preparation of a hydroxy-diphenylamine which comprises condensing a dihydroxybenzene with an excess amount of a primary aromatic amine in the presence of a catalytic amount of an acid at an elevated temperature and, without isolating said acid, thereafter distilling off excess primary aromatic amine from the reaction mixture in the presence of a base.

4,265,834

PROCESS FOR THE CATALYTIC HYDROGENATION OF NITROBENZENE

Udo Birkenstock, Ratingen; Burkhard Lachmann, Meerbusch; Josef Metten, Krefeld, and Herbert Schmidt, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 16, 1979, Ser. No. 66,977
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2849002
Int. Cl.[3] C07C *85/11*
U.S. Cl. 564—421 **17 Claims**

1. In a gas phase process for the catalytic hydrogenation of nitrobenzene to aniline wherein nitrobenzene is contacted with hydrogen in the presence of a catalyst, the improvement wherein said catalyst is a multi-component supported catalyst having a BET surface area of less than 20 square meters per gram and comprises 1 to 20 grams of a noble metal per liter of support and 1 to 20 grams of one or more transition metals of Groups IVa, Va, or VIa of the Periodic Table of the Elements per liter of support, said catalyst having been prepared by pretreating the support, prior to impregnation thereof with said noble method or said transition metal, with a base, thereafter drying the so-pretreated material to a residual moisture content of less than 10 percent of the maximum absorbency of the support and thereafter impregnating the support with 1 to 20 grams of said noble metal per liter of support and 1 to 20 grams of said transition metal per liter of support.

4,265,835

CONVERSION OF CARBOXAMIDE TO N-SUBSTITUTED DERIVATIVE THEREOF USING CARBON MAGNETIC ANALYSIS

Charles J. McDonald, Midland, Mich., and Robert H. Beaver, Antioch, Calif., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 10, 1979, Ser. No. 74,021
Int. Cl.³ C08F 8/30, 8/32
U.S. Cl. 564—204 11 Claims

1. In a process for converting an organic carboxamide containing one or more carboxamide moieties corresponding to the formula:

to an N-substituted carboxamide wherein one hydrogen of the carboxamide moieties is substituted with alkyl or substituted alkyl wherein the substituent is —OH, —SO_3M wherein M is H or metal cation or —$N(R')_2$ wherein each R' is individually hydrogen, alkyl or hydroxyalkyl in which process a carboxamide is reacted by contacting it with N-substituting reagent(s), the improvement in which the reaction mixture comprising the carboxamide, N-substituting reagent and N-substituted carboxamide is, periodically during the process, analyzed for the presence of carbon-13 nuclei by:

(a) subjecting a reaction mixture which contains the carboxamide, N-substituting reagent(s) and N-substituted derivative in a nuclear magnetic spectrometer to a magnetic field and an electromagnetic field such that conditions of magnetic resonance are achieved for carbonyl carbon-13 nuclei in the reaction mixture;

(b) detecting an output which is an indication of the disturbance of said fields by the reaction mixture; and

(c) quantitatively determining the mole ratio of the carboxamide to the N-substituted carboxamide by comparing the relative outputs attributable to the carbonyl carbons of the carboxamide and the N-substituted carboxamide.

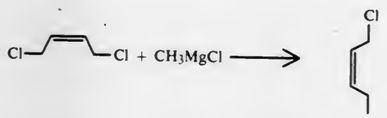
4,265,836

PROCESS FOR PRODUCING CIS-PENT-2-ENYL-1-CHLORIDE

Wilhelmus J. Wiegers, Red Bank, and John B. Hall, Rumson, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 32,746, Apr. 24, 1979, abandoned. This application Jul. 31, 1980, Ser. No. 174,187
Int. Cl.³ C07C 21/04
U.S. Cl. 570—230 4 Claims

1. A process for producing cis-pent-2-enyl-1-chloride according to the reaction scheme:



comprising the steps of reacting methyl magnesium chloride with cis-1,4-dichloro-butene-2 thereby forming a Grignard complex and hydrolyzing said Grignard complex, the reaction between the methyl magnesium chloride and the cis-1,4-dichloro-butene-2 being carried out in the absence of a catalyst and in the presence of a solvent selected from the group consisting of tetrahydrofuran, mixtures of tetrahydrofuran and benzene, mixtures of tetrahydrofuran and toluene, and diethyl ether; the mole ratio of methyl magnesium chloride:cis-1,4-dichloro-butene-2 being about 3:1; the temperature of reaction between the methyl magnesium chloride and the cis-1,4-dichloro-butene-2 being from about 0° C. up to reflux temperature; the methyl magnesium chloride being added to the cis-1,4-dichloro-butene-2 over a period of from about 2 up to about 3 hours; and carrying out the hydrolysis with a hydrolysis agent which is selected from the group consisting of aqueous ammonium chloride and dilute acetic acid; and then separating the reaction product, substantially pure cis-pent-2-enyl-1-chloride from the solvent by means of fractional distillation.

4,265,837

PRODUCTION OF 1,2-DICHLOROETHANE

Günter Legutke, Brühl; Harald Scholz, Erftstadt, and Kurt Schuchardt, Brühl, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 27, 1979, Ser. No. 33,817
Claims priority, application Fed. Rep. of Germany, May 2, 1978, 2819308
Int. Cl.³ C07C 17/02
U.S. Cl. 570—243 4 Claims

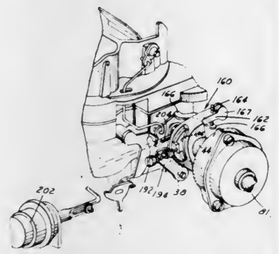
1. A process for making 1,2-dichloroethane by subjecting ethylene to an oxychlorination reaction with hydrogen chloride and a gas containing molecular oxygen, in gas phase, at elevated temperature and in contact with a fluidized bed catalyst of copper-II-chloride on a carrier, wherein the reaction gases are cooled under pressure in two condensation stages, condensed 1,2-dichloroethane and water are removed, the bulk of unreacted starting gas and inert gas are recycled, the reaction gases coming from the second condensation stage are delivered to a third condensation stage, cooled therein under pressure down to a temperature within the range 5° to 18° C. and to the extent necessary to retain in the recycle gas 0.5 to 3 volume % of 1,2-dichloroethane, and the recycle gas is admixed, directly upstream of the reactor, with a quantity of pure oxygen necessary to replace consumed oxygen, the improvement which comprises: introducing preheated hydrogen chloride wholly or partially into the recycle gas heated to 150° to 200° C. and then admixing the recycle gas with pure oxygen the oxygen being admitted at a point lying between the hydrogen chloride feed point into the recycle gas and the feed point of the recycle gas into the reactor.

4,265,838

CARBURETOR FAST IDLE CAM MECHANISM

Donald H. Wilson, Auburndale, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 10, 1980, Ser. No. 138,966
Int. Cl.³ F02M 3/06
U.S. Cl. 261—52 12 Claims



1. A fast idle cam mechanism for a carburetor having an air/fuel induction passage and a throttle valve rotatably mounted for a pivotal movement across the passage between an essentially closed position to a number of open positions to control the quantity of air/fuel mixture flow through the passage, a stop means fixed for rotation with the throttle valve and adapted to be stopped at times in its pivotal movement in a throttle valve closing direction by frictional abutment against the face edge of a fast idle cam, an axially movable fast idle cam rotatably mounted on a shaft and including a recess in the face

edge defining a cam follower slot, the slot having a closed circular track-like shape defined by a pair of side walls and arcuate turn around type end portions, the slot receiving the stop means therein,

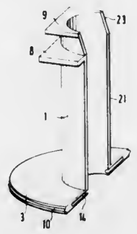
the slot having a pair of ramps each varying in radial projection along its length and together being in a side-by-side relationship and blending together at their ends at the turn around end portions of the slot forcing relative movement between the slot and stop means upon rotation of the cam, rotation of the cam in one direction moving the one ramp surface relative to the stop means engaged therewith to progressively pivot the stop means to close the throttle valve until the turn around end portion of the slot is engaged by the stop means whereupon continued rotation of the cam in the one direction moves the cam axially for engagement of the stop means with the other ramp surface, subsequent rotation of the cam in the opposite direction thereafter moving the other ramp surface relative to the stop means to progressively pivot the stop means to open the throttle valve until the other turn around end portion of the slot is engaged by the stop means whereupon further rotation of the cam in the other direction effects an axial shifting of the cam to realign the stop means with the one ramp surface for subsequent restarting closing movement of the throttle valve upon subsequent rotation of the cam in the one direction.

4,265,839

EVAPORATION AIR HUMIDIFIER

Heinz G. Baus, Ulmenweg 46, CH-3601 Thun, Switzerland

Filed Aug. 24, 1979, Ser. No. 69,375
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 2837132
Int. Cl.³ B01F 3/04
U.S. Cl. 261—91 16 Claims



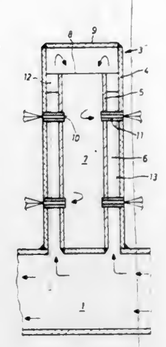
1. Evaporation air humidifier having a pump, a motor for driving the pump having a shaft extending through a support plate into a water supply container, the shaft carrying a pump wheel or vanes disposed in a lower pot-shaped pump housing formed with a suction opening and a connecting piece for connecting a pressure line thereto, comprising a longitudinally divided support pipe surrounding the motor shaft and connecting the pump housing to the support plate, said support pipe being formed of two longitudinal shells having jointing surfaces formed with a wedge-shaped bevel at respective ends thereof extending into an opening formed in the support plate, at least one of said shells being suspended under clamping action from the support plate in vicinity of said opening formed therein, and connecting means for mechanically holding said shells and said pot-shaped pump housing together.

4,265,840

VAPOR DISTRIBUTOR PIPE FOR AIR HUMIDIFIER

Paul Bähler, Wangenstrasse 8, Dübendorf, Switzerland

Filed Sep. 18, 1979, Ser. No. 76,538
Claims priority, application Switzerland, Sep. 25, 1978, 9958/78
Int. Cl.³ B01F 3/04
U.S. Cl. 261—115 8 Claims



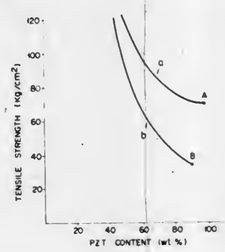
1. A vapour distributor pipe arrangement for an air humidifier, comprising vapour exhaust pipe means formed by an inner wall, which bounds an inner chamber of the vapour exhaust pipe means, and an outer wall, which surrounds said inner wall and defines therewith an outer chamber of the vapour exhaust pipe means, said outer chamber being in communication with said inner chamber, and said arrangement further comprising a plurality of vapour exhaust elements, each of which is mounted in the inner and outer walls of the vapour exhaust pipe means so that it extends from the inner chamber to the exterior of the vapour exhaust pipe means through the outer chamber, whereby vapour which enters the inner chamber can pass to the exterior of the vapour exhaust pipe means through said vapour exhaust elements.

4,265,841

METHOD FOR PRODUCTION OF COMPOSITE PIEZOELECTRIC MATERIAL

Yoshinori Fujimori, Kawasaki; Akio Ishizawa, Tokyo, and Minoru Hashimoto, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 20, 1979, Ser. No. 77,264
Claims priority, application Japan, Sep. 21, 1978, 53-115087; Sep. 27, 1978, 53-118044; Jun. 28, 1979, 54-80696
Int. Cl.³ B29C 25/00; B29B 1/04; B29G 7/00
U.S. Cl. 264—22 10 Claims



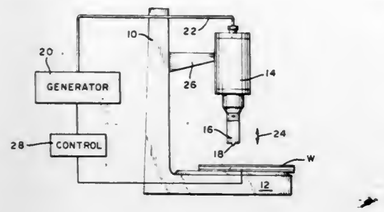
1. A method of producing a composite piezoelectric material, comprising the steps of treating an inorganic dielectric material powder with a latex-containing dispersion so as to coat the surfaces of the powder particles with the rubber particles contained in the latex in a manner to provide encapsulated

powder particles, kneading the encapsulated powder particles, shaping the kneaded mass, and polarizing the shaped mass.

4,265,842
METHOD OF FORMING A CORNER IN A THERMOPLASTIC MATERIAL USING ULTRASONIC VIBRATIONS

Arthur M. Summo, Londonderry, N.H., assignor to Branson Ultrasonics Corporation, New Canaan, Conn.

Filed Jan. 28, 1980, Ser. No. 115,908
Int. Cl.³ B06B *3/00*
U.S. Cl. 264—23 **2 Claims**



1. The method of forming a corner in a substantially rigid flat packaging material such as a corrugated thermoplastic board comprising a pair of flat plastic covers having corrugated plastic liner material disposed between and bonded to said respective covers, the steps including:
providing a resonator adapted to the resonant and vibrate at an ultrasonic frequency and having a frontal surface shaped for producing a crease in said board;
providing contact between said frontal surface and one of said covers and urging said frontal surface toward the opposite cover against the rigidity exhibited by the corrugations of said liner material to crush said corrugations;
rendering said resonator resonant whereby under the influence of said ultrasonic vibrations and the force between said frontal surface and said board the thermoplastic material contacted by said frontal surface softens and flows;
withdrawing said frontal surface from contact with said board before it has penetrated through said opposite cover whereby to cause responsive to the solidification of the softened thermoplastic material a weld between said covers in the form of a crease, and
folding the board in the crease to thereby form a corner.

4,265,843
METHOD OF PRODUCING SHAPED SILICON-CARBIDE BODIES

Francisco J. Dias; Ashok K. Gupta; Erno Gyarmati, all of Jülich; Marian Kampel, Heinsberg; Hartmut Luhleich, Düren; Rudolf Munzer, Alsdorf, and Aristidis Naoumidis, Jülich-Koslar, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Julich Gesellschaft mit berschrankter Haftung, Julich, Fed. Rep. of Germany

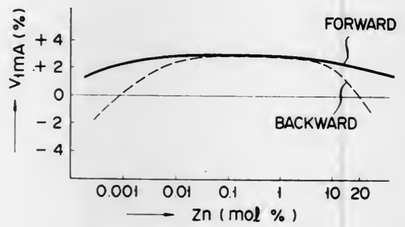
Filed Dec. 3, 1979, Ser. No. 99,893
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1978, 2852410
Int. Cl.³ C01B *31/36*
U.S. Cl. 264—57 **9 Claims**

1. A method of making a shaped silicon-carbide body comprising the steps of:
(a) forming a porous body consisting at least in part of carbon and of a predetermined shape;
(b) heating the body formed in step (a) to a temperature of substantially 1400° C. to substantially 1500° C.;
(c) adding silicon powder to the body at said temperature to cause said powder to adhere at least to a surface of said body the so adhered silicon powder impregnating the pores of said body; and
(d) thereafter heating the silicon-powder-impregnated body of step (c) to a temperature of substantially 1800° C. to substantially 2000° C. for a period sufficient to effect reaction between the silicon powder and the carbon of the body to transform at least a major part of the carbon of said body to silicon carbide.

4,265,844
METHOD OF MANUFACTURING A VOLTAGE-NONLINEAR RESISTOR

Yuji Yokomizo, and Kiyoshi Minami, both of Nagai, Japan, assignors to Marcon Electronics Co. Ltd., Nagai, Japan

Filed May 7, 1980, Ser. No. 147,525
Claims priority, application Japan, May 16, 1979, 54-60682; May 17, 1979, 54-61300; Sep. 3, 1979, 54-113378; Sep. 3, 1979, 54-113379; Sep. 5, 1979, 54-114560
Int. Cl.³ B28B *1/00*; B29C *25/00*
U.S. Cl. 264—61 **8 Claims**



1. A method of manufacturing a voltage-nonlinear resistor made of a sintered composition body which exhibits a voltage-nonlinearity, comprising:
preparing a ZnO-based composition containing zinc-oxide and at least 0.001 to 20 mol% of metal zinc and at least one metal oxide selected from the group consisting of 1 mol% or less of bismuth oxide, 1 mol% or less of cobalt oxide and 1 mol% or less of manganese oxide;
shaping the ZnO-based composition in the form of a plate or a rod;
sintering the body of composition thus shaped at 1,000° C. or more in an oxidizing atmosphere; and
forming electrodes on the body of composition thus sintered so as to be electrically connected to the sintered body.

4,265,845
PROCESS FOR THE PRODUCTION OF A CERAMIC HEAT-RETAINING BRICK

Axel Eschner, Wiesbaden, Fed. Rep. of Germany, assignor to Didier-Werke AG, Wiesbaden, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,545
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851083
Int. Cl.³ C04B *35/20*
U.S. Cl. 264—63 **6 Claims**

1. In a process for the production of a ceramic heat-retaining brick made up of a mixture of a granular material and a binding agent which comprises shaping and drying a mixture of the granular material and a binding agent, the improvement in which the granular material comprises olivine as the principal constituent and contains powdered iron having a particle size of less than 0.1 mm present in an amount between about 5 and 20% by weight of the brick.

4,265,846
METHOD OF BINDING LIGNOCELLULOSIC MATERIALS

Kuo-Cheng Shen; David P. C. Fung, both of Ottawa, and Louis Calve, Aylmer, all of Canada, assignors to Canadian Patents and Development Limited, Ottawa, Canada

Filed Oct. 5, 1979, Ser. No. 82,287
Int. Cl.³ B29J *5/00*
U.S. Cl. 264—109 **7 Claims**

1. A method for binding lignocellulosic materials which comprises; forming a mixture of the lignocellulosic materials and at least 2%, by weight, ammonium based spend sulfite liquor solids, forming a mat with the mixture and hot pressing the mat at a temperature of 170° C., or higher, for a time sufficient for thermosetting and consolidation of the mat to provide a composite product.

4,265,847
TABLETTING PROCESS

Peter Hunt, and Aston M. Trelford, both of Bury-St-Edmunds, England, assignors to Kirby Pharmaceuticals Ltd, Bury-St-Edmunds, England

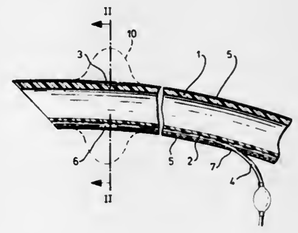
Continuation of Ser. No. 891,813, Mar. 30, 1978, abandoned. This application Feb. 20, 1980, Ser. No. 122,833
Int. Cl.³ B29B *1/02*
U.S. Cl. 264—122 **1 Claim**

1. A process for the tabletting direct from powder form without intervening granulation of a composition containing an active compound having sterilizing, bactericidal or pharmaceutical properties, said tablet producing an effervescent action when contacted with water, the process consisting of direct compression in the absence of substantial wetting of a homogenous powdered admixture consisting essentially of said active compound, an alkali metal bicarbonate for carbon dioxide liberation to generate effervescent action, and a solid, water soluble, aliphatic carboxylic acid or acid salt thereof in the presence of an alkali metal carbonate also in powder form, but not primarily for effervescent action to form a stable, soluble and hard tablet composition.

4,265,848
METHOD FOR THE PRODUCTION OF A MEDICAL INSTRUMENT

Heinz Rüsch, Waiblingen, Fed. Rep. of Germany, assignor to Willy Rusch GmbH & Co. KG, Fed. Rep. of Germany

Filed Aug. 16, 1979, Ser. No. 67,173
Claims priority, application Fed. Rep. of Germany, Aug. 30, 1978, 2837813
Int. Cl.³ B29H *21/04*
U.S. Cl. 264—130 **11 Claims**

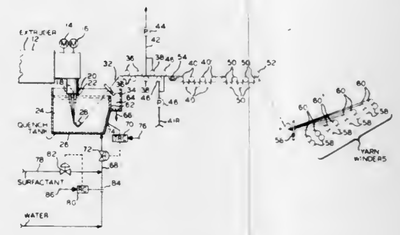


1. A method for forming a tubular medical instrument, such as a catheter having a balloon cuff of elastic material comprising the steps of
forming an elongated hollow hose having an inflation lumen extending along its length and an inflation opening at a selected point on the outer surface, along the length of the hose,
applying an annular band of a parting compound to the surface of said hose adjacent said inflation opening and thereafter
extruding a continuous cylindrical sheath of elastic material directly about the outer surface of said hose along the length thereof, said sheath simultaneously bonding to the surface of said hose, which is free of said parting compound, and forming an inflatable cuff about said inflation opening.

4,265,849
METHOD FOR PRODUCING MULTIFILAMENT THERMOPLASTIC YARN HAVING LATENT CRIMP

David E. Borenstein, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 29, 1979, Ser. No. 43,072
Int. Cl.³ D01D *5/22*
U.S. Cl. 264—168 **27 Claims**



1. A method of forming yarn comprising the steps of:
(a) extruding a melt-spinnable plastic material in molten form through spinning orifices of at least one spinneret die to form a yarn end comprising a plurality of filaments;
(b) quenching and cooling said thus formed filaments of said yarn end in a quenching liquid;
(c) drawing the thus quenched and cooled filaments of said yarn end so as to form a drawn yarn end;
(d) passing the thus drawn yarn end over a heated surface so as to heat at least a portion of said filaments;
(e) cooling the yarn end thus passed over said heated surface; and
(f) thereafter heating the thus cooled yarn end so as to thereby develop latent crimp in at least a portion of the filaments thereof.

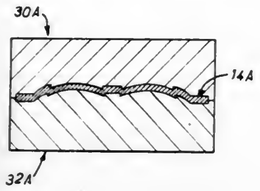
4,265,850
PROCESS AND APPARATUS FOR THE PRODUCTION OF SPECTACLE FRAME PARTS OF SYNTHETIC MATERIAL

Michel Coulon, Champs-sur-Marne, and Gerard Laprade, St Maur des Fosses, both of France, assignors to Essilor International Cie Generale d'Optique, Joinville-le-Pont, France

Filed Jul. 10, 1978, Ser. No. 923,320
Claims priority, application France, Jul. 13, 1977, 77 21604
Int. Cl.³ B29C *1/02*; B29F *1/00*
U.S. Cl. 264—225 **15 Claims**

1. A process for producing casting half-moulds for fabricating spectacle frame parts of synthetic material having complex, curved three-dimensional configuration with undercut portions, said process comprising the steps of providing injection half-moulds having impressions which are respectively negative and positive replicas of the shape of the ultimate spectacle frame part of curved complex three-dimensional configuration,

and injecting homopolymers and copolymers of polyolefins into the cavity defined by the injection half-moulds, and removing the resulting injection moulded casting half-mould of substantially uniform thickness throughout from the cavity.



4,265,851

PROCESS FOR MOULDING CELLULAR POLYCARBODIIMIDE

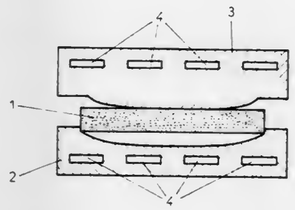
Jacques Roth, Strasbourg, France, assignor to Roth Freres S.A., Strasbourg-Meinau, France

Continuation of Ser. No. 738,177, Nov. 2, 1976, abandoned. This application Aug. 8, 1978, Ser. No. 931,952

Claims priority, application France, Nov. 17, 1975, 75 35563; Sep. 2, 1976, 76 27056

Int. Cl.[1] B29C *17/00*; B29D *27/00*

U.S. Cl. 264—321 **7 Claims**



1. A process for moulding cellular polycarbodiimide, comprising producing a discrete friable panel of cured thermoplastic cellular polycarbodiimide containing a small but effective amount of silicone oil, compressing said cured panel for a period of time less than five seconds in a mould heated to a temperature above the softening temperature of the panel so as to increase its density and to deform it to a desired shape, said amount being effective to produce a smooth, elastic surface on said shape upon simultaneous heating and compression thereof, slightly cooling the mould after moulding, and removing said shape from the mould, said polycarbodiimide being heated only in said mold for said period.

4,265,852

PROCESS FOR FORMING A PLASTIC ARTICLE

Donald G. Sauer, Harwinton, Conn., assignor to National Can Coporation, Chicago, Ill.

Continuation-in-part of Ser. No. 820,444, Aug. 1, 1977, abandoned, which is a continuation of Ser. No. 615,813, Sep. 22, 1975, abandoned. This application Feb. 1, 1979, Ser. No. 8,605

The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.

Int. Cl.[3] B29C *17/04*; B29D *9/04*

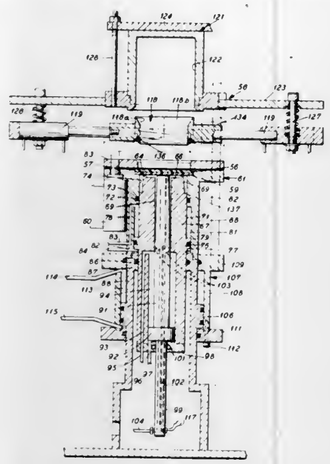
U.S. Cl. 264—512 **5 Claims**

1. A process for plastic container manufacture comprising the steps of:

(A) supporting a preformed thermoplastic member in a forming position adjacent the mouth of a female container neck forming member which in turn is adjacent the mouth of a blow mold member having a cavity therein and clamping peripheral portions of said thermoplastic member,

(B) relatively movably projecting a first male forming body into a face of said thermoplastic member to stretch and form the inward portions of said thermoplastic member into a hollow article having an aperture within said peripheral portions and also having integral side and end wall regions, which wall regions extend through said female container member and into said blow mold cavity,

(C) movably projecting a second male forming body, which surrounds said first male forming body, into the inside of said article through said aperture to cooperate with said female container neck forming member and compression



mold a neck region in said hollow article adjacent to said aperture, and sealingly close said aperture,

(D) said female container neck forming member further including trimming surfaces associated with said mouth thereof, and said second male forming body, at the termination of said projecting, being brought into a cooperating trimming engagement with said trimming surfaces, thereby severing said peripheral portions from said article, and then

(E) pressurizing the interior of said sealed hollow article by injecting a fluid thereinto to enlarge the volume of said hollow article to an extent sufficient to generally conform said wall regions against said cavity, thereby forming said article into a container.

4,265,853

METHOD AND APPARATUS FOR FORMING OF REINFORCED TUBE

Carl B. Havens, Newark, Ohio, assignor to The Dow Chemical Company, Midland, Mich.

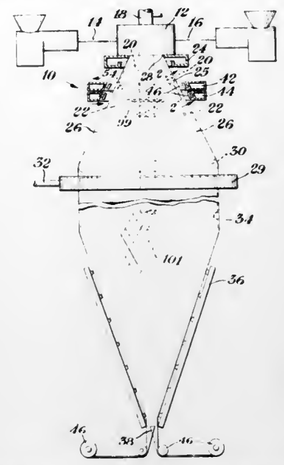
Filed Sep. 14, 1979, Ser. No. 75,477

Int. Cl.[3] B29F *3/08*; B29D *7/20*

U.S. Cl. 264—519 **10 Claims**

1. A method for the forming of a thermoplastic film having a strength imparting ribbed mesh pattern, the steps of the method comprising extruding through a die a heat-plastified synthetic resinous composition in the form of a tube having generally radial symmetry about the axis of extrusion, passing the tube while still in a heat-plastified condition past a cooling mechanism having a defined periphery, said mechanism having a plurality of counter-rotating elements for impinging cooling means on the tube, fixedly spacing said film with respect to said cooling means, impinging said cooling means on said film, said cooling means imparting sharp ribs on the film body, said tube being formable into a tough film having a ribbed mesh pattern formed thereon.

8. An apparatus for the forming of a thermoplastic film having a strength imparting ribbed mesh pattern thereon, said apparatus comprising a die for extruding a tubular thermoplastic extrudate, a cooling mechanism located adjacent said die and defining a generally circular periphery with respect to the tubular extrudate, elements located about said mechanism



including means for impinging a cooling means upon the surface of said tubular extrudate, means for counter-rotating said elements, and means for fixedly spacing the film with respect to said cooling means, whereby a cross-ribbed mesh pattern is produced on said film when said cooling means is impinged on said film with said apparatus.

4,265,854

PROCESS INHIBITING THE COALESCENCE OF FLOWABLE PHOSPHORUS PENTACHLORIDE IN CLOSED CONTAINERS

Joachim Wortmann, Flörsheim-Wicker; Gerhard Rieb, Frankfurt am Main; Franz-Josef Dany, and Joachim Kandler, both of Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 86,815

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1978, 2846364

Int. Cl.[3] B01J *19/00*; C01B *25/10*

U.S. Cl. 422—40 **6 Claims**

1. A process of inhibiting the coalescence of flowable phosphorus pentachloride during extended storage in a closed container, which comprises: admitting a readily volatizable organic liquid boiling within the range of from about 20° to 200° C. and being inert with respect to phosphorus pentachloride to the container prior to, during or after the introduction of phosphorus pentachloride thereinto, and hermetically sealing the container, the liquid being used in a proportion of about 1 to 15 weight %, based on the quantity of phosphorus pentachloride.

4,265,855

SYSTEM FOR PERFORMING IMMUNOCHEMICAL AND OTHER ANALYSES INVOLVING PHASE SEPARATION

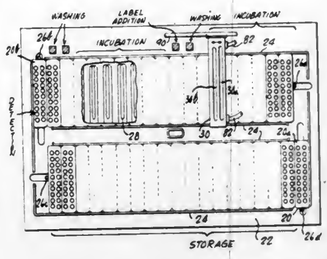
Richard M. Mandle, Pompton Lakes; Frank Karsai, Dover, and Raymond S. Krautheim, Nutley, all of N.J., assignors to Electro-Nucleonics, Inc., Essex, N.J.

Filed Nov. 3, 1978, Ser. No. 957,091

Int. Cl.[3] G01N *1/14*

U.S. Cl. 422—65 **16 Claims**

1. A system for automatically processing liquids in open-ended containers comprising conveyor means for conveying said containers past a plurality of operating stations, one of said operating stations comprising a station for adding and removing a liquid respectively to and from said containers, said station comprising a head assembly engageable with at least



one of said containers and including at least one liquid supply tube and at least one aspirating tube, said head assembly including means for positioning only one of said tubes within the open end of one of said containers at any time.

4,265,856

ANALYSIS REACTOR AND ITS USE FOR VOLUMETRIC ANALYSIS OF A SAMPLE OF A SUBSTANCE IN POWDER FORM

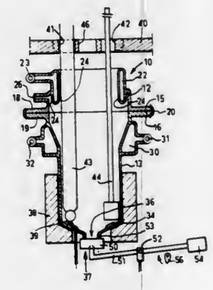
Charles Fallnower, Montelimar, France, assignor to Ciments Lafarge France, Saint Cloud, France

Filed Jun. 20, 1979, Ser. No. 50,489.

Claims priority, application France, Jun. 27, 1978, 78 19090

Int. Cl.[3] G01N *27/28*

U.S. Cl. 422—68 **10 Claims**



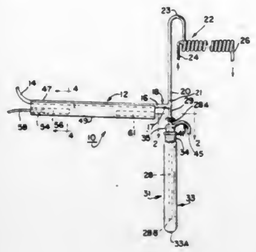
1. A reactor for analyzing a powder substance mixed with a liquid, comprising a substantially cylindrical upright body having an open upper end adapted for introducing the powder sample into said body, a sealable bottom end opening, means for heating a lower portion of said cylindrical body adjacent the bottom end thereof, sealing means for sealing and opening said bottom end opening, liquid inlet means for introducing a liquid into said cylindrical body in a circumferential inlet area adjacent to said top end of said body, said liquid inlet means adapted to direct at least a portion of said liquid toward the inner wall surface of said cylindrical body in an annular zone adjacent to said circumferential liquid inlet area, means for cooling the inner wall of said body in a circumferential zone located beneath, and comparatively close to, said circumferential inlet area, stirring means arranged within said cylindrical body near the bottom thereof and analyzing electrode means adapted to be immersed in the mixture of said sample and said liquid within said body.

4,265,857

IN-LINE DISTILLATION SYSTEM

Nabih P. Kelada, Glen Ellyn; Cecil Lue-Hing, Chicago, and David T. Lordi, LaGrange, all of Ill., assignors to The Metropolitan Sanitary District of Greater Chicago, Chicago, Ill.

Filed Nov. 16, 1978, Ser. No. 961,162
Int. Cl.³ B01D *3/00;* **B01L** *11/00;* **G01N** *31/06, 35/08*
U.S. Cl. 422—101 **9 Claims**



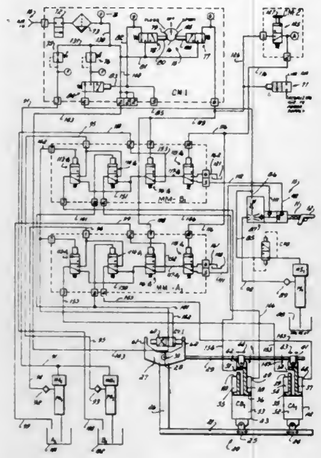
1. In an in-line distillation system for separating volatile components entrained in a given quantity of a series of samples of liquid to be tested, distillation means having a thin film distillation tube, said tube having an inlet and an outlet for separating the volatile components from the liquid in each sample, said tube engaging and being heated by metal heating bar means, said inlet receiving said samples of liquid; distribution means connected in fluid communication with said outlet of said distillation means and having an upwardly extending first conduit and a downwardly extending second conduit for flowing the separated volatile components from said outlet of said distillation means through said first conduit and for flowing liquid from the outlet of said distillation means through said second conduit; and trap means for resisting the flow of the separated volatile components from entering said second conduit, said trap means including an inner downwardly depending conduit having at its upper end an inlet disposed below said outlet of said distillation means and connected in fluid communication with the lower end portion of said second conduit, said trap means including container means at least partially surrounding said inner conduit for receiving liquid from said second conduit via said inner conduit, said container means having a bottom wall and having means defining an outlet means open to the atmosphere at the upper portion thereof spaced by a substantial distance above the exit end of said inner conduit so that liquid from said distillation means fills said inner conduit and said container means to impede the flow of the separated volatile components into said second conduit and flows from the container outlet, said container means being substantially larger in cross section than the cross section of said inner conduit to permit liquid and any spurious volatile components flowing from said distillation means through said second conduit into said inner conduit to flow freely from the exit end of said inner conduit to the outlet of said container means, said trap means having a member for connecting said inner conduit sealingly and removably to said container means for facilitating disassembly of said trap means for cleaning purposes, said exit end of said inner conduit being unobstructed and spaced by a substantial distance above the bottom wall of said container means to provide a space therebetween to permit the collection of sediment material and thus to inhibit accumulations thereof from blocking the flow of liquid through said trap means, and condensing means for retrieving for testing purposes substantially the entire amount of said volatile component and liquid vapor received from said distillation means via said first conduit.

4,265,858

METERING AND MIXING APPARATUS FOR MULTIPLE COMPONENT

Gerald W. Crum, Elyria, and Lawrence J. Macartney, Lorain, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Mar. 31, 1976, Ser. No. 672,239
Int. Cl.³ B01J *14/00;* **G05D** *11/02*
U.S. Cl. 422—129 **8 Claims**



1. Apparatus for selectively proportionally metering and mixing one of a plurality of base flowable component materials with a common coreactant flowable component material, which apparatus comprises,

a pressurized source for each of a plurality of base component materials,

a pressurized source of a coreactant component material,

a metering cylinder for each base and coreactant component material, a metering piston reciprocable within each cylinder, a piston rod attached to said piston and extending outwardly from a cylinder end wall, said metering piston being operative to divide said metering cylinder into opposed end chambers,

mixing means for mixing at least one of said base component materials with said coreactant component material, said mixing means including a chamber having inlet ports for the component materials and an outlet for the mixture of component materials,

a plurality of manifold modules, each of said manifold modules having inlet means operatively connected to one of said pressurized sources, each of said manifold modules also being operatively connected to opposite end chambers of one of said metering cylinders, each of said manifold modules further having outlet means operatively connected to said mixing means, each of said manifold modules having direction control valve means therein operative to alternately connect opposite end chambers of one of said metering cylinders to said inlet means and to said outlet means;

control valve means in flow controlling communication with said direction control valve means of said manifold modules,

a pivotally mounted beam connected to the piston rod of each of said metering pistons, said beam being operatively connected to said control valve means so as to effect reversal of said control valve means in response to movement of said metering pistons,

pneumatic logic control means for simultaneously connecting one of said plurality of sources of base component material and said source of coreactant component material with said mixing means,

said pneumatic logic control means comprising a base component selector module and a plurality of base component selector valve modules, said base component selector valve modules being connected via a pneumatic control circuit to said base component selector module, said base component selector valve modules being equal in number to the number of said plurality of base components,

a plurality of pneumatic motor driven transfer pumps, each of said transfer pumps being operative to pump one of said component materials to said inlet means of one of said manifold modules,

each of said base component selector valve modules being operable to route either high pressure air or low pressure air to one of said plurality of pneumatic motor driven transfer pumps, and

said pneumatic logic control means operable to simultaneously route high pressure air to one of the plurality of pneumatic motor driven transfer pumps and to route low pressure air to a plurality of other pneumatic motor driven transfer pumps so as to cause said one of the base component materials to be pumped at high pressure to said inlet means of one of said manifold modules while simultaneously other base component materials are pumped at low pressure to said inlet means of the manifold modules.

4. Apparatus for metering and mixing a plurality of flowable materials,

a pressurized source for each material,

an independent metering means for each material coupled with a pressurized source of said material through a passageway means,

mixing means including a mixing chamber operatively connected to each of said metering means through said passageway means,

each of said metering means including a metering cylinder having a double acting piston movable therein, a piston rod connected to said piston and projecting beyond an end wall of said metering cylinder,

pivotally mounted beam means connected to the piston rod of each of said metering means, said beam means being movable as a result of motive force imparted from said metering means,

isolating means for isolating one of said metering means for motive force contributions of the other metering means imparted through said beam means,

said isolating means comprising mechanical means for decoupling the motive force of one of said metering means from the motive force contribution of said other metering means, and

said mechanical means including at least one clutch.

4,265,859

APPARATUS FOR PRODUCING SEMICONDUCTOR GRADE SILICON AND REPLENISHING THE MELT OF A CRYSTAL GROWTH SYSTEM

David N. Jewett, Harvard, Mass., assignor to Energy Materials Corporation, Harvard, Mass.

Division of Ser. No. 911,089, Jun. 2, 1978, abandoned. This application Oct. 26, 1979, Ser. No. 88,366
Int. Cl.³ B01J *12/02, 19/02;* **C01B** *33/02*
U.S. Cl. 422—199 **8 Claims**

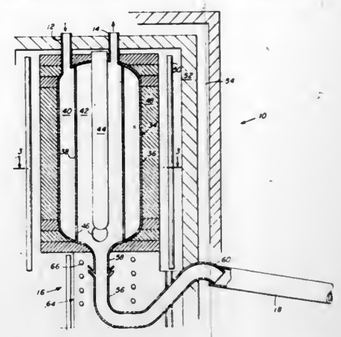
1. Apparatus for producing high purity silicon and melt replenishment for a crystal growth zone on a semicontinuous basis, comprising

(a) a vessel defining a reaction chamber,

(b) conduit means including inlet and outlet tubes connected to said chamber for delivering and exhausting a flow of heat-reactive, silicon-bearing feed gas through said chamber,

(c) first heating means operatively associated with said chamber for selectively and cyclically heating said chamber to the reaction temperature of said gas whereby silicon from said feed gas will deposit on walls of said chamber and to the melting point of silicon deposited in said chamber whereby the deposited will melt and flow to the lower portion said chamber,

(d) a U-shaped drain trap connected to the lower portion of said vessel for draining molten silicon from said chamber for delivery to said zone during a melting phase of the chamber operation and when containing a sufficient quantity of silicon to block at least one part of said trap forming



a seal between said zone and said chamber during a reaction phase of the chamber operation, and,

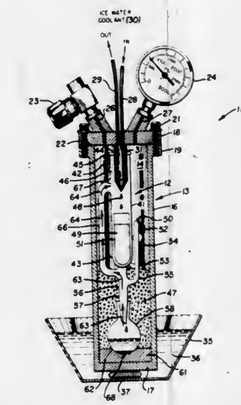
(e) second heating means operatively associated with said drain trap for separately controlling the temperature thereof whereby silicon collected in said trap can be cyclically melted and solidified to control the flow of silicon from said chamber.

4,265,860

HIGH PRESSURE SOXHLET EXTRACTOR

Walter G. Jennings, Davis; Robert H. Wohleb, Orangevale, and Norman W. Wohlers, Davis, all of Calif., assignors to J & W Scientific, Incorporated, Rancho Cordova, Calif.

Filed Mar. 27, 1980, Ser. No. 134,625
Int. Cl.³ B01D *11/02*
U.S. Cl. 422—280 **6 Claims**



1. A high pressure Soxhlet extractor comprising:

a. a Soxhlet apparatus including an extractor body, a flask and a condenser;

b. a pressure vessel encompassing said Soxhlet apparatus, said vessel comprising a vertically elongated hollow cylinder having a bottom cover and a removable top cover;

c. means for heating said pressure vessel to distil an extractant in said flask;

d. means for chilling said condenser to liquefy the distilled extractant;

e. a thimble containing a sample having soluble constituents disposed in said extractor body below said condenser to receive the extractant in liquid phase descending by gravity from said condenser; and,

f. siphon means for periodically carrying the extractant and sample constituents from said extractor body to said flask to resume cycling of the extractant while collecting the extracted material.

4,265,861

METHOD OF REDUCING RADIOACTIVE WASTE AND OF RECOVERING URANIUM FROM IT

James G. Cleary, Dormont, and Gregory E. Zymboly, Penn Hills, both of Pa., assignors to Wyoming Mineral Corporation, Lakewood, Colo.

Filed Feb. 9, 1979, Ser. No. 10,566
Int. Cl.³ G21F *9/30*
U.S. Cl. 423—10 **12 Claims**

1. In a process for recovering uranium from a recovery leach supersaturated with calcium carbonate, an improved method of recovering uranium from said recovery leach and of reducing radioactive waste containing radium, comprising

(1) precipitating calcium carbonate from said recovery leach;

(2) separating said precipitated calcium carbonate from said recovery leach;

(3) dissolving said precipitated calcium carbonate with acid to form a solution of radium, uranium, and calcium carbonate;

(4) removing said uranium from said solution;

(5) precipitating MSO_4. $RaSO_4$ from said solution by adding $SO_4^=$ and M^{++} ions, where M is Ba or Sr; and

(6) separating said precipitated MSO_4. $RaSO_4$ from said solution.

4,265,862

PROCESS FOR PURIFYING RARE-EARTH COMPOSITIONS USING FRACTIONAL SULFATE PRECIPITATION

Weimar W. White, East Rochester, and Laurie A. Kimble, Hilton, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 25, 1979, Ser. No. 6,691
Int. Cl.³ C01F *17/00*
U.S. Cl. 423—21.1 **7 Claims**

1. A process for purifying a composition comprising at least one rare-earth element and at least one acid-soluble radioactive impurity of the actinium decay chain, said process comprising the steps of:

(1) forming an aqueous solution of said composition having a pH between 4 and 6.5;

(2) precipitating a portion of said rare earth and said radioactive impurity by adding to said solution in an amount sufficient to effect such precipitation and while maintaining the pH between 4.0 and 6.5;

(i) a soluble barium or strontium salt;

(ii) a soluble aluminum, magnesium or zirconium salt;

(iii) a sulfate ion-providing salt; and

(iv) a selective precipitating agent consisting of a compound or salt selected from the group consisting of:

(a) nitrogen-containing heterocyclic ring compounds having an hydroxyl group located in a β or γ position with respect to a nitrogen atom in the heterocyclic ring and

(b) ammonium salts of N-nitrophenylhydroxylamines;

(3) separating the solution from the precipitate; and

(4) recovering purified rare earth from the solution.

4,265,863

INTEGRATED PROCESS FOR TREATMENT OF RESIDUAL SOLUTIONS FROM ANODIZATION PLANTS

Samuël J. Wajc, Braine L'Alleud, Belgium, assignor to Exergie Société de Personnes a Responsabilitié Limitée, Brussels, Belgium

Filed Apr. 3, 1979, Ser. No. 26,642
Claims priority, application France, May 4, 1978, 78 10047
Int. Cl.³ C01F *7/02, 7/74;* C01D *5/00*
U.S. Cl. 423—119 **15 Claims**

1. An integrated process for the treatment of residual solutions resulting from an anodization treatment of aluminum or aluminum alloy objects, using an aqueous solution of caustic soda in a pickling treatment and an aqueous solution of sulphuric acid in an anodization treatment wherein treatment of the residual solutions comprises the operational stages:

(a) producing aluminum sulphate by the evaporation of a portion of the residual anodization solution to produce aluminum sulphate in the form of a concentrated solution or crystals;

(b) producing precipitated aluminum hydroxide and a solution of sodium sulphate by treatment of the portion of residual anodization solution not used in operational stage (a) with a portion of the residual pickling solution;

(c) producing sodium aluminate by treatment of the portion of the residual pickling solution not used in operational stage (b) with a portion of the aluminum hydroxide produced in operational stage (b) and concurrent or subsequent evaporation of the resulting solution of sodium aluminate to produce sodium aluminate in the form of a concentrated solution, a powder or granules.

3. An integrated process for the treatment of residual solutions resulting from an anodization treatment of aluminum or aluminum alloy objects, using an aqueous solution of caustic soda in a pickling treatment and an aqueous solution of sulphuric acid in an anodization treatment wherein treatment of the residual solutions comprises the operational stages:

(a) producing aluminum sulphate in the form of a concentrated solution or crystals by treatment of a portion of the residual anodization solution with a portion of the aluminum hydroxide formed in operational stage (b);

(b) producing precipitated aluminum hydroxide and a solution of sodium sulphate by treatment of the portion of residual anodization solution not used in operational stage (a) with a portion of the residual pickling solution;

(c) producing sodium aluminate by treatment of the portion of the residual pickling solution not used in operational stage (b), with a portion of the aluminum hydroxide produced in operational stage (b) and concurrent or subsequent evaporation of the resulting solution of sodium aluminate to form sodium aluminate in the form of a concentrated solution, a powder or granules.

9. An integrated process for the treatment of residual solutions resulting from an anodization treatment of aluminum or aluminum alloy objects, using an aqueous solution of caustic soda in a pickling treatment and an aqueous solution of sulphuric acid in an anodization treatment wherein treatment of residual solutions comprises the operational stages:

(a) producing precipitated aluminum hydroxide and a solution of sodium sulphate by treatment of the residual anodization solution with a portion of the residual pickling solution and sulfuric acid, and

(b) producing sodium aluminate by treatment of the portion of the residual pickling solution not used in operational stage (a) with a portion of the aluminum hydroxide produced in operational stage (a) and concurrent or subsequent evaporation of the resulting solution of sodium aluminate to produce sodium aluminate in the form of a concentrated solution, a powder or granules.

4,265,864

PROCESS FOR TREATING BAUXITE OR SIMILAR RAW MATERIAL

Yujiro Sugahara, Tokyo; Hiroyuki Naito; Kiyoshi Takai, both of Tsuruoka, and Shigehisa Imafuku, Nakajo, all of Japan, assignors to Mizusawa Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Feb. 12, 1979, Ser. No. 11,544
Claims priority, application Japan, Feb. 13, 1978, 53/14043
Int. Cl.³ C01F *7/08*
U.S. Cl. 423—121 **12 Claims**

1. A process for treating an alumina material containing 50 to 88% by weight alumina based on total weight of said material and 2 to 95% by weight of Fe_2O_3 based on the weight of alumina, which comprises intimately mixing said alumina material with an alkali metal carbonate or alkali metal bicarbonate at a mixing ratio of Al_2O_3:Na_2O of from 1:1 to 1:3, molding the mixture into granules in the presence of 1 to 100% by weight of water, based on the alumina material as a granulation medium, heat-treating the granules at a temperature of to 750° to 950° C. for 5 to 30 minutes, leaching the heat-treated granules with an aqueous medium, and thereby substantially recovering the alumina from the alumina material in the form of an aqueous solution of alkali metal aluminate.

4,265,865

PROCESS FOR THE MANUFACTURE OF PHOSPHORUS PENTACHLORIDE

Gerhard Münster, Soden am Taunus; Gerhard Riess, and Jürgen Russow, both of Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 167,660
Claims priority, application Fed. Rep. of Germany, Jul. 14, 1979, 2928599
Int. Cl.³ C01B *25/10*
U.S. Cl. 423—300 **3 Claims**

1. Process for the manufacture of phosphorus pentachloride from phosphorus trichloride and chlorine, which comprises reacting the phosphorus trichloride and chlorine in the presence of a melt of phosphorus pentachloride and at a pressure of from 1.05 to 30 bars and a temperature of from 160° C. to 250° C., and removing the reaction product as a melt from the reactor.

4,265,866

PROCESS FOR PRODUCING HYPOPHOSPHOROUS ACID (H_3PO_2) AND NON-TRANSITION METAL HYPOPHOSPHITES

Gregory G. Arzoumanidis, Stamford, Conn., and Kirk V. Darragh, Yorktown, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed May 3, 1979, Ser. No. 35,576
Int. Cl.³ C01B *25/12, 25/165*
U.S. Cl. 423—304 **45 Claims**

1. A process comprising reacting, in the absence of a catalyst and under an acidic condition, phosphine with an aqueous solution of hydrogen peroxide, wherein the reacting step is initially accomplished in the presence of a quantity of hypophosphorous acid to initially produce the acidic condition, to produce an acid solution containing hypophosphorous acid (H_3PO_2) as the predominant phosphorus containing acid.

4,265,867

PREPARATION OF DICALCIUM PHOSPHATE

Bruce F. Caswell, Whitmore Lake, Mich., assignor to Arcanum Corporation, Ann Arbor, Mich.

Filed Jun. 20, 1980, Ser. No. 161,718
Int. Cl.³ C01B *15/16, 25/26*
U.S. Cl. 423—309 **7 Claims**

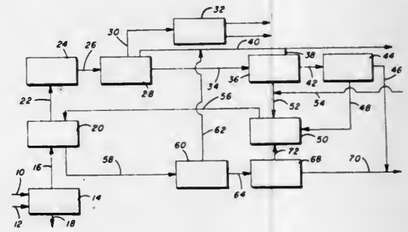
1. A process for preparing granular dicalcium phosphate suitable for use as an animal feed supplement, which comprises the steps of: agitating a slurry of finely divided calcium oxide-supplying reactant particles suspended in a water-soluble, inert, organic liquid; introducing into said slurry while it is being agitated and thoroughly mixing therein water and defluorinated wet-process phosphoric acid in the stoichiometric amount necessary for the formation of dicalcium phosphate, the thus-formed reaction mixture being agitated until the reaction between said calcium oxide-supplying reactant and said phosphoric acid is substantially complete whereby to form dicalcium phosphate which is substantially free of unreacted phosphoric acid and unreacted calcium oxide reactant, the agitation of the reaction mixture effecting repeated collisions of solid particles whereby to form agglomerates suspended in said organic liquid and wherein after completion of the reaction the agglomerates consist essentially of the dicalcium phosphate particles bound together by said water; then discontinuing said agitating; separating said agglomerates from said inert organic liquid; and recovering said agglomerates substantially free of said inert organic liquid.

4,265,868

PRODUCTION OF CARBON MONOXIDE BY THE GASIFICATION OF CARBONACEOUS MATERIALS

John F. Kamody, Irwin, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Feb. 8, 1978, Ser. No. 876,009
Int. Cl.³ C01B *31/00*
U.S. Cl. 423—415 A **29 Claims**



1. A process for producing increased amounts of a carbon monoxide-rich gas in the gasification of carbonaceous materials, comprising:

(a) reacting the carbonaceous materials with a gasifying entraining medium selected from the group comprising oxygen; oxygen and steam; oxygen and carbon dioxide; oxygen, carbon dioxide, and steam; oxygen and water; oxygen, water and carbon dioxide at temperatures in the range of about 1300° F. to about 3500° F. at a pressure in the range of about 1 to about 175 atmospheres absolutes to produce raw gases containing predominantly carbon monoxide and hydrogen, along with carbon dioxide, water, hydrogen sulfide, and methane;

(b) contacting indirectly the hot raw gas in a heat exchanger with a gas containing predominantly carbon dioxide and hydrogen that is in contact with a water gas shift reaction catalyst, thereby cooling said raw gas while simultaneously supplying heat to the carbon dioxide and hydrogen containing gas;

(c) treating the cooled raw gas to remove hydrogen sulfide, carbon dioxide, and water from the raw gas;

(d) separating and collecting carbon monoxide, as a first portion of the carbon monoxide-rich gas product, and hydrogen from the treated, cooled raw gas in different zones;

(e) combining the separated and collected hydrogen with carbon dioxide to form a gas containing predominantly carbon dioxide and hydrogen;

(f) conveying the gas containing predominantly carbon dioxide and hydrogen to the heat exchanger of step (b) to indirectly contat the raw gas while the gas containing

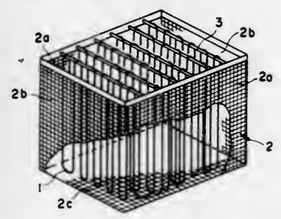
predominantly carbon dioxide and hydrogen is in contact with a water gas shift reaction catalyst wherein the hot raw gas provides the heat necessary to perform the endothermic reaction between carbon dioxide and hydrogen to produce the carbon monoxide-containing gas;
(g) separating and collecting the carbon monoxide from the carbon monoxide-containing gas; and
(h) combining said carbon monoxide with the first portion of carbon monoxide previously collected to produce a carbon monoxide-rich gas.

4,265,869

METHOD OF AND APPARATUS FOR MAKING PITCH FIBER INFUSIBLE

Hisatsugu Kaji; Iwawo Kameyama; Takashi Hamaguti, and Tamotsu Miyamori, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 22, 1979, Ser. No. 51,191
Claims priority, application Japan, Jun. 30, 1978, 53-78555
Int. Cl.[3] D01F *9/14*
U.S. Cl. 423—447.4 **2 Claims**



1. A method for making pitch fiber infusible at an elevated temperature in atmospheric air containing NO_2 for producing carbon fiber, said pitch fiber being obtained by melt-spinning of petroleum-tar pitch or coal-tar pitch, said method comprising the steps of

placing bars across an upper portion of a tray having a U-shaped cross section,

suspending said pitch fiber to be infusibilized from said bars,

introducing said tray loaded with said pitch fiber to be infusibilized into a furnace where the infusibilization is to be carried out and which is provided with gas-exchanging chambers respectively in its inlet portion and its outlet portion as well as at least two gas circulating means each of which comprises a combination of a blower or a fan and a heat exchanger, and

maintaining said tray loaded with said pitch fiber in atmospheric air containing 0.1 to 10% by volume of NO_2 at a temperature of 100° to 400° C. within said furnace,

the packing density of said pitch fiber suspended in said tray and the superficial velocity of the circulation gas caused by said circulating means in said furnace being regulated so that they satisfy the formula:

$$50 > \frac{\text{Packing density of said pitch fiber (kg/m}^3\text{)}}{\text{Superficial velocity of circulation gas in said furnace (Nm/sec)}} > 10$$

4,265,870

METHOD FOR PRODUCING CARBON BLACK

King L. Mills, and Paul H. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 2, 1976, Ser. No. 746,963
Int. Cl.[3] C01B *31/02;* C09C *1/48*
U.S. Cl. 423—450 **6 Claims**

1. A method of producing carbon black comprising the steps of:

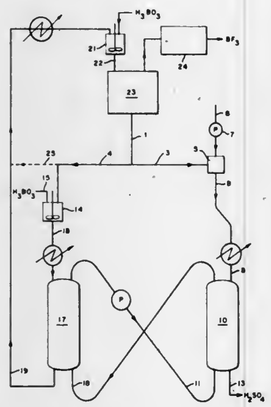
(a) pyrolyzing a make hydrocarbon by heating said make hydrocarbon in a reaction zone with hot combustion gases and thereby producing smoke, containing gases and particulate carbon black;
(b) flowing the smoke into a quench zone;
(c) contacting the smoke in the quench zone first with water to thereby cool the smoke to a temperature sufficiently low to substantially stop the pyrolysis, thereby forming an admixture of smoke and water vapor;
(d) contacting said admixture in the quench zone secondly with a cooling gas to thereby further cool the smoke to form a gaseous mixture containing particulate carbon black; and
(e) separating particulate carbon black from at least a portion of said gaseous mixture.

4,265,871

PURIFICATION OF BORON-CONTAINING SULFURIC ACID

Charles J. Felice, Jr., Randolph Township, Morris County, N.J.; Francis E. Evans, Hamburg, N.Y.; Martin A. Robinson, East Amherst, N.Y., and Richard E. Eibeck, Orchard Park, N.Y., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed May 7, 1979, Ser. No. 36,464
Int. Cl.[3] C01B *17/90, 35/06, 9/08, 7/00*
U.S. Cl. 423—531 **12 Claims**



1. A process comprising:
(a) adding fluosulfonic acid to contaminated sulfuric acid which is a first portion of the waste acid of a boron trifluoride synthesis process containing dissolved boron trifluoride and boric acid at a molar ratio of fluosulfonic acid to boric acid of at least about 3,
(b) contacting the contaminated sulfuric acid with an inert gas to withdraw boron trifluoride into the inert gas,
(c) contacting the inert gas with an absorbing liquid which is a second portion of the waste acid of a boron trifluoride synthesis process to which boric acid or boric oxide has been added to remove the boron trifluoride from the inert gas, and
(d) feeding the absorbing liquid containing boron trifluoride removed from the inert gas into the boron trifluoride synthesis process.

4,265,872

PROCESS FOR PRODUCING CRYSTALLINE FIBROUS POTASSIUM TITANATE

Yoshinori Fujiki, No. 624 Takezono 3-chome, Sakura-mura, Niihari-gun, Ibaraki-ken, Japan

Filed Jul. 25, 1979, Ser. No. 60,735
Int. Cl.[3] C01G *23/00*
U.S. Cl. 423—598 **2 Claims**

1. In a process for producing a crystalline fibrous potassium titanate which comprises:
(a) melting a mixture of a titanium component and a potassium component in a ratio such that the product has the formula $K_2O.nTiO_2$ wherein n is an integer of 1 to 5;
(b) quenching the molten product;
(c) washing the quenched product with water; and
(d) re-heating the product at a temperature lower than its melting point thereby forming fibers therein, the improvements comprising quenching the molten product in a vessel which is cooled from one side to give a temperature gradient from said side to the opposite side to transfer heat in one direction, applying compress stress to the product perpendicular to the fibrous axis during the washing step and treating the washed product with an acid thereby forming potassium titanate having the formula $K_2O.6TiO_2$.

4,265,873

METHOD FOR TYPING HUMAN LEUKOCYTE ANTIGENS

Michael J. Sheehy, Madison, Wis.; Paul M. Sondel, Boston, Mass.; Fritz H. Bach; Marilyn L. Bach, both of Madison, Wis., and Rudolf Wank, New York, N.Y., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Continuation of Ser. No. 697,545, Jun. 18, 1976, abandoned. This application Jul. 3, 1978, Ser. No. 921,487
Int. Cl.[3] G01N *33/16;* A61K *43/00*
U.S. Cl. 424—1 **8 Claims**

1. A method for typing human leukocyte antigens of HLA-D which comprises:

incubating, in vitro, purified human blood leukocytes obtained from two individuals, where the leukocytes from one of the individuals have been treated to prevent their proliferation during incubation;

carrying out the incubation for a period of from about 9 to about 14 days to essential completion of the proliferative response;

recovering the leukocytes from the incubation medium;

incubating, in vitro, the thus recovered leukocytes, with purified human blood leukocytes obtained from a third individual;

measuring the response of the recovered leukocytes through the uptake by the responding leukocytes of tritiated thymidine or tritiated uridine added to the incubating mixture; and

utilizing said measurement as a definition of the antigens present in the third individual.

4,265,874

METHOD OF DELIVERING DRUG WITH AID OF EFFERVESCENT ACTIVITY GENERATED IN ENVIRONMENT OF USE

Pieter Bonsen, Los Altos, Calif.; Patrick S. Wong, Kowloon, Hong Kong, and Felix Theeuwes, Los Altos, Calif., assignors to Alza Corporation, Palo Alto, Calif.

Filed Apr. 25, 1980, Ser. No. 143,644
Int. Cl.[3] A61K *9/46;* A61J *1/00*
U.S. Cl. 424—15 **29 Claims**

1. An osmotic device for delivering a drug to an environment of use, said device comprising:

(a) a shaped laminated wall comprising a lamina formed of a semi-permeable material and a lamina formed of a microporous material, said wall permeable to the passage of an external fluid present in the environment of use and substantially impermeable to the passage of drug, the wall surrounding and forming;

(b) a compartment containing the drug indomethacin which exhibits a limited solubility in the fluid, and a pharmaceutically acceptable compound selected from the group consisting of carbonates, bicarbonates and mixtures thereof, which compounds are capable of reactively effervescing with fluid present in the environment of use; and,

(c) a passageway in the wall connecting the compartment and the exterior of the device for delivering (1) the drug in a therapeutically effective amount to the envirionment, and (2) the compound which reacts with fluid in the environment and effervesces, and thereby aids in delivering the drug to the environment over a prolonged period of time.

4,265,875

CONTROLLED RELEASE SUPPOSITORIES

Geoffry A. Byrne, East Lothian, and Ross I. Aylott, Edinburgh, both of Scotland, assignors to Inveresk Research International, Musselburgh, Great Britain

Division of Ser. No. 817,412, Jul. 20, 1977. This application Oct. 19, 1979, Ser. No. 86,471
Claims priority, application United Kingdom, Jul. 23, 1976, 30793/76
Int. Cl.[3] A61K *9/02*
U.S. Cl. 424—19 **5 Claims**

1. A non-dissolving, non-disintegrating slow-release suppository consisting essentially of hydroxypropylmethyl-cellulose, water, and a therapeutically effective amount of a water-soluble therapeutically active ingredient wherein the water is present in an amount of more than 35 parts by weight and the hydroxypropylmethyl-cellulose is present in an amount of less than 65 parts by weight.

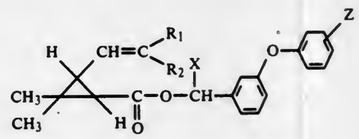
4,265,876

ANIMAL EAR-TAGS, THEIR MANUFACTURE AND THEIR USE

Patrick G. Feakins, Ashford, England, assignor to Shell Internationale Research Maatschappij B.V., Netherlands

Filed Feb. 22, 1979, Ser. No. 14,047
Claims priority, application United Kingdom, Mar. 7, 1978, 9001/78
Int. Cl.[3] A61F *13/00;* A01N *37/34, 37/00;* G09F *3/00*
U.S. Cl. 424—28 **9 Claims**

1. An animal ear tag for attachment to an ear of an animal, characterized in that at least part of the tag is made from a material comprising a solid organic polymeric macromolecular substance having a molecular weight above 1000 and a pesticidally-active compound having the general formula:



(I)

wherein R_1 and R_2 are independently selected from fluorine, chlorine and bromine; X is hydrogen, cyano or ethynyl; and Z is hydrogen, chlorine, fluorine or bromine.

4,265,877

COMPOSITION CONTAINING SODIUM FLUORIDE IN A CHEWING GUM BASE

Louis T. Tenta, 6007 N. Sheridan Rd., Apt. 24A, Chicago, Ill. 60660

Filed Feb. 22, 1980, Ser. No. 123,682
Int. Cl.³ A61K *9/68, 7/18, 33/16*
U.S. Cl. 424—48 **5 Claims**

1. A composition for enhanced oral absorption of fluoride ions comprising a chewing gum base, and a mixture of sodium fluoride and calcium carbonate in the form of oyster shell distributed within said base, said oyster shell being present in an amount sufficient to enhance the absorption of fluoride ions from the gastrointestinal tract including the oral and buccal mucosa.

4,265,878

ANTIPERSPIRANT STICK COMPOSITIONS

Joseph W. Keil, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jun. 7, 1979, Ser. No. 46,591
Int. Cl.³ A61K *7/38, 31/695*
U.S. Cl. 424—68 **5 Claims**

1. An antiperspirant stick composition consisting essentially of

(a) 30 to 60 parts by weight of an aqueous solution of an astringent agent as a discontinuous phase, dispersed in a solid matrix consisting essentially of

(b) 18 to 30 parts by weight of a volatile liquid having a normal boiling point of less than 250° C. selected from the group consisting of methylsiloxane fluids having the average unit formula

$$(CH_3)_aSiO_{\frac{4-a}{2}}$$

wherein a has an average value of from 2 to 3, inclusive, and paraffinic hydrocarbon fluids,

(c) 1 to 5 parts by weight of a component selected from the group consisting of solid alkanoic acids having at least 12 carbon atoms per molecule,

(d) 1 to 5 parts by weight of a polydiorganosiloxanepolyoxyalkylene copolymer containing at least one polydiorganosiloxane segment and at least one polyoxyalkylene segment, said polydiorganosiloxane segment consisting essentially of

$$R_bSiO_{\frac{4-b}{2}}$$

siloxane units wherein b has a value of from 0 to 3, inclusive, there being an average value of approximately 2 R radicals per silicon for all siloxane units in the copolymer, and R denotes a radical selected from the group consisting of methyl, ethyl vinyl, phenyl and a divalent radical bonding said polyoxyalkylene segment to the polydiorganosiloxane segment, at least 95 percent of all R radicals being methyl; and said polyoxyalkylene segment having an average molecular weight of at least 1000 and consisting of from 0 to 50 mol percent polyoxypropylene units and from 50 to 100 mol percent polyoxyethylene units, at least one terminal portion of said polyoxyalkylene segment being bonded to said polydiorganosiloxane segment, any terminal portion of said polyoxyalkylene segment not bonded to said polydiorganosiloxane segment being satisfied by a terminating radical; the weight ratio of polydiorganosiloxane segments to polyoxyalkylene segments in said copolymer having a value of from 2 to 8 and

(e) 20 to 30 parts by weight of a component selected from the group consisting of waxy esters and a mixture of one part by weight of a waxy ester with up to 3 parts by weight of a solid alkanol having at least 12 carbon atoms per molecule, the total of (a) plus (b) plus (c) plus (d) plus (e) being 100 parts by weight.

4,265,879

METHOD FOR CONTROLLING BLOOD TRIGLYCERIDES

Joseph E. Fields, Ballwin, and John H. Johnson, Kirkwood, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 832,865, Sep. 13, 1977, abandoned, and a continuation-in-part of Ser. No. 572,799, Apr. 29, 1975, Pat. No. 4,117,111, which is a continuation-in-part of Ser. No. 353,832, Apr. 23, 1973, Pat. No. 3,923,972, which is a continuation-in-part of Ser. No. 188,577, Oct. 12, 1971, abandoned, which is a continuation-in-part of Ser. No. 789,081, Jan. 2, 1969, abandoned, said Ser. No. 832,865, is a continuation of Ser. No. 634,723, Nov. 24, 1975, abandoned, which is a continuation-in-part of said Ser. No. 353,832. This application Mar. 29, 1979, Ser. No. 25,166
Int. Cl.³ A61K *31/74, 31/78*
U.S. Cl. 424—78 **16 Claims**

1. A method for controlling the blood triglyceride level in a living animal body in need thereof comprising orally administering to said animal body a pharmaceutically effective amount for such purpose of a non-systemic copolymer of (1) an alpha alkene of about 10 to about 22 carbon atoms and (2) maleic acid or anhydride, or a pharmaceutically acceptable amide, ester, imide, salt thereof or mixtures thereof, said copolymer having a molecular weight in the range of from about 1,000 to 1,000,000.

4,265,880

MICROBIAL INSECTICIDE

Kemet D. Spence, Potlatch, Id., and Robert E. Andrews, Pullman, Wash., assignors to Battelle Development Corporation, Columbus, Ohio

Division of Ser. No. 33,895, Apr. 27, 1979, Pat. No. 4,223,007, and a continuation-in-part of Ser. No. 835,817, Sep. 22, 1977, abandoned. This application Mar. 26, 1980, Ser. No. 134,325
Int. Cl.³ A01N *15/00;* **C09D** *5/32;* **C12K** *1/08*
U.S. Cl. 424—93 **15 Claims**

1. A method of making a microbial insecticide composition, comprising

(a) preparing a mixture comprising (i) nucleic acid particles, (ii) proteinaceous material particles, (iii) microbial insect pathogens of viral, bacterial, or fungal origin, and (iv) an amount of water sufficient to wet substantially the entire mixture and give it a paste-like consistency; and

(b) agitating the paste-like mixture in a manner adapted to break up the mixture into discrete microbeads, whereby the microbial insect pathogens are embedded in the microbeads.

4,265,881

PLASMINOGEN-ACTIVATING SUBSTANCE AND THE PREPARATION AND USE OF SUCH SUBSTANCE

Ikuo Yamashina, Kyoto; Toshisuke Kawasaki, Hirakata, and Michiko Tsukuda, Takamatsu, all of Japan, assignors to Tobishi Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Mar. 17, 1980, Ser. No. 130,798
Claims priority, application Japan, Mar. 30, 1979, 54-36980
Int. Cl.³ A61K *35/40*
U.S. Cl. 424—106 **19 Claims**

1. A plasminogen-activating substance which is an extract of the bile of hogs and which is characterized by:

(A) a molecular weight of 80,000±10,000;

(B) an isoelectric point of 7.1;

(C) an ultraviolet absorption spectrum showing a peak (λ max) at a wave length of about 278 nm:

(D) a fibrin-lysis activity such that a Ca-added standard fibrin plate is lysed but a heated fibrin plate is not lysed;

(E) a thermal stability such that heating at a temperature of 80° C. for 10 minutes causes the plasminogen-activating activity to be decreased to an extent corresponding to 50% of the original activity and heating at a temperature of 60° C. for 30 minutes causes the plasminogen-activating activity to be decreased to an extent corresponding to from 30 to 40% of the original activity;

(F) a solubility in a salin solution and an insolubility in water-soluble organic solvents, and;

(G) a synthetic substrate-lysis activity such that Glutaryl-Gly-Arg-MCA and Pro-Phe-Arg-MCA are only marginally hydrolysed.

2. A process for preparing a plasminogen-activating substance from the bile of hogs, comprising the steps of:

first fractionating the bile of hogs with a water-soluble organic solvent to prepare a first precipitate;

subjecting said first precipitate to a first extraction with a buffer solution having a pH of from 7.0 to 8.0, to prepare a first extract solution;

second fractionating said first extract solution with acetone to prepare a second precipitate;

subjecting said second precipitate to a second extraction with a buffer solution having a pH of from 7.0 to 8.0 to prepare a second extract solution, and;

third fractionating said second extract solution by a method selected from the group consisting of absorption chromatography with hydroxylapatite, ion-exchange chromatography with an anion exchanger, and hydrophobic adsorption chromatography with a hydrophobic adsorping agent, to provide a fraction comprising the plasminogen-activating substance which is characterized by:

(A) a molecular weight of 80,000±10,000;

(B) an isoelectric point of 7.1;

(C) an ultraviolet absorption spectrum showing a peak (λ max) at a wave length of about 278 nm;

(D) a fibrin-lysis activity such that a Ca-added standard fibrin plate is lysed but a heated fibrin plate is not lysed;

(E) a thermal stability such that heating at a temperature of 80° C. for 10 minutes causes the plasminogen-activating activity to be decreased to an extent corresponding to 50% of the original activity and heating at a temperature of 60° C. for 30 minutes causes the plasminogen-activating activity to be decreased to an extent corresponding to from 30 to 40% of the original activity;

(F) a solubility in a salin solution and an insolubility in water-soluble organic solvents, and;

(G) a synthetic substrate-lysis activity such that Glutaryl-Gly-Arg-MCA and Pro-Phe-Arg-MCA are only marginally hydrolysed.

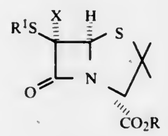
4,265,882

SULPHUR ANALOGS OF PENICILLINS HAVING A NUCLEOPHILE SUBSTITUTED IN THE 6 AND 7 POSITION, RESPECTIVELY

John C. Sheehan, Lexington, and Thomas J. Commons, Boston, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Oct. 3, 1977, Ser. No. 838,874
Int. Cl.³ C07D *499/00*
U.S. Cl. 424—114 **28 Claims**

1. A compound having the formula:



where R is a protective group for acids or a pharmaceutically acceptable group, R^1 is hydrogen or an organic electrophilic moiety, and X is a halogen or an organic nucleophile.

4,265,883

COMPOSITION AND PROCESS FOR TREATING UTERINE PROLAPSE

Mable R. Cameron, 7207 S. Bennett Ave., Chicago, Ill. 60649

Filed Oct. 1, 1979, Ser. No. 80,640
Int. Cl.³ A61K *33/06, 9/06, 31/245*
U.S. Cl. 424—154 **10 Claims**

1. The process of treating a female having uterine prolapse which comprises topically applying to the uterus an effective contracting amount of a composition consisting essentially of an alum selected from the group of aluminum ammonium sulfate and aluminum potassium sulfate, glycerine in amount sufficient to dissolve the alum, and a pharmaceutically acceptable soft solid carrier in amount sufficient to produce an ointment.

4,265,884

THERAPEUTICALLY ACTIVE POLYPEPTIDES OR ACID ADDITION SALTS THEREOF AND A PROCESS FOR PRODUCING SUCH COMPOUNDS

Hans Kofod, Lyngby, Denmark, assignor to Nordisk Insulinlaboratorium, Gentofte, Denmark

Filed Sep. 24, 1979, Ser. No. 78,425
Claims priority, application Denmark, Sep. 28, 1978, 4304/78; Sep. 5, 1979, 3710/79
Int. Cl.³ A61K *37/00;* **C07C** *103/52*
U.S. Cl. 424—177 **3 Claims**

1. Polypeptide derivatives of the general formula:

a—x—y—arg—leu—d,

wherein

y represents gln, glu or



glu.

x represents a bond, a single amino acid selected from the group consisting of leu and ser, or when y is gln

x may also represent a peptide having from 2 to 10 amino acids in their naturally occurring L-form in the chain, selected from C_{10}-C_{19} fragments of secretin, with the proviso that the C-terminal amino acid is always leu 19 (acid number 19 in the secretin sequence),

a represents hydrogen or a small protective group for the α-amino group in the N-terminal amino acid,

d represents $—NR^1R^2$, wherein R^1 and R^2 are selected from the group consisting of hydrogen, C_1-C_6 alkyl and C_3-C_8 cycloalkyl, or R^1 and R^2 together with the attached nitrogen atom form a heterocyclic group optionally containing a further hetero atom, or d represents $—OR^3$, wherein R^3 is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, benzyl, phenacyl, phthalimidomethyl, β-methylthioethyl, 4-picolyl and substituted benzyl, where the substituents are selected from the group consisting of nitro, methoxy, methyl, and halogen, or acid addition salts of such peptides with acids acceptable to the organism.

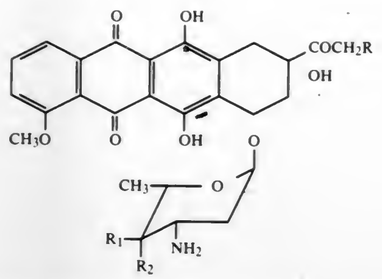
4,265,885

ANTHRACYCLINES CONTAINING BRANCHED-CHAIN AMINO-DEOXY SUGARS

Alberto Bargiotti, Milan; Giuseppe Cassinelli, Pavia; Federico Arcamone, and Aurelio DiMarco, both of Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Filed Oct. 5, 1979, Ser. No. 82,293
Claims priority, application United Kingdom, Oct. 25, 1978, 41937/78
Int. Cl.³ C07H *15/24;* **A61K** *31/70*
U.S. Cl. 424—180 **11 Claims**

1. A compound of general formula I:



in which R represents a hydrogen atom or a hydroxy group, one of R_1 and R_2 represents a methyl group and the other of R_1 and R_2 represents a methoxy group.

11. A method for treating leukemia P_{388} in a host comprising treating the host with a therapeutically effective amount of a compound selected from the group consisting of 4'-C-methyl-4'-O-methyl-daunorubicin, 4'-epi-4'-C-methyl-4'-O-methyl-daunorubicin hydrochloride; 4-C-methyl-4'-O-methyl-doxorubicin hydrochloride and 4'-epi-4'-C-methyl-4'-O-methyl-doxorubicin hydrochloride.

4,265,886

SPIROKETALINS AND THEIR APPLICATIONS

Karl H. Pegel, Durban, South Africa, assignor to Roecar Holdings (Netherlands Antilles (NV), Amsterdam, Netherlands

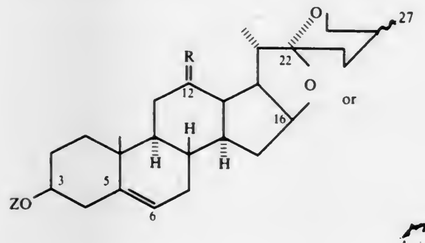
Filed Jul. 2, 1979, Ser. No. 53,736

Claims priority, application United Kingdom, Jul. 5, 1978, 28935/78

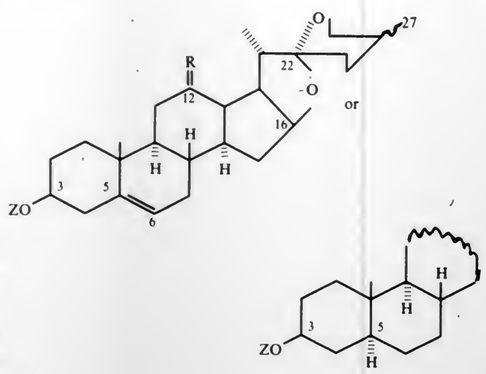
Int. Cl.[3] **A61K** *31/705, 31/70*

U.S. Cl. 424—182 **11 Claims**

1. An anti-inflammatory composition characterized in that it is in the form of a tablet or capsule and includes a pharmaceutically acceptable carrier and a compound of the formula



and an anti-inflammatory effective amount of a compound of the formula



where:

1. either a double bond starts at C-5 or C-5 carries an alpha hydrogen (5d),
2. Z is a saccharide selected from the group consisting of glucose, maltose, galactose and lactose which may be partially or completely esterified with a pharmaceutically acceptable monocarboxylic acid,
3. R represents either two hydrogens or a ketonic oxygen.

4,265,887

COMPOSITION AND METHOD FOR TREATMENT OF HEMORRHOIDS

Joseph S. Breskman, 733 Spring Mill Rd., Villanova, Pa. 19085

Filed Dec. 11, 1979, Ser. No. 102,475

Int. Cl.[3] **A61K** *31/44, 31/68, 31/195, 31/525*

U.S. Cl. 424—201 **5 Claims**

1. A method of treatment of hemorrhoids which comprises orally administering to a person suffering with hemorrhoids a composition comprising:

Thiamin	1 to 15 mg
Riboflavin	1 to 10 mg
Pyridoxine	0.1 to 33 mg
Cobalamin	1 to 3 mcgm
Niacinamide	6 to 100 mg
Pantothenic Acid	1 to 50 mg

in an amount effective to impart relief from hemorrhoidal symptoms and to maintain a symptom free condition in a person suffering with hemorrhoids.

4,265,888

ACETYLSALICYLATE POWDER PREPARATION FOR INJECTION

Yoshio Kagitani, Kashiwara; Takashi Imagawa, Sakai; Hirohisa Inahara, Kyoto, and Ryozo Watanabe, Takatsuki, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed Jan. 8, 1980, Ser. No. 110,753

Claims priority, application Japan, Jul. 6, 1979, 54-85596

Int. Cl.[3] **A61K** *31/615*

U.S. Cl. 424—233 **2 Claims**

1. A pharmaceutical composition comprising an effective amount of acetylsalicylate of DL-lysine characterized in that the pharmaceutical composition is a solid and contains 3-6% by weight of anhydrous calcium chloride based on the total weight of the acetylsalicylate and the anhydrous calcium chloride.

4,265,889

6-LOWER ALKYL-7,8-DIHYDROXY-1-PHENYL-2,3,4,5-TETRAHYDRO-1H-3-BENZAZEPINES

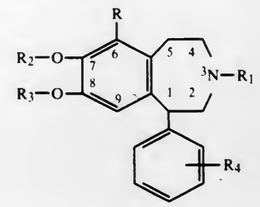
Charles K. Brush, Malvern, and Joseph Weinstock, Phoenixville, both of Pa., assignors to SmithKline Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 903,325, May 5, 1978, abandoned, which is a continuation-in-part of Ser. No. 852,404, Nov. 17, 1977, Pat. No. 4,165,372. This application Dec. 22, 1978, Ser. No. 972,296

Int. Cl.[3] **A61K** *31/55;* **C07D** *223/16*

U.S. Cl. 424—244 **11 Claims**

1. A compound of the structural formula:



in which:

R is a lower straight chain alkyl of 1-6 carbons;

R_1 is hydrogen, lower alkyl of 1-5 carbons or lower alkenyl of 3-5 carbons;

R_2 and R_3 are hydrogen or lower alkanoyl of 2-5 carbons; and

R_4 is hydrogen or one or two substituents from the group consisting of trifluoromethyl, halo, methyl, methoxy, alkanoyloxy of 2-5 carbons, hydroxy or methylthio; or pharmaceutically acceptable acid addition salts thereof.

10. A method of producing dopaminergic activity in a subject in need thereof comprising administering orally or parenterally to said subject an amount of a compound of claims **1**, **2**, **3**, **4**, **5**, **6**, **7** or **8** which is effective therefore.

4,265,890

6-PHENYL THIO- AND 6-CYCLOHEXYL THIO-2,3,4,5-TETRAHYDRO-1H-3-BENZAZEPINES

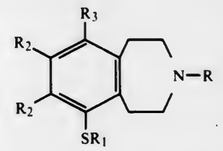
Kenneth G. Holden, Haddonfield, and Carl Kaiser, Haddon Heights, both of N.J., assignors to SmithKline Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 922,613, Jul. 7, 1978, abandoned. This application May 17, 1979, Ser. No. 39,713

Int. Cl.[3] **A61K** *31/55;* **C07D** *223/16*

U.S. Cl. 424—244 **13 Claims**

1. A compound represented by the formula:



wherein:

R is methyl, allyl, dimethylallyl, phenethyl, cyclopropylmethyl or β-hydroxyethyl;

R_1 is phenyl, m- or p-substituted phenyl with the substituent being trifluoromethyl, chloro, methoxy, methyl, fluoro, nitro or hydroxy or cyclohexyl;

R_2 is hydrogen, methoxy, alkanoyloxy with the alkanoyl moiety having from 2 to 6 carbon atoms, or hydroxy, each R_2 being the same or different except that when one of R_2 is alkanoyloxy the other is hydrogen, methoxy or alkanoyloxy; and

R_3 is hydrogen, chloro, bromo, trifluoromethyl, fluoro or methyl,

or a nontoxic pharmaceutically acceptable acid addition salt thereof.

4,265,891

PROSTANOID COMPOUNDS AND COMPOSITIONS

Eric W. Collington, Welwyn; Harry Finch, Hitchin; Roger F. Newton, Melbourn, and Christopher J. Wallis, Royston, all of England, assignors to Glaxo Group Limited, London, England

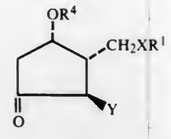
Filed Jul. 10, 1979, Ser. No. 56,416

Claims priority, application United Kingdom, Jul. 11, 1978, 29403/78

Int. Cl.[3] **A61K** *31/55, 31/535;* **C07D** *295/14*

U.S. Cl. 424—244 **11 Claims**

1. Prostanoid compounds of the general formula:



wherein

X is cis or trans —CH=CH— or $-(CH_2)_2-$;

Y is a saturated heterocyclic amino group selected from the group consisting of pyrrolidino, piperidino, piperidino substituted by hydroxy morpholino, piperazino, thiamorpholino, 1-dioxothiamorpholino, homomorpholino, hexamethyleneimino, and piperazino substituted at the second nitrogen atom by C_{1-7} alkyl or phenalkyl having a C_{1-4} alkyl portion or any of said groups substituted by one or more C_{1-4} alkyl groups;

R^1 is straight or branched C_{1-7} alkyl bearing as a terminal substituent —$COOR^{10}$ where R^{10} is a hydrogen atom, C_{1-6} alkyl or C_{7-10} phenalkyl;

R^4 is C_{1-6} alkyl, C_{3-6} alkenyl, phenyl, benzhydryl, naphthyl-C_{1-3} alkyl, phen-C_{1-3} alkyl or phen-C_{1-3} alkyl wherein the phenyl group is substituted by a substituent selected from phenyl, halogen, C_{5-7} cycloalkyl, C_{1-6} alkyl, C_{1-6} alkoxy, cyano, amino, benzyloxy, dialkylamino, dimethylaminomethyl, thiocarboxamido and carboxamido and the physiologically-acceptable salts thereof.

10. A pharmaceutical composition comprising a bronchodilator or blood platelet aggregation inhibiting effective amount of a compound as claimed in claim **1** and one or more pharmaceutical carriers.

4,265,892

CEPHALOSPORINS HAVING AN α-ACYLAMINOACETIC ACID SIDE CHAIN

Karoly Kocsis, Basel; Heinrich Peter, and Hans Bickel, both of Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

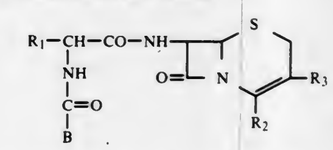
Division of Ser. No. 789,164, Apr. 20, 1977, Pat. No. 4,154,831, which is a division of Ser. No. 576,398, May 9, 1975, Pat. No. 4,041,161. This application Feb. 12, 1979, Ser. No. 11,359

Claims priority, application Switzerland, May 13, 1974, 6494/74

Int. Cl.[3] **A61K** *31/545*

U.S. Cl. 424—246 **10 Claims**

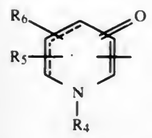
1. A compound of the formula



(I)

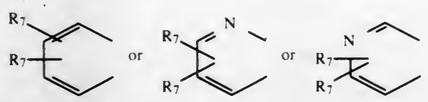
wherein R_1 denotes phenyl, thienyl, furyl, 1,4-cyclohexadienyl or hydroxyphenyl, R_2 represents a carboxyl group, R_3 repre-

sents hydrogen, lower alkanoyloxymethyl, lower alkoxymethyl, benzoylthiomethyl, pyridiniomethyl, or pyridiniomethyl substituted on the pyridinio ring by lower alkyl, halogen, trifluoromethyl, hydroxyl, carboxyl, lower alkoxy carbonyl or carbamoyl, and B denotes a group of the formula

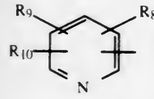


(B1)

wherein R_4 denotes lower alkyl, and R_5 and R_6 substitute adjacent ring carbon atoms and conjointly represent lower alkylene, or represent a radical of the formula

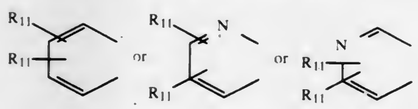


wherein the two R_7 independently of one another denote hydrogen, hydroxyl, lower alkyl, lower alkoxy, lower alkylmercapto, lower alkanoyl, lower alkanoylamino, lower alkoxycarbonyloxy, lower alkylsulphonyl, or phenyl, or wherein the two R_7 conjointly with the group —CH=CH— form a thiazole, isothiazole, pyrrole, furane or benzene ring, and wherein the broken line denotes a 4,5- or 5,6-double bond, of B denotes a group of the formula

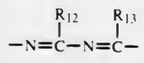


(B2)

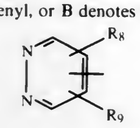
wherein R_8 denotes free hydroxyl or mercapto, lower alkoxy, lower alkylthio, lower alkanoyloxy, lower alkanoylthio, free amino, mono-lower alkylated amino, di-lower alkylated amino, lower alkanoylated amino, carbamoylated amino or halogen, wherein R_9 represents hydrogen or has the meaning of R_8 or represents nitrile, lower alkyl, hydroxyl-lower alkyl, lower alkanoyl, phenyl, or phenylcarbonyl, wherein R_{10} represents hydrogen, nitrile, lower alkyl, lower alkanoyl or phenyl, or wherein R_9 and R_{10} conjointly represent lower alkylene, or wherein R_9 and R_{10} substitute adjacent ring carbon atoms and conjointly represent a radical of the formula



wherein the two R_{11} independently of one another denote hydrogen, hydroxyl, lower alkyl, lower alkyl substituted by halogen, lower alkoxy, lowr alkanoyloxy, mercapto, lower alkylmercapto, lower alkanoyl, amino, mono- or di-lower alkylamino, lower alkanoylamino, lower alkoxycarbonylamino, lower alkoxycarbonylamino substituted by phenyl, lower alkylsulphonyl, or phenyl, or wherein the two R_{11} conjointly with the group —CH=CH— form a thiazole, isothiazole, pyrrole, furane or benzene ring, or wherein the two R_{11} in adjacent positions conjointly denote the methylenedioxy group or lower alkylene group, or wherein R_9 and R_{10} conjointly represent a group of the formula

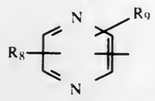


wherein R_{12} denotes hydrogen, hydroxyl lower alkyl, lower alkoxy, amino, mono-lower alkylamino, di-lower alkylamino, lower alkoxycarbonylamino, or lower alkoxycarbonylamino substituted by phenyl, or B denotes a group of the formula



(B3)

wherein R_8 and R_9 have the meanings mentioned under the formula B_2, or B denotes a group of the formula



(B4)

wherein R_8 and R_9 have the meanings mentioned under formula B_2, or a formula tautomeric thereto, or a pharmaceutically acceptable salt thereof.

7. A pharmaceutical preparation comprising an antibacterially effective amount of a compound of claim 1 and a pharmaceutically usable excipient.

4,265,893

DIURETIC COMPOSITIONS

Adam Daum, Basel, Switzerland; Michel Fernex, Biederthal, and Alexander E. Wick, Le Mesnil-le Roy, both of France, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

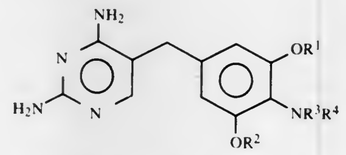
Filed Sep. 5, 1979, Ser. No. 72,771

Claims priority, application Switzerland, Sep. 12, 1978, 9547/78

Int. Cl.³ A61K *31/54, 31/505*

U.S. Cl. 424—246 **4 Claims**

1. A method of inducing diuresis which comprises administering a composition which contains a diuretically effective amount of a potassium-flushing diuretic agent selected from the group consisting of hydrochlorothiazide, hydroflumethiazide, trichlormethiazide, thiabuzide, polythiazide, cyclopenthiazide, quinethazone, and ethacrynic acid and an amount in the range of from about 1 mg to 20 mg of a potassium-retaining compound, said potassium-retaining compound is a compound of the formula



wherein R^1 and R^2 are C_{1-6}-alkyl, and R^3 and R^4, independently, are hydrogen, or a physiologically compatible salt thereof.

4,265,894

PIPERAZINE DERIVATIVES

Johan Gootjes, Heerhugowaard, Netherlands, assignor to Gist Brocades, N.V., Delft, Netherlands

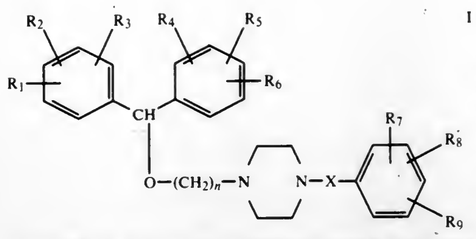
Division of Ser. No. 860,460, Dec. 14, 1977, Pat. No. 4,202,896. This application Nov. 1, 1979, Ser. No. 90,257

Claims priority, application United Kingdom, Dec. 14, 1976, 52223/76

Int. Cl.³ A61K *31/495;* **C07D** *295/02*

U.S. Cl. 424—250 **21 Claims**

1. A compound of the formula



I

wherein R_1–R_9 are the same or different and each represents a hydrogen of halogen atom or a lower alkyl or lower alkoxy group, n is 2 or 3 and X represents the group —CH_2—CH=CH—, having methylene linked to the piperazine group, and nontoxic acid addition and quaternary ammonium salts thereof.

21. A method of treating Parkinson's disease prolactin induced disorders and acromegaly which comprises administering an effective amount of a compound defined in claim 1.

4,265,895

1,2-DIHYDRO-5-PYRIDINYL-3H-PYRAZOLO[3,4-b]PYRIDIN-3-ONES AND THEIR USE AS CARDIOTONICS

George Y. Lesher, and Monte D. Gruett, both of Schodack, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Mar. 17, 1980, Ser. No. 130,623

Int. Cl.³ C07D *471/02;* **A61K** *31/415*

U.S. Cl. 424—256 **13 Claims**

9. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering orally or parenterally in a solid or liquid dosage form to such patient an effective amount for increasing cardiac contractility of the cardiotonic 1,2-dihydro-1-R-5-PY-5-Q-3H-pyrazolo[3,4-b]pyridin-3-one or pharmaceutically-acceptable acid-addition salt thereof where R is lower-alkyl, lower-hydroxyalkyl having from two or six carbon atoms, 2,3-dihydroxypropyl or lower-alkoxyalkyl having from three to six carbon atoms, Q is hydrogen or lower-alkyl, PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents, and where lower-alkyl, all occurrences not specifically defined above, contains from one to six carbon atoms.

4,265,896

AMIDINOSULPHONIC ACID DERIVATIVES

Graham J. Durant, Welwyn Garden City; Rodney C. Young, Bengeo, both of England, and Zev Tashma, Jerusalem, Israel, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

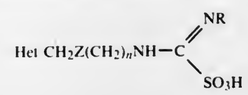
Division of Ser. No. 940,063, Sep. 6, 1978, Pat. No. 4,210,658. This application Nov. 5, 1979, Ser. No. 90,949

Claims priority, application United Kingdom, Sep. 8, 1977, 37468/77

Int. Cl.³ C07D *213/32;* **A61K** *31/44*

U.S. Cl. 424—263 **4 Claims**

1. A compound of the formula:



I

where Het is a pyridyl optionally substituted by lower alkyl, hydroxy, lower alkoxy, halogen, trifluoromethyl, hydroxymethyl or amino; Z is sulphur or methylene; n is 2 or 3 and R is hydrogen, lower alkyl or Het $CH_2Z(CH_2)_n$—, wherein Het, Z and n are as defined above, in neutral form or in the form of a pharmaceutically acceptable salt thereof.

4. A method of blocking histamine H_2-receptors which comprises administering to an animal an effective amount to block said receptors of a compound of claim 1.

4,265,897

N-N-DIMETHYL-1-(1'-METHYL-2'-METHOXYETHYL)-1,2,4-TRIAZOLYLCARBAMATES

Laurenz Gsell, Basel; Peter Ackermann, Reinach, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

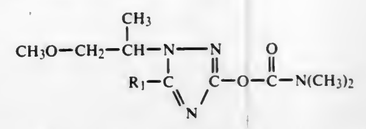
Filed Nov. 5, 1979, Ser. No. 91,631

Claims priority, application Switzerland, Nov. 14, 1978, 11690/78

Int. Cl.³ A01N *43/64;* **C07D** *249/12*

U.S. Cl. 424—269 **8 Claims**

1. A compound of the formula



(I)

wherein R_1 is hydrogen, chlorine, C_1–C_4-alkyl, C_1–C_4-alkoxy or C_1–C_4-alkylthio.

8. A method for combatting insects and acarids which comprises applying thereto an insecticidally or acaricidally effective amount of a compound according to claim 1.

4,265,898

IMIDAZO[2,1,-b]-[1,3,4]-THIADIAZOLE COMPOUNDS, COMPOSITION AND THEIR MEDICINAL USE

Harald Horstmann, Wuppertal, Fed. Rep. of Germany; Karl-August Meng, deceased, late of Wuppertal, Fed. Rep. of Germany (by Ilse Heide Frieda Meng, legal representative); by Matthias Meng, legal representative, wuppertal, Fed. Rep. of Germany; Friedel Seuter, Wuppertal, Fed. Rep. of Germany, and Eike Möller, Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

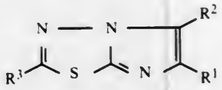
Filed May 10, 1979, Ser. No. 37,626

Claims priority, application Fed. Rep. of Germany, May 31, 1978, 2823686

Int. Cl.³ A61K *31/41;* **C07D** *513/04*

U.S. Cl. 424—270 **21 Claims**

1. An imidazo-2,1-b]-[1,3,4]-thiadiazole of the formula (I)



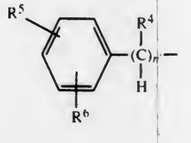
(I)

or its therapeutically useful salts in which

R^1 denotes phenyl, biphenyl or naphthyl each of which is optionally substituted by 1 or 2 identical or different substituents selected from halogen, trifluoromethyl, alkyl or alkenyl with up to 6 carbon atoms, alkoxy with 1 to 6 carbon atoms, nitro, cyano, sulphonamido optionally substituted on the N atom by C_1–C_4-alkyl and SO_n-alkyl (N is 0, 1 or 2) wherein alkyl has 1 to 4 carbon atoms,

R^2 denotes hydrogen, alkyl or alkenyl with up to 6 carbon atoms or phenyl, biphenyl or naphthyl each of which is optionally substituted by halogen; alkyl, alkenyl or alkoxy each having up to 6 carbon atoms, and

R^3 denotes naphthyl or furyl, which is optionally substituted by 1 or 2 alkyl radicals having 1 to 6 carbon atoms, or a radical of the formula



(Ia)

in which

n' is 0, or 1,

R^4 denotes hydrogen or methyl,

R^5 denotes halogen, alkyl or alkenyl having up to 6 carbon atoms, phenyl or trifluoromethyl, hydroxyl, alkoxy or $SO_{n''}$-alkyl (n'' is 0, 1 or 2) wherein the alkyl portion contains up to 6 carbon atoms, alkanoyloxy with 1 to 4 carbon atoms, alkoxylenecarboxyl with 1 to 4 carbon atoms in the alkyl moiety or alkoxyenecarbalkoxy with 1 to 4 carbon atoms in each alkyl moiety or nitro, cyano, carboxyl or C_1–C_4-carbalkoxy, and

R^6 denotes hydrogen or halogen or alkyl, alkenyl or alkoxy each having up to 6 carbon atoms.

12. A pharmaceutical composition containing as an active ingredient an antithrombotically or thrombolytically effective amount of a compound according to claim 1 in admixture with a solid or liquefied gaseous diluent or in admixture with a liquid diluent other than a solvent of a molecular weight less than 200 except in the presence of a surface-active agent.

4,265,899

COSMETIC FORMULATION COMPRISING 3-ISOTHIAZOLONES

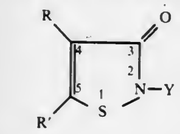
Sheldon N. Lewis, Willow Grove; George A. Miller, Glenside, and Andrew B. Law, Levittown, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 910,730, May 30, 1978, which is a division of Ser. No. 368,168, Jun. 8, 1973, Pat. No. 4,105,431, which is a continuation-in-part of Ser. No. 836,660, Jun. 25, 1969, Pat. No. 3,761,488, which is a continuation-in-part of Ser. No. 672,437, Oct. 3, 1967, Pat. No. 3,523,121, which is a continuation-in-part of Ser. No. 621,780, Mar. 9, 1967, abandoned. This application Dec. 10, 1979, Ser. No. 101,596

Int. Cl.[3] **A01N** *43/80*

U.S. Cl. 424—270 **5 Claims**

1. A cosmetic formulation which comprises a cosmetic agent, a surfactant, and a fungicidally or a bactericidally effective amount of a compound of the formula



wherein

Y is an unsubstituted or substituted alkyl, alkenyl, or alkynyl group of 1 to 18 carbon atoms, an unsubstituted or substituted cycloalkyl group having a 3 to 6 carbon atom ring and up to 12 carbon atoms, an unsubstituted or substituted aralkyl group of up to 10 carbon atoms, or an unsubstituted or substituted aryl group of up to 10 carbon atoms,

R is hydrogen, halogen, or a (C_1–C_4)alkyl group,

and

R′ is hydrogen, halogen, or a (C_1–C_4)alkyl group, or a salt of a compound of the above formula with a strong acid.

4,265,900

N-ARYL-N′-IMIDAZOL-2-YLUREAS

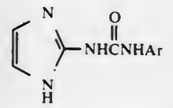
C. Royce Rasmussen, Ambler, and Henry I. Jacoby, Rydal, both of Pa., assignors to McNeilab, Inc., Fort Washington, Pa.

Filed Oct. 29, 1979, Ser. No. 88,880

Int. Cl.[3] **A61K** *31/415;* **C07D** *233/88*

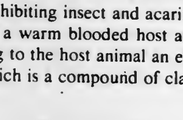
U.S. Cl. 424—273 R **11 Claims**

1. A member selected from the group consisting of an imidazolylurea of formula



and the pharmaceutically-acceptable strong acid addition salts thereof wherein Ar is phenyl substituted with from one to two substituents each selected from the group consisting of halo, loweralkyl, loweralkoxy, and trifluoromethyl.

9. A method of inhibiting gastric acid secretion in a gastric hyperacid subject which comprises systemically administering to said subject a therapeutically effective gastric acid secretion inhibiting amount of a compound of formula



or a pharmaceutically-acceptable strong acid addition salt thereof, wherein Ar is phenyl substituted with from 1 to 2 substituents each selected from the group consisting of halo, loweralkyl, loweralkoxy, and trifluoromethyl; provided that Ar is other than 3-chlorophenyl.

4,265,901

2-OXYBENZIMIDAZOLINE COMPOUNDS

George O. P. O'Doherty, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

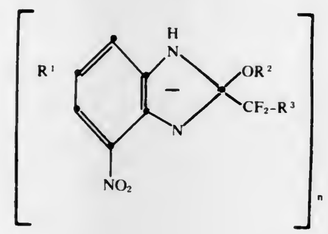
Filed Dec. 26, 1979, Ser. No. 106,990

Int. Cl.[3] **A61K** *31/415;* **A01N** *43/52;* **C07D** *235/26*

U.S. Cl. 424—273 B **28 Claims**

I claim

1. A Compound of the formula



wherein:

R^1 represents bromo, chloro, or trifluoromethyl;

R^2 represents hydrogen or loweralkyl of C_1–C_4;

R^3 represents hydrogen, fluoro, difluoromethyl, or trifluoromethyl;

R^4 represents sodium, potassium, lithium, silver, calcium, ammonium, or substituted ammonium derived from an organic amine which is as basic as, or more basic than, ammonia; and

n represents the valence of R^4; or an R^2OH solvate thereof.

11. Method of inhibiting insect and acarina parasites which consume tissues of a warm blooded host animal which comprises administering to the host animal an effective amount of an active agent which is a compound of claim 1.

4,265,902

THERAPEUTIC TREATMENT OF HORSES

William Van Ewijk, Haarlem, Netherlands, assignor to Tetra Consultants, Inc., New Rochelle, N.Y.

Filed Apr. 3, 1980, Ser. No. 136,903

Int. Cl.[3] **A61K** *31/415*

U.S. Cl. 424—273 R **5 Claims**

1. A method of therapeutically treating horses suffering from tail and mane eczema which comprises, systemically administering, over a period of time, to a horse suffering from tail and mane eczema a small but effective amount of allantoin.

4,265,903

ARYL-SUBSTITUTED FURNACES

Erich Cohnen, Hamburg, Fed. Rep. of Germany, assignor to Beiersdorf Aktiengesellschaft, Hamburg, Fed. Rep. of Germany

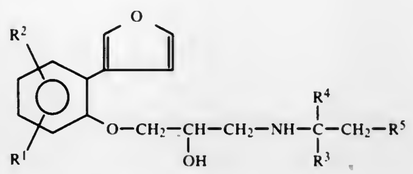
Filed Mar. 31, 1980, Ser. No. 135,954

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914166

Int. Cl.[3] **A61K** *31/34;* **C07D** *307/42, 307/54*

U.S. Cl. 424—282 **7 Claims**

1. A compound of the formula



(I)

wherein R_1 and R_2 may be the same or different and are selected from hydrogen, halogen, alkyl groups and acylamino groups having 1 to 4 carbon atoms, R_3 and R_4 may be the same or different and are selected from hydrogen and methyl, R_5 is selected from hydrogen, dimethoxyphenyl and an acylamino group of the formula

R_6—CONH—

wherein R_6 is selected from alkyl having 1 to 4 carbon atoms and pharmaceutically acceptable acid addition salts thereof.

6. A method for lowering the blood pressure of a warm blooded animal comprising administering to said animal a therapeutically effective amount of the compound of claim 1.

4,265,904

PROSTACYCLIN ANALOGS OF THE 1 SERIES AND RELATED ANALOGS

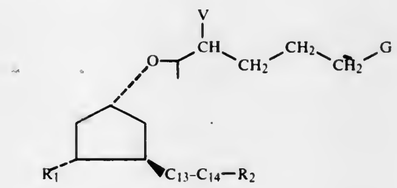
Charles V. Grudzinskas, Nyack; Allan Wissner, Ardsley, both of N.Y., and Sow-Mei L. Chen, Park Ridge, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jun. 7, 1979, Ser. No. 46,515

Int. Cl.[3] **A01K** *31/557;* **C07D** *307/935*

U.S. Cl. 424—285 **86 Claims**

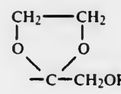
1. A compound of the formula:



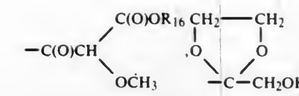
wherein

V is selected from the group hydrogen, bromo and chloro;

G is selected from the group —C(O)OR, —CH_2OH, —C(O)CH_2OR, —C(O)CH_2OH,

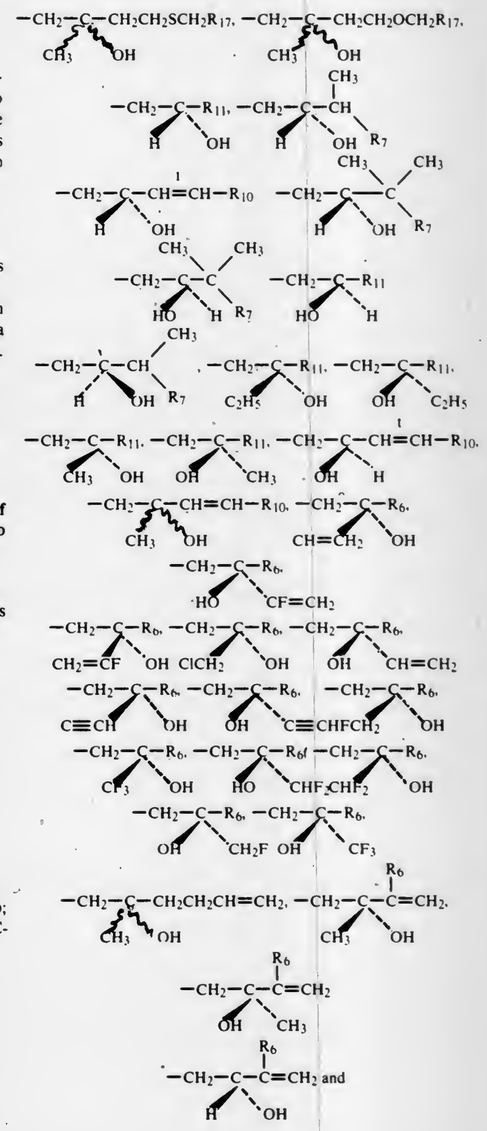


—C(O)CH_2SR_{16}

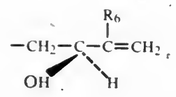


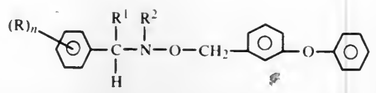
and —C(O)OH wherein R_1 is hydrogen or hydroxy, R is C_1 to C_6 alkyl, or optionally substituted phenyl, wherein the substituents are selected from the group C_1 to C_4 alkyl, C_1 to C_4 alkoxy, halo and trifluoromethyl and R_{16} is C_1 to C_6 alkyl;

C_{13}–C_{14} is selected from the group —CH=CH-(trans) and —CH_2CH_2—; and R_2 is selected from the group



-continued





wherein

R_6 is C_3 to C_5 alkyl;

R_7 is C_2 to C_4 alkyl;

R_{10} is C_1 to C_4 alkyl;

R_{11} is C_3 to C_7 alkyl;

R_{17} is hydrogen, methyl or ethyl;

the racemic mixture thereof; the mirror image thereof; and the pharmaceutically acceptable, non-toxic salts thereof.

4,265,905

METHOD OF TREATING INFLAMMATION EMPLOYING ACYL CYANOGUANIDINES

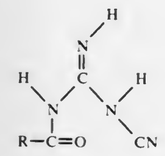
Tsung-Ying Shen, Westfield, and Howard Jones, Holmdel, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 618,108, Sep. 30, 1975, Pat. No. 4,202,903. This application Nov. 13, 1979, Ser. No. 93,404

Int. Cl.³ A61K *31/275, 31/16, 31/165*

U.S. Cl. 424—304 **1 Claim**

1. A method of treating inflammation which comprises administering to a patient a therapeutically effective amount of a compound of the formula:



wherein R is $C_{1\text{-}7}$alkyl, substituted $C_{1\text{-}7}$alkyl, phenyl, substituted phenyl, or adamantyl, wherein substituted $C_{1\text{-}7}$alkyl is $C_{1\text{-}7}$alkyl substituted with one or more $C_{1\text{-}3}$alkyl or halo groups, substituted phenyl is phenyl substituted with one or more hydroxy, mercapto, halo, cyano, phenyl, carboxymethylthio, nitro, amino, N-$C_{1\text{-}5}$alkylamino or N,N-di($C_{1\text{-}5}$alkyl-)amino groups.

4,265,906

LOW MAMMALIAN TOXIC AND/OR LOW FISH TOXIC INSECTICIDES AND/OR ACARICIDES

Kiyoshi Kasamatsu, Takarazuka; Tadashi Ohsumi; Nobushige Itaya, both of Nishinomiya; Nobuo Ohno, and Takashi Kato, both of Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 20, 1979, Ser. No. 96,212

Claims priority, application Japan, Nov. 22, 1978, 53-144709

Int. Cl.³ A01N *53/00;* **C07C** *121/75*

U.S. Cl. 424—304 **5 Claims**

1. m-(p-Bromophenoxy)-α-cyanobenzyl trans- or trans-rich-2,2-dimethyl-3-(2,2-dichlorovinyl)cyclopropanecarboxylate.

4. A method for controlling an insect and/or acaride which comprises applying an insecticidally and/or acaricidally effective amount of the compound according to claim **1** to the insect and/or acarid.

4,265,907

INSECTICIDAL HYDROXYLAMINE ETHERS

Jill H. Paul, Edgewater, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,925

Int. Cl.³ A01N *37/34;* **C07C** *127/19*

U.S. Cl. 424—304 **9 Claims**

1. Insecticidal compounds having the formula:

wherein R is halogen (Cl, F, Br), C_1-C_4 akyl, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkylthio, cyano, CF_3, CF_3O, CF_3S, ClF_2, CHF_2O, or CHF_2S; n is 0, 1, or 2; R_1 is C_1-C_4 alkyl, C_3-C_6 cycloalkyl, alkyl substituted C_3-C_6 cycloalkyl; or C_2-C_4 alkenyl; and R^2 is cyano, carbamoyl, N-C_1-C_4 alkylcarbamoyl, or N,N-di C_1-C_4 alkylcarbamoyl.

7. The method for combatting insects which comprises contacting them with an insecticidally effective amount of a compound of claim **1**.

4,265,908

S-PHENENYLTRIS(SULFONYLIMINO)TRI-BENZENE MONO- AND DI-SULFONIC ACIDS AND SALTS COMPLEMENT INHIBITORS

Ransom B. Conrow, Pearl River, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 973,313, Dec. 26, 1978, Pat. No. 4,208,346. This application Dec. 17, 1979, Ser. No. 104,614

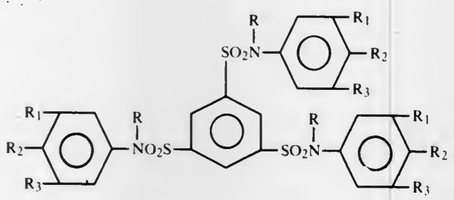
Int. Cl.³ A61K *31/185*

U.S. Cl. 424—315 **11 Claims**

1. A method of inhibiting the complement system in a body fluid which comprises subjecting said body fluid to the action of an effective complement inhibiting amount of a compound of the formula:

wherein each R is selected from the group consisting of hydrogen and alkali metal; each R_1, R_2 and R_3 is selected from the group consisting of hydrogen and SO_3A, wherein A is selected from the group consisting of hydrogen and a pharmaceutically acceptable salt cation; provided that at least one of the R_1, R_2 and R_3 groups on each phenyl is SO_3A; and further provided that when R_2 is SO_3A, R_1 and R_3 may not be SO_3A.

5. A method of inhibiting the complement system in a warm-blooded animal which comprises administering to said animal an effective complement inhibiting amount of a compound of the formula:



wherein each R is selected from the group consisting of hydrogen and alkali metal; each R_1, R_2 and R_3 is selected from the group consisting of hydrogen and SO_3A, wherein A is selected from the group consisting of hydrogen and a pharmaceutically acceptable salt cation; provided that at least one of the R_1, R_2 and R_3 groups on each phenyl is SO_3A; and further provided that when R_2 is SO_3A, R_1 and R_3 may not be SO_3A.

4,265,909

INHIBITING PLATELET AGGREGATION WITH SUBSTITUTED ACETANILIDES

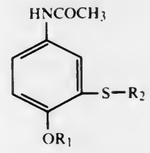
David J. Jollow, 716 North Shore Dr., Charlestown, S.C. 29412, and Perry V. Halushka, 1391 Cecilia Dr., Charlestown, S.C. 29407

Division of Ser. No. 919,282, Jun. 26, 1978. This application Feb. 6, 1979, Ser. No. 9,911

Int. Cl.³ A61K *31/165*

U.S. Cl. 424—324 **2 Claims**

1. a method of inhibiting platelet aggregation in mammals comprising administering to said mammals a therapeutically effective amount of a compound of the general formula:



wherein each of R_1 and R_2 represents a hydrogen atom or a lower alkyl group having from one to three carbon atoms.

4,265,910

ISOPRENYLAMINES

Yoshiyuki Tahara, Ohi; Hiroyasu Koyama, Ageo; Yasuhiro Komatsu, Niiza; Reiko Kubota, Tokyo, and Toshihiro Takahashi, Kamifukuoka, all of Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

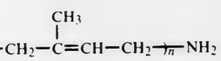
Filed May 1, 1980, Ser. No. 145,754

Claims Priority, Application Japan, May 4, 1979, 54–54016, Japan, Nov. 19, 1979, 54–148819

Int. Cl.³ A61K *31/13;* **C07C** *87/24*

U.S. Cl. 424—325 **5 Claims**

1. Isoprenylamine represented by the following general formula



wherein n is 9, 10 or 11, or acid addition salts thereof.

4,265,911

PROPIONAMIDOXIME DERIVATIVES

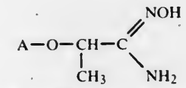
Henry Najer, Paris, and Daniel Obitz, Orsay, both of France, assignors to Synthelabo, Paris, France

Filed Oct. 9, 1979, Ser. No. 82,656

Int. Cl.³ A61K *31/155;* **C07C** *123/00*

U.S. Cl. 424—326 **6 Claims**

1. A compound of the formula:



wherein A is tetrahydronaphthyl or dihydronaphthyl, or a pharmaceutically acceptable salt thereof.

4,265,912

GLAUCINE LACTATE SALTS

Samuel S. M. Wang, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 935,220, Aug. 21, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,648

Int. Cl.³ A61K *31/485;* **C07D** *221/18, 221/22*

U.S. Cl. 424—260 **8 Claims**

1. A glaucine salt selected from the group consisting of l-glaucine lactate, d,l-glaucine lactate and mixtures thereof.

6. A method of alleviating coughing in animals, comprising administering to an animal an antitussive amount of a glaucine salt selected from the group consisting of l-glaucine lactate, d,l-glaucine lactate and mixtures thereof.

4,265,913

ORAL INGESTA FOR ANIMALS

Robert J. Eichelburg, Woodland Rd., Pound Ridge, N.Y. 10576

Continuation of Ser. No. 448,208, Mar. 5, 1974, Pat. No. 3,997,675, and Ser. No. 463,314, Apr. 23, 1974, Pat. No. 4,000,319, and a continuation of Ser. No. 473,347, May 28, 1974, abandoned. This application Jan. 28, 1976, Ser. No. 653,214 The portion of the term of this patent subsequent to Dec. 28, 1993, has been disclaimed.

Int. Cl.³ A23K *1/00*

U.S. Cl. 426—2 **10 Claims**

1. As an article of manufacture, oral ingesta for animals selected from a member of the group consisting of dog food, dog medicaments, cat food and cat medicaments, said oral ingesta being combined with yeast in an amount sufficient to impart improved palatability to said oral ingesta, said yeast being selected from a member of the group consisting of the genera Saccharomycodes, Schizosaccharomyces, and Oosporidium.

4,265,914

CONTINUOUS-FLOW WINE CHAMPAGNIZATION PROCESS

Naskid G. Sarishvili, ulitsa Khalturinskaya, 11, kv. 231; Alla E. Oreshkina, Krymsky val, 8, kv. 37, and Evgeny N. Storchevoi, Nakhimovsky prospekt, 9, korpus 1, kv. 59, all of Moscow, U.S.S.R.

Continuation of Ser. No. 658,097, Feb. 13, 1976, abandoned. This application Apr. 27, 1977, Ser. No. 791,167

Int. Cl.³ C12G *1/06*

U.S. Cl. 426—13 **1 Claim**

1. A process for champagnization of wine which comprises continuously passing for secondary fermentation a starting fermentation broth consisting essentially of champagne winestock, saccharose and yeast cells at a temperature of up to 15° C. through a yeast mass located on a separator which retains the yeast cells which are deposited thereon by sedimentation from the wine stream, whereby during the passage through for secondary fermentation the champagnized wine is simultaneously enriched with biologically active substances from the yeast and freed of yeast cells while the yeast mass increases in concentration; and continuing the passing of fermentation broth through said yeast mass until the concentration of yeast cells reaches 5–10 billion per ml of wine, thus continuously completely champagnizing said wine stock in about 17 days to obtain a high output of ready to use champagnized wine substantially free of yeast cells, said process being continued during a time period of 2–3 years without recharging.

4,265,915

PROTEIN-CONTAINING FOOD MATERIAL

Mary E. MacLennan, and Martial Lawson, both of 198 Parkes St., Helensburgh, New South Wales 2508, Australia

Filed Nov. 3, 1978, Ser. No. 957,380
Claims priority, application Australia, Nov. 8, 1977, PD2345
Int. Cl.³ A23J *1/12*; C12D *13/06*
U.S. Cl. 426—28 **29 Claims**

1. In a process for preparing a protein-containing product by cultivating an amylolytic fungus on a solid substrate comprising a solid carbohydrate source and a nitrogen source, the improvement which comprises the steps of:

(a) providing a particulate starch-based material which does or does not include a nitrogen source;

(b) partially gelatinizing the starch component of said material in the presence of water to a particulate substrate composed of particles of which a predominant proportion have a particle size wherein the overall dimension is within the range of 0.5 mm to 3 mm, with the proviso that particles of larger dimensions are not present in sufficient quantity to be substantially visible in the fermented product;

(c) adding a nitrogen source if the nitrogen source in step (a) is absent or insufficient, before, during or after step (b) whilst maintaining the physical state of said substrate;

(d) inoculating said substrate with at least one amylolytic fungal strain;

(e) incubating said inoculated substrate in the presence of oxygen and moisture until substantially all particles of the starch-based material are substantially degraded to a non-particulate form and the spaces originally occupied by the starch-based substrate particles and containing the starch degradation products are closely bound together by a network of mycelia; and

(f) denaturing the products of steps (e) wherein said nitrogen source is assimilable by said fungal strain(s), and is present in a total amount which is non-inhibitory and sufficient to allow adequate mycelial growth in step (e), and, if said nitrogen source is particulate, the predominant proportion has a particle size wherein the overall dimension is less than 2.5 mm with the proviso that particles of larger dimensions are not present in sufficient quantity to be substantially visible in the fermented product.

4,265,916

ANIMAL FEED BLOCK CONTAINING FERROUS SULFATE AND FINELY GROUND MAGNESIUM OXIDE

Leroy V. Skoch, Manchester; Bud G. Harmon, Kirkwood; Charles W. Dickerson, Des Peres, all of Mo., and Nelson S. Chou, Kingston, R.I., assignors to Ralson Purina Company, St. Louis, Mo.

Filed Jan. 23, 1979, Ser. No. 5,887
Int. Cl.³ A23K *1/00*
U.S. Cl. 426—74 **36 Claims**

1. A process for preparing a molasses based animal feed block which comprises admixing molasses, nutritive ingredients, about 5 to about 10% by weight of a phosphorous source, and water absorbent clay with about 2 to about 4% by weight ferrous sulfate and about 3.5 to about 15% by weight finely ground magnesium oxide having a surface area greater than 11 m^2/gm under high speed shearing action to obtain a nutrient mixture that solidifies to form a hard, weather resistant block.

4,265,917

BINDER COMPOSITIONS FOR TEXTURIZED PROTEINS AND THEIR USE IN THE PREPARATION OF FOODSTUFF

Albert Fabre, Venissieux, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed May 1, 1978, Ser. No. 901,828
Claims priority, application France, May 4, 1977, 77 14310
Int. Cl.³ A23J *3/00*
U.S. Cl. 426—104 **28 Claims**

1. A foodstuff having a protein efficiency coefficient of about that of milk casein, comprising a texturized proteins selected from the group consisting of vegetable proteins, animal proteins, and mixtures thereof, impregnated with an amount of a binder material sufficient to bind said texturized protein together and to improve the nutritive properties and protein balance of said texturized protein in order to provide an amino acid balanced foodstuff, said binder material comprising (i) from 10 to 20% by dry weight of unmodified, undenatured gluten, (ii) from 10 to 20% by dry weight of dairy seroproteins, (iii) from 1 to 5% by dry weight of albumin, and (iv) an edible liquid diluent in an amount sufficient to provide 100% by weight of said binder.

4,265,918

PREPARATION OF PARTIALLY DEHYDRATED MEAT PRODUCTS

Theodore V. Kueper, LaGrange; Warren R. Schack, Western Springs, and Harry Rock, Wood Dale, all of Ill., assignors to Swift & Company, Chicago, Ill.

Filed Jan. 19, 1979, Ser. No. 4,727
Int. Cl.³ A23B *4/02*; A23L *1/31*
U.S. Cl. 426—264 **4 Claims**

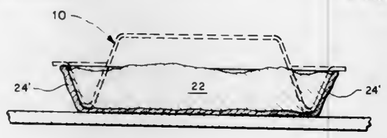
1. An improved method for preparing a sliced meat product for cooking and consumption, said method comprising: first hydrating a meat product with a curing pickle solution to 105%–125% of its original weight and subsequently partially dehydrating said meat product to 70%–95% of said original weight at leat in part by vacuum drying said meat product from a hydrated weight in excess of said original weight to a lower weight not in excess of 95% of said original weight, said vacuum drying being carried out while said product is maintained in a non-frozen state, and without appreciably changing the other components of the meat product, and slicing said product either before or after it is subjected to said dehydrating environment whereby said slices when subjected to cooking temperature will reach a level of doneness in a relatively shorter period of time and will have a relatively greater yield of edible meat than the same sliced product that is not subjected to said partial dehydration.

4,265,919

PROCESS FOR PRODUCING A FOOD PRODUCT

Arnold M. Munter, and David W. Ahlgren, both of Duluth, Minn., assignors to Jeno's, Inc., Duluth, Minn.

Filed Jun. 2, 1980, Ser. No. 155,567
Int. Cl.³ A21D *8/02*
U.S. Cl. 426—283 **6 Claims**



1. A process for producing a frozen, pre-prepared food product, comprising the following steps in the order recited:

providing an inedible, heatable container having a centrally-depressed receptacle which is defined by a base at the bottom of the container and sidewalls and with an outwardly and downwardly extending rim adjacent said sidewalls and terminating in a free edge;

depositing a pre-prepared filling which becomes fluid when a sufficient amount of heat is applied to it into said container directly onto said depressed receptacle;

covering said container receptacle and said container rim with a sheet of unbaked dough and shaping the dough so that said dough conforms to said outwardly and downwardly extending container rim so that upon baking, an inverted edible receptacle is formed including sidewalls and a centrally depressed bottom which will retain the filling when said edible receptacle is positioned such that its depressed bottom is lowermost;

freezing the now-filled and covered container whereby when the product is heated, said dough bakes while said filling heats to a fluid state so that when the product is inverted and said container is removed, said filling flows outwardly to fill the upstanding crust formed by the now-baked dough.

4,265,920

PROCESS FOR CONCENTRATION OF ALCOHOLIC BEVERAGES

Henricus A. C. Thijssen, Son, Netherlands, assignor to Douwe Egberts Koninklijke Tabaksfabriek, Koffiebranderijen en Theehandel B.V., Utrecht, Netherlands

Continuation of Ser. No. 885,347, Mar. 10, 1978, abandoned. This application Sep. 28, 1979, Ser. No. 80,776
Claims priority, application United Kingdom, Mar. 19, 1977, 11713/77
Int. Cl.³ C12G *3/08, 1/00*; C12F *3/04*
U.S. Cl. 426—384 **4 Claims**

1. Process for the concentration of aqueous alcoholic beverage solutions, containing in addition to nonvolatile components, alcohol and small amounts of volatile aroma components by the selective removal of water, comprising the following steps:

(a) a first step in which substantially all of the alcohol and the more volatile aroma components are separated by a process of distillation at strongly reduced pressure, from the bulk of the aqueous solution and in which the vapors containing alcohol and more volatile aroma components obtained by said distillation process are condensed in a condenser,

(b) a second step in which the aqueous solution obtained in step (a), is concentrated by removing water in a process of freeze concentration while retaining in the solution the aroma components remaining from step a), and

(c) a third step in which the condensate containing alcohol and more volatile aroma components obtained in step (a), is mixed with the concentrate obtained in step (b).

4,265,921

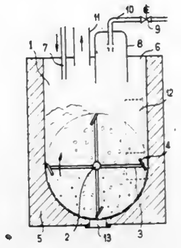
PROCESS FOR QUICK-FREEZING OF FOOD PRODUCTS

Andre' Lermuzeaux, Sucy-en-Brie, France, assignor to L'Air Liquide, Societe Anonyme pour l'Etude l'Ecploitation des Procedes Georges Claude, Paris, France

Filed Apr. 18, 1978, Ser. No. 897,534
Claims priority, application France, Apr. 25, 1977, 77 12339
Int. Cl.³ A23L *3/36*
U.S. Cl. 426—444 **11 Claims**

1. A process for quick-freezing of food products by mixing a liquid or pasty food product with an excess of carbon dioxide snow, comprising

forming a carbon dioxide snow bed in situ by feeding carbon dioxide liquid under pressure to a zone of lower pressure where it expands and solidifies, while applying a mixing force to the expanding and solidifying carbon dioxide, and adding to said snow bed the food product to be frozen and thereby bringing the food product into contact with the carbon dioxide snow particles by mixing with a mixing means so that the food product in paste or liquid state is divided on contact with the carbon dioxide snow and is quickly frozen, the linear speed of the mixing means being 0.3–2 m/sec.,



maintaining mixing until frozen granules of said food product having a stabilized temperature between −70° and −18° C. are formed, and

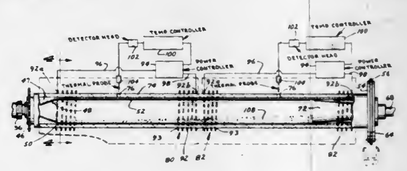
then removing the frozen granules.

4,265,922

INDUCTION HEATING METHOD FOR PROCESSING FOOD MATERIAL

Takuzo Tsuchiya, Minneapolis; Jin-Liou Fang, New Hope, and Glen Rasmussen, Champlin, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Jan. 31, 1979, Ser. No. 8,219
Int. Cl.³ A23L *101*
U.S. Cl. 426—520 **5 Claims**



1. A method of processing food material comprising the steps of rotating a metallic barrel, introducing the food material into one end of said barrel, discharging said food material from the other end of said barrel, and inductively heating at a relatively low frequency at least a portion of said barrel as it rotates so that heat is first induced in said barrel and is then transmitted by conduction from said barrel into said food material as said food material passes through said barrel, said barrel being rotated within a pair of solenoid-type coils to provide said inductive heating and including the step of individually energizing said coils.

4,265,923

USE OF CYCLOHEXENEMETHANOLS IN AUGMENTING OR ENHANCING THE AROMA OR TASTE OF FOODSTUFFS

Mark A. Sprecker, Sea Bright; Frederick L. Schmitt, Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 46,363, Jun. 7, 1979, Pat. No. 4,217,371, which is a division of Ser. No. 953,128, Oct. 20, 1978, Pat. No. 4,195,099. This application Nov. 2, 1979, Ser. No. 90,691
Int. Cl.³ A23L *1/226, 1/235*
U.S. Cl. 426—538 **5 Claims**

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to a foodstuff from about 0.05 ppm up to about 500 ppm based on total weight of foodstuff of at least one cyclohexenemethanol selected from the group consisting of:

(i) alpha-allyl-4-methyl-3-cyclohexenemethanol,
(ii) 2,4-dimethyl-alpha-allyl-3-cyclohexenemethanol,
(iii) 2,4-dimethyl-alpha-isopropyl-3-cyclohexene-1-methanol, and
(iv) 4,6-dimethyl-alpha-allyl-3-cyclohexenemethanol.

4,265,924

WHEY PROTEIN RECOVERY

Marcel Buhler, Tolochenaz; Mats Olofsson, Yverdon, both of Switzerland, and Pierre-Yves Fosseux, Pont-Hebert, France, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed May 7, 1979, Ser. No. 36,427
Claims priority, application Switzerland, May 11, 1978, 5134/78
Int. Cl.³ A23J *3/00*
U.S. Cl. 426—582 **15 Claims**

1. A process for recovering proteins from lactoserum, which comprises subjecting a lactoserum to a heat treatment to denature the proteins to an extent of about 35 to 70% by weight of the proteins present in it, separating the denatured proteins from the other non-fat constituents of the lactoserum by ultrafiltration, said proteins being found in the ultrafiltration retentate along with undenatured proteins, and subjecting the retentate to a complementary heat treatment for a time and temperature sufficient for denaturing the undenatured proteins.

4,265,925

BLAND VEGETABLE PROTEIN PRODUCT AND METHOD OF MANUFACTURE

Michael F. Campbell; Richard J. Fiala; James D. Wideman, and John F. Rasche, all of Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

Continuation-in-part of Ser. No. 812,551, Jul. 5, 1977, abandoned. This application Dec. 26, 1978, Ser. No. 973,194
Int. Cl.³ A23J *3/00*
U.S. Cl. 426—641 **18 Claims**

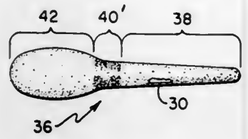
1. In a continuous method for making a bland, defatted, substantially flavorless and odor-free vegetable protein product by removing solvent from a moist, solvent-containing vegetable protein material, said method comprising the steps of:
(a) continuously supplying said moist vegetable protein material to a desolventizing apparatus having a gas inlet and outlet; (b) continuously flowing a humid, inert gas through said protein material at a velocity sufficient to fluidize said vegetable protein material and to move it as a fluidized bed;
(c) moving said vegetable protein material in the stream of inert gas through a tortuous path whereby all particles of said vegetable protein material are subjected to steady fluidizing action;
(d) maintaining the temperature of said inert inlet gas below 260° F. (127° C.) and its velocity and pressure sufficient to sustain intimate mixing with the vegetable protein material to maintain said vegetable protein material in a fluidized state and to remove solvent therefrom during the course of the tortuous path;
(e) maintaining the dewpoint at the gas inlet of said desolventizing apparatus in the range of 100°–140° F. (37.8°–60° C.) and the dewpoint at the gas outlet of said desolventizing apparatus in the range of 130°–155° F. (54.4°–68.3° C.);
(f) controlling the flow rate of said vegetable protein material along said tortuous path so that the average time the particles of vegetable protein material remain in contact with said humid, inert gas is from 1–6 hours, whereby the vegetable protein material is effectively continuously desolventized to a level below about 2,000 ppm solvent as measured by gas liquid chromatograph; and
(g) continuously separating desolventized vegetable protein material from the inert gas.

4,265,926

METHOD OF TREATING GELATIN CAPSULES AND PRODUCT RESULTING THEREFROM

George S. Sperti, 1842 Madison Rd., Cincinnati, Ohio 45206, and Norbert J. Berberick, Jr., 2550 Idlewild Rd., Burlington, Ky. 41005

Continuation of Ser. No. 788,276, Apr. 18, 1977, abandoned, which is a continuation of Ser. No. 697,570, Jun. 18, 1976, Pat. No. 4,027,671, which is a continuation of Ser. No. 605,523, Aug. 18, 1975, abandoned, which is a continuation of Ser. No. 511,947, Oct. 4, 1974, abandoned, which is a continuation of Ser. No. 341,261, Mar. 14, 1973, abandoned, which is a continuation of Ser. No. 82,742, Oct. 21, 1970, abandoned. This application Feb. 10, 1978, Ser. No. 876,711
Int. Cl.³ A61J *3/07*
U.S. Cl. 427—2 **10 Claims**



1. A method for treating gelatin capsules having a bulb portion and an elongated portion comprising the step of applying a softening agent tto the bulb portion of the capsule to provide a difference in hardness between the bulb portion and the elongated portion wherein the elongated portion is of sufficient rigidity to be insertable through a body orifice and the bulb portion may be squeezed when the capsule is so inserted whereby a medicament contained therein is forced out the elongated portion.

4,265,927

METHOD OF HEPARINIZING A CHARGED SURFACE OF A MEDICAL ARTICLE INTENDED FOR BLOOD CONTACT

Jan C. Ericksson, Djursholm, and Rolf L. Larsson, Ekerö, both of Sweden, assignors to Aminkemi AB, Bromma, Sweden

Filed Jul. 10, 1978, Ser. No. 922,992
Claims priority, application Sweden, Jul. 18, 1977, 7708296
Int. Cl.³ A01N *43/16*
U.S. Cl. 427—2 **11 Claims**

1. A method of heparinizing a charged surface of a medical article intended for contact with blood, comprising contacting a charged surface thereof with a fine-grained colloidal aqueous solution of a complex compound of the components (i) heparin and (ii) a cationic surfactant, the particles of said colloidal solution having a size below 200 nm and having attached to their surfaces, charges of a polarity opposite to that of the charges attached to the surface of the medical article, the colloidal solution containing 1–100 I.U. of heparin per ml, the relative quantity of cationic surfactant in relation to the quantity of heparin being so adjusted that the light transmission of the colloidal solution at a wavelength of 400 nm and 1 cm optical passage exceeds about 40% of that pure water if the heparin content of the colloidal solution is 50 I.U. per ml, and exceeds about 90% of that of pure water if the heparin content of the colloidal solution is 10 I.U. per ml.

4,265,928

ANTI-THROMBOGENIC RETENTIVE CATHETER

Bernd Braun, Melsungen, Fed. Rep. of Germany, assignor to Intermedicat GmbH, Emmenbrucke, Switzerland

Filed Sep. 26, 1979, Ser. No. 78,918
Claims priority, application Switzerland, Oct. 6, 1978, 10439/78
Int. Cl.³ B05D *3/06*
U.S. Cl. 427—2 **9 Claims**

1. A method of producing an anti-thrombogenic retentive catheter with a negatively charged surface, which comprises coating a polyvinylchloride or polyethylene catheter with a solution in pyridine, or a solvent mixture of toluol and tetrahydrofuran, of a copolymerizate of ethylene with acrylic acid, or an ester or salt of the copolymerizate.

4,265,929

SINGLE-BAKE TWO-LAYER ENAMELLING WITH ELECTROSTATIC POWDER COATING

Gebhard Wagner, Odenthal, and Werner Joseph, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 936,990, Aug. 25, 1979, abandoned. This application Nov. 21, 1979, Ser. No. 96,368
Claims priority, application Fed. Rep. of Germany, Sep. 17, 1977, 2741971
Int. Cl.³ B05D *1/06*
U.S. Cl. 427—33 **6 Claims**

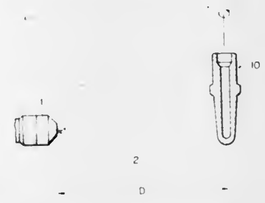
1. In a two-layer enamelling process in which the ground coat and surface powders are electrostatically applied to metallic substrates and subsequently baked together, the improvement which comprises employing a ground coat powder having an electrical resistivity of about 10^{10} to 10^{14} ohm.cm and a surface coat powder having an electrical resistivity of about 10^{14} to 10^{16} ohm.cm and at least 10^2 ohm.cm higher than the ground coat.

4,265,930

PROCESS FOR PRODUCING OXYGEN SENSING ELEMENT

Hiroshi Shinohara, Okazaki; Yasuhiro Otsuka, Toyota; Shinichi Matsumoto, Toyota; Toshinobu Furutani, Toyota, and Hiroshi Wakizaka, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jun. 19, 1979, Ser. No. 50,057
Claims priority, application Japan, Oct. 23, 1978, 53/129446
Int. Cl.³ B05D *1/08, 5/12*
U.S. Cl. 427—34 **6 Claims**



1. A process for producing an oxygen sensing element suitable for use in a combustion exhaust gas purifying system comprising an ion-conducting tubular solid electrolyte member composed of a sintered material and closed at one end, a first metal electrode layer deposited on the inner surface of the solid electrolyte member, a second metal electrode layer deposited on the outer surface of the solid electrolyte member, and a protective layer of a refractory material deposited on the surface of the second metal electrode layer, which process comprises forming the protective layer onto the surface of the second metal electrode layer by plasma spray coating the surface of the second electrode layer, first with a refractory material powder from a plasma spray coating device, and at a position of a prescribed distance from a plasma spray coating device and at a prescribed electric power, said distance and power being such that a durable protective layer is formed, and second with a refractory material powder having the same particle size and composition as said refractory material powder used in the first plasma spray coating at a position of a distance greater than said prescribed distance and/or at an electric power lower than said prescribed electric power.

4,265,931

PROCESS FOR THE PRODUCTION OF A MAGNETIC RECORDING MEMBER

Yasuo Tamai, and Hiroshi Ogawa, both of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 903,333, May 5, 1978, abandoned, which is a continuation of Ser. No. 816,067, Jul. 15, 1977, abandoned, which is a continuation of Ser. No. 626,690, Oct. 29, 1975, abandoned. This application Sep. 10, 1979, Ser. No. 74,029
Claims priority, application Japan, Oct. 29, 1974, 49-125196
Int. Cl.³ B05D *3/14*
U.S. Cl. 427—48 **8 Claims**

1. A process for producing a magnetic recording medium comprising a non-magnetic support and two magnetic layers which comprise a ferromagnetic powder and a binder, one magnetic layer being a lower magnetic layer about 3 to 20 um in thickness and being coated on said non-magnetic support and the other magnetic layer being an upper magnetic layer coated on said lower magnetic layer, said upper magnetic layer being 0.5 to 6 um in thickness and being thinner than the lower magnetic layer, the upper magnetic layer containing ferromagnetic powder having a coercive force at least 1.2 times higher than the coercive force of the ferromagnetic powder in the lower magnetic layer; which process comprises the sequential, separate and distinct steps of:
(A) forming the lower magnetic layer on said support by coating a lower magnetic coating composition having a binder component which is a thermosetting resin on said non-magnetic support, orienting the ferromagnetic powders in said lower magnetic coating composition during coating, drying the composition and calendering the dried composition;
(B) contacting said lower magnetic layer with an organic solvent incapable of dissolving said lower magnetic layer such that the amount of said solvent present in the lower layer as the result of said contact is 15 to 120% by weight based on the total dry weight of the lower layer so that the lower layer is not solved but the surface of the lower layer is wet and each pore therein is filled with the solvent, or the binder of the lower layer is not solved but swollen;
(C) forming an upper magnetic layer on said lower layer by coating an upper magnetic coating composition on said lower magnetic layer, and drying said upper composition containing the organic solvent of step (B), a binder soluble in said organic solvent which is selected from the group of resins consisting of thermoplastics resins, thermosetting resins and mixtures thereof, and a lubricant.

4,265,932

MOBILE TRANSPARENT WINDOW APPARATUS AND METHOD FOR PHOTOCHEMICAL VAPOR DEPOSITION

John W. Peters, Malibu, and Frank L. Gebhart, Long Beach, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 2, 1979, Ser. No. 63,213
Int. Cl.³ B05D *3/06*
U.S. Cl. 427—53.1 **9 Claims**

1. Apparatus for the photochemical vapor deposition of a layer of a selected material on the surface of a chosen substrate comprising:
(a) a reaction chamber having a quartz window integral with

the top surface thereof, for the transmission of a selected wavelength of radiation therethrough into said reaction chamber;

(b) a film of predetermined material that is movable across the internal face of said quartz window within said reaction chamber, said predetermined material being transparent to said selected wavelength of radiation, stable at the elevated temperature required for said deposition, and possessing sufficient mechanical strength to be moved across said quartz window;

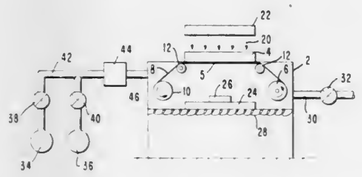
(c) means affixed within said reaction chamber for moving said film across said internal face of said quartz window;

(d) means external to said reaction chamber and associated therewith for introducing a reactant gas mixture into said reaction chamber;

(e) means located within said reaction chamber for heating said substrate;

(f) means external to said reaction chamber for producing radiation of said selected wavelength and introducing said radiation into said reaction chamber through said quartz window; and

(g) means external to said reaction chamber for producing a vacuum in said reaction chamber of sufficiently low pressure to enable said deposition to occur, whereby said film



at said internal face of said quartz window during the deposition process prevents undesirable deposits of said selected material on said internal face of said quartz window and said moving of said film across said internal face removes said selected material deposited on said film from close proximity to said internal face, thereby maintaining said window in a clean and transparent state and enhancing the efficiency of said deposition.

8. A method for maximizing the radiation-induced rate of photochemical vapor deposition within an enclosed chamber which is sustaining said deposition, including:

(a) providing a radiation-transparent window and film on one wall of said chamber;

(b) passing radiation of a chosen wavelength through both said window and said film and into said chamber to induce a photochemical vapor deposition reaction therein, while simultaneously causing extraneous deposition of reaction products on said film; and

(c) providing continuous relative movement between said window and said film to thereby minimize the resistance to the transmission of said radiation into said chamber caused by extraneous deposits of said reaction products and thus maximize the efficiency and rate of said vapor deposition reaction occuring therein.

4,265,933

PHOTOVOLTAIC CELL

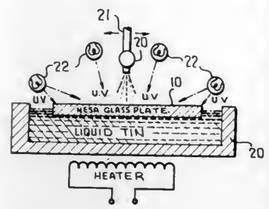
John P. Jordan, El Paso, Tex., and Curtis Lampkin, Cincinnati, Ohio, assignors to Photon Power, Inc., El Paso, Tex.

Continuation of Ser. No. 645,461, Dec. 30, 1975, abandoned. This application Sep. 22, 1977, Ser. No. 835,515

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—54.1 **2 Claims**

1. A method of enhancing the growth of CdS microcrystals, comprising the step of uniformly heating a nucleating substrate to a temperature effective to promote CdS crystal growth in a layer of microcrystalline CdS on said substrate, and irradiating said layer of microcyrstalline CdS with high intensity ultra-violet light during said heating to improve



uniformity of crystal axis orientation during said CdS crystal growth.

4,265,934

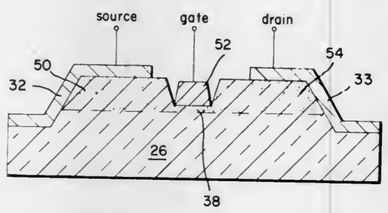
METHOD FOR MAKING IMPROVED SCHOTTKY-BARRIER GATE GALLIUM ARSENIDE FIELD EFFECT DEVICES

Glenn O. Ladd, Jr., Agoura, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation of Ser. No. 640,124, Dec. 12, 1975, abandoned. This application Feb. 21, 1978, Ser. No. 879,651

Int. Cl.³ H01L *21/302, 29/48*

U.S. Cl. 427—84 **13 Claims**



1. A process for fabricating a field effect transistor structure comprising the steps of:

(a) providing a substrate of semi-insulating gallium arsenide;

(b) forming a conducting channel on a surface of said substrate and defining a substrate-conducting channel interface;

(c) establishing source and drain ohmic contacts on predetermined portions of a surface of said conducting channel, said portions defining a source region and a drain region respectively of said transistor structure;

(d) controllably etching a cavity in said conducting channel between said source and drain ohmic contacts, said cavity having angled side walls and an adjoining bottom wall defining a trapezoidal shaped inverted mesa region and said angled side walls extending to said surface of said conducting channel at edges remote from said source and drain ohmic contacts, whereby a conducting channel region is formed that is relatively thin with respect to said source region and said drain region; and

(e) depositing a gate electrode member primarily on said bottom wall of said cavity and with minimal contact with said side walls for minimizing parasitic coupling between said gate electrode member and said conducting channel.

4,265,935

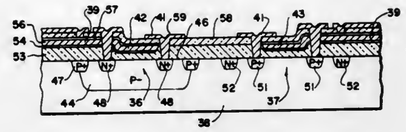
HIGH TEMPERATURE REFRACTORY METAL CONTACT ASSEMBLY AND MULTIPLE LAYER INTERCONNECT STRUCTURE

John H. Hall, Saratoga, Calif., assignor to Micro Power Systems Inc., Santa Clara, Calif.

Division of Ser. No. 791,798, Apr. 28, 1977, Pat. No. 4,152,823, which is a continuation of Ser. No. 384,640, Aug. 1, 1973, abandoned. This application Feb. 22, 1979, Ser. No. 14,256

Int. Cl.³ H01L *21/88*

U.S. Cl. 427—89 **2 Claims**



1. A method for forming an integrated circuit structure comprising the steps of:

providing a silicon body having a surface,

forming a first insulating layer on at least a portion of the surface of the silicon body,

forming a refractory metal sandwich at least over a portion of said insulating layer,

formation of said sandwich including solely the steps of forming a first layer of silicon, and

forming a refractory metal layer on the silicon layer and forming a second silicon layer on the upper surface of the refractory metal layer.

4,265,936

VEHICLE REFINISHING PROCESS

Theodore Prohaska, Jr., 6940 Winterwood La., Dallas, Tex. 75248

Filed Aug. 18, 1978, Ser. No. 934,853

Int. Cl.³ B05D *1/38, 3/00, 7/16*

U.S. Cl. 427—140 **10 Claims**

1. The process of repainting a vehicle surface comprising preparing the surface for reception of a color coating, applying at least one coat of a color coating onto said prepared surface, drying said color coating, applying a standard automotive clear paint toner finish coat over the color coat, and drying said finish coating, said color coating being a mixture of a automotive acrylic enamel, acrylic thinner, and a automotive clear paint toner in amounts to give a DuPont cup viscosity reading of about 16 to 21 seconds at 125° F., and said color coating and finish coating being heated to a temperature of about 115°-135° F. just prior to application.

4,265,937

METHOD FOR PRODUCING A COLORED REFLECTIVE PLATE HAVING EXCELLENT DURABILITY AND FABRICABILITY

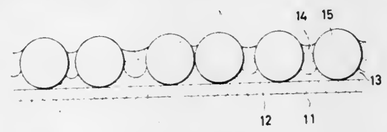
Toru Kameya, Ichikawa; Shinichi Makino, Narashino, and Masayuki Tsuruta, Ichikawa, all of Japan, assignors to Taiyo Steel Co., Ltd., Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,781

Claims priority, application Japan, Aug. 28, 1978, 53-104521

Int. Cl.³ G02B *5/128*

U.S. Cl. 427—163 **6 Claims**



1. A method for producing a colored reflective plate comprising coating a colored paint on a base plate to form a primary colored layer, coating or printing a colored paint on said primary colored layer to form an intermediate colored layer in a thickness in a range from 30 to 80% of the mean radius of glass beads to be coated subsequently thereon, scattering glass beads having a refractive index in a range from 1.9 to 2.1 on the surface of said intermediate colored layer, removing the excess of glass beads unadhered on said intermediate colored layer, pressing the remaining glass beads in said intermediate colored layer until said beads contact said primary colored layer, drying said intermediate colored layer, coating a clear paint in the cavities among said glass beads so as to bury said glass beads in said intermediate colored layer and said clear paint up to a depth from 40 to 80% of the mean diameter of said beads as calculated in the dried condition, and drying and curing said clear paint.

4,265,938

RETRO-REFLECTING SHEET MATERIAL AND METHOD OF MAKING SAME

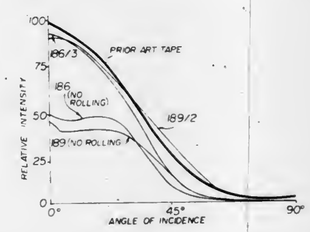
Stanton E. Jack, and Robert O. Dark, both of Kingston, Canada, assignors to Alcan Research & Development Limited, Montreal, Canada

Filed Sep. 13, 1979, Ser. No. 75,007

Claims priority, application Canada, Sep. 21, 1978, 311780

Int. Cl.³ G02B *5/128;* **B05D** *5/06, 7/14*

U.S. Cl. 427—163 **13 Claims**



1. A method of forming a retro-reflective surface on an indentable metal substrate, comprising the steps of:

(a) forming on said indentable metal substrate a layer of transparent organic polymeric material having a monolayer coating of substantially spherical glass beads of high refractive index;

(b) covering said beads with a platen having substantially no tendency to adhere to the glass beads under the pressures encountered;

(c) applying sufficient pressure to said platen and indentable metal substrate to cause the glass beads to indent the surface of said indentable metal substrate; and

(d) covering said beaded layer with a further layer of transparent organic polymeric material;

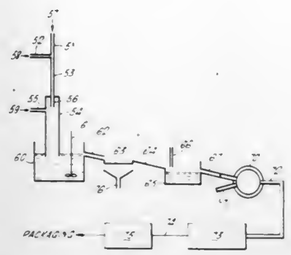
said transparent organic polymeric material formed on the indentable metal substrate in step (a) being suitable to withstand the pressure of step (c) without substantial crazing, cracking or attenuation, and the thickness of said layer being sufficient to space said beads from said substrate by a predetermined distance suitable for retro-reflection after step (c).

4,265,939

PARTICULATE RUBBER PROCESS

Klaas Tebbens; Erhardt Fischer, both of Sarnia, Canada, and Jhy-Dou R. Lo, Pittsfield, Mass., assignors to Polysar Limited, Sarnia, Canada

Filed Dec. 5, 1979, Ser. No. 100,396
Claims priority, application Canada, Jul. 19, 1979, 332149
Int. Cl.³ B44D *1/02*
U.S. Cl. 427—222 **13 Claims**



1. An improved process for the manufacture of particulate rubber which process comprises the steps of mixing an aqueous latex of a C_4–C_6 conjugated diolefin-containing rubbery polymer, said latex containing from about 10 to about 35 weight percent of said polymer, with an aqueous inorganic acid or inorganic salt coagulation agent, mixing the coagulated polymer particles so formed with a dilute aqueous latex of a rubbery-resinous or resinous styrene-containing polymer whereby the coagulated polymer particles are coated with the rubbery-resinous or resinous polymer, said dilute latex containing from about 1 to about 5 weight percent of said rubbery-resinous or resinous polymer and the quantity of said dilute latex being such as to provide from about 5 to about 15 parts by weight of rubbery-resinous or resinous polymer per 100 parts by weight of rubbery polymer, and separating and recovering the particulate rubber, characterized in that said mixing of said rubbery polymer latex with said coagulation agent is in a conduit wherein there is turbulent flow as described by a Reynolds Number of from about 25,000 to about 100,000 and wherein the residence time is from about 0.05 to about 0.5 seconds, the temperature of the coagulation step being from about 49° to about 99° C., and that said mixing of the coagulated polymer particles with the rubbery-resinous or resinous polymer is in a conduit wherein the flow is described by a Reynolds Number of from about 5,000 to about 25,000 and wherein the residence time is from about 0.5 to about 5 seconds, the temperature being from about 82° to about 99° C.

4,265,940

PRESSURE APPLYING ROLLERS FOR INSTANT PHOTOGRAPHIC CAMERAS AND METHOD OF PRODUCING THE SAME

Kenichi Kato, Sano, Japan, assignor to Fuji Photo Optical Co., Ltd. and Sano Kiko Co., Ltd., both of, Japan

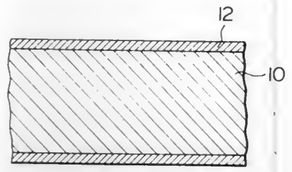
Continuation-in-part of Ser. No. 890,918, Jun. 23, 1978, abandoned. This application Aug. 3, 1979, Ser. No. 63,459
Claims priority, application Japan, Apr. 4, 1977, 52-38224
Int. Cl.³ C23C *3/02*
U.S. Cl. 427—292 **2 Claims**

1. A method of producing a roller of the type useable as either one of a pair of pressure applying rollers adapted to be used in an instant photographic camera, said method comprising the steps of:

making a roller body having predetermined dimensions,

forming fine surface irregularities on the surface of said roller body, and thereafter

electroless depositing nickel by reduction separation on the surface of said roller body to form a plated layer of nickel of uniform thickness thereon using the roller itself as a catalyst, whereby said roller is produced without hardening the roller body per se before it is plated, and heat hardening the plated layer on the surface of the roller.

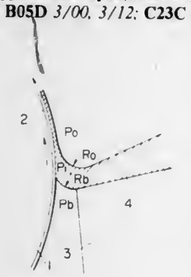


4,265,941

DIFFERENTIAL PRESSURE COATING SYSTEM

Hiroki Saito, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 26, 1979, Ser. No. 52,513
Claims priority, application Japan, Jun. 26, 1978, 53/77267
Int. Cl.³ B05D *3/00, 3/12;* **C23C** *13/08*
U.S. Cl. 427—296 **9 Claims**



1. A method of coating a web with a bead of coating material comprising the steps of feeding a supply of coating material onto said web to form a bead, applying a first negative pressure at position to be rear of the point of application of said coating material and, applying a second pressure, lower than said first negative pressure, at marginal side portions of the bead at the point of application of said coating material on to said web.

4,265,942

NON-NOBLE METAL COLLOIDAL COMPOSITIONS COMPRISING REACTION PRODUCTS FOR ELECTROLESS DEPOSITION

Nathan Feldstein, 63 Hemlock Cir., Princeton, N.J. 08540

Continuation-in-part of Ser. No. 672,044, Mar. 30, 1976, which is a division of Ser. No. 607,506, Aug. 26, 1975, Pat. No. 3,993,799, which is a continuation-in-part of Ser. No. 512,224, Oct. 4, 1974, abandoned. This application Aug. 31, 1978, Ser. No. 938,890
Int. Cl.³ C23C *3/02*
U.S. Cl. 427—304 **59 Claims**

1. A process for the preparation of a non-conductor substrate for electroless (chemical) deposition onto a substrate comprising the steps of:

(1) contacting said substrate with a colloidal composition said colloidal composition being the reaction product resulting from the admixture comprising at least one primary metal and at least one secondary metal, said primary metal being selected from the group consisting of copper, nickel, iron and cobalt and mixtures therof, said secondary metal being selected from the group consisting of tin, aluminum, gallium, chromium, indium, germanium, lead, antimony, bismuth zinc and thallium and mixtures thereof, said primary and said secondary metals being in less than the maximum available oxidation state in said colloidal composition which is retained on the surface of said substrate either directly forms or serves as a precursor to the catalytic sites capable of electroless plating initiation, and

(2) contacting said treated substrate with an electroless (chemical) plating bath.

4,265,943

METHOD AND COMPOSITION FOR CONTINUOUS ELECTROLESS COPPER DEPOSITION USING A HYPOPHOSPHITE REDUCING AGENT IN THE PRESENCE OF COBALT OR NICKEL IONS

Rachel Goldstein, Givataim, Israel; Peter E. Kukanskis, Watertown, and John J. Grunwald, New Haven, both of Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

Filed Nov. 27, 1978, Ser. No. 964,128
Int. Cl.³ C23C *3/02*
U.S. Cl. 427—305 **18 Claims**

1. In a composition for the electroless deposition of copper including, in an essentially alkaline aqueous solution, a soluble source of cupric ions, a complexing agent to maintain the cupric ions in solution and a reducing agent capable of providing a soluble source of hypophosphite ions effective to reduce the cupric ions to metallic copper to obtain satisfactory copper deposition on the prepared surface of a workpiece when in contact with the solution, the improvement therein providing continuous deposition of the copper on the workpiece such that the deposition thickness increases with time at a substantially constant rate similar to an initial deposition rate comprising including in the solution a soluble source of metal ions other than cupric ions which ions are capable of functioning as an autocatalysis promoter for metallic copper deposition, the metal ions in solution being predominantly cupric ions and the solution pH being maintained in the range of 11–14.

4,265,944

METHOD FOR DECREASING POLLUTION RESULTING FROM THE APPLICATION OF A COATING COMPOSITION

James W. Garner, Farmington Hills, Mich., assignor to Grow Group, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 739,203, Nov. 8, 1976, abandoned. This application Aug. 11, 1978, Ser. No. 932,948
Int. Cl.³ B05D *3/00;* **B01D** *47/00, 47/05*
U.S. Cl. 427—353 **4 Claims**



1. A method for decreasing air pollution resulting from the application of coating compositions comprising the steps of:

1. applying to a substrate an organic solvent based coating composition containing a completely water miscible organic based solvent thinner composition, thereby forming a gaseous effluent containing a mixture of air and gaseous organic solvent and gaseous thinner, wherein the water miscible organic based solvent thinner composition is comprised of:

(a) a water miscible compound selected from the group consisting of a saturated aliphatic glycol or a saturated aliphatic glycol ether, both containing at least three carbon atoms, and a compound containing Formula I:

$$R—O[CH_2(R_1)—O]_nR_2 \quad I$$

wherein

R is independently selected from the group consisting of hydrogen, alkyl of from 1 to 4 carbon atoms and —(O)C—CH_3;

R_1 is independently selected from the group consisting of —CH_2, —CH_2—CH_2—, —CH_2—$CH(CH_3)$—, and —$CH(CH_2OH)$—;

R_2 is independently selected from the group consisting of alkyl of from 1 to 4 carbon atoms, hydroxyl substituted alkyl of from 1 to 4 carbon atoms and —(O)-C—CH_3; and

n is a number from 1 to 4; and

mixtures thereof, in an amount ranging from about 10 to about 60 parts by weight (PBW);

(b) a water miscible monoalcohol having from 1 to about 8 carbon atoms, in an amount of about 10 to about 60 PBW; and

(c) a water miscible saturated aliphatic ketone of up to 12 carbon atoms in an amount of about 10 to about 50 PBW, the total of a+b+c equaling 100 PBW; and

2. passing said gaseous effluent into a gas absorbing means containing a non-reactive liquid solvent which can absorb the gaseous organic solvent of the coating composition and the gaseous thinner composition.

4,265,945

QUATERNARY UREIDOMETHYL PHOSPHONIUM SALTS

Arlen W. Frank, Slidell, La., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 27,696, Apr. 6, 1979. This application Nov. 29, 1979, Ser. No. 98,459
Int. Cl.³ C07F *9/22;* **C07C** *127/15;* **C09K** *3/28;* **B05D** *3/00*
U.S. Cl. 427—353 **2 Claims**

1. A process for imparting flame-retardant character to a cellulosic textile comprising:

(a) impregnating the cellulosic textile with an approximately 1:1 molar mixture of octakis(ureidomethyl)diphosphonium sulfate and octakis(hydroxymethyl)diphosphonium sulfate in water;

(b) squeezing the impregnated textile to about 100% wet pick-up;

(c) curing the impregnated textile for about 10 minutes at about 100° C.; and

(d) rinsing the cured cellulosic textile in hot water to remove the unreacted chemicals.

4,265,946

PROCESS FOR FORMING A SUBBING LAYER ON A PLASTIC SUPPORT

Masao Yabe; Sumitaka Tatsuta; Takeji Ochiai; Tamotsu Suzuki, all of Fujinomiya, and Masayoshi Sekiya, Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara and Nippon Zeon Co., Ltd., Tokyo, both of, Japan

Filed Nov. 13, 1979, Ser. No. 93,468
Claims priority, application Japan, Nov. 13, 1978, 53/139581
Int. Cl.³ B05D *3/02;* **G03C** *1/78*
U.S. Cl. 427—393.5 **14 Claims**

1. In a process for forming a subbing layer by applying an aqueous dispersion of a copolymer consisting of at least one diolefin monomer and one or more vinyl monomers to a plastic film base for photographic sensitive materials, the improvement which comprises the gel fraction of the copolymer in said aqueous dispersion is about 80% by weight or less and wherein said diolefin is selected from the group consisting of butadiene, isoprene, chloroprene, 1,4-pentadiene, 1,4-hexadiene, 3-vinyl-1,5-hexadiene, 1,5-hexadiene, 3-methyl-1,5-hexadiene, 3,4-dimethyl-1,5-hexadiene, 1,2-divinylcyclobutane, 1,6-heptadiene, 3,5-diethyl-1,5-heptadiene, 4-cyclohexyl-1,6-heptadiene, 3-(4-pentenyl)-1-cyclopentene, 1,7-octadiene, 1,8-nonadiene, 1,9-decadiene, 1,9-octadecadiene, 1-cis-9-cis 12-octadecatriene, 1,10-undecadiene, 1,11-dodecadiene, 1,12-tridecadiene, 1,13-tetradecadiene, 1,14-pentadecadiene, 1,15-hexadecadiene, 1,17-

octadecadiene and 1,21-docosadiene and wherein said vinyl monomer is selected from the group consisting of styrene and derivatives thereof, acrylonitrile, methyl methacrylate, vinyl chloride, vinyl acetate, acrylic acid, methacrylic acid, itaconic acid, alkyl acrylates, acrylamide, methacrylamide, acrolein, methacrolein, glycidyl acrylate, glycidyl, methacrylate, 2-hydroxyethyl acrylate, 3-hydroxyethyl methacrylate, allyl acrylate, allyl methacrylate, N-methylolated acrylamide, N-methylolated methacrylamide, divinylbenzene, vinyl isocyanate and allyl isocyanate.

4,265,947

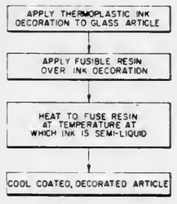
THERMOPLASTIC INK DECORATED, POLYMER COATED GLASS ARTICLES

Herbert C. Shank, Jr., Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio

Continuation of Ser. No. 573,809, May 2, 1975, abandoned, which is a division of Ser. No. 440,331, Feb. 7, 1974, Pat. No. 3,937,854, which is a continuation-in-part of Ser. No. 378,493, Jul. 12, 1973, Pat. No. 3,937,853. This application Mar. 7, 1977, Ser. No. 775,184

Int. Cl.³ B65D *1/00*

U.S. Cl. 428—35 **6 Claims**



1. A permanently decorated, polymer coated hollow glass container,

said container having a surface area thereof with at least one screen print decoration on it,

said decoration being a thermoplastic hot melt ink which is solid at room temperature and which becomes semiliquid upon heating,

a polymer film coating on said container which overlies said decoration and which covers regions of said container adjacent to the said surface area on which the decoration is applied,

an interdiffused zone of said decoration and said polymer coating lying between the decoration and the coating,

said decoration having an adherence to the glass which is sufficient, in the absence of such polymer coating, to permit such coating to be applied over the decoration without smearing the latter, the adherence of the decoration to the glass being insufficient, in the absence of said polymer coating, to resist removal by such abrasion and alkali attack as is incidental to the ordinary use of the container,

said polymer coating being a smooth, continuous film of a resin which is anchored to and supported by the glass surface regions with which it is in contact,

the said decoration being meltable at a temperature below that at which the said polymer coating is fusible,

the said decoration being melt-on-melt bonded with and diffused into the polymer coating in said interdiffused zone such that the decoration would be at least partially removed with the polymer coating if the latter were peeled away from the container,

the coating over the surface area of said container which is covered by said decoration being adhered to the glass surface through its bond to the said decoration,

said decoration being captured by and between the film coating and the glass surface.

4,265,948

COLLAPSIBLE DISPENSING TUBE

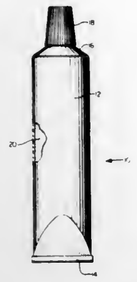
Thomas H. Hayes, and Lewis C. Lo Maglio, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 849,084, Nov. 7, 1977, Pat. No. 4,142,630. This application Oct. 10, 1978, Ser. No. 950,072

The portion of the term of this patent subsequent to Mar. 6, 1996, has been disclaimed.

Int. Cl.³ B65D *35/00, 85/14*

U.S. Cl. 428—35 **32 Claims**



1. A collapsible dispensing container having a laminated tubular body, said laminated tubular body including a fluid impervious metal foil lamination, a layer of a polyolefin on the outside of said metal foil lamination, and, on the inside of said metal foil lamination and on the outside of said polyolefin layer, a layer of a copolymer resulting from the polymerization of 100 parts by weight of a mixture of (a) from 70 to 95 percent by weight of acrylonitrile, and (b) from 30 to 5 percent by weight of methyl acrylate in the presence of from 1 to 20 parts by weight of (c) a copolymer containing from 60 to 80 percent by weight of polymerized butadiene and from 40 to 20 percent by weight of polymerized acrylonitrile, said collapsible dispensing tube having connected thereto headpiece means made from a copolymer resulting from the polymerization of 100 parts by weight of (a) at least 50 percent by weight of at least one nitrile having the structure

$$CH_2=\underset{\displaystyle R}{\overset{|}{C}}-CN$$

wherein R is hydrogen, a lower alkyl group having from 1 to 4 carbon atoms, or a halogen, and (b) up to 50 percent by weight based on the combined weight of (a) and (b) of an ester having the structure

$$CH_2=\underset{\displaystyle R_1}{\overset{|}{C}}-COOR_2$$

wherein R_1 is hydrogen, an alkyl group having from 1 to 4 carbon atoms, or a halogen, and R_2 is an alkyl group having from 1 to 6 carbon atoms, in the presence of from 1 to 40 parts by weight of (c) a copolymer of a conjugated diene monomer selected from the group consisting of butadiene and isoprene and an olefinically unsaturated nitrile having the structure

$$CH_2=\underset{\displaystyle R}{\overset{|}{C}}-CN$$

wherein R has the foregoing designation containing from 50 to 95 percent by weight of polymerized conjugated diene and from 50 to 5 percent by weight of polymerized olefinically unsaturated nitrile.

4,265,949

MULTILAYER BAG STRUCTURE FOR PACKAGING

Kazuya Kugimiya, Ohtake, Japan, assignor to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Jun. 19, 1979, Ser. No. 50,132

Claims priority, application Japan, Jun. 29, 1978, 53/78100

Int. Cl.³ B65D *31/02;* B32B *27/08*

U.S. Cl. 428—35 **9 Claims**

1. A multilayer bag structure having at least two laminated layers, the innermost layer being composed of a random copolymer of ethylene and an alpha-olefin having 5 to 10 carbon atoms, said copolymer having the following characteristics:

(1) it has an ethylene content of 99.5 to 94 mole%,

(2) it has a melt index at 190° C. of 0.1 to 20,

(3) it has a density of 0.915 to 0.940 g/cm³,

(4) it has a p-xylene-soluble content (A) at 25° C. of 0.5 to 5% by weight,

(5) it has a boiling n-heptane-insoluble content (B) of not less than 8% by weight to less than 20% by weight, and

(6) the total of (A) and (B) is not more than 20% by weight.

4,265,950

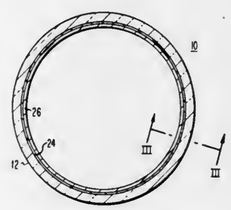
PHOSPHOR-COATING COMPOSITION AND METHOD FOR ELECTRIC DISCHARGE LAMP

Eugene A. Graff, Cedar Grove, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 27, 1979, Ser. No. 97,767

Int. Cl.³ F21K *2/00*

U.S. Cl. 428—35 **14 Claims**



1. In the manufacture of a fluorescent lamp having a glass envelope that is interiorly coated with a transparent film of tin oxide, the method of depositing an adherent layer of phosphor on the tin-oxide coated surface of the lamp envelope, which method comprises;

preparing an aqueous suspension of phosphor particles containing, by weight based on the amount of phosphor, from about 0.05% to 0.25% calcium nitrate, from about 0.1% to 0.6% by weight finely-divided aluminum oxide, from about 0.1% to 0.8% ammonium nitrate, and a small amount of an organic binder up to about 10%,

coating the inner surface of the lamp envelope with a layer of the aqueous phosphor-containing suspension,

allowing the coated envelope to dry sufficiently to set the phosphor-containing layer in place, and then

lehring the coated envelope at a temperature and for a time sufficient to melt the calcium nitrate and ammonium nitrate additives and concurrently burn out the organic binder and thereby produce an adherent layer of phosphor particles on the tin-oxide coated surface of the lamp envelope.

4,265,951

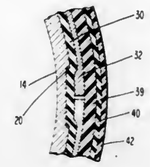
FIBER REINFORCED COMPOSITE SHAFT WITH METALLIC CONNECTOR SLEEVES MOUNTED BY LONGITUDINAL GROOVE INTERLOCK

Derek N. Yates, Los Gatos, and John C. Presta, San Jose, both of Calif., assignors to Celanese Corporation, New York, N.Y.

Division of Ser. No. 890,231, Mar. 27, 1978, Pat. No. 4,187,135. This application Jul. 24, 1979, Ser. No. 60,244

Int. Cl.³ F16C *1/00*

U.S. Cl. 428—36 **6 Claims**



1. A tubular fiber reinforced composite shaft comprising:

a shaft body comprising a plurality of integrally bonded circumferential plies of solidified fiber reinforced resinous material;

a metal sleeve mounted in at least one end of said shaft body, said sleeve including a plurality of circumferentially spaced recesses on an outer periphery thereof;

a plurality of arc-shaped segments embedded in said plies, said segments including spaced tongues projecting toward said recesses so as to position a portion of at least one of said plies into said recesses, thereby forming a torsion-transmitting connection therebetween, said segments extending circumferentially and exhibiting a generally cylindrical shape.

4,265,952

VERMICULAR EXPANDED GRAPHITE COMPOSITE MATERIAL

Ronald S. Caines, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 889,308, Mar. 23, 1978, Pat. No. 4,199,628. This application Sep. 24, 1979, Ser. No. 78,538

Int. Cl.³ F16L *9/14;* C01B *31/04;* B32B *31/20, 27/00*

U.S. Cl. 428—36 **4 Claims**

1. A vermicular expanded graphite composite material comprising from about 50 to about 97 percent by weight expanded vermicular graphite impregnated with from about 3 to about 50 percent by weight of a corrosion resistant resin having a particle size of from about 0.05 to about 0.5 micron, said resin being uniformly distributed in the pores formed between adjacent graphite particles.

4,265,953

INTUMESCENT STRESSED SKIN COMPOSITE MATERIAL

James R. Close, Roberts, Wis., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

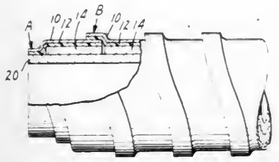
Filed Mar. 7, 1979, Ser. No. 18,437

Int. Cl.³ B32B *15/08, 17/02;* C04B *43/02;* E04B *1/74*

U.S. Cl. 428—78 **10 Claims**

1. A self-securing composite insulating wrapping comprising a first web of a thin, flexible, compliant, stressable material having a tensile strength of at least 1.75 kg/cm², an adhesive substantially covering one face of said web and a second smaller web of resilient intumescent sheet material positioned and adhered to the adhesive covered surface of said web of flexible material with the long dimensions of the two webs parallel with the adhesive coated surface of said first web exposed along at least one edge of said second web, said wrap-

ping when applied onto a base material being capable of exfoliation by thermal or chemical means to provide a thermal insu-



lating layer on said base material overcoated by a protective stressed outer skin.

4,265,954

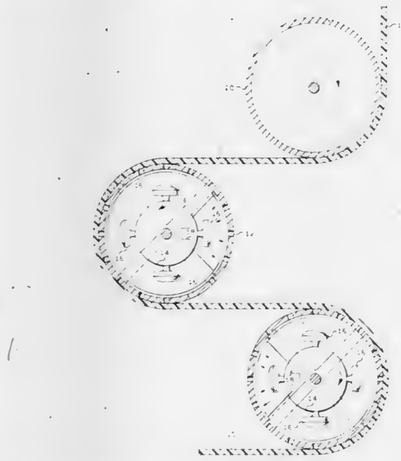
SELECTIVE-AREA FUSION OF NON-WOVEN FABRICS

Gerald A. Romanek, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 11, 1978, Ser. No. 895,338

Int. Cl.³ B32B *3/02*

U.S. Cl. 428—85 **32 Claims**



1. A method for physically fusing preselected areas by the application of heat while leaving unfused adjacent, nonselected areas of an extended, flat body of nonwoven, fibrous material, containing at least some thermoplastic fibers; comprising, exposing said fibrous material to heat, from a source of radiant energy adapted to produce heat in said body of fibrous material, spaced from said body of fibrous material and radiating over an area of said body of fibrous material including both said preselected and said nonselected areas, at a temperature and for a time at least sufficient to fuse at least some of said thermoplastic fibers and concentrating the heat from said source of energy in said preselected areas by (a) modifying the heat absorptivity of said preselected areas of said body of fibrous material, (b) modifying the heat absorptivity of said nonselected areas of said body of fibrous material, (c) interposing between said body of fibrous material and said source of energy a mask having areas of increased radiant energy transmission corresponding to said preselected areas of said body of fibrous material, (d) interposing between said body of fibrous material and said source of energy a mask having areas of decreased radiant energy transmission corresponding to said nonselected areas of said body of fibrous material or (e) any combination of at least two of (a), (b), (c) and (d).

29. An extended, flat body of nonwoven, fibrous material, containing at least some thermoplastic fibers and having tufting materials combined in at least some preselected areas of said body of fibrous material, by exposing said fibrous material to heat, from a source of radiant energy adapted to produce heat in said body of fibrous material, spaced from said body of fibrous material and radiating over an area of said body of fibrous material including both said preselected areas and adjacent, nonselected areas of said body of fibrous material, at a temperature and for a time sufficient to fuse at least some of said thermoplastic fibers and concentrating the heat from said source of energy in said preselected areas of said body of fibrous material, to fuse at least some of said thermoplastic fibers in said preselected areas where said tufting materials contact said body of fibrous material.

4,265,955

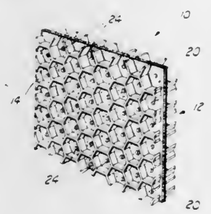
HONEYCOMB CORE WITH INTERNAL SEPTUM AND METHOD OF MAKING SAME

Marlyn F. Harp, Winfield; James L. Diepenbrock, Jr., and M. Dean Nelsen, both of Wichita, all of Kans., assignors to The Boeing Company, Seattle, Wash.

Filed May 1, 1978, Ser. No. 901,337

Int. Cl.³ B32B *3/12*

U.S. Cl. 428—116 **9 Claims**



1. A sound attenuating panel for installation in the high velocity air flow region of an engine nacelle, and other applications requiring acoustic treatment, the panel comprising:

a single layer of cellular honeycomb core;

an acoustic planar septum formed internally in said core, said planar septum made up of a plurality of individual continuous co-planar septum permanently attached to the sides of each individual cell of said core, said planar septum dividing the layer of said core along the length thereof and forming a planar geometric configuration therein; and

at least one sheet of facing material attached to the surface of said core.

4,265,956

SYNTHETIC NET MATERIAL

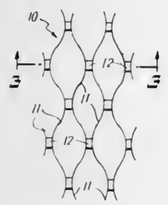
Johannes J. V. Colijn, Huttwil, Switzerland, assignor to Beveteam S.A., Fribourg, Switzerland

Filed Jul. 25, 1978, Ser. No. 927,943

Claims priority, application Switzerland, Aug. 10, 1977, 9791/77

Int. Cl.³ B32B *3/12*

U.S. Cl. 428—134 **7 Claims**



1. An expandable net for protecting plant crops and formed

from a length of partially crystalline synthetic material colored by means of an optically covering pigment comprising:

a mesh structure defined by a plurality configuration joined to a plurality of intersection portions of shrunk material having a flat configuration, said webs in an unexpanded condition of the net branching off in pairs from the intersection portions in the longitudinal direction with each pair of webs being substantially parallel and forming the sides of a plurality of rhomboid shapes with the intersection portions being disposed at the intersection of said rhomboid shapes.

4,265,957

MULTI-LAYERED, FIBERGLASS-REINFORCED FLOOR COVERING SYSTEMS

Wesley A. Severance, Independence, and Julie Y. L. Shaw, Broadview Heights, both of Ohio, assignors to General Signal Corporation, Stamford, Conn.

Filed Nov. 8, 1979, Ser. No. 92,577

Int. Cl.³ B32B *5/02*

U.S. Cl. 428—143 **44 Claims**

1. A multi-layered floor construction comprising:

a floor substrate;

a cured primer coat of an epoxy resin applied over and adhering to said substrate;

a cured, fiberglass-reinforced base coat of an epoxy resin applied over and bonded to said primer coating;

a cured top coat of an epoxy resin containing filler material applied over and bonded to said fiberglass-reinforced base coat; and

a cured sealer coat of a polyurethane resin applied over and bonded to said top coat.

4,265,958

METHOD FOR THE TREATMENT OF WOOD BY A WOOD PRESERVING AGENT, AS WELL AS WOOD TREATED WITH SUCH A WOOD PRESERVATIVE AGENT

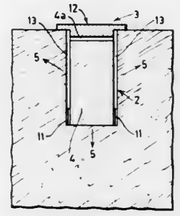
Cornelis W. Blom, Sassenheim, and Jacobus M. van Keulen, Bilthoven, both of Netherlands, assignors to Hoeka Sierpleisters En Muurverven B.V., Netherlands

Filed Mar. 24, 1978, Ser. No. 889,977

Claims priority, application Netherlands, Mar. 29, 1977, 7703412

Int. Cl.³ A01N *9/02, 17/10, 9/30;* **B32B** *21/04*

U.S. Cl. 428—166 **13 Claims**



1. A wooden object having a recess therein, said recess carrying a liquid wood preservative composition comprising a water-expelling agent and a biocide, wherein said water-expelling agent is an organic solvent of low volatility, and cover means for said recess.

4,265,959

PROCESS FOR PRODUCING SEMIPERMEABLE MEMBRANES

Takezo Sano, Takatsuki; Takatoshi Shimomura, Toyonaka; Ichiki Murase, Ibaraki, and Manabu Hirakawa, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 27, 1978, Ser. No. 973,633

Claims priority, application Japan, Dec. 28, 1977, 52/159377; Jan. 21, 1978, 53/5419

Int. Cl.³ B32B *7/02;* **B01D** *39/16*

U.S. Cl. 428—216 **15 Claims**

1. A method for the preparation of a semipermeable heterogeneous membrane having high water permeability and the ability to reject low-molecular weight materials which comprises sulfonating a porous membrane of an acrylonitrile polymer having a molecular weight of 5,000 to 5,000,000 and containing acrylonitrile in an amount of 40 to 100% by mole, wherein said porous membrane has a bubble point of more than 1 kg/cm^2 and a water permeability of 0.01 to 1000 LMH under a pressure of 10 kg/cm^2.

12. A heterogeneous semipermeable membrane having high water permeability and the ability to reject low-molecular weight materials comprising an acrylonitrile polymer membrane which has a thickness of 20 to 500μ, a surface dense layer of less than 1μ in thickness at the surface and pores increasing in size gradually towards the back surface of the membrane and is crosslinked by sulfonation more than 0.1μ in thickness from the surface, said acrylonitrile polymer containing 40 to 100% by mole of acrylonitrile and having a molecular weight of 5,000 to 5,000,000.

4,265,960

FILMS PRODUCED FROM LDPE ENCAPSULATED $CACO_3$

Harold A. Arbit, Highland Park, and Harold G. Tinger, Wayne, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,366

Int. Cl.³ B32B *27/32*

U.S. Cl. 428—220 **1 Claim**

1. Thin, biaxially oriented films of low-density polyethylene, having a thickness between 0.4 mil and about 3 mils, filled with between about 30 weight percent and about 60 weight percent calcium carbonate, wherein said films are produced from calcium carbonate having a particle size below 20 microns encapsulated in low density polyethylene.

4,265,961

BUILDING DEVICE

Gilbert A. Bena, Paris, France, assignor to Barbara S.A., Paris, France

Filed Apr. 2, 1976, Ser. No. 672,843

Claims priority, application France, Apr. 11, 1975, 75 11338

Int. Cl.³ B32B *7/00*

U.S. Cl. 428—253 **4 Claims**



1. A method of forming a rigid shaped building element comprising the steps of providing at least one layer of a run-proof knitted textile fabric having substantially uniform stretch characteristics in all directions, placing said layer of fabric on

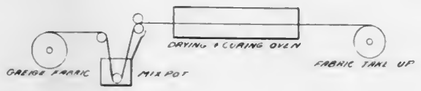
a frame to form said fabric into a desired predetermined shape and tensioned in at least one direction, maintaining said fabric on said frame under tension, applying a liquid coating capable of setting into a hard material to at least one surface of said fabric sufficient to fill the interstices of said knitwork and the loops thereof and to extend therethrough, thereafter permitting said coating to harden while maintaining said fabric under tension to thereby fix said fabric in said predetermined shape and tension and thereafter removing said tensioned hardened fabric from said form to provide a self-sustainable rigid non-deformable element.

4,265,962

LOW PENETRATION COATING FABRIC

Robert E. May, Pleasant Garden, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Dec. 20, 1976, Ser. No. 752,303
Int. Cl.[3] B32B *27/34*
U.S. Cl. 428—287 **12 Claims**



8. An improved coated fabric comprising a coating substrate comprising a greige fabric impregnated with a fluorochemical composition sufficient to impart an AATCC Spray Test water repellency rating of at least 80 to said fabric, such fabric coated with an aqueous coating material, said coating material not showing-through said substrate.

4,265,963

FLAMEPROOF AND FIREPROOF PRODUCTS CONTAINING MONOETHANOLAMINE, DIETHYLAMINE OR MORPHOLINE

Ralph Matalon, Cherry Hill, N.J., assignor to Arco Polymers, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 6,728, Jan. 26, 1979, abandoned, which is a continuation of Ser. No. 871,959, Jan. 24, 1978, abandoned, which is a continuation of Ser. No. 755,596, Dec. 30, 1976, abandoned. This application Dec. 31, 1979, Ser. No. 108,591
Int. Cl.[3] B27K *3/00*
U.S. Cl. 428—288 **28 Claims**

1. A flameproof and fireproof product which consists essentially of

(a) a fire-unstable material, and

(b) a coating composition which comprises a resinous reaction product of phosphoric acid and a reducing sugar, a hardener, and at least one modifying agent capable of rendering said coating composition highly and permanently intumescent at a low initiating temperature even after prolonged storage of said product, said modifying agent being selected from the group consisting of monoethanolamine, diethylamine and morpholine;

whereby when said coating composition is exposed to heat or flame, said coating composition copiously intumesces to form a thermal insulating foam barrier for said fire-unstable material, said thermal insulating foam barrier upon continued exposure to heat or flame for an appreciable time becoming a porous char or residue protecting said fire-unstable material, said char or residue being nonflammable, having adequate insulation strength and flame resistance to prevent degradation of said fire-unstable material.

4,265,964

LIGHTWEIGHT FROTHED GYPSUM STRUCTURAL UNITS

Gerald W. Burkhart, Monaca, Pa., assignor to Arco Polymers, Inc., Philadelphia, Pa.

Filed Dec. 26, 1979, Ser. No. 106,965
Int. Cl.[3] B32B *13/00, 31/00*
U.S. Cl. 428—306 **14 Claims**

5. In a lightweight gypsum wallboard having a core and at least two facing skin members adhered thereto, an improved core which has been frothed and heat-cured and which comprises:

(a) a hemihydrate gypsum composition,

(b) up to about 3% by weight of said gypsum composition of expandable thermoplastic particles which have been expanded to a density below about 3 pounds per cubic foot,

(c) from about 0.1% to about 5.0% by weight of said gypsum composition of a rubbery polymeric latex,

(d) a surfactant,

(e) a latex frothing agent, and

(f) water in an amount sufficient for hydration of said gypsum composition plus a minimum excess of water sufficient permit mixing of said ingredients into a flowable mixture and disposing said mixture in a mold means to form said core.

4,265,965

POLYURETHANE FOAM ARTICLES COATED WITH A CRUSHED FOAM AND METHOD OF PRODUCING

Francis X. Chancler, Southampton, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 522,079, Nov. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 415,027, Nov. 12, 1973, abandoned. This application Jul. 7, 1976, Ser. No. 703,347
Int. Cl.[3] B32B *5/18, 27/00*
U.S. Cl. 428—315 **24 Claims**

22. A method for producing a composite building material having a continuously textured surface, comprising:

a. providing (i) a foamed emulsion of an uncured and uncrosslinked elastomeric resin composition and (ii) a self-supporting resilient urethane foam substrate;

b. disposing said foamed elastomeric resin composition onto a surface of said urethane substrate to form a substantially uniform coating of predetermined thickness on the substrate, said thickness being such as to permit the irregular cell structure of the underlying urethane substrate to affect the exposed surface of the elastomeric layer in the subsequent step (d) so that after the composite structure is fully processed said textured surface is formed therein;

c. drying said elastomeric resin foam coating until said elastomeric resin foam forms a layer which is only partially cured and partially crosslinked;

d. crushing said composite structure so that said partially cured elastomeric layer is densified, the resultant partial compression of the elastomeric foam creating a continuous texture on the exposed surface thereof; and

e. further curing said textured elastomeric layer to hold said textured surface and forming said composite building material.

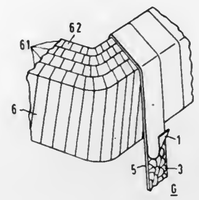
23. A product produced according to the method of claim **22**.

4,265,966

METHOD OF USING NITROGEN-CONTAINING POLYESTER RESINS AS EPOXY RESIN HARDENING ACCELERATORS IN WINDING BANDS FOR HIGH-VOLTAGE INSULATION OF ELECTRIC MACHINES AND APPARATUS AND MICA TAPE THEREFOR

Heinz Schuh, Dinslaken, Fed. Rep. of Germany, assignor to Kraftwerk Union AG, Mülheim, Fed. Rep. of Germany

Filed Dec. 18, 1979, Ser. No. 104,971
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1978, 2856562
Int. Cl.[3] B32B *5/16;* B05D *5/12;* H01B *13/06;* B32B *19/00*
U.S. Cl. 428—324 **24 Claims**



1. Method for the manufacture of high-voltage insulation for electric machines and apparatus by wrapping a mica tape formed by adhering mica to a flexible support foil with a binder resin around the electrical equipment to be insulated and impregnating the electrical equipment having the mica tape wrapped around it with a heat-setting epoxy resin, the improvement comprising employing as said binder-resin a polyester containing a tertiary-bound nitrogen which is effective as an adhesive for the tape and also as an accelerator for the epoxy resin.

13. Mica tape for manufacturing an insulating sleeve impregnated with a hot-setting epoxy impregnating resin mixture for electric conductors, especially for the winding bars and coils of electric machines formed of mica scales applied on a flexible support and cemented to the support and to each other by means of a binder serving as the adhesive and also as the accelerator for the epoxy resin mixture when impregnated with the epoxy resin mixture, said adhesive and accelerator binder being a polyester resin containing a tertiary-bound nitrogen as part of its molecular structure.

4,265,967

WATERPROOFING SHEET MATERIAL

Charles A. Kumins, Gates Mills, and Milan L. Warford, Shaker Heights, both of Ohio, assignors to Tremco, Incorporated, Cleveland, Ohio

Division of Ser. No. 887,292, Mar. 16, 1978, which is a continuation-in-part of Ser. No. 798,566, May 19, 1977, abandoned. This application Oct. 26, 1979, Ser. No. 88,403
Int. Cl.[3] B32B *27/42, 9/04;* C08L *93/00*
U.S. Cl. 428—332 **6 Claims**

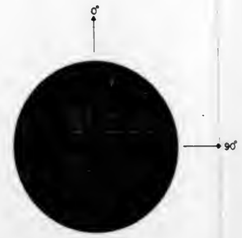
1. A self-supporting sheet material suitable for use as a waterproofing membrane in roofing and other structural applications, said sheet having a thickness within the range of about 20 to about 90 mils and being composed of from about 15 wt.% to about 80 wt.% of an ingredient selected from the group consisting of resin acids and resin acid derivatives, and from about 85 wt.% to about 20 wt.% of a plasticized polyvinyl butyral resin.

4,265,968

HIGH STRENGTH, HIGH THERMALLY CONDUCTIVE ARTICLES

Karl M. Prewo, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 54,084, Jul. 2, 1979, abandoned. This application Mar. 28, 1980, Ser. No. 135,375
Int. Cl.[3] B32B *17/12*
U.S. Cl. 428—336 **5 Claims**



1. A glassware article for containing material to be heated and cooled comprising a graphite fiber reinforced low coefficient of thermal expansion glass matrix having a thermal conductivity at 25° C. of 45 BTU inch hr^{-1} ft^{-2} $°F^{-1}$, high flexural strength and modulus of elasticity.

4,265,969

METHOD FOR MANUFACTURING CAST-COATED PAPER

Nobu Yasuda; Masafumi Masuda, and Tomoichi Morita, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed May 17, 1979, Ser. No. 40,154
Claims priority, application Japan, May 19, 1978, 53-59594; May 26, 1978, 53-62989
Int. Cl.[3] B05D *3/02;* B05B *3/06;* B05D *3/12;* B32B *23/08*
U.S. Cl. 428—342 **9 Claims**

1. A method for manufacturing cast-coated paper, which comprises applying at least one undercoating of an aqueous coating composition containing coating pigments and a binder to at least one side of the base paper to form at least one undercoating layer, at least one of the undercoatings being applied by means of a blade coater and the application rate of the undercoating being 5 to 25 g/m^2 on dry basis per side; then applying onto the undercoating layer an overcoating of an aqueous coating composition containing coating pigments in an amount of 12 to 35 parts by weight of a plastic pigment per 100 parts by weight of the total pigments and a polymer latex having a glass transition temperature of 38° C. or higher; drying the overcoating at a temperature below the glass transition temperature of the polymer latex; and subjecting it to a mirror finishing treatment at a temperature higher than said glass transition temperature to obtain a cast-coated paper having a specular gloss greater than 15% at an angle incidency, of 20° to the normal of the paper.

9. A cast-coated paper manufactured by the method according to claim **1**.

4,265,970

ACRYLIC FIBER HAVING IMPROVED DYEABILITY

Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Filed Jun. 6, 1980, Ser. No. 157,127
Int. Cl.[3] D02G *3/00*
U.S. Cl. 428—364 **4 Claims**

1. A fiber having improved hot/wet properties, said fiber being made up of

a. at least 60 weight percent of a polymer of at least 35 weight percent of acrylonitrile copolymerized with up to

65 weight percent of at least one other mono-olefinic monomer copolymerizable with acrylonitrile, and

b. 0.5 to 40 weight percent of the polyterephthalamide of a mixture of 2,2,4 and 2,4,4 trimethyl hexamethylene diamine, said fiber being made up of a two phase heterogeneous suspension of the polyterephthalamide in a continuous phase of said polymer.

4,265,971

HYDROPHILIC FILAMENTS AND FIBRES OF POLYCARBONATES WITH A HIGH SECOND ORDER TRANSITION TEMPERATURE

Ulrich Reinehr; Bela von Falkai, both of Dormagen, and Horst Wilschinsky, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,822

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900703

Int. Cl.[1] **D02G** *3/00*

U.S. Cl. 428—376 **2 Claims**

1. Dry spun, hydrophilic core-jacket filaments and fibres of polycarbonates having a porosity and a water retention capacity of at least 10%, a mercury density of less than 1.0 g/cc, a strength of at least 1.5 cN/dtex and a second order transition temperature of at least 125° C.

4,265,972

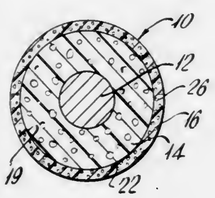
COATED FIBERS AND RELATED PROCESS

Bernard Rudner, 25 Kenwood Rd., Ridgewood, N.J. 07450

Filed Mar. 9, 1979, Ser. No. 19,164

Int. Cl.[1] **D02G** *3/00*

U.S. Cl. 428—392 **39 Claims**



1. A composite fiber suitable for spinning, weaving or floccing comprising a core fiber and adhering thereto a sheath of a resin foam having a smooth continuous regular outer surface; and sheath comprising an inner zone adhering to said core fiber and an outer zone of increased density and smaller cell-size; the outer surface of which is gas permeable, smooth and regular.

4,265,973

METHOD FOR COATING AN OBJECT MADE OF A VULCANIZED POLYALKYLENE RUBBER

Pieter H. J. Schuurink, RG Noordwijk-Binnen, and Arie Noomen, ED Voorhout, both of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Jun. 2, 1978, Ser. No. 911,837

Claims priority, application Netherlands, Jun. 8, 1977, 7706283

Int. Cl.[1] **B32B** *27/40*

U.S. Cl. 428—424.8 **12 Claims**

1. A method for coating an object made of a vulcanized polyalkylene rubber with a composition containing a polyurethane characterized in that a composition which is prepared by admixing 100 parts by weight of an ethylenically unsaturated polyurethane binder with active hydrogen atoms, 0.25-30 parts by weight of a cross-linking agent for the polyurethane binder and 0.1-10 parts by weight of a radical initiating compound is applied to the object, said polyurethane binder being prepared by reaction of (a) 0.5-0.99 equivalent of a polyhydroxy compound, (b) 0.01-0.5 equivalent of an acrylic or methacrylic hydroxy ester and (c) 1.6-2.4 equivalents of an organic diisocyanate, after which the resulting reaction product is reacted with 1.1-2.8 equivalents of a polyamine or alkanolamine.

4,265,974

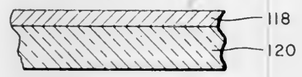
ELECTRICALLY CONDUCTIVE, INFRARED REFLECTIVE, TRANSPARENT COATINGS OF STANNIC OXIDE

Roy G. Gordon, 23 Highland St., Cambridge, Mass. 02138

Continuation-in-part of Ser. No. 21,958, Mar. 19, 1979, abandoned, which is a continuation-in-part of Ser. No. 737,064, Nov. 1, 1976, Pat. No. 4,146,657. This application Apr. 9, 1979, Ser. No. 28,502

Int. Cl.[1] **B32B** *15/04;* **B05D** *5/12;* **H01L** *29/12*

U.S. Cl. 428—432 **14 Claims**



1. An article of manufacture comprising a generally transparent inorganic substrate such as glass and a fluorine-doped stannic oxide film thereon said object having an infrared reflectivity of at least about 85% as measured with 10 micron wavelength of incident radiation, said film having a maximum resistivity of 10 ohms.

14. A semiconductor article of the type used in electronic circuitry comprising a coating of fluorine-doped stannic oxide which is characterized by a resistance of less than about 5 ohms per square and a bulk resistivity in said coating of about 10^{-4} ohm-cm.

4,265,975

POLYESTER RESIN COMPOSITION CONTAINING OXY ALUMINUM ACYLATES

Charles E. Pratt, Signal Mountain, Tenn., assignor to Chattem Inc., Chattanooga, Tenn.

Filed Aug. 9, 1979, Ser. No. 65,142

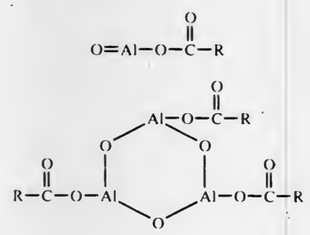
Int. Cl.[3] **B29D** *7/02;* **C08K** *5/09;* **C08L** *67/06*

U.S. Cl. 428—480 **17 Claims**

1. An aluminum modified, curable storage stable polyester resin composition which, when cured, exhibits substantially no decrease in (a) physical properties and (b) chemical resistance as a result of aluminum being present which composition comprises on a 100 weight percent bases:

(A) from about 20 to 90 weight percent of an unsaturated polyester resin having a molecular weight ranging from about 1,000 to 30,000 and comprised of a condensate of at least one polyol with a mixture of at least one saturated polycarboxylated compound and at least one unsaturated polycarboxylated compounds,

(B) from about 0.1 to 20 weight percent of at least one oxy aluminum acylate having either one of the following formulas:



where R is in any given occurence an independently selected hydrocarbon radical selected from the group consisting of aliphatic and aromatic radicals containing from 6 through 10 carbon atoms each,

(C) from about 50 to 1000 ppm of at least one inhibitor, and

(D) from about 10 to 80 weight percent of a liquid comprising at least one vinyl monomer having a molecular weight ranging from about 100 to 250 and said polyester resin, said oxy aluminum acylate, said inhibitor and said vinyl monomer being dissolved together.

3. A composition of claim 1 to which a latent curing system has been added while said composition is in a liquid state, but wherein the total amount of oxy aluminum acylate dissolved therein is such that said composition is in the physical state of an uncured formable solid.

6. The composition of claim 3 wherein said composition is in the physical form of a sheet suitable for use as a sheet molding compound in a matched metal die molding process.

12. A process for making a molded article of manufacture comprising the steps of

(A) comforming a sheet product of claim 6 between the surface defining the cavity of a matched metal die, and

(B) heating the resulting so conformed sheet for a time and at a temperature sufficient to cure said sheet as so formed.

4,265,976

RADIATION-CURABLE COATED ARTICLE HAVING MOISTURE BARRIER PROPETES

Michael T. Nowak, Westfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Division of Ser. No. 944,034, Sep. 19, 1978, Pat. No. 4,201,642. This application Sep. 17, 1979, Ser. No. 76,020

Int. Cl.[3] **B32B** *9/04*

U.S. Cl. 428—486 **5 Claims**

1. An article comprising a substrate in combination with an adherent moisture barrier protective film, which combination is produced by coating the substrate surface with a resin composition, and then radiation-curing the said coating to form the moisture barrier protective film on the substrate surface; wherein the resin composition comprises a blend of (1) between about 10 and 30 weight percent of chlorinated rubber; (2) between about 2 and 25 weight percent of chlorinated paraffin; (3) between about 15 and 45 weight percent of vinyl alkanoate; (4) between about 10 and 40 weight percent of crosslinking monomer containing at least two polymerizable olefinically unsaturated groups; (5) between about 0.5 and 15 weight percent of photoinitiator; and (6) between about 0.5 and 5 weight percent of stabilizer, based on the total composition weight.

4,265,977

PAPER COATING COMPOSITION OF UNSATURATED ACID AND MONO-OLEFIN POLYMERIZED IN THE PRESENCE OF A PREFORMED STYRENE/BUTADIENE LATEX

Takayuki Kawamura, Kawasaki; Kichiya Tazaki; Takashi Sakakiyama, both of Yokohama, and Toshio Hasegawa, Tokyo, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed Apr. 16, 1979, Ser. No. 30,392

Int. Cl.[3] **C08K** *3/00;* **C08L** *23/26, 25/10, 33/02*

U.S. Cl. 428—511 **11 Claims**

1. An aqueous paper coating composition comprising and an alkali-sensitive latex wherein said alkali-sensitive latex is a synthetic copolymer latex prepared by emulsion copolymerizing (A) from about 10 to about 90 parts by weight of a monomer mixture comprising, based upon the weight of such monomer mixture, (1) from about 10 to about 60 weight percent of an ethylenically unsaturated carboxylic acid monomer and (2) from about 40 to about 90 weight percent of a copolymerizable monoolefin compound in the presence of (B) from about 10 to about 90 parts by weight, on a polymer solids basis, of a preformed copolymer latex comprising, in polymerized form, (1) a monovinylidene aromatic monomer and (2) an open-chain aliphatic conjugated diene; with the proviso that, if said preformed copolymer latex constitutes about 60 weight percent or more of the said alkali-sensitive copolymer latex on a polymer solids basis, then said preformed copolymer latex either has been copolymerized to a conversion of monomer to polymer therein of at least about 90 weight percent or has been treated for removal of residual monomer therefrom such that a maximum of about 10 weight percent residual monomer resides in said preformed copolymer latex based upon the weight of the polymer solids thereof.

10. The aqueous paper coating composition of claim 1 additionally comprising at least one pigment.

11. A coated paper product comrising a paper sheet carrying a dried deposit of aqueous coating composition of claims 1 or 10.

4,265,978

HEAT-SENSITIVE RECORDING PAPER IMPROVED IN KEEPING QUALITY OF GROUND COLOR

Sadao Morishita; Fumio Okumura, and Masahiro Higuchi, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Sep. 13, 1979, Ser. No. 75,685

Claims priority, application Japan, Sep. 20, 1978, 53/115322

Int. Cl.[3] **B41M** *5/18*

U.S. Cl. 428—537 **12 Claims**

1. A heat-sensitive recording paper which comprises a support and at least one dye precursor selected from the group consisting of 3-pyrrolidino-6-methyl-7-anilinofluoran and 3-N-methylcyclohexylamino-6-methyl-7-anilinofluoran and 2,2-bis(4'-hydroxyphenyl)propane as a color-developing agent on said support, characterized in that said support is a paper which has been sized so as to become neutral or alkaline during wet paper making, said sizing having been carried out by (1) the use of an anionic sizing agent and by means of fixation with a cationic fixing agent, (2) the use of a reactive sizing agent and a fixing agent therefor or (3) the use of a self-fixable cationic sizing agent.

4,265,979

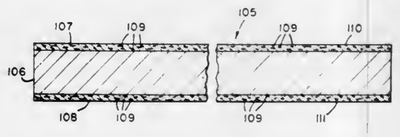
METHOD FOR THE PRODUCTION OF GLASS FIBER-REINFORCED GYPSUM SHEETS AND GYPSUM BOARD FORMED THEREFROM

Donald O. Baehr, Arlington Heights, and David G. Izard, Hoffman Estates, both of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Division of Ser. No. 912,776, Jun. 5, 1978. This application Nov. 7, 1979, Ser. No. 92,153

Int. Cl.[3] **B32B** *3/00, 9/04;* **C04B** *43/02*

U.S. Cl. 428—171 **16 Claims**



1. A cementitious laminated construction board having reinforcing fibers dispersed in the outer sheets thereof, said structural board being the product formed by the method which comprises:

(A) forming a pair of cementitious sheets having reinforced fibers dispersed therein, each of said sheets being formed by:

(a) mixing together in a moving air current generated by an air blower a substantially dry water-settable calcium sulfate hemihydrate in finely particulate form with reinforcing glass fibers,

(b) providing a foraminous moving surface,

(c) depositing the mixture of calcium sulfate hemihydrate and glass fibers on said foraminous surface to form a sheet

(d) applying water over said sheet,

(B) depositing an aqueous slurry of a water-settable calcium sulfate hemihydrate over one of said fiber-containing cementitious sheets,

(C) placing the other of said fiber-containing cementitious sheets over the aqueous slurry,

(D) permitting said cementitious sheets and said slurry to set, and

(E) drying any excess water remaining in said construction board.

4,265,980

TECHNIQUE FOR THE GROWTH OF MAGNETIC GARNET COMPOSITIONS

William A. Bonner, Warren Township, Somerset County, and LeGrand G. Van Uitert, Morris Township, Morris County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1977, Ser. No. 866,024

Int. Cl.³ C30B *19/04*

U.S. Cl. 428—697 **13 Claims**

1. Method for the epitaxial growth of a first composition of the garnet structure upon a surface of a second composition of the garnet structure by crystallization from a growth solution comprising a nutrient and a flux, the first and second compositions having lattice parameters, a_o, differing by a maximum of about 0.5 percent, which comprises the steps of

(a) immersing a substrate of said second composition of the garnet structure in said growth solution containing lithium molybdate, Li_2MoO_4, and a molybdate of the formula $R_2(MoO_4)_3$ wherein R represents yttrium, a rare earth element ranging in atomic number from 62 to 71 or mixtures thereof, and

(b) removing the substrate from the melt and permitting it to cool to room temperature.

4,265,981

IMPACT-RESISTING COMPOSITES

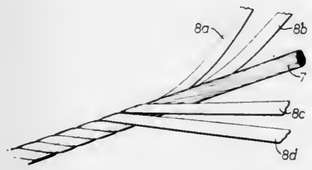
Malcolm D. Campbell, Ashwood, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, Australian Capital Territory, Australia

Continuation of Ser. No. 906,302, May 15, 1978, abandoned. This application Oct. 3, 1979, Ser. No. 81,424

Claims priority, application Australia, May 17, 1977, PD0123

Int. Cl.³ B32B *5/12;* **D03D** *13/00;* **D02G** *3/00;* **B65H** *81/00*

U.S. Cl. 428—591 **13 Claims**



1. A composite comprising a substantially continuous matrix material selected from the group comprising thermosetting polymers, thermoplastic polymers, plaster, cement, mortar, concrete and metals; in which is embedded a plurality of reinforcing elements of higher tensile strength than the matrix, which reinforcing elements are selected from the group comprising metallic filaments, ceramic filaments, polymeric filaments, boron filaments, vegetable fibers and twisted paper; each reinforcing element being separated from the matrix by a continuous helical wrapping means of flexible material which is bonded to the matrix and which is selected from the group comprising paper, metallic wire, metallic foil, polymeric film, polymeric filaments and ceramic fibers; the strength of the wrapping means being such that the wrapping means fails at a lower tensile load than the reinforcing element, and the construction and arrangement of said wrapping means being such when the composite is subjected to a tensile load along the axis of the reinforcing element, the wrapping means contracts onto the reinforcing element to thereby increase the interaction between the wrapping means and the reinforcing element until the point at which the wrapping means fractures, thereby permitting the reinforcing element to slip within the wrapping means.

11. A method for making a reinforced composite comprising the steps of helically wrapping each one of a plurality of reinforcing elements with a flexible material, coating the thus wrapped elements with a hardenable matrix of lower tensile strength than the reinforcing elements, bringing together an assemblage of the coated elements, and setting the matrix.

4,265,982

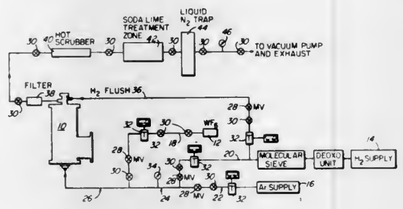
COATED WOVEN MATERIALS AND METHOD OF PREPARATION

William J. McCreary, and David W. Carroll, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 11, 1979, Ser. No. 47,445

Int. Cl.³ B05D *1/22;* **B32B** *7/08*

U.S. Cl. 428—608 **22 Claims**



1. A method of coating a woven material with a coating material, said method comprising the following steps in the following order:

(a) introducing a first gas into a chamber containing a bed of carrier particles, said first gas being introduced at a rate sufficient to produce and maintain during the following steps a fluidized bed;

(b) introducing pieces of said woven material into said fluidized bed, said pieces being sufficiently small relative to the size of said chamber and having a density relative to the density of said fluidized bed so that said pieces move substantially randomly in said fluidized bed;

(c) heating said chamber and allowing the average temperature of said fluidized bed and of said woven material to reach a chosen deposition temperature, said chosen deposition temperature being a temperature which is at least as high as the temperature required for said coating material to be formed in a particular chemical vapor deposition reaction from at least one reactant gas, and said chosen deposition temperature being a temperature low enough so that said woven material retains its porosity;

(d) introducing said at least one reactant gas into said fluidized bed, said at least one reactant gas being such that it reacts to deposit said coating material onto said woven material at said chosen deposition temperature; and

(e) allowing said at least one reactant gas to react within said fluidized bed to deposit said coating material onto said woven material,

said woven material having a melting point which is higher than said chosen deposition temperature.

4,265,983

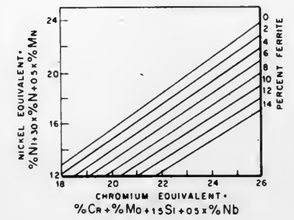
DELTA FERRITE-CONTAINING AUSTENITIC STAINLESS STEEL RESISTANT TO THE FORMATION OF UNDESIRABLE PHASES UPON AGING

James M. Leitnaker, Kingston, Tenn., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 26, 1979, Ser. No. 52,180

Int. Cl.³ B32B *15/18*

U.S. Cl. 428—683 **4 Claims**



1. A composite structure comprising at least two structural portions of austenitic stainless steel joined together by a weldment of austenitic stainless steel containing a ferrite phase, said weldment consisting essentially of by weight 8.5 to 9.5% Ni, 14.0 to 16.4% Cr, up to 1.2% Mo, an effective concentration of carbon plus nitrogen, and the balance predominantly Fe, said effective concentration of carbon plus nitrogen being sufficient to inhibit the transformation of ferrite phase to sigma phase upon prolonged exposure of the structure to elevated temperatures.

4,265,984

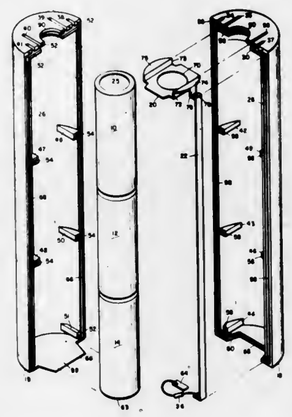
BATTERY HOUSING

Gordon E. Kaye, Garrison, N.Y., assignor to Duracell International Inc., Bethel, Conn.

Filed Feb. 11, 1980, Ser. No. 120,417

Int. Cl.³ H01M *2/02*

U.S. Cl. 429—178 **12 Claims**



1. A battery housing for at least one cell comprising at least two electrically nonconductive housing sections joined together; first and second means for electrical terminating the housing operatively associated with said housing, said first means comprises a terminal member and conductive element, which conductive element is substantially the same length as the housing; and a conduit integrally formed from the two housing sections for electrically insulating the conductive element.

4,265,985

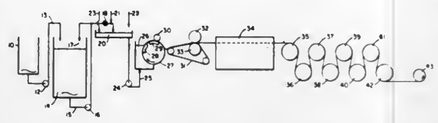
LEAD ACID BATTERY WITH SEPARATOR HAVING LONG FIBERS

Dennis D. O'Rell, Boxboro; Nigel I. Palmer, Lexington, both of Mass., and Vu H. Nguyen, Hightstown, N.J., assignors to W. R. Grace & Co., Cambridge, Mass.

Division of Ser. No. 935,280, Aug. 21, 1978, Pat. No. 4,216,281. This application May 23, 1980, Ser. No. 152,923

Int. Cl.³ H01M *4/56*

U.S. Cl. 429—225 **5 Claims**



1. A lead acid battery with a positive plate, a negative plate, a battery separator therebetween, and an electrolyte said battery separator comprised of about 30 to about 70 weight percent of a fiberous polyolefin synthetic pulp, about 15 to about 65 weight percent of a particulate siliceous filler having a particle size of about 0.01 to about 20 microns and about 1 to about 35 weight percent of long fiber having a length of at least about 0.25 inches and chosen from the group consisting of polyester paper making staple fibers having a denier of about 1.5 to about 12, acrylic paper making staple fibers having a denier of about 1.5 to about 12 and glass fibers having a diameter of about 1 to about 7 microns and mixtures thereof.

4,265,986

PHOTOPOLYMERIZABLE COMPOSITION CONTAINING CHLOROSULFONATED POLYETHYLENE

Deborah L. Allen, Waterbury; Milton Farber, Bethany, and John D. Skewis, Roxbury, all of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Filed Nov. 21, 1979, Ser. No. 96,608

Int. Cl.³ G03C *1/68*

U.S. Cl. 430—18 **39 Claims**

1. An elastomeric article suitable for printing comprising (A) chlorosulfonated polyethylene (B) between about 5 and 50 phr of a photopolymerized cross-linking agent derived from a photopolymerizable ethylenically unsaturated compound and (C) between about 0.1 and 5 phr of a photoinitiator activatable by actinic radiation.

4,265,987

LITHOGRAPHIC PRINTING PLATE AND METHOD FOR THE PREPARATION OF SAME

Terence M. Lawson, Aldgate, Australia, assignor to Coulter Systems Corporation, Bedford, Mass.

Continuation of Ser. No. 656,162, Feb. 9, 1976, abandoned. This application Sep. 11, 1978, Ser. No. 940,907

Claims priority, application Australia, Jan. 20, 1976, 10425/76

Int. Cl.³ G03G *13/26, 13/28*

U.S. Cl. 430—49 **36 Claims**

1. The method of preparing a lithographic printing plate containing ink receptive printing image areas and water receptive non-printing background areas wherein said plate consists of a substrate having on one side thereof in sequence an electrically conductive layer and a layer of photoconductive material selected from the group consisting of primarily cadmium sulfide, zinc sulfide and a mixture of zinc sulfide and cadmium sulfide, the photoconductive layer being fully crystalline, with the crystals all closely packed highly oriented, said photoconductive layer being deposited by r.f. sputtering under a negative bias and having a light transmissivity of at least 70 percent, which material is reactive with chromic ion in an aqueous acid

solution to form hydrophilic chromates, which method comprises the steps of

forming an electrostatic latent image on the surface of said photoconductive layer by firstly applying uniform electrostatic charges thereto and then exposing to a radiation pattern,

developing said electrostatic latent image by attraction thereto of electroscopic marking particles to define said ink receptive printing image areas on said surface, and

applying to said surface an aqueous chromic acid solution containing chromate ions and hydrogen ions in such concentration so that the chromate ions exceed the concentration required for the formation of chromates with the available metallic ion of the phtotoconductive layer to assure full conversion of said exposed material to the hydrophilic metal chromate whereby there is formed at least one water receptive yet substantially water insoluble chromium containing compound by reaction with at least part of said fully crystalline inorganic photoconductive substance contained in said photoconductive layer in areas free of said electroscopic marking particles to thereby form said water receptive non-printing background areas on said surface without conversion of that portion of said photoconductive surface below said electroscopic marking particles to the hydrophilic chromate.

4,265,988

SELF-STICKING ADHESIVE TAPE

Cornelis P. H. Kessels, Venlo, Netherlands, assignor to Oce-van der Grinten N.V., Venlo, Netherlands

Filed Feb. 21, 1979, Ser. No. 13,089

Claims priority, application Netherlands, Feb. 24, 1978, 7802073

Int. Cl.³ G03G *5/00*; B32B *5/16*

U.S. Cl. 430—56 **10 Claims**

1. A self-sticking adhesive tape, particularly suitable for joining ends of a belt at a side thereof presenting a photoconductive layer of zinc oxide in a binder, said tape consisting essentially of a polyester support film provided at one side thereof with a flexible layer consisting essentially of conductive particles in a polymeric binder and suffiently electrically conductive to prevent said layer from holding electrostatic charges, and at the other side with an adhesive layer having (a) an adhesive force of at least 200 Newton/meter and (b) a shear tolerance of not more than 1 mm, property (a) being determined at 80° C. after a strip of the tape having its adhesive layer adhered to such photoconductive layer has been preserved for 10 days, and property (b) being determined, after such strip has been so preserved, at a continued shear load of 2 Newton/cm² in an atmosphere at 45° C. and 30% relative humidity.

10. A photoconductive belt for an electrophotographic copying machine, comprising a flexible photoconductive belt having on its imaging side a photoconductive layer of zinc oxide dispersed in a binder and having ends of the belt joined together by a tape applied onto said layer, said tape being a self-sticking adhesive tape according to claims **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, or **9**.

4,265,989

PHOTOSENSITIVE MEMBER FOR ELECTROPHOTOGRAPHY

Kazuyoshi Tateishi; Yasushi Hoshino, both of Yokosuka, and Rikuo Takano, Zushi, all of Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

Filed May 9, 1979, Ser. No. 37,508

Claims priority, application Japan, May 22, 1978, 53/60017

Int. Cl.³ G03G *5/04*

U.S. Cl. 430—57 **2 Claims**

1. A photosensitive member for electrophotography comprising

(a) a first photoconductive layer which is uniformly charged and on which is focused a light image so as to form an electrostatic latent image,

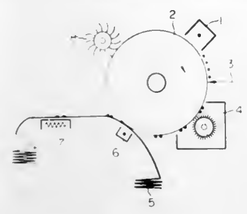
(b) a light amplification layer comprising

a first transparent electrode,

a field-effect light emitting layer,

a second photoconductive layer and

a second electrode laminated in the order named, and



(c) DC power supply means for impressing a voltage between said first and second electrodes, said first photoconductive layer being attached to said first transparent electrode of said light amplification layer,

whereby when a light image impinges upon said first photoconductive layer, the portion of said field-effect light emitting layer corresponding to said light image emits the light to said first photoconductive layer.

4,265,990

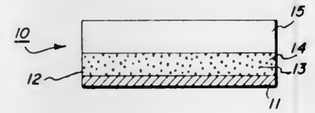
IMAGING SYSTEM WITH A DIAMINE CHARGE TRANSPORT MATERIAL IN A POLYCARBONATE RESIN

Milan Stolka; Damodar M. Pai, both of Fairport, and John F. Yanus, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

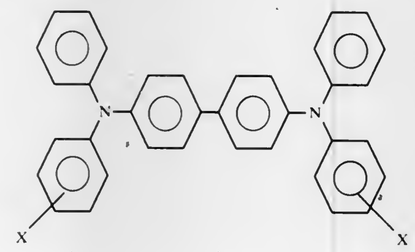
Continuation-in-part of Ser. No. 793,819, May 4, 1977, abandoned, which is a continuation-in-part of Ser. No. 716,403, Aug. 23, 1976, abandoned. This application Dec. 4, 1978, Ser. No. 965,969

Int. Cl.³ G03G *5/00, 5/04*

U.S. Cl. 430—59 **6 Claims**



1. An imaging member comprising a charge generation layer comprising a layer of photoconductive material and a contiguous charge transport layer of a polycarbonate resin material having a molecular weight of from about 20,000 to about 120,000 having dispersed therein from about 25 to about 75 percent by weight of one or more compounds having the general formula:



wherein X is selected from the group consisting of an alkyl

group, having from 1 to about 4 carbon atoms and chlorine, said photoconductive layer exhibiting the capability of photogeneration of holes and injection of said holes and said charge transport layer being substantially nonabsorbing in the spectral region at which the photoconductive layer generates and injects photogenerated holes but being capable of supporting the injection of photogenerated holes from said photoconductive layer and transporting said holes through said charge transport layer.

4,265,991

ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER AND PROCESS FOR PRODUCTION THEREOF

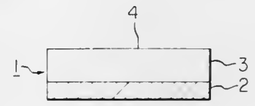
Yutaka Hirai, Tokyo; Toshiyuki Komatsu, Kawasaki; Katsumi Nakagawa, Tokyo; Teruo Misumi, Toride, and Tadaji Fukuda, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1978, Ser. No. 971,114

Claims priority, application Japan, Dec. 22, 1977, 52/154629; Jan. 23, 1978, 53/5958

Int. Cl.³ G03G *5/082*

U.S. Cl. 430—64 **20 Claims**



1. An electrophotographic photosensitive member comprising a substrate for electrophotography and a photoconductive layer, said photoconductive layer being formed of amorphous silicon by utilizing electric discharge, containing 10-40 atomic percent of hydrogen and being 5-80 microns in thickness, and said photoconductive layer having a high dark resistance and a high SN ratio for electrophotographic processing.

4,265,992

COATED MAGNETIC DEVELOPER PARTICLES FOR ELECTROPHOTOGRAPHY CONTAINING VINYL AND OLEFIN RESINS

Toshihiro Kouchi, Hirakata; Hiroshi Takayama, and Tatsuo Aizawa, both of Osaka, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Filed Jul. 31, 1978, Ser. No. 929,411

Claims priority, application Japan, Aug. 5, 1977, 52/93361

Int. Cl.³ G03G *9/14*

U.S. Cl. 430—107 **14 Claims**

1. A developer for electrophotography consisting essentially of a dry blend of fixing magneto-sensitive particles having a particle size of 5 to 50μ and flowability and electric resistance-controlling fine particles having particle size of up to 1 micron in an amount of 0.001 to 2 parts by weight per 100 parts by weight of said fixing magneto-sensitive particles, wherein said fixing magneto-sensitive particles are obtained by kneading a composition comprising (A) Fe_3O_4 or γ-Fe_2O_3, (B) carbon black, (C) a binder resin composed mainly of at least one resin selected from the group consisting of aromatic vinyl resins and acrylic resins and (D) a low-molecular-weight olefin resin at an (A):(B):(C):(D) mixing weight ratio of (20-80):(0.5-20):(-18-40):(0.5-30), cooling the kneaded composition and pulverizing the cooled composition and said flowability-and electric resistance-controlling fine particles are adhering to and held on the surfaces of said fixing magneto-sensitive particles substantially inseparably therefrom wherein said binder resin (C) is present in the fixing magneto-sensitive particles in the form of a continuous phase and said low-molecular-weight olefin resin (D) is present in the fixing magneto-sensitive particles in the form of a dispersed phase together with Fe_3O_4 or γ-Fe_2O_3 (A) and carbon black (B).

5. A developer for electrophotography consisting essentially of a dry blend of fixing magneto-sensitive particles having a particle size of 5 to 50μ and fine carbon black particles having a particle size of up to 1μ in an amount of 0.001 to 2 parts by weight per 100 parts by weight of said fixing magneto-sensitive particles, wherein said fixing magneto-sensitive particles are obtained by kneading a composition comprising (A) Fe_3O_4 or γ-Fe_2O_3, (B) carbon black, (C) a binder resin composed mainly of at least one resin selected from the group consisting of aromatic vinyl resins and acrylic resins and (D) an olefin resin having a weight average molecular weight of 1,000 to 10,000 and a softening point of 80° to 160° C. at an (A):(B):(C):(D) mixing weight ratio of (20-80):(0.5-20):(18-40):(0.5-30), cooling the kneaded composition and pulverizing the cooled composition and said fine particles are adhering to and held on the surfaces of said fixing magneto-sensitive particles substantially inseparably therefrom wherein said binder resin (C) is present in the fixing magneto-sensitive particles in the form of a continuous phase and said low-molecular-weight olefin resin (D) is present in the fixing magneto-sensitive particles in the form of a dispersed phase together with Fe_3O_4 or γ-Fe_2O_3 (A) and carbon black (B).

4,265,993

MAGNETIC TONER FOR ELECTROSTATIC IMAGES AND TRANSFER COPYING

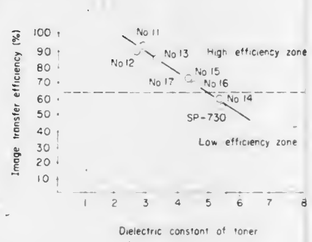
Tsuneaki Kawanishi; Akio Mukoh, and Hirosada Morishita, all of Hitachi, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Jun. 26, 1979, Ser. No. 52,442

Claims priority, application Japan, Jun. 28, 1978, 53-77445

Int. Cl.³ G03G *9/14*

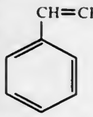
U.S. Cl. 430—107 **5 Claims**



1. A magnetic toner composition for the development of electrostatic latent images and for electrostatic transfer-copying comprising a magnetic powder and a resin, wherein said resinous component contains at least one monomer from each of monomer groups (1) to (3), wherein group (1) includes

$CH_2=CH$ (COOH) and $CH_2=C(CH_3)$ (COOH);

group (2) includes



and group (3) includes

$CH_2=CH$ ($COOR_1$) and $CH_2=C(CH_3)$ ($COOR_2$),

wherein R_1 is an alkyl radical containing from 1 to 12 carbon atoms, and R_2 is an alkyl radical containing from 2 to 12 carbon atoms, and further wherein said composition has a particulate diameter ranging between 3 and 30 μm, an electric resistivity

ranging from between 10^9 and 10^6 ohm-cm at 4000 volts/cm DC and a dielectric constant ranging between 2.6 and 5.

2. The magnetic toner of claim 1 wherein said resinous component contains 5 to 20% by mol of the monomer of group (1), 20 to 60% by mol of the monomer of group (2), and 20 to 75% by mol of said monomer of group (3).

4,265,994

PRESSURE FIXABLE CAPSULE TONER

Tetsuo Hasegawa, Tokyo; Shigeo Kato, Noda, and Takeshi Miyashita, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,671

Claims priority, application Japan, Jul. 18, 1978, 53/87328; Jul. 28, 1978, 53/92102; Jul. 28, 1978, 53/92103

Int. Cl.³ G03G *9/00*

U.S. Cl. 430—107 **12 Claims**

1. A pressure fixable capsule toner which comprises a core material containing a pressure fixable component and an outer shell layer of 0.1–8 microns containing at least 40% by weight of a cyclized rubber having a molecular weight from 5,000–20,000.

4,265,995

CARRIER CORE SURFACE TREATMENT

Joseph Mammino, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 22, 1979, Ser. No. 87,119

Int. Cl.³ G03G *9/00*

U.S. Cl. 430—107 **10 Claims**

1. An electrostatographic developer mixture comprising finely-divided, positively triboelectrically charging toner particles electrostatically clinging to the surface of negatively triboelectrically charging carrier particles having an average diameter of from between about 30 microns and about 1,000 microns, said toner particles comprising a thermoplastic resin and a colorant, and said carrier particles comprising a core particle treated with from between about 0.001 percent and about 1.0 percent by weight, based on the weight of said carrier particles, of at least one surface active additive selected from highly fluorinated surfactants having an ionic group, said ionic group being selected from a cationic, anionic, nonionic, and amphoteric group.

4,265,996

METHOD OF IMPROVING THE ELECTRICAL CONTACT BETWEEN THE INSULATING IMAGE CARRIER AND CONDUCTIVE SUPPORT IN ELECTROGRAPHIC RECORDING PROCESSES

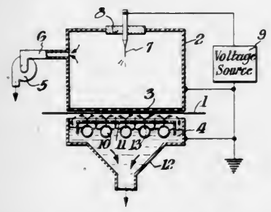
Walter Simm, Leverkusen, and Friedrich Bestenreiner, Gruenwald, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed May 31, 1977, Ser. No. 801,460

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1976, 2625395

Int. Cl.³ G03G *13/10*

U.S. Cl. 430—119 **5 Claims**



1. In a continuously operating electrographic recording and development process for producing in a development zone an electrostatic charge image on an image carrier consisting essentially of a highly insulating film and particles thereon the steps comprising

imposing a latent electrostatic charge image on one surface of a continuous strip of a highly insulating film

subsequently introducing said charged insulating film into an image developing step during which developing step said insulating film separates a first zone where developer fluid is in contact with the charged image side of the film from gaseous ions and a gas permeable electrically conductive grid positioned in a second zone on the opposite side of the film, in said first zone flowing a fluid developer comprised of a non-conductive fluid and charged pigment particles across said surface having the latent electrostatic charge image, and

developing a visible image on said surface by means of the particles

during a dwelling time of said film in said development step in said first zone in the range of 1 to 2 seconds

electrically contacting the opposite side of the film from the imaged surface against the gas permeable electrically conductive metal grid during the dwelling time and while flowing of the developer in contact with the imaged surface,

producing said gaseous ions by corona discharge adjacent to but removed from said conductive support and passing a portion of said gaseous ions through the metal grid and into direct contact with the surface of said opposite side of said film, said gaseous ions in direct contact with said opposite surface forming electric contact, said contact being dry and in the absence of a liquid,

the polarity of said ions being opposite to the sign of said charged pigment particles,

producing constant potential on said opposite side of the film by means of the metal grid and the gaseous ions,

whereby the visible image on the film imaged surface is defined.

4,265,997

AUTOMATIC TONER CONTROL

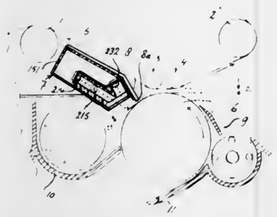
Piet M. J. Extra, Tegelen; Taco H. J. van den Honert, Venlo, and Jacobus J. van Lieshout, Grubbenvorst, all of Netherlands, assignors to Oce-Nederland B.V., Venlo, Netherlands

Filed Aug. 9, 1979, Ser. No. 65,323

Claims priority, application Netherlands, Aug. 14, 1978, 7808419

Int. Cl.³ G03G *15/08*

U.S. Cl. 430—122 **12 Claims**



1. In a process for developing electrostatic images on a moving support, in which a magnetically formed brush of a two-component developer powder on a moving surface is transported by said surface through a developing zone between said surface and said support, said powder being a mixture of toner particles and carrier particles, and the concentration of toner particles in the brush is measured for controlling the toner content of the mixture by optically sensing the reflectance of the brush to a light beam at a location just beyond the developing zone, the improvement which comprises shaping said brush to a substantially constant layer thickness on said surface as the brush is being transported from the developing zone toward said location so that periodic optical sensings of said reflectance will be effected at a substantially constant distance from the brush.

4,265,998

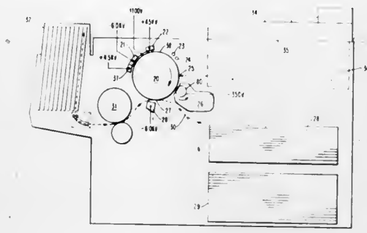
ELECTROPHOTOGRAPHIC PHOTORECEPTIVE BACKGROUND AREAS CLEANED BY BACKCHARGE PROCESS

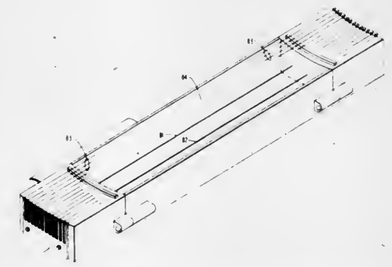
John A. Barkley, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,551

Int. Cl.³ G03G *13/22*

U.S. Cl. 430—125 **44 Claims**





1. In a one-cycle electrophotographic process of the transfer type, a method of cleaning residual toner particles from background areas of an image on a photoreceptive surface during production of multiple copies of the same subject while simultaneously developing the character areas of the image of said subject comprising the steps of:

charging said surface to a first level;

reducing said charge to a second level; and

applying developer material to said photoreceptive surface to develop the character areas of said image while removing residual toner from the background areas of said image.

14. A method of cleaning residual toner particles from the photoreceptive surface of a one-cycle electrophotographic copier machine of the transfer type without using a cleaning station separate from the developing station comprising the steps of:

transferring toner particles having a natural first triboelectric polarity from a developed image on said photoreceptive surface to image receiving material, said transferring of toner leaving residual untransferred toner particles on said surface;

subsequently bombarding said surface with ions of a second polarity;

then bombarding said surface with ions of the first polarity to reduce the charge on said surface to a desired level and to insure that the particles of untransferred toner have their natural triboelectric polarity; and

applying developer material at a developing/cleaning station to said photoreceptive surface to act upon at least a portion of said residual particles and remove them from said surface.

26. An electrophotographic copy process wherein a subject to be copied is imaged onto a photoreceptive surface, the copy process cycle comprising the steps of:

(1) charging the photoreceptive surface to a level higher than desired by bombarding the surface with ions of a first polarity;

(2) reducing the charge level on the photoreceptive surface to a desired level by bombarding the photoreceptive material with ions of a second polarity;

(3) exposing the photoreceptive material to a light image of said subject;

(4) developing said subject while simultaneously cleaning said photoreceptive surface of developing material remaining on said photoreceptive surface from a previous copy process cycle;

(5) transferring the developed image to a sheet of receiving material to produce a copy; and

(6) repeating steps 1–5 of said cycle to produce a subsequent copy without utilizing a separate cleaning cycle.

4,265,999

PROCESS FOR THE PREPARATION OF PLANOGRAPHIC PRINTING FORMS

Loni Schell, Hofheim-Wallau, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,559

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855393

Int. Cl.³ G03C *1/58*

U.S. Cl. 430—189 **5 Claims**

1. In the process for the preparation of planographic printing forms, in which a light-sensitive material composed of a support having a hydrophilic surface and of a light-sensitive layer, which contains a 1,2-naphthoquinone-diazide, is exposed imagewise, developed and then heated to a temperature above 180° C. for such a time and at such a temperature level that decomposition of the ink-carrying image parts takes place and an olephilic precipitate is formed on the hydrophilic image background, and the precipitate is then removed by treatment with an aqueous solution,

the improvement which comprises using an aqueous solution of about 0.01 to 50% by weight of polyvinyl phosphonic acid for the removal of the precipitate.

4,266,000

PHOTOSENSITIVE COPYING COMPOSITION

Paul Stahlhofen, Wiesbaden, and Fritz Erdmann, Mainz, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

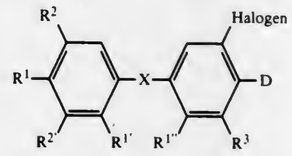
Filed Sep. 18, 1978, Ser. No. 943,193

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1977, 2742631

Int. Cl.³ C07C *113/02*; G03C *1/52*

U.S. Cl. 430—192 **9 Claims**

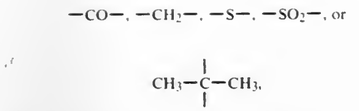
1. A photosensitive copying composition comprising a solvent and a naphthoquinone-(1,2)-diazide-sulfonic acid ester as the photosensitive compound, said naphthoquinone diazide sulfonic acid ester having the general formula I



(I)

wherein:

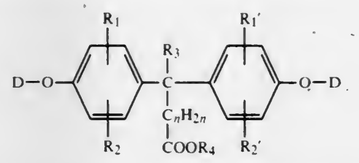
X is a single bond or one of the groups



R^1, $R^{1'}$, and $R^{1''}$ are the same or different and are H or D, R^2 and $R^{2'}$ are the same or different and are H or halogen, R^3 is halogen or D, and
D is a naphthoquinone-(1,2)-diazide-sulfonyloxy group.

4,266,001
LIGHT-SENSITIVE MIXTURE
Gerhard Buhr, Königstein, and Hans Ruckert, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Jun. 25, 1979, Ser. No. 51,908
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2828037
Int. Cl.³ G03C *1/54*; C07C *113/00*
U.S. Cl. 430—192 **18 Claims**

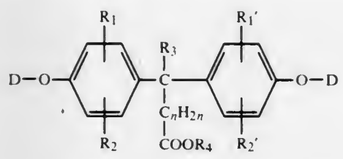
1. A light-sensitive mixture, containing a resinous binder, which is insoluble in water and soluble or swellable in aqueous-alkaline solutions, and a light-sensitive bis-1,2-naphthoquinone-2-diazide-sulfonic acid ester of a 4,4'-dihydroxy-diphenylmethane derivative corresponding to the formula I



(I)

in which R_1, R_1', R_2 and R_2' are identical or different and represent hydrogen, chlorine or bromine atoms, alkyl, alkoxy or alkoxyalkyl groups having 1 to 6 carbon atoms or alkenyl groups having 2 to 6 carbon atoms, R_3 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, R_4 represents a hydrogen atom, a substituted or unsubstituted alkyl group, the carbon chain of which can be interrupted by ether oxygen atoms, a substituted or unsubstituted cycloalkyl group having 5 to 16 carbon atoms or a substituted or unsubstituted alkenyl group having 2 to 16 carbon atoms, n represents zero or an integer from 1 to 4 and D represents a 1,2-naphthoquinone-2-diazide-sulfonyl group.

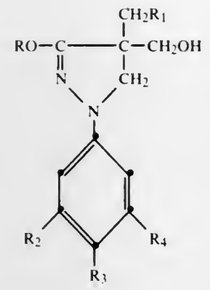
9. A light-sensitive compound having the formula



in which R_1, R_1', R_2, and R_2' are identical or different and represent hydrogen, chlorine or bromine atoms, alkyl, alkoxy or alkoxyalkyl groups having 1 to 6 carbon atoms or alkenyl groups having 2 to 6 carbon atoms, R_3 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, R_4 represents a hydrogen atom, a substituted or unsubstituted alkyl group, the carbon chain of which can be interrupted by ether oxygen atoms, a substituted or unsubstituted cycloalkyl group having 5 to 16 carbon atoms or a substituted or unsubstituted alkenyl group having 2 to 16 carbon atoms, n represents zero or an integer from 1 to 4 and D represents a 1,2-naphthoquinone-2-diazide-sulfonyl group.

4,266,002
SUBSTITUTED 1-PHENYL-3-PYRAZOLIDINONE ELECTRON TRANSFER AGENTS
Michael D. McCreary; William C. Farley, both of Rochester, and Wayne F. Erickson, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 948,063, Oct. 2, 1978. This application Oct. 1, 1979, Ser. No. 80,754
Int. Cl.³ G03C *1/40, 7/26*
U.S. Cl. 430—218 **3 Claims**

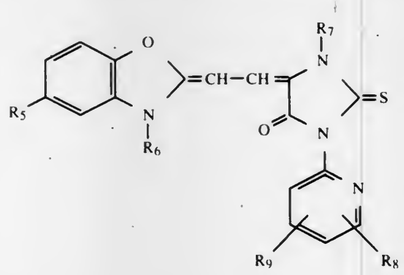
1. In a dye image-receiving element comprising a support having thereon a dye image-receiving layer, the improvement wherein said element contains a silver halide electron transfer agent precursor having the following formula:



wherein:
R is hydrolyzable moiety;
R_1 is hydrogen or a hydroxy group;
R_2, R_3 and R_4 each represent hydrogen, hydroxy, an alkyl group of 1 to 3 carbon atoms, an alkoxy group of 1 to 3 carbon atoms, a phenyl group, $-NHSO_2R_5$, $-O(CH_2)_nOR_6$, $-(CH_2)_nOR_6$, $-O(CH_2)_nC_6H_5$, $-(CH_2)_nR_7$ or $-O(CH_2)_nR_7$;
R_5 is hydrogen or an alkyl group of 1 to 3 carbon atoms;
R_6 is hydrogen or a methyl group;
R_7 is $NHSO_2R_5$ or SO_2NHR_5; and
n is a positive integer of 1 to 2;
with the proviso that at least one of said R_2, R_3 and R_4 must be one of said groups other than hydrogen.

4,266,003
SILVER HALIDE PHOTOGRAPHIC EMULSIONS
Tadashi Ikeda; Takeo Sakai; Haruo Takei, and Noriyuki Inoue, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Filed Sep. 25, 1979, Ser. No. 78,756
Claims priority, application Japan, Sep. 25, 1978, 53/117668
Int. Cl.³ G03C *1/10*
U.S. Cl. 430—264 **22 Claims**

6. A lithographic silver halide photographic material comprising a support having thereon a silver halide emulsion layer containing at least one compound represented by the formula (II):



(II)

wherein R_5 represents a hydrogen atom, a chlorine atom, a hydroxyl group, an alkylcarbonyloxy group having up to 3 carbon atoms, an unsubstituted alkyl group having up to 4 carbon atoms, or an unsubstituted alkoxy group having up to 4 carbon atoms; R_6 represents a sulfoalkyl group having 2 to 4 carbon atoms; R_7 represents a hydroxyalkoxyalkyl group having 2 to 6 carbon atoms, or a hydroxyalkyl group having 2 to 4 carbon atoms; R_8 represents a hydrogen atom, a chlorine atom, a methyl group, an ethyl group, a methoxy group, or an ethoxy group; and R_9 represents a hydrogen atom, a methyl group, or a methoxy group; and said emulsion layer and optionally an adjacent hydrophilic colloid layer contains a polyalkylene oxide compound.

4,266,004
PHOTOIMAGEABLE MATERIAL OF POLYMERIC MATERIAL HAVING ORGANIC SULFIDE AND PHOTO-OXIDATION SENSITIZER
Roland J. Kern, Chesterfield, Mo., assignor to Monsanto Company, St. Louis, Mo.
Continuation-in-part of Ser. No. 756,034, Dec. 30, 1976, abandoned. This application Jul. 26, 1978, Ser. No. 928,323
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—269 **41 Claims**

1. A photoimageable polymeric element comprising a body of polymeric material containing organic sulfide functionality and a photooxidation sensitizer, said sensitizer and said sulfide functionally being present in an amount sufficient so that upon exposure to irradiation in the presence of oxygen a developable latent image is produced in said polymeric material, said exposure being of an intensity insufficient to produce a latent image in the absence of said sulfide functionality.

4,266,005
PHOTOSENSITIVE ELASTOMERIC COMPOSITION
Shohei Nakamura, and Yoshiyuki Suenaga, both of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Sep. 28, 1979, Ser. No. 80,364
Claims priority, application Japan, Oct. 2, 1978, 53-121371
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—271 **13 Claims**

1. A photosensitive elastomeric composition consisting essentially of 30 to 98% by weight, based on the photosensitive elastomeric composition, of a component (a) comprising at least one thermoplastic elastomer having a number average molecular weight of 29,000 to 4,500,000 and selected from homopolymers of a conjugated diene monomer and copolymers of a conjugated diene monomer and a monoene monomer, 1 to 50% by weight, based on the photosensitive elastomeric composition, of a component (b) comprising at least one ethylenically unsaturated compound, 0.01 to 10% by weight, based on the photosensitive elastomeric composition, of a component (c) comprising at least one photopolymerization initiator, and 0.01 to 10% by weight, based on the photosensitive elastomeric composition, of a component (d) comprising at least one N-substituted maleimide compound selected from those maleimides wherein an N- or N,N'-substituent is a straight chain or branched alkyl group having 1 to 22 carbon atoms, a cycloalkyl group having a C_5-C_8 ring unsubstituted or substituted with 1 or 2 substituents selected from straight chain or branched alkyl groups having 1 to 6 carbon atoms, a phenyl or naphthyl group unsubstituted or substituted with 1 or 2 substituents selected from straight chain or branched alkyl groups having 1 to 6 carbon atoms and halogen atoms, an aralkyl group having a straight chain or branched C_1-C_6 alkyl moiety and a phenyl moiety unsubstituted or substituted with 1 or 2 substituents selected from straight chain or branched alkyl groups having 1 to 6 carbon atoms and halogen atoms, a straight chain or branched alkylene group having 1 to 12 carbon atoms, a phenylene group, a biphenylene group, a 1,6-hexamethylenebiphenylene group, a methylenebiphenylene group or a 2,2-diphenylenepropane group.

4,266,006
PROCESS FOR THE MANUFACTURE OF IMAGED ARTICLES
Fritz Uhlig, and Kurt A. Wehlmnn, both of Wiesbaden, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Continuation of Ser. No. 728,142, Sep. 30, 1976, abandoned. This application Nov. 16, 1978, Ser. No. 961,439
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1975, 2543820
Int. Cl.³ G03C *5/00*; C08F *8/00, 2/46*; B05D *3/06*
U.S. Cl. 430—300 **7 Claims**

1. A process for the manufacture of an imaged article which comprises:
(a) imagewise irradiating with laser light a material comprising a carrier having on a surface thereof a layer consisting essentially of at least one polymeric material insensitive to non-coherent light, said layer being water-insoluble and insensitive to low intensity light in the visible, near ultraviolet and near infrared spectral region, and said laser having a minimum power sufficient to form an image in said layer, and
(b) removing non-irradiated areas of said layer by treating the layer with a developer in which said non-irradiated areas are soluble but in which irradiated areas are insoluble due to modification of said non-photosensitive material by the laser light.

4,266,007
MULTILAYER PRINTING PLATES AND PROCESS FOR MAKING SAME
Norman E. Hughes, Landenberg, Pa., and Bernard J. Scheve, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.
Continuation-in-part of Ser. No. 917,999, Jun. 22, 1978, abandoned. This application Aug. 22, 1979, Ser. No. 68,833
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—306 **7 Claims**

1. The process of making a printing plate which comprises exposing to actinic light, through a photographic negative, a photopolymerizable element comprising: a printing layer of a liquid photopolymerizable composition comprising at least one addition polymerizable compound having a normal boiling point above about 100° C., a molecular weight of less than about 1500 and at least one ethylenically unsaturated group capable of forming a high polymer by photoinitiated polymerization; at least one unsaturated polymeric material which is soluble in said addition polymerizable compound; at least one polymerization inhibitor; and a photoinitiator; and a base layer of a different liquid photopolymerizable composition comprising at least one addition polymerizable compound having a normal boiling point above about 100° C., a molecular weight of less than about 1500 and at least one ethylenically unsaturated group capable of forming a high polymer by photoinitiated polymerization; at least one unsaturated polymeric material which is soluble in said addition polymerizable compound; at least one polymerization inhibitor; and an amount of photoinitiator greater than that in said printing layer such that said base layer has a photopolymerization rate about 1.5 to about 250 times that of said printing layer, said printing layer and base layer compositions having differing crosslinkability such that, upon exposure, the layers have moduli differing by at least about 50 p.s.i.; and removing unpolymerized portions of said layers.

4,266,008

METHOD FOR ETCHING THIN FILMS OF NIOBIUM AND NIOBIUM-CONTAINING COMPOUNDS FOR PREPARING SUPERCONDUCTIVE CIRCUITS

Robert T. Kampwirth, Darien; Ivan K. Schuller, and Charles M. Falco, both of Woodridge, all of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 23, 1979, Ser. No. 96,859

Int. Cl.³ H01L *39/02*

U.S. Cl. 430—318 **5 Claims**

1. A method of preparing a thin film superconducting circuit of niobium or niobium compound comprising:

applying a thin layer of a superconductive niobium or niobium compound to a non-conductive substrate to form a superconductive film;

applying a masking layer of photo-sensitive material on the surface of the superconductive film;

applying a circuit pattern to the masking layer surface of the photo-sensitive material;

exposing and developing the photo-sensitive material to form a circuit pattern of photoresistive material on the surface of the superconductive film;

contacting the film with an aqueous etchant of 8 to 10 w/o HNO_3, 11 to 13 w/o H_2SO_4 and 12 to 13 w/o HF for a period of time sufficient to remove the unmasked superconductive film from the substrate; and

removing the photoresistive material from the surface of the superconductive film, thereby forming a thick film superconducting circuit on a non-conductive substrate.

4,266,009

IMAGING MATERIAL AND METHOD OF PRODUCING IMAGE THEREON

Takeshi Ueda, Fuji; Kiichiro Sasaguri, Tokyo, and Hidehiko Kobayashi, Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Nov. 2, 1978, Ser. No. 957,378

Claims priority, application Japan, Nov. 4, 1977, 52/131456; Nov. 7, 1977, 52/132525

Int. Cl.³ G03C *5/04, 5/24, 1/76*

U.S. Cl. 430—346 **14 Claims**

1. An imaging material comprising a substrate; a lead layer formed on the substrate and having a substantially dome shaped grain structure, said lead layer consisting of lead, or at least 20% by weight of lead and a member selected from the group consisting of bismuth, indium, aluminum, tin, zinc, antimony, cadmium and combinations thereof; and an inorganic stabilizing layer formed on the lead layer and consisting of a member selected from the group consisting of indium, germanium, antimony, tin and combinations thereof, or at least 80% by weight of a member selected from the group consisting of indium, germanium, antimony, tin and combinations thereof and a member selected from the group consisting of lead, bismuth, aluminum, zinc, cadmium and combinations thereof.

11. A method of producing an image by a dry process, which method comprises the step of providing an imaging material comprising a substrate; a lead layer formed on the substrate and having a substantially dome shaped grain structure, said lead layer consisting of lead or at least 20% by weight of lead and a member selected from the group consisting of bismuth, indiu, aluminum, tin, zinc, antimony, cadmium and combinations thereof; and an inorganic stabilizing layer formed on the lead layer and consisting of a member selected from the group consisting of indium, germanium, antimony, tin and combinations thereof, or at least 80% by weight of a member sel selected from the group consisting of indium, germanium, antimony, tin and combinations thereof and a member selected from the group consisting of lead, bismuth, aluminum, zinc, cadmium and combinations thereof, and the step of applying to said imaging material energy in an amount sufficient to increase the absorbed energy in the lead layer or the lead layer and the inorganic stabilizing layer above a certain critical threshold value to decrease the optical density at the areas where subjected to said applied energy.

4,266,010

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Shigeru Nagatomo, and Kiyotaka Hori, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 592,293, Jul. 1, 1975, abandoned. This application Mar. 30, 1979, Ser. No. 26,137

Claims priority, application Japan, Jul. 1, 1974, 49-75516

The portion of the term of this patent subsequent to May 3, 1994, has been disclaimed.

Int. Cl.³ G03C *5/26, 1/78*

U.S. Cl. 430—355 **10 Claims**

1. A silver halide photographic light-sensitive material containing at least one photographic layer containing silver halide and an uppermost layer containing as a binder acid-processed gelatin and polymethylmethacrylate as a matting agent which is powdered and which has average particle sizes of about 0.2 to 10μ.

4,266,011

PROCESS FOR THE PRODUCTION OF COLORED PHOTOGRAPHIC IMAGES BY THE SILVER DYE-BLEACH PROCESS

Gerald Jan, Marly, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

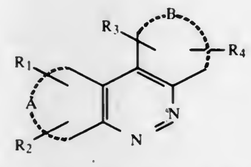
Filed Sep. 20, 1979, Ser. No. 77,461

Claims priority, application Switzerland, Sep. 29, 1978, 10196/78

Int. Cl.³ G03C *7/00*

U.S. Cl. 430—392 **20 Claims**

1. A process for the production of coloured photographic images by the silver dye-bleach process by imagewise exposure and subsequent processing by developing the silver image, dye-bleaching and silver bleaching, optionally the last two steps can be combined, silver fixing and washing, which comprises carrying out dye-bleaching and/or silver bleaching in the presence of at least one bleach catalyst of the formula



in which A and B are in each case the non-metallic atoms necessary to complete a benzene or pyridine ring, R_1 and R_3 are each hydrogen, hydroxyl, halogen, alkyl or alkoxy, each having 1 to 4 carbon atoms, carboxyl, carbalkoxy or carbalkoxyalkoxy each having 1 to 4 carbon atoms per alkoxy moiety, $-CH_2OH$, $-O(CH_2)_nOH$, $-O(CH_2)_2O(CH_2)_2OH$, $-CH_2Cl$, $-CH_2Br$, $-NR_5R_6$, $-CH_2NR_5R_6$, $-O(CH_2)_nNR_5R_6$, $-CH_2SO_3M$, $-O(CH_2)_nSO_3M$ or $-SO_3M$, R_2 and R_4 are each hydrogen, hydroxyl or alkyl or alkoxy, each having 1 to 4 carbon atoms, and R_5 and R_6 are each hydrogen or alkyl having 1 to 4 carbon atoms, M is hydrogen, an alkali metal, ammonium or alkyl-ammonium having 1 to 4 carbon atoms per alkyl radical and n is an integer from 2 to 4.

4,266,012

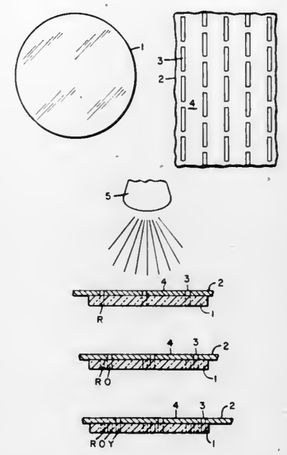
COLOR PHOTOGRAPHIC PROCESS UTILIZING POLYCHROMATIC GLASS

Stanley D. Stookey, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Oct. 5, 1979, Ser. No. 82,143

Int. Cl.³ G03C *5/04*

U.S. Cl. 430—396 **43 Claims**



1. In the screen-plate color photographic process wherein the camera exposure is made through a screen consisting of a patterned mosaic array of red, green, and blue filters applied as coatings onto the surface of a glass plate, said screen being placed into contact with a panchromatic film of the type utilized in black-and-white photography, and after exposure the film is developed to provide a positive image, the improvement comprising utilizing as said glass plate a glass body suitable as said glass plate or a glass body suitable for attachment to said glass plate to form a composite unit, said glass body having a thickness of 0.01–1.5 mm and having within its surface an integral, patterned, uniform micromosaic array of polycolor elements consisting of 3–8 subelement color filters, said patterned array being so designed that all the space will be filled with colors or the presence of colorless portions will be strictly limited to controlled areas, the size of said polycolor elements not exceeding about 0.020", said glass plate being prepared by the following steps:

(a) forming said glass body suitable as said glass plate or said glass body suitable for attachment to said glass plate to form a composite unit from a composition consisting essentially, in weight percent on the oxide basis as calculated from the batch, of about 10–20% Na_2O, 0.0005–0.3% Ag, 1–4% F, an amount of at least one halide selected from the group of Cl, Br, and I at least sufficient to react stoichiometrically with the Ag, but not more than 3%, and the remainder SiO_2;

(b) exposing said glass body to high energy or actinic radiation for a period of time sufficient to produce a latent image therein capable of being developed into said integral, patterned, uniform micromosaic array of polycolor elements utilizing a method selected from the group consisting of:

(1) a single exposure through a patterned, continuous tone, black-and-white photographic negative, the pattern having 3–8 different optical densities;

(2) 3–8 exposures through appropriately patterned screens or stencils;

(3) a scanning exposure to a focused beam or a laser beam of ultraviolet radiation;

(c) heating at least said exposed portions of said glass body to a temperature between the transformation range of the glass and the softening point thereof for a sufficient length of time to cause nucleation and growth of microcrystals os alkali metal fluoride containing at least one silver halide selected from the group of silver chloride, silver bromide, and silver iodide in the areas of said latent image;

(d) subjecting at least said previously-exposed portions of said glass body to high energy or actinic radiation while at least said portions are at a temperature between about 200°–410° C. for a sufficient length of time to cause metallic silver to be deposited as discrete colloidal particles less than about 200 A in the smallest dimension, and/or deposited upon the surface of said microcrystals, the silver-coated part of the microcrystal being less than about 200 A in the smallest dimension, and/or deposited within said microcrystals, the silver-containing part of said microcrystal being less than 200 A in the smallest dimension, said microcrystals having a concentration of at least 0.005% by volume and causing the desired integral coloration; and then

(e) cooling said glass body to ambient temperature.

4,266,013

DIRECT POSITIVE SILVER HALIDE LIGHT-SENSITIVE MATERIAL AND METHOD OF FORMING DIRECT POSITIVE IMAGE

Keiichi Adachi; Shigeo Hirano, and Nobuyuki Tsujino, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara, Japan

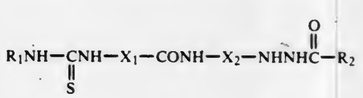
Filed Nov. 17, 1978, Ser. No. 961,827

Claims priority, application Japan, Nov. 28, 1977, 52/142469

Int. Cl.³ G03C *1/36*

U.S. Cl. 430—410 **16 Claims**

1. A direct positive silver halide photographic light-sensitive material comprising a support having coated thereon an internal latent image type light-sensitive photographic emulsion layer that contains a light-sensitive silver halide of the type which is not previously fogged, and a hydrophilic colloid layer adjacent to said emulsion layer, at least one of said layers containing a compound represented by the formula (I) and present in an amount to give a suitable maximum density when said material is developed by a surface developing solution:



$$R_1NH-\underset{\underset{S}{\|}}{C}NH-X_1-CONH-X_2-NHNH\overset{\overset{O}{\|}}{C}-R_2 \quad (I)$$

wherein R_1 represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted phenyl group or a substituted or unsubstituted naphthyl group; R_2 represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted phenyl group or a substituted or unsubstituted naphthyl group; and X_1, and X_2, which are the same or different, each represents a substituted or unsubstituted phenylene group or a substituted or unsubstituted naphthylene group.

4,266,014

PHOTOGRAPHIC MATERIALS CONTAINING LIGHT ABSORBING METHINE DYES

Felix J. Moelants, Wilrijk, and Henri Depoorter, Mortsel, both of Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium

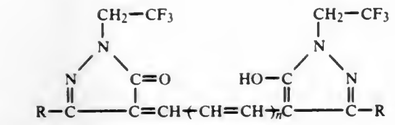
Filed Feb. 15, 1980, Ser. No. 121,736

Claims priority, application United Kingdom, Mar. 2, 1979, 7440/79

Int. Cl.³ G03C *1/84*

U.S. Cl. 430—522 **6 Claims**

1. A light-sensitive photographic material containing a light-absorbing dye corresponding to the following general formula:



wherein:

R represents a C_1-C_5 alkyl group, an aryl group or a substituted aryl group, an alkoxycarbonyl group, a carboxy group, or a carbamoyl group, and

n is 0, 1, or 2 and a silver halide emulsion.

4,266,015

LIGHT SENSITIVE MATERIALS WITH FLUORINATED POLYMER ANTISTATS

Louis Butler, Harlow, and Paul H. Ogden, Southport, both of England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 13, 1977, Ser. No. 832,945

Int. Cl.³ G03C *1/78*

U.S. Cl. 430—527 **11 Claims**

1. A light sensitive material which includes a support, at least one layer of a photographic silver halide emulsion on at least one face of the support, and (1) as an outer layer over said layer of emulsion on at least one face of the support, a top coat comprising at least 2% by weight of (1) a fluorine-containing homopolymer or (2) a fluorine-containing copolymer with ethylenically unsaturated comonomers which has been derived from at least 2% by weight of reactants of a fluorine-substituted alkyl ester of an ethylenically unsaturated carboxylic acid wherein there are no more than one H or Cl per two carbon atoms on the fluorinated alkyl group and no more than one skeletal O or N per two carbon atoms on the fluorinated alkyl group or (2) said fluorine-containing polymer being present in at least one emulsion layer on at least one face of the support or in another layer intermediate the top coat and at least one face of the support.

4,266,016

ANTISTATIC LAYER FOR SILVER HALIDE PHOTOGRAPHIC MATERIALS

Sukeaki Date, and Seigo Ebato, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Aug. 27, 1979, Ser. No. 69,864

Claims priority, application Japan, Aug. 25, 1978, 53/103660; Jan. 20, 1979, 54/5688

Int. Cl.³ G03C *1/78, 1/96*

U.S. Cl. 430—527 **18 Claims**

1. In a silver halide photographic material which comprises a support having hydrophobic surface and at least one silver halide emulsion layer thereon, the improvement comprising an antistatic layer which comprises (a) a styrene-maleic anhydride copolymer, (b) colloidal silica and (c) at least one compound selected from the group consisting of compounds having at least 2 ethyleneimino groups in a molecule and compounds having at least 2 epoxy rings in a molecule and which has a pH value of at least about 5, said antistatic layer being provided on one or both surfaces of the support.

4,266,017

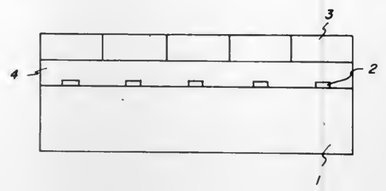
COLOR IMAGING DEVICES HAVING INTEGRAL COLOR FILTER ARRAYS

Thomas W. Martin, Rochester, and M. Akram Sandhu, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 884,514, Mar. 8, 1978, Pat. No. 4,196,009. This application Sep. 4, 1979, Ser. No. 71,962

Int. Cl.³ G03C *1/76, 1/92;* **H01J** *31/00;* **H04N** *9/04*

U.S. Cl. 430—533 **3 Claims**



1. An imaging element comprising a planar array of charge-handling semiconductive photosensors having coated thereon an adhesive polymeric layer comprising a polyester selected from the group consisting of:

(1) polyesters having recurring carboxylate units of which at least 80 mole percent are terephthalate units, and recurring alkylene units derived from glycols of which at least 40 mole percent are ether alkylene units, with the proviso that either (a) the recurring alkylene units comprise at least 60 mole percent ether alkylene units or (b) either the recurring carboxylate units comprise at least 2 mole percent pyromelliticetracarboxylate units or at least 10 mole percent of linear aliphatic dicarboxylate units having at least 8 carbon atoms, and that when at least 10 mole percent of the carboxylate units are said linear aliphatic dicarboxylate units, the total of the mole percent of lower aliphatic dicarboxylate units of the recurring carboxylate units plus the mole percent of ether alkylene units of the recurring alkylene units is at least 60 and

(2) polyesters having recurring alkylene units and recurring carboxylate units wherein at least 30 mole percent of the carboxylate units are alicyclic dicarboxylate units and wherein the remaining carboxylate units are nonlinear aromatic dicarboxylate units.

4,266,018

SILVER HALIDE PHOTOGRAPHIC EMULSIONS

Shoji Ishiguro; Tadao Shishido; Takeo Sakai; Noboru Sasaki, all of Minami-ashigara; Joji Nagaoka, Tokyo, and Minoru Matsuki, Asaka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

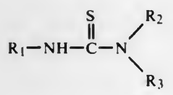
Filed Sep. 25, 1979, Ser. No. 78,622

Claims priority, application Japan, Sep. 25, 1978, 53-117669

Int. Cl.³ G03C *1/28, 1/34*

U.S. Cl. 430—550 **22 Claims**

1. A silver halide photographic emulsion containing the compound represented by the formula:



wherein R_1 represents a 5-membered or 6-membered heterocyclic residue containing a nitrogen atom selected from the group consisting of a pyrroline ring, a pyridine ring, a quinoline ring, an indole ring, an oxazole ring, a benzoxazole ring, a naphthoxazole ring, an imidazole ring, a benzimidazole ring, a thiazoline ring, a thiazole ring, a benzothiazole ring, a naphthothiazole ring, a selenazole ring, a benzoselenazole ring and a naphthoselenazole ring; R_2 represents a hydrogen atom, a lower alkyl group, an allyl group, an aryl group, or an aralkyl group; and R_3 has the same meaning as R_1 or R_2; or R_2 and R_3 may combine to form a heterocyclic ring, wherein the amount of said compound is a sensitizing and antifogging amount within the range from 5×10^{-6} mol to 1×10^{-3} mol per mol of silver halide in the silver halide photographic emulsion.

4,266,019

SILVER HALIDE PHOTOGRAPHIC MATERIAL CONTAINING YELLOW COUPLER

Hidetoshi Kobayashi; Mitsugu Tanaka, both of Minami-ashigara; Kozo Inouye, Odawara, and Hideki Naito, Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

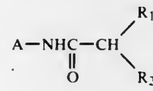
Filed Sep. 13, 1979, Ser. No. 74,945

Claims priority, application Japan, Sep. 13, 1978, 53/112618

Int. Cl.³ G03C *1/40*

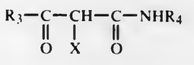
U.S. Cl. 430—551 **7 Claims**

1. A silver halide color photographic material containing a yellow coupler represented by following general formula (I);



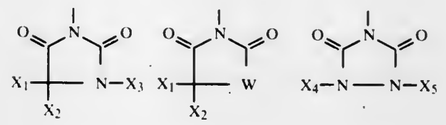
(I)

wherein A represents a yellow coupler from which one hydrogen atom bound to a carbon atom other than at a coupling active site is removed having the formula (II);

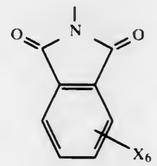


(II)

wherein R_3 represents an aliphatic group, an aromatic group or a heterocyclic ring, R_4 represents an aromatic group or a heterocyclic ring, wherein X is represented by the formulae (VI)–(IX);



(VI) (VII) (VIII)



(XI)

wherein X_1 and X_2 each represents a hydrogen atom, an alkyl group, an aryl group, an alkoxy group, an aryloxy group, or a hydroxy group, X_3, X_4 and X_5 each represents a hydrogen atom, an alkyl group, an aryl group, an aralkyl group or an acyl group, W represents an oxygen atom or a sulfur atom and X_6 represents a monovalent substituent, and R_1 and R_2 each represents a straight chain or branched alkyl group containing 2 to 16 carbon atoms, with the sum of the carbon atoms contained in R_1 and R_2 being 10 to 20.

7. The color photographic material of claim 6, wherein said silver halide emulsion layer or an adjacent layer contains a p-substituted phenol derivative.

4,266,020

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Nobuo Sakai; Kotaro Nakamura; Masakazu Morigaki, and Nobuo Furutachi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

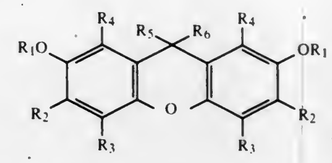
Filed Oct. 4, 1979, Ser. No. 81,986

Claims priority, application Japan, Oct. 5, 1978, 53-12307

Int. Cl.³ 430 *216;* **G03C** *1/40, 7/00*

U.S. Cl. 430—551 **20 Claims**

1. A color photographic color coupler-containing silver halide light-sensitive material containing, in a photographic layer, at least one compound represented by the following general formula (I):



(I)

wherein R_1 represents a hydrogen atom, an alkyl group, a heterocyclic group, a dialkylsilyl group, a trialkylsilyl group, an alkanesulfonyl group, an arylsulfonyl group, an aralkanesulfonyl group or an -X-Y group in which X represents a carbonyl group, and Y represents an alkyl group, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group, an aralkoxy group, an alkylamino group, a dialkylamino group, an arylamino or diarylamino group, an alkoxycarbonyl group, an aryloxycarbonyl group, an aralkoxycarbonyl group or an acyl group; R_2, R_3 and R_4, which may be the same or different, each represents a hydrogen atom, an alkyl group, an alkoxy group, an aryl group, an aryloxy group, an aralkyl group, an aralkoxy group, an alkenyl group, an alkenoxy group, an acylamino group, a halogen atom, an alkylthio group, an arylthio group, a diacylamino group, an acyl group, a sulfonamido group, an alkylamino group, an alkoxycarbonyl group or an acyloxy group; and R_5 and R_6, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group or an aralkyl group, or R_5 and R_6 are bonded each other to form a 5-membered, 6-membered or 7-membered ring.

4,266,021

METHOD AND APPARATUS FOR THE MEASUREMENT OF THE CONCENTRATION OF A COMPOUND IN A LIQUID MEDIUM

Ulf T. G. Nylen; Lars-Göran Olsson; Bengt G. Paulsson; Lars A. G. Qvarnström, all of Lund, and Rolf H. L. Wichers, Södra Sandby, all of Sweden, assignors to Gambro AB, Sweden

Filed Dec. 11, 1978, Ser. No. 968,202

Claims priority, application Sweden, Dec. 16, 1977, 7714335

Int. Cl.³ C12M *1/34;* **C12Q** *1/54;* **G01N** *31/14*

U.S. Cl. 435—14 **44 Claims**

1. A method of measuring the concentration of a compound in a liquid medium comprising the steps of:

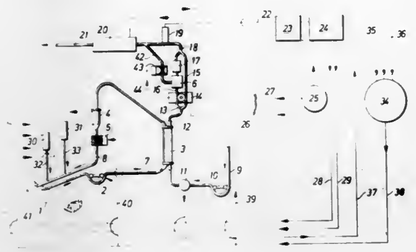
providing a reaction chamber which contains enzymes for promoting the conversion of said compound whose concentration is to be measured into a converted reaction product when said liquid medium containing said compound whose concentration is to be measured is conducted therethrough, said reaction chamber having an inlet and an outlet, and said inlet being at an elevation above said outlet;

arranging a venting device at an elevation above said inlet of said reaction chamber and in fluid communication with said inlet of said reaction chamber, said venting device including a gas permeable membrane having pores to

allow gaseous bubbles to pass therethrough, said membrane being substantially impervious to the flow of liquid therethrough;

conducting said liquid medium containing said compound whose concentration is to be measured through said venting device in contact with said gas permeable membrane for venting of gaseous bubbles through said gas permeable membrane so as to provide a liquid medium with gaseous bubbles removed therefrom;

conducting said liquid medium with said gaseous bubbles removed therefrom from said venting device to said inlet of said reaction chamber;



conducting said liquid medium with said gaseous bubbles removed therefrom from said inlet of said reaction chamber to said outlet of said reaction chamber to thereby promote conversion of said compound whose concentration is to be measured into a converted reaction product and provide a processed liquid medium; and

then conducting said processed liquid medium from said outlet of said reaction chamber to a measuring unit for measuring the concentration of said converted reaction product in said processed liquid medium, the concentration of said converted reaction product being representative of the concentration of said compound in said liquid medium.

4,266,022

PROCESS FOR THE DETERMINATION OF AT LEAST ONE OF THE ISO-ENZYMES OF LACTATEDEHYDROGENASE

Walther Lamprecht, Isernhagen FB, Fed. Rep. of Germany, assignor to Kommanditgesellschaft Schwarzhaupt, Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 723,649, Sep. 15, 1976, abandoned, which is a division of Ser. No. 612,633, Sep. 12, 1975, Pat. No. 4,003,797. This application Jul. 10, 1978, Ser. No. 923,641

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1974, 2443741

The portion of the term of this patent subsequent to Jan. 18, 1994, has been disclaimed.

Int. Cl.³ C12Q *1/32*

U.S. Cl. 435—26 **11 Claims**

1. In a test reagent for the determination of at least one of the isoenzymes of lactate dehydrogenase by means of the conversion of lactate and nicotinamide-adeninedinucleotide to pyruvate by a reduction reaction comprising (a) a lactate, (b) nicotinamide-adeninedinucleotide, (c) a tetrazolium salt for rendering visible the enzymatic NAD reduction reaction mixture and (d) a buffer the improvement comprising a buffer in an amount sufficient to ensure that the test mixture composed of test reagent and sample in which the determination will take place has a pH value of 6–6.5.

4,266,023

GLYCEROL OXIDASE AND PROCESS FOR THE PRODUCTION THEREOF AND METHOD FOR THE QUANTITATIVE DETERMINATION OF GLYCEROL BY GLYCEROL OXIDASE

Osamu Terada; Takayuki Uwajima; Akira Mihara; Kazuo Aisaka, all of Machida; Hiroko Akita, Yokohama; Toshiaki Nagai, and Yoshiaki Shimizu, both of Shizuoka, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Division of Ser. No. 897,695, Apr. 19, 1978, Pat. No. 4,202,941. This application Nov. 19, 1979, Ser. No. 95,517

Claims priority, application Japan, Apr. 19, 1977, 52-44146

Int. Cl.³ C12Q *1/28, 1/26*

U.S. Cl. 435—28 **4 Claims**

1. A method for the quantitative determination of glycerol in solution which comprises reacting glycerol oxidase, an enzyme having the ability to oxidize glycerol in the presence of oxygen to form hydrogen peroxide and gylceraldehyde, with the glycerol in the presence of oxygen and measuring the amount of oxygen consumed, or the amount of hydrogen peroxide or glyceraldehyde formed in an aqueous medium by the action of said glycerol oxidase, said amount being an indication of the concentration of glycerol in said solution.

4,266,024

PROCESS FOR THE PRODUCTION OF HUMAN INTERFERON

Peter Swetly; Günther R. Adolf; Gerhard Bodo, all of Vienna; Silvia J. Lindner-Frimmel, Perchtoldsdorf; Peter Meindl, and Hans Tuppy, both of Vienna, all of Austria, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Filed May 14, 1979, Ser. No. 38,787

Claims priority, application Fed. Rep. of Germany, May 17, 1978, 2821466; Feb. 17, 1979, 2906160

Int. Cl.³ C12P *21/00*

U.S. Cl. 435—68 **6 Claims**

1. A process for the preparation of human interferon, which comprises the steps of (1) adding to a permanent cell line of lymphoid origin a stimulator substance selected from the group consisting of N,N′-diacetylated alkylene-α,ω-diamines of 4 to 8 carbon atoms in the alkylene moiety, dimethylsulfoxide, 11 β-substituted glucocorticoids where the substituent is halogen, hydroxyl or hydroxymethyl, and mixtures thereof; (2) at least 12 hours thereafter incubating the resulting mixture with a viral interferon inducer; and (3) recovering the interferon produced thereby.

4,266,025

PRODUCTION OF N-SUBSTITUTED DERIVATIVES OF 1-DESOXY-NOJIRIMYCIN

Günther Kinast, and Michael Schedel, both of Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

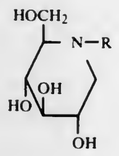
Filed Nov. 23, 1979, Ser. No. 97,099

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853573

Int. Cl.³ C12P *19/26, 17/12*

U.S. Cl. 435—84 **6 Claims**

1. A process for the production of a compound of the formula

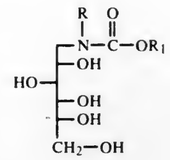


(I)

in which

R denotes a hydrogen atom or an optionally substituted

alkyl, alkenyl, aralkyl or aryl group, which comprises reacting microbiologically a compound of the general formula



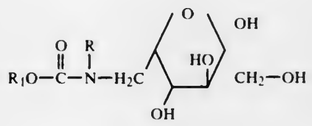
(X)

in which

R has the above-mentioned meaning and

R_1 denotes an optionally substituted benzyl radical or an optionally substituted β-alkenyl group,

an aerobic microorganism or an extract of aerobic microorganism capable, in a nutrient medium containing a compound of formula (X), of accumulating an amount of a compound of the formula



(XI)

in which

R and R_1 have the above-mentioned meanings and subjecting the resulting compound of general formula (XI) to catalytic hydrogenation.

4,266,026

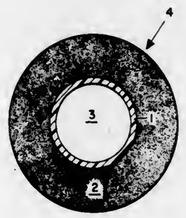
CATALYTIC PROCESS UTILIZING HOLLOW FIBER MEMBRANES

Barry R. Breslau, Acton, Mass., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 601,959, Aug. 4, 1975, abandoned. This application Mar. 10, 1977, Ser. No. 776,339

Int. Cl.³ C07G *7/02;* **B01D** *13/00*

U.S. Cl. 435—99 **9 Claims**



1. A process for performing catalytic reactions utilizing an anisotropic hollow fiber membrane having a central opening or lumen radially surrounded by a continuous microporous skin layer serving as the active membrane and an outside macroporous sponge layer contiguous with the skin and serving to support the same, which comprises:

(a) backflushing under hydraulic pressure a solution or dispersion containing catalyst molecules from the outside of the fiber membrane to the inside lumen to effect disposition of the catalyst molecules on the macroporous sponge layer, said catalyst molecules being selected from those too large to permeate the microporous openings in the skin layer;

(b) applying hydraulic pressure to a solution containing a reactant substrate capable of undergoing reaction in the presence of the catalyst to force intimate contact between the reactant and the catalyst deposited in the sponge layer to form a product; and

(c) removing under hydraulic pressure any unreacted reactant and the product from the sponge layer and recovering the same.

4,266,027

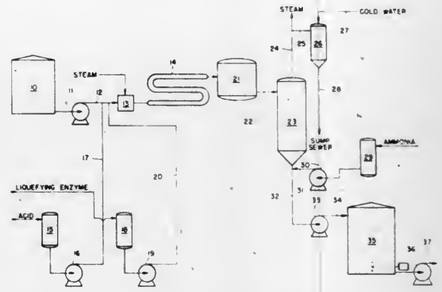
PROCESS FOR THE HYDROLYSIS OF STARCH AND FERMENTABLE HYDROLYSATES OBTAINED THEREFROM

Werner C. Muller, Dobbs Ferry, N.Y., and Franklyn D. Miller, Cincinnati, Ohio, assignors to National Distillers and Chemical Corp., New York, N.Y.

Filed Mar. 12, 1980, Ser. No. 129,517

Int. Cl.³ C13K *1/06*

U.S. Cl. 435—99 **17 Claims**



1. A process for the hydrolysis of starch to provide an aqueous solution of fermentable sugar which comprises:

(a) liquefying an aqueous slurry of starch in the presence of a liquefying agent selected from the group consisting of strong acid and liquefying enzyme to provide sterile liquefied starch; and,

(b) saccharifying the liquefied starch in the presence of a catalytically effective amount of an acidic cationic exchange resin.

4,266,028

PROCESS FOR PREPARATION OF PRODIGIOSIN

Katsumi Nakamura, and Kumpei Kitamura, both of Takasaki, Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 21, 1979, Ser. No. 13,599

Int. Cl.³ C12P *17/16*

U.S. Cl. 435—118 **4 Claims**

1. A process for preparation of prodigiosin, which comprises cultivating *Serratia marcescens* R-2 strain having an ATCC number of 31453 in a culture medium, thereby to produce prodigiosin in the bacterial cells or the medium, and collecting the produced prodigiosin.

4,266,029

ENZYME IMMOBILIZATION

Sven Branner-Jørgensen, Charlottenlund, Denmark, assignor to Novo Industri A/S, Denmark

Filed Aug. 10, 1979, Ser. No. 65,532

Claims priority, application United Kingdom, Aug. 14, 1978, 33295/78

Int. Cl.³ C12N *11/14*

U.S. Cl. 435—176 **21 Claims**

1. Process for preparation of an immobilized enzyme product which comprises:

coating a particulate, dense material with gelatine then treating the so-coated material of particle size between about 0.1 and 1 mm with glutaraldehyde;

preparing a paste comprising an enzyme product and an aqueous polyethylene imine solution;
mixing the glutaraldehyde treated particulate material with the paste;
thereafter treating the resulting pasty mixture with glutaraldehyde to form a mass; and
granulating and drying the said mass.

4,266,030

MACROPOROUS POLYMERIC CARRIER FOR COVALENTLY BINDING PROTEINS, ITS PREPARATION AND ITS USE FOR FIXING ACTIVE PROTEINS

Chung-Ji Tschang, Frankenthal; Heinrich Klefenz, Hochdorf-Assenheim, and Axel Sanner, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 57,010, Jul. 12, 1979. This application May 5, 1980, Ser. No. 146,400

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1978, 2834539

Int. Cl.³ C12N *11/08;* **C08J** *9/00*

U.S. Cl. 435—180 **3 Claims**

1. A macroporous crosslinked styrene resin, used as a carrier in which a biologically active protein is covalently bound via isocyanate, thiocyanate or aldehyde groups, wherein the sulfonic acid chloride groups of a sulfochlorinated macroporous crosslinked styrene resin, containing 1-4.5 milliequivalents/g of sulfonic acid chloride groups and consisting of 50-97% by weight of styrene and 3-50% by weight of divinylbenzene, with or without 1-25% by weight of ethylvinylbenzene and with or without 1-10% by weight, based on the total weight, of a further comonomer are reacted with an α,ω-diamino compound of the formula

$$H_2N-(CH_2)_n-NH_2$$

where n is a number from 2 to 12, with hydrazine or with an α,ω-diamino-diether of the formula

$$H_2N-(CH_2)_3-O-X-O-(CH_2)_3-NH_2$$

where X is $-(CH_2)_n-$, n being a number from 2 to 6, or where X is a 2,2-dimethyl-1,3-propylene or 3-methyl-1,5-pentylene radical, and any sulfonic acid chloride groups still remaining are hydrolyzed to the free sulfonic acid or saponified to its sodium salt or reacted with a primary or secondary amine to give sulfonamide groups, after which the terminal amino groups from the first process step are reacted with phosgene, thiophosgene, an aliphatic, aromatic or cycloaliphatic diisocyanate or an aliphatic dialdehyde of the formula

$$OCH-(CH_2)_n-CHO$$

where n is a number from 1 to 8, to prepare the binding groups.

4,266,031

PROTEASE PRODUCT OF REDUCED ALLERGENICITY

Peter Tang; Grethe C. Nielsen, both of Tastrup; Keith Gibson, Vaerloese; Knud Aunstrup, Farum, and Hans Schiff, Soeborg, all of Denmark, assignors to Novo Industri A/S, Denmark

Filed Jul. 3, 1979, Ser. No. 54,555

Claims priority, application United Kingdom, Jul. 4, 1978, 28773/78

Int. Cl.³ C12N *9/96, 9/56*

U.S. Cl. 435—188 **6 Claims**

1. A protease preparation having therein a *B. licheniformis derived protease concentrate, wherein said protease concentrate:*
is stabilized by the presence therein of at least 0.5 percent by weight thereof of non-proteolytic peptides from the culture broth wherein the protease was generated;
is essentially free of non-serine protease; and,
exhibits substantially attenuated allergenic properties as compared to a non-serine protease containing *B. licheniformis* protease concentrate.

4,266,032

METHOD OF CULTURING MICROCARRIER SUPPORTED CELLS

Robert E. Miller, Balwin; Mau-Jung Kuo, Creve Coeur, and Charles Lewis, Jr., Hazelwood, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Aug. 10, 1979, Ser. No. 65,652

Int. Cl.³ C12N *5/02*

U.S. Cl. 435—241 **13 Claims**

1. In the method of growing anchorage dependent cells in suspension the improvement comprising employing in the suspension as a microcarrier support for attachment of cells a cross-linked polystyrene resin derivatized by reaction with material selected from the group consisting of amino acid, peptide and hydroxy carboxylic acid and bonded thereto through a carboxyl group of said material.

4,266,033

CELLULOSE FERMENTATION PROCESS

Malcolm S. Singer, Novato, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 892,058, Mar. 31, 1978, which is a continuation-in-part of Ser. No. 795,680, May 11, 1977, Pat. No. 4,110,475. This application Nov. 30, 1979, Ser. No. 99,228

Int. Cl.³ C12N *1/22*

U.S. Cl. 435—252 **2 Claims**

1. A method for accelerating the rate of cellulose fermentation by cellulose-digesting sewage bacteria or rumen bacteria which comprises conducting said fermentation in the presence of a rate-accelerating amount of a compound selected from 2-(chloromethyldithio)acetic acid, 2-(dichloromethyldithio)-acetic acid or 2-(trichloromethyldithio)acetic acid.

4,266,034

METHOD FOR PRODUCING MICROBIAL CELLS AND USE THEREOF TO PRODUCE OXIDATION PRODUCTS

Ramesh N. Patel; Ching-Tsang Hou, both of Edison, N.J., and Allen I. Laskin, New York, N.Y., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Continuation-in-part of Ser. No. 896,476, Apr. 14, 1978, abandoned. This application Mar. 27, 1979, Ser. No. 24,307

Int. Cl.³ C12N *15/00*

U.S. Cl. 435—253 **3 Claims**

1. Isolated and biologically pure microbial cultures of C_1 compound utilizing microorganisms, said cultures being selected from the group consisting of those having the following identifying characteristics:

Methylosinus trichosporium	(CRL 15 PM1)	NRRL B-11,202
Methylosinus sporium	(CRL 16 PM2)	NRRL B-11,203
Methylocystis parvus	(CRL 18 PM4)	NRRL B-11,204
Methylomonas methanica	(CRL M4P)	NRRL B-11,205
Methylomonas methanica	(CRL 21 PM7)	NRRL B-11,206
Methylomonas albus	(CRL M8Y)	NRRL B-11,207
Methylomonas streptobacterium	(CRL 17 PM3)	NRRL B-11,208
Methylomonas agile	(CRL 22 PM9)	NRRL B-11,209
Methylomonas rubrum	(CRL M6P)	NRRL B-11,210
Methylomonas rubrum	(CRL 20 PM6)	NRRL B-11,211
Methylomonas rosaceus	(CRL M10P)	NRRL B-11,212
Methylomonas rosaceus	(CRL M7P)	NRRL B-11,213
Methylobacter chroococcum	(CRL M6)	NRRL B-11,214
Methylobacter chroococcum	(CRL 23 PM8)	NRRL B-11,215
Methylobacter bovis	(CRL M1Y)	NRRL B-11,216
Methylobacter bovis	(CRL 19 PM5)	NRRL B-11,217
Methylobacter vinelandii	(CRL M5Y)	NRRL B-11,218
Methylococcus capsulatus	(CRL M1)	NRRL B-11,219
Methylococcus minimus	(CRL 24 PM12)	NRRL B-11,220
Methylococcus capsulatus	(CRL 25 PM13)	NRRL B-11,221
Methylobacterium organophilum	(CRL 26 R6)	NRRL B-11,222
Pichia sp.	(CRL-72)	NRRL Y-11,328

-continued

Torulopsis sp.	(A1)	NRRL Y-11,419
Kloeckera sp.	(A2)	NRRL Y-11,420

and mutants thereof, said cultures capable of reproducing themselves and capable of producing secondary alcohol dehydrogenase or monooxygenase enzyme activity in isolatable amounts when cultured under aerobic conditions in a liquid growth medium comprising assimilable sources of nitrogen and essential mineral salts in the presence of methane or a methyl radical donating compound as the major carbon and energy source.

4,266,035

PROCESS FOR DECOLORIZING PULP AND PAPER MILL WASTEWATER AND MICROORGANISM CAPABLE OF SAME

James E. Blair, Roanoke, and Lois T. Davis, Salem, both of Va., assignors to Sybron Corporation, Rochester, N.Y.

Division of Ser. No. 8,215, Jan. 31, 1979, Pat. No. 4,199,444. This application Jun. 22, 1979, Ser. No. 51,296

Int. Cl.³ C12N *1/20*

U.S. Cl. 435—253 **1 Claim**

1. A biologically pure culture of the microorganism *Pseudomonas aeruginosa* having the identifying characteristics of ATCC 31482, said microorganism being capable upon culturing in pulp and paper mill wastewater of utilizing colorant substances in said wastewater as an assimilable source of carbon.

4,266,036

RECOVERY OF POLYMERIC CATION EXCHANGE MATERIALS FOR REUSE BY CONVERTING BY REACTION TO THE PRECURSOR FORM

Stanley K. Baczek, and G. Howard McCain, both of Painesville, Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 23, 1979, Ser. No. 87,328

Int. Cl.³ C25B *13/08;* **C08L** *27/12;* **C08J** *5/22, 7/12*

U.S. Cl. 521—26 **2 Claims**

1. A method of recovering for reuse cation exchange polymeric material polymerized from at least two monomers, one said monomer consisting essentially of at least one fluorinated vinyl compound and said other monomer consisting essentially of at least one monomer of the structure

$$CF_2=CF-X, \quad CF_2=CF-R_f-X \quad \text{and} \quad CF_2=CF-O-R_f-X$$

wherein R_f is a bifunctional perfluorinated radical containing from 2 to 8 carbon atoms, which carbon atoms may be interrupted by one or more oxygen atoms, and X is selected from the group consisting of sulfonic acid and carboxylic acid, said method comprising, converting said cation-exchange polymeric material to a precursor form selected from the corresponding sulfonyl fluoride, carbonyl fluoride, sulfonate ester and carboxylate ester, thereafter dissolving said precursor form in at least one solvent selected from the group consisting of low molecular weight polymers of perhalogenated alkylethers, low molecular weight polymers of perhalogenated alkyls and perflourokerosenes, each having boiling points between about 200° C. and 350° C., separating said dissolved polymeric material in the precursor form from any impurities, thereafter resolidifying said purified polymeric material in the precursor form in the desired shape.

4,266,037

FIRE-RETARDANT IMIDE COPOLYMERS

Adolph V. DiGiulio, and Jack N. Bauer, both of Pittsburgh, Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed May 7, 1980, Ser. No. 147,664

Int. Cl.³ C08J *9/12*

U.S. Cl. 521—82 **8 Claims**

1. A process for making fire-retardant foams consisting of blending a mixture of (a) a copolymer of 50 to 95 mole percent of a monovinyl aromatic monomer and 5 to 50 mole percent of an imide derivative of an ethylenically unsaturated dicarboxylic acid monomer; (b) from 0.5 to 10 percent by weight of water; (c) from 10 to 20 parts per hundred parts of copolymer of an at least tri-brominated diphenylether; and (d) 4 to 8 parts per hundred parts of copolymer of a metal oxide synergist for the ether until an intimate blend is obtained; heating the blend to a temperature of between 125° and 190° C. under sufficient pressure to prevent foaming of the blend; releasing the pressure to allow the blend to expand to a foam of density between 1 and 10 pounds per cubic foot; and cooling the resultant foam to room temperature.

4,266,038

RUBBER-MODIFIED FIRE-RETARDANT IMIDE COPOLYMERS

Adolph V. DiGiulio, and Jack N. Bauer, both of Pittsburgh, Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed May 7, 1980, Ser. No. 147,665

Int. Cl.³ C08J *9/12*

U.S. Cl. 521—82 **8 Claims**

1. A process for making fire-retardant foams consisting of blending a mixture of (a) a rubber-modified copolymer of 5 to 40 weight percent of a rubber selected from the group consisting of homopolymers of conjugated dienes, copolymers of said dienes with up to 50 weight percent of one or more monoolefinically unsaturated monomers, ethylene-propylene-diene terpolymer rubbers, acrylate diene copolymer rubbers, and mixtures thereof and 95-60 weight percent of a copolymer of 50 to 95 mole percent of a monovinyl aromatic monomer and 5 to 50 mole percent of an imide derivative of an ethylenically unsaturated dicarboxylic acid monomer; (b) from 0.5 to 10 percent by weight of water; (c) from 10 to 20 parts per hundred parts of copolymer of an at least tri-brominated diphenylether; and (d) 4 to 8 parts per hundred parts of copolymer of a metal oxide synergist for the ether until an initimate blend is obtained; heating the blend to a temperature of between 125° and 190° C. under sufficient pressure to prevent foaming of the blend; releasing the pressure to allow the blend to expand to a foam of density between 1 and 10 pounds per cubic foot; and cooling the resultant foam to room temperature.

4,266,039

FIREPROOF ELASTIC PACKING MATERIAL

Jacques P. Hons-Olivier, Paris; Tri Le Thanh, La Garenne Colombes, and Francois M. Devanz, Paris, all of France, assignors to Impervia, Societe d'Etudes et de Realisations, Courbevoie, France

Continuation-in-part of Ser. No. 810,778, Jun. 28, 1977, abandoned. This application Feb. 5, 1980, Ser. No. 118,685

Claims priority, application France, Jul. 2, 1976, 76 20217

Int. Cl.³ C08J *9/00*

U.S. Cl. 521—85 **24 Claims**

1. An elastic packing material comprising a shapeable composition which is elastic at low temperature and which swells at high temperature to form a gas impermeable barrier, said composition comprising a vulcanised mixture of a natural or synthetic rubber binder, a vulcanising agent for vulcanising said binder, an intumescent mineral in an amount from about 4 to about 30% by weight of said mixture, and an alkylaryl-phosphate vitrifying agent for vitrifying said intumescent mineral under the action of heat at said high temperature and prevent-

ing pulverization of said intumescent material at said high temperature.

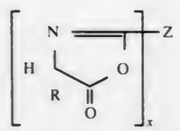
4,266,040

POLYAZLACTONE-ELECTRON DEFICIENT ETHYLENICALLY UNSATURATED RESINOUS COMPOSITIONS AND METHOD FOR FOAMING SAME

Shiow-Ching Lin, Arlington Heights, Ill., assignor to DeSoto, Inc., Des Plaines, Ill.

Filed Jun. 27, 1980, Ser. No. 163,519
Int. Cl.³ C08J 9/08
U.S. Cl. 521—90 **21 Claims**

1. A foamable composition comprising the reaction product of (1) at least one resin containing a plurality of electron deficient ethylenically unsaturated groups other than vinyl ester and vinyl ether groups and (2) a polyazlactone having the structural formula:



wherein Z is a saturated aliphatic or aromatic polyvalent organic group;
R is selected from the group consisting of hydrogen, saturated substituted and unsubstituted cyclic and acyclic radicals containing about 1 to about 10 carbon atoms, and substituted and unsubstituted aromatic radicals containing about 6 to about 10 carbon atoms; and
x is a number whose average value is at least about 2.

4,266,041

PROCESS FOR THE PRODUCTION OF FOAMED PLASTICS FROM POLYOLEFINS

Werner Kühnel, Neunkirchen-Schöneshof, and Paul Spielau, Troisdorf-Eschmar, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Nov. 30, 1979, Ser. No. 99,144
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852287
Int. Cl.³ C08J 9/06, 9/10
U.S. Cl. 521—92 **7 Claims**

1. In a process for the production of foamed plastics from polyolefins by peroxide crosslinking and foaming by means of a chemically decomposing foaming agent under conditions of normal pressure the improvement wherein said foaming is carried out in the additional presence of less than 13 weight percent, based on the amount of foaming agent, of magnesium oxide and/or magnesium hydroxide and/or magnesium-hydroxide carbonate having a bulk density of under 800 g/l.

4,266,042

POLYETHER-BASED POLYURETHANE FOAMS INCLUDING A FLAME-RETARDANT SYSTEM CONTAINING ANTIMONY TRIOXIDE, A CHLORINATED PARAFFIN AND ALUMINA TRIHYDRATE AND METHOD OF PREPARATION

Ronald S. Park, Noble Park, Australia, assignor to Henderson's Industries Limited, Parkville, Australia

Continuation-in-part of Ser. No. 935,057, Aug. 18, 1978, abandoned. This application Jun. 27, 1979, Ser. No. 52,540
Claims priority, application Australia, Aug. 22, 1977, PD1318/77; Aug. 15, 1978, 38932/78; Apr. 26, 1979, PD8548/79
Int. Cl.³ C08G 18/14
U.S. Cl. 521—123 **18 Claims**

1. A high resilience, flexible or semi-flexible, flame-retardant, polyether based polyurethane foam derived from a diol- or triol-based polyol wherein at least 50% of the hydroxyl end groups are primary hydroxyl end groups and at least one isocyanate compound and including an effective amount of a flame-retardant system consisting essentially of antimony trioxide, a chlorinated paraffin and alumina trihydrate.

4,266,043

RESILIENT HYDROPHOBIC FOAMED POLYMER

Osamu Fujii, Konosu; Toshio Kishimoto, Saitama, and Akio Kobayashi, Higashi Matsuyama, all of Japan, assignors to Toyo Rubber Chemical Industrial Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 793,598, May 4, 1977, abandoned, which is a continuation-in-part of Ser. No. 603,711, Aug. 11, 1975, abandoned. This application Nov. 5, 1979, Ser. No. 90,892
Claims priority, application Japan, Aug. 15, 1974, 49-93670
Int. Cl.³ C08G 18/14, 18/12, 18/48
U.S. Cl. 521—175 **9 Claims**

1. A resilient hydrophobic foamed polymer obtained by reacting a mixture of an isocyanate terminated urethane prepolymer and a polyisocyanate (A) with water, said prepolymer being relatively hydrophilic and the reaction product of a molar excess of a polyisocyanate (B) with a polyetherpolyol having from 15 to 50% by weight of oxyethylene content, said water amounting to between about 15 to 150% by weight based on said prepolymer, the amount of said polyisocyanate (A) ranging between about 5 to 15% by weight based on said prepolymer, said polyetherpolyol being selected from the group consisting of (a) the addition polymerization product of a starting material, ethylene oxide and another epoxide and (b) a mixture of at least two of the following:
(1) The addition polymerization product of a starting material and ethylene oxide;
(2) the addition polymerization product of a starting material and an epoxide other than ethylene oxide;
(3) the addition polymerization material, ethylene oxide and another epoxide,
and said starting material being selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol; dipropylene glycol; butylene glycol; hexylene glycol; glycerol; trimethylolethane; trimethylol propane; 1,2,6-hexanetriol; pentaerythritol; α-methylglycoside; sorbitol and sucrose.

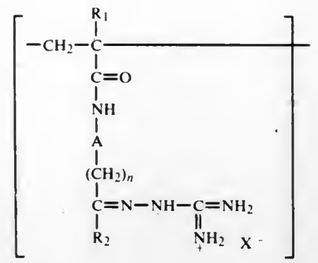
4,266,044

NOVEL POLYMERIC MORDANTING AGENTS FOR ANIONIC COMPOUNDS

Daniël M. Timmerman; Walter F. De Winter, both of Mortsel, and Albert E. Van Hoof, Berchem, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Division of Ser. No. 213,990, Dec. 30, 1971, Pat. No. 4,145,220. This application Dec. 11, 1978, Ser. No. 968,175
Claims priority, application United Kingdom, Jan. 11, 1971, 1288/71; Sep. 10, 1971, 42381/71
Int. Cl.³ C08C 19/22; C08F 220/60, 26/00, 226/00
U.S. Cl. 525—336 **5 Claims**

1. A polymeric mordanting agent comprising recurring units of the general structure:



wherein:
R_1 stands for hydrogen or methyl,
A stands for methylene or methylene substituted by C_1-C_5 alkyl,
n stands for 0 or 1,
R_2 stands for alkyl, and
X stands for an acid radical.

4,266,045

ETHERIFIED PHENOLIC CHELATE RESIN, PROCESS FOR ITS PRODUCTION, AND METHOD FOR ADSORPTION TREATMENT

Hiroyuki Uejima, Nara; Masahide Hirai, Kyoto, and Tsutomu Sakaida, Uji, all of Japan, assignors to Unitika Ltd., Amagasaki, Japan

Filed Sep. 11, 1978, Ser. No. 941,355
Claims priority, application Japan, Sep. 12, 1977, 52/110099
Int. Cl.³ C08G 8/10, 8/28, 8/32
U.S. Cl. 528—161 **20 Claims**

1. An etherified phenolic chelate resin comprising the product obtained on etherification of some or all of the phenolic hydroxyl groups of a phenolic chelate resin with an etherification agent.

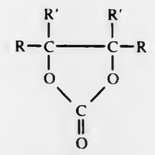
4,266,046

ESTERIFICATION PROCESS

Yulin Wu, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 17, 1976, Ser. No. 724,189
Int. Cl.³ C07C 67/24, 69/82; C08G 63/42
U.S. Cl. 528—309 **6 Claims**

1. A process for the preparation of esters of polycarboxylic acids which comprises reacting:
(a) at least one cyclic carbonate ester represented by the general formula



wherein each R and each R′ are individually selected from the group consisting of hydrogen and hydrocarbyl radicals having from 1 to 10 carbon atoms and wherein both R′ radicals can represent a divalent aliphatic hydrocarbon radical which together with the carbonate group in said cyclic carbonate ester can form a cycloaliphatic nucleus; with
(b) at least one polycarboxylic acid having the general formula $Z(CO_2H)_n$ wherein Z is a hydrocarbon radical having the valence equal to n and wherein n is an integer having a value from 2 to 4; in the presence of
(c) a catalytically effective amount of a catalyst selected from the group consisting of
alkyl ammonium halides having the formula $(R''_4N)^+X^-$ wherein R″ is selected from the group consisting of alkyl, cycloalkyl, aryl, alkenyl, cycloalkenyl, and combinations thereof having from 1 to 10 carbon atoms and wherein X^- is a halide ion selected from the group consisting of chloride, bromide, and iodide; under conditions which will produce esters of polycarboxylic acids.
6. A process according to claim 1 wherein the reaction mixture is heated under a reduced pressure so as to remove volatile by-products generated and produce high molecular weight polyester products.

4,266,047

NOVEL POLYMERS OF OLEFIN TERMINATED PREPOLYMERS AND AMINE TERMINATED PREPOLYMERS

Richard J. Jablonski, Scotia, and Daniel Kruh, Schenectady, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

Division of Ser. No. 208,929, Dec. 16, 1971, Pat. No. 4,020,303. This application Dec. 13, 1976, Ser. No. 750,328
The portion of the term of this patent subsequent to Apr. 26, 1994, has been disclaimed.
Int. Cl.³ C08G 73/10, 73/12
U.S. Cl. 528—322 **6 Claims**

1. A polymer selected from (a) the reaction product of (1) olefin terminated prepolymer prepared by reacting maleic anhydride and amine terminated prepolymer, said amine terminated prepolymer being prepared by reacting a material selected from dicarboxylic acid, dicarboxylic acid anhydride, tricarboxylic acid and tricarboxylic acid anhydride with simple polyamine having the formula

$$X-R''-(NH_2)_n$$

where R″ is an organic radical, n is at least 2 and X is selected from hydrogen, amino group, substituted organic groups and unsubstituted organic groups and (2) simple polyamine as in (1) above and (b) the reaction product of (1) olefin terminated prepolymer as in (a) above and (2) amine terminated prepolymer as in (a) above, about equivalent proportions of the polymer forming ingredients being used.

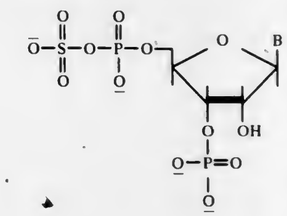
4,266,048

SYNTHESIS OF ANALOGS OF 3′-PHOSPHOADENOSINE 5′-PHOSPHOSULFATE (PAPS)

Jerome P. Horwitz; John P. Neenan; Radhey S. Misra; Jurij Rozhin; Anne Huo, all of Detroit, Mich., and Kerstin D. Philips, deceased, late of Detroit, Mich. (by J. Christopher Philips, administrator), assignors to The United States of America as represented by the Department of Health, Education and Welfare, Washington, D.C.

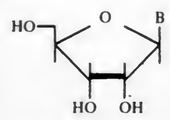
Continuation-in-part of Ser. No. 840,783, Oct. 11, 1977, Pat. No. 4,169,011. This application Oct. 26, 1978, Ser. No. 954,876
The portion of the term of this patent subsequent to Sep. 25, 1996, has been disclaimed.
Int. Cl.³ C07H 19/20, 17/00; C12D 13/06
U.S. Cl. 536—27 **5 Claims**

1. A process for the preparation of



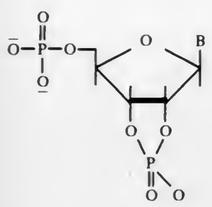
(IV)

3′-phospho B 5′-phosphosulfate
where B is 8-bromoadenine, purine, hypoxanthine, 4-aminopyrrolo[2,3-d]pyrimidine (tubercidin), 7-aminopyrazolopyrimidine (formycin)
by the reaction of



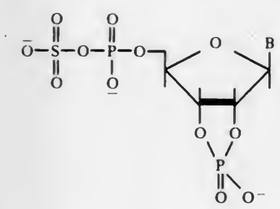
(I)

and pyrophosphoryl chloride to produce a substantially pure



(II)

B-2′,3′-cyclic phosphate 5′-phosphate and subsequently reacting II with triethylamine-N-sulfonic acid to produce



(III)

B 2′,3′-cyclic phosphate 5′-phosphosulfate which is further treated with ribonuclease-T_2 to provide 3′-phospho B 5′-phosphosulfate.

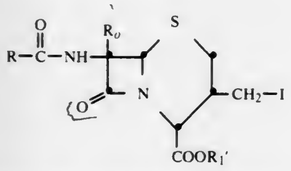
4,266,049

PROCESS FOR 3-IODOMETHYL CEPHALOSPORINS

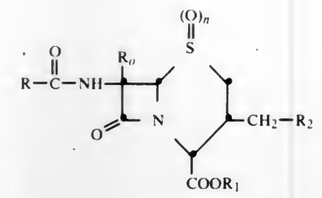
Rosanne Bonjouklian, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Feb. 20, 1980, Ser. No. 122,950
Int. Cl.³ C07D *501/04*
U.S. Cl. 544—16 **20 Claims**

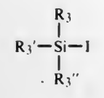
1. A process for preparing a 3-iodomethyl cephalosporin of the formula



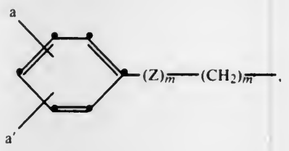
which comprises reacting in an aprotic solvent under substantially anhydrous conditions at a temperature between about 0° C. and about 35° C. a 3-alkanoyloxymethyl or 3-carbamoyloxymethyl cephalosporin of the formula



with a trialkylsilyl iodide of the formula



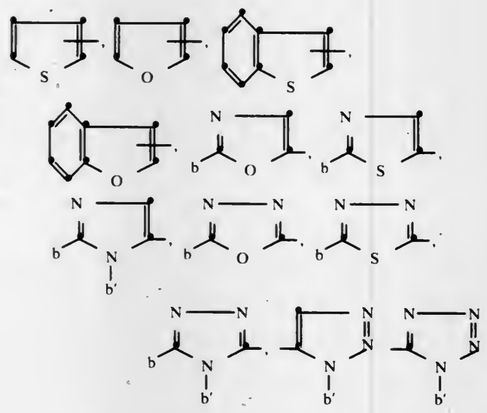
where in the above formulas R is hydrogen, C_1-C_4 alkyl, cyanomethyl, halomethyl, or a group of formula



wherein
a and a′ are independently hydrogen, carboxy, carboxymethyl, protected aminomethyl or halogen, C_1-C_3 alkyl, or C_1-C_3 alkoxy;
Z is O or S; m and m′ are 0 or 1;
and when m is 1, m′ is 1;
or R is a heteroarylmethyl group of the formula

R′—CH_2—

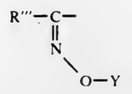
wherein R′ is



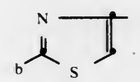
wherein
b is H, C_1-C_3 alkyl, or protected NH_2;
and b′ is H, or C_1-C_3 alkyl;
or R is an α-substituted arylmethyl or heteroarylmethyl group of the formula



wherein
R″ is thienyl, furyl, cyclohexyl, 1,4-cyclohexadienyl, phenyl, or substituted phenyl substituted by C_1-C_3 alkyl, C_1-C_3 alkoxy, halogen, or hydroxy, and,
Q is protected-hydroxy, protected-amino, or protected-carboxy;
or R is an α-oximino group of the formula



wherein R‴ is R″ as defined above or the group of the formula



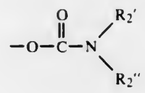
wherein
b is H, C_1-C_3 alkyl or protected NH_2;
Y is hydrogen, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_2-C_4 alkenyl, benzyl, C_2-C_4 alkanoyl, phenylsulfonyl, or C_1-C_4 alkylsulfonyl;
R_o is hydrogen or methoxy;
R_1 is C_1-C_4 alkyl, 2,2,2-trichloroethyl, iodomethyl, diphenylmethyl, benzyl, substituted benzyl substituted by methyl, methoxy or nitro; or R_1 is a trialkylsilyl group of the formula



wherein
R_3, R_3', and R_3'' are independently C_1-C_3 alkyl;
or R_1 is sodium or potassium;
R_1' has the same meanings as R_1, provided that, when R_1 is sodium, potassium, diphenylmethyl, or p-methoxybenzyl, R_1' is



R_2 is C_1-C_4 alkanoyloxy or a carbamoyloxy group of the formula



wherein
R_2' and R_2'' are independently hydrogen or C_1-C_3 alkyl; and
n is 0 or 1;
with the limitation that when n is 1, the double bond represented by the dotted bonding lines is in the 3-position.

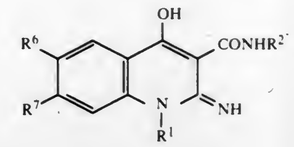
4,266,050

1,2-DIHYDRO-4-HYDROXY-2-IMINO-N-SUBSTITUTED-3-QUINOLINECARBOXAMIDE DERIVATIVES

Arthur A. Santilli, Havertown, Pa., assignor to American Home Products Corporation, New York, N.Y.

Filed Jul. 2, 1980, Ser. No. 165,310
Int. Cl.³ C07D *215/14, 215/06, 413/12*
U.S. Cl. 544—128 **7 Claims**

1. A compound of the formula:



in which
R^1 is hydrogen or alkyl of one to six carbon atoms;
R^2 is hydrogen, alkyl of one to six carbon atoms, allyl, 2-hydroxyethyl,2-alkoxyethyl in which the alkoxy group has from one to six carbon atoms or 2-(4-morpholinyl-)ethyl;
R^6 is hydrogen, chlorine or bromine and
R^7 is hydrogen or, when R^6 is hydrogen, chlorine or bromine;
or a pharmaceutically acceptable salt thereof.

4,266,051

HEXAMETHYLENETETRAMINE MOLYBDATE

William J. Kroenke, Brecksville, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 22,670, Mar. 22, 1979, which is a division of Ser. No. 792,293, Apr. 29, 1977, Pat. No. 4,153,729, which is a division of Ser. No. 770,168, Feb. 14, 1977, Pat. No. 4,053,455.
This application Feb. 4, 1980, Ser. No. 118,152
Int. Cl.³ C07D *487/18*
U.S. Cl. 544—181 **1 Claim**

1. Hexamethylenetetramine molybdate.

4,266,052

PROCESS FOR PREPARING CYANURIC ACID

Mario G. R. T. de Cooker, and Anita G. W. G. Haemers, both of Geleen, Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Continuation of Ser. No. 903,399, May 8, 1978, abandoned. This application Jan. 8, 1980, Ser. No. 110,500
Claims priority, application Netherlands, May 9, 1977, 7705049
Int. Cl.³ C07D *251/32*
U.S. Cl. 544—192 **6 Claims**

1. In a process for preparing cyanuric acid by heating at least one of urea and biuret in a suitable polar organic solvent, the improvement which comprises conducting the reaction at a temperature between about 170° C. and about 220° C. in the presence of a nitrate selected from an ammonium-, alkali metal-, alkaline- earth metal nitrate and mixtures thereof dissolved in the reaction medium, and wherein the amount of recycled cyanuric acid present in the reaction mixture does not exceed the amount soluble in said solvent at the reaction temperature.

4,266,053

MELAMINE GROUP-CONTAINING (METH)ACRYLATE

Yoshihiko Imanaka; Hiroshi Nakamatsu, both of Hino; Akihiro Horike, Musashino; Yoichi Saito, and Kaoru Iwata, both of Hino, all of Japan, assignors to Teijin Limited, Osaka, Japan

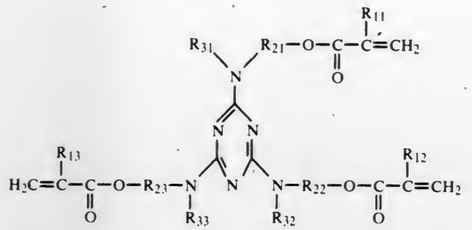
Filed Jun. 21, 1979, Ser. No. 50,893

Claims priority, application Japan, Jun. 21, 1978, 53/74117; Jul. 5, 1978, 53/80927; Aug. 14, 1978, 53/98218; Sep. 22, 1978, 53/115984

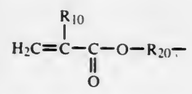
Int. Cl.[3] C07D *251/70, 251/64*

U.S. Cl. 544—196 4 Claims

1. A melamine group-containing (meth)acrylate of the following formula:



wherein R_{11}, R_{12} and R_{13} are each hydrogen atom or methyl group; R_{21}, R_{22} and R_{23} are each an alkylene group of from 2 to 10 carbon atoms, in which the number of carbon atoms in the main chain is 2 or more; and R_{31}, R_{32} and R_{33} are each hydrogen atom, an aliphatic, alicyclic or aromatic hydrocarbon group of from 1 to 10 carbon atoms, or a group of the following formula:



wherein R_{10} is hydrogen atom or methyl group; and R_{20} is an alkylene group of from 2 to 10 carbon atoms, in which the number of carbon atoms in the main chain is 2 or more.

4,266,054

N-SUBSTITUTED PERHYDRO-S-TRIAZINES

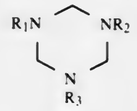
Andrew T. Au, Needham, Mass., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 32,600, Apr. 23, 1979, abandoned. This application May 9, 1980, Ser. No. 148,302

Int. Cl.[3] C07D *251/04*

U.S. Cl. 544—215 5 Claims

1. A compound of the formula



wherein R_1, R_2, and R_3 are independently $(—A—)_nR_4$, where —A— is independently, each occurrence —CHRCHR'O— wherein R and R' are hydrogen or methyl, provided that at most only one of R or R' is methyl, R_4 is independently, each occurrence, C_{1-40} alkyl, and n is independently, each occurrence, a number from 2 to about 40.

4,266,055

TRIS(3-ACETYLTHIOPROPYL)ISOCYANURATE AND PREPARATION THEREOF

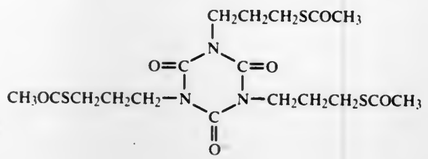
Yoshiharu Inoue, Osaka; Fumio Tanimoto, Kyoto, and Hisao Kitano, Osaka, all of Japan, assignors to Nippon Kasei Chemical Co., Ltd., Tokyo, Japan

Filed May 7, 1980, Ser. No. 147,522

Int. Cl.[3] C07D *251/34*

U.S. Cl. 544—221 7 Claims

1. Tris(3-acetylthiopropyl) isocyanurate represented by the following formula:



4,266,056

PHENYL URACILS

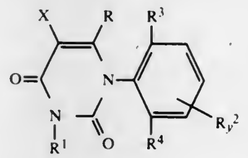
Clive A. Henrick; Jeffrey N. Labovitz, both of Palo Alto, Calif.; Roland T. V. Fox, Crowthrone, England; William G. Rathmell, Wokingham, England, and Margaret C. Shephard, Maidenhead, England, assignors to Zoecon Corporation, Palo Alto, Calif. and Imperial Chemical Industries Limited, London, England

Continuation-in-part of Ser. No. 894,307, Apr. 7, 1978, abandoned, which is a continuation-in-part of Ser. No. 892,560, Apr. 3, 1978, abandoned. This application Mar. 23, 1979, Ser. No. 23,517

Int. Cl.[3] C07D *239/54*

U.S. Cl. 544—311 24 Claims

1. A compound of the following formula A:



(A)

wherein,

each of R and R^1 is hydrogen, methyl or ethyl;

R^2 is lower alkyl, lower alkoxy, bromo, chloro, fluoro, lower haloalkyl, cyano, nitro, lower alkylthio, hydroxy, lower alkylcarbonyl, lower alkoxycarbonyl, lower haloalkoxy, cycloalkyl, cycloalkalkyl, lower haloalkylthio, lower alkenyl or lower alkynyl;

R^3 is hydrogen or independently selected from the values of R^2;

R^4 is hydrogen or independently selected from the values of R^2;

X is hydrogen, carbamoyl or cyano; and y is zero, one, two or three, and provided that:

(a) when X is cyano, R is hydrogen, R^1 is hydrogen, R^2 is bromo, and y is one—then either R^3 or R^4 is other than hydrogen;

(b) when R is hydrogen or methyl, y is zero and each of R^3 and R^4 is hydrogen—then either X or R^1 is other than hydrogen; and

(c) when X is cyano, R is hydrogen and R^1 is methyl—then either R^3 or R^4 is other than hydrogen, or y is one, two or three.

4,266,057

PROCESS FOR THE PREPARATION OF 2-ISOPROPYLAMINO PYRIMIDINE

Claude G. Demosthene, Aramon, and Christian R. Aspisi, Boulbon, both of France, assignors to Expansia, Paris, France

Filed Jun. 11, 1979, Ser. No. 47,477

Claims priority, application New Zealand, Jun. 16, 1978, 187595

Int. Cl.[3] C07D *239/42*

U.S. Cl. 544—330 1 Claim

1. A method for the preparation of 2-isopropylamino pyrimidine comprising reacting at room temperature 2-amino pyrimidine with a large excess of acetone in the presence of an organic carboxylic acid and an alkali metal borohydride.

4,266,058

SYNTHESIS OF 2-ISOPROPYLAMINO-PYRIMIDINE

Claude G. Demosthene, Aramon, and Christian R. Aspisi, Boulbon, both of France, assignors to Societe d'Etudes de Produits Chimiques, Paris, France

Filed Jun. 23, 1980, Ser. No. 162,114

Claims priority, application United Kingdom, Jul. 4, 1979, 23224/79

Int. Cl.[3] C07D *239/42*

U.S. Cl. 544—330 1 Claim

1. Process for the synthesis of 2-isopropylamino-pyrimidine by aminolysis consisting in refluxing stoichiometric proportions of isopropylamine and 2-methysulphonyl-pyrimidine in the absence of a solvent.

4,266,059

PROCESS FOR THE PREPARATION OF 2,4,5-TRICHLOROPYRIMIDINE

Fritz Döring, Odenthal; Gunther Beck, Leverkusen, and Gerhard Dankert, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 30, 1979, Ser. No. 99,126

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855660

Int. Cl.[3] C07D *239/30*

U.S. Cl. 544—334 9 Claims

1. Process for the preparation of 2,4,5-trichloropyrimidine, wherein 2-cyanoethyl isocyanide dichloride is reacted with hydrogen chloride and the product is then reacted with chlorine.

4,266,060

DIPYRIDO [4,3-b] [3,4-f] INDOLES AND PROCESS FOR OBTAINING THEM

Emile Bisagni, Orsay; Claire Ducrocq, Les Ulis; Christian Rivalle, Villebon; Pierre Tambourin, Orsay les Ulis; Francoise Wendling, Paris; Jean-Claude Chermann, Elancourt, and Luc Montagnier, Le Plessis-Robinson, all of France, assignors to Agence Nationale de Val orisation de la Recherche (ANVAR), Neuilly sur Seine, France

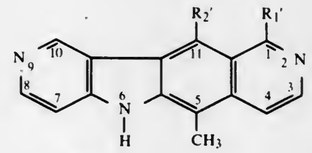
Filed Apr. 13, 1978, Ser. No. 896,101

Claims priority, application France, Apr. 13, 1977, 77 11148

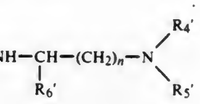
Int. Cl.[3] C07D *471/14;* A61K *31/47*

U.S. Cl. 546—64 16 Claims

1. A dipyrido [4,3-b] [3,4-f] indole of the formula



in which: R'_1 is hydrogen, hydroxy, lower alkyl, halogen or an amino group of the formula



wherein

n is an integer from 1 to 3,

R'_6 is hydrogen or lower alkyl,

R'_4 and R'_5 each independently is hydrogen or lower alkyl, and

R'_2 is hydrogen or lower alkyl,

or a pharmaceutically acceptable salt thereof.

8. A process for preparing a compound according to claim 1, comprising the steps of:

(1) reacting a 6-amino-isoquinoline with 3-nitro-4-chloropyridine to form the corresponding 6-[4'-(3'-nitropyridyl) amino] isoquinoline;

(2) hydrogenating said isoquinoline thus obtained into the corresponding amino compound;

(3) reacting the corresponding amino compound with sodium nitrite to form the corresponding triazolopyridine;

(4) converting the triazolopyridine thus obtained into the corresponding dipyrido [4,3-b] [3,4-f] indole, and

(5) optionally forming the pharmaceutically acceptable salt of the dipyrido indole thus obtained.

4,266,061

PROCESS FOR PREPARATION OF 2-VINYLPYRIDINE FROM ACETYLENE AND ACRYLONITRILE

Helmut Bönnemann, Essen, and Marc Samson, Hanau, both of Fed. Rep. of Germany, assignors to Studiengesellschaft Kohle mbH, Mulheim, Fed. Rep. of Germany

Filed Sep. 14, 1979, Ser. No. 75,458

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840460

Int. Cl.[3] C07D *213/12*

U.S. Cl. 546—253 9 Claims

1. In a process for the catalytic, selective preparation of 2-vinylpyridine from acetylene and acrylonitrile employing a cyclopentadienylcobalt catalyst or π-allylcobalt catalyst at an elevated temperature in an inert solvent, the improvement wherein mol ratio of actylene to acrylonitrile is generally 0,5 to 2:1 and the reaction is carried out at a temperature of over 140° C. and up to 180° C., the reaction time being not more than 50 minutes.

4,266,062

(1-METHYL-2-PYRIDINYLIDENE) DERIVATIVES OF GUANIDINE

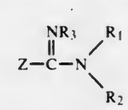
Chris R. Rasmussen, Ambler, Pa., assignor to McNeilab, Inc., Fort Washington, Pa.

Filed Sep. 18, 1978, Ser. No. 943,097

Int. Cl.[3] C07D *401/12*

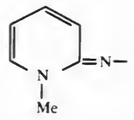
U.S. Cl. 546—281 2 Claims

1. A heterocyclic derivative of guanidine selected from the group consisting of a compound having the formula:



and the pharmaceutically acceptable acid addition salts thereof wherein:

Z is



R_1 is a member selected from the group consisting of methyl and ethyl;

R_2 is a member selected from the group consisting of loweralkyl, cyclopentyl, cyclohexyl and benzyl;



taken together represents a member selected from the group consisting of:



wherein W is a member selected from the group consisting of O, S, N-loweralkyl and N-phenyl; and

R_3 is a member selected from the group consisting of:

alkyl having from 4 to 10 carbons;

phenyl; methylenedioxyphenyl; phenyl substituted with from 1 to 3 substituents each selected from the group consisting of halo, loweralkyl and loweralkoxy; and phenyl substituted with a member selected from the group consisting of hydroxy, benzyloxy, loweralkanoyloxy, nitro; trifluoromethyl and methylthio;

naphthyl; cyclopentyl; cyclohexyl; exo-2-norbornyl; endo-2-norbornyl; 1-adamantyl;

arylalkyl in which the aryl function is phenyl and the alkyl function has from 1 to 4 carbons; and diphenylalkyl in which the alkyl function has from 1 to 2 carbons.

4,266,063

PROCESS FOR PREPARING SUBSTITUTED PYRIDINYLOXY ETHER INTERMEDIATE

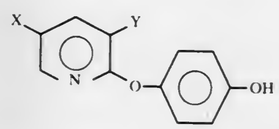
John C. Budzinski, West Chester, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 17, 1979, Ser. No. 104,452

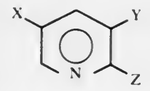
Int. Cl.³ C07D *213/64*

U.S. Cl. 546—302 **8 Claims**

1. A process for preparing a compound of the formula



which consisting essentially of heating a substituted pyridine of the formula



wherein X is CF_3 or Cl, Y is H, Cl, or Br and Z is Cl or Br, provided that when X is Cl, Y is Cl or Br, and when X is CF_3, Y is H,

with hydroquinone in the absence of a base at a temperature in the range of about 100°–220° C. in the presence or absence of a solvent.

4,266,064

PROCESS FOR PRODUCING CHLORO β-TRIFLUOROMETHYLPYRIDINES

Ryuzo Nishiyama, Takatsuki; Kanichi Fujikawa, Moriyama; Isao Yokomichi, Moriyama; Yasuhiro Tsujii, Moriyama, and Shigeyuki Nishimura, Shiga, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

Filed Mar. 5, 1980, Ser. No. 127,468

Int. Cl.³ C07D *213/26*

U.S. Cl. 546—345 **5 Claims**

1. A process for producing a chloroβ-trifluoromethylpyridine selected from the group consisting of 2-chloro-3-trifluoromethylpyridine, 2-chloro-5-trifluoromethylpyridine and 2, 6-dichloro-3-trifluoromethylpyridine which comprises reacting a chloroβ-trichloromethylpyridine selected from the group consisting of 2-chloro-3-trichloromethylpyridine, 2-chloro-5-trichloromethylpyridine and 2, 6-dichloro-3-trichloromethylpyridine with hydrogen fluoride in the presence of a catalyst of a fluoride of at least one metal selected from the group consisting of chromium, iron, nickel, manganese, cobalt and aluminum and diluent in a vapor phase at a temperature of 300° to 500° C. for a residence time of 1 to 60 seconds.

4,266,065

MERCAPTOACYLDIHYDROPYRAZOLE CARBOXYLIC ACID DERIVATIVES

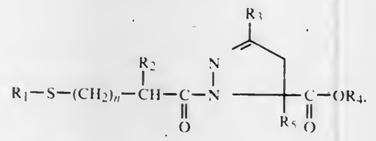
George C. Rovnyak, Hopewell, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Apr. 14, 1980, Ser. No. 140,355

Int. Cl.³ C07D *231/06*

U.S. Cl. 548—379 **8 Claims**

1. A compound having the formula



or a basic salt thereof, wherein

R_1 is hydrogen, alkyl, aryl, arylalkyl or



wherein R_6 is alkyl or aryl;

R_2 is hydrogen, alkyl, trifluoromethyl or pentafluoroethyl;

R_3 is hydrogen or alkyl;

R_4 is hydrogen, alkyl or arylalkyl;

R_5 is hydrogen or alkyl; and

n is 0, 1 or 2;

wherein the term "aryl" refers to phenyl or phenyl substituted with one, two or three halogen, alkyl, alkoxy, alkanoyl, nitro, amino, alkylamino, dialkylamino, trifluoromethyl, cyano or carboxyl groups; the terms "alkyl" and "alkoxy" refer to groups having 1 to 8 carbon atoms; and the term "alkanoyl" refers to groups having 2 to 9 carbon atoms.

4,266,066

PROCESS FOR THE MANUFACTURE OF KETONES

Werner Spielmann, Kelkheim, and Georg Schaeffer, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,792

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1978, 2851371; Oct. 12, 1979, 2941391

Int. Cl.³ C07D *333/16, 307/12;* **C07C** *45/00*

U.S. Cl. 549—64 **26 Claims**

1. A process for the manufacture of a ketone, which comprises reacting a carboxylic acid halide with an Al-alkyl or alkyl-Al-halide, in methylene chloride as solvent, at a temperature of from about 30° to about 60° C., and decomposing the resulting ketone complex with water.

4,266,067

PROCESS FOR PREPARING THIOPHENE DERIVATIVES

Tamotsu Fujisawa; Kiyoshi Kondo, and Kunikazu Sakai, all of Yamato, Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

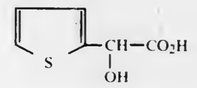
Continuation of Ser. No. 886,639, Mar. 15, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 110,331

Claims priority, application Japan, Mar. 18, 1977, 52-29175; Mar. 18, 1977, 52-29176; Mar. 18, 1977, 52-56427

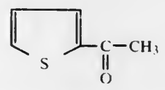
Int. Cl.³ C07D *333/24*

U.S. Cl. 549—79 **10 Claims**

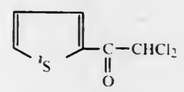
1. A process for the preparation of 2-thiopheneglycolic acid of the formula:



which comprises reacting 2-acetylthiophene of the formula



with chlorine in glacial acetic acid to produce a 2-(dichloroacetyl)thiophene of the formula



and reacting said 2-(dichloroacetyl)thiophene with an alkali or an alkaline earth metal hydroxide to produce 2-thiopheneglycolic acid.

4,266,068

PREPARATION OF 1,2-TETRAMETHYLDICHLORO-DISILANE FROM HEXAMETHYLDISILANE AND METHYLCHLORODISILANE

Ronald J. Allain, Naperville, Ill., and Joseph P. Maniscalco, Sugar Land, Tex., assignors to Nalco Chemical Company, Oak Brook, Ill.

Filed Jul. 28, 1980, Ser. No. 172,606

Int. Cl.³ C07F *7/08*

U.S. Cl. 556—430 **3 Claims**

1. In the process of producing tetramethyldichlorodisilane (TMDDS) by Lewis acid catalyzed redistribution of hexamethyldisilane (HMDS) and a crude mixture of methylchlorodisilane which produces a mixed redistribution product, the improvement which comprises distilling the mixed redistribution product under conditions whereby there is produced a light ends distillate, a middle distillate and heavy bottoms, recovering the middle distillate which is about 95% pure TMDDS by weight and recycling the light ends distillate and heavy bottoms with the crude mixture of methylchlorodisilanes for continued redistribution.

4,266,069

PROCESSES FOR THE PREPARATION OF HYDRATROPIC ACIDS AND ESTERS

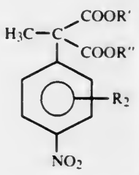
Jerry A. Walker, Oshtemo Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Dec. 19, 1979, Ser. No. 105,063

Int. Cl.³ C07C *79/46*

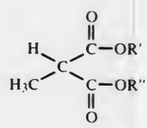
U.S. Cl. 560—20 **12 Claims**

1. A process for the preparation of a compound selected from the group consisting of

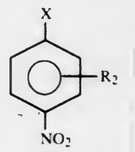


III

wherein R_2 is selected from the group consisting of hydrogen, halogen, alkoxy of from 1 to 6 carbon atoms, inclusive, alkoxy carbonyl of from 1 to 6 carbons, inclusive, alkyl of from 1 to 6 carbons, inclusive, cycloalkyl of from 4 to 7 carbons, inclusive, phenyl, cyano and nitro; and R′ and R″ may be the same or different and are alkyl of from 1 to 6 carbons, or R′ and R″ taken together to form a cyclic diester; which comprises reacting a compound having the formula



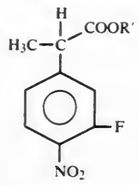
wherein R′ and R″ are defined as above; with a compound selected from the group consisting of



II

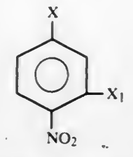
wherein X is a halogen and R_2 is defined as above; in the presence of a base selected from the group consisting of alkali metal hydroxide or potassium carbonate in an aprotic polar solvent such that the reaction mixture is essentially free of water.

5. A process for the preparation of a compound having the formula



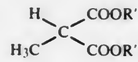
III'a

wherein R' is alkyl of from 1 to 6 carbons, which comprises (1) reacting a compound having the formula

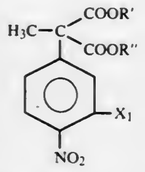


II$_1$

wherein X and X$_1$ may be the same or different and are halogen with the proviso that X$_1$ is not fluorine with a compound of formula



wherein R' and R'' may be the same or different and are alkyl of from 1 to 6 carbons or are R' and R'' taken together to form a cylic diester in the presence of a base selected from the group consisting of alkali metal hydroxide or potassium carbonate in an aprotic polar solvent such that the reaction mixture is essentially free of water to obtain a compound having the formula



III$_1$

wherein X, R' and R'' are as defined above and (2) reacting the compound III, prepared in step (1) with a alkali metal fluoride to obtain compound III'a above.

4,266,070

CATALYTIC PROCESS FOR THE MANUFACTURE OF URETHANES

David Moy, Ridgewood, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Filed May 25, 1979, Ser. No. 42,676
Int. Cl.^{3} C07C *125/063, 125/07*
U.S. Cl. 560—24 **15 Claims**

1. A process for producing urethanes which comprises contacting a reactant consisting essentially of an organic primary or secondary amine selected from the group consisting of aliphatic amines, alicyclic amines and aromatic amines having the formula

(i) RNH_2,
(ii) RNH(R'), or
(iii) $R(NH_2)_m$

wherein R and R' are independently selected from a group consisting of alkyl, aryl, alkaryl, aralkyl, and cycloalkyl and wherein m is an integer of from 2 to 5, and substituted derivatives of the above groups wherein the substituent is inert and is alkyl, aryl, alkaryl, aralkyl, cycloalkyl, halogen, alkylcyano, tertiary amino, ether or thioether, and amino-substituted derivatives of the foregoing hydrocarbyl substituents, said amine being free of substitution by OH—, >C=O and sulfonic acid groups, in a reaction zone in the substantial absence of reactive oxygen and in the substantial absence of —NO and —NO_2 moieties, under substantially anhydrous conditions, and at elevated temperature and pressure, with (1) a source of carbon monoxide and (2) an organic compound containing at least one hydroxyl group and consisting essentially of at least one member selected from the group consisting of compounds of the formula $Z(OH)_n$ wherein n is an integer of at least one and Z is an optionally substituted aliphatic, cycloaliphatic or araliphatic group, in the presence of (3) an effective amount of catalyst consisting essentially of a member selected from the group consisting of carbonyls of a metal selected from the group consisting of Co, Mo, Ti, Ni, Fe, Rh and mixtures thereof, said catalyst calculated as the metal, being present in an amount of at least about 0.001 weight percent of the amine reactant charged to the reaction zone.

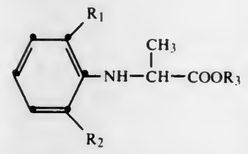
4,266,071

PROCESS FOR THE PREPARATION OF N-(1-ALKOXYCARBONYLETHYL)-2,6-DIALKYLANILINES

Alfred Grieder, Böckten, and Klaus-Jürgen Coers, Reinach, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

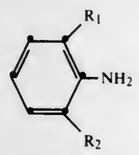
Filed Jun. 9, 1980, Ser. No. 157,760
Int. Cl.^{3} C07C *101/44*
U.S. Cl. 560—43 **14 Claims**

1. A process for the preparation of N-(1'-alkoxycarbonylethyl)-2,6-dialkylanilines of the formula I



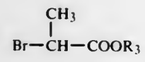
(I)

in which R_1 and R_2 are each methyl or ethyl and R_3 is an alkyl group having 1–4 carbon atoms, by reacting a 2,6-dialkylaniline of the formula II



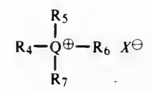
(II)

in which R_1 and R_2 are as defined above, with an alkyl 2-bromopropionate of the formula III



(III)

in which R_3 is as defined above, which comprises carrying out the reaction of the 2,6-dialkylaniline of the formula II with the alkyl 2-bromopropionate of the formula III at 110°–125° C., in excess 2,6-dialkylaniline as the solvent, in the presence of a quaternary compound of the formula IV



(IV)

in which Q is nitrogen or phosphorus, the radicals R_4, R_5, R_6 and R_7 are each an alkyl radical having 1 to 16 carbon atoms, or phenyl, and one of the radicals R_4, R_5, R_6 and R_7 can also be benzyl, and, if Q is nitrogen, Q together with three of the radicals R_4, R_5, R_6 and R_7 can also be a pyridine radical, whilst the fourth radical is alkyl having 1–16 carbon atoms, phenyl or benzyl, and $X^\ominus$ is a halide anion or a bisulfate anion, and in the presence of an alkali metal carbonate or alkali metal bicarbonate as an acid acceptor, the water formed being separated off by distillation during the reaction and the organic phase obtained after the addition of water and separation of the phases being worked up by distillation.

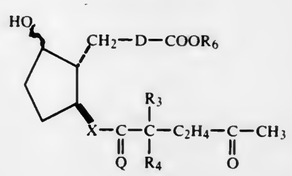
4,266,072

11-DEOXY-INTER-PHENYLENE-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, Pat. No. 4,228,104. This application Mar. 20, 1980, Ser. No. 131,998
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—53 **4 Claims**

1. A compound of the formula



wherein D is
(1) —(m-Ph)—$(CH_2)_2$—, or
(2) —(m-Ph)—O—CH_2—,
wherein —(m-Ph)— is inter-meta-phenylene;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β—naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

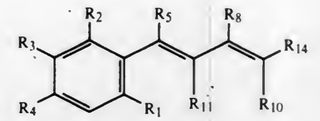
4,266,073

FLUORINATED AROMATIC POLYENES

Ka-Kong Chan, Hopatcong, and Beverly A. Pawson, Montclair, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 37,798, May 10, 1979, Pat. No. 4,201,727, which is a division of Ser. No. 952,416, Oct. 18, 1978, Pat. No. 4,169,100, which is a division of Ser. No. 809,738, Jun. 24, 1977, Pat. No. 4,137,246, which is a continuation-in-part of Ser. No. 722,939, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 632,028, Nov. 14, 1975, abandoned. This application Nov. 21, 1979, Ser. No. 96,362
Int. Cl.^{3} C07C *69/76, 59/00*
U.S. Cl. 560—55 **11 Claims**

1. A compound represented by the formula



wherein R_1, R_2 and R_3 are lower alkyl, R_4 is lower alkoxy, R_8 is methyl or trifluoromethyl, R_5, R_{10} and R_{11} are hydrogen of fluorine and R_{14} is formyl, hydroxymethyl, alkoxymethyl, dialkoxymethyl, carboxyl, alkoxycarbonyl, alkenoxycarbonyl or alkynoxy carbonyl with the proviso that when R_8 is methyl one of R_5, R_{10} and R_{11} is fluorine.

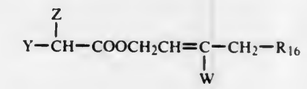
4,266,074

NOVEL INSECTICIDAL COMPOSITION

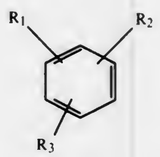
Keimei Fujimoto, Kobe; Nobuo Ohno, Toyonaka; Yoshitoshi Okuno, Toyonaka; Toshio Mizutani, Toyonaka; Isao Ohno, Minoo; Masachika Hirano, Toyonaka; Nobushige Itaya, Ikeda, and Takashi Matsuo, Amagasaki, all of Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan

Division of Ser. No. 378,301, Jul. 11, 1973, Pat. No. 3,996,244. This application Jul. 16, 1975, Ser. No. 596,332
Claims priority, application Japan, Jul. 11, 1972, 47-69805
Int. Cl.^{3} C07C *69/76, 79/46, 149/40, 147/107, 143/67;* **A01N** *43/16, 41/02, 37/34*
U.S. Cl. 560—105 **3 Claims**

1. A substituted acetate compound of the formula



wherein Y is



in which R_1 and R_2 are individually hydrogen, halogen, cyano, nitro, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, lower alkoxyalkyl, halogen-substituted lower alkyl, halogen-substituted lower alkenyl, halogen-substituted lower alkynyl, lower alkylthio, lower alkylsulfoxyl, acyl, acyloxy, lower alkoxycarbonyl, lower alkenyloxycarbonyl, lower alkynyloxycarbonyl, methylenedioxy, tetramethylene or trimethylene and R_3 is each of the above except for methylenedioxy, tetramethylene and trimethylene, respectively;

Z is straight or branched lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, cyano, halogen-substituted lower

alkyl, halogen-substituted lower alkenyl or an alicyclic group having 3 to 7 carbon atoms;
W is methyl or halogen; and
R_{16} is phenyl.

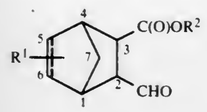
4,266,075

BICYCLIC ALDEHYDE DERIVATIVES, THEIR USE AS PERFUMING AND FLAVORING INGREDIENTS AND PROCESS FOR THEIR PREPARATION

Ferdinand Näf, Geneva, and Rene Decorzant, Onex, both of Switzerland, assignors to Firmenich, S.A., Geneva, Switzerland

Division of Ser. No. 940,836, Sep. 8, 1978, Pat. No. 4,218,347. This application Nov. 19, 1979, Ser. No. 95,201
Claims priority, application Switzerland, Sep. 15, 1977, 78234/77; Oct. 3, 1977, 11281/77
Int. Cl.³ C07C *69/74*
U.S. Cl. 560—120 **3 Claims**

1. A compound of formula



(I)

containing a single or a double bond in the position indicated by the dotted lines and wherein symbol R^1 represents a hydrogen atom or a methyl radical and R^2 defines a linear or branched alkyl radical containing 1 to 6 carbon atoms, with the proviso however that R^1 cannot represent hydrogen when R^2 represents a methyl radical.

4,266,076

PREPARATION OF ETHYL CARBOXYLATE

Max Gruffaz, La Mulatiere, and Odile Micaelli, Lyons, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jan. 16, 1979, Ser. No. 3,815
Claims priority, application France, Jan. 16, 1978, 78 01571
Int. Cl.³ C07C *67/04*
U.S. Cl. 560—247 **6 Claims**

1. In a process for the preparation of an ethyl carboxylate, in liquid phase, from ethylene under pressure and at least one carboxylic acid, the improvement which comprises conducting the esterification reaction (i) in the presence of a catalytic amount of a member selected from the group consisting of a perfluoroalkanesulfonic acid having the structural formula:

$$C_nF_{2n+1}SO_3H$$

wherein n is an integer of from 1 to 8, a lower alkyl ester thereof, and mixtures thereof; (ii) under a pressure of from about 20 to 60 bars; and (iii) at a temperature of from about 100° to 200° C.

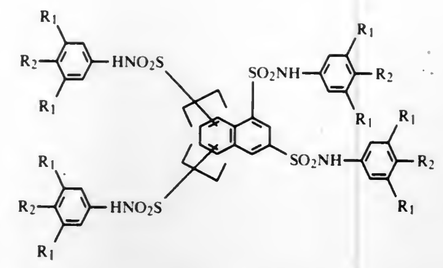
4,266,077

NAPHTHALENETETRAYLTETRAKIS(SULFONYLIMINO)-ARYL MULTICARBOXYLIC ACIDS AND SALTS THEREOF

Ransom B. Conrow, Pearl River, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 26, 1979, Ser. No. 106,610
Int. Cl.³ C07C *143/75*
U.S. Cl. 562—427 **7 Claims**

1. A compound of the formula:



wherein R_1 is $COOR_3$; wherein R_3 is selected from the group consisting of hydrogen and a pharmaceutically acceptable salt cation; and R_2 is selected from the group consisting of hydrogen and $COOR_3$.

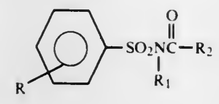
4,266,078

N-ACYLSULFONAMIDE HERBICIDAL ANTIDOTES

Ferenc M. Pallos, Walnut Creek, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Apr. 20, 1979, Ser. No. 31,906
Int. Cl.³ C07C *143/78*
U.S. Cl. 564—91 **7 Claims**

1. A compound of the formula



in which
R is selected from the group consisting of hydrogen, methyl, chloro, acetamido, and 1-4 carbon alkoxyamido;
R_1 is selected from the group consisting of hydrogen, allyl, and metal ion;
R_2 is selected from the group consisting of 1-10 carbon alkyl and 1-4 carbon haloalkyl.

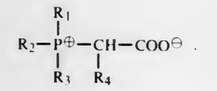
4,266,079

PROCESS FOR PREPARING TETRAHYDROCARBYLPHOSPHONIUM BICARBONATE SALTS

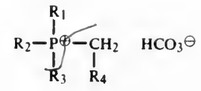
George A. Doorakian, Bedford; Lawrence G. Duquette, Maynard, and John F. Arnett, Newton, all of Mass., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 5, 1979, Ser. No. 91,280
Int. Cl.³ C07F *9/54*
U.S. Cl. 568—11 **12 Claims**

1. A process for preparing a tetrahydrocarbylphosphonium bicarbonate salt comprising reacting (a) a trihydrocarbyl(hydrocarbylcarboxymethyl)phosphonium hydroxide inner salt represented by the formula



in which R_1-R_3 are each independently hydrocarbyl or inertly-substituted hydrocarbyl radicals having from 1 to 20 carbon atoms, and R_4 is phenoxy, phenyl, hydrogen or an alkyl having 1 to 20 carbon atoms with (b) water, so as to prepare a phosphonium bicarbonate salt represented by the formula



4,266,080

PERFLUOROALKYLTHIOETHYL ETHER DERIVATIVES

Robert A. Falk, New City, and Karl F. Mueller, New York, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 2, 1978, Ser. No. 874,714
Int. Cl.³ C07C *149/18, 149/36*
U.S. Cl. 568—45 **8 Claims**

1. A perfluoroalkylthioethylether of the formula

$$R_fR_1SCH_2CH_2OTZ$$

wherein
R_f is straight or branched chain perfluoroalkyl of 1 to 18 carbon atoms, or said perfluoroalkyl substituted by perfluoroalkoxy of 2 to 6 carbon atoms;
R_1 is straight or branched chain alkylene of 1 to 12 carbon atoms, alkylenethioalkylene of 2 to 12 carbon atoms, alkyleneoxyalkylene of 2 to 12 carbon atoms, or alkyleneiminoalkylene of 2 to 12 carbon atoms where the imino nitrogen atom contains as a third substituent hydrogen or alkyl of 1 to 6 carbon atoms;
T is straight or branched chain alkylene of 1 to 18 carbon atoms or phenylene; and
Z is —H or —OR_2
where R_2 is hydrogen, alkyl of 1 to 24 carbon atoms, alkanoyl of 2 to 24 carbon atoms, alkenoyl of 3 to 24 carbon atoms.

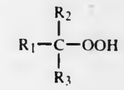
4,266,081

PROCESS FOR PREPARATION OF PEROXIDES

Kenichi Mizuno, Ohtake; Hiroshi Iwasaki, Yamoguchi, and Hirohiko Nambu, Ohtake, all of Japan, assignors to Mitsui Petrochemical Industries Ltd., Tokyo, Japan

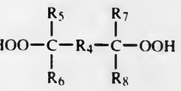
Filed Sep. 21, 1978, Ser. No. 944,271
Claims priority, application Japan, Sep. 29, 1977, 52/116028
Int. Cl.³ C07C *179/093, 179/06*
U.S. Cl. 568—578 **14 Claims**

1. A process for the preparation of peroxides by condensation reaction at a temperature of 30° to 100° C. of a tertiary organic hydroperoxide represented by the following formula:



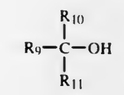
(1)

or



(2)

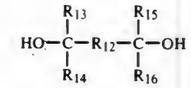
wherein R_1, R_2, R_6 and R_8 each stand for an aliphatic alicyclic or aromatic monovalent hydrocarbon group having 1 to 13 carbon atoms, R_3, R_5 and R_7 each stand for an aliphatic monovalent hydrocarbon group having 1 to 5 carbon atoms and R_4 stands for an aliphatic, alicyclic or aromatic divalent hydrocarbon group with a teritary alcohol represented by the following formula:



(3)

-continued

or



(4)

wherein R_9, R_{10}, R_{13} and R_{15} each stand for an aliphatic, alicyclic or aromatic monovalent hydrocarbon group having 1 to 13 carbon atoms, R_{11}, R_{14} and R_{16} each stand for an aliphatic monovalent hydrocarbon group having 1 to 5 carbon atoms, and R_{12} stands for an aliphatic divalent hydrocarbon group having 1 to 2 carbon atoms or an aromatic divalent hydrocarbon group having 6 to 10 carbon atoms, said process being characterized in that zinc chloride is present as a catalyst in an amount of 2 to 100% by weight based on the tertiary alcohol, wherein the zinc chloride is present in the form of an aqueous solution containing from 1 to 4 moles of water per mole of zinc chloride.

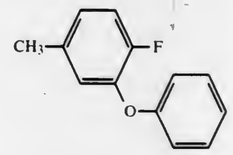
4,266,082

PREPARATION OF 4-FLUORO-3-PHENOXY-TOLUENE

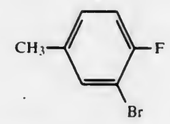
Reimer Cöllin; Hans-Joachim Diehr, both of Wuppertal, and Uwe Friesnitz, Unna-Massen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 17, 1979, Ser. No. 67,649
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1978, 2837525
Int. Cl.³ C07C *41/01*
U.S. Cl. 568—639 **14 Claims**

1. A process for the preparation of 4-fluoro-3-phenoxy-toluene of the formula



comprising reacting 3-bromo-4-fluoro-toluene, of the formula



with potassium phenolate, or with sodium phenolate in the presence of a potassium salt, in a diluent in the presence of copper as catalyst at a temperature between about 120° and 180° C.

4,266,083

BIOMASS LIQUEFACTION PROCESS

Max W. Huang, Birmingham, Ala., assignor to The Rust Engineering Company, Birmingham, Ala.

Filed Jun. 8, 1979, Ser. No. 46,907
Int. Cl.³ C10G *1/06*
U.S. Cl. 585—240 **10 Claims**

1. In a process for the conversion of solid materials selected from the group consisting of cellulosic biomass materials and lignite to oil wherein a solids-oil slurry is contacted in a reactor with carbon monoxide and water vapor in the presence of a catalyst selected from the group consisting of alkali metal and alkaline earth metal carbonates, bicarbonates and formates at a temperature of from about 250° C. to about 450° C. and at a

pressure of from 2000 psig to about 5000 psig the improvement wherein off-gases from the reactor and hydrocarbon fuel are burned with oxygen at a pressure above the reactor pressure to provide a carbon monoxide-water vapor gas having a temperature of from about 1100° C. to about 1600° C. and introducing said carbon monoxide-water vapor gas under the surface of the oil slurry in the reactor to provide heat, carbon monoxide, and water vapor to said reactor.

4,266,084

NON-CATALYTIC PYROLYSIS OF RESIDUES FROM AROMATIC CARBOXYLIC ACID MANUFACTURE

John K. Allen, St. Charles, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Oct. 19, 1979, Ser. No. 86,403
Int. Cl.[3] C07C *1/20*
U.S. Cl. 585—469 **6 Claims**

1. A method of decarbonylating and/or decarboxylating a mixture containing aldehydo-, carboxy-, methylol-, keto- and carboxy-, methylol-carboxy-, and carboxy- and aldehydo-substituted benzene and toluene which comprises heating such mixture in the absence of an externally added catalyst to a temperature of at least 700° C. whereat there is formed a solid carbonaceous product and a hydrocarbon product including vapors of benzene and toluene together with lower alkanes and alkenes, hydrogen and oxides of carbon; and collecting at least vapors of benzene and toluene.

4,266,085

OLEFIN DISPROPORTIONATION PROCESS

Leo Kim, Modesto, Calif.; Timm E. Paxson, Houston, and Sunny C. Tang, Katy, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 66,352, Aug. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 54,775, Jul. 5, 1979, abandoned, which is a division of Ser. No. 861,916, Dec. 19, 1977, Pat. No. 4,179,403. This application May 9, 1980, Ser. No. 148,099
Int. Cl.[3] C07C *6/00*
U.S. Cl. 585—645 **13 Claims**

1. A process for the production of olefins by disproportionation which comprises contacting at a temperature of between about −20° C. and +150° C. and a pressure of between about 0 and 2000 psig an olefinic hydrocarbon feedstock capable of undergoing a disproportionation process with an activator and a catalyst comprising:
(a) an ion exchange resin;
(b) a metal selected from the group consisting of molybdenum, tungsten and rhenium; and
(c) an organic linking compound which has at least one moiety which is ionically bonded to said ion exchange resin and further has at least one moiety which is coordinately bonded to said metal.

4,266,086

PROCESS FOR REMOVING α-ACETYLENES FROM DIOLEFINS

Pradeep V. Patel, Parma, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Feb. 12, 1980, Ser. No. 120,948
Int. Cl.[3] C07C *7/177*
U.S. Cl. 585—810 **10 Claims**

1. A process for removing alpha-acetylenes from a hydrocarbon liquid mixture comprising said alpha-acetylenes and a conjugated diolefin having four to five carbon atoms, which process comprises, (a) adding an inhibitor to said mixture in an amount sufficient to inhibit polymerization of said diolefin, (b) introducing said hydrocarbon liquid mixture and inhibitor, optionally with an inert diluent, to a fixed bed reactor without supplying hydrogen or oxygen thereto, (c) contacting said mixture at a temperature in the range from about 200° F. to about 260° F. with a solid porous supported catalyst selected from the group consisting essentially of supported cupric oxide, silver oxide, or mixtures thereof in the range from more than 10% but less than 25% by weight of said catalyst, at a liquid hourly space volocity (LHSV) in the range from about 1 to about 50, (d) cracking said alpha-acetylenes to non-oxygenated organic compounds so as to produce at least 90 percent conversion of said alpha-acetylenes in the effluent from said reactor, in which effluent cyclopentadiene, if present in the feed, is essentially unconverted, loss of diolefin is less than 1 percent by weight of the hydrocarbon feed, and (e) providing heat to said reactor so as to maintain said temperature range during said process.

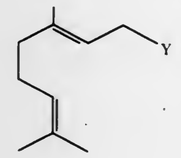
4,266,087

PROCESS FOR PREPARING A MYRCENOL, CIS-OCIMENOL MIXTURE SUBSTANTIALLY FREE OF TRANS-OCIMENOL

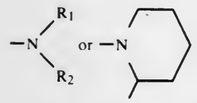
Alan J. Chalk, Kinnelon, and Steven A. Magennis, Wayne, both of N.J., assignors to Givaudan Corporation, Clifton, N.J.

Filed Nov. 13, 1978, Ser. No. 960,152
Int. Cl.[3] C07C *29/44, 29/88, 29/00, 33/02*
U.S. Cl. 568—875 **25 Claims**

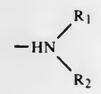
1. A process for the preparation of a myrcenol, cis-ocimenol mixture, substantially free of trans-ocimenol, which comprises:
(a) preparing a geranyl amine of the formula:



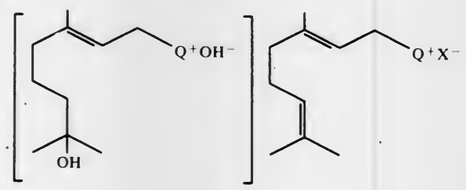
wherein:
Y represents



and R_1 and R_2 are alike or different and are chosen from the group consisting of ethyl, n-propyl and n-butyl;
by reacting myrcene with 2-methylpiperidine or a secondary dialiphatic amine of the formula:

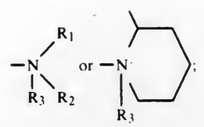


in the presence of its corresponding lithium amide;
(b) converting said geranyl amine to the corresponding E-3,7-dimethyl-2,6,-octadien-1-yl quaternary ammonium salt of the formula

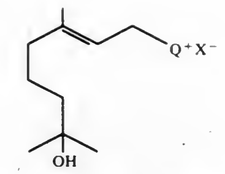


wherein:

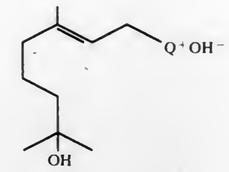
X is Cl, Br, I or R_3SO_4;
Q represents



and R_3 is an alkyl group of one to eight carbons or a benzyl group;
(c) converting said quaternary ammonium salt to the corresponding E-3,7-dimethyl-7-hydroxy-2-octen-1-yl quaternary ammonium salt



(d) converting said salt to the corresponding E-3,7-dimethyl-7-hydroxy-2-octen-1-yl quaternary ammonium hydroxide

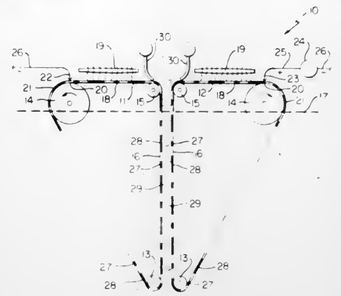


and
(e) subjecting said E-3,7-dimethyl-7-hydroxy-2-octen-1-yl quaternary ammonium hydroxide to Hofmann elimination conditions.

4,266,088
METHOD OF MAKING ELECTRET MEANS

James T. Candor, 5440 Cynthia La., Dayton, Ohio 45429

Division of Ser. No. 894,827, Apr. 10, 1978, Pat. No. 4,174,979.
This application Jun. 21, 1979, Ser. No. 50,796
Int. Cl.[3] H01L 35/00; B03C 5/00
U.S. Cl. 136—206 9 Claims

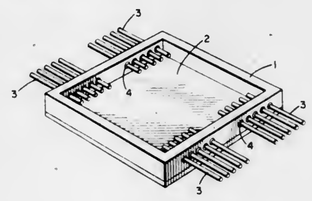


1. A method of making electret means comprising the steps of providing a strip of electret producing material, and changing said strip of material into a strip of electret means, said changing step comprising the step of forming at least one side of said strip of electret means with a repeating serial pattern of a narrow band of electret means transversely across said strip of material and then a wide band of electret means transversely across said strip of material that is spaced from said narrow band of electret means whereby said strip of electret means has each pair of adjacent narrow bands of electret means thereof separated by a wide band of electret means thereof disposed therebetween and spaced therefrom, said forming step comprising the step of causing said bands of said electret means to all have a negative charge or all have a positive charge at said one side of said strip of material.

4,266,089
ALL METAL FLAT PACKAGE HAVING EXCELLENT HEAT TRANSFER CHARACTERISTICS

Jeremy D. Scherer, S. Dartmouth, Mass., assignor to Isotronics, Incorporated, New Bedford, Mass.

Filed Sep. 14, 1978, Ser. No. 942,329
Int. Cl.[3] H05K 5/04
U.S. Cl. 174—52 FP 6 Claims

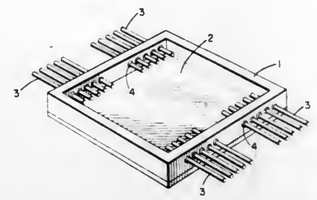


3. A flat package for electric microcircuits comprising:
(a) a type 316 stainless steel frame having electrical leads extending therethrough, said leads being glass-sealed therein:
(b) a flat copper bottom;
(c) said stainless steel frame forming the side walls of the package and being brazed to said copper bottom to form a continuous seal between said frame and said bottom; and
(d) said brazing have been accomplished after the electrical leads were glass-sealed in said frame and at a temperature below about 460° C.

4,266,090
ALL METAL FLAT PACKAGE

Jeremy D. Scherer, South Dartmouth, Mass., assignor to Isotronics, Incorporated, New Bedford, Mass.

Filed Sep. 14, 1978, Ser. No. 942,334
Int. Cl.[3] H05K 5/04
U.S. Cl. 174—52 FP 7 Claims

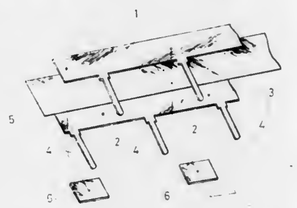


4. A flat package for electric microcircuits comprising:
(a) a Kovar frame having electric leads extending therethrough, said leads being glass-sealed therein;
(b) a molybdenum bottom, said molybdenum bottom having a sintered plating at least in the area in contact with said Kovar frame;
(c) said Kovar frame forming the side walls of the package and being brazed to said molybdenum bottom to form a continuous seal between said frame and said bottom; and
(d) said brazing having been accomplished after the electrical leads were glass-sealed in said frame at and a temperature below about 500° C.

4,266,091
LAYER-BUILT LAMINATED BUS EMBEDDING CONDENSERS

Sunichi Fukuda, Kukizaki, Japan, assignor to Rogers Corporation, Rogers, Conn.

Filed Oct. 10, 1978, Ser. No. 950,266
Claims priority, application Japan, Oct. 8, 1977, 52-121168
Int. Cl.[3] H01B 7/00
U.S. Cl. 174—72 B 11 Claims



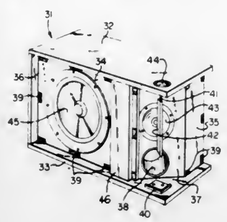
1. A multi-conductor bus bar assembly comprising:
a first bus conductor, said first conductor being formed from an elongated flat strip of conductive material;
at least a second bus conductor, said second conductor being formed from an elongated flat strip of conductive material;
a layer of insulating material bonded to and separating said conductors, said insulating material being provided with a series of longitudinally spaced cut-outs;
a plurality of capacitors, said capacitors being individually positioned in said cut-outs in said layer of insulating material, said capacitors each comprising a flat wafer of solid dielectric material with plates defined by conductive material disposed on the sides of the wafer which face said conductors; and
means for electrically and mechanically connecting the plates of said capacitors to said conductors.

4,266,092

LOUDSPEAKER SYSTEM WITH BROAD IMAGE SOURCE

Charles R. Barker, III, Harvard, Mass., assignor to Bose Products, Inc., Toa Baja, P.R.

Continuation of Ser. No. 762,017, Jan. 24, 1977, Pat. No. 4,133,975, which is a continuation of Ser. No. 564,543, Apr. 2, 1975, abandoned. This application Nov. 2, 1978, Ser. No. 957,423
The portion of the term of this patent subsequent to Jan. 9, 1996, has been disclaimed.
Int. Cl.³ H04R *1/28*
U.S. Cl. 179—1 E **11 Claims**



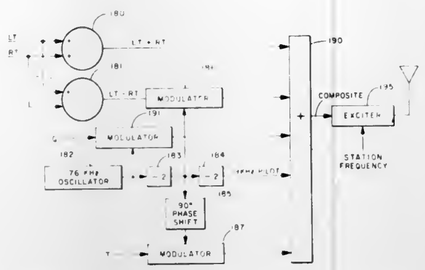
1. A loudspeaker system comprising,
cabinet means for supporting loudspeaker drivers,
first loudspeaker driver means supported by said cabinet for radiating sound energy to the front over a first frequency range and having a first polar response,
second loudspeaker driver means supported by said cabinet for radiating sound energy over a second frequency range mostly higher than said first frequency range to the front and side for reflection first from a reflecting surface and then into the listening area along a path after a single reflection that intersects the first loudspeaker driver means axis at a point in said listening area and having a directional second polar response different from said first polar response,
the angle between the axes of said first and second loudspeaker driver means being an acute angle.
an input terminal pair,
and means for intercoupling said input terminal pair and said first and second loudspeaker driver means for providing spectral components in a common frequency range to said first and second loudspeaker driver means,
said means for inercoupling coacting with said first and second loudspeaker driver means to comprise means for attenuating spectral components radiated by said first driver means above a first frequency at the high end of said common frequency range relative to spectral components applied thereto in said common frequency range and means for attenuating spectral components radiated by said second driver means below a second frequency at the low end of said common frequency range relative to spectral components applied thereto in said common frequency range so that the difference between the gain from said input terminal pair to the output of said first driver means and the gain from said input terminal pair to the output of said second driver means is substantially uniform over said common frequency range,
said means for intercoupling coacting with said first and second loudspeaker driver means to comprise means for dissimilarly radiating from first and second locations defined by said first and second loudspeaker driver means respectively spectral components over said over said common frequency range to provide a spatially diffuse source,
said common frequency range being at least half an octave,
said loudspeaker system being free of other loudspeaker driver means which radiate energy having spectral components above said first frequency range primarily directly into the listening area.

4,266,093

COMPATIBLE FOUR CHANNEL RADIO BROADCAST AND RECEIVING SYSTEM

Benjamin B. Bauer, Stamford, Conn., assignor to CBS Inc., New York, N.Y.

Filed Mar. 9, 1979, Ser. No. 18,967
Int. Cl.³ H04S *3/02*; H04H *5/00*
U.S. Cl. 179—1 GQ **17 Claims**



6. Apparatus for receiving, from first and second channels, first and second composite signals representing the sum and difference, respectively, of signals designated LT and RT, and a first auxiliary composite signal, the said signals being derived from four directional audio signals designated LF, RF, LB and RB, and the LT signal containing, to the extent they are present, LF in a dominant proportion and LB and RB in sub-dominant proportions, LB and RB being phase-shifted with respect to each other, the RT signal containing, to the extent they are present, RF in a dominant proportion and LB and RB in sub-dominant proportions, LB and RB being phase-shifted with respect to each other and respectively lagging and leading LB and RB in the LT signal by substantially 90°, and the first auxiliary composite signal containing, to the extent they are present, equal proportions of LF, RF, LB and RB of lesser value than the sub-dominant proportions of LB and RB in the first and second composite signals, which have phase angles either all substantially perpendicular or all substantially parallel to those of corresponding signals in a composite signal representing the sum of LT and RT, the apparatus including a decoder comprising:
means responsive to the primary and secondary channels for processing the sum and difference signals to obtain the LT and RT signals;
matrix means for combining the LT and RT signals in predetermined amplitude and phase relationship to obtain four intermediate signals, each of which has a different one of the individual audio signals predominant and contains in sub-dominant proportion transferred portions of others of the individual audio signals; and
means for combining relatively phase-shifted versions of the first auxiliary composite signal with the intermediate signals in phase relationship to recover four output signals, each of which has a different one of the individual audio signals predominant and wherein the proportions of the transferred portions are diminished relative to their associated predominant signal as compared to the relative proportions of the predominant and transferred portions in the intermediate signals.

4,266,094

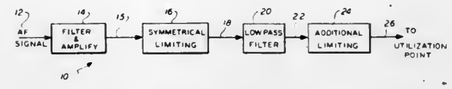
ELECTRONIC SPEECH PROCESSING SYSTEM

Irving J. Abend, 17 Clinton Park Dr., Bergenfield, N.J. 07621

Filed Mar. 15, 1979, Ser. No. 20,820
Int. Cl.³ H04B *1/10, 15/00*
U.S. Cl. 179—1 D **7 Claims**

1. A system for processing speech signals to enable undistorted signal amplification while providing high articulation and intelligibility in a predetermined band of frequencies, comprising:

(a) means for filtering an AF electrical signal analog of said speech signal, to provide an output AF signal, including a narrow passed band of frequencies primarily in the range of from about 1000 to 2500 Hz;
(b) means for symmetrically clipping the output from said filtering means, the signal level of said output being such in relation to said clipping level as to provide a series of pulses of constant amplitude, the discontinuities of which coincide with the zero axis crossings of the original AF signal;



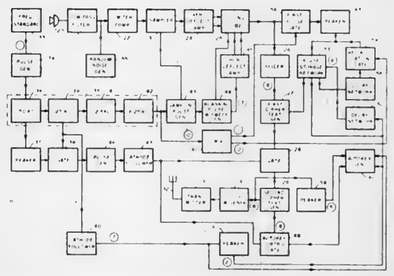
(c) reshaping low pass filter means for receiving the output from said symmetrical clipping means for sinusoidally reshaping said pulses; and
(d) secondary limiting means for receiving the reshaped output of said low pass filter means, for clipping discontinuities generated by the low pass filter means from said output; and
each of means (a), (b), (c) and (d) being consecutively disposed in a single signal channel which is free of branch circuits for modifying the input signal presented to a said means.

4,266,095

BINARY CODE RANDOMIZING SYSTEM

Beryl L. McArdle, 1935 Brighton-Henrietta Town Line Rd., Rochester, N.Y. 14618

Filed Jan. 4, 1950, Ser. No. 136,739
Int. Cl.³ H04K *1/00*
U.S. Cl. 179—1.5 R **10 Claims**



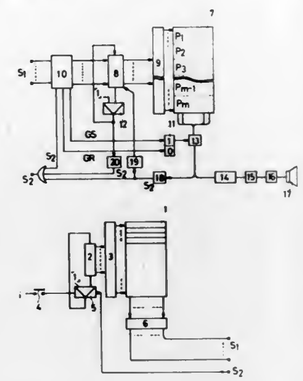
1. In a secret communication system including a source of an intelligence signal wave, means for periodically sampling said signal wave at predetermined intervals, and means for developing from the samples thus obtained a first pulse train comprising groups each having n binary digits: means for developing a second pulse train comprising groups of n binary digits, (n − 1) of said binary digits corresponding respectively with a selected binary digit in each of the preceding (n-1) groups of said first pulse train; means for combining said first and second pulse trains to develop a third pulse train; and means for utilizing said third pulse train.

4,266,096

AUDIBLE OUTPUT DEVICE FOR TALKING TIMEPIECES, TALKING CALCULATORS AND THE LIKE

Tomohiro Inoue, and Sigeaki Masuzawa, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 98,064
Claims priority, application Japan, Nov. 30, 1978, 53-148940
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1.5 M **4 Claims**



1. An audible output device comprising:
a store means for storing linguistic information codes indicative of words to be audibly displayed;
a first control means for fetching the linguistic information codes in preselected order from the store means;
an audible output means responsive to the first control means for deliverying audible words in accordance with the linguistic information codes fetched from the store means;
a second control means operatively associated with a pause code for allowing the pause code to be stored within the store means together with the linguistic information codes and fetching the linguistic information codes and the pause code from the store means in the preselected order of the words to be audibly displayed and the audible output pause time slots;
and an audible output inhibition means responsive to the pause code from the store means for disabling the audible output means for a desired length of time.

4,266,097

DEVICE CONTROL SYSTEM

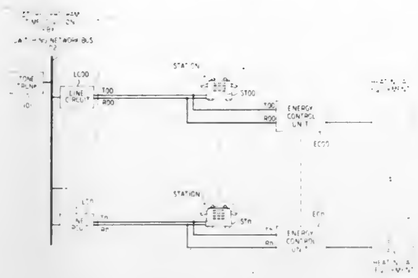
Thomas B. Cannon, Thornton; James E. Dalley, Brighton, both of Colo., and Andrew S. George, Ocean Township, Monmouth County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 14, 1979, Ser. No. 38,408
Int. Cl.³ H04M *11/00*
U.S. Cl. 179—2 A **8 Claims**

1. A control system for overriding the normal control of devices (L00-Ln) each of which is located at one of a plurality of sites, each of said sites having associated with it a communication pair (T00, R00-Tn, Rn), the system comprising:
generation means (**101**) for producing an audio frequency tone having a predetermined frequency;
distribution means (**100**) connected to both said communication pairs (T00, R00-Tn, Rn) and said generation means (**101**) for concurrently applying said audio frequency tone to each of said communication pairs (T00, R00-Tn, Rn) associated with a site containing one of said devices (L00-Ln) the normal control of which is to be overridden;
a plurality of control means (EC00-ECn), each of which is

connected to one of said communication pairs (T00, R00–Tn, Rn), associated on a one-to-one basis with said devices (L00–Ln), for overriding the normal control of said devices (L00–Ln) wherein each said control means (EC00–ECn) includes:

detection means (200) for providing an indication of the presence of said applied audio frequency tone signal on said associated communication pair (T00, R00), wherein



each of said detection means (200) is connected to said associated communication pair (T00, R00);

switch means (303) responsive to said detection means (200) indication for overriding the normal control of said device L00 associated with said control means (EC00); and

wherein said distribution means (100) comprises a telephone communication system which is responsive to an algorithm stored therein for overriding the normal control of said devices (L00–Ln).

4,266,098

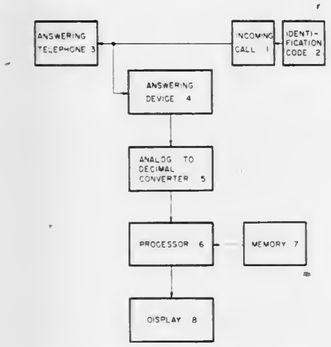
DEVICE TO AUTOMATICALLY SCREEN INCOMING TELEPHONE CALLS, DETERMINE THE IDENTITY OF THE CALLER AND PROCESS THE CALL ACCORDINGLY

Albert P. Novak, 96 Cypress St., Floral Park, N.Y. 11001

Filed Nov. 3, 1978, Ser. No. 957,344

Int. Cl.³ H04M *15/06*

U.S. Cl. 179—5.5 **9 Claims**



1. A system for the automatic identification of telephone callers for use in a conventional telephone system comprising:

an incoming signal; an identification code contained within said incoming signal, a unique code having been assigned to each caller; a receiving telephone station, including call-alerting means; automatic call-answering means for receiving at said telephone station said incoming signal and establishing an interconnection with an identification processing means for processing said identification code to determine the identity of the caller, said identification means comprising: signal sampling/conversion means for receiving said identification code and converting the information contained within said code into date bits representing digital words;

display means coupled to said identification means for displaying the identity of the caller, driven by the digital word output of said identification means, and arranged to produce at a single annunciator the identity of each identified caller, at the time said identification code is received.

4,266,099

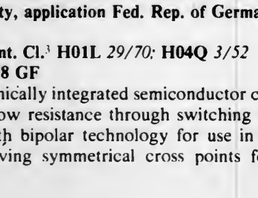
PULSE REJECTION AND DURATION CORRECTION CIRCUIT

Inanc Kayalioglu, Ottawa; Vincent G. Roman, Stittsville, and Ted J. Lewandowski, Arnprior, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed May 29, 1979, Ser. No. 43,348

Int. Cl.³ H04M *1/74;* **H03K** *5/13*

U.S. Cl. 179—16 EA **3 Claims**



1. A pulse rejection circuit comprising:

a circuit input and a circuit output;

first, second and third switching amplifiers, each having an input and an output;

a first coupling network having a direct coupled output for positive polarity signals and an integrated coupled output for negative polarity signals, connected between the input of the circuit and the input of the first amplifier;

a second coupling network having a direct coupled output for negative polarity signals and and integrated coupled output for positive polarity signals, connected between the input of the circuit and the input of the second amplifier;

a summing network for connecting the summed outputs of the first and second amplifiers to the input of the third amplifier, the third amplifier having a switching hystersis so that it switches only when both outputs of the first and second amplifiers have switched to the same polarity.

4,266,100

MONOLITHICALLY INTEGRATED SEMICONDUCTOR CIRCUIT

Dietrich Höppner, Blaustein-Wippingen, and Gerhard Kohlbacher, Ulm, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 19, 1979, Ser. No. 21,973

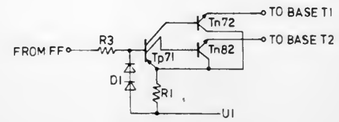
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1978, 2811631

Int. Cl.³ H01L *29/70;* **H04Q** *3/52*

U.S. Cl. 179—18 GF **2 Claims**

1. A monolithically integrated semiconductor circuit having a plurality of low resistance through switching transistors in accordance with bipolar technology for use in coupling arrangements having symmetrical cross points for telephone

connection and transmission devices, which permits a series of incoming lines to be selectively connected to one or more outgoing lines in which the two through switching transistors respectively of a symmetrical cross point are constructed as NPN transistors and can be switched through in a high resistance manner by means of a composite circuit and can be blocked in low resistance manner by means of an additional circuit, and the composite circuit and the additional circuit can be triggered by means of a memory constructed as a trigger stage, characterized in that the composite circuit has a double



collector transistor of PNP type, a collector of which is connected to the base of a first NPN transistor, the other collector being connected to the base of a second NPN transistor, its emitter being connected, on the one hand, to the collectors of both NPN transistors and on the other hand via a first resistor to a voltage source and its base being connected, on the one hand, via a component causing a constant drop in voltage to said voltage source and, on the other hand, via a second resistor to the trigger stage and the emitters of the two NPN transistors respectively are connected to the bases of the two through switching transistors.

4,266,101

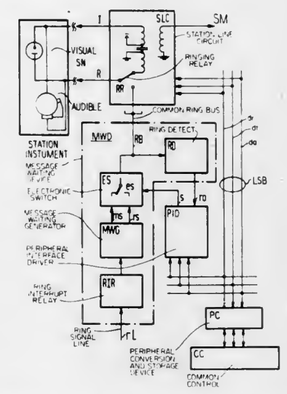
CONTROL CIRCUIT FOR A TELEPHONE SYSTEM FOR THE CONTROL OF VISUAL AND AUDIBLE SIGNALS

Ronald C. Dunbar, Wyncote, Pa., assignor to Siemens Corporation, Cherry Hill, N.J.

Filed Jul. 18, 1979, Ser. No. 58,679

Int. Cl.³ H04M *3/02*

U.S. Cl. 179—84 C **9 Claims**



1. In a telephone system having a common control unit for the making of telephone connections between calling and called subscriber stations, each of said subscriber stations having telephones with visual and audible signalling devices, a plurality of individual line circuits assigned to the subscriber stations and connecting means assigned to each line circuit for connecting a signal thereto from a common ring bus, the combination comprising: a peripheral conversion and storage device connected to said common control unit, a peripheral interface driver connected by a data and address bus to said peripheral conversion and storage device, a generator connected to said common ring bus for producing a ringing signal and a visual control signal, and an electronic switch connected between said generator and said common ring bus and controllable by said peripheral interface drive for alternately connecting to said common ring bus said ringing signal for operating said audible signalling devices and said visual control signal for operating said visual signalling devices to identify a message waiting condition, a ring detector connected to said electronic switch and to said peripheral interface driver for monitoring the control of said electronic switch.

4,266,102

AUTOMATIC DIALING DEVICE

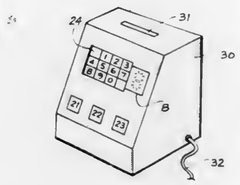
Louis Stanley, Beverly Hills, and Robert E. Sinclair, Summer Hill, both of Australia, assignors to Card-O-Matic Pty. Limited, Sydney, Australia

Continuation of Ser. No. 899,190, Apr. 24, 1978, abandoned. This application Nov. 8, 1979, Ser. No. 92,408

Claims priority, application Australia, Apr. 22, 1977, PC9846; Dec. 2, 1977, PD 2641

Int. Cl.³ H04M *1/278*

U.S. Cl. 179—90 CS **7 Claims**



1. An automatic telephone dialing apparatus comprising card reading means to serially read each digit of an encoded telephone number from an elongated business card, credit card, or similar flat object, said card having a width between a minimum and a maximum predetermined dimension, a variable length of at least a predetermined minimum dimension, and a minimum stiffness insufficient to prevent transverse buckling of said card under longitudinal stress, a card entered memory connected to said card reading means to sequentially receive therefrom at a ramdon rate, and store, each said digit, and a dial pulse generating circuit connected to said memory to generate at a predetermined rate a telephone dialing pulse train in accordance with the numerical value of each of the digits stored in said memory, wherein each said digit is encoded on said card as one or more holes therein, each located at a corresponding spaced location along a line transverse to the longitudinal axis of said card, the location of said holes representing the numerical value of each said digit and being at predetermined distances from one edge of said card, said minimum predetermined card width being directly determined by the maximum number of holes used to encode any digit and the spacing of said holes, the spacing between said lines being random along the length of the card starting from a first end of the card with no line being more than the minimum predetermined card length dimension from said first end;

said card reading means comprising a plurality of spaced light sources, and a corresponding plurality of light sensitive devices in a slot, each of said light sensitive devices being arranged to receive light from the corresponding light source, said card being manually insertable, said first end first, in said slot at any random or variable speed between said light sources and said light sensitive devices, the spacing of said light sources and said light sensitive devices permitting light to be received by said devices only via said holes in said card, and

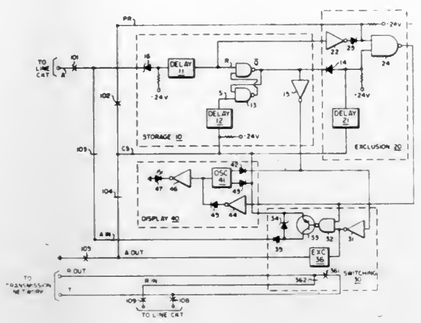
wherein said maximum predetermined card width is determined by the width of said slot and said minimum predetermined card length is determined by the depth of said slot.

4,266,103

KEY TELEPHONE EXCLUSION CIRCUIT

Thomas E. White, Glen Ellyn, Ill., assignor to GTE Automatic Electric Laboratories Inc., Northlake, Ill.

Filed Jul. 26, 1979, Ser. No. 60,937
Int. Cl.³ H04M 1/70
U.S. Cl. 179—99 E **9 Claims**



1. An exclusion circuit for use in a key telephone system including a plurality of key telephones, a common status lead and a telephone line, each of said telephones connectable to said status lead and said telephone line, each of said telephones operable to apply busy and idle signals to said status lead, and each of said telephones including a hold key and an exclusion release key, said exclusion circuit comprising:

storage means operated in response to connection to said status lead and application of said busy signal to said status lead, to generate a busy detected signal, said storage means further operated in response to connection to said status lead and application of said idle signal to said status lead, to generate an idle detected signal;

switching means connected to said storage means operated in response to said busy detected signal to prevent connection to said telephone line, said switching means further operated in response to said idle detected signal to apply said busy signal to said status lead;

exclusion means connected to said exclusion release key, and to said hold key via said storage means, said storage means further operated in response to operation of said hold key to generate an exclusion release enable signal, said exclusion means operated in response to momentary operation of said exclusion key, and further operated in response to momentary presence of said exclusion release enable signal, to generate said exclusion release signal, said exclusion means further operated in response to a busy signal to inhibit said exclusion release signal;

said switching means further connected to said exclusion means, operated in response to said exclusion release signal, to remove said busy signal from said status lead and to apply said idle signal to said status lead; and

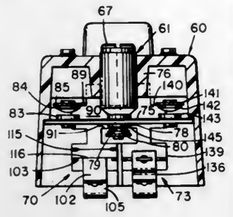
display means connected to said storage means and said exclusion means, operated in response to said busy detected signal to generate a periodic visual signal, further operated in response to said exclusion release signal to generate a steady visual signal, further operated in response to said idle detected signal to extinguish said periodic visual signal, and further operated in response to an absence of said exclusion release signal to extinguish said steady visual signal.

4,266,104

SWITCH MECHANISM WITH INDEPENDENT TOGGLE ACTUATORS

Denis Capel, Hardegarijp, Netherlands, assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Feb. 12, 1979, Ser. No. 11,209
Int. Cl.³ H01H 5/00
U.S. Cl. 200—18 **10 Claims**



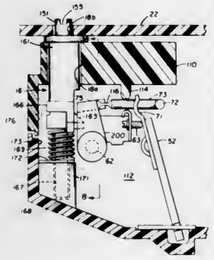
8. A switch responsive to at least first and second displacement actuators comprising a non-conductive base; a contact bar assembly mounted to said base and including at least first, second and third fixed contacts; first, second and third movable contact means associated respectively with said first, second and third fixed contacts; each of said movable contact means being movable between a normal position and an actuated position; first and second toggle means each having first and second stable states responsive to said first and second displacement actuators respectively for independently moving from said first state to said second state; first link means responsive to said first toggle means for actuating said first and second movable contact means when said first toggle means is actuated to said second state; and second link means independently movable relative to said first link means responsive to said second toggle means for actuating said second and third movable contact means to their respective actuated positions when said second toggle means is actuated to said second state; whereby said second movable contact means is responsive to the actuation of either of said toggle means, and said first and third contact means are independently responsive to the actuation of said first and second toggle means respectively.

4,266,105

BIASING MEANS FOR COMBINATION ACTUATOR

Norman P. Perkins, Jr., Westminster, Md., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jan. 15, 1979, Ser. No. 3,134
Int. Cl.³ H01H 9/20
U.S. Cl. 200—50 A **8 Claims**



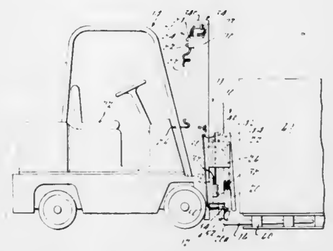
1. A multipole switching device including a set of cooperating contacts for each pole of said device, an operating mechanism for normally opening and closing said contacts, automatic trip means for operating said mechanism to open said contacts upon the occurrence of predetermined overload conditions; said mechanism including latch means which when latched permits said mechanism to open and close said contacts; said latch means when unlatched releasing a portion of said mechanism to open said contacts; said automatic trip means including a common trip means for all poles of said device; a housing wherein said contacts, said mechanism and said trip means are disposed; said housing including an openable front cover; a trip actuator; a spring urging said actuator forward; said actuator being maintained by said cover in a first position when the latter is closed; with said cover open said spring operating said actuator forward to a second position; said actuator in moving from said first to said second position operatively engaging said trip means for operation thereof to unlatch said latch means whereby said mechanism opens said contacts; with said cover closed, said actuator being accessible for operation from outside of said housing from said first to a third position to operatively engage said trip means for operation thereof to unlatch said latch means whereby said mechanism open said contacts; said actuator being provided with a first formation that operatively engages the trip means to unlatch the latch means when the actuator moves from said first to said second position; said actuator being provided with a second formation which operatively engages the trip means to unlatch the latch means when the actuator is operated to said third position; and said spring urging said actuator rotationally toward said first position.

4,266,106

LIFT TRUCK LOAD POSITION SENSING DEVICE

Daniel M. Fraser, W. Bloomfield; John E. Hausner, Grosse Pte. Farms; William J. Hawkins, Plymouth, and Frederick K. Comiskey, Troy, all of Mich., assignors to The Stroh Brewery Co., Detroit, Mich.

Filed Apr. 5, 1979, Ser. No. 27,235
Int. Cl.³ H01H 3/16
U.S. Cl. 200—61.44 **8 Claims**



1. In combination with a load carrier having vertical support means and horizontal load-carrying means extending forwardly from and substantially perpendicularly from said vertical support means, a position sensing device to determine the position of a load with respect to said load carrier, comprising

a plate, mounted pivotally onto said vertical support means of said load carrier and movable toward and away from said vertical support means in the direction in which said horizontal load-carrying means extends;

spring means biasing said plate away from said vertical support means;

position sensing means to detect first and second positions of said plate relative to said vertical support means,

wherein said first position detects a load contacting said plate, and said second position detects that said load is located too closely to said vertical support means; and

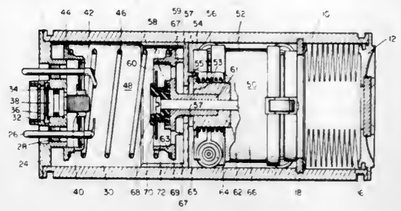
means to indicate said first and second positions from said position sensing means to an operator of said load carrier.

4,266,107

ACCELERATION SWITCH

Joseph P. Abbin, Jr.; John N. Middleton, and Harold E. Schildknecht, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 20, 1979, Ser. No. 67,858
Int. Cl.³ H01H 35/14
U.S. Cl. 200—61.53 **8 Claims**



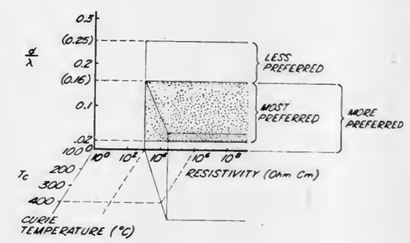
1. An acceleration sensitive switch comprising a generally tubular housing forming a chamber; a damping fluid within said chamber; an electrical contact within said chamber; a carriage assembly longitudinally moveable within said chamber including an inertial sensing mass and a piston having valve means for controlling the flow of said fluid past said piston, said valve means being open only when the acceleration of said switch is less than a second predetermined level and closed only when the acceleration is greater than said level; and spring means for biasing said carriage assembly away from said contact when the acceleration of said switch is zero, the force of said carriage assembly overcoming the bias of said spring when the acceleration of said switch exceeds a first predetermined level, the second level being greater than the first level.

4,266,108

MICROWAVE HEATING DEVICE AND METHOD

George R. Anderson, Minneapolis, Minn.; Walter R. Ott, Middlesex; Edward J. Smoke, Edison, both of N.J.; Ross A. Easter, Minneapolis, and Jeffrey J. Sholl, New Brighton, both of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Mar. 28, 1979, Ser. No. 24,758
Int. Cl.³ H05B 6/64
U.S. Cl. 219—10.55 E **50 Claims**



1. A device for use in a microwave radiation environment which device will absorb microwave radiation to produce heat and elevate the temperature of the device, said device including:

a microwave reflective member; and

a lossy magnetic ferrite containing material of a type having a Curie temperature, said ferrite being in heat transfer relationship with a surface of said member with said ferrite containing material having thickness (d) in a direction generally normal to said surface such that at the Curie temperature the ferrite containing material will reflect at

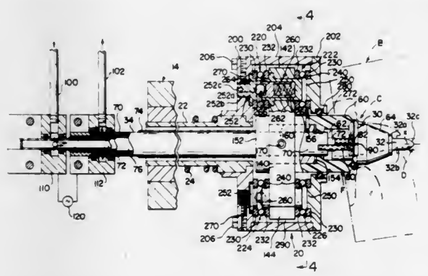
least about 65% of the impinging microwave radiation in the frequency range of about 300 MHZ to about 10^5 MHZ, said ferrite containing material having a volume resistivity (R) in ohm cm of greater than about a value where Log R=(Tc/100)+2 (where Tc=the Curie temperature in °C. of the ferrite material) at room temperature.

4,266,109

FLOATING VALVE SEAT INDUCTOR

John T. Ciolkevich, Richfield, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Jan. 21, 1980, Ser. No. 113,586
Int. Cl.[3] H05B *5/00*
U.S. Cl. 219—10.57 **13 Claims**



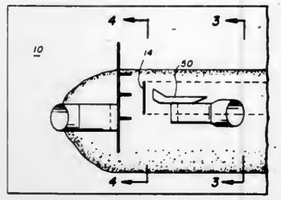
1. In an apparatus for inductively heating a generally conical valve seat formed concentrically around a central bore in an engine component, said apparatus including a selectively movable element adapted to be moved along an axis between an extended heating position and a retracted loading position and an inductor assembly, said inductor assembly including a carrier, an inductor having a shape generally matching said seat and mounted onto said carrier, an aligning nose member extending from said carrier parallel to said axis and generally concentric with said inductor, means for supporting said inductor assembly on said movable element, said mounting means including means for allowing only radial movement of said carrier with respect to said movable element when said nose member enters into said bore during movement of said element into said heating position with said inductor in heating relationship with said seat and centering means for biasing said carrier into a preselected radial position, the improvement comprising: said mounting means including first and second flange portions supported on said carrier and extending radially outwardly in a direction generally perpendicular to said axis, first coupling means for coupling said first flange portion onto said movable element, second coupling means for coupling said second flange portion onto said movable element, said first and second coupling means being generally diametrically opposed with respect to said axis, said radial movement allowing means including means in said coupling means for allowing only radial movement of said flange portions with respect to said movable element, said movable element having a first dimension in a first direction transverse to both of said coupling means and a second dimension in a second direction generally orthogonal to said first direction and extending between said coupling means, said first dimension being substantially less than said second dimension; and said centering means includes a centering structure at each of said flange portions.

4,266,110

CLAD WELDING ON AN INCLINED SURFACE

John J. Barger, Ringgold, Ga., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 13, 1978, Ser. No. 968,936
Int. Cl.[3] B23K *9/04*
U.S. Cl. 219—73.21 **4 Claims**



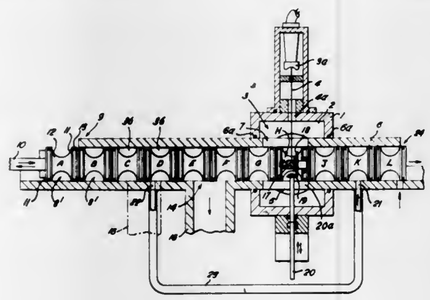
1. An apparatus for clad welding on a workpiece having a surface inclined to the horizontal transverse to the direction of welding progress, by depositing a weld layer having a width greater than the depth, comprising: an electrode; means for moving the electrode and the workpiece relative to one another; means for creating an electric arc between the electrode and the workpiece to deposit weld metal, whereby a zone of molten metal is formed on the trailing side of said electrode; a first means for depositing flux at the leading side of said electrode; a second means for depositing flux at the trailing side of said electrode; and a baffle located on the trailing side of said electrode, sufficiently close to said electrode so as to be over the zone of molten metal during operation, said baffle shaped to urge flux traveling on said workpiece over the uphill side of the weld deposit, in a downhill direction, whereby a heavier burden is placed on the downhill side of the zone of molten metal.

4,266,111

APPARATUS FOR TRANSFERRING WORK THROUGH A REGION OF REDUCED PRESSURE FOR THE PERFORMANCE OF AN OPERATION THEREON

Richard E. Trillwood, Histon, England, assignor to Wentgate Engineers (1976) Limited, Cambridgeshire, England

Filed Jan. 11, 1979, Ser. No. 2,753
Int. Cl.[3] B23K *15/00;* **B65G** *65/30*
U.S. Cl. 219—121 EN **33 Claims**



1. An apparatus for transferring workpieces through a region of reduced pressure for the performance of an operation thereon, said apparatus comprising

a sealed chamber;

first pressure reducing means for reducing the pressure within the sealed chamber below atmospheric pressure;

means defining a passageway extending through the sealed chamber and having an input end;

a plurality of workholders each shaped for insertion into the input end of said passageway for movement therealong, each end of each workholder including an annular portion disposed for sealing engagement with the wall of the passageway when the workholder is located therein, so that when the workholders are disposed end to end in said passageway they define a series of compartments within the passageway which move therealong as the workholders are moved along the passageway, the workholders including means for supporting a workpiece within each compartment;

means in the part of the passageway located within the sealed chamber defining an opening for permitting the interior of a compartment, as it reaches an operating station in the passageway adjacent said opening, to be exposed to the interior of the sealed chamber for the performance of an operation on a workpiece supported in said compartment;

means located adjacent said input end of the passageway for pushing the workholders along the passageway;

second pressure reducing means for reducing the pressure in each compartment in turn to a level between atmospheric pressure and the reduced pressure in the sealed chamber as the workholders are moved along the passageway towards said operating station, said second pressure reducing means including a port in communication with the interior of said passageway through the wall of said passageway, said port being located upstream of said sealed chamber with regard to the direction of movement of the workholders along said passageway, the dimension along the passageway of said port being greater than the dimension along the passageway between the forward edge, with regard to the direction of movement of the workholders along said passageway, of said annular portion of the rearward end of one workholder and the rearward edge of the said annular portion of the adjacent forward end of the workholder which immediately succeeds said one workholder in the passageway and the spacing of said port from said operating station being such that, while one compartment downstream of said port is disposed at said operating station adjacent said opening for the performance of an operation on a workpiece supported therein, the rearward annular end portion of a workholder upstream of said operating station and the adjacent forward annular end portion of the immediately succeeding workholder are both disposed adjacent the port between the upstream and downstream limits of said port.

30. A method of transferring workpieces through a region of reduced pressure for performance of an operation thereon, the method comprising the steps of

providing a sealed chamber having an interior pressure below atmospheric pressure, an operating station in the chamber, and a passageway extending through the chamber;

inserting into an input end of the passageway a plurality of workholders with an annular end portion of each of the workholders disposed in sealing engagement with the wall of the passageway and with the workholders arranged in end-to-end relationship to define a series of compartments within the passageway which move therealong as the workholders are moved along the passageway with the workholders supporting a workpiece within each compartment;

pushing the workholders and thereby the workpieces along the passageway;

providing a port in the wall of the passageway upstream of the sealed chamber, the port being coupled to a pressure reducing device;

sequentially reducing the pressure in each compartment to a level between atmospheric pressure and the reduced pressure in the sealed chamber as the workholders are moved along the passageway toward the operating station past the port;

exposing the interior of each compartment, in turn, to the interior of the sealed chamber through an opening in that part of the passageway which is located within the sealed chamber for the performance of an operation on the workpiece supported in the compartment as it reaches the operating station;

the dimension of said port in the longitudinal direction of said passageway being greater than the dimension along the passageway between the forward edge of said annular portion at the rearward end of the workholder and the rearward edge of the said annular portion of the adjacent forward end of the next following workholder,

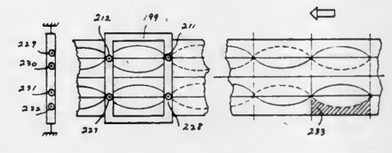
and the spacing of the port from the operating station being such that the exposing of the compartment downstream of said port at said operating station by said opening for the performance of an operation on a workpiece supported therein takes place at the same time as the rearward annular end portion of a workholder upstream of said operating station and the adjacent forward annular end portion of the immediately following workholder are both disposed adjacent the port between the upstream and downstream limits of said port.

4,266,112

WEB-CUTTING PROCESS

William P. Niedermeyer, 1024 Mt. Mary Dr., Green Bay, Wis. 54301

Filed Feb. 14, 1979, Ser. No. 12,032
Int. Cl.[3] B26F *3/14, 3/00*
U.S. Cl. 219—121 LN **19 Claims**



1. In a method of cutting shapes from a continuously moving web the steps of:

(A) providing a plurality of spaced apart web support means whereby said space defines a cutting zone;

(B) moving a web continuously across said cutting zone;

(C) mounting a plurality of impact type cutters on an overhead frame coincident with a line parallel to the web direction;

(D) moving said frame and plurality of cutters transversely of said web in a direction perpendicular to said web direction;

(E) whereby each of said cutters cuts a co-linear portion of the web from only alternate product shapes in a co-linear series of consecutive product shapes.

4,266,113

DISMOUNTABLE INDUCTIVELY-COUPLED PLASMA TORCH APPARATUS

Medona B. Denton, Tucson, Ariz.; David L. Windsor, Cincinnati, Ohio, and David R. Heine, Tucson, Ariz., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 2, 1979, Ser. No. 54,048
Int. Cl.[3] B23K *9/00*
U.S. Cl. 219—121 PQ **8 Claims**

1. Inductively coupled plasma torch apparatus formed with elongate tubes providing concentric coolant, plasma and sample gas passageways comprising:

a coolant tube,

a plasma tube disposed concentrically within the coolant tube,

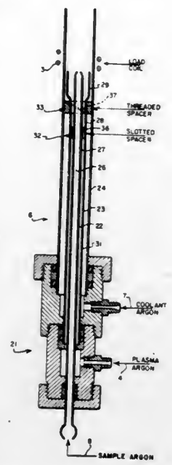
a sample tube disposed concentrically within said plasma tube,

a base detachably supporting the lower ends of said tubes in their concentric arrangement, and

disc-like spacer rings disposed at the upper ends of said tubes in frictional engagement with the tube walls, said rings including:

a first ring spanning the radial space between said coolant and plasma tubes, and

a second ring spanning the radial space between the plasma and sample tubes,



said first ring being provided with slanted channel means directing the coolant tube gas flow in a spiraling flow pattern for improving its heat transfer capability and said second ring with transverse channel means producing a laminar plasma gas flow pattern, and

said frictional engagement of said rings maintaining the upper end concentricity of said tubes while permitting them to be dismountably separated one from another.

4,266,114

APPARATUS FOR THE REMOTE CONTROL OF MAINS OPERATED DC AND AC WELDING MACHINES

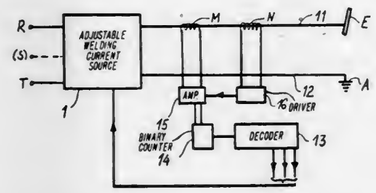
Kjell Hansen, Oslo, Norway, assignor to Jon Erlend Glømmen, Olso, Norway

Continuation of Ser. No. 906,179, May 15, 1978, abandoned, which is a continuation of Ser. No. 723,852, Sep. 17, 1976, abandoned. This application Mar. 20, 1979, Ser. No. 22,242

Claims priority, application Norway, Sep. 26, 1975, 753286

Int. Cl.³ B23K *9/10*

U.S. Cl. 219—132 **3 Claims**



1. Apparatus for the remote control of a mains-operated arc welding machine of the type that supplies welding current from a signal-controlled welding current source through respective cables of a welding current circuit to a welding electrode and a workpiece, said apparatus comprising:

(a) a selectively-operable portable regulating device including a controllable semiconductor switching element connected in series with an impedance between terminals provided in said device for connecting said device across said cables, a trigger circuit connected for energization between said terminals and operable, when energized from said cables, to deliver a train of control pulses to said semiconductor switching element for opening and closing the series connection of said switching element and impedance between said terminals so as to cause current pulses to flow through said cables in synchronism with said control pulses, and settable means connected to said trigger circuit for stopping the operation thereof when the number of control pulses that flow through said cables corresponds to the setting of said settable means;

(b) a regulating circuit in said welding machine adapted to detect the number of said current pulses flowing through said cables and to supply to said welding current source a control signal dependent upon the detected pulse number; and

(c) a blocking circuit in said welding machine for preventing the formation of said control signal by said regulating circuit when currents of the same order of magnitude as the welding current flow in said cables.

4,266,115

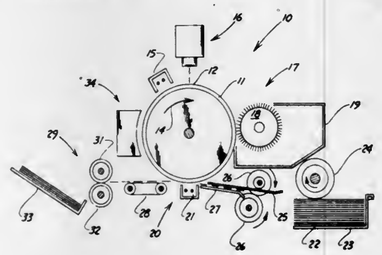
HOT ROLL FUSING DEVICE

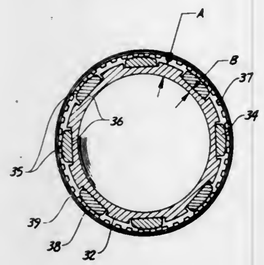
Hugh St. L. Dannatt, Bethel, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed May 21, 1979, Ser. No. 41,025

Int. Cl.³ H05B *3/10*

U.S. Cl. 219—216 **16 Claims**





1. A heated fuser roll for use in a fusing apparatus for fixing toner images to a support surface, said fuser roll comprising:

an electrically conductive core member including a plurality of axially disposed longitudinal channels lying along the outer surface of said core member;

a heating element formed of a semiconducting ceramic material having a positive temperature coefficient of resistivity and exhibiting a Curie temperature transition point at which the resistance of said material increases with increasing temperature positioned in each of said channels;

a layer of a thermally conductive material covering the outer exposed surfaces of both said core member and said heating elements; and

a sleeve member positioned around said thermally conductive material, said thermally conductive material being in a resilient form to withstand repeated thermal cycles and

remain in contiguous contact with said core member, heating elements and sleeve member.

4,266,116

ELECTRODE-TYPE STEAM GENERATING DEVICE FOR GENERATING SUPERHEATED STEAM

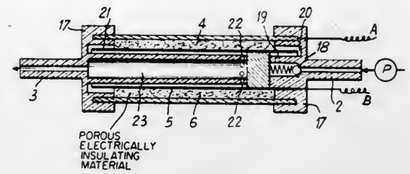
Daniel Bauer, Le Raincy; Jean-Paul Beck, Paris; Claude Boiteau, Verneuil, and Didier Garoche, Levallois, all of France, assignors to L'Oreal, Paris, France

Filed Feb. 14, 1978, Ser. No. 877,725

Claims priority, application Luxembourg, Feb. 16, 1977, 76777

Int. Cl.³ H05B *3/60*; F22B *1/30*; B05B *1/24*

U.S. Cl. 219—274 **4 Claims**



1. Steam generating apparatus for generating steam from a liquid comprising:

a first end member of electrically insulating material;

a second end member of electrically insulating material;

an inner tubular electrode extending between said end members;

an outer tubular electrode surrounding said inner electrode and extending between said end members so that there is an annular space beween the inside surface of the outer electrode and the outside surface of the inner electrode;

said annular space having an inlet adjacent one of said end members and an outlet adjacent the other of said end members;

means connecting said electrodes in series across a source of electrical energy;

a porous material substantially filling said annular space between the electrodes, said porous material being electrically insulating, having a small thermal inertia, and being chemically inert to the liquid to be vaporized,

means for directing liquid to be vaporized into the inlet of said annular space;

means within said inner electrode for defining a vaporized fluid passage extending along and including an interior surface of said inner electrode, said passage communicating with the outlet of said annular space and extending along a substantial portion of the inner electrode in a direction from said outlet toward said inlet; and

tubular outlet means communicating with said passage at a location remote from the outlet of the annular space for discharging vaporized liquid from the apparatus.

4,266,117

SELF-VENTILATING INFRA-RED RAY HEATER

Ray L. Pardue, Chagrin Falls, and Arnold L. Buehl, Solon, both of Ohio, assignors to Econoray, Inc., Solon, Ohio

Filed Nov. 6, 1978, Ser. No. 958,169

Int. Cl.³ H05B *1/00, 3/44*

U.S. Cl. 219—343 **7 Claims**

1. A self-ventilating infra-red ray heater comprising:

an arcade-type housing having a crown portion and terminating laterally in opposite wall portions in respect to its longitudinal axis to define a longitudinally coextensive cavity and an opening therefor between said side-wall portions;

an elongate heating element having a heat-emitting section of a length substantially that of the housing adapted to be mounted adjacent to said opening with a mounting section of the element extending beyond one end of the housing;

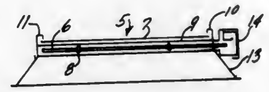
first and second end plates of a size sufficient to cover the opposite ends of said housing;

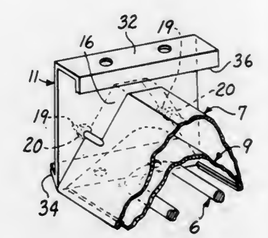
first fastening means for securing the element to said first end plate;

second fastening means for securing said end plates to said housing;

said crown portion having notches within end portions thereof adjacent said end plates to define ventilation ports therethrough;

said end plates have upper flanges turned inwardly over, and spaced from, said crown portion in overhanging relation with said ports;





hanger means constructed to engage spaced portions of said heat-emitting section in support of the element centrally with respect to said side-wall portions, said hanger means engaging and connecting with said side-wall portions for the support thereof by said housing; and

a sheet-like reflector of greater width in its planate condition than the distance between parts of the side-wall portions engaged by said hanger means, said reflector being normally positioned in concavo-convex configuration between, and in spaced relation with, said crown portion and said element with the lateral edges of the reflector engagably received by surfaces defined by said side-wall portions and the hanger means adjacent the connections thereof; the periphery of said reflector extending into substantially continuous close proximity with said end plates and said side-wall portions.

4,266,118

COOKING CONTROL CIRCUIT FOR COOKING RANGE

Akio Takase; Takao Tsutsumi, and Hiroaki Tsukahara, all of Gunma, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 24, 1978, Ser. No. 899,160

Claims priority, application Japan, Apr. 25, 1977, 52/47718; Sep. 20, 1977, 52/113116

Int. Cl.³ H05B *9/06*

U.S. Cl. 219—492 **2 Claims**

1. A cooking program circuit for a cooking range comprising:

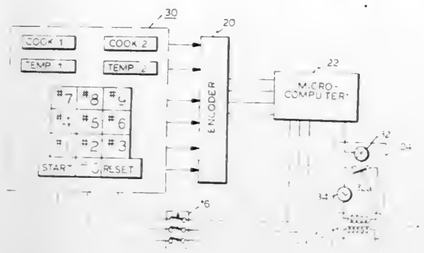
a plurality of operating members disposed in a matrix having a plurality of input scan lines and a plurality of output lines, each of said operating members for producing an output signal on a corresponding output line when manually actuated and when a corresponding input scan line is enabled;

a scanning circuit connected to said plurality of input lines of said matrix for enabling said input scan lines one at a time in turn;

an encoder connected to said plurality of output scan lines and to said scanning circuit for producing an encoded output corresponding to said operating members manually actuated according to said output signals and said input scan line enabled;

a holding circuit connected to said encoder having a reset input, for holding said encoded output corresponding to the last actuated operating member until reset by a reset signal applied to said reset input;

a micro-computer connected to said holding circuit having a reset output, for reading said encoded output held in said



holding circuit and producing a reset signal on said reset output and for initiating a cooking program according to said encoded output;

a disabling switch means for selectively connecting or disconnecting said reset input of said holding circuit and said reset output of said micro-computer under manual control, whereby said holding circuit is not reset when said reset input and said reset output are disconnected; and

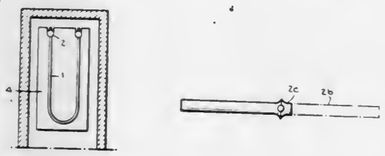
a cooking control circuit connected to said micro-computer for controlling the operation of an associated cooking range according to said program.

4,266,119

HAIRPIN-TYPE ELECTRIC RESISTANCE HEATING ELEMENT

Albert B. Best, Danbury, Conn., assignor to The Kanthal Corporation, Bethel, Conn.

Filed Aug. 15, 1979, Ser. No. 66,683
Int. Cl.³ H05B *3/08*
U.S. Cl. 219—541 **3 Claims**



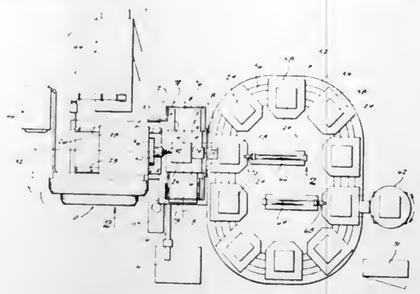
1. An electric resistance element comprising a refractory metal silicide resistance wire, a terminal comprising a first length of refractory metal silicide wire having a uniform contour and cross-sectional area through its extent, said resistance wire being positioned transversely across one axial end of said first length, and a second length of refractory metal silicide wire having one end abutting said end of said first length and said resistance wire sandwiched between said ends and the latter electric resistance butt welded together and thereby integrated with said resistance wire, said lengths having a contour and cross-sectional area substantially identical with each other and being axially aligned with each other, said cross-sectional area of said lengths being larger than the cross-sectional area of said resistance wire.

4,266,120

UNMANNED MACHINING CENTER WITH TOOL CHECKING

Richard Johnstone, Brookfield, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.

Division of Ser. No. 863,435, Dec. 22, 1977, Pat. No. 4,185,376.
This application Jul. 23, 1979, Ser. No. 59,540
Int. Cl.³ G06M *3/02*
U.S. Cl. 235—92 CT **1 Claim**



1. A method of checking different tools having metal teeth in the spindle of a machine tool to determine whether or not the tool is broken, comprising the steps of: mounting a proximity sensor on said machine tool within the range of travel of a tool in said spindle, said proximity sensor being operable to produce an output signal in response to the presence of a metal object within a predetermined distance from said proximity sensor; moving said spindle to place a portion of said tool therein within said predetermined distance from said proximity sensor; recording the number of teeth that should be on each tool to be used in the spindle for the machining operations; rotating the spindle one complete revolution; counting the output pulses produced by said proximity sensor by the passage of each metal tooth of said tool during one complete revolution of said spindle; comparing the total number of output pulses produced by said proximity sensor for one complete revolution of said spindle to a signal representing the total number of teeth that should be on the particular tool in the spindle; actuating a tool storage magazine to select another tool of the same size and type if the total number of output pulses produced by said proximity sensor for one complete revolution of said spindle is different from the total number of teeth that should be on said tool; and initiating operation of a tool change mechanism to replace the broken tool with the newly selected tool from said tool storage magazine.

4,266,121

RECEIPT SLIP ISSUING APPARATUS

Minoru Hirose, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 29, 1979, Ser. No. 89,634
Claims priority, application Japan, Nov. 10, 1978, 53-138648; Nov. 17, 1978, 53-158130[U]; Feb. 22, 1979, 54-22056[U]
Int. Cl.³ G06F *7/08;* **G06K** *3/12, 13/00*
U.S. Cl. 235—381 **11 Claims**

1. A receipt slip issuing apparatus, comprising:

a body;

an identification medium inlet in said body;

a blank storage chamber disposed in said body to contain a receipt slip blank or paper formed of at least two-ply sheets and including longitudinally continuous receipt slips;

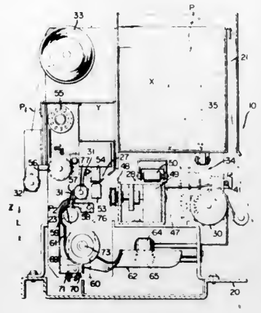
blank feed means drawing said blank out of said storage chamber and feeding said blank only in one direction through a blank path defined inside said body;

a medium path defined inside said body, having one end connected to said inlet, and crossing said blank path;

medium feed means carrying through said medium path an identification medium inserted through said inlet;

transcription means disposed in said blank path at a position to cross said medium path and transferring specific account information recorded in said identification medium to said receipt slip blank;

printing means disposed in said blank path at a distance from said transcription means, whereby transient account information provided by said apparatus is printed on said receipt slip blank, said printing means being so located as to correspond to a first line on one slip of said blank to be printed when said blank is in a position for the transcription by said transcription means;



cutter means for cutting at least one sheet of said receipt slip blank for each slip, said cutter means being so located as to correspond to a position to cut said at least one sheet for each slip when said blank is in said position for the transcription by said transcription means;

a slip outlet in said body; and

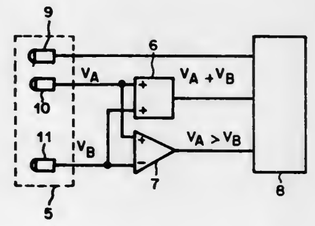
slip delivery means for carrying the receipt slip out by said cutter means to said slip outlet through a slip delivery path defined inside said body.

4,266,122

METHOD AND APPARATUS FOR IDENTIFICATION OF DOCUMENTS

Rolf Schmidhauser, Cham, Switzerland, assignor to LGZ Landis & Gyr Zug AG, Zug, Switzerland

Filed Jan. 17, 1980, Ser. No. 112,904
Claims priority, application Switzerland, Jan. 31, 1979, 929/79
Int. Cl.³ G06K *7/14, 19/06*
U.S. Cl. 235—454 **7 Claims**



1. In a method of identifying a document with the aid of at least two different types of optically readable markings disposed on said document, and of at least two light sensors, each individual marking modifying light impinging thereon in a characteristic manner by diffraction or refraction, each light sensor being associated with a respective marking, and sensing the light modified by the associated marking,

the steps comprising:

placing said different types of markings in a predetermined cyclical sequence on at least one track of said document so as to substantially avoid the creation of any optically readable gap between adjacent markings,

thereafter erasing at least selected portions of said markings, while

maintaining in selected groups of two adjacent markings at least a portion of one of said adjacent markings, in dependence of coded information to be recorded on said document,

obtaining a timing signal from said light sensors in dependence of the light modified by said markings, and sensed by said light sensors,

with the aid of said timing signal, serially reading out the coded information from the marking portions, remaining on the document, and

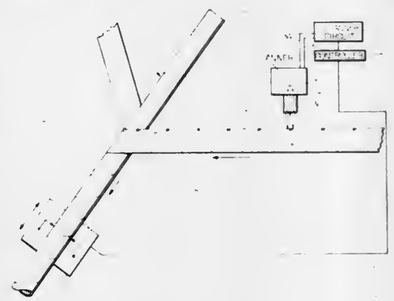
examining the read-out coded information obtained from the portions of said markings remaining on said document.

4,266,123

AUTOMATIC SCANNER

Nelson Friberg, Toledo, Ohio, assignor to Owen-Illinois, Inc., Toledo, Ohio

Filed Nov. 20, 1978, Ser. No. 962,576
Int. Cl.³ G01J *1/32*
U.S. Cl. 250—205 **10 Claims**



1. A scanner comprising:

a light source for projecting light towards an inspection point;

a photodetector for receiving light which is reflected from said inspection point;

feedback means connected between said photodetector and said light source for automatically adjusting the intensity of said light source as a function of the average amount of light received by said photodetector so as to prevent saturation of said photodetector; and

detection means connected to said photodetector for generating an output signal whenever the magnitude of change in the amount of light received by said photodetector over a predetermined time period exceeds a predetermined level.

4,266,124

PHOTOELECTRIC OBJECT DETECTOR SYSTEM

Daniel R. Weber, Tewksbury, and Raymond C. Webb, Foxboro, both of Mass., assignors to Data Instruments, Inc., Lexington, Mass.

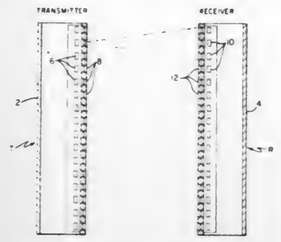
Filed Aug. 10, 1979, Ser. No. 65,512
Int. Cl.³ G01V *9/04*
U.S. Cl. 250—221 **18 Claims**

1. In an object detecting system for determining when an object intrudes into a given area, said system comprising a transmitter for providing a light barrier that extends along said area and a receiver for detecting when the barrier is encountered by an intruding object, an improved transmitter comprising:

a plurality of light sources each adapted when operated to produce a beam of light that extends along said area with each beam transversing a different selected portion of said area; and

strobing means for operating said light sources repetitively in a predetermined sequence;

said strobing means comprising pulse generating means adapted to produce a train of signal pulses, means coupled to said pulse generating means for operating said light



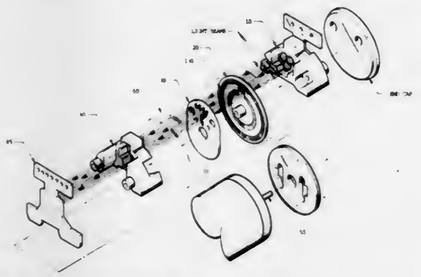
sources in said predetermined sequence in response to signal pulses from said pulse generating means, and control means for varying the output of said pulse generating means so that in each full sequence of operation one of said light sources is operated N times in response to signal pulses at a frequency f1 and the remainder of said light sources are operated Y times in response to signal pulses at a frequency f2, where N and Y are integers, N is greater than Y and F2 is less than f1.

4,266,125

OPTICAL SHAFT ANGLE ENCODER

Howard C. Epstein, Los Altos, and John J. Uebbing, Palo Alto, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 21, 1978, Ser. No. 971,985
Int. Cl.[3] G01D *5/34*
U.S. Cl. 250—231 SE **8 Claims**



1. A shaft angle encoder for encoding the angular rotation of a shaft, the encoder having a low sensitivity to eccentricity errors and comprising:

source means for providing light;

first light modulating means having a circular track aligned concentrically relative to the shaft, the circular track having periodically alternating transmissive and non-transmissive sections for modulating the light;

second light modulating means having first and second optical areas, each optical area having a transmissive section aligned with the circular track, the transmissive sections of the first and second optical areas being 180° out of phase relative to the periodicity of the transmissive sections of said first light modulating means;

said first and second light modulating means positioned to serially receive and modulate the light;

one of said light modulating means being coupled to rotate with the shaft, the other of said light modulating means fixedly mounted so as to be independent of the rotation of the shaft;

detector lens means positioned to receive the light as modulated by the first and second light modulating means having a lens portion comprising siamesed first and second elements, the first and second elements positioned to receive the light transmitted through the first and second optical areas respectively for focusing the light received thereby at first and second positions respectively; and

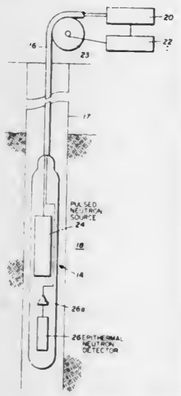
detector means positioned to receive the light focused at the first and second positions for generating first and second electrical signals in response to the light received at the first and second positions respectively.

4,266,126

PULSED RADIATION DECAY LOGGING

William R. Mills, Jr., Duncanville, Tex., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Jun. 25, 1979, Ser. No. 51,567
Int. Cl.[3] G01V *5/00*
U.S. Cl. 250—264 **9 Claims**



1. In the logging of a well traversing a subterranean formation, the method comprising:

(a) irradiating said formation with a burst of fast neutrons whereby said fast neutrons enter said formation and are moderated therein to form a lower energy neutron population,

(b) during each of a plurality of time windows occurring subsequent to said fast neutron bursts selectively measuring the count rate of radiation attendant to said lower energy neutron population,

(c) establishing a plurality of ratio functions representative of the ratios of the radiation count rates measured during adjacent pairs of said time windows,

(d) comparing said ratio functions with each other and employing at least one of said ratio functions to generate a signal representative of the decay rate of said lower energy neutron population, and

(e) recording said decay rate signal in correlation with depth.

4,266,127

MASS SPECTROMETER FOR CHEMICAL IONIZATION AND ELECTRON IMPACT IONIZATION OPERATION

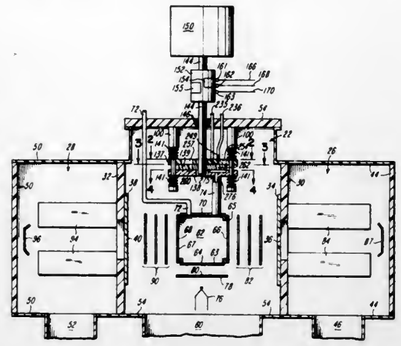
Cherng Chang, 3065 Maginn Dr., Xenia, Ohio 45385

Filed Dec. 1, 1978, Ser. No. 965,255
Int. Cl.[2] B01D *59/44*; H01J *49/00*
U.S. Cl. 250—288 **51 Claims**

1. In a mass spectrometer provided with a vacuum housing and an ionization region within the vacuum housing, comprising:

chemical ionization means for formation of ions within the ionization region through chemical ionization,

venting means for alternately opening and closing gaseous



communication between the ionization region and the vacuum housing, through the venting means,

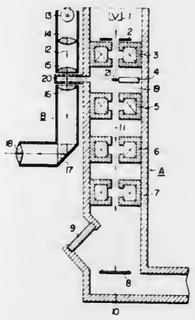
and operation means for operation of the chemical ionization means and the venting means within an operation cycle, said operation means including means for performing the operation cycle repetitively at a preselected frequency.

4,266,128

ELECTRON MICROSCOPE WITH OPTICAL MICROSCOPE

Shigeru Suzuki, 2736-34, Sunagawa-cho, Tachikawa-shi, Tokyo, Japan (190), and Kazuo Ohsawa, 295, Nakagami-cho, Akishima-shi, Tokyo, Japan (196)

Filed Dec. 27, 1979, Ser. No. 107,627
Claims priority, application Japan, Dec. 28, 1978, 53-161214
Int. Cl.[3] G01N *23/00*
U.S. Cl. 250—311 **6 Claims**



1. An electron microscope provided with an optical microscope, wherein said optical microscope is juxtaposed adjacent to the electron microscope assembly so that the optical axis of said optical microscope extends in parallel to the lens axis of said electron microscope assembly, comprising

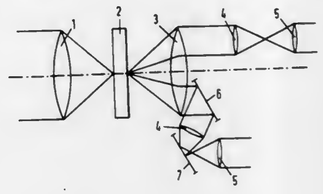
specimen transfer means provided in common to both of said electron microscope assembly and said optical microscope for interchangeably positioning a specimen to be observed at respective predetermined positions along said lens axis and said optical axis for observations through said electron microscope and said optical microscope, respectively, said specimen transfer means including specimen carrier means adapted to be displaced in two-dimensional direction in a plane extending orthogonally to both of said lens axis and said optical axis thereby to interchangeably position said specimen at said predetermined positions through displacement of said specimen carrier means corresponding to a distance between said lens axis and said optical axis, whereby the same specimen is allowed to be interchangeably observed through both of said electron microscope and said optical microscope by correspondingly manipulating said specimen transfer means.

4,266,129

DEVICE FOR VIEWING RESIDUAL LIGHT IN THE VISIBLE AND THE NEAR INFRARED SPECTRUM

Frits J. Versteeg, Rotterdam, and Abraham Groeneweg, Maassluis, both of Netherlands, assignors to N.V. Optische Industrie "De Oude Delft", Delft, Netherlands

Filed Apr. 27, 1979, Ser. No. 33,836
Claims priority, application Netherlands, May 9, 1978, 7804990
Int. Cl.[3] H01J *31/49*
U.S. Cl. 250—330 **5 Claims**



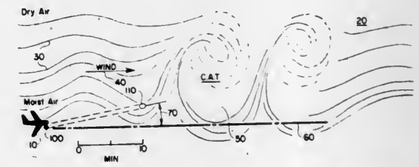
1. A device for binocular viewing of residual light in the visible and the near infrared spectrum, said device comprising an optical input system, image intensifier means, a collimator, two ocular paths, and an optical output system associated with each ocular path, said image intensifier means being one singular image intensifier of the non-inverting type, and each optical output system being arranged so that a single image inversion is performed in each ocular path.

4,266,130

METHOD AND APPARATUS FOR DETECTING CLEAR AIR TURBULENCES

Peter M. Kuhn, Boulder, Colo., assignor to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Oct. 13, 1978, Ser. No. 950,943
Int. Cl.[3] G01J *1/00*
U.S. Cl. 250—339 **8 Claims**



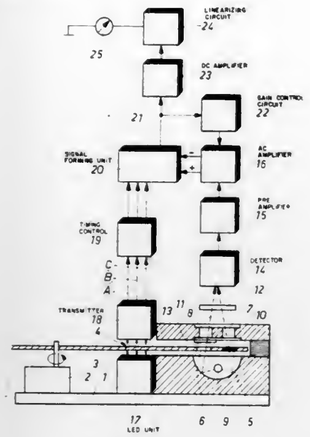
7. An improvement to a system mounted on an aircraft for detecting clear air turbulence in the earth's atmosphere having means for sensing infrared radiation in the water vapor rotational wavelength band in a single atmospheric volume located ahead of said aircraft, said improvement to said sensing means comprising means for orienting said sensing means upwardly to an elevation substantially at 10° from the flight path of said aircraft.

4,266,131

GAS ANALYZER

Hannu Ahjopalo, Vantaa, and Jorma J. Auvinen, Nummela, both of Finland, assignors to Instrumentarium OY, Helsinki, Finland

Filed Aug. 31, 1979, Ser. No. 71,564
Claims priority, application Finland, Sep. 1, 1978, 782692
Int. Cl.³ G01N *21/26*
U.S. Cl. 250—341 **5 Claims**



1. A gas analyzer, in particular a CO_2 analyzer, comprising a measuring chamber for the gas to be examined, a reference chamber from which the gas to be measured has been drawn off, a light source, and a chopper disk to chop the light beam so that the beam alternatingly passes through the measuring and reference chambers and generates a related measuring signal and a reference signal and a dark signal, signal processing means for detecting the difference between said signals, an automatic gain control circuit connected to said signal processing means to maintain constant the difference between the dark signal and the reference signal from the reference chamber, a linearizing circuit connected to said signal process means for compensating for the non-linearity of the difference between the measuring signal and the reference signal, and an attenuation member disposed in the path of the light beam passing through the reference chamber and which in the wave length range employed has a high enough attenuation capacity to cause a shift of the operating point of the gain control circuit so that the linearizing circuit operates at the gently sloping part of the absorption versus concentration curve.

4,266,132

APPARATUS FOR CONTROLLING NEUTRONS ESCAPING FROM AN ELEMENTAL ANALYZER MEASURING GAMMA RAYS ARISING FROM NEUTRON CAPTURE IN BULK SUBSTANCES

J. Howard Marshall, III, Pasadena, Calif., assignor to MDH Industries, Inc., Monrovia, Calif.

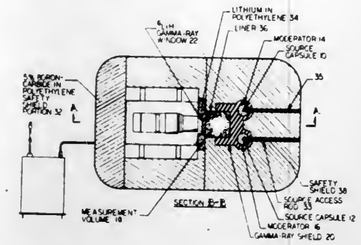
Filed Jun. 20, 1977, Ser. No. 808,103
Int. Cl.³ G01N *23/00*; G01T *3/00*
U.S. Cl. 250—359 **35 Claims**

1. An improved apparatus for the on-line analysis of the composition of a bulk substance, wherein said analysis includes the production and capture of neutrons and the detection of the resulting capture gamma rays, said apparatus comprising, in combination:

(a) means for containing the bulk substance to be analyzed;

(b) neutron-producing means for providing neutrons, which generate gamma rays by neutron-capture reactions with the nuclei in the bulk substance being analyzed, the neutron-producing means being operably associated with the means for containing the bulk substance;

(c) a gamma-ray detector operably associated with the neutron-producing means and the means for containing the bulk substance being analyzed, the gamma-ray detector producing electrical signals indicative of the gamma-ray energies to provide for the measurement of the energy spectrum of the capture gamma rays; and



(d) means for absorbing neutrons emitted by the neutron-producing means which are not captured by the bulk substance being analyzed, the neutron-absorbing means comprising compounds which are placed outside of the means for containing the bulk substance being analyzed and which attenuate the flux of uncaptured neutrons without producing or scattering significant numbers of gamma rays which reach the gamma-ray detector;

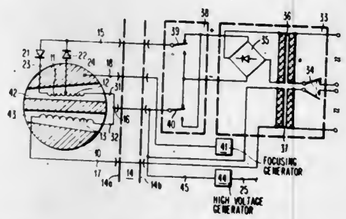
whereby the measurement accuracy of the apparatus is improved and radiation hazards are reduced.

4,266,133

MULTIPLE FOCUS X-RAY GENERATOR

Walter Weigl, Edison; Ulf Bergman, Iselin, and Lennart Baum, Edison, all of N.J., assignors to Siemens Corporation, Iselin, N.J.

Filed Nov. 8, 1979, Ser. No. 92,285
Int. Cl.³ H05G *1/30*
U.S. Cl. 250—402 **12 Claims**



1. A multiple focus X-ray generator comprising, in combination:

(a) an electron source having at least a first and a second cathode filament, one end of each of said first and second filaments being connected together to a first connection point;

(b) a first, second and third terminal associated with the serial connection of said filaments, said first and third terminals being formed by the outer ends of the serial connection, and said second terminal being formed by said first connection point;

(c) a first and a second diode, each having two electrodes, the first diode being connected with one of its electrodes to said first terminal, the second diode being connected with one of its electrodes to said second terminal, said diodes being connected with the other of their electrodes to a second combination point and being poled in opposite directions;

(d) means for supplying direct current, said d-c supply means having two poles, one of said poles being adapted to be connected to said second connection point of said diodes and the other of said poles being adapted to be connected to said third terminal, and said d-c supply means including switching means for changing the polarity of the d-c voltage between said two poles; and

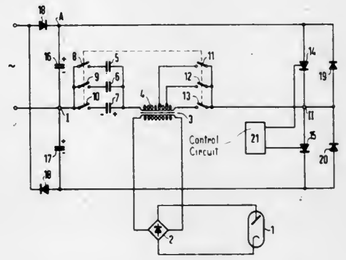
(e) a cable containing at least a first and a second connection line, wherein said first connection line is arranged between said one pole of said d-c supply means and said second connection point, and wherein said second connection line is arranged between said other pole of said d-c supply means and said third terminal.

4,266,134

X-RAY DIAGNOSTIC GENERATOR COMPRISING AN INVERTER SUPPLYING THE HIGH VOLTAGE TRANSFORMER

Kurt Franke, Erlangen, and Gerd Seifert, Spardorf, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 13, 1978, Ser. No. 969,223
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 2802513
Int. Cl.³ H05G *1/10*
U.S. Cl. 250—409 **4 Claims**



1. An x-ray diagnostic generator comprising

an x-ray tube,

a high voltage transformer supplying the x-ray tube,

an inverter connected to the input of the high voltage transformer, and

a d.c. voltage source comprising a mains rectifier supplying the inverter,

the inverter (4 through 24) having an LC resonant storage circuit (3 through 7, 22, 23) and a switching device (14, 15) for the alternate connection of said storage circuit (3 through 7, 22, 23) to the d.c. voltage source (16, 17),

said LC resonant storage circuit comprising switchable electrical reactance means switchable to a plurality of respective different values to provide respective different pre-programmed LC series circuits for selective connection to said high voltage transformer and respectively adapted to operation with said high voltage transformer operating under respective different load conditions, and

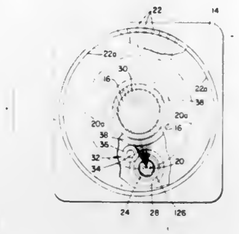
changeover switch means coupled with said switchable electrical reactance means for selectively establishing any selected one of said different preprogrammed LC series circuits in operative connection with said high voltage transformer, thereby to adapt the parameters of said LC resonant storage circuit to any of a plurality of respective load conditions of said high voltage transformer.

4,266,135

METHOD OF DETERMINING COLLIMATOR APERTURE EFFICIENCY AND APPARATUS WITH AN EFFICIENT COLLIMATOR APERTURE SIZE

John J. Kuwik, Hudson; Arthur B. Braden, Solon; Samuel K. Taylor, Chardon, and John Covic, Wickliffe, all of Ohio, assignors to Ohio Nuclear, Inc., Solon, Ohio

Continuation-in-part of Ser. No. 812,317, Jul. 1, 1977, Pat. No. 4,190,773. This application Dec. 27, 1978, Ser. No. 973,570
The portion of the term of this patent subsequent to Feb. 26, 1997, has been disclaimed.
Int. Cl.³ A61B *600*; G01N *23/08*
U.S. Cl. 250—445 T **25 Claims**



1. A radiation aperture system for a CT scanner having a rotating source of radiation and a detector array; a series of stationary radiation detectors partially encircling the path of the source in the same plane at less than 1° intervals, the radiation aperture system comprising:

collimator means for restricting the radiation to an energy distribution having alternating relatively high energy and relatively low energy regions, said collimator means being mounted for rotation about the source; and,

drive means for causing counter rotation of said collimator means about the source as the source rotates such that each one of said relatively high energy regions is trained continously generally on a single stationary detector during part of rotation of the source.

4,266,136

TOMOGRAPHY WHEREIN SIGNAL PROFILES DERIVED FROM AN OUT-FANNING BEAM OF PENETRATING RADIATION CAN BE RECONSTRUCTED CORRESPONDING WITH PARALLEL INCIDENT RAYS

Simon Duinker, Bloemendaal, Netherlands, assignor to N. V. Optische Industrie "De Oude Delft", Delft, Netherlands

Division of Ser. No. 814,989, Jul. 12, 1977, Pat. No. 4,168,435, and a continuation-in-part of Ser. No. 798,672, May 19, 1977, abandoned. This application Apr. 9, 1979, Ser. No. 28,608
Claims priority, application Netherlands, Jul. 19, 1976, 7607976
Int. Cl.³ A61B *6/00*
U.S. Cl. 250—445 T **6 Claims**

1. An apparatus for generating parallelized profile signals of a slice of an object, comprising;

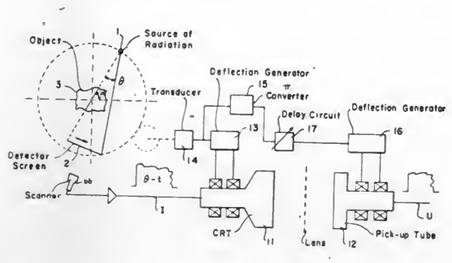
an X-ray source on one side of the object for generating a fan-shaped beam of X-ray radiation intercepting only one-half of a slice shaped section of the object,

detector means on the opposite side of the object and having a detector surface extending so as to intercept the fan-shaped beam to produce analog half profile signals,

means for effecting relative rotation between the object and the combination of the source and the detector means through a complete revolution about the object perpendicular to the fan-shaped beam,

said X-ray source and said detector means being arranged so that the fan-shaped beam has one side edge at the axis of

rotation and has the other side edge outside of the object, and



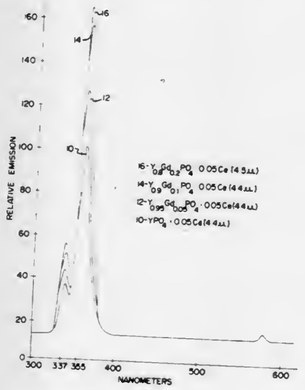
processing means coupled to the detector means for converting the analog half profile signals from the detector means into parallelized profile signals.

4,266,137

CERIUM ACTIVATED YTTRIUM GADOLINIUM PHOSPHATE X-RAY PHOSPHORS, PROCESS FOR PRODUCING SAME, AN X-RAY INTENSIFYING SCREEN EMPLOYING SAME

Francis N. Shaffer, Towanda, Pa., assignor to GTE Products Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 673,255, Apr. 2, 1976. This application Jul. 14, 1977, Ser. No. 815,548
Int. Cl.³ G01J *1/58*
U.S. Cl. 250—483 **1 Claim**



1. A process for producing cerium activated yttrium-gadolinium phosphate x-ray phosphor composition comprising:

(a) forming a uniform reaction admixture of a reactive yttrium source, a reactive gadolinium source, a reactive cerium source and an ammonium orthophosphate selected from monoammonium orthophosphate and diammonium orthophosphate wherein the Y:Gd atomic ratio is from about 7:3 to about 95:5, the Ce:Y and Gd atomic ratio is from about 0.005:1 to about 0.25:1 and the Y and Gd:PO_4 atomic ratio is from about 1:1.02 to about 1:1.25;

(b) conducting an initial heating step wherein the temperature of said admixture is raised from ambient temperature to at least 800° C. in a period of about 1.5 to about 2 hours and maintaining said temperature for at least about 30 minutes;

(c) cooling the heated material to ambient temperature:

(d) adding from about 5 to about 10% by weight of the original raw materials of a flux to said heated mixture and forming a relatively uniform admixture of said heated mixture and flux;

(e) heating the flux containing admixture to about 1100° C. to about 1400° C. for about 2 to 4 hours;

(f) adding the resulting heated material to a water-nitric acid solution and agitating sufficiently to form finely divided solids;

(g) separating said solids from said acid solution and washing said solids with water and drying said washed solids sufficiently to remove the water; and

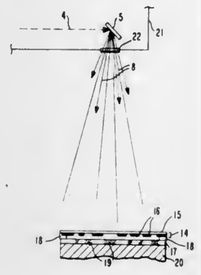
(h) heating said dried solids in a reducing atmosphere at a temperature of from about 1150° C. to about 1200° C. for about 1 to 2 hours.

4,266,138

DIAMOND TARGETS FOR PRODUCING HIGH INTENSITY SOFT X-RAYS AND A METHOD OF EXPOSING X-RAY RESISTS

David A. Nelson, Jr., and Arthur L. Ruoff, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Jul. 11, 1978, Ser. No. 923,756
Int. Cl.³ A61K *27/02*; A61N *5/00*; C08J *1/02*; G21G *5/00*
U.S. Cl. 250—492 A **14 Claims**



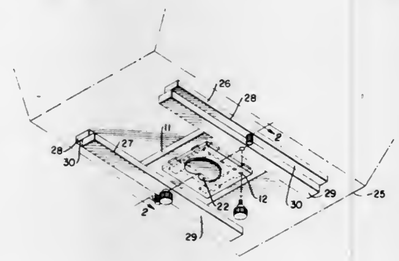
1. A method of exposing an x-ray sensitive resist comprising exposing said resist to the x-ray radiation emitted from a diamond target.

4,266,139

COMPOSITE SHIELDING MEANS AND MOUNTING MEANS FOR X-RAY MACHINES

Louis Sportelli, 175 Delaware Ave., Palmerton, Pa. 18071, and James F. Winterstein, 1443 Southridge Dr., Clearwater, Fla. 33516

Filed Jan. 7, 1980, Ser. No. 110,040
Int. Cl.³ G21F *1/00*; G21C *11/00*
U.S. Cl. 250—515 **6 Claims**



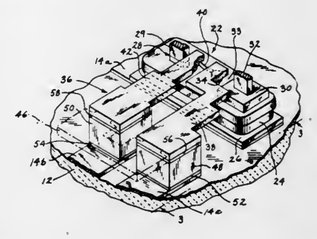
1. A shielding device for an x-ray machine comprised of a transparent planar base member and a mounting means therefor: The planar base member consisting of a plurality of removable securing means mounted on one side thereof, a planar masking overlay with a cooperating securing means mounted on one side thereof adapted to removably engage the securing means of the base member, said overlay having a selected portion thereof being defined by x-ray impenetrable means whereby either a corresponding portion of a persons body or of an object will be protected by the selected portions; the mounting means therefor consisting of a pair of rails, each of which is comprised of an elongated member defining a staggered profile, openings disposed in the staggered profile, fastening means adapted to be inserted into each of the openings with one of the fasteners adapted to secure the elongated members to the x-ray machine, with the other fasteners frictionally engaging the base member to position the same on the x-ray machine.

4,266,140

POSITIONING MEANS FOR OPTICALLY COUPLABLE CIRCUIT ELEMENTS

Lance R. Kaufman, 131 White Oak Way, Mequon, Wis. 53092

Filed Nov. 21, 1978, Ser. No. 962,750
Int. Cl.³ G02B *27/00*
U.S. Cl. 250—551 **7 Claims**



1. An optically coupled solid state power device, comprising:

an electrically non-conductive substrate providing a substantially planar surface having at least first and second circuits of thick-film conductors applied thereto,

an optically couplable light responsive controllable current conduction circuit including a light responsive device and a light emitting element, said light responsive device being mounted on said substrate and connected to the thick-film conductors of the first circuit; and

arm means having a first portion mounting said light emitting element adjacent one end thereof for rendering the device and element optically couplable and a second portion connected to said thick-film conductors of said second circuit and cantilevering said element into proximity with said device mounted on said substrate to optically couple said element and device.

4,266,141

TONER DEVELOPING ABILITY MEASURING SYSTEM FOR ELECTROSTATOGRAPHY

Koji Hirakura; Yasuo Sawada, and Kenta Watase, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

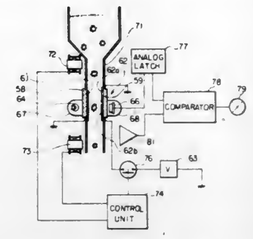
Filed Jul. 16, 1979, Ser. No. 57,882
Claims priority, application Japan, Jul. 8, 1978, 53-83246; Sep. 14, 1978, 53-113082; Dec. 29, 1978, 53-182714[U]; Dec. 29, 1978, 53-182715[U]; Feb. 27, 1979, 54-24551[U]
Int. Cl.³ G01N *21/00*
U.S. Cl. 250—564 **19 Claims**

1. An apparatus for sensing a developing ability of a powdered developer for electrostatography, including an upstanding passageway through which the developer is caused to flow by gravity, attraction means disposed in the passageway for attracting the developer to the attraction means and sensor means for sensing an amount of developer attracted to the attraction means, characterized by comprising:

valve means disposed in the passageway above the attraction means;

aperture means disposed in the passageway below the attraction means for defining a restricted aperture; and

control means for controlling the valve means to alternatingly open to allow developer to accumulate in the passageway from the aperture means upwardly above the attraction means while a restricted amount of developer



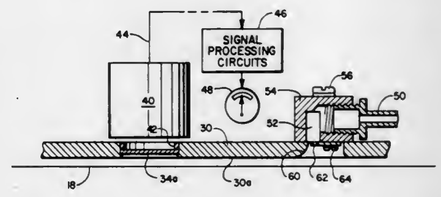
flows downwardly through the aperture means; and close to allow the accumulated developer to flow downwardly below the attraction means; the control means controlling the sensor means to sense the amount of developer attracted to the attraction means after the accumulated developer has flowed downwardly below the attraction means.

4,266,142

FLUID SYSTEM AND METHOD

Juan H. Crawford, Dublin, Ohio, assignor to AccuRay Corporation, Columbus, Ohio

Filed Jun. 7, 1976, Ser. No. 693,492
Int. Cl.³ G01N *21/88*
U.S. Cl. 250—572 **38 Claims**



1. In the use of a radiation device having a surface including window means in the path of radiation affecting the output response of a radiation detector, the method of maintaining substantially constant the radiation transmission characteristics of the portion of the radiation path including the window means and thereby reducing the probability of error in the detector output response resulting from the presence of an unpredictable amount of extraneous radiation-absorbing or scattering material in the path or at the window means, comprising

forming a jet of fluid in a manner such that the jet is attached to the surface by implementation of the Coanda effect and thereby directed to flow over the window means.

4,266,143

APPARATUS FOR PRODUCING ELECTRICAL ENERGY FROM OCEAN WAVES

Ting F. Ng, 29 Ludlow St., New York, N.Y. 10002

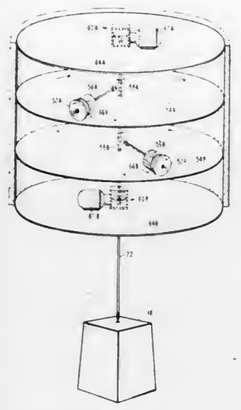
Filed Sep. 19, 1979, Ser. No. 76,903
Int. Cl.³ F03B *13/12*
U.S. Cl. 290—53 **5 Claims**

1. Apparatus for producing electrical energy from ocean waves, comprising

(a) a tank adapted for floating on ocean waves;

(b) an even number of generating sections in said tank, each

including a first rotatable shaft extending above a first horizontal platform, a first gravity wheel attached to said first rotatable shaft by means of a coupling member such that said wheel rolls on said first horizontal platform in a circular path around said shaft thereby driving said first rotatable shaft, said gravity wheels in one half of said generating sections being adapted to roll only clockwise while the other gravity wheels in the other half of the generating sections are adapted to roll in only a counter-clockwise direction, and first generator means operatively connected to said first rotatable shaft for receiving mechanical energy therefrom; and



(c) stabilizing means attached to the bottom of said tank for limiting the lateral movement of the bottom end of said tank; said stabilizing means including a pivot bar rigidly attached at its upper end to the bottom of said tank, the bottom of said pivot bar being connected by a flexible joint to a weight means so that said tank tilts from side to side about a pivot point at said flexible joint;

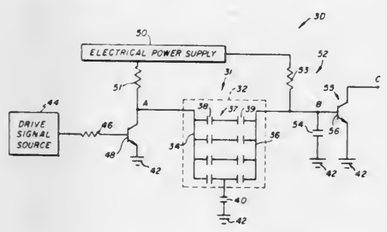
whereby as said floating tank tilts from side to side about a pivot point located below said tank, said gravity wheels will roll and cause rotation of said rotatable shafts and thereby generate electrical energy.

4,266,144

DETECTION MEANS FOR MULTIPLE CAPACITIVE SENSING DEVICES

Robert G. Bristol, Everett, Mass., assignor to Emhart Industries, Inc., Indianapolis, Ind.

Filed May 14, 1979, Ser. No. 38,520
Int. Cl.[3] H01H *36/00*
U.S. Cl. 307—116 **13 Claims**



1. A circuit for measuring the response of a capacitance responsive sensing element, comprising:

an electrical source means for providing a pulse signal to said capacitance responsive sensing element, said electrical source means including means for generating a square wave pulse signal; and

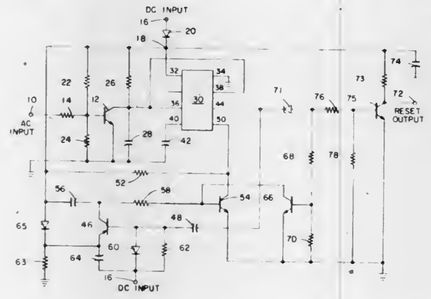
circuit means for measuring the amount of said pulse signal transmitted through said capacitance responsive sensing element to provide an indication of the amount of capacitance to which said element is responding, said circuit means for measuring including a time constant circuit and means for measuring the recovery time of said time constant circuit in response to said square wave signal as an indication of the amount of said pulse signal transmitted through said capacitance responsive sensing element.

4,266,145

TIME DEPENDENT MASTER RESET

Gene L. Amacher, Cambridge, and Wesley D. Dickover, Thornville, both of Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed May 9, 1979, Ser. No. 37,548
Int. Cl.[3] H02H *7/20, 3/093, 3/247*
U.S. Cl. 307—200 A **13 Claims**



1. A circuit for protecting logic circuitry from transients caused by the decay of a power supply, comprising:

first circuit means for generating a first signal upon detecting the absence of an AC signal from said power supply;

second circuit means, responsive to said first signal, for generating a second signal upon said first signal reaching a predetermined voltage condition;

third circuit means, coupled to said second circuit means, for generating a third signal upon generation of said second signal for use in protecting said logic circuitry; and

fourth circuit means, coupled to said second and third circuit means, for maintaining said second and third signals until said power supply voltage decays to a predetermined level.

4,266,146

CHARGE TRANSFER DEVICES HAVING SWITCHABLE BLOCKING ELECTRODES

Arthur H. M. Van Roermund, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 3, 1978, Ser. No. 948,281
Claims priority, application Netherlands, Oct. 13, 1977, 7711228; Feb. 3, 1978, 7801242
Int. Cl.[3] G11C *19/28;* **H01L** *29/78*
U.S. Cl. 307—221 D **4 Claims**

1. A charge transfer device having a switchable blocking electrode comprising:

a semiconductor layer of one conductivity type;

means for permitting information in the form of packets of charge to be locally introduced into said semiconductor layer;

read means for permitting the information to be read at another location in said layer;

control electrodes at least on one side of said layer;

said control electrodes connected to clock lines such that

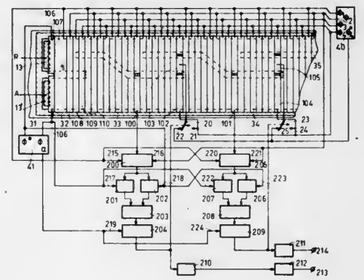
two adjacent electrodes are connected to different clock lines;

said clock lines connected to a clock pulse generator for delivering multiphase clock signals by means of which electrical fields are capacitively generated in said semiconductor layer, with which fields the charge packets can be transferred to said read means along a channel in said layer in a direction parallel to said layer;

at least one of said control electrodes being divided into two or more parts in a direction perpendicular to the direction of charge transfer;

switching means present between at least one of said control electrodes or a divided part thereof and the respective clock line for permitting the application of a voltage which at one time is equal to a phase of the clock signal which together with the clock voltages on adjacent control electrodes ensures the transfer of a charge packet in the channel underneath said at least one control electrode and at another time is equal to a blocking voltage which prevents the transfer of a charge packet in the channel underneath said at least one control electrode;

said switching means being constituted by a change-over switch having a master contact connected to said at least one control electrode, one contact connected to a terminal



for the application of a blocking voltage and another contact connected to a clock conductor to which said at least one control electrode would be connected in the absence of the change-over switch;

means for splitting the transfer channel into as many channel sections as there are parts into which said at least one control electrode is divided, each of the parts of said control electrode functioning as a control electrode for the channel section underneath it;

said means for splitting the transfer channel comprising isolation diffusions each of which is located below the area between two adjacent parts of the divided control electrode, each of said parts partly overlapping the relevant isolation diffusion, and the isolation diffusions extending substantially in the direction of charge transfer;

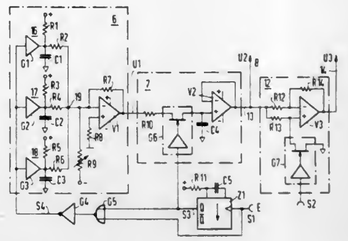
at least one sensing element arranged in front of the blocking electrode in the direction of the charge transfer and associated with the same channel as said blocking electrode, which sensing element is connected to a detector connected directly or indirectly to a comparator for comparing the magnitude of the signal appearing at the output of the detector with a reference signal, the output signal of the comparator being applied to a control input of said switching means either through or not through delay elements.

4,266,147

CIRCUIT ARRANGEMENT FOR FORMING A SPEED-PROPORTIONAL OUTPUT VOLTAGE FROM A SPEED-PROPORTIONAL PULSE SEQUENCE

Karl Schalk, Nuremberg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 5, 1978, Ser. No. 939,281
Claims priority, application Fed. Rep. of Germany, Sep. 9, 1977, 2740771
Int. Cl.[3] G06G *7/12;* **G01P** *3/48;* **H03K** *17/60*
U.S. Cl. 307—492 **13 Claims**



1. A circuit arrangement for forming a speed-proportional DC output voltage from a speed-proportional sequence of rectangular pulses comprising:

a pulse duration converter having an input for receiving the speed-proportional pulse sequence and including a plurality of R-C networks coupled to the input to respond simultaneously to the pulse sequence, each network having at least one resistor and one capacitor and a different time constant and each being adapted to form a signal which is a different exponential function of the input signal; and

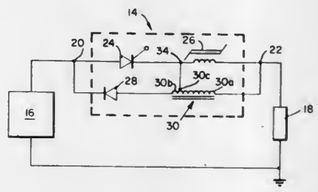
means for superposing the signals of the R-C networks to form an output voltage which is inversely proportional to the pulse duration.

4,266,148

FAST CLOSING SWITCH SYSTEM

Arthur K. Wickson, Palos Verdes Estates, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Oct. 16, 1978, Ser. No. 951,809
Int. Cl.[3] H03K *17/73, 17/292, 17/04*
U.S. Cl. 307—252 J **18 Claims**



1. In combination:

means for producing current pulse;

load means;

switching means;

means for serially connecting said pulse producing means, said load means, and said switching means;

impedance means operably connected with said switching means for delaying application of a substantial portion of said current pulse to said load means until a predetermined time period has elapsed; and

priming means comprising transformer means having a primary winding connected in parallel with said impedance means and a secondary winding connected in parallel with said switching means for circulating a priming current

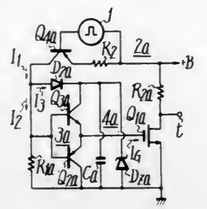
through said switching means during said predetermined time period.

4,266,149

PULSE SIGNAL AMPLIFIER

Tadao Yoshida, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 29, 1979, Ser. No. 7,218
Claims priority, application Japan, Jan. 31, 1978, 53-9457
Int. Cl.³ H03K *3/01, 17/60*
U.S. Cl. 307—255 **10 Claims**



1. A pulse signal amplifier comprising pulse current signal source; an impedance transfer circuit consisting of first and second transistors each having first, second and third electrodes, the first electrodes of which are connected to each other and supplied with the output of said pulse current signal source and second electrodes of which are connected to each other; a field effect transistor having gate, source and drain electrodes, the gate electrode of which is connected to the connection point of the second electrodes of said first and second transistors, the drain and source electrodes of which are connected between a DC voltage source and a reference point through a load, said pulse signal amplifier is characterized by:

(a) a capacitor having a pair of first and second terminals, the first terminal of which is connected to the third electrode of said first transistor and the second terminal of which is connected to the third electrode of said second transistor and to said reference point; and

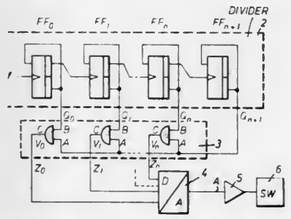
(b) a diode connected between the output of said pulse current signal source and the third electrode of said first transistor so as to carry a part of the output current of said pulse current signal source to said capacitor to charge the same when the gate current of said field effect transistor is not supplied through the third and second electrodes of said first transistor.

4,266,150

CIRCUIT ARRANGEMENT FOR OPERATING ELECTROMECHANICAL SWITCHING DEVICES

Günther Bergmann, Blaustein-Arnegg, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 8, 1978, Ser. No. 940,828
Claims priority, application Fed. Rep. of Germany, Sep. 10, 1977, 2740833
Int. Cl.³ H03K *4/02*
U.S. Cl. 307—268 **10 Claims**



1. In arrangement for operating an electromechanical switching mechanism in response to electrical stepping pulses including a source of such stepping pulses constituted by a frequency divider circuit receiving input pulses from a clock pulse generator, and a pulse shaping circuit connected between said frequency divider circuit and said switching mechanism for providing a stepping signal having a ramp-shaped waveform at its leading and trailing edges, said pulse shaping circuit comprising a logic linkage circuit connected to said frequency divider circuit, and a D/A converter connected to the output of said logic linkage circuit, the improvement wherein:

said logic linkage circuit includes a plurality of like logic elements, each having two inputs and an output;

said frequency divider circuit includes a like plurality of frequency divider stages connected in cascade with a further frequency divider stage connected to the output of said like plurality of frequency divider stages; and

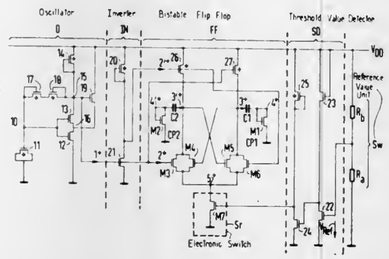
each of said logic elements has one of its said inputs connected to an output of an associated respective one of said like plurality of frequency divider stages, the other of its said inputs connected to a common output of said further frequency divider stage, and its output connected with a respective input of said D/A converter.

4,266,151

SEMICONDUCTOR CIRCUIT WITH AT LEAST TWO FIELD EFFECT TRANSISTORS UNITED IN A SEMICONDUCTOR CRYSTAL

Kurt Hoffmann, Taufkirchen, and Roland Ernst, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Mar. 15, 1979, Ser. No. 20,857
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1978, 2812378
Int. Cl.³ H03K *3/01*
U.S. Cl. 307—297 **16 Claims**



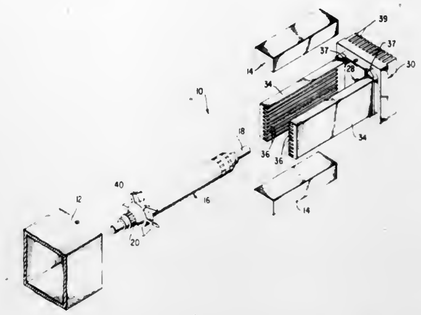
1. A semiconductor circuit, comprising: at least first and second pump circuit means connected for biasing by an auxiliary voltage a semiconductor area relative to ground; a first field effect transistor (FET) in the first pump circuit means and a second FET in the second pump circuit means; an oscillator; a bistable flip-flop having a direct signal input and an inverted signal input both connected to receive an output signal from the oscillator; third input means of the bistable flip-flop for controlling a turn-on threshold thereof; a control loop including a threshold voltage detector connecting to the third input means of the bistable flip-flop; and first and second signal outputs of the flip-flop being respectively connected to the first and second pump circuit means.

4,266,152

METHOD OF AND APPARATUS FOR COOLING ELECTRIC MOTORS AND TOTALLY ENCLOSED ELECTRIC MOTORS INCORPORATING SAME

John A. Herr, Garwood, and Wolfgang Jaffe, Roselle Park, both of N.J., assignors to The Singer Company, Stamford, Conn.

Filed Mar. 29, 1979, Ser. No. 25,167
Int. Cl.³ H02K *9/00*
U.S. Cl. 310—59 **24 Claims**



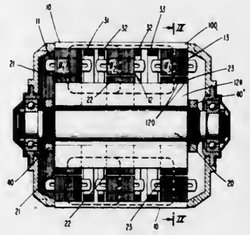
1. Cooling system for electric motors having a pair of elongated pole pieces and an armature therebetween positioned within a housing comprising at least one generally longitudinally extensive non-magnetic heat receptor and transfer element fabricated of a material having high thermal conductivity positioned within the motor housing adjacent and generally parallel the armature and pole pieces and means structurally connected with said heat transfer element and extending outwardly through the motor housing for transmitting heat outwardly through the housing and dissipating such heat externally of the housing.

4,266,153

DEMODULATOR OF POLYPHASE VOLTAGES INTERFERING AMONG THEMSELVES

Gerard O'Mahony, 95 rue de Versailles, 92410 Ville d'Avray, France

Filed Apr. 27, 1979, Ser. No. 33,957
Claims priority, application France, Apr. 28, 1978, 78 12835
Int. Cl.³ H02K *39/00*
U.S. Cl. 310—111 **17 Claims**



1. A demodulator for the demodulation of polyphase voltages to n phases interfering among themselves and constituting a system of polyphase pseudo-sinusoidal voltages modulated in amplitude at a pulsation ϵ, comprising a polyphase rotating machine including:

(a) n armatures each of n phases connected by means of a common yoke of low loss material and fed by n systems of polyphase pseudo-sinusoidal voltages modulated in amplitude to a pulsation ϵ;

(b) a rotor mounted for free rotation and including n magnetic circuits connected through a common magnetic axle, the flux carrying parts of which are of a low loss magnetic material; and

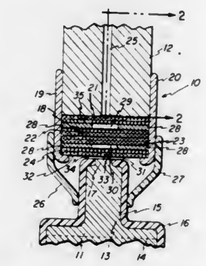
(c) n coils concentric with the axis of the magnetic axle and at the terminals of which n systems of polyphase voltages of pulsation ϵ are collected, each one of the n magnetic circuits of the rotor bearing a number of polar masses equal to the number of pairs of poles on the corresponding armature with the relative geometric keyings of homologous phases of the n armatures of the stator being identical to the relative longitudinal keyings of the polar masses of the rotor.

4,266,154

PERMEABLE MESH CURRENT COLLECTOR FOR DC MACHINES

Robert A. Marshall, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 19, 1979, Ser. No. 31,509
Int. Cl.³ H02K *13/00*
U.S. Cl. 310—219 **17 Claims**



1. An electrical current collector for an electrical machine having a stator and a rotor, said rotor being rotatable relative to said stator about an axis thereof, comprising:

a rotor collector ring;

a stator collector ring encircling said rotor collector ring;

brush means affixed to said stator collector ring contiguous with the radially-inner surface thereof; said brush means comprising at least one layer of porous, compliant, electrically conductive, liquid metal-permeable material, disposed in face-to-face contact with said radially-inner surface of said stator collector ring and extending radially-inward to a location closely adjacent said rotor collector ring, and spaced therefrom by a narrow annular gap; and

liquid metal supply means in flow communication with said brush means for supplying liquid metal thereto; said liquid metal filling the interstices of said porous, liquid metal-permeable material and flowing therethrough to fill said gap between said brush means and said rotor collector ring, thereby establishing electrical contact between said rotor collector ring and said brush means.

4,266,155

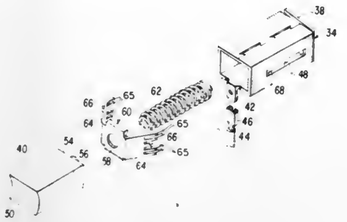
BRUSH HOLDER ASSEMBLY

Paul W. Niemela, Pickens, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Sep. 10, 1979, Ser. No. 73,961
Int. Cl.³ H02K *13/00*
U.S. Cl. 310—239 **4 Claims**

1. Brush holder assembly comprising a conductive tubular brush tube provided with a pair of slots extending longitudinally on opposite sides thereof; a follower of conductive material slidably contained within said brush tube and having a pair of outwardly extending spring legs each slitted longitudinally rearwardly to provide at least three trailing fingers defining at least a pair of outer fingers conductively engaging said brush tube and a central finger bent to form outwardly extending trailing tabs engaged within said slots; a compression spring

confined behind said follower urging said follower towards engagement of said tab against the forward ends of said slots to



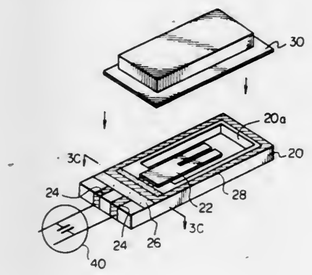
provide positive stops preventing said follower from moving further outwardly of said brush tube; and a brush carried by said follower extending oppositely from said spring.

4,266,156

SUBMINIATURE PIEZOELECTRIC QUARTZ VIBRATOR

Shigeru Kizaki, Hanno, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Nov. 7, 1978, Ser. No. 958,853
Claims priority, application Japan, Nov. 15, 1977, 52-136843
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—344 **8 Claims**



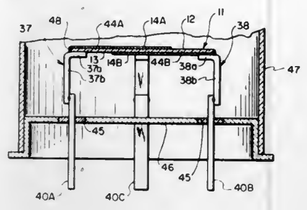
1. A piezoelectric vibrator comprising:
an insulating substrate having a recessed portion formed on an upper side thereof;
thin film leads formed on a portion of said upper side of the insulating substrate;
a piezoelectric vibrator element mounted on a periphery of said recessed portion of said upper side of the insulating substrate and separated by fixed distances from surfaces of said recessed portion, said piezoelectric vibrator element being electrically connected to said thin film leads;
an insulating layer formed on and partially covering said thin film leads and areas of said upper side of said insulating substrate adjacent to said thin film leads;
a metallized layer formed on the upper side of said insulating substrate and over a part of said insulating layer;
a cover mounted on said metallized layer to enclose said piezoelectric vibrating element; and
a layer of fusible metallic material fused between said metallized layer and said cover, for attaching said cover to said metallized layer and for hermetically sealing said piezoelectric vibrator element within said cover;
said insulating layer having a thickness less than 200 microns, with the thickness of said insulating layer being less than ½ the width of each of said thin film leads, whereby a capacitance develops at each of intermediate portions between said metallized layer and said thin film leads.

4,266,157

PIEZOELECTRIC RESONATOR ASSEMBLY WITH THIN MOLYBDENUM MOUNTING CLIPS

R. Donald Peters, Pinellas Park, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 18, 1979, Ser. No. 40,361
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—353 **5 Claims**



1. In a resonator assembly including a piezoelectric resonator blank capable of vibrating at a predetermined rate in response to electrical energy applied to electrodes attached to the major faces, the improvement comprising
at least three substantially identical spaced molybdenum electrically conductive clips having a width of the order of thirty times the thickness disposed about the periphery of said resonator blank for mounting said resonator blank at a plurality of spaced regions around said blank;
each of said clips including a first portion parallel to said major faces, said first portions lying in a common plane, said resonator blank being mounted only atop the first portion of all of said clips;
each of said clips further including a second portion of thickness equal to or less than the thickness of said resonator blank disposed perpendicular to said major faces and providing relatively rigid support for said resonator blank in the direction normal to said major faces while being relatively flexible in directions parallel to said major faces for minimization of radial stresses applied to said resonator blank; and an electrically conductive polymide loaded with electrically conductive particles disposed between the first portion of each of the clips and the juxtaposed major surface of said crystal blank for bonding said resonator blank to said clips and along the edge of said resonator blank to establish an electrically conductive path between a given one of said electrodes and at least one corresponding clip.

4,266,158

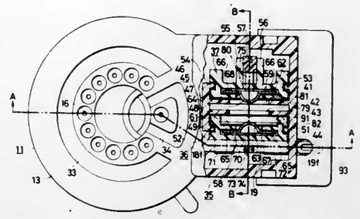
CATHODE RAY TUBE SOCKET WITH A SPARK GAP

Masayuki Uda, Osaka, and Yoshiichi Hayakawa, Higashiosaka, both of Japan, assignors to Hosiden Electronics Co., Ltd., Osaka, Japan

Filed May 7, 1979, Ser. No. 36,704
Claims priority, application Japan, May 10, 1978, 53-62219[U]
Int. Cl.³ H01J *17/00, 21/00*
U.S. Cl. 313—325 **8 Claims**

1. A cathode ray tube socket with a spark gap, comprising:
a disc-like body made of an insulating material;
a plurality of contacts supported by said disc-like body for connection with terminal pins of a cathode ray tube;
a spark gap chamber formed integrally with said disc-like body;
a pair of electrode holders made of an insulating material and housed in said chamber in opposing relationship to one another;
means defining a plurality of depressions and projections on both sides of said electrode holders in slidable engagement with one another for removably supporting said electrode

holders in said opposing relation to one another within said chamber; and
a pair of opposing electrode plates respectively fitted into slit-like depressions formed in said pair of electrode holders, one of said electrode plates being electrically connected to a high-voltage one of said contacts;
said electrode plates including a pair of dome-shaped elec-



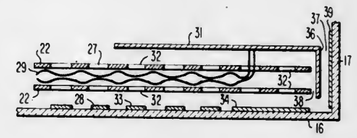
trode portions which are respectively formed integrally with said electrode plates, said pair of dome-shaped electrode portions projecting outwardly of the planes of their respective electrode plates and towards each other through openings which are respectively formed in said electrode holders in communication with said slit-like depressions, thereby to define a spark gap in said chamber between said dome-shaped electrode portions..

4,266,159

ELECTRON CURRENT COLLECTOR FOR FLAT PANEL DISPLAY DEVICES

Wieslaw W. Siekanowicz, Lawrenceville, N.J., assignor to RCA Corp., New York, N.Y.

Filed Sep. 28, 1979, Ser. No. 80,104
Int. Cl.³ H01J *29/08*
U.S. Cl. 313—422 **15 Claims**



1. In a flat panel display device having a display area where the impact of electrons effects a visual display, and including a plurality of spaced beam guides for propagating and focusing electron beams, said beam guides including extraction apertures through which said electron beams pass to impact said display area, said display device also including extraction electrodes for repelling said electron beams through said extraction apertures, an improvement comprising:
an electron collector arranged substantially parallel to the plane of said beam guides and spaced from said beam guides on the display area side of said beam guides;
a deflection electrode in the plane of said extraction electrodes and substantially parallel to the plane of said beam guides;
said beam guides having an extended propagation and focusing portion extending beyond said display area and arranged between said electron collector and said deflection electrode so electron beams are focused between said collector and said deflection electrode, said extended portion including at least one collection aperture so that said deflection electrode causes said electron beams to pass through said collection aperture and impact said collector.

4,266,160

STRONTIUM-CALCIUM FLUORAPATITE PHOSPHORS AND FLUORESCENT LAMP CONTAINING THE SAME

Charles F. Chenot, Towanda, Pa., assignor to GTE Products Corporation, Stamford, Conn.

Filed Jun. 22, 1979, Ser. No. 51,307
Int. Cl.³ C09K *11/44;* H01J *61/44*
U.S. Cl. 313—486 **6 Claims**

1. A luminescent composition consisting essentially of manganese and antimony activated strontium-calcium mixed cation fluorapatite compositions having the formula

$$Ca_{5.0-a-w-x-y}Sr_aCd_wMn_xSb_y(PO_4)_3F_{1-y}O_y$$

wherein
a is from about 0.25 to about 4.75 − w − x − y
w is from 0 to about 0.2
x is from about 0.05 to about 0.5
y is from about 0.02 to about 0.2

5. A fluorescent lamp comprising a light-transmitting envelope having electrodes, an inert ionizable gas and a charge of mercury therein and a coating of phosphor on the inside surfaces of said envelopes, said phosphor comprising manganese and antimony activated strontium-calcium mixed cation fluorapatite compositions having the formula,

$$Ca_{5.0-a-w-x-y}Sr_aCd_wMn_xSb_x(PO_4)_3F_{1-y}O_y$$

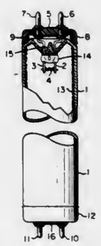
wherein
a is from about 0.25 to about 4.75 − w − x − y
w is from about 0 to about 0.2
x is from about 0.05 to about 0.5
y is from about 0.02 to about 0.2

4,266,161

COOL WHITE LAMP USING A TWO-COMPONENT PHOSPHOR

Anthony F. Kasenga, and Charles F. Chenot, both of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 22, 1979, Ser. No. 51,304
Int. Cl.³ C09K *11/12, 11/24, 11/42;* H01J *61/44*
U.S. Cl. 313—487 **3 Claims**



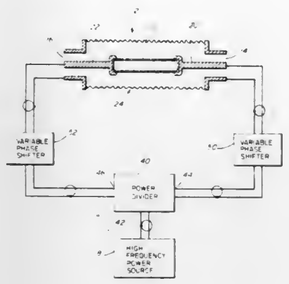
1. A fluorescent lamp comprising a sealed envelope, electrodes, a filling of an inert gas, and mercury therein, and a coating of a phosphor component on the inside surface of said envelope, characterized in that said phosphor component consisting essentially of from about 1 to about 60 weight percent of a blue emitting phosphor having the formula, $(Sr_{1-x}Ba_x)_{5-y}Eu_yCl(PO_4)_3$, wherein x is from 0.01 to about 0.62 and y is from about 0.005 to about 0.15, the balance being a yellow emitting phosphor composition having the formula, $[Ca_{1-a}Sr_a]_{5-w-x-y}Cd_wMn_xSb_y(PO_4)_3F_{1-y}O_y$, a is from 0 to about 0.8, w is from 0 to about 0.05, x is from about 0.005 to about 0.17, y is from about 0.02 to about 0.04, said lamp exhibiting a color falling within the cool white ellipse on the CIE diagram.

4,266,162

ELECTROMAGNETIC DISCHARGE APPARATUS WITH DOUBLE-ENDED POWER COUPLING

William H. McNeill, Carlisle; Alfred E. Feuersanger, Framingham; Paul O. Haugsjaa, Acton, and Robert J. Regan, Needham, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 16, 1979, Ser. No. 21,125
Int. Cl.³ H01J *7/46, 11/80*
U.S. Cl. 315—39 **15 Claims**



1. An electromagnetic discharge apparatus comprising:

electrodeless discharge means including a discharge vessel having a first end and a second end and containing a fill material which supports electromagnetic discharge;

a power coupling fixture operative to couple high frequency power to both ends of said electrodeless discharge means so that said discharge means forms a termination load for said fixture during operation, said power coupling fixture including

a first conductor having a first end coupled to the first end of said discharge vessel and a second end,

a second conductor having a first end coupled to the second end of said discharge vessel and a second end, and

an outer conductor disposed around said first and second conductors and said electrodeless discharge means, said outer conductor having a first end associated with the second end of said first conductor to form a first input for receiving said high frequency power and having a second end associated with the second end of said second conductor to form a second input for receiving said high frequency power;

first transmission circuit means having an output coupled to the first input of said power coupling fixture;

second transmission circuit means having an output coupled to the second input of said power coupling fixture;

power divider means having a first output coupled to an input of said first transmission circuit means, a second output coupled to an input of said second transmission circuit means; and

a high frequency power source, coupled to an input of said power divider means, which delivers high frequency power having an associated wavelength,

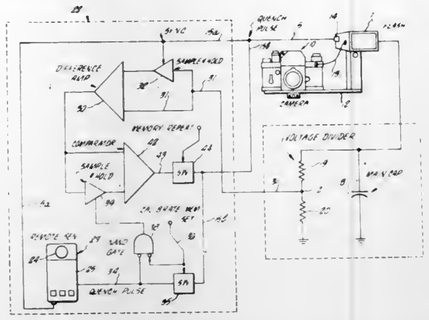
said first transmission circuit means, said first conductor, said electrodeless discharge means, said second conductor, said second transmission circuit means, and said power divider means between said first and second outputs forming an electrical loop having an associated electrical length, which is substantially equal to an integral number of said wavelengths.

4,266,163

INCIDENT METERING ELECTRONIC FLASH CONTROL

Havelock D. Lloyd, Los Angeles, Calif., assignor to Vivitar Corporation, Santa Monica, Calif.

Filed Jul. 9, 1979, Ser. No. 55,539
Int. Cl.³ H05B *41/32*
U.S. Cl. 315—151 **15 Claims**



1. An electronic flash control system for enabling incident light measurements to be made at a scene to be photographed and a signal to be stored which is proportional to the desired quantity of light received at the scene for automatically controlling quench of an electronic flash unit when taking a subsequent flash picture comprising,

remote sensor means for measuring incident light at a scene, said remote sensor means comprising a light sensor circuit responsive to a control signal for measuring the incident light and providing a quench signal for causing termination of a flash of light from an electronic flash unit,

first circuit means for receiving a signal proportional to the energy used in firing a flashtube of a flash unit, said first circuit means including storage means for storing the initial value of said energy and providing as an output a difference signal comprising an incident light value which is a function of the energy used in production of a flash and proportional to the quantity of light incident on the remote sensor means,

second circuit means responsive to the quench signal from said remote sensor means for storing said incident light value, and

said first and second circuit means being adapted to respond to the initiation of a subsequent flash of light from a flash unit for again measuring the then existing initial value of said energy and providing another quench signal when a new difference signal generated by said first circuit means bears a predetermined relationship to said incident light value.

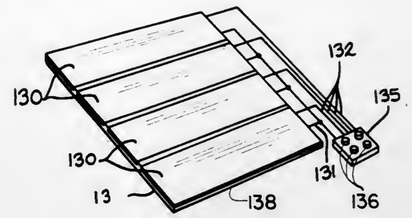
4,266,164

ELECTROLUMINESCENT BACKING SHEET FOR READING AND WRITING IN THE DARK

Becky J. Schroeder, 2317 Valleybrook Dr., Toledo, Ohio 43615

Continuation-in-part of Ser. No. 796,896, May 16, 1977, abandoned, which is a continuation-in-part of Ser. No. 639,200, Dec. 9, 1975, Pat. No. 4,024,404, which is a continuation-in-part of Ser. No. 567,397, Apr. 11, 1975, Pat. No. 3,978,340, which is a continuation-in-part of Ser. No. 498,705, Aug. 19, 1974, Pat. No. 3,879,611, which is a continuation-in-part of Ser. No. 428,339, Dec. 23, 1973, Pat. No. 3,832,556, which is a continuation of Ser. No. 288,148, Sep. 11, 1972, abandoned. This application Mar. 15, 1979, Ser. No. 20,628
Int. Cl.³ H05B *33/08*
U.S. Cl. 315—169.1 **6 Claims**

1. An electroluminescent panel assembly for writing in darkness comprising a plurality of independently activatable electrically energizable light emitting phosphorescent strips aligned in side-by-side relation to form an integrated luminescent field and a power source connected for energization of each of said light strips, said strips each being arranged to provide a segment of said luminescent field spaced a small distance from the segment of light field of an adjacent strip in



said integrated field forming a series of narrow non-lighted regions therebetween which function as dark guidelines for an overlying sheet of material through which said luminescent field is visible upon energization of said strips,

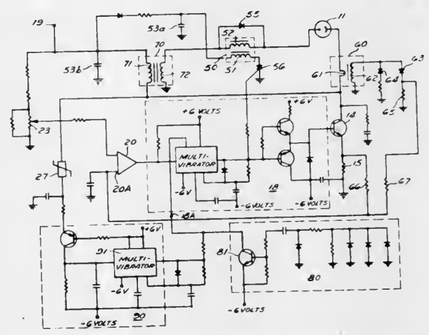
said panel assembly being a self-contained portable unit incorporating its own power source.

4,266,165

HIGH INTENSITY DISCHARGE LAMP STARTING CIRCUIT

Howard Handler, Westminster, Calif., assignor to Datapower, Inc., Santa Ana, Calif.

Filed Dec. 27, 1978, Ser. No. 973,613
Int. Cl.³ H05B *41/14, 41/36*
U.S. Cl. 315—224 **18 Claims**



2. A control circuit for energizing a gas discharge lamp, comprising:

switching means alternately generating a charging current and a flyback current in opposite directions connected across said lamp for sustaining and controlling illumination in said lamp;

pulse transformer means connected in series with said lamp for initially igniting said lamp; and

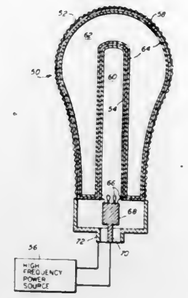
means for automatically preventing the magnetic field in said pulse transformer means from opposing current flow through said lamp.

4,266,166

COMPACT FLUORESCENT LIGHT SOURCE HAVING METALLIZED ELECTRODES

Joseph M. Proud, Wellesley Hills, and Robert K. Smith, Wilmington, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 9, 1979, Ser. No. 92,914
Int. Cl.³ H05B *41/16, 41/24*
U.S. Cl. 315—248 **36 Claims**



1. An electromagnetic discharge apparatus for capacitive excitation of a low pressure discharge by high frequency power, said apparatus comprising:

a discharge lamp having a lamp envelope made of a light transmitting substance, said envelope including an outer surface and at least one re-entrant cavity having an inner surface and enclosing a fill material which forms during discharge a plasma which emits ultraviolet radiation and has an effective electrical impedance;

an outer conductor disposed around the outer surface of said envelope such that said outer conductor and said plasma act as a first electrode pair, separated by said lamp envelope, of a first capacitor which is configured to have an impedance at said high frequency which is much less than the impedance of said plasma;

a conductive coating disposed on the inner surface of said re-entrant cavity to form an inner conductor such that said inner conductor and said plasma act as a second electrode pair, separated by said lamp envelope, of a second capacitor which is configured to have an impedance at said high frequency which is much less than the impedance of said plasma,

means for coupling said apparatus to a source of high frequency power, said inner and outer conductors being positioned so that when a high frequency voltage is applied between said inner and outer conductors, inducing an electric field therebetween, substantially all of said electric field is confined within said discharge lamp,

whereby high frequency power applied to said inner and outer conductors induces an electric field in said lamp and causes discharge therein.

4,266,167

COMPACT FLUORESCENT LIGHT SOURCE AND METHOD OF EXCITATION THEREOF

Joseph M. Proud, Wellesley Hills, and Donald H. Baird, Newton, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

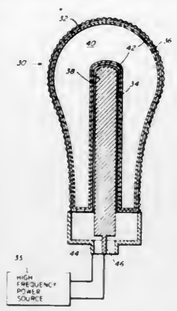
Filed Nov. 9, 1979, Ser. No. 92,916
Int. Cl.³ H05B *41/16, 41/24*
U.S. Cl. 315—248 **40 Claims**

1. A method for capacitive excitation, by high frequency power, of a low pressure discharge in a discharge lamp having a lamp envelope made of a light transmitting substance, said envelope enclosing a fill material which forms during discharge a plasma which emits ultraviolet radiation and has an

effective electrical impedance, said method comprising the steps of:

positioning a first conductor in close proximity to a first external surface region of said discharge lamp such that said first conductor and said plasma act as a first electrode pair, separated by said lamp envelope, of a first capacitor which is configured to have an impedance, at said high frequency, which is much less than the impedance of said plasma;

positioning a second conductor in close proximity to a second external surface region of said discharge lamp such that said second conductor and said plasma act as a second



electrode pair, separated by said lamp envelope, of a second capacitor which is configured to have an impedance, at said high frequency, which is much less than the impedance of said plasma;

positioning said first and second conductors relative to each other so that, when a high frequency voltage is applied between said first and second conductors, inducing an electric field therebetween, substantially all of said electric field is confined within said discharge lamp; and

applying high frequency power to said first and second conductors for inducing an electric field in said lamp and causing discharge therein.

4,266,168

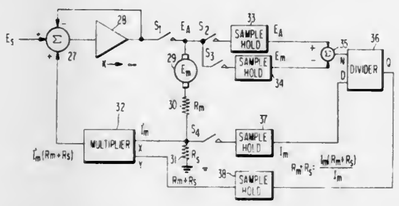
D.C. MOTOR SPEED CONTROL

Jorgen W. Andersen, 3030 Rey Rd., Mathews, N.C. 28105

Filed Jun. 12, 1979, Ser. No. 47,699

Int. Cl.[3] H02P *5/16*

U.S. Cl. 318—331 **4 Claims**



1. In a D.C. motor speed control of the type wherein a set point voltage is applied to a loop summing junction to develop an error voltage which is amplified by an error amplifier and applied across the D.C. motor to be controlled, and a current metering device is connected in series with said D.C. motor to develop a voltage proportional to the current through said D.C. motor, which voltage is amplified by a second amplifier and positively fed back to said summing junction, the improvement comprising:

a first normally closed switch connected between said error amplifier and said D.C. motor,

a sample and hold circuit including a second normally open switch connected to said D.C. motor, said first and second switches being operated synchronously so that when said first switch is momentarily opened, said second switch is momentarily closed to sample the back e.m.f. of said D.C. motor, the value of the sampled back e.m.f. being stored in said sample and hold circuit, and

said second amplifier being a voltage controlled variable gain amplifier whose gain is controlled by a function of the value of the sampled back e.m.f. stored in said sample and hold circuit.

4,266,169

ELECTROMECHANICAL CONTROL DEVICE FOR DISPLACING AN OBJECT

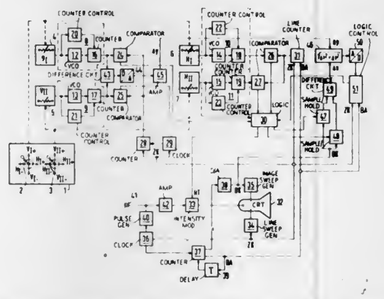
Georg Hölzler, Moehrendorf, and Jochem Knoche, Nuremberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 24, 1980, Ser. No. 115,001

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2910012

Int. Cl.[3] G06F *3/14*

U.S. Cl. 318—490 **8 Claims**



1. An electromechanical positioning device for generating electric signals to displace an object from an initial position to a selected final position comprising:

a manually operable control means normally maintained in a rest position, said control means moveable in directions corresponding to directions of movement of the object to be displaced;

a deflection signal generator mechanically connected to said control means for generating a signal having a magnitude directly proportional to the amount of movement of said control means and having a polarity corresponding to the direction of movement;

a means for moving said object to be displaced in response to said deflection signal; and

an arresting means connected to said signal generator, said arresting means monitoring said deflection signal and retaining a highest value of said deflection signal after said control means is returned to said rest position, said arresting means further maintaining an output at said highest value to maintain said deflection signal and thereby hold said object in the final position corresponding thereto with said control means in said rest position.

4,266,170

SAFETY ARRANGEMENT FOR NC SYSTEMS

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Kanagawaken, Japan

Filed Aug. 21, 1979, Ser. No. 68,498

Claims priority, application Japan, Sep. 6, 1978, 53-122591[U]

Int. Cl.[3] G05B *23/02*

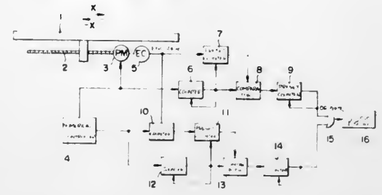
U.S. Cl. 318—565 **7 Claims**

1. A safety arrangement for an electromechanical system in a machine tool for controlledly feeding a movable element

driven by an electric motor in accordance with a programmed instruction from a numerical controller, wherein a drive signal is applied from said numerical controller to said motor to angularly displace the same, the arrangement comprising:

encoder means responsive to the angular displacement of said motor to provide a sensing signal;

means responsive to said drive signal and said sensing signal to provide a first detection signal in the presence of a deviation therebetween during each of successive predetermined time intervals;



means responsive to said numerical controller for registering a predetermined extent of angular displacement of said motor to be effected by said drive signal in each of successive, divided displacement steps for said movable element;

means having said registered extent set therein and responsive to said sensing signal to provide a second detection signal when said registered extent fails to be reached by said sensing signal in any of a predetermined sequential number of said successive displacement steps; and

means for deriving an error signal from said first and second detection signals.

4,266,171

ADVANCE CONTROL SYSTEM FOR USE IN A DRILLING APPARATUS

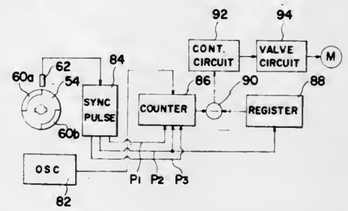
Tohru Mashimo, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Apr. 3, 1979, Ser. No. 27,013

Claims priority, application Japan, Apr. 5, 1978, 53-40576

Int. Cl.[3] G05B *19/24*

U.S. Cl. 318—571 **5 Claims**



1. A control system for use in a drilling apparatus including a drilling rod rotatably accommodated in a drilling body and moving means for advancing and retreating said body in relation to an object, said controlling system comprising:

pulse producing means for producing one or two pulses upon completion of each rotation of the drilling rod;

oscillator means for producing a high frequency pulse signal;

counting means for counting the number of high frequency pulses produced during a period defined by pulses produced from the pulse producing means; and

control means for controlling the moving means by the counted number of pulses;

wherein said control means comprises a reference number producing means for producing a reference member, a comparator means for comparing the counted number in the counting means with the reference number and for producing a difference therebetween, means for classifying the difference into one of a plurality of classes, means for producing a class signal indicative of a class in which the difference is classified and control circuit responsive to the class signal for controlling the moving means.

4,266,172

TRACER CONTROL SYSTEM

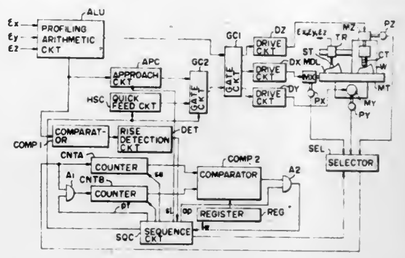
Etuo Yamazaki, Hachioji, Japan, assignor to Fujitsu Fanuc Limited, Japan

Filed Apr. 23, 1979, Ser. No. 32,695

Claims priority, application Japan, Apr. 24, 1978, 53/49065

Int. Cl.[3] G05B *19/37*

U.S. Cl. 318—578 **9 Claims**



1. A tracer control system in which a tracer head quick feed operation is switched over to a deceleration operation to alleviate a shock when a stylus of the tracer head contacts a model, wherein the improvement comprises means for detecting and storing the amount of change in the configuration of a model at a profiling start point, said means employed to control the point of switching from the tracer head quick feed operation to the deceleration operation for the next profiling start point, said point of switching dependent upon said stored amount of change, thereby ensuring that the point of switching is always at substantially a constant distance above the profiling start point on the model surface.

4,266,173

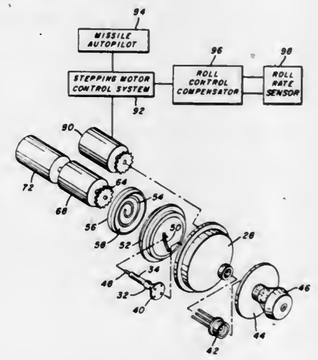
ROLL COMPENSATED SEEKER HEAD

Larry D. McTigue, and George T. Pinson, both of Huntsville, Ala., assignors to The Boeing Company, Seattle, Wash.

Filed Mar. 15, 1979, Ser. No. 20,577

Int. Cl.[3] B64C *13/18*

U.S. Cl. 318—585 **6 Claims**



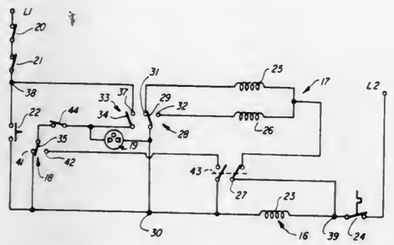
1. In an aircraft subject to rolling motions about its longitudinal axis, the combination of apparatus for mounting on said aircraft a sensor adapted to search an area in two dimensions for a target located at some unknown point, a roll rate gyro for sensing rolling movements of said aircraft about said longitudi-

nal axis, and means including a roll control compensator coupled to said roll rate gyro for rotating said mounting apparatus about said longitudinal axis in an amount substantially equal and opposite to the rolling movement sensed by said roll rate gyro, the amount of movement of said mounting means by said rotating means being as great as 360°.

4,266,174
COMPACTOR CONTROL WITH SELECTIVE PAUSE OPERATION

Frank E. Miller, Mercer County, Ky., and James J. Anderson, Fremont, Ohio, assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 23, 1979, Ser. No. 68,972
Int. Cl.³ H02P 1/40
U.S. Cl. 318—753 **12 Claims**



1. In a refuse compactor having a compacting ram, drive means for driving the ram selectively in a compacting movement to a compacting position and in a retracting movement to a retracted position, the improvement comprising:

control means controlling the drive means for selectively

(a) causing the ram to be returned to said retracted position as an incident of the ram meeting a preselected resistance to compacting movement, and

(b) causing the ram to be retained in said compacting position upon the ram meeting said preselected resistance;

means for causing the control means to return the ram to said retracted position subsequent to the ram being caused to be retained in said compacting position; and

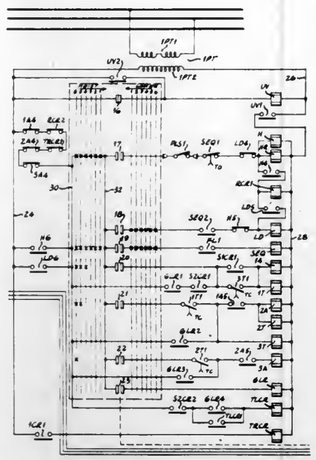
indicator means indicating the retention of the ram in said compacting position.

4,266,175
SECONDARY THYRISTOR CONTROL FOR AC WOUND ROTOR MOTORS

Dennis H. Braun, Brookfield, and Robert W. Spink, Wauwatosa, both of Wis., assignors to Eaton Corp., Cleveland, Ohio

Filed Sep. 24, 1979, Ser. No. 78,063
Int. Cl.³ H02P 1/40
U.S. Cl. 318—758 **15 Claims**

1. The combination with a polyphase A.C. wound rotor motor having opposed parallel connected controlled thyristors and a plurality of series connected resistors in each leg of a delta connected secondary impedance network and control means for establishing A.C. power connections to the motor primary terminals, of means for controlling the conduction of said thyristors in each leg of the delta connected secondary impedance network comprising means connected to the motor secondary terminals to provide polyphase A.C. reference signals which vary in frequency and amplitude in accordance with motor primary excitation, speed and load, means responsive to said A.C. reference signals providing polyphase complementary constant peak amplitude, variable frequency signals which are impervious to erroneous multiple zero crossings of said A.C. reference signals, means providing a selectively settable reference signal, and means responsive to the last mentioned reference signal and said polyphase complementary

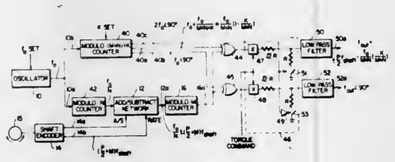


constant peak amplitude variable frequency signals to provide timed gating signals for initiating conduction of said thyristors.

4,266,176
INDUCTION MOTOR SLIP FREQUENCY CONTROLLER

Donald E. Fulton, Stoneham, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Aug. 29, 1979, Ser. No. 70,856
Int. Cl.³ H02P 5/40
U.S. Cl. 318—801 **28 Claims**



1. Apparatus for generating stator drive signals for an induction motor having a stator with P pole pairs and a rotor coupled to an output shaft, said output shaft having a rotational frequency, f_{shaft}, comprising:

A. oscillator means for generating a first pulse stream having a pulse repetition rate (prf) f_o/N, where N is an integer constant,

B. incremental shaft position transducer means coupled to said shaft, for generating a pulse for each predetermined increment of rotation of said shaft, said pulses forming a second pulse stream having a prf $P/2 \times M \times f_{shaft}$, when M is an integer constant,

C. pulse frequency adder/substractor means coupled to said oscillator means and said transducer means, for generating a third pulse stream having a prf equal to the sum or difference of the prf's of said first and second pulse streams,

D. means coupled to said adder/substractor means, for generating a fourth pulse stream having a prf equal to the product of 1/M and the prf of said third pulse stream,

E. means of generating a fifth pulse stream having a prf equal

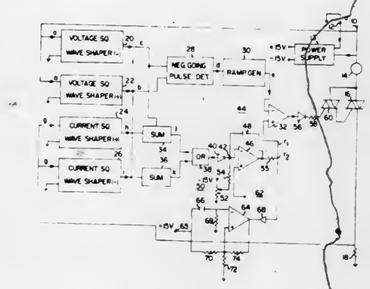
to $f_o/(M \times N) + \Delta f_{slip}$ where Δf_{slip} is a selected value corresponding to a desired slip frequency,

F. difference means coupled to said fourth and fifth pulse stream generating means, for generating said stator drive signals, said stator drive signals having a frequency equal to the difference between the prf's of said fourth and fifth pulse streams.

4,266,177
POWER FACTOR CONTROL SYSTEM FOR AC INDUCTION MOTORS

Frank J. Nola, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 1, 1979, Ser. No. 44,431
Int. Cl.³ H02K 17/04; H02P 5/40
U.S. Cl. 318—810 **9 Claims**



1. A power factor control system for an AC induction motor comprising:

current sampling means including means adapted to be placed in circuit with a winding of a said motor for providing a rectangular output signal timed to turn on responsive to detected current flow through said winding;

voltage sampling means adapted to sense the voltage of an electrical input applied to said winding and for providing a rectangular wave output signal timed to change with changes in polarity of said voltage across said winding;

summing means for adding the current and voltage rectangular wave output signals and providing a pulse output of constant height and having a duration proportional to the phase difference of current and voltage;

a power factor command signal;

difference means for subtracting said command signal from an averaged amplitude of said pulse output of said summing means and providing a difference signal; and

control means, including a signal responsive switch electrically connected in series with a said winding of said motor, and responsive to said difference signal for varying the duration of "on" time of said switch during each cycle of input power to a said winding as a direct function of load on said motor.

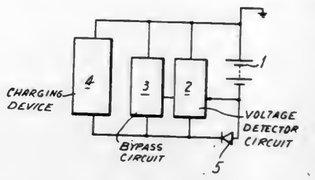
4,266,178
CHARGE CONTROL CIRCUIT

Tatsushi Asakawa, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Oct. 5, 1977, Ser. No. 839,522
Claims priority, application Japan, Oct. 5, 1976, 51-119641
Int. Cl.³ H02J 7/10
U.S. Cl. 320—39 **24 Claims**

1. A charge control circuit comprising voltage supply means adapted to be charged to a predetermined voltage level in response to a charging circuit being applied thereto; charging means adapted to produce a charging current; voltage regulating means disposed intermediate said charging means and said voltage supply means; circuit isolation means for preventing any current flow caused by said voltage supply means, whereby all circuit currents are exclusively supplied from said charging means,

said voltage regulating means including voltage detecting means for detecting when said voltage supply means is charged to said predetermined level and in response thereto for producing an inhibit signal, said detecting means being responsive solely to voltage and drawing no



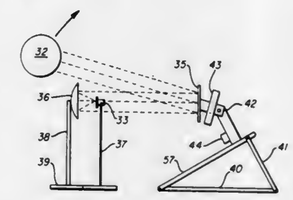
current from said supply means, and being connected to receive the voltage at a point between said voltage supply means and said circuit isolation means;

and current inhibit means coupled to said voltage detecting means and to said charging means for inhibiting said charging current supplied by said charging means from being supplied to said voltage supply means when said inhibit signal is applied thereto.

4,266,179
SOLAR ENERGY CONCENTRATION SYSTEM

James E. Hamm, Jr., 11824 Kim Pl., Potomac, Md. 20854

Filed Feb. 27, 1979, Ser. No. 15,858
Int. Cl.³ F24J 3/02; H01J 45/00
U.S. Cl. 322—2 R **18 Claims**



1. In a solar radiant energy concentration system: a reflective concentrator; a thermionic energy conversion transducer; said concentrator and said transducer being mounted in fixed relation to each other; reflector means positioned for reflecting solar radiation to said concentrator and focusing of solar radiation from said concentrator to said transducer; position setting means; tracking means for reflector means tracking of the sun during daylight hours of the day; wherein said reflector means is a plurality of reflectors each positioned for reflecting solar radiation to said concentrator; and at least one reflector of said plurality of reflectors mounted on each of a plurality of declination adjustor support platforms; said position setting means includes a one-time declination-latitude position setting structure for each of said declination adjustor support platforms; each said position setting structure includes declination adjustor support means set at an inclination angle compensating for the latitude of the system location; said concentrator and said transducer are mounted in substantially North-South orientation with said concentrator generally closer to the equator than said transducer; said declination adjustor support means is in the form of a platform with pivotal interconnect means at one end with mounting means and having inclination angle setting means supporting said platform at a declination angle with declination angle setting lock means; with positioning of said declination adjustor means in substantially a North-South orientation at site location with said platform interconnect

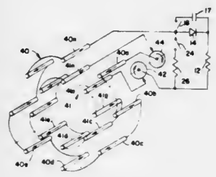
means at the end of said platform being located toward the equator; a declination adjustment device is mounted on each of said declination adjustor support platforms; said declination adjustment device is constructed with the declination adjustment range of 47 degrees movement corresponding to the yearly relationship of the earth to sun North-South-North rotation movement of 47 degrees to eliminate the offset caused by the declination angle of the earth's axis; and wherein said declination adjustment device includes a pivotally mounted declination swivel platform; an arc segment gear fixed to said declination swivel platform; a gear rack bar in drive engagement with said arc segment gear and mounted for slidable longitudinal back and forth guided movement on each said declination adjustor support platform; a drive wheel interconnected by connecting rod means with said gear rack bar for drive of said gear rack bar in a sine wave type plot; and step drive means for said drive wheel.

4,266,180

METHOD OF AND MEANS FOR HIGH PERFORMANCE DIRECT CURRENT ELECTRICAL PULSE GENERATION UTILIZING MECHANICAL ENERGY STORAGE

Christian H. A. Juvan, Cupertino, Calif., assignor to ILC Technology, Inc., Sunnyvale, Calif.

Filed Jun. 21, 1979, Ser. No. 50,756
Int. Cl.³ H02K *39/00*
U.S. Cl. 322—4 **41 Claims**



1. The method of converting inertial mechanical energy into a pulse of electrical energy in a given load comprising the steps of:

(a) rotating a mass about a given axis to provide a source of inertial mechanical energy;

(b) providing an electrical conductor means adapted to produce a localized magnetic field at the surface of said rotary mass by electrical current flow therethrough;

(c) providing a localized magnetic flux compression means at the surface of said rotating mass;

(d) rotating one of said electrical conductor means and said magnetic flux compression means with said rotating mass to periodically compress the flux of said localized magnetic field in response to said rotation of said mass; and

(e) connecting said given load across said electrical conductor means during said compression of said flux of said localized magnetic field.

4,266,181

VOLTAGE REGULATOR SYSTEM FOR VEHICLE GENERATOR

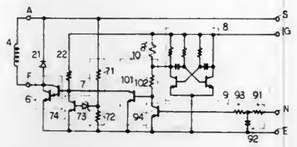
Katsuya Muto, Kariya; Kazumasa Mori, Aichi; Akira Mase, Handa; Takayasu Nimura, Nagoya; Katsumi Itoh, Obu, and Yoshio Akita, Ichinomiya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Feb. 5, 1979, Ser. No. 9,359
Claims priority, application Japan, Apr. 21, 1978, 53-48205
Int. Cl.³ H02P *9/08*
U.S. Cl. 322—28 **8 Claims**

1. A voltage regulator for battery charging generator having armature windings and a field exciting coil comprising:

a switching circuit connected in series with the field exciting coil for supplying field exciting current by the conduction thereof,

a battery voltage sensing circuit for causing said switching circuit to be nonconductive when a sensed battery voltage exceeds a first value to regulate the battery charging voltage,



first means connected to the armature windings to detect a voltage in said windings, and

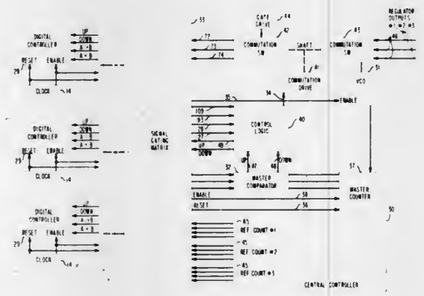
second means for causing said switching circuit to be conductive and nonconductive periodically unless said first means detects that a voltage in said windings exceeds a second value smaller than said first value.

4,266,182

COMMON CONTROL WITH FREQUENCY DRIFT COMPENSATION FOR A PLURALITY OF SWITCHING REGULATORS

Victor B. Boros, New York, N.Y., and Harry K. Ebert, Jr., Hackettstown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 24, 1979, Ser. No. 69,259
Int. Cl.³ H02P *13/32*
U.S. Cl. 323—267 **8 Claims**



1. A power supply system including at least a first and second switching regulator having a first and second regulatory control circuit including first and second error signal generating circuitry, respectively;

wherein the improvement comprises;

a master regulatory control circuit including a master error signal generating circuit;

multiplexing means to periodically and sequentially couple the master regulatory control circuit to the first and second switching regulator; and

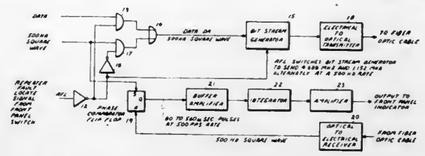
first and second compensation circuits each responsive to the master error signal generating circuit and each operative to modify an erro signal generated by the first and second error signal generated by the first and second error signal generating circuitry respectively wherein the precision of operation of the first and second switching regulator is enhanced.

4,266,183

FAULT LOCATING ARRANGEMENT FOR A TWO-WAY REPEATERED TRANSMISSION LINK

Peter D. Steensma, Midland Park; Robert H. Haussmann, Wayne, and Anton J. Polcer, Haledon, all of N.J., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jul. 25, 1979, Ser. No. 60,439
Int. Cl.³ G01R *31/08*
U.S. Cl. 324—52 **19 Claims**



1. A fault locking arrangement for a two-way repeatered transmission link including first and second spaced two-way terminals and a plurality of two-way repeaters disposed between said first and second terminals comprising:

first means disposed in one of said first and first transmission direction from said one of said first and second terminals to the other of said first and second terminals through said plurality of repeaters;

second means disposed in at least said other of said first and second terminals and each of said plurality of repeaters, each of said second means being responsive to said unique signal traveling in said first transmission direction to establish a loop connection for said unique signal from said first transmission direction to a second transmission direction opposite to said first transmission direction, to enable transmission of said unique signal in said first transmission direction beyond an associated one of said plurality of repeaters, to break said loop connection when said unique signal is traveling in said second transmission direction and to maintain said loop connection when said unique signal is not traveling in said second transmission direction; and

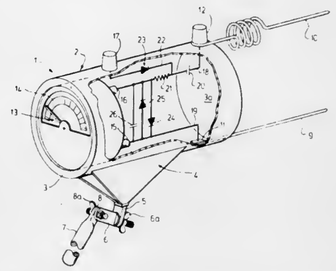
third means disposed in said one of said first and second terminals responsive to said unique signal transmitted in said first transmission direction and received from said second transmission direction to provide an indication of the location of a fault in said transmission link.

4,266,184

METHOD AND APPARATUS FOR TESTING INSULATORS

Clifford W. Devine, Box 123, Keremeos, British Columbia, Canada (V0X 1N0)

Filed Jun. 15, 1979, Ser. No. 48,579
Int. Cl.³ G01R *31/12*
U.S. Cl. 324—54 **11 Claims**



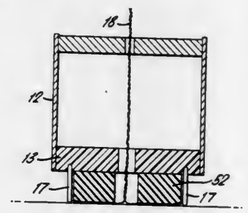
1. A method for detecting faulty insulators among insulators supporting high alternating voltage power transmission lines by means of testing means comprising a capacitance, a blocking resistance, means to avoid discharge of said capacitance, contact probes and a direct current meter which comprises the steps of connecting a source of high voltage direct current to said testing means, charging said capacitance consisting of at least one high voltage, oil filled capacitor from said source, avoiding discharging of the charged capacitor to said source, disconnecting said source from the testing means whereby said testing means has a self contained source of high voltage direct current, sequentially applying the contact probes of said testing means across insulators and recording any current flowing across said insulators by means of said meter, any recorded current being indicative of a faulty insulator, and carrying out the sequential application of the contact probes across insulators while said insulators remain in service and the power transmission lines remain fully energized with normal operating alternating current voltage.

4,266,185

PROBES AND APPARATUS FOR AND METHODS OF MEASURING CRACK DEPTHS

Frank D. W. Charlesworth, South Harrow; William D. Dover, Gerrards Cross, and Kenneth A. Taylor, Knebworth, all of England, assignors to Dover & Partners Limited, London, England

Filed Feb. 16, 1979, Ser. No. 12,796
Int. Cl.³ G01R *27/14*
U.S. Cl. 324—64 **17 Claims**



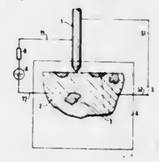
1. An electrical probe for apparatus for measuring crack depths in workpieces, comprising a body, a pair of electrodes mounted on the body at spaced locations thereon each electrode having a contact surface for engaging a work piece, the electrodes being electrically insulated from one another, electric lead means for the respective electrodes, each lead means having an input end and an output end, and means for connecting the input ends of the lead means to the respective electrodes, the lead means and electrodes together constituting a non-inductive circuit and means to connect the output ends of said lead means to a source of alternating current.

4,266,186

METHOD OF TESTING SILICON CONTENT IN ALUMINIUM ALLOYS

Martin Ruhle, Stuttgart, Fed. Rep. of Germany, assignor to Mahle GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 26, 1979, Ser. No. 15,134
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1978, 2808902
Int. Cl.³ G01R *27/02*
U.S. Cl. 324—65 R **5 Claims**



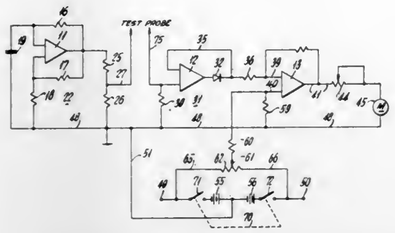
5. A method according to claim 1 wherein the pin point is surrounded by an ambient fluid protective against burning.

4,266,187

METHOD AND APPARATUS FOR MEASURING EFFECTIVENESS OF A CORROSION INHIBITOR

Carlton M. Slough, Spring, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Apr. 23, 1979, Ser. No. 32,598
Int. Cl.³ G01R *27/02*
U.S. Cl. 324—65 CR **7 Claims**



1. Test instrument for measuring effectiveness of a corrosion inhibitor in a corroding system, comprising

an oscillator for generating an AC signal across a voltage divider,

circuit means for connecting a predetermined portion of said AC signal to the input of an ideal rectifier through a film of said inhibitor, and

means for amplifying the output of said ideal rectifier to measure the flow of AC current through said film.

4,266,188

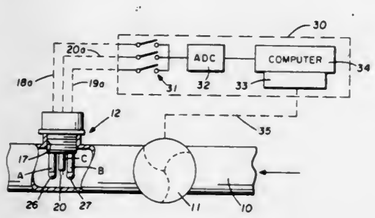
METHOD AND APPARATUS FOR MEASURING A COMPONENT IN A FLOW STREAM

Francis Thompson, Plano, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 30, 1979, Ser. No. 99,239
Int. Cl.³ G01R *27/02*
U.S. Cl. 324—65 R **18 Claims**

10. Apparatus for use in measuring the concentration of a particular component in a two-component liquid mixture, said apparatus comprising:

a first means responsive to the temperature and pressure of said two-component liquid mixture for generating a first signal representative of an electrical property of said particular component;



a second means responsive to the temperature and pressure of said two-component liquid mixture for generating a second signal representative of the same electrical property of the other component of said two-component liquid mixture; and

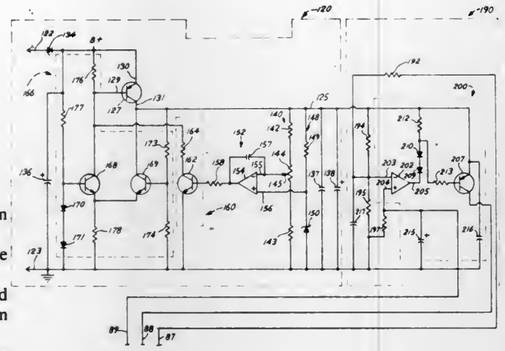
a third means responsive to the temperature and pressure of said two-component liquid mixture for generating a third signal representative of the same electrical property of said two-component liquid mixture.

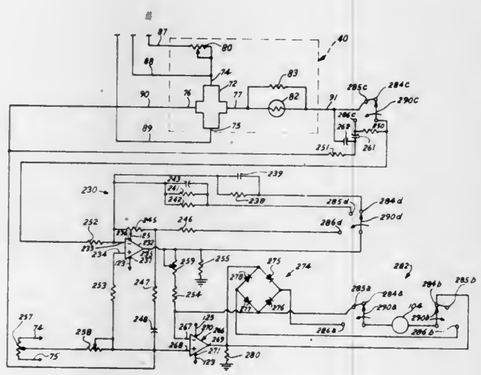
4,266,189

CURRENT MEASURING APPARATUS AND METHOD

Richard A. Karlin; Robert W. McDonald, both of Chicago, and Gary F. Comiskey, Evanston, all of Ill., assignors to Sun Electric Corporation, Crystal Lake, Ill.

Filed Jul. 28, 1976, Ser. No. 709,458
Int. Cl.³ G01R *19/00, 1/30, 31/00*
U.S. Cl. 324—117 H **25 Claims**





1. Apparatus for determining the magnitude of a current to be measured flowing through a conductor, said apparatus comprising:

a probe adapted to be coupled to the conductor;

a cabinet;

a Hall generator located in the probe, said Hall generator including first and second Hall inputs for receiving a bias current and first and second Hall outputs for producing a Hall voltage proportional to the current to be measured;

current control means located in the cabinet for controlling the bias current;

utilization means located in the cabinet for utilizing the Hall voltage;

adjustment means located in the probe for enabling the current control means to generate a predetermined value of bias current, so that the Hall voltage is calibrated; and

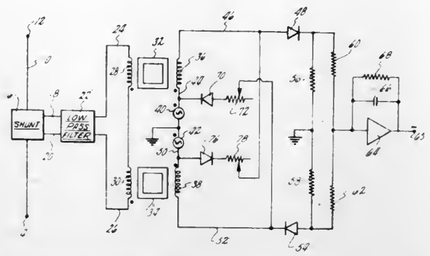
cable means for electrically interconnecting the adjustment means to the current control means and for conducting the bias current and Hall voltage between the cabinet and probe, whereby each probe can be individually adjusted by the adjustment means to be interchangeably connected to a variety of cabinets through the cable means.

4,266,190

DUAL CORE MAGNETIC AMPLIFIER SENSOR

Kenneth Lipman, West Hartford, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 18, 1978, Ser. No. 970,766
Int. Cl.³ G01R *33/00;* **H03F** *9/00*
U.S. Cl. 324—117 R **5 Claims**



1. A magnetic amplifier for sensing the magnitude and polarity of a main current, comprising:

means including a pair of saturable cores, the flux level of which is drivable from an unsaturated state to a saturated state in response to a magnetomotive force in one direction and resettable from the saturated state to an unsaturated state by a magnetomotive force in the opposite direction;

shunt means responsive to said main current for generating a shunt current proportional to said main current to create a magnetomotive force which changes the flux level in each of said saturable cores in one direction;

voltage means for creating a drive magnetomotive force and a reset magnetomotive force within each of said pair of saturable cores for driving the respective flux levels of each core in opposite directions to a saturation point, and for resetting the respective flux levels within each of said saturable cores to a lower level;

bias means connected to said voltage means for initially calibrating the respective flux levels in each of said cores; and

output means for sensing which one of said pair of saturable cores is first to saturate, and for sensing the time separating the saturation points of said saturable cores, and for providing an output signal which has a polarity indicative of the polarity of said main current and a magnitude proportional to said main current.

4,266,191

TEST PROBE ALIGNMENT APPARATUS

John D. Spano, 301 Green Moor Pl., Thousand Oaks, Calif. 91360, and Danny R. Barnett, 3617 W. Abraham La., Glendale, Ariz. 85308

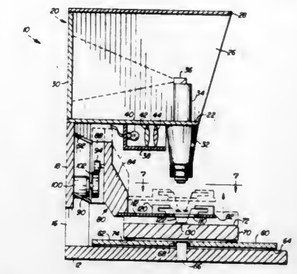
Filed Apr. 18, 1979, Ser. No. 31,192
Int. Cl.³ G01R *31/22*
U.S. Cl. 324—158 F **10 Claims**

1. Apparatus for aligning an element having two predetermined indexing points with two fixed alignment points on the apparatus, comprising, in combination:

base means;

a first stage secured to the base means and rotatable thereon, with the first point of the two fixed alignment points disposed on the center of rotation of the first stage;

a second stage disposed on the first stage for supporting the element to be aligned and freely movable on the first stage and adapted for manual alignment of one of the predetermined indexing points of the element with the first fixed alignment point, and movable with the first stage for rotating the first stage and the second stage to align the other of the predetermined indexing points of the element with the second fixed alignment point after the alignment



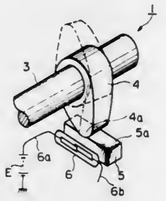
of the one predetermined indexing point of the element with the first fixed alignment point.

4,266,192

ROTATIONAL SPEED DETECTING APPARATUS

Yoshio Ohtani, Higashimatsuyama, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1978, Ser. No. 959,583
Claims priority, application Japan, Nov. 25, 1977, 52-157497[U]
Int. Cl.³ G01P *3/48*
U.S. Cl. 324—168 **3 Claims**



1. A rotational speed detecting apparatus for obtaining signals relative to the rotational speed of a rotating member comprising:

a permanent magnet;

means for retaining said permanent magnet in a fixed position relative to said rotating member, said permanent magnet having a face surface facing said rotating member;

said rotating member including a cam having a convex portion which moves towards and away from said face surface of said permanent magnet such that as said convex portion moves away the intensity of the magnetic field on said face surface is decreased and the magnetic resistance gradually becomes uniform around said permanent magnet, whereby the magnetic flux issued from said permanent magnet is distributed uniformly thereform;

a magnetic body which realtively approaches or moves away from said permanent magnet according to the rotational speed of the rotating member;

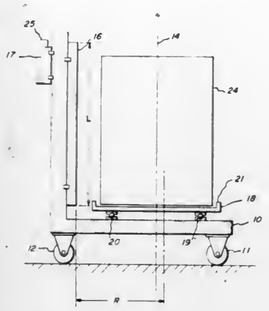
a magneto-sensitive switch which performs an on-off operation in response to a change of the intensity of the magnetic field produced by the relative motion between said permanent magnet and said magnetic body, said magneto-sensitive switch being arranged adjacent to said permanent magnet, in an integral state;

a direct current voltage source which is connected to said switch so as to produce a pulse signal with a frequency which is varied in accordance with the speed of the on-off operation of said switch;

a differentiation circuit for differentiating the pulse signal; and,

an integration circuit for integrating an output signal produced from said differentiation circuit.

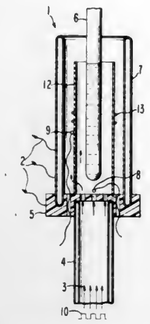
4,266,193
MEANS FOR DETECTING METAL OBJECTS
Lynn W. Most, 1787 N. Rivercrest Rd., Lakeland, Minn. 55043, and Allen F. Most, 11701 Leeward Ave. South, Hastings, Minn. 55033
Filed Sep. 11, 1978, Ser. No. 941,042
Int. Cl.³ G01R *33/12*; G01N *27/72*
U.S. Cl. 324—236 **4 Claims**



1. A device for detecting metallic objects in a container having a substantial quantity of non metal therein, comprising:
a frame having a vertical portion and a horizontal portion;
metal detecting means mounted on said vertical portion of said frame and generating a plane of detection having a length L substantially equal to the length of said detection means and a width extending along said horizontal portion of said frame equal to distance R;
container means for holding a substantial quantity of non metal which might contain metallic objects therein, said container having a length less than or equal to L, and a diameter less than 2R;
rotating support means on said horizontal portion of said frame for positioning said container in said plane of detection for rotation of said container about an axis of rotation parallel to length L and less than distance R from said detecting means; and
alarm means connected to said detecting means for signaling the presence of metallic objects passing through said plane of detection during rotation of said support means.

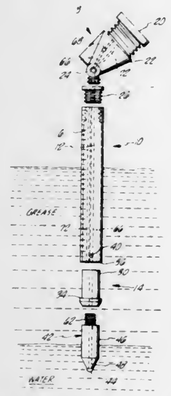
4,266,194
SENSOR FOR VT PROBES
Lloyd F. Hlavka, Palo Alto, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.
Filed Jul. 23, 1979, Ser. No. 59,820
Int. Cl.³ G01R *33/08*
U.S. Cl. 324—315 **4 Claims**

1. An improved nuclear magnetic resonance spectrometer comprising:
means for applying an alternating RF field and an orthogonal fixed DC magnetic field to a sample under test, said sample being disposed in a first tube which is surrounded by a second tube,
means for introducing and permitting a flowing temperature controlled fluid into the space between said first and second tube, said first tube being configured for spinning in said second tube during operation of said spectrometer, and
means for controlling the temperature of said flowing fluid and said sample, said means for controlling the temperature of said sample including a plurality of sensor means, each said sensor means disposed adjacent said sample and in said fluid flow, said sensor means being interconnected



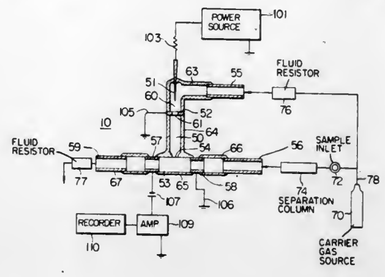
to obtain a weighted average output reading corresponding to the actual temperature of said sample.

4,266,195
WATER DETECTOR
Eugene F. Keefner, 12009 E. 95th St., Cerritos, Calif. 90801, and John R. Keefner, 616 Delaware Ave., Huntington Beach, Calif. 92648
Filed Dec. 27, 1978, Ser. No. 973,717
Int. Cl.³ G01N *27/02*
U.S. Cl. 324—439 **15 Claims**



1. In an apparatus for detecting the presence of an electrically conductive liquid in a medium which is substantially electrically non-conductive, the apparatus comprising (a) a first element having a first electrochemical potential, (b) a second element in electrical contact with the first element, the second element having an electrochemical potential different from the first electrochmeical potential, and (c) means for measuring electrical current generated when at least a portion of the second element is in the electrically conductive medium and the first element is in the medium which is substantially electrically non-conductive, the improvement comprising
a grounding element attached to and supported by the second element, the grounding element being electrically insulated from the first and second elements and being electrically connected to the measuring means.

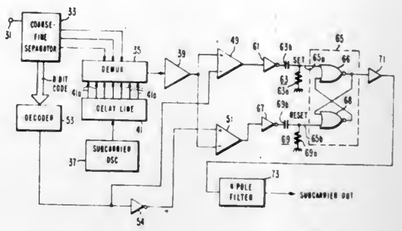
4,266,196
GAS DETECTING MEANS UTILIZING ELECTRIC DISCHARGE
Kazuyoshi Kawazoe, Takahagi; Yoshinori Takata, Ibaraki; Mon Suzuki, Hitachi, and Shizuo Uehara, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 30, 1979, Ser. No. 25,571
Claims priority, application Japan, Mar. 31, 1978, 53/36614
Int. Cl.³ G01N *27/62*
U.S. Cl. 324—464 **27 Claims**



1. A gas ionization detector comprising,
a first chamber;
a second chamber;
means forming a communicating path between said first and second chambers to guide light from said first chamber into said second chamber;
a pointed discharge electrode placed in said first chamber and directed toward said communicating path;
a discharge counter electrode having a penetration hole with a diameter smaller than the spatial cross-section of said communicating path, said discharge counter electrode being disposed between said pointed discharge electrode and said second chamber in such a manner that said penetration hole faces the end of said pointed discharge electrode and forms the inlet for light passing into said communicating path from said first chamber;
an electrical power source connected to said pointed discharge electrode and said discharge counter electrode to establish an electrical discharge therebetween;
means for introducing a discharge gas into said first chamber to effect ionization thereof by said electrical discharge which will effect the generation of light in said first chamber;
means for introducing a sample gas into said second chamber to be photoionized by the light from said first chamber;
means for exhausting the photoionized sample gas from said second chamber; and
means including a collector electrode and a collector counter electrode disposed in said second chamber for measuring the ionization current of said sample gas.

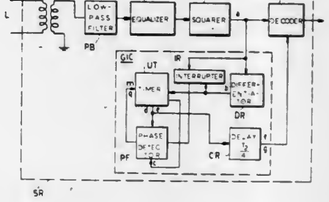
4,266,197
REMOTE CONTROL TV SUBCARRIER PHASE SHIFTER SYSTEM
David W. Breithaupt, Maple Shade, N.J., assignor to RCA Corporation, New York, N.Y.
Division of Ser. No. 910,888, May 30, 1978, Pat. No. 4,183,044. This application Mar. 26, 1979, Ser. No. 23,953
Claims priority, application United Kingdom, May 30, 1977, 22807/77
Int. Cl.³ H03K *5/159*
U.S. Cl. 328—55 **4 Claims**

1. A digital phase shifter for shifting the phase of signals from a signal source by an amount determined by a binary digital code comprising:
a multiple tapped delay line coupled to said source for providing at the sequential tap points sequentially increased delay signals,
switch means coupled to said tap points and responsive to said code for coupling the one of said tap points from said tap delay line to the output thereof as determined by said code,
means responsive to said code for providing D.C. voltages corresponding to said code, and



comparator means responsive to said output from said switch means and said D.C. voltages for advancing or retarding the phase of the signals from said switch means in proportion to said D.C. voltages.

4,266,198
SAMPLING SYSTEM FOR DECODING BIPHASE-CODED DATA MESSAGES
Bernardino Spada, Corbetta, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
Filed Sep. 7, 1979, Ser. No. 73,301
Claims priority, application Italy, Sep. 8, 1978, 27455 A/78
Int. Cl.³ H03D *3/18*
U.S. Cl. 329—50 **3 Claims**



1. In a receiver for a biphase-coded carrier wave of predetermined frequency undergoing a phase reversal in the middle of each cycle thereof and also at the beginning of certain cycles according to the logical value of corresponding bits of a binary message conveyed thereby, said carrier wave being preceded by a presynchronization oscillation with alternating half-cycles each equal to a cycle of said predetermined frequency, the receiver including input means connected to a transmission line over which said presynchronization oscillation and said carrier wave arrive from a remote station, decoding means connected to said input means for sampling said carrier wave once per cycle thereof to reconstruct said binary message, and circuitry for controlling the sampling of said carrier wave in said decoding means,
the improvement wherein said circuitry comprises:
differentiation means connected to said input means for deriving a spike from said presynchronization oscillation at the beginning of each of said half-cycles thereof;
timing means controlled by said differentiation means for producing a local square wave of said predetermined frequency undergoing a phase reversal at the beginning and at the midpoint of each of said half-cycles;
switching means connected to said input means and to said timing means for deriving from said local square wave a

reference square wave of the frequency of said presynchronization oscillation but offset therefrom by an odd number of quarter-cycles of said predetermined frequency;

binary phase-comparison means coupled to said switching means for identifying the half-cycles of said presynchronization oscillation coinciding with leading edges of said reference square wave;

a feedback path extending from said phase-comparison means to said timing means for inverting the phases of said local square wave and of said reference square wave upon detection of a coincidence of said leading edges with predetermined half-cycles of said presynchronization oscillation; and

delay means connected to said timing means for delivering said local square wave to said decoding means with a lag equal to an odd number of said quarter-cycles;

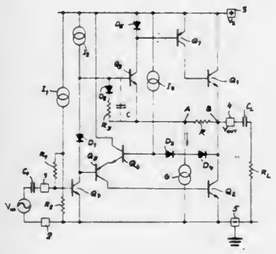
said switching means having a first output carrying said reference square wave and a second output carrying an inverted replica of said reference square wave, said phase-comparison means comprising a first comparison circuit with input connections to said timing means and to said first output for receiving said local square wave and said reference square wave, a second comparison circuit with input connections to said timing means and to said second output for receiving said local square wave and said inverted replica, and a coincidence gate connected to said first and second comparison circuits for emitting a phase-inverting signal on said feedback path only upon detecting coincidences of said predetermined half-cycles with leading edges of both said reference square wave and said inverted replica.

4,266,199

LINEAR ALTERNATING-CURRENT AMPLIFIER

Sergio Palara, Ferrara, Italy, assignor to SGS ATES Componenti Elettronicie S.P.A., Agrate Brianza, Italy

Filed Apr. 26, 1979, Ser. No. 33,502
Claims priority, application Italy, Apr. 28, 1978, 22798 A/78
Int. Cl.[3] H03F *3/30*
U.S. Cl. 330—274 **6 Claims**



1. In a linear alternating-current amplifier including a supply of direct current with a first and a second terminal, a first output transistor and a second output transistor connected in cascade with each other across said supply, said first output transistor having an emitter which forms a junction with a collector of said second output transistor and further having a collector connected to said first terminal, said second output transistor having an emitter connected to said second terminal, a pilot transistor with an emitter connected to said second terminal and with a collector coupled to a base of said second output transistor for saturating simultaneously therewith during alternate half-cycles of an a-c input signal applied between the emitter and a base of said pilot transistor, said first terminal being connected to a collector of said pilot transistor by an energizing circuit including a constant-current source, and a control transistor with a collector connected to said first terminal, an emitter connected to said junction, and a base connected to said energizing circuit at a point between said constant-current source and the collector of said pilot transistor, said control transistor being coupled to said first output transistor for driving same into maximal conduction during the remaining half-cycles of said input signal,

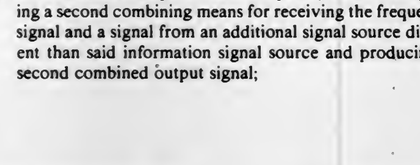
the combination therewith of a biasing resistor inserted in the connection between said junction and the emitter of said control transistor, and a shunt impedance connected across the series combination of said biasing resistor and said second output transistor for maintaining the potential difference between the base and the emitter of said control transistor at the conduction threshold thereof during said alternate half-cycles.

4,266,200

METAL HALIDE LASER TUBE STRUCTURE

Chi-sheng Liu, 1315 Knollwood Dr., Monroeville, Pa. 15146; Lelland A. C. Weaver, 2403 Collins Rd., Pittsburgh, Pa. 15235, and Roy K. Williams, R.D. #3 Box 103, Export, Pa. 15632

Filed Jan. 13, 1977, Ser. No. 758,977
Int. Cl.[3] H01S *3/03*
U.S. Cl. 331—94.5 G **3 Claims**



1. In a metal halide laser apparatus including a laser discharge tube containing a metal halide laser medium, electrodes spaced apart to define a laser discharge gap therebetween, optical elements disposed at either end of said laser discharge tube to define an optical axis coinciding substantially with the longitudinal axis of said laser discharge tube, electrical excitation means connected to said electrodes for providing laser excitation,

the improvement for increasing the operational life of said laser discharge tube, the improvement comprising,

a plurality of electrical insulator apertured discs positioned in spaced-apart alignment within said laser discharge tube and sealed to the inner wall of said laser discharge tube, the apertures of said electrical insulator apertured discs being aligned about said optical axis.

4,266,201

METHOD AND APPARATUS USING FIRST AND SECOND PARALLEL CHANNELS, ONE OF WHICH INCLUDES AN INVERTER, FOR PRODUCING AN ELECTRICAL SIGNAL WITH AN IMPROVED ON/OFF RATIO

Robert V. Belfatto, Melbourne Beach, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Mar. 23, 1979, Ser. No. 23,350
Int. Cl.[3] H03K *7/00*
U.S. Cl. 332—9 R **30 Claims**

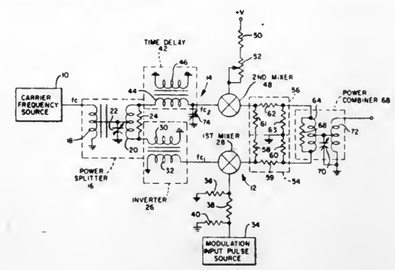
1. An electrical system having an improved on/off ratio, comprising:

a frequency source for providing a frequency signal;

a first channel coupled to said frequency source comprising a first combining means for receiving said frequency signal and an information signal from an information source and producing a first combined output signal having "on" and "off" periods;

a second channel coupled to said frequency source comprising a second combining means for receiving the frequency signal and a signal from an additional signal source different than said information signal source and producing a second combined output signal;

inverter means coupled between the frequency source and one of said first and second combining means to invert the frequency signal going to one of said first and second combining means; and



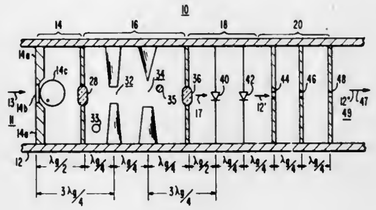
third combining means coupled to the outputs of said first and second combining means to add the output of said second combining means to the output of said first combining means during both the "on" and "off" periods of the first combined output signal.

4,266,202

RECEIVER PROTECTOR HAVING MEANS FOR SUPPRESSING INTERNALLY GENERATED NOISE SIGNAL FREQUENCIES

Harry Goldie, Randallstown, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 26, 1979, Ser. No. 61,128
Int. Cl.[3] H01P *1/14;* H04B *1/10*
U.S. Cl. 333—13 **14 Claims**



1. Apparatus for protecting a receiver from damage by microwave signals including pulses having rise times less than 10 nanoseconds which exceed a predetermined power level comprising:

a waveguide suitable for propagating microwave signals of a predetermined electrical wavelength λ_g having an input end and an output end;

non-linear elements including a gas discharge limiter stage positioned in said waveguide for isolating from said output end energies associated with a first predetermined range of noise and microwave signal frequencies at times said microwave signals exceed said predetermined power level;

first means positioned after non-linear elements in said waveguide for isolating from said output ends energies associated with said first predetermined range of noise and microwave signal frequencies; and

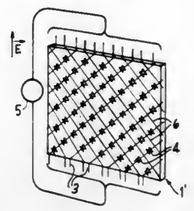
second means positioned after said first means in said waveguide for isolating from said output end energies associated with a second and third predetermined range of noise signal frequencies outside said first predetermined range of frequencies whereby undesired noise signal frequencies generated by operation of said non-linear elements are isolated from said output end.

4,266,203

MICROWAVE POLARIZATION TRANSFORMER

Lucien Saudreau, and Jean-Paul Biansan, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Feb. 22, 1978, Ser. No. 880,282
Claims priority, application France, Feb. 25, 1977, 77 05585
Int. Cl.[3] H01P *1/17*
U.S. Cl. 333—21 A **13 Claims**



1. In combination, a source of linearly polarized microwave radiation and a polarization transformer interposed in the path of said radiation, said transformer comprising:

at least one dielectric plate perpendicular to said path;

an array of parallel conductive wires embedded in said plate and oriented at an angle of substantially 45° to the direction of polarization of said radiation;

a multiplicity of electronic switches inserted in said wires within said plate;

a set of parallel conductive wires perpendicular to wires of said array embedded in said plate, the inductive impedances of said set and of said array being substantially identical in one state of said switches; and

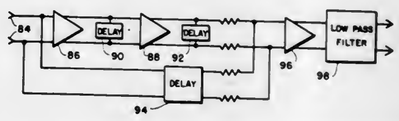
control means for selectively changing between a conductive state and a nonconductive state of all said switches, with transformation of said radiation to circular polarization in said conductive state.

4,266,204

DELAY LINE SIGNAL EQUALIZER FOR MAGNETIC RECORDING SIGNAL DETECTION CIRCUITS

George V. Jacoby, Los Altos, Calif., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 71,955
Int. Cl.[3] H03H *11/06*
U.S. Cl. 333—28 R **9 Claims**



1. A signal amplitude equalizer for reforming an input signal of sequences of data pulses of variable peak amplitudes into an output signal of sequences of symmetrical equal-amplitude data pulses, said equalizer having a transfer function in the frequency domain that is proportional to the value: $1+K\sin^2\tau\pi f$, where f is the frequency, τ is a time delay, and K is a constant that is alterable to correspondingly alter the zero-amplitude width of each data pulse in said output signal sequences, said equalizer including:

first and second delay line circuitry coupled in series and to the input terminals of said equalizer;

each of said first and said second circuitry including a delay line having a delay of τ and each delay line being terminated in its characteristic impedance, each of said first and said second delay line circuitry executing the function, $K\sin\tau\pi f$; and

circuitry means including third delay line circuitry for add-

ing the signal at said input terminals to the signal produced from said first and second series delay line circuits.

4,266,205

RESONATOR FORMED IN INTEGRATED MOS TECHNOLOGY UTILIZING SWITCHED CAPACITORS

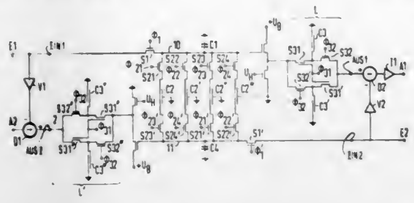
Hermann Betzl; Ernst Hebenstreit, both of Munich, and Roland Schreiber, Ottobrunn-Riemerling, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 51,701

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828840

Int. Cl.³ H03H *17/06, 17/04*

U.S. Cl. 333—165 **6 Claims**



1. A resonator formed in integrated MOS technology using switched capacitors with at least one accumulator stage which has a conductor at reference potential and a continuous signal series conductor extending from the accumulator input to the accumulator output, in which a series switch is connected in series with the accumulator input and a first capacitor connected from a shunt branch to a reference potential and at least one series circuit connected in parallel with said first capacitor consisting of a cross switch and a second plurality of capacitors connected to said reference potential, characterized in that the connection points of the cross switches adjacent said second plurality of capacitors are respectively connected by way of further switches with an additional continuous signal series conductor which is connected on the one hand by way of a third capacitor with said reference potential, and on the other hand, by way of a second series switch with a second accumulator input; and both signal series conductors are connected by way of respective transit time elements consisting of series switches and additional capacitors with the output or, respectively, with a further output of the accumulator arrangement; and in that a first input of the resonator arrangement is formed by means of the accumulator input; and a first difference element is connected to a second output of said resonator, and has a first input connected to a further accumulator output and a second input connected by way of a first transfer element with the first input of the resonator arrangement; a second input of the resonator arrangement is formed by means of the further accumulator input; and a second difference element is provided whose output is connected through an inverter element with a first output of the resonator arrangement, and has a first input connected with the accumulator output, and a second input connected by way of a second transfer element with the second input of the resonator arrangement.

4,266,206

STRIPLINE FILTER DEVICE

Brian E. Bedard, Tamarac, and Bertho K. Boman, Ft. Lauderdale, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 31, 1978, Ser. No. 938,564

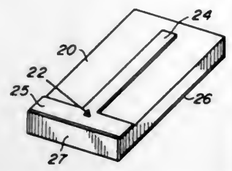
Int. Cl.³ H01P *1/203, 1/205, 11/00*

U.S. Cl. 333—204 **12 Claims**

1. An improved transmission line resonator device, adapted for use in a predetermined frequency band, wherein the effects of mask misalignment during manufacture are minimized, including in combination,

a dielectric substrate having a conducting layer formed on one side thereof as a ground plane,

a thin film conductor structure formed on said substrate on the side thereof opposite to said ground plane layer which



includes at least one elongated relative narrow resonator portion having a length related to the predetermined frequency but less than the length of said dielectric substrate, and a relatively wide grounding portion connected to said resonator portion at one end thereof, and

electrical means connecting said grounding portion to said ground plane conducting layer.

4,266,207

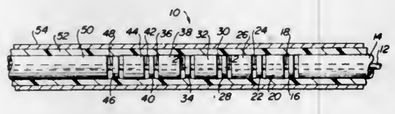
COAXIAL CABLE BAND-PASS FILTER

Robert H. Schafer, Perkasie, Pa., assignor to UTI Corporation, Collegeville, Pa.

Filed Nov. 7, 1979, Ser. No. 92,167

Int. Cl.³ H01P *1/20, 3/06, 11/00*

U.S. Cl. 333—206 **5 Claims**



1. A coaxial cable comprising at least two center conductors aligned with one another, a sleeve of dielectric material around each center conductor, at least one filter coupling element in the form of a laminent of dielectric material having a conductive layer on opposite faces, each of said center conductors have one end face metallurgically joined to a separate one of said conductive layers, said laminent dielectric material being substantially thicker than the thickness of each one of said conductive layers, a seamless tube of dielectric material around and contacting the outer periphery of said sleeves and laminent, and a monolithic jacket of electrically conductive material surrounding said seamless tube, said jacket exerting radially inwardly compressive forces on the entire circumference of said seamless tube to eliminate any air gap therebetween.

4,266,208

BROADBAND MICROWAVE FREQUENCY DIVIDER FOR DIVISION BY NUMBERS GREATER THAN TWO

William D. Cornish, Ottawa, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defense, Canada

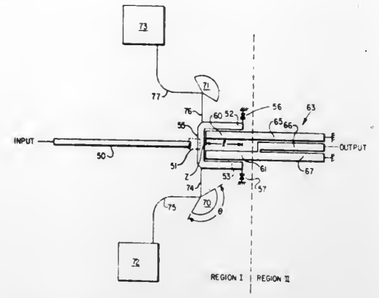
Filed Apr. 16, 1979, Ser. No. 30,386

Claims priority, application Canada, Aug. 31, 1978, 310453

Int. Cl.³ H01P *1/20*

U.S. Cl. 333—218 **4 Claims**

1. A single stage analog microwave frequency divider for dividing an input microwave signal by 4, comprising a substrate having an input microstrip transmission line capacitively coupled to a resonator formed of first and second spaced apart parallel microstrip transmission lines of predetermined length, one end of each of said first and second microstrip lines being joined together by a transverse microstrip transmission line and the other end of each of said first and second microstrip transmission lines being connected to substrate ground via an associated varactor diode, said resonator generating an output signal having a frequency one-fourth that of an input signal applied to said input microstrip transmission line, said first and



second microstrip transmission lines being electromagnetically coupled to third and fourth microstrip transmission lines and said third and fourth microstrip transmission lines being connected in series to a stripline balun and supplying said resonator output signal to said balun, said balun comprising an output of the divider.

4,266,209

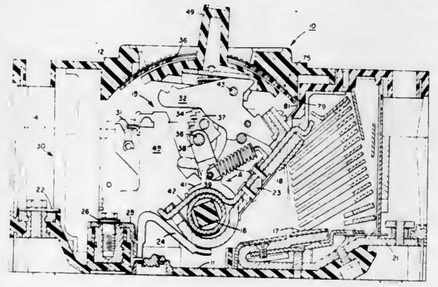
CIRCUIT BREAKER HANDLE AND LOST MOTION CONNECTED SHIELD

Bernard Di Marco, Bellefontaine, and Andrew J. Kralik, Marysville, both of Ohio, assignors to Gould Inc., Rolling Meadows, Ill.

Filed Nov. 9, 1979, Ser. No. 92,864

Int. Cl.³ H01H *9/02, 13/04*

U.S. Cl. 335—6 **12 Claims**



1. A circuit breaker including contact means; a trip free operating mechanism connected to said contact means for opening and closing thereof; fault current responsive trip means for automatically actuating said mechanism to open said contact means upon the occurrence of predetermined fault current conditions; a housing to which said contact means, said mechanism and said trip means are mounted; said housing including a front wall having an arcuate internal surface portion and an elongated wall aperture extending through said surface portion; said mechanism including a manual operating means comprising an apron having an arcuate front surface disposed behind said arcuate surface portion and a handle extending from the front of said apron and through said wall aperture; said handle being mounted for reciprocable movement in said wall aperture longitudinally thereof between circuit breaker On and Off positions; said handle being moved automatically to a Tripped position, intermediate said On and Off positions, upon actuation of said mechanism by said trip means; a thin elongated shield interposed between said arcuate front surface and said arcuate surface portion; said shield being substantially longer than said apron and having a shield aperture through which said handle extends; said shield aperture having a dimension measured longitudinally of the wall aperture that is substantially greater than the dimension of said handle measured longitudinally of the wall aperture to form a lost-motion connection between the handle and the shield whereby for all positions of said handle the ends of the shield extend beyond the ends of the wall aperture and the latter is closed through cooperation of the shield and the apron; said arcuate surface bearing indicia viewable through the shield aperture when the handle is in said On position to indicate that the circuit breaker is closed; said handle when in said On position carrying said shield to a first position; and latch means for positively maintaining said shield in said first position while said handle moves from said On position to said Trip position, with said handle in said Trip position and said shield in said first position the latter blocks said indicia from view.

4,266,210

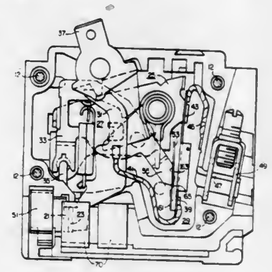
CIRCUIT BREAKER WITH IMPROVED ARC EXTINGUISHING MEANS

Stephen A. Mrenna, Brighton Township, Beaver County, and James P. Ellsworth, Beaver, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 10, 1979, Ser. No. 73,821

Int. Cl.³ H01H *9/30*

U.S. Cl. 335—201 **2 Claims**



1. A circuit breaker comprising a molded insulated housing, mounted within the housing a pair of separable contacts operable between opened and closed positions, a releasable member in an initial position and movable when released to a trip position to effect automatic opening of the contacts, said breaker further comprising tripping means for effecting release of the releasable member when a predetermined overload current is sensed by the tripping means, two ferromagnetic generally U-shaped arc shields mounted in proximity to the separable contacts and disposed such that one of said separable contacts moves generally through the arc shields, the arc shields being disposed to split the arc into smaller arcs for more effective arc extinguishing action, and to draw the arcs away from other interior circuit breaker components.

4,266,211

SNAP ACTION THERMOSTATS

Herman Ulanet, c/o George Ulanet Company, 413 Market St., Newark, N.J. 07105

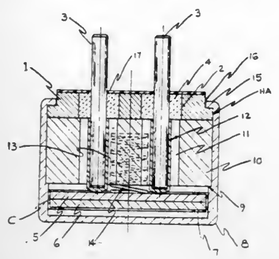
Filed Apr. 24, 1978, Ser. No. 899,357

Int. Cl.³ H01H *9/00, 37/00*

U.S. Cl. 335—208 **13 Claims**

1. A snap action thermostatic switch comprising a permanent magnet fixedly positioned in a housing, contacts affixed to lower ends of a pair of straight rigid terminals insulated from each other, the upper ends of said terminals affixed perpendicularly through a header and electrically insulated therefrom,

said lower ends of said terminals passing through clearance holes in said permanent magnet and electrically insulated therefrom, said terminals being in operative registry with a bridging contact attached to a facing side of a low mass Curie point moveable magnetic disc armature so that a temperature change in said disc of a given Curie alloy characteristic correspondingly changes its magnetic permeability to such extent that the pull of said permanent magnet overcomes the counteracting force of a compression spring located centrally in a cavity of the lower end of the permanent magnet thereby causing single pole double break contacts either to close or open an electric circuit.

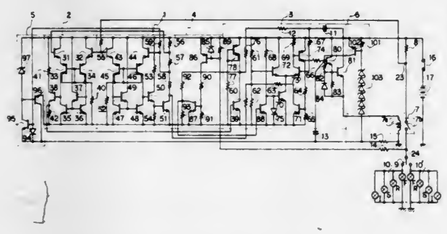


4,266,212

APPARATUS FOR CONTROLLING VEHICLE DIRECTIONAL LAMPS

Tiaki Mizuno, Toyota, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 15, 1979, Ser. No. 66,826
Claims priority, application Japan, Sep. 20, 1978, 53-115500
Int. Cl.[3] B60Q *1/38*; G08B *5/38*
U.S. Cl. 340—81 R **2 Claims**



1. In a turn-direction indicating system of a vehicle in which either one of two lamp groups is connectable to a battery through a relay means having a relay coil and a relay switch, an apparatus comprising:

control circuit means effective to generate periodic pulse signals;

output transistor means the emitter-collector path of which is connected in series with said relay coil across said battery and the base of which is connected to said control means, said output transistor means being effective to energize and deenergize said relay coil in response to said periodic pulse signals;

resistor means;

protection circuit means connected in series with said resistor means across said battery and effective to render said output transistor means conductive when the voltage across said battery rises above the supply voltage of said battery;

a capacitor connected to the base of said output transistor means and effective to render said output transistor means conductive and nonconductive gradually in response to said periodic pulse signals; and

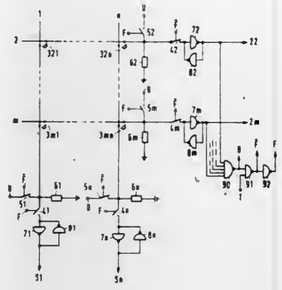
a diode connected to the base of said output transistor means and to the junction between said output transistor means and said relay coil and effective to render said output transistor means conductive to thereby allow the electric current to flow through said relay coil in the reverse direction.

4,266,213

CIRCUIT ARRANGEMENT FOR AN INPUT KEYBOARD

Joachim Renschke, Teningen, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,214
Int. Cl.[3] H04Q *3/52*
U.S. Cl. 340—166 R **2 Claims**



1. A circuit arrangement for an electronic equipment input keyboard comprising pushbutton switches arranged in n columns and m rows, having two terminals each, with each of said pushbutton switches, when actuated, connecting one column lead associated with the respective column, directly with one row lead associated with the respective row, and with the circuit arrangement transmitting with respect to the columns a one-out-of-n encoded signal and, with respect to the rows, a one-out-of-m encoded signal, said circuit arrangement comprising:

a resistor associated with each of the column row leads, connecting said leads to circuit ground;

a column inverter for each column lead;

a first electronic column switch for each column lead for connecting the lead to an input of the column inverter;

a second electronic column switch for each column lead for connecting the lead to a supply voltage;

a row inverter for each row lead;

a first electronic row switch for each row lead for connecting the lead to an input of the row inverter;

a second electronic row switch for each row lead for connecting the lead to a supply voltage;

a highly resistive hold inverter is connected in an antiparallel manner to each column inverter and to each row inverter respectively;

a first NAND gate having m inputs connected to the outputs of the row inverters and an output;

a second NAND gate having an input connected to the output of the first NAND gate and another input to which is applied at least temporarily a rectangular clock signal;

an inverter has an input connected to the output of said second NAND gate;

control inputs of both said first electronic column switches and said second electronic row switches are connected to the output of said inverter; and

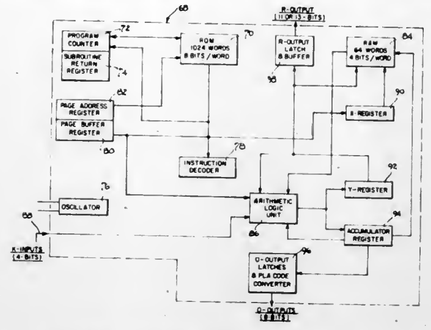
control inputs of both said first electronic row switches and said second electronic column switches are connected to the output of said second NAND gate.

4,266,214

ELECTRONICALLY OPERABLE GAME SCORING APPARATUS

Joseph Peters, Jr., 2509 Q. 179th St., Torrance, Calif. 90504

Filed Sep. 24, 1979, Ser. No. 78,230
Int. Cl.[3] G06F *15/44*; G08B *5/36*
U.S. Cl. 340—323 R **54 Claims**



1. An electronically operable athletic game scoring apparatus for scoring information on an athletic game in which two or more players compete and events of the game and for the competing players of the athletic game, said apparatus comprising:

(a) a relatively small and hand-held portable housing,

(b) a plurality of manually actuable input switches on said housing for introducing scoring information relevant to an athletic game and to several events of said game, said input switches also capable of introducing information relevant to each of the players of the game and the events of the game,

(c) at least one first manually actuable display controlling switch on said housing for permitting display of scoring information relevant to each of such players of the game,

(d) at least one second manually actuable display control switch on said housing for permitting display of total scoring information of said game or of scoring information of one or more of the events in said game,

(e) at least one third manually actuable display control switch on said housing for permitting display of scoring information relevant to a scoring parameter of the game or the events of the game, and

(f) a display means on said housing for displaying scoring information of the game or events upon actuation of the first display control switch and for displaying scoring information of any or all of the players upon actuation of the second display control switch.

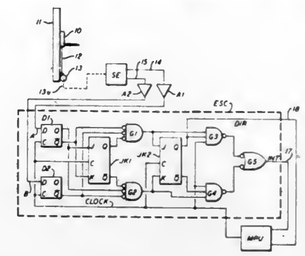
4,266,215

REVERSIBLE INCREMENTAL ENCODING METHOD AND APPARATUS

Walter P. Adams, Salt Lake City, Utah, assignor to The Raymond Corporation, Greene, N.Y.

Filed Nov. 16, 1978, Ser. No. 961,125
Int. Cl.[3] H03K *13/00*
U.S. Cl. 340—347 P **5 Claims**

1. The method of indicating the movement of a device which provides a pair of phased-apart boolean signals which rise and fall between low and high values on first and second lines, which comprises the steps of: providing a first pulse each time the signal on said first line rises if the signal on said second line is at a predetermined one of its values; providing a second pulse each time the signal on said first line falls if the signal on said second line is at said predetermined one of its values; sensing the occurrence of said first and second pulses to provide a counting direction signal; combining said first pulses, except for each first pulse first following a second pulse, and said second pulses, except for each second pulse first following a first pulse, to provide counting occurrence signals; and causing each counting occurrence signal to increment or decrement a counter in accordance with the state of said counting direction signal.

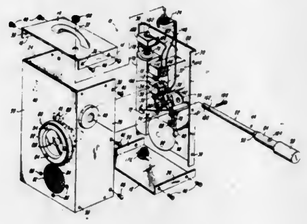


4,266,216

COMBINATION PORTABLE INTRUSION ALARM AND FLASHLIGHT

Von A. Trusty, 4703 First St., West, Apt. 195, Bradenton, Fla. 33507

Filed Feb. 12, 1979, Ser. No. 11,233
Int. Cl.[3] G08B *13/08*
U.S. Cl. 340—546 **2 Claims**



1. A portable alarm device, comprising:

a housing including two opposed side walls;

a power source fixed to said housing;

sound emitting means fixed to said housing;

light emitting means fixed to said housing;

first switch means within said housing for connecting said power source to both said sound and said light emitting means, said first switch means including a first contact connected to said power source, a second contact connected to said light emitting means, and a third contact connected to said sound emitting means;

an actuating rod mounted on said housing for sliding movement along a path extending through the space separating said first contact from said second and said third contacts, said rod including a first section having a size insufficient to bridge said first, second and third contacts and a conductive larger section having a size sufficient to bridge said first, second and third contacts for engaging and electrically connecting said first contact to both said second contact and said third contact to close said first switch means, and said rod having opposite ends projecting outside of said housing beyond both of said side walls and adapted to be moved in response to the movement of a door, window, or other movable object to close said first switch means;

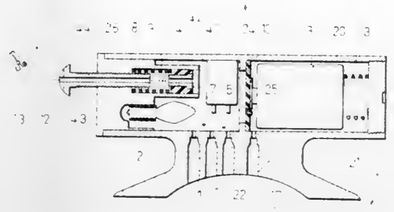
means to restrict sliding movements of said actuating rod so that said opposite ends cannot enter said housing; and

manuallly operable second switch means exposed to the exterior of said housing for connecting said power source to said light emitting means independently of said actuating rod.

4,266,217
SIGNAL DEVICE FOR FISHING RODS

Dai-Hae Kao, 214-1 Shih-Erh-Tien-Dong Li, and Shii-San Shieh, 27, Hsin Liao, Lin 2, Chang An Li, both of An Nan Chue, Tainan, Taiwan

Filed May 2, 1980, Ser. No. 146,138
Int. Cl.[3] A01K 97/12
U.S. Cl. 340—573 1 Claim



1. A signal device for fishing rods comprising:

an electric contact primarily provided in a room located in a housing of said signal device and comprising an adjustable screw-like contact element having an axial through-hole therein, said contact element being screwed into a corresponding threaded inner surface of a through-way communicating with said room so as to permit said adjustable screw-like contact element to extend from outside of said housing into said room; a slidable contact element with an axial through-hole placed in said room substantially axially aligned with said through-way of said adjustable screw-like contact element and insulated from the inner wall of said room by an insulating device; a spring disposed in said room and surrounding the protruding part of said adjustable screw-like contact element, one end of said spring attaching firmly to said insulating device so as to avoid coming into contact with said slidable contact element during the operation of said signal device;

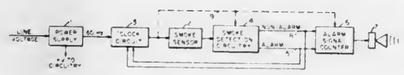
an electric sounder and/or a light having an electric wire for connecting to a terminal of a battery and further electric wire for connecting to said insulated slidable contact element; and

a string having a clamping element provided at an end thereof and the other end thereof being led through said axial through-hole of said adjustable contact element, said spring, and through-hole of said slidable contact element and secured finally to said slidable contact element; said clamping element being used to clamp a tense fishing line, whereby a pulling force applied thereto from a hooked fish will be transmitted to said string to actuate said electric contact and produce a signal.

4,266,218
ALARM SYSTEM CONTROL CIRCUIT

John J. Kardash, Greenville, R.I., assignor to Cherry Semiconductor Corporation, Cranston, R.I.

Filed Oct. 12, 1978, Ser. No. 950,867
Int. Cl.[2] G08B 17/10
U.S. Cl. 340—628 24 Claims



1. A smoke detection alarm system comprising:

smoke detection means responsive to a clock signal applied thereto for producing an alarm signal representative of the presence of smoke;

means for providing an output indication of the presence of smoke upon the production of a predetermined number of consecutive alarm signals by the smoke detection means;

phase selection means for producing a phase selection signal and for changing the phase selection signal in response to the production of an alarm signal by the smoke detection means;

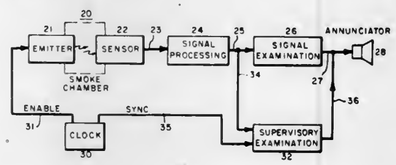
clock means responsive to the phase selection signal and to an A.C. line signal for producing a variable phase clock signal having a phase relationship with respect to the A.C. line signal which is determined by the phase selection signal; and

means for applying the variable phase clock signal to the smoke detection means.

4,266,219
SUPERVISORY CONTROL SYSTEM FOR A SMOKE DETECTOR

Ronnie D. Foster, and Max R. Dickerson, both of Dublin, Ga., assignors to Baker Industries, Inc., Parsippany, N.J.

Filed Sep. 18, 1978, Ser. No. 943,095
Int. Cl.[3] G08B 17/10
U.S. Cl. 340—630 3 Claims



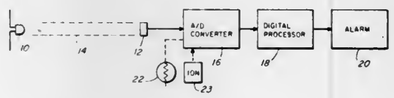
1. A smoke detector system including a chamber constructed to admit air and particles of combustion, an emitter for periodic energization at a reference frequency to produce radiation in the chamber, a radiation sensor for producing an electrical information signal the amplitude of which varies as a function of the level of radiation striking the sensor, signal processing means coupled to the sensor, signal examination means coupled to the signal processing means for examining the amplitude of the information signal and for providing an alarm signal when such examination indicates presence of particles of combustion in the chamber, and an annunciator for utilizing the alarm signal to control a desired function, and further comprising

a supervisory examination circuit coupled to the output side of the signal processing means, for examining the amplitude of the information signal to evaluate the operability of the emitter and sensor associated with the chamber, and to evaluate the operability of the signal processing means, which supervisory examination circuit is connected to pass a signal to the annunciator when a malfunction of the system is detected.

4,266,220
SELF-CALIBRATING SMOKE DETECTOR AND METHOD

William J. Malinowski, Johnson St., P.O. Box 274, Bryantville, Mass. 02327

Filed Jul. 27, 1979, Ser. No. 61,186
Int. Cl.[3] G08B 17/10
U.S. Cl. 340—630 9 Claims



2. A system for detecting the presence of an aerosol such as smoke in a gaseous medium, comprising

(a) a light source adapted to direct a beam of light through said medium,

(b) photoresponsive means spaced from and in the path of said beam and adapted to generate analog electrical signals corresponding to the intensity of said beam,

(c) analog-to-digital converter means connected to said photoresponsive means and adapted to convert the analog signals therefrom into digital signals,

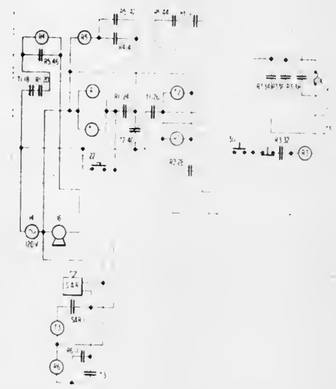
(d) digital processing means including memory means and timing means adapted to store reference data therein connected to said converter means for cyclically and at relatively short intervals comparing the output of said converter means with said reference data and cyclically and at relatively long intervals measuring the output of said converter means and placing the measurement in said memory as new reference data, and,

(e) alarm means connected to said processing means and adapted to generate an alarm signal in the event that any difference beyond a predetermined amount is detected during a short interval comparison.

4,266,221
PERSONNEL ALARM CIRCUIT FOR INDUSTRIAL MACHINERY

J. C. Hawkins, P.O. Box 1348, Wise, Va. 24293

Filed Sep. 20, 1979, Ser. No. 77,322
Int. Cl.[3] G08B 21/00
U.S. Cl. 340—679 3 Claims



1. A safety circuit for use in connection with power driven industrial machinery comprising:

a start circuit for the machinery;

alarm means;

means interlocked with said start circuit disabling operation thereof until said alarm means has been energized for a predetermined time;

means responsive to actual operation of said alarm, interlocked with said start circuit disabling operation thereof until said alarm means has actually operated for a predetermined time;

manual means for energizing said alarm;

means in circuit with said alarm for terminating said alarm after a predetermined time;

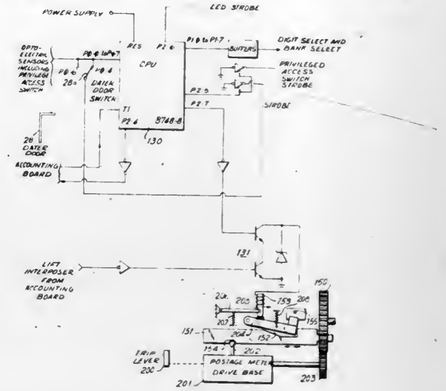
means responsive to termination of said alarm for enabling said start circuit; and

means for disabling said start circuit in the event that the equipment with which it is associated does not start within a predetermined time following termination of said alarm.

4,266,222
ELECTRONIC POSTAGE METER HAVING RESET BASE WARNING

Alton B. Eckert, Norwalk, and Edward C. Duwel, Trumbull, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,427
Int. Cl.[3] G08B 21/00
U.S. Cl. 340—679 7 Claims

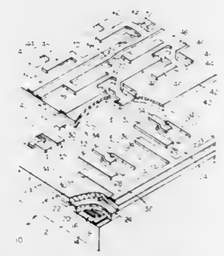


1. In an electronic postal meter having a drive input for receiving drive energy from an internal source, a shutter inhibiting said drive input and controlled in a printing operation by an external shutter release means, an internal computing system, an interposer for blocking operation of said shutter under the control of a solenoid, said solenoid being controlled by said computing means to block operation of said shutter until said meter is in a condition to print postage; the improvement comprising sensor means for detecting the position of said interposer, timing means connected to provide an output signal in response to non-operation of said interposer within a determined period following energization of said solenoid, and warning means providing an external warning of the occurrence of said signal.

4,266,223
THIN PANEL DISPLAY

Norman J. Frame, Milwaukee, Wis., assignor to W. H. Brady Co., Milwaukee, Wis.

Filed Dec. 8, 1978, Ser. No. 967,578
Int. Cl.[3] H05B 33/26
U.S. Cl. 340—719 11 Claims



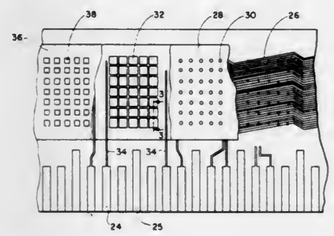
1. A multilayer display apparatus, comprising:

an outer layer;

a plurality of separate radiation-emitting portions beneath said outer layer, each said portion including a control electrode for energizing said portion and said outer layer being transparent to the radiation emitted by said portions;

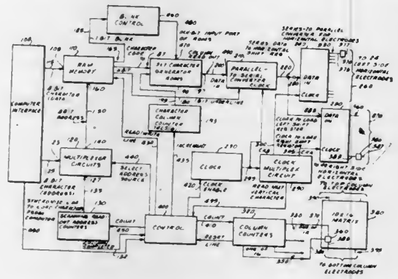
a plurality of thin-film transistor circuits beneath said portions, each said circuits being adjacent and associated with at least one of said portions and connected thereto via said control electrode;
timing lead means connected to each said transistor circuit for supplying a common timing signal to said circuits;
brightness lead means connected to each said transistor circuit for supplying a common brightness control signal to said circuits;
arming lead means extending between said circuits for supplying arming signals generated by individual said circuits to succeeding said circuits, said arming lead means thereby connecting said plurality of circuits in series;
selection means for making a first group of said circuits sensitive only to a first state of said timing signal and for making a second group sensitive only to a second state of said timing signal, said circuits of said second group being interposed in said series between circuits of said first group, whereby adjacent circuits in said series are not sensitive to the same state of said timing signal;
said transistor circuits including,
switching means for supplying said common brightness control signal from said brightness lead means to said control electrode to said adjacent display portion when the arming signal from a preceding circuit and said common timing signal are sensed,
means for maintaining said switching means in a conductive state, wherein said brightness signal is supplied to said control electrode, for a time sufficient to energize said radiation-emitting portion, and
means for supplying an arming signal to said arming lead means for arming the successive circuit in said series,
whereby successive state changes in said timing signal between said first and second states cause successive said transistor circuits in said series to be activated, thereby energizing successive said radiation-emitting portions in a scanning movement.

4,266,224
HIGH PERFORMANCE INFORMATION DISPLAY PANEL
Roger A. Frankland, Scottsdale, Ariz., assignor to Beckman Instruments, Inc., Fullerton, Calif.
Filed Feb. 26, 1979, Ser. No. 15,671
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—773 **6 Claims**



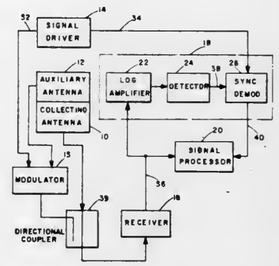
1. A message readout dot matrix gas discharge display panel comprising:
a substrate;
a face plate sealed in spaced relation to said substrate to establish an envelope containing an ionizable gas;
a first series of dot matrix groups located on said substrate and having a matrix of equally sized and uniformly arranged discrete cathode bits;
a second series of dot matrix groups located on said substrate and having a matrix of equally sized and uniformly arranged discrete cathode bits of the same size as in said first series of dot matrix groups, each of said groups of said first and second series of dot matrix groups being arranged in alternating sequence with respect to each other so that no two dot matrix groups of one of said first and second series are next to each other on said substrate;
a set of connector lines extending along said substrate, each of said connector lines interconnecting the same respective cathode bit of each of said first series of dot matrix groups;
another set of connector lines extending along said substrate, each of said connector lines interconnecting the same respective cathode bit of each of said second series of dot matrix groups, so that the peripheral discrete cathode bits of one dot matrix group of said first series of dot matrix groups is positioned as close to the peripheral discrete cathode bits of an adjacent dot matrix group of said second series of dot matrix groups as said peripheral discrete cathode bit is as close to other discrete cathode bits within its own group so that more of said dot matrix groups can be positioned on said substrate without adjacent dot matrix discrete cathode bits of said first series of groups being inadvertently activated when an adjacent group of discrete cathode bits of said second series of groups is activated;
a dielectric layer between said character bits and said connector lines, said dielectric layer having a matrix of apertures to permit interconnection between said connector lines and said respective cathode bits of each dot matrix group of said first and second series of dot matrix groups;
an anode electrode positioned in operative relation with each of said dot matrix groups; and
means for directly addressing each of said character bits to produce high luminance for enhancing viewability of said display.

4,266,225
DISPLAY PANEL INTERFACE CIRCUIT
Bradley W. Burnett, 101 N. Linda, Hobart, Ind. 46342, and Leonard A. Fish, 21 W. Goethe St., Chicago, Ill. 60610
Filed Dec. 5, 1978, Ser. No. 966,653
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—799 **8 Claims**



1. Apparatus for refreshing the dot display of a selected column of a dot matrix display having a plurality of dots arranged in rows and columns, and a plurlity of terminals associated with said rows and columns, comprising:
means for repetitively selecting at a predetermined first rate one of said columns;
means for respectively generating at a predetermined refresh rate a serial stream of data having one bit for each dot in the selected column;
means for generating two interleaved series of clock pulses;
means responsive to said two interleaved series of clock pulses and to said serial stream of data bits for forming two parallel groups of data bits, a first group consisting of those bits in said serial bit stream associated with a first set of dots in said selected column and a second group consisting of those bits in said serial bit stream associated with a second set of dots in said selected column;
means responsive to said two parallel groups of data bits for generating a first and a second set of electrical signals, each member of which corresponds to a member of said first or said second sets of dots of said selected column; and
means for connecting, for a selected time period, each of said members of said first and second sets of electrical signals to terminals associated with the rows corresponding to said first and second sets of dots.

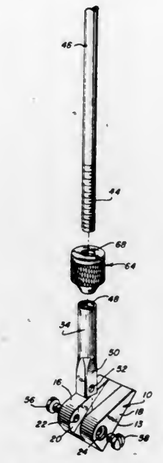
4,266,226
SIDELOBE DISCRIMINATOR
William F. McNaul, Escondido, and Paul R. Eberhardt, San Diego, both of Calif., assignors to Cubic Corporation, San Diego, Calif.
Filed Sep. 12, 1979, Ser. No. 75,140
Int. Cl.³ H04B *7/00*
U.S. Cl. 343—100 LE **28 Claims**



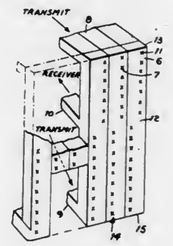
1. A system for discriminating between signals arriving on the mainbeam of a collecting antenna and signals arriving on the sidelobes of the collecting antenna, comprising
an auxiliary antenna positioned relative to said collecting antenna for receiving signals arriving on the radiation pattern of the auxiliary antenna substantially coincident with the receipt of signals by said collecting antenna on the sidelobes of said collecting antenna;
a signal driver for providing a modulation signal having a predetermined modulation pattern, wherein the signal driver is coupled to the auxiliary antenna for modulating said signals received by the auxiliary antenna to have said predetermined modulation pattern;
a receiver coupled to said collecting antenna and the auxiliary antenna for providing received signals in response to both the signals collected by said collecting antenna and said modulated from the auxiliary antenna; and
a detector coupled to the receiver for detecting received signals having said predetermined modulation pattern to thereby discriminate said detected signals as being coincident with said signals arriving on the sidelobes of said collecting antenna, and for providing an identification signal to indicate whether the received signals is coincident with signals arriving on the sidelobes of the collecting antenna.

4,266,227
MOUNTING FOR MOBILE COMMUNICATIONS ANTENNA
Herbert R. Blaese, Chicago, Ill., assignor to Avanti Research & Development, Inc., Addison, Ill.
Filed Aug. 20, 1979, Ser. No. 67,804
Int. Cl.³ H01Q *1/32*
U.S. Cl. 343—715 **7 Claims**

1. An antenna assembly for a mobile transmitting and receiving antenna comprising:
a mounting member comprising a base and a pair of spaced wall members projecting upwardly from said base defining a groove therebetween, each wall member defining a bore, said mounting member being adapted to be mounted on the surface of a vehicle;
socket means, said socket means being adapted to mount an elongated radiating member and to secure said radiating member to said mounting member, said socket means comprising a lower portion proportioned to be positioned in said groove and defining a threaded socket bore in alignment with the bores in said wall members, the thread in said threaded bore being continuous and unidirectional; and a pair of substantially identical screws, one being disposed in each of the wall member bores and being in threaded engagement with the threaded socket bore to secure said socket means in a predetermined disposition and against dislodgement;
whereby when forces are exerted on said socket means to tend to move said socket means about the axis of the threaded socket bore, if one of said screws tends to loosen its engagement therewith the other tends to tighten its engagement therewith, thereby tending to maintain the predetermined disposition of said socket means with respect to said mounting member.



4,266,228
CIRCULARLY POLARIZED CROSSED SLOT WAVEGUIDE ANTENNA ARRAY
Emmanuel J. Perrotti, Ramsey, N.J., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Continuation of Ser. No. 832,149, Sep. 12, 1977, abandoned. This application Feb. 12, 1979, Ser. No. 11,268
Int. Cl.³ H01Q *13/10*
U.S. Cl. 343—771 **5 Claims**



1. A circularly polarized crossed slot waveguide antenna array comprising:
at least a first pair of waveguides supporting only the TE_{10}

mode disposed side by side, each of said first pair of waveguides having a first broad wall facing in the same direction, each of said first broad walls having a longitudinal center line; and

a first plurality of crossed slots disposed in each of said first broad walls parallel to and spaced from said center line, each of one half of said first plurality of crossed slots on one side of a central area of each of said first broad walls between both extremities of each of said first pair of waveguides being disposed on one side of said center line and each of the other half of said first plurality of crossed slots on the other side of said central area being disposed on the other side of said center line, said first plurality of crossed slots in one of said first broad walls being spaced from said first plurality of crossed slots in the other of said first broad walls a predetermined amount;

said first pair of waveguides and each of said first plurality of crossed slots cooperating to provide a single beam, circularly polarized antenna pattern for said array; each of said first pair of waveguides are excited at both extremities thereof for transmission of circularly polarized radiation, both extremities of one of said first pair of waveguides being excited out of phase with both extremities of the other of said first pair of waveguides to produce in-phase excitation of said first plurality of crossed slots; and a second pair of waveguides each disposed orthogonally to a second broad wall of a different one of said first pair of waveguides, each of said second broad walls being parallel to an associated one of said first broad walls, each of said second pair of waveguides intersecting an associated one of said second broad walls in a central area thereof intermediate said both extremities to receive circularly polarized radiation received by said array.

4,266,229

LIGHT SENSITIVE JET INKS

Ishwar R. Mansukhani, Neenah, Wis., assignor to Whittaker Corporation, Los Angeles, Calif.

Filed Mar. 26, 1979, Ser. No. 24,116
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—1.1 **5 Claims**

1. A process for information recording comprising producing a fine jet of colorless liquid containing at least one silver salt, modulating the charge density of the jet by applying an electric field in accordance with the information to be recorded, directing the jet of liquid to a recording medium to record said information, and subsequently exposing said recorded information to ordinary light, thereby rendering said recorded information visible.

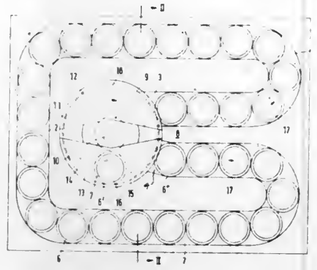
4,266,230

TIME VERIFICATION APPARATUS

Claudio Polli, Ruggell, Switzerland, assignor to Neco AG, Spielhof, Switzerland

Filed Jun. 5, 1979, Ser. No. 45,610
Int. Cl.³ G01D *9/00*
U.S. Cl. 346—22 **10 Claims**

1. A time verification apparatus useful for operating a time stamping mechanism upon introduction of an article into the apparatus, comprising a magazine having an aperture for receiving an article, a storage channel in the magazine, a plurality of moveable, similary shaped containers each having an article receiving opening, stored in the storage channel, a rotatable driver for receiving the containers one at a time from one end of the storage channel in a conveying zone, retaining each container in the conveying zone with the opening adjacent said aperture and for delivering each container to the other end of the storage channel as the driver is rotated, whereby a container located adjacent the aperture for the reception of the article is conveyed into said other end of the storage channel, pushing the other containers in the storage channel along the storage channel and pushing a container located at said one end of the storage channel into the conveying zone of the driver which, when further rotated transports the latter container adjacent the aperture; and further including a manually operable indexing wheel kinetically linked with the rotatable driver for rotating said driver and for operating said time stamping mechanism.

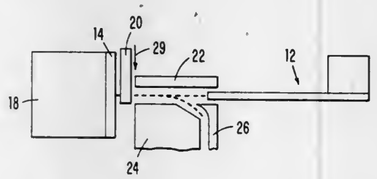


4,266,231

INK JET WITH RETRACTABLE ELECTRODE AND SECONDARY INK CATCHER

Gary A. Drago, Longmont; Arthur L. Mix, Jr., and Robert T. Ritchie, both of Boulder, all of Colo., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,368
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **19 Claims**



1. An ink jet printer comprising in combination:

a print head, having a cavity with a printing fluid therein and at least one orifice interconnecting the cavity with the face of the print head, said orifice being operable to convey a thread-like stream of ink from which a plurality of ink droplets are being generated and are being propelled along a flight path for printing on a media;

a movable charge electrode positioned relative to the flight path;

means for moving said charge electrode;

a thin tube-like device positioned relative to the droplets flight path and operable for catching the ink; and

means for moving the thin tube-like device from a first position along a path parallel to the droplets flight path to a second position next to the face of the print head.

4,266,232

VOLTAGE MODULATED DROP-ON-DEMAND INK JET METHOD AND APPARATUS

Anthony Juliana, Jr.; Richard W. Koepcke, both of San Jose; Ross N. Mills, and Frank E. Talke, both of Morgan Hill, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

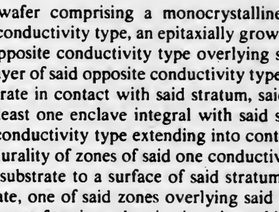
Filed Jun. 29, 1979, Ser. No. 53,468
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **7 Claims**

1. A drop-on-demand ink jet printer comprising a selectively actuable print head for selectively projecting drops of ink of substantially uniform size and spacing at a predetermined rate toward a print medium to produce a desired print pattern thereon comprising:

a print head comprising a body member having a cavity with a nozzle portion at one end and a selectively actuable transducer in physical communication with a wall portion of said cavity;

means for supplying ink to said cavity;

voltage pulse means for selectively energizing said transducer to project a drop of ink of predetermined substantially uniform size from said nozzle portion toward a print medium only when said voltage pulse amplitude equals or exceeds a predetermined drive amplitude;



a source of print data; and

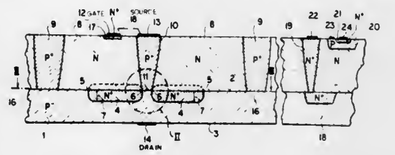
means for controlling said voltage pulse means in response to said print data to produce drive pulses at a predetermined rate but with selectively variable amplitude; said means for controlling producing a drive pulse at an amplitude lower than said predetermined drive amplitude when no drop is to be ejected and providing a drive pulse at an amplitude equal to or exceeding said predetermined drive amplitude when a first drop of said substantially uniform size is to be ejected following a time at which no drop was ejected.

4,266,233

I-C WAFER INCORPORATING JUNCTION-TYPE FIELD-EFFECT TRANSISTOR

Franco Bertotti, Milan, and Mario Foroni, Valeggio sul Mincio, both of Italy, assignors to SGS ATES Componenti Elettronici S.p.A., Agrate Brianza, Italy

Filed Dec. 14, 1979, Ser. No. 103,423
Claims priority, application Italy, Dec. 15, 1978, 30894 A/78
Int. Cl.³ H01L *29/80*
U.S. Cl. 357—22 **5 Claims**



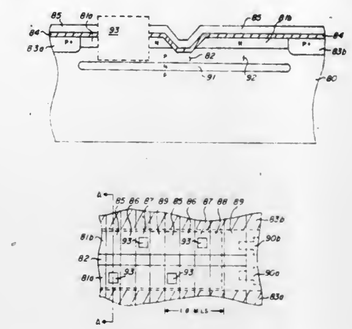
1. A silicon wafer comprising a monocrystalline silicon substrate of one conductivity type, an epitaxially grown silicon stratum of the opposite conductivity type overlying said substrate, a buried layer of said opposite conductivity type embedded in said substrate in contact with said stratum, said buried layer having at least one enclave integral with said substrate and of said one conductivity type extending into contact with said stratum, a plurality of zones of said one conductivity type rising from said substrate to a surface of said stratum remote from said substrate, one of said zones overlying said enclave, another of said zones forming a barrier junction which separates a section of said stratum overlying said buried layer from other parts of said stratum, a first electrode on said remote surface in ohmic contact with said one of said zones, a second electrode on said remote surface in ohmic contact with said section of said stratum, and a third electrode in ohmic contact with said substrate, said enclave forming part of a channel of a field-effect transistor with a source, a gate and a drain respectively constituted by said first, second and third electrodes.

4,266,234

PARALLEL READOUT STRATIFIED CHANNEL CCD

Larry J. Hornbeck, Van Alstyne, and Harold H. Hosack, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 16, 1978, Ser. No. 869,398
Int. Cl.³ H01L *29/78, 27/14, 31/00;* **G11C** *19/28*
U.S. Cl. 357—24 **10 Claims**



1. A charge coupled device comprised of:

(a) a semiconductor substrate having dopant atoms of a first conductivity type and a first surface;

(b) a plurality of parallel charge transfer channels spaced apart by separating regions, said channels and separating regions lying in said substrate near said first surface;

(c) an insulating layer lying over said charge transfer channels and separating regions;

(d) a plurality of phase electrodes serially disposed on said insulating layer transversely of said charge transfer channel;

(e) a barrier region in said substrate lying under and adjacent to all of said charge transfer channels and said separating regions, said barrier region having dopant atoms of said first type;

(f) a charge integration channel in said substrate lying under and adjacent to said barrier region, said charge integration channel having dopant atoms of a second conductivity type opposite to said first type; and

(g) inter-channel transfer means for varying the potential under selected portions of predetermined ones of said electrodes by a relatively large degree in comparison to the potential under the remaining portion of said predetermined electrodes, each selected portion respectively lying within only one channel to enable charge transfer from the charge integration region under the corresponding predetermined electrode to said respective one channel.

4,266,235

OPTOELECTRONIC SENSOR ACCORDING TO THE PRINCIPLE OF CARRIER INJECTION

Heiner Herbst, Haar; Hans-Jöreg Pfleiderer, Zorneding; Rudolf Koch, Germering-unterpfaffenhofen, and Jenöe Tihanyi, Munich, all of, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

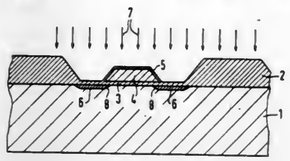
Filed Nov. 22, 1978, Ser. No. 962,893
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1977, 2754549
Int. Cl.³ H01L *27/14*
U.S. Cl. 357—30 **9 Claims**

1. In an optoelectronic sensor with a body formed of a doped semiconductor with a surface covered by a first insulating layer and having a first electrode formed on the first insulating

layer, a second insulating layer formed over the first electrode and the first insulating layer and a second electrode perpendicular to the first electrode formed on the second insulating layer, an improvement comprising:

a window with first and second inwardly oriented wedge-angled edges formed in said first insulating layer,

said first electrode is centered in said window on said first insulating layer, insulated from the body, and with first and second wedge-angled edges oppositely oriented to said inwardly oriented wedge-angled edges of said window, and



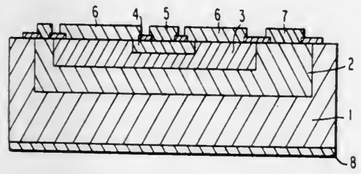
a region having the same type of conductivity as does the body but more strongly doped formed in the body at the surface thereof, substantially between a first inwardly oriented wedge-angled edge of said window and said first oppositely oriented, wedge-angled edge of said first electrode, said region has a substantially constant depth between said two edges and has first and second wedge-shaped ends which extend under said first edge of said window and said first edge of said first conductor.

4,266,236

TRANSISTOR HAVING EMITTER RESISTORS FOR STABILIZATION AT HIGH POWER OPERATION

Kazuyoshi Ueda, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 24, 1979, Ser. No. 32,821
Claims priority, application Japan, Apr. 24, 1978, 53-48950
Int. Cl.³ H01L *29/72*
U.S. Cl. 357—34 **5 Claims**



1. A semiconductor device comprising a collector region of one conductivity type, a base region of the other conductivity type making contact with said collector region, an emitter region of said one conductivity type making contact with said base region and separated from said collector region, an additional region of said other conductivity type having its pheriphery surrounded by said emitter region, an emitter electrode electrically connected to said additional region, and at least one additional electrode separated from said emitter electrode and electrically short-circuiting said emitter region and said additional region.

4,266,237

SEMICONDUCTOR APPARATUS

Thomas E. Hendrickson, Wazata, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 7, 1979, Ser. No. 73,157
Int. Cl.³ H01L *27/14*
U.S. Cl. 357—41 **14 Claims**

1. A semiconductor photodetector signal processing device for providing an output signal indicative of that amount of electromagnetic radiation impinging on a photodetector during a previous time duration, said photodetector signal processing device comprising:

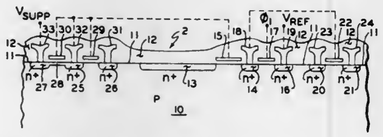
a semiconductor material body of a first conductivity type, in at least some parts of a first portion thereof serving as a substrate, and having a major surface such that said first body portion intersects said major surface in a first major surface portion;

said photodetector provided in a first location at said first major surface portion, said photodetector being capable of providing charge carriers near said first major surface portion at said first location in response to electromagnetic radiation impinging thereon;

a storage region of a second conductivity type provided in said first body portion and intersecting said first major surface portion at a second location therein spaced apart from said photodetector at said first location, there being a storage region pn junction separating said storage region and remaining parts of said body portion;

a reference gate conductive means separated from said first major surface portion by a first insulating layer and located across said first insulating layer from that space occurring between said photodetector and said storage region in said first major surface portion;

a reference means having an output region, said reference means being capable of providing a selected voltage po-



tential at said output region when said reference means is electrically energized, said reference means output region being electrically in common with said reference gate conductive means, said reference means being also electrically connected to a first interconnection means adapted for electrical connection to a first power supply means;

a switching means having first and second terminating regions and having a control region therein by which said switching means is capable of being directed to effectively provide a conductive path of a selected conductivity between said switching means first and second terminating regions, said switching means first terminating region being electrically connected to a second interconnection means adapted for electrical connection to a second power supply means, said switching means second terminating region being electrically in common with said storage region, and said switching means control region being electrically connected to a third interconnection means adapted for electrical connection to a third power supply means providing a periodic output; and

a transfer transistor device having an input region, said transfer means input region being electrically in common with said storage region and being at least part of an arrangement presenting a large electrical impedance thereto.

4,266,238

SEMICONDUCTOR DEVICE HAVING HIGH-SPEED OPERATION AND INTEGRATED CIRCUIT USING SAME

Jun-ichi Nishizawa, Sendai, Japan, assignor to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

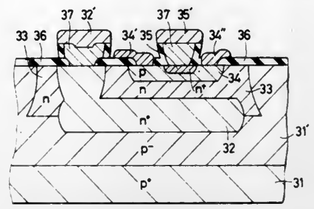
Filed Mar. 7, 1978, Ser. No. 884,214
Claims priority, application Japan, Mar. 11, 1977, 52/27377; Apr. 23, 1977, 52/47263
Int. Cl.³ H01L *27/04*
U.S. Cl. 357—48 **30 Claims**

1. A semiconductor device formed in a semiconductor chip and including at least one semiconductor element:

said element including first and second portions defining a controlled current path therebetween, and means for controlling current flow through said path, wherein said first portion comprises;

a first semiconductor region having a predetermined impurity concentration said device including:

a second semiconductor region of a second predetermined impurity concentration disposed outside of and in the neighborhood of said first semiconductor region; and



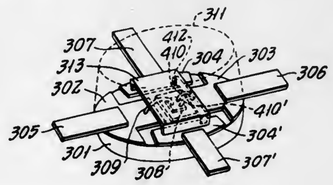
a third semiconductor region disposed between said first and second semiconductor regions, said third semiconductor region having a predetermined width and a conductivity type opposite to at least one of said first and second semiconductor regions and forming a P-N junction therewith, said third semiconductor region having an impurity concentration lower than said first and second predetermined impurity concentration, and; means, including said P-N junction for generating a depletion layer in said third semiconductor region to substantially deplete said third semiconductor region.

4,266,239

SEMICONDUCTOR DEVICE HAVING IMPROVED HIGH FREQUENCY CHARACTERISTICS

Katsunori Miyagaki; Shozo Noguchi, and Yukio Hirakawa, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 783,743, Apr. 1, 1977, abandoned. This application Nov. 3, 1978, Ser. No. 957,144
Claims priority, application Japan, Apr. 5, 1976, 51-38060
Int. Cl.³ H01L *25/04, 29/34, 29/40*
U.S. Cl. 357—84 **12 Claims**



1. A semiconductor device comprising:

an insulator substrate having a major surface;

first, second and third metal layers disposed on said major surface of said insulator substrate and mutually separated from each other, said first metal layer serving as an input terminal, said second metal layer serving as an output terminal, and said third metal layer serving as a common terminal;

a semiconductor chip having a bottom surface and an upper surface and bonded at said bottom surface on said second metal layer, the upper surface of said semiconductor chip including an input electrode and a common electrode.

a first bonding wire connected at one end to said first metal layer and at its other end to said input electrode of said semiconductor chip;

a second bonding wire connected at one end to said third metal layer and at its other end to said common electrode of said semiconductor chip;

a piece of conductive metal covering said first and second bonding wires, said semiconductor chip, and the smallest space between said first and second metal layers;

a supporting member mechanically supporting said piece of conductive metal in a manner such that said piece of conductive metal is spaced from said bonding wires and from said semiconductor chip;

means for supplying a fixed potential to said piece of conductive metal; and

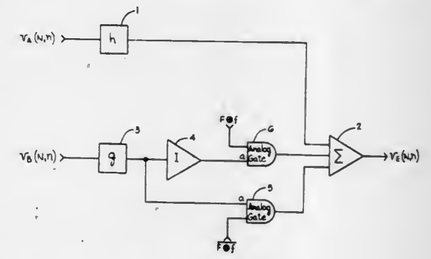
a molded resin enclosing said piece of conductive metal, said semiconductor chip, and said bonding wires and attached to said piece of conductive metal and to at least a portion of said major surface of said insulator substrate.

4,266,240

TELEVISION SYSTEM

Paul M. Levy, 3 Butternut Ct., Dix Hills, N.Y. 11746

Continuation-in-part of Ser. No. 20,874, Mar. 15, 1979, abandoned. This application Jul. 20, 1979, Ser. No. 59,322
Int. Cl.³ H04N *9/60*
U.S. Cl. 358—3 **82 Claims**



1. A television system comprising:

(a) means for providing a first video signal;

(b) means for providing a second video signal in time synchronism with said first video signal;

(c) encoding means for forming a composite video signal of said first video signal and said second video signal, said encoding means including means for amplitude scaling said first video signal and said second video signal and means for alternating the polarity of said amplitude scaled second video signal; and

(d) means for transmitting said composite video signal to means for receiving said composite video signal, said receiving means including means for decoding said second video signal from said received composite video signal, said decoding means including means for amplitude scaling said received composite video signal and means for delaying said amplitude scaled received composite video signal.

4,266,241

COLOR SIGNAL ENCODING METHODS AND APPARATUS FOR VIDEO RECORDING AND PLAYBACK

Bernhard A. Hjortzberg, Mission Viejo, Calif., assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 766,541, Feb. 7, 1977, Pat. No. 4,123,774. This application Aug. 9, 1978, Ser. No. 932,367
Int. Cl.³ H04N *5/92*
U.S. Cl. 358—4 **99 Claims**

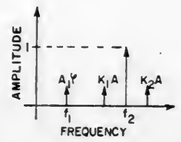
1. A method of processing a color video signal in which quadrature modulated chroma information amplitude modulated at a first carrier frequency is translated to bisequential

chroma information amplitude modulated at a second carrier frequency with suppressed carrier, comprising the steps of:

(a) separating a signal representing said amplitude and quadrature modulated chroma information from said color video signal;

(b) applying said separated chroma information signal to one input of a first double balanced modulator;

(c) switching the phase of a reference source of said first carrier frequency from one horizontal video scan line to the next alternately between a first angle and a second angle departing from said first angle by ninety degrees;



(d) mixing said phase switched first carrier reference with a reference source of said second carrier frequency to produce a signal comprising the sum and difference frequencies of said phase switched first carrier and said second carrier; and

(e) applying said sum and difference frequency signal to a second input of said first double balanced modulator, whereby the output signal of said first double balanced modulator represents chroma information bisequentially amplitude modulated at said second carrier frequency with suppressed carrier.

4,266,242

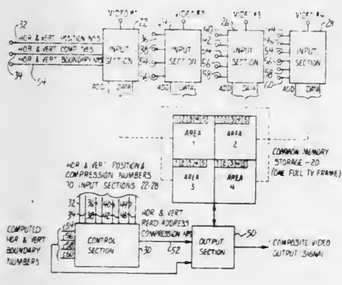
TELEVISION SPECIAL EFFECTS ARRANGEMENT

Reginald F. H. McCoy, Gainesville, Fla., assignor to Vital Industries, Inc., Gainesville, Fla.

Continuation of Ser. No. 888,741, Mar. 21, 1978, abandoned. This application Apr. 25, 1979, Ser. No. 33,142

Int. Cl.³ H04N *9/535, 5/22*

U.S. Cl. 358—22 **96 Claims**



1. A video special effects generator comprising memory storage means having a plurality of addressable storage areas corresponding to different areas of a desired composite output image, first and second video signal sources, means for digitizing the picture elements of one full frame of each of said sources, means for developing addresses corresponding to storage areas of said memory storage means at which picture elements from both said sources are to appear in said desired composite output image, means controlled by said address developing means for storing said digitized elements in said memory means, and means for reading said digitized picture elements from said storage means in a predetermined sequence and developing an analog video signal corresponding thereto.

4,266,243

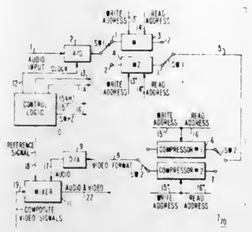
SCRAMBLING SYSTEM FOR TELEVISION SOUND SIGNALS

Harold B. Shutterly, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 25, 1979, Ser. No. 33,065

Int. Cl.³ H04N *7/16, 7/04, 7/08*

U.S. Cl. 358—121 **4 Claims**



1. In a television system having a transmitter, a receiver and a communication channel for processing video signals, an audio-scrambler apparatus for a continuous audio signal to be transmitted through said television system comprising:

means for dividing said continuous audio signal into consecutive audio segments of a predetermined length;

first means for cylically rotating each of said divided segments in accordance with a pseudo-random pattern to derive rotated audio segments: second means for subdividing said rotated segments into subsegments and for compressing each of said subsegments down to the length of a video line of said television system;

scrambling means responsive to said compressed subsegments and to the video signals of said television system for cyclically rotating each of said compressed subsegments in time concurrence with the vertical blanking pulse of said television system and for cyclically rotating each video signal in time concurrence with the video lines, in accordance with another pseudo-random pattern to derive rotated compressed audio signals and rotated video signals; and

third means responsive to the vertical blanking pulse of said television system for inserting each of said rotated compressed audio signals as a video line into a corresponding one of the vertical blanking spaces separating the active video lines of said television system and for generating a composite rotated audio and video signal to be transmitted.

4,266,244

SYSTEM FOR DETECTING THE INITIAL POINT OF A DIGITAL SIGNAL IN A COMPOSITE DIGITAL SIGNAL REPRODUCING SYSTEM

Yasuo Itoh, Tokyo, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Sep. 20, 1979, Ser. No. 77,490

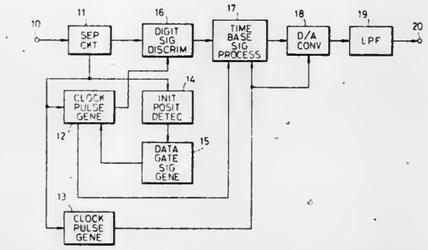
Claims priority, application Japan, Sep. 22, 1978, 53/117270

Int. Cl.³ H04N *7/00*

U.S. Cl. 358—142 **6 Claims**

1. A system for detecting the initial point of a digital signal in a composite digital signal reproducing system, said composite digital signal comprising a composite synchronizing signal having horizontal synchronizing signals, vertical synchronizing signals and equalizing pulses which are the same as the composite synchronizing signal of a composite video signal composed of odd fields and even fields, and a digital signal having information interposed between said composite synchronizing signals, said reproducing system having means for separating said composite digital signal into said composite synchronizing signal and said digital signal, means for writing-in and reading-out the digital signal thus separated to carry out

processing of said digital signal on a time base, and clock pulse generation means for supplying writing-in and reading-out clock pulses to said signal processing means, said detecting system comprising: means for generating a first train of pulses having pulse width τ_1 defined by $0.5H<\tau_1<1H$, where H denotes a horizontal scanning period, and responsive to said composite synchronizing signal separated by said separation means; means for generating a second train of pulses having pulse width τ_2 defined by $\tau_2<0.5H$ and responsive to said composite synchronizing signal separated by said separation means; means supplied with said second pulses train generated from said second pulse train generation means and said composite synchronizing signal separated by said separation means, for producing as output a signal corresponding to the vertical synchronizing signal in said composite synchronizing signal; means for receiving said first pulse train and for frequency



dividing said first pulse train thus received; means, supplied with said composite synchronizing signal thus separated and the signal corresponding to said vertical synchronizing signal, for producing as as output a signal which rises responsive to an initial equalizing pulse following the pulse corresponding to said vertical synchronizing signal and conversely falls whereupon it is supplied with the output of said frequency dividing means, and for supplying said output signal to said frequency dividing means for enabling it to perform frequency dividing operation; and means for producing as output, responsive to the output signal of said frequency dividing means and the horizontal synchronizing signal in said composite synchronizing signal, a control signal in responsive correspondence with the initial point of the digital signal in said composite digital signal, and for supplying the resulting output signal to said clock pulse generation means.

4,266,245

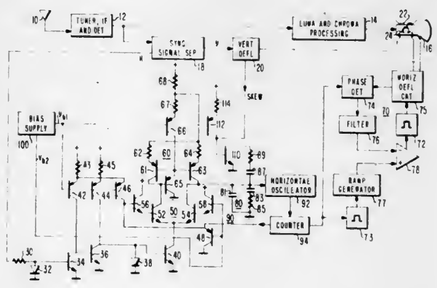
DIFFERENTIAL AMPLIFIER CURRENT REPEATER

Alvin R. Balaban, Lebanon, and Steven A. Steckler, Clark, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jan. 29, 1980, Ser. No. 116,624

Int. Cl.³ H04N *5/04*

U.S. Cl. 358—153 **9 Claims**



1. In a differential amplifier including first and second emitter coupled transistors responsive to an input signal applied to one of the base electrodes of said first and second transistors, and a current source transistor having its collector-to-emitter path serially coupled between said coupled emitters of said first and second transistors and a point of reference potential; a current repeater circuit coupled between the collector electrodes of said first and second transistors which comprises:

a current mirror for replicating the collector current of said first transistor, including third and fourth transistors having respective collector electrodes coupled to the collector electrodes of said first and second transistors, respectively, the base electrode of said third transistor being coupled to the base electrode of said fourth transistor, and a resistor for coupling the emitter electrode of at least one of said third and fourth transistors to a source of supply voltage, wherein the collector current of said first transistor is substantially replicated by the collector current of said fourth transistor; and a fifth transistor having its collector-to-emitter path serially coupled between said base electrodes of said third and fourth transistors and said resistor,

wherein said fifth transistor is biased to conduct a given magnitude of current when said third and fourth transistors are nonconductive and to lessen its conduction when said third and fourth transistors are conducting current.

4,266,246

CONTINUOUS MOTION TELECINE APPARATUS AND METHOD

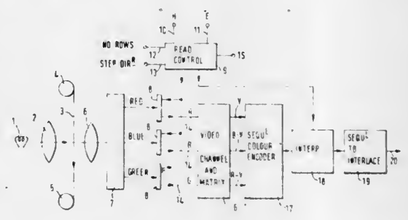
Christopher J. Waldron, Harston, and Raymond Matchell, Braughing, both of England, assignors to The Rank Organisation Limited, London, England

Filed Jan. 3, 1980, Ser. No. 109,269

Claims priority, application United Kingdom, Jan. 4, 1979, 00229/79

Int. Cl.³ H04N *3/36, 9/11*

U.S. Cl. 358—216 **8 Claims**



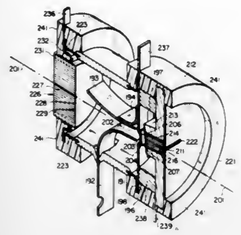
1. A method of deriving a television signal representing picture information on a cinema film, the method comprising transporting the film frame-by-frame with continuous motion relative to a matrix of photo-sensitive devices arranged in a plurality of parallel rows, focussing an image of the moving film on the matrix, the rows of the matrix being disposed substantially perpendicular to the direction of motion of the image, and scanning the image of each film frame during its movement across the matrix by interrogating the matrix at a desired line frequency along a plurality of rows thereof with the said interrogation being stepped from one row of the said plurality to the next at successive instants during the scanning, thereby to derive from substantially the entire height of each film frame or a desired part thereof a desired number of scanned lines of electrical picture information different from the number which would be obtained if the scanning were performed along only a single row of the matrix, the method further comprising processing the scanned lines so derived to provide a television signal conforming to a desired standard.

4,266,247

PROXIMITY FOCUSED STREAK TUBE AND STREAK CAMERA USING THE SAME

Howard D. Sutphin, and Albert J. Lieber, both of Los Alamos, N. Mex., assignors to General Engineering & Applied Research, Palo Alto, Calif.

Filed Sep. 19, 1977, Ser. No. 834,561
Int. Cl.³ H04N *5/30*
U.S. Cl. 358—217 **6 Claims**



1. In a proximity focused streak tube, a photocathode for converting photon images into photoelectrons, a phosphor screen for receiving said photoelectrons, said photocathode and said screen defining a longitudinal tube axis, a channel plate having a plurality of substantially parallel bores therein, the channel plate being disposed in relatively close proximity to the photocathode and so that the bores in the channel plate are inclined at an angle with respect to the longitudinal tube axis, means for applying a voltage differential between the photocathode and the channel plate to cause electrons to be extracted from the photocathode and travel in paths through the bores in said channel plate, the bores in the channel plate being arranged so that said photons cannot pass directly from said photocathode directly through said channel plate to said phosphor screen, first and second spaced apart beam electrodes disposed between the channel plate and the phosphor screen and means for applying a voltage differential between said beam electrodes to cause the photoelectrons to move in directions across said screen, said beam electrodes being arranged asymmetrically of the tube axis to compensate for the inclination of the bores in the channel plate with respect to the tube axis, said channel plate being relatively thin.

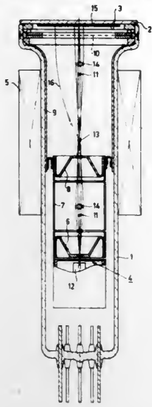
4,266,248

DEVICE HAVING A CAMERA TUBE

Johannes H. T. Van Roosmalen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 14, 1978, Ser. No. 942,323
Claims priority, application Netherlands, Oct. 18, 1977, 7711392
Int. Cl.³ H04N *5/30*
U.S. Cl. 358—223 **2 Claims**

1. An apparatus having a camera tube of the vidicon type including a radiation-sensitive layer, an electron gun for generating an electron beam, means for focusing the electron beam, and means for deflecting the electron beam over the radiation-sensitive layer, said tube further including means for directing the deflected electron beam perpendicularly onto the radiation-sensitive layer, the improvement wherein the focusing means focuses the electron beam substantially at a spot corresponding to the deflection point of the deflection means during flyback.

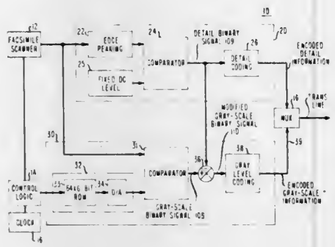


4,266,249

DIGITAL ENCODER FOR FACSIMILE TRANSMISSION

Soo Young Chai, Holmdel; Helmuth O. Sautter, and Wallace E. Sherbon, both of Middletown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 19, 1978, Ser. No. 943,734
Int. Cl.³ H04N *7/12*
U.S. Cl. 358—260 **28 Claims**



1. Apparatus for digitally encoding continuous-tone information from an original pictorial image having a total pictorial area (**100**) comprising means for scanning (**12**) discrete areas of said original image known as pels (**102**) on a line-by-line basis to generate input electrical signals indicative of the light intensity of each pel, and first means for comparing (**24**) said input signals to a predetermined position-independent threshold signal to generate a detail binary signal (**109**) of black and white pels, said apparatus further characterized by:

second means for comparing (**31**) said input signals to predetermined position-dependent reference threshold signals from a matrix of sample points to generate a gray-scale binary signal (**108**) of black and white pels, each of said sample points assigned by position to a particular pel from each of a plurality of subdivided two-dimensional blocks (**104**) of pels, each block forming a discrete pictorial area of the total pictorial area (**100**) of said original image; and

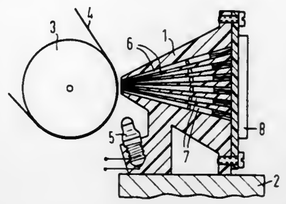
means for counting (**42**) the black pels in said gray-scale binary signal for each two-dimensional block to generate a value "N", which approximates the gray-level information of each subdivided block of pels.

4,266,250

ARRANGEMENT FOR THE OPTOELECTRICAL SCANNING OF A MASTER

Joachim Heinzl, Munich, and Erich Kattner, Neubiberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich

Filed Sep. 20, 1978, Ser. No. 944,156
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1977, 2748266
Int. Cl.³ H04N *1/06*
U.S. Cl. 358—285 **4 Claims**



1. In an arrangement for optoelectrical scanning of a plurality of parallel lines of a row on a master which is carried, at a printing station, by a platen which moves the master in a first direction, and in which a printing carriage is provided to move perpendicularly to the direction of movement of and transversely across the master, the improvement therein comprising:

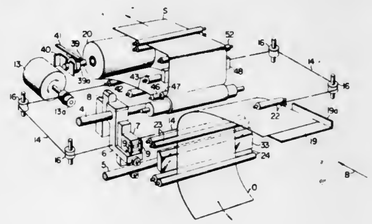
a scanning device mounted on said carriage for movement therewith and including a scanning head and plurality of scanning elements mounted in said scanning head at positions similar to that of printing elements of a mosaic printing head; and said scanning head including a plurality of light tunnels which direct light from the scanned points of the master to said scanning elements.

4,266,251

FACSIMILE TRANSMISSION AND RECEPTION APPARATUS

Kazuyuki Hara, Yokohama, and Takeshi Kamada, Atsugi, both of Japan, assignors to Ricoh Company, Ltd., Japan

Filed Feb. 21, 1979, Ser. No. 13,412
Claims priority, application Japan, Feb. 23, 1978, 53-20334
Int. Cl.³ H04N *1/12*
U.S. Cl. 358—286 **14 Claims**



1. Facsimile apparatus comprising:

an insertion inlet through which to insert original documents into said apparatus, each of said documents having an image information side and being inserted into said insertion inlet with said image information side facing up;

collection means lower than said inlet to accumulate said original documents;

channel means comprising a channel to direct the original documents from said inlet to said collection means and to cause said original documents to stack up at said collection means in the same order in which they were inserted into said insertion inlet and with the image information side facing down;

transducing means comprising photosensitive means and optical means to produce, on said photosensitive means, an optical image of a predetermined object area of a portion of said channel means;

carrier means for transporting said transducing means in a main scanning direction to scan said object area across a predertmined part of said channel; and

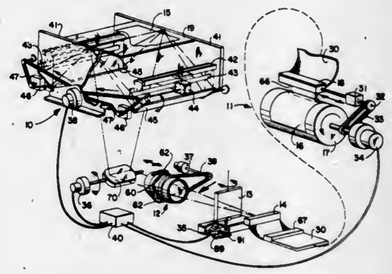
transportation means to transport each of said original documents in a controlled manner along a sub-scanning direction past said predetermined part of said channel and with the image information side facing in a direction to have an image thereof focused by said optical means on said photosensitive means.

4,266,252

LENS SYSTEM FOR DOCUMENT SCANNING

Arthur Cox, Chicago; John A. Thiel, Wheeling, both of Ill., and Eugene Nodov, Richardson, Tex., assignors to The Mead Corporation, Dayton, Ohio

Filed Sep. 12, 1979, Ser. No. 75,067
Int. Cl.³ H04N *1/10*; G02B *9/62*
U.S. Cl. 358—293 **10 Claims**



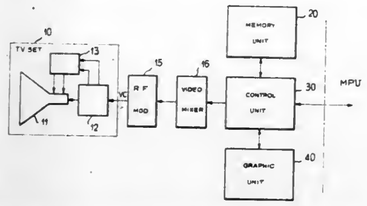
1. In a flat field scanning system comprising means for illuminating a flat document plane, a scanning mirror for scanning the light which is reflected from said document plane and directing it along an optical path toward an image sensor, a movable doublet lens for collimating the light rays traversing said path, motive means for moving said movable doublet lens along said path in synchronism with the movement of said scanning mirror so as to maintain the focal plane of said doublet lens coincident with the portion of said document plane being viewed by said image sensor, and imaging means for receiving said collimated light and imaging said portion of said document plane upon said image sensing means; the improvement wherein said imaging means has a plane of symmetry which is perpendicular to said optical path and further wherein said imaging means comprises a pair of identical double concave lenses arranged symmetrically with respect to said plane of symmetry, a pair of identical first meniscus lenses opposing said double concave lenses in symmetrical relationship with respect to said plane of symmetry, a pair of identical second meniscus lenses opposing said first meniscus lenses in symmetrical relationship with respect to said plane of symmetry, and a fixed position doublet lens identical to said movable doublet lens and opposing that one of said second meniscus lenses which is remote from said movable doublet lens.

4,266,253

PROCESSOR FOR A GRAPHIC TERMINAL

Philippe Matherat, Paris, France, assignor to Thomson-CSF, Paris, France

Filed May 16, 1979, Ser. No. 39,279
Claims priority, application France, May 18, 1978, 78 14767
Int. Cl.³ H04N *1/00*; G09F *9/30*
U.S. Cl. 358—903 **15 Claims**



1. A digital MOS processor connected on to a command unit and to a TV set enabling: in a writing mode, the data of a graphic image to be produced and stored in an external memory unit and, in a reading mode, these stored data to be read and displayed on the CRT screen of the TV set; characterised in that, on a single microchip of a semi-conductor substrate, it comprises:

a two-way data bus comprising input/output means and terminals enabling it to be connected to the command unit;

an address bus comprising means enabling it to be connected to the command unit;

terminals carrying signals allowing dialogue with the command unit;

a control unit which produces signals enabling the time bases of the TV set to be synchronized, address signals enabling the data stored in the memory unit to be read, signals for controlling the luminance levels of the CRT screen of the TV set and internal timing signals; this control unit being connected to an external clock circuit comprising a dot clock and a dividing counter which supplies addressing signals to the memory unit;

a graphic unit comprising a symbol generator and a vector generator coupled to a writing pointer which supplies write address signals to the memory unit;

a register connected to the data bus and to the address bus and enabling command words to be stored;

a plurality of registers connected to the command bus and to the address bus and enabling data words to be stored;

a first multiplexer connected to the control unit and to the graphic unit and enabling the reading and writing address signals of the memory unit to be multiplexed in dependence upon the mode of operation (reading or writing) of the processor;

a second multiplexer connected to the first multiplexer and enabling the low part and the high part of the writing addresses and reading addresses to be multiplexed at the rate of the internal clock signal;

a third multiplexer connected to the control unit and to the graphic unit and enabling certain of the reading and writing address signals to be connected according to the format of the TV image;

a reading means connected to the control unit and enabling a dot of the graphic image displayed on the CRT screen of the TV set to be read; this reading means comprising a register connected to the data bus which enables the data of the address of the displayed dot to be stored, a means for forcing the graphic image to the "white" level, a means for reading the content of the register and a means for indicating the busy state of this reading means;

an interruption element comprising a means for producing a word indicating the state of the graphic unit, a masking means controlled by masking bits contained in the control register, a means for recording the state word connected to the data bus and to the address bus and comprising means for reading this recording means,

synchronizing means for synchronizing a means for decoding the command words stored in the command register,

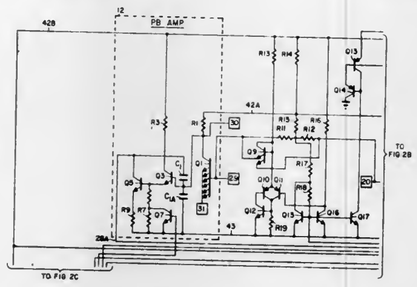
an erasing means enabling the data of the graphic image stored in the memory unit to be erased or a continuous background to be stored in the memory unit, the control unit comprising means enabling the format (interlaced frames or paired frames) of the TV image to be modified.

4,266,254

INTEGRATED CIRCUIT FOR RECORDING AND PLAYBACK OF SUCH RECORDING

Stephen W. Hobrecht, Sunnyvale, Calif.; Henry M. Skawinski, Craigmount, Hong Kong; Kh Chiu, Kowloon, Hong Kong, and Wong Hee, Kowloon, Hong Kong, assignors to National Semiconductor Corp., Santa Clara, Calif.

Continuation of Ser. No. 803,473, Jun. 6, 1977. This application May 7, 1979, Ser. No. 36,696
Int. Cl.³ G11B *15/12*
U.S. Cl. 360—62 **50 Claims**



1. In a playback/record magnetic tape recorder system, a single tape head, an integrated electronic switching circuit comprising audio playback amplifier means coupled to said single tape head for playing back previously recorded audio material, audio recording amplifier means coupled to said single tape head for recording audio material, single single pole switching means for selecting between playback and record modes of operation, and logic means connected to said single pole switching means for selectively operating one of said audio playback amplifier means and said audio recording amplifier means, said logic means comprising first transistor device means for operating said audio playback amplifier means, second transistor device means for operating said audio recording amplifier means, and third transistor device means for selecting between said first and said second transistor device means.

4,266,255

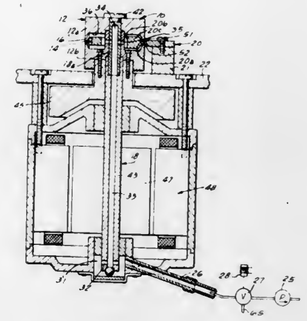
CAPSTAN DRIVE SYSTEM FOR DRIVING TAPE RECORD MEDIA, AND HAVING INTERNALLY MOUNTED TRANSDUCER HEAD MEANS

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.

Filed Apr. 26, 1978, Ser. No. 900,078
Int. Cl.³ G11B *15/60, 15/64*
U.S. Cl. 360—90 **8 Claims**

1. A tape transducer system comprising a driving capstan having a rotatable tape engaging capstan surface for driving engagement with an inner surface of a tape record medium wrapped on the capstan to produce uniform movement of the record medium substantially at a speed corresponding to the speed of said capstan surface, and having a capstan annular slot in said surface, stationary transducer head means in said annular slot and having a stationary coupling means at the capstan surface and at a fixed scanning location for coupling with a

tape record medium as it is being driven by the capstan surface so as to transduce information between a recorded form on the record medium and a signal form at said transducer head means, and said transducer head stationary coupling means at said fixed scanning location scanning the tape record medium along a longitudinal track of the record medium and at a relative scanning speed substantially corresponding to the speed of said capstan surface, said annular slot in said capstan surface being of configuration to accommodate the transducer head stationary coupling means therein at said fixed scanning location and in scanning engagement with an inner surface of a tape record medium wrapped partially about the capstan, and said annular slot providing clearance between the capstan and said transducer head coupling means so that the capstan can be rotated while the transducer head coupling means is stationary in said annular slot, stationary slot obstructing means angularly offset from said fixed scanning location and extending in obstructing relation to portions of said annular slot remote from said stationary coupling means and which portions are not



covered by a tape record medium wrapped on the capstan during operation and defining with said capstan an interior chamber in communication with the inner side of a tape record medium wrapped on the capstan in the vicinity of said stationary transducer head coupling means, such that during operation a substantial differential pressure can be established between the inner and outer sides of a tape record medium wrapped on said capstan, and a vacuum pump for communication with the interior chamber of the capstan for establishing said substantial differential pressure between the inner and outer sides of a tape record medium partially wrapped about said capstan and covering a part of the circumferential extent of said annular slot and such differential pressure being of a substantial magnitude over at least about one-half of the perimeter of said annular slot such that the tape record medium is held in an essentially non-slipping engagement with said capstan surface at both sides of said annular slot over at least about one-half of the perimeter of said annular slot at the part of the angular extent of said annular slot remote from said stationary slot obstructing means.

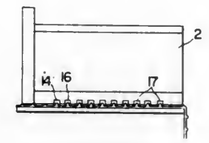
4,266,256

CLEANER RIBBON FOR MAGNETIC TAPE

Katsuhiko Kato, Hiratsuka, and Tosaku Kojima, Yokohama, both of Japan, assignors to Hitachi, Ltd., Japan

Filed Jun. 22, 1978, Ser. No. 918,271
Claims priority, application Japan, Jun. 24, 1977, 52-74345
Int. Cl.³ G11B *5/41, 23/50, 3/58*
U.S. Cl. 360—128 **8 Claims**

1. A cleaner ribbon for a magnetic tape used in a head/tape cleaning device in a magnetic tape apparatus which consists of a composite material comprising a nylon non-woven fabric as a substrate which has a plurality of projections, adapted to fit the track grooves of a magnetic head, on its surface adjoining the magnetic head and which has a paper material layer attached onto the surface of said substrate opposite to the surface having the projections, said paper material being attached to said surface of said substrate with an adhesive, said paper



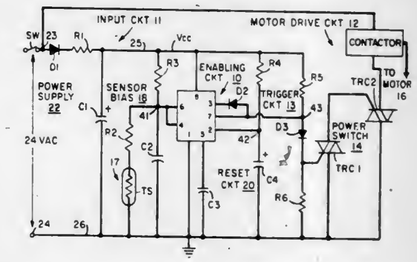
material being a material capable of cleaning said magnetic tape.

4,266,257

MOTOR OVER-HEATING PROTECTION CIRCUIT

George Rudich, Jr., Goshen, Ind., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Oct. 2, 1978, Ser. No. 947,569
Int. Cl.³ H02H *7/08, 5/04*
U.S. Cl. 361—27 **5 Claims**



1. In an overheating protection circuit for a motor, including switching means operable to connect power to the motor and sensing means for sensing the temperature of the motor, a control circuit for controlling the operation of said switching means comprising: sensor bias means connected in circuit with said sensing means for providing a control signal indicative of the temperature of said motor as sensed by said sensing means; enabling means having output means operable when enabled to provide a signal to effect the enabling of said switching means to connect power to said motor, including signal level detecting means operable when the amplitude of said control signal increases to at least a preselected value, indicative of overheating of the motor, to disable said output means to thereby cause said switching means to disconnect power from said motor; reset circuit means for enabling said output means and including timing circuit means operable upon application of power thereto to generate a start signal defining an enabling interval, said reset circuit means preventing re-enabling of said output means after said enabling interval independent of the state of said enabling means following disconnection of power from said motor as the result of an over-heating condition, and for so long as power continues to be applied to said control circuit.

4,266,258

CURRENT LIMITING DEVICE FOR HIGH VOLTAGE SWITCHING MECHANISMS

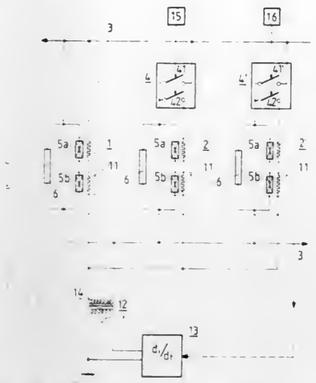
Adolf Eidinger, Nussbaumen; Carl D. Flössel, Fislisbach; Georg Köppl, Birr; Alfred Ulrich, Döttingen, and Hans Schibli, Bremgarten, all of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed May 7, 1979, Ser. No. 36,700

Claims priority, application Switzerland, Jan. 25, 1979, 734/79

Int. Cl.³ H02H *7/22*

U.S. Cl. 361—58 **4 Claims**



1. A current limiting device for high voltage switching mechanisms, comprising:

first and second high voltage busbars having contact jacks;

a first fast-acting circuit breaker having an explosive conductor containing an explosive charge which breaks the conductor when actuated and a fusible conductor connected in parallel with the explosive conductor through which current is commutated and interrupted when the explosive conductor is broken, said first circuit breaker also having contact plugs to thereby enable said first circuit breaker to be readily connected to and disconnected from said busbars while current is flowing through them; and

a switching unit including a second fast-acting circuit breaker having an explosive conductor with an explosive charge and a fusible conductor, a reconnect switch having main contacts for supplying current to said second circuit breaker and auxiliary contacts for supplying power to an ignition device for the explosive charge of said second circuit breaker prior to closure of said main contacts, and contact plugs to thereby enable said switching unit to be readily connected to and disconnected from said busbars while current is flowing through them.

4,266,259

LONG-TIME AND SHORT-TIME OVERCURRENT SIGNAL PROCESSOR FOR CIRCUIT BREAKER STATIC TRIP UNITS

Edward K. Howell, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,375

Int. Cl.³ H02H *3/093*

U.S. Cl. 361—97 **17 Claims**

1. In a circuit breaker static trip unit having at least one current transformer for developing a secondary winding current proportional to a distribution circuit phase current flowing in its primary, a rectifier for rectifying the secondary current, and a detector circuit for developing an overcurrent signal proportional to the rectified secondary current; signal processing circuitry comprising, combination:

A. a long-time trip mode network including

(1) adjustable first means for establishing a selected long-time pickup level against which said overcurrent signal is measured,

(2) a first squaring circuit for adjustably developing a first charging current proportional to the square of said overcurrent signal,

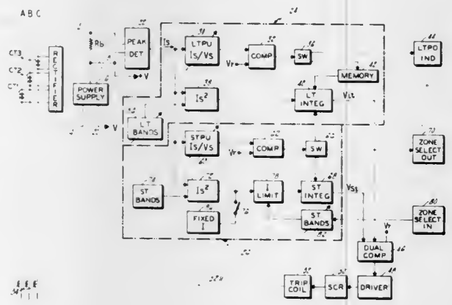
(3) a first integrating capacitor connected to be charged by said first charging current pursuant to developing a first time varying voltage signal, and

(4) first switch means conditioned by said first means to shunt said first charging current from said first capacitor while said overcurrent signal is below said long-time pickup level and to direct said first charging current through said first capacitor while said overcurrent signal exceeds said long-time pickup level;

B. a short-time trip mode network including

(1) adjustable second means for establishing a selected short-time pickup level against which said overcurrent signal is measured,

(2) a second squaring circuit for developing a second charging current proportional to the square of said overcurrent signal,



(3) a second integrating capacitor connected to be charged by said second charging current pursuant to developing a second time varying voltage signal,

(4) second switch means conditioned by said second means to

(a) shunt said second charging current from said second capacitor while said overcurrent signal is below said short-time pickup level,

(b) direct said second charging current through said second capacitor while said overcurrent signal exceeds said short-time pickup level, and

(c) shunt said first charging current from said first capacitor while said overcurrent signal exceeds said short-time pickup level, and

(5) adjustable fixed short-time delay means responsive to said second charging current for limiting the magnitude thereof to a pre-selected fixed level; and

C. Comparator means responsive to said first and second time varying voltage signals for issuing a circuit breaker trip initiating signal when either of said voltage signals achieves a predetermined reference voltage level.

4,266,260

SURGE ARRESTER

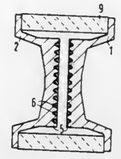
Gerhard Lange, and Juergen Boy, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 14, 1979, Ser. No. 48,606

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1978, 2828650

Int. Cl.³ H02H *9/06*

U.S. Cl. 361—120 **12 Claims**



1. In a surge arrester of the type in which a first electrode and a second electrode are sealed gas-tight in opposite ends of a tubular gas-filled insulating body, in which each electrode has a stepped truncate conical shape with an end wall with an end surface spaced from the like end surface of the end wall of the other electrode and the end wall having a thickness greater than that of the side wall, the improvement therein comprising:

recess means defining recesses in the end surface; and

an activating substance in the recesses comprising aluminum powder and magnesium oxide.

4,266,261

METHOD AND APPARATUS FOR OPERATING AN ELECTROMAGNETIC LOAD, ESPECIALLY AN INJECTION VALVE IN INTERNAL COMBUSTION ENGINES

Klaus Streit, Tübingen; Klaus Harsch, Ditzingen, and Peter Schülzke, Hemmingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 51,588

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2828678

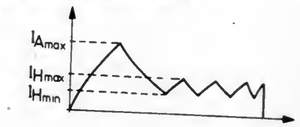
Int. Cl.³ H01H *47/32*

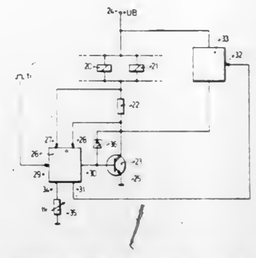
U.S. Cl. 361—154 **29 Claims**

1. A method of operating an electromagnetic load device including a movable armature, in particular the injection valve of an internal combustion engine, comprising the steps of:

(a) applying a high amperage starting current to the load device as a result of which the armature is set into motion;

(b) reducing the magnitude of the current before the armature reaches its final position; and





(c) varying the current to the load thereafter such that any current rise is less than the starting current.

4,266,262

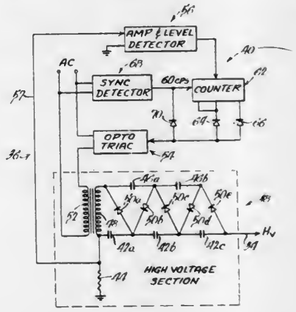
VOLTAGE CONTROLLED POWER SUPPLY FOR ELECTROSTATIC COATING APPARATUS

Martin O. Haase, Jr., Boulder, Colo., assignor to Binks Manufacturing Company, Franklin Park, Ill.

Filed Jun. 29, 1979, Ser. No. 53,372

Int. Cl.³ B05B *5/02*

U.S. Cl. 361—228 **14 Claims**



1. Apparatus for electrostatically depositing coating material on an article, comprising a source of unidirectional high potential having an input for receiving input power and an output whereat the unidirectional high potential is generated; a charging electrode connected to said source output to establish an electrostatic field between said electrode and the article; means for atomizing coating material into the electrostatic field for movement toward the article in response to the electrostatic field, the distance between said charging electrode and the article being subject to variations which can cause a change in the potential gradient between said electrode and the article and a change in a current flow to said electrode from said source; and means for monitoring the value of the current flow to said electrode and for controlling application of input power to said source in accordance therewith, said monitoring and controlling means continuously connecting input power to said source input upon the current flow to said electrode having less than a predetermined value so that the unidirectional high

potential has a full value, and cyclically interrupting application of input power to said source input so that only a portion and less than all of the input power is applied to said source input whenever the current flow to said electrode has at least said predetermined value so that the unidirectional high potential and the current flow are decreased.

4,266,263

FORCE MEASURING CAPACITOR

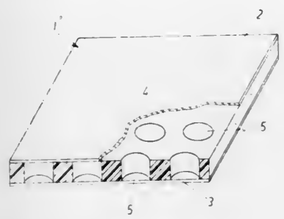
Rainer Haberl, Traiskirchen, and Josef Kastner, Vienna, both of Austria, assignors to Semperit Aktiengesellschaft, Vienna, Austria

Filed Jan. 18, 1978, Ser. No. 870,476

Claims priority, application Switzerland, Jan. 21, 1977, 730/77

Int. Cl.³ H01G *7/00*

U.S. Cl. 361—283 **24 Claims**



1. A capacitor comprising:

a pair of separate electrodes, one of which electrodes defines a measuring electrode;

an elastic dielectric interposed between said pair of electrodes and having a plurality of air containing chambers, for separating said electrodes from one another;

said elastic dielectric being formed from a material selected from the group consisting of rubber, plastic and mixtures, thereof;

said electrodes serving for the measurment of forces acting upon said measuring electrode by detecting resultant capacitance changes; and

said plurality of air containing chambers having an air pressure that is less than normal atmospheric air pressure.

4,266,264

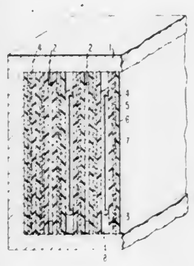
META ISOPROPYL BIPHENYL INSULATED ELECTRICAL APPARATUS

Lyon Mandelcorn, Pittsburgh; Thomas W. Dakin, Murrysville, both of Pa., and George E. Mercier, Bloomington, Ind., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 24, 1977, Ser. No. 809,589

Int. Cl.³ H01G *4/22*; H01B *3/22*

U.S. Cl. 361—318 **14 Claims**



1. A capacitor comprising layers of metal foil alternating with a dielectric spacer impregnated with a dielectric fluid which comprises isopropyl biphenyl of which at least 55% by weight is the meta isomer.

4,266,265

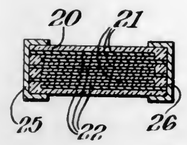
CERAMIC CAPACITOR AND METHOD FOR MAKING THE SAME

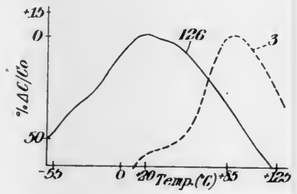
Galeb H. Maher, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Sep. 28, 1979, Ser. No. 79,686

Int. Cl.³ H01G *4/12*; C04B *35/46, 35/64*

U.S. Cl. 361—321 **14 Claims**





1. A method for making a ceramic capacitor comprising:

mixing ceramic precursor powders consisting essentially of a high-temperature-firing ceramic that includes an alkaline-earth-metal titanate and a cadmium silicate powder selected from $CdO.SiO_2$, $2CdO.SiO_2$, $5CdO.2SiO_2$, $3CdO.SiO_2$ and combinations thereof, the overall atomic ratio of Cd to Si in said cadmium silicate powder being from 2:1 to 3:1,

forming a body of said mixed powders;

firing said body at a temperature of up to 1150° C. and at less than the melting temperature of said cadmium silicate powder; and

applying two spaced electrodes in contact with said body.

11. A ceramic capacitor comprising a dielectric ceramic body and two spaced electrodes in contact with said body, said body consisting essentially of a granular crystalline phase and an intergranular silicate phase, said granular phase consisting essentially of from 92 to 84 mole percent $BaTiO_3$ and from 8 to 15 mole percent $PbZrO_3$ wherein from 0.4 to 3 mole percent of said Ba and Pb are replaced by cadmium cations, the atomic ratio of the total number of Cd atoms to the total number of Si atoms in said body being from 2:1 to 3:1.

4,266,266

ELECTRICAL FIXTURE INTENDED PRIMARILY FOR OUTDOOR USE AND DESIGNED TO PROTECT AN ELECTRICAL DEVICE HOUSED THEREIN FROM THE ELEMENTS

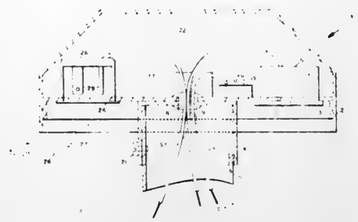
George E. Sanner, Cypress Hill, Sparks, Md. 21152

Filed Dec. 21, 1978, Ser. No. 971,738

Int. Cl.³ H02B *1/04*

U.S. Cl. 361—357 **11 Claims**

1. The combination of an electrical fixture intended primarily for outdoor use and a hollow stanchion, said fixture comprising: a horizontally orientable base having a floor and a depending flange extending continuously around the periphery of said floor; a casing having a domed upper portion and a depending skirt extending continuously around the periphery of said upper portion, said casing being telescopically assembled to said base with said skirt tightly juxtaposed to said base flange continuously around the periphery thereof and extending downwardly beyond said base flange to thereby protect the cavity consequentially formed between said base and said casing from the elements; a downwardly opening, hollow,



cylindrical mount on the lower side of said base floor supporting the base and casing assembly from, the upper end of said stanchion with the floor of said base above the stanchion said mount telescopically surrounding the upper end of the stanchion; an electrical device housed in the cavity between said base and casing and thereby protected from the elements as aforesaid; and means in said base floor providing electrical line access to said cavity and the electrical device housed therein.

4,266,267

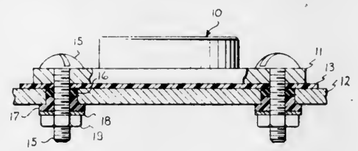
MOUNTING ARRANGEMENT FOR TRANSISTORS AND THE LIKE

Eugen H. Ruegg, Forest, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Nov. 19, 1979, Ser. No. 95,454

Int. Cl.³ H05K *7/20*

U.S. Cl. 361—386 **6 Claims**



1. An improved arrangement mounting a transistor having a mounting plate on a metallic heat sink having an opening therein, comprising:

a. an O ring of resilient insulating material positioned in said opening in said heat sink;

b. a sheet of insulating material positioned on a first surface of said heat sink and against said O ring;

c. said mounting plate of said transistor being positioned on said sheet of insulating material so that said sheet of insulating material is between said mounting plate and said metallic heat sink;

d. and means passing through said mounting plate, said sheet of insulating material, said O ring, and said heat sink for compressing said O ring.

4,266,268

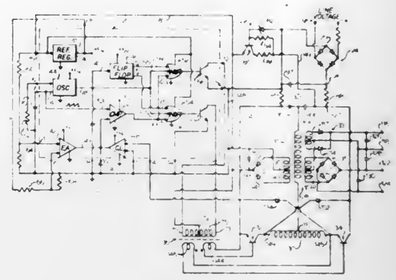
SWITCHING POWER SUPPLY HAVING ENERGY STORAGE INDUCTOR IN PRIMARY CIRCUIT OF OUTPUT TRANSFORMER

Nikola Tkacenko, 1378 Sage Hen Way, Sunnyvale, Calif. 94087

Filed Apr. 23, 1979, Ser. No. 32,504

Int. Cl.³ H02M *7/537*

U.S. Cl. 363—49 **11 Claims**



1. A switching power supply apparatus comprising:

means forming first and second terminals;

means providing a source of DC voltage across said first and second terminals;

output transformer means having a primary winding and a plurality of secondary output windings magnetically coupled to said primary winding;

inductor means including a first inductor having a first winding portion, a second winding portion inductively coupled to said first winding portion and a center tap connected to one end of said primary winding;

first impedance means coupling the other end of said primary winding to said first terminal;

second impedance means coupling said other end of said primary winding to said second terminal;

control means for monitoring the magnitude of said DC voltage and for generating first and second switching control signals including first and second control pulses respectively, the duty cycle of which is directly related to the magnitude of said DC voltage;

first switching means including a first transistor responsive to said first control signal and operative to complete a current flow path for the duration of said first control pulse from said first terminal through said first portion of said inductor means, said center tap, said primary winding, and said second impedance means to said second terminal;

second switching means including a second transistor responsive to said second control signal and operative to complete a current flow path for the duration of said second control pulse from said first terminal through said first impedance means, said primary winding, said center tap and said second inductive portion of said inductor means to said second terminal; and

diode means for creating a uni-directional current path from said second terminal through at least a portion of said first inductor to said first terminal so that when neither said first nor said second switching means is conductive, energy stored in said inductor means is returned to said source of DC voltage.

4,266,269

FLY-BACK TRANSFORMER

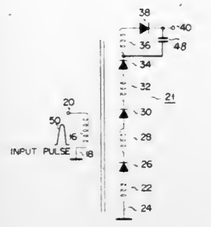
Akira Toba, Fukaya, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 15, 1979, Ser. No. 21,548

Claims priority, application Japan, Mar. 23, 1978, 53-32321; Mar. 23, 1978, 53-32322

Int. Cl.³ H02M *7/10*

U.S. Cl. 363—68 **10 Claims**



1. A fly-back transformer comprising a number of cylindrical bobbins made of dielectric material and arranged concentrically, a magnetic core inserted in the innermost one of said bobbins, a primary winding wound in layer on the outer periphery of said innermost bobbin, a pair of input terminals connected to said primary winding, a number of secondary windings wound in layer in the same winding direction on the corresponding bobbins to be arranged between the remaining bobbins, a pair of output terminals connected respectively to the innermost and outermost ones of said secondary windings, a number of diodes each having a cathode and an anode and arranged over said outermost bobbin, one of said diodes being connected between said outermost secondary winding and one of said output terminals, the other of said diodes each of which is connected between each of said adjacent secondary windings in the forward direction thereby connecting said number of secondary windings in series between said pair of output terminals, and a capacitor formed between the cathode of said one diode connected to one end of said outermost secondary winding and the cathode of one of said other diodes whose anode is connected to the other end of said outermost secondary winding.

4,266,270

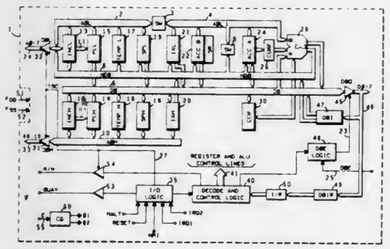
MICROPROCESSOR HAVING PLURAL INTERNAL DATA BUSES

R. Gary Daniels, Round Rock; Fuad H. Musa; William B. Wilder, Jr., both of Austin; Michael F. Wiles, Round Rock, all of Tex., and Thomas H. Bennett, Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 5, 1978, Ser. No. 939,741

Int. Cl.³ G06F *1/00*

U.S. Cl. 364—200 **3 Claims**



1. In an integrated circuit microprocessor comprising:

a plurality of registers for storing digital information affecting the operation of said microprocessor,

first data bus means for transferring digital operand information between a first subset of said registers which includes less than all of the registers,

address bus means for transferring digital address information between a second subset of said registers which includes some but not all of the registers in the first subset,

an arithmetic logic unit coupled to said first data bus means and said address bus means for performing computations on said digital information in at least one operation of said microprocessor, and

control means coupled to said registers for controlling the transfer of said digital operand and address information between said registers and said arithmetic logic unit, the improvement comprising:

second data bus means for transferring said digital operand and address information between a third subset of said registers which includes some but not all of the registers in the first and second subsets, and said arithmetic logic unit, under control of said control means, whereby the control means may selectively control the simultaneous transfer of said digital information via the first data, second data and address bus means, in at least one operation of said microprocessor.

4,266,271

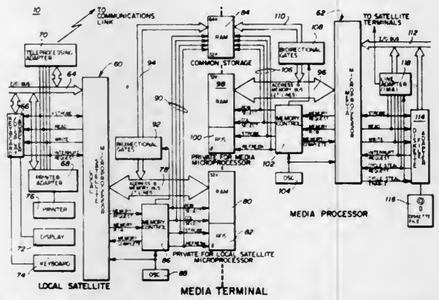
RECONFIGURABLE CLUSTER OF DATA-ENTRY TERMINALS

Martin E. Chamoff, 2115 NE. 10 Ave., Rochester, Minn. 55901; Irving L. Miller, R.R. #1, Pine Island, Minn. 55963, and Donald L. Thorson, 2624 NW. 17 Ave., Rochester, Minn. 55901

Filed Oct. 10, 1978, Ser. No. 950,091

Int. Cl.³ G06F *3/04*

U.S. Cl. 364—200 **21 Claims**



1. A reconfigurable clustered system of data-entry terminals comprising:

a plurality of physically separate data-entry terminals each having entry and display means for communicating data between an operator and said terminal and each further including processing means for operating upon data input to said terminal,

a communications link coupled between said terminals to form a data-entry cluster,

one of said terminals being designated as a primary terminal and including means for controlling the flow of data via said communications link and means for providing central storage for data input to all said terminals in said data-entry cluster,

processing programs being stored in said primary terminal and including means for selectively transferring the processing programs to ones of said terminals for implementation, and

means responsive to operation of said entry means of one of said terminals to convert that terminal to said primary terminal while maintaining the physical configuration of said data-entry cluster.

4,266,272

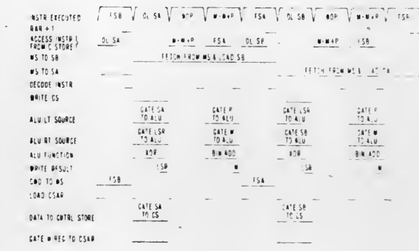
TRANSIENT MICROCODE BLOCK CHECK WORD GENERATION CONTROL CIRCUITRY

Neil C. Berglund, Kasson, and William G. Kempke, Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 12, 1978, Ser. No. 950,898

Int. Cl.³ G06F *11/26*

U.S. Cl. 364—200 **8 Claims**



1. In a computer system having a main storage for storing data, instructions and control words, a central processing unit (CPU) including a writable control storage. a arithmetic and logic unit (ALU) operable in response to an exclusive OR function control signal to perform an exclusive OR operation, and an addressable register initialized with a predetermined operand, said ALU connected to receive an operand from said addressable register and control words read from said main storage to be written into control storage, the improvement comprising:

reading means in said CPU connected to said main storage for reading control words from said main storage,

writing means in said CPU connected to said reading means and to said control storage and operable in response to said reading means reading control words from main storage for writing said control words read from said main storage into control storage, and

means in said CPU connected to said writing means operable in response to said writing means writing control words into control storage for generating exclusive OR function control signals and transfer control signals to control said ALU in said CPU to perform an exclusive OR operation with the operand from said addressable register with the control word being written into control storage, and to control the transfer of said operand from said addressable register and the transfer of said control word being written into control storage to said ALU whereby a block check word is simultaneously generated as a control word is written into control storage.

4,266,273

SYSTEM FOR CONTROLLING TRACK-BOUND VEHICLES FORMING A TRAIN

Karl-Ulrich Dobler, Waiblingen; Sigurd Mura, Leonberg, and Erhard Kraft, Hemmingen, all of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed May 21, 1979, Ser. No. 40,611

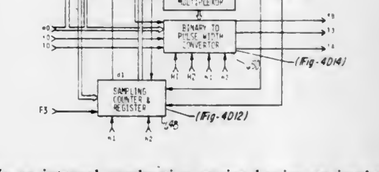
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1978, 2824168

Int. Cl.³ B61L *27/00;* **G06F** *15/50*

U.S. Cl. 364—426 **12 Claims**

1. A system for controlling track-bound vehicles comprising:

a train of N track-bound vehicles including at least two guide vehicles each having an on-board computer system and switching device, transmitting and receiving equipment connected to said on-board computer system, position-determining equipment connected to said on-board computer system, propulsion and braking equipment connected to said switching device, where N is an integer greater than two, and N-2 vehicles of said train each having a propulsion and braking equipment connected to said switching device of an activated one of said on-board computer system, said on-board computer system of each of said two guide vehicles delivering control commands to



said propulsion and braking equipment of said N vehicles through its associated one of said switching device when activated; and

a fixed control station having a control computer system capable of exchanging data messages with said on-board computer system of each of said two guide vehicles, said control computer system activating one of said two on-board computer systems to connect said control commands thereof through its associated one of said switching devices.

4,266,274

MICROPROCESSOR-BASED ENGINE CONTROL SYSTEMS

Alan W. Barman, Oak Park, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 27, 1978, Ser. No. 881,925

Int. Cl.³ F02B *75/10;* **F02D** *78/00;* **H03K** *13/20*

U.S. Cl. 364—431 **22 Claims**

Oxygen System Integrator Circuitry

16. In an internal combustion engine having an intake system, an exhaust system, an engine block, a plurality of cylinders disposed in said engine block, a piston mounted for reciprocal movement within each of said plurality of cylinders, an output shaft rotatively driven by the reciprocal movement of said pistons within said cylinders, oxygen sensor means operatively coupled to said exhaust system for generating a signal indicative of the relative air/fuel ratio existing therein and

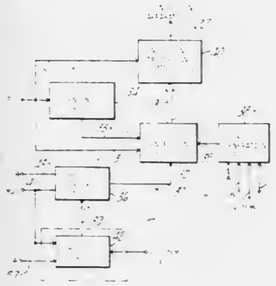
means responsive to the measured air/fuel ratio in said exhaust system for controllably varying engine operating conditions to change said air/fuel ratio, the improvement comprising sensor means operatively associated with said engine for outputting an engine position pulse each time one of said plurality of pistons approaches a predetermined reference position within its corresponding cylinder, and means for sampling said oxygen sensing means at a rate that bears a constant relationship to the speed of said engine, the temperature of said oxygen sensing means being tested to determine the validity of said sampled measured values at least once each engine revolution, said sampling being a function of said engine position pulses for sampling the value measured by said oxygen sensing means a predetermined number of times between each two of said plurality of cylinders regardless of the number of said cylinders in said engine block.

4,266,275

ACCELERATION ENRICHMENT FEATURE FOR ELECTRONIC FUEL INJECTION SYSTEM

Roman O. Marchak, Northville, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 28, 1979, Ser. No. 24,628
Int. Cl.[3] F02B *3/00;* **F02M** *7/06*
U.S. Cl. 364—431 **13 Claims**



1. An electronic fuel management system having an acceleration enrichment feature producing an enriched air/fuel ratio to an internal combustion engine during operator induced transients, said system comprising:

a pulse width generation means for calculating the duration of pulses of a pulse width signal, said duration being indicative of the quantity of fuel metered into said internal combustion engine;

said pulse width generation means initiating each individual pulse at a rate dependent upon the RPM of the engine and timing the duration of each pulse with a controllable ramp voltage begun concurrently therewith, said ramp voltage beginning from a voltage level which is a function of an engine operating parameter and terminating at its intersection with a threshold voltage to end the pulse width;

a pressure sensing circuit, electrically connected to said pulse width generation means and responsive to the absolute pressure of the intake manifold, for generating said threshold voltage as a function of the absolute pressure of the intake manifold of the engine;

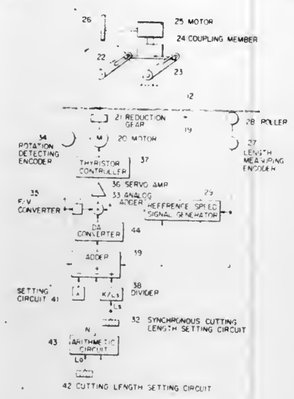
acceleration enrichment means for generating an acceleration enrichment signal that increases said threshold voltage to said pulse width generation means during operator induced transients, said acceleration enrichment means including a voltage controlled current sink means electrically connected to said pressure sensing circuit for varying said threshold voltage, said current sink means being regulated by a control voltage which is a function of said operator induced transient.

4,266,276

CUTTING CONTROL APPARATUS

Shigeki Hayashi, Tokyo, and Takemitsu Okamoto, Atsugi, both of Japan, assignors to Nusco Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 4, 1979, Ser. No. 81,958
Claims priority, application Japan, Oct. 4, 1978, 53/122973
Int. Cl.[3] G06F *15/46;* **B26D** *5/20*
U.S. Cl. 364—475 **10 Claims**



7. A cutting control apparatus for cutting, by a rotary type flying cutter, a sheet, pipe or like material fed by a feeder, comprising:

a reference speed signal generator for multiplying a speed signal of a motor for driving the blade of the rotary type flying cutter, by a synchronous cutting length corresponding to setting of a blade speed change mechanism of the rotary type flying cutter;

a motor supplied with the multiplied output as a reference speed signal to feed the material;

a length-measuring encoder for generating length-measuring pulses corresponding in number to the rotation of the motor for feeding the material;

a rotation detecting encoder for generating rotation pulses corresponding in number to the rotation of a motor for driving the blade of the cutter;

an adder supplied with a subtractive input that the length-measuring pulse is mutiplied by a constant coefficient and an additive input that the rotation pulse is multiplied by a coefficient proportional to the synchronous cutting length;

an arithmetic circuit for performing an operation of a correction value on the basis of a set cutting length and the synchronous cutting length and applying the correction value to the adder for each cutting; and

a D-A converter for converting the output from the adder into an analog signal and using it as a correction signal for the reference speed signal.

4,266,277

CHROMATOGRAPHIC ANALYSIS OF GASEOUS MATTER

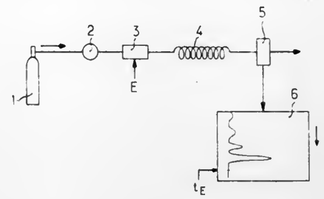
Olivier Issenmann, Lamorlaye, France, assignor to Compagnie Geofinanciere, Paris, France

Filed Apr. 24, 1979, Ser. No. 32,884
Claims priority, application France, Apr. 25, 1978, 78 12138
Int. Cl.[3] G06F *15/34*
U.S. Cl. 364—498 **17 Claims**

5. Apparatus for processing the detector signal of a chromatographic analysis apparatus comprising, in combination:

a timing and programming device for initiating and terminating time periods each of which occurs whilst the detector is transmitting a signal indicative of the concentration of a constituent to be measured;

a device for digitalizing the detected signal transmitted during each time period and for storing the maximum value thereof which is respectively indicative of the concentration of each constituent to be measured;



an analogue memory corresponding to each constituent to be measured;

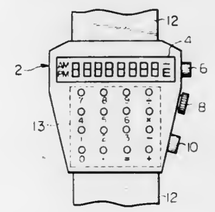
a device for calibrating and linearizing the signal stored in said memory, and means for outputting said signal.

4,266,278

PORTABLE ELECTRONIC DEVICE EQUIPPED WITH CALCULATION AND TIMEKEEPING FUNCTIONS

Heihachiro Ebihara; Fukuo Sekiya, both of Tokorozawa, and Takashi Yamada, Sayama, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 890,312, Mar. 27, 1978, abandoned. This application Jul. 9, 1979, Ser. No. 56,086
Claims priority, application Japan, Mar. 30, 1977, 52-39125; Apr. 8, 1977, 52-40818
Int. Cl.[3] G06F *3/02, 15/02;* **G04B** *47/00*
U.S. Cl. 364—705 **6 Claims**



1. In an input circuit for a portable electronic device powered by a battery having first and second potentials, which input circuit has a keyboard having ten keys and function keys to provide numeric signals and function signals, respectively, the improvement comprising:

a frequency standard providing a standard frequency signal;

a key contact matrix comprising a pluraltiy of key contacts and responsive to actuation of said ten keys and said functions keys;

a plurality of matrix columns of said matrix key contact comprising electrical conductors connected to columns of said key contacts;

a plurality of matrix rows of said key contact matrix comprising electrical conductors connected to rows of said key contacts;

a plurality of impedance elements connected between said plurality of matrix columns and the first potential of said battery;

a plurality of electronic switching elements connected between said matrix rows and the second potential of said battery and having control electrodes, respectively;

timing signal generating means responsive to said standard frequency signal for providing a plurality of timing signals;

control signal generation circuit means for generating a control signal when said portable electronic device is set in its predetermined operating mode, said control signal having a duty cycle lower than one half; and

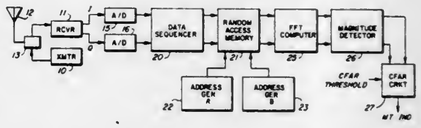
a control circuit responsive to said control signal and said plurality of timing signals to generate a plurality of scanning signals which are applied to the control electrodes of said plurality of electronic switching elements, respectively, for thereby sequentially causing each of said plurality of electronic switching elements to enter an electrically conductive state for a limited period of time.

4,266,279

MEMORY SYSTEM FOR A DOPPLER RADAR INCORPORATING A FAST FOURIER TRANSFORM COMPUTER

Kenneth W. Hines, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 29, 1979, Ser. No. 25,313
Int. Cl.[3] G06F *9/36, 15/332*
U.S. Cl. 364—726 **8 Claims**



1. A fast Fourier transform computer with a predetermined radix utilized in conjunction with a Doppler radar and incorporating a data record memory system for receiving and storing a batch of data, a batch of data including a predetermined number of radar samples and a substantially larger predetermined number of range bins per sample, and reading out the stored batch of data in numercial range bin order, said memory system comprising:

(a) a random access memory being sufficiently large to store a batch of data and connected to write data for storage and substantially simultaneously read output data at each selected address of said memory;

(b) data sequencing circuitry for receiving data from the radar and supplying the data to the random access memory in a predetermined sequence; and

(c) address selection means connected to said random access memory for selecting the addresses therein in a sequence that operates in conjunction with the predetermined sequence of received data to read data out in numerical range bin order.

4,266,280

METHOD FOR STORING SERIAL DATA ON A RECORDING CARRIER

Joachim Heinzl, Munich; Hubert Schlossbauer, Krailling; Heide-Marie Miller, and Irene Uhden, both of Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 27, 1979, Ser. No. 24,437
Claims priority, application Fed. Rep. of Germany, Apr. 4, 1978, 2814569
Int. Cl.[3] G06F *3/06;* **G11B** *5/008*
U.S. Cl. 364—900 **7 Claims**

1. A method for processing characters serially stored on a recording carrier in the form of blocks of equal length, said characters consisting of binary-coded information characters and filler characters, comprising the steps of:

transmitting a block to be processed from said recording carrier to a working memory;

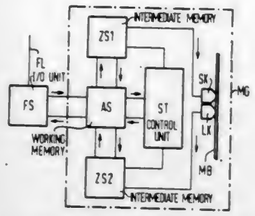
transmitting a block immediately preceding said block to be processed into a first intermediate memory connected to said working memory;

transmitting a block succeeding said block to be processed into a second intermediate memory connected to said working memory;

processing said block to be processed by changing the characters thereof my means of a user-operated input/output unit for inserting and removing characters connected to said working memory;

transmitting said block to be processed into said first intermediate memory if a pre-determined number of characters is stored in said working memory;

simultaneously transmitting said immediately preceding block from said first intermediate memory to said carrier;



simultaneously transmitting said succeeding block from said second intermediate memory to said working memory;

transmitting said block to be processed from said first intermediate memory to said carrier;

simultaneously transmitting said succeeding block from said working memory to said first intermediate memory; and

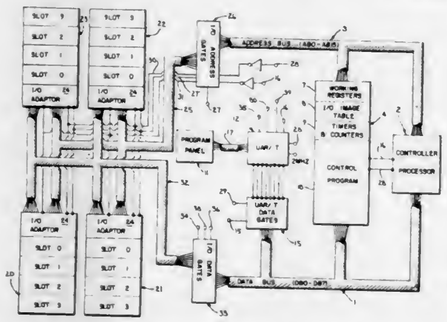
transmitting said succeeding block from said first intermediate memory to said carrier.

4,266,281

MICROPROGRAMMED PROGRAMMABLE CONTROLLER

Odo J. Struger, Chagrin Falls, and Ernst H. Dummermuth, Chesterland, both of Ohio, assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed Apr. 2, 1979, Ser. No. 26,012
Int. Cl.³ G06F 9/22, 13/00; G05B 11/01
U.S. Cl. 364—900 **14 Claims**



1. A programmable controller which comprises:

a random access memory which contains a control program comprised of a set of macroinstructions each stored on a separately addressable line of the memory;

an address bus coupled to said random access memory to select a line in said random access memory when an address signal is generated thereon;

a data bus coupled to said random access memory to receive data read from an addressed line of the random access memory and to write data into an addressed line of said random access memory;

a plurality of separately addressable sets of I/O interface circuits, each set being connected to a sensing device or operating device on a controlled machine;

I/O address gates having inputs connected to said address bus and outputs coupled to each of said separately addressable sets of I/O interface circuits;

I/O data gates connected to said data bus and coupled to each of said separately addressable sets of I/O circuits to read data from an addressed set or write data to an addressed set of I/O interface circuits; and

a controller processor which includes:

(a) a microprogram read-only memory which stores sets of microinstructions that comprise microroutines;

(b) microprogram addressing means coupled to said data bus and said microprogram read-only memory and being operable in response to a macroinstruction read from said random access memory to sequentially address macroinstructions in a microroutine;

(c) a microinstruction register connected to receive the addressed microinstructions read from said microprogram read-only memory and generate the same on a microcode bus;

(d) a central processor unit coupled to said data bus, coupled to said address bus and coupled to said microcode bus, said central processor unit being operable in response to microcodes on said microcode bus to perform arithmetic and logic operations on data received by it through said data bus, being operable in response to other microcodes on said microcode bus to generate address signals on said address bus, and being operable in response to other microcodes on said microcode bus to generate data on said data bus; and

(e) a decimal adjust accumulator having inputs coupled to the central processor unit to receive binary numbers which result from arithmetic operations performed by said central processor unit, and having a set of outputs coupled to said central processor unit, said decimal adjust accumulator being operable to generate at its set of outputs a binary number which when added to the binary number applied to its inputs converts said binary number to a binary coded decimal number, whereby results of arithmetic functions performed using binary numbers can be quickly converted to binary coded decimal numbers.

4,266,282

VERTICAL SEMICONDUCTOR INTEGRATED CIRCUIT CHIP PACKAGING

Robert A. Henle, Clinton Corners, and Alfred H. Johnson, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 12, 1979, Ser. No. 19,392
Int. Cl.¹ G11C 5/04, 5/06
U.S. Cl. 365—52 **10 Claims**

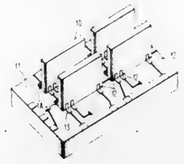
1. A vertical semiconductor memory integrated circuit chip package comprising:

a substrate having conductive lines thereon or therein;

a plurality of integrated circuit memory chips each of which having its signal and power terminals located on one edge of the chip;

said plurality of memory chips are physically and electrically connected at their said one edge to said conductive lines thereon or therein said substrate; and

said plurality of memory chips form a random access memory organization by connection of appropriate numbers of said memory chips to one another and to external module contacts through said conductive lines to provide bit address, data in (read), data out (write), column address





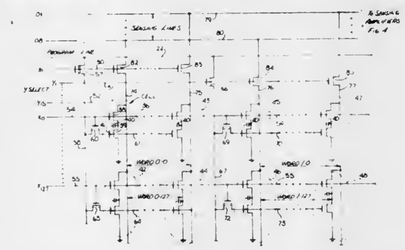
select, row address select, ground and supply voltage for said random access memory organization.

4,266,283

ELECTRICALLY ALTERABLE READ-MOSTLY MEMORY

George Perlegos, Cupertino, and William S. Johnson, Palo Alto, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Feb. 16, 1979, Ser. No. 12,670
Int. Cl.³ B11C 11/40
U.S. Cl. 365—104 **21 Claims**



1. In a read-mostly memory having a plurality of electrically alterable memory cells, one of said cells being disposed at each intersection of transverse X- and Y-lines in said memory, an improvement permitting the alteration on n-bit words stored in said memory comprising:

a plurality of first lines generally parallel to said Y-lines, one of said first lines being disposed between every nth and nth+1Y-line;

a plurality of second lines generally parallel to said X-lines and disposed between each of said X-lines, said second lines extending generally between said first lines and being coupled to said cells;

selection means for coupling selected ones of said first and second lines such that a single word stored in said memory is electrically alterable;

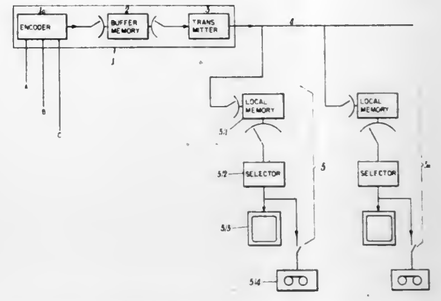
whereby a single word stored in said memory may be electrically altered without disturbing the remainder of the words stored in said memory.

4,266,284

SYSTEMS FOR THE HANDLING AND DISTRIBUTING OF DATA

Franco Carosi, and Tito Reggiani, both of Rome, Italy, assignors to Voxson S.p.A., Italy

Filed Apr. 30, 1979, Ser. No. 34,538
Int. Cl.³ G11C 13/00
U.S. Cl. 365—189 **1 Claim**



1. A system for handling and distributing of data comprising:

(a) a signal line,

(b) an ordering center including:

(1) an encoder adapted for receipt of data signals and encoding thereof;

(2) a memory unit for storing encoded data signals in a format in which the data signals are divided into a plurality of memory pages, each page having a page identifying code and each page divided into a plurality of character lines, each character line having a line identifying code; and

(3) a transmitter coupling said memory unit to said signal line and adapted for continuous and repeated transmission on said signal line of recorded data signals from said memory unit; and

(c) a plurality of peripheral user apparatuses, each user apparatus coupled to said signal line and including:

(1) a display unit for visually displaying information applied thereto;

(2) a local memory adapted for storing encoded data signals received on said signal line from said ordering center, including the page identifying codes and line identifying codes; and

(3) a selector adapted for selecting page identifying codes and line identifying codes of encoded data signals stored within said ordering center memory unit for application of the correspondingly stored encoded data signals to said display unit for visual display thereon.

4,266,285

ROW SELECTION CIRCUITS FOR MEMORY CIRCUITS

William Panepinto, Jr., Tewksbury, Mass., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jun. 28, 1979, Ser. No. 52,999
Int. Cl.³ G11C 13/00
U.S. Cl. 365—189 **21 Claims**

1. A memory subsystem comprising a memory board, said board including a control section and a memory section having at least one segment including a plurality of physical row locations of memory chips for providing a predetermined increment of addressable memory space, said memory section including:

a number of addressable memory chips having one of two different memory capacities, each of said number of addressable memory chips having a first of said memory capacities being positioned at each of said plurality of physical row locations; and,

said control section including:

decoder circuit means connected to receive a portion of a plurality of row address signals and for generating a plurality of select signals in response to said row address signals;

a plurality of logic circuits corresponding in number to said plurality of physical row locations, each of said logic circuits being connected to said decoder circuit means for enabling the addressing of said addressable memory chips haivng said first memory capacity at a different one of said plurality of physical row locations in accordance with a different predetermined one of said plurality of select signals;

logic circuit means connected to said decoder circuit means for logically combining predetermined ones of said select signals for generating at least one alternate select signal; and,

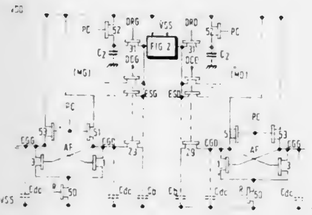
first switch means connected in series with said logic circuit means and to a first one of said plurality of logic circuits, said switch means when positioned in a predetermined manner being operative to apply said alternate select signal to said first one of said plurality of logic circuits, said first one of said logic circuits being conditioned by said alternate select signal in addition to said different predetermined one of said plurality of select signals for enabling the addressing of memory chips having a second of said memory capacities being positioned only at a first one of said plurality of said physical row locations, said memory chips having said second capacity providing at least the same predetermined increment of addressable memory space provided by the replaced plurality of rows of said memory chips having said first capacity.

4,266,286

ARRANGEMENT FOR EXTRACTION AND RECEIVING DATA FOR A REFRESHABLE MEMORY

André Richard, Paris, France, assignor to Compagnie Internationale Pour l'Informatique CII-Honeywell Bull, Paris, France

Filed Nov. 8, 1979, Ser. No. 92,562
Claims priority, application France, Nov. 22, 1978, 78 32933
Int. Cl.³ G11C *7/06, 7/00*
U.S. Cl. 365—205 **11 Claims**



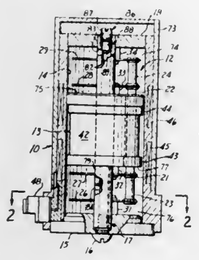
1. In a circuit arrangement for extracting and rewriting data for a refreshable memory divided into two half-memories each containing the same number of columns, each column being divided by a refreshing amplifier into two half-columns whose potentials become unequal whenever there is a refreshing operation, the memory having a pair of read/rewrite buses, each bus being connectable by an addressable switch to one of the half-columns of any column in one of the half-memories, the arrangement being connected between these buses by read input and rewrite outputs, the improvement comprising means for initializing said buses to the lower of the said unequal potentials, means for raising one of said buses to a reference potential when the other bus is connected to a half-column, means for setting up a read signal when the reference read/rewrite phase potential rises, and means for applying the read signal to the rewrite output which is connected to the bus connected to the half-column, said means for applying the read signal being adapted to prevent any transient varlation in potential at the rewrite outputs which might erase the data in store.

4,266,287

TRANSDUCER SYSTEMS WITH CONTROLLED DAMPING

Ebbert L. Elswood, Sierra Madre, and Wyndall O. Reynolds, Monrovia, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed Apr. 16, 1979, Ser. No. 30,204
Int. Cl.³ H04R *11/00*
U.S. Cl. 367—185 **25 Claims**



1. In a transducer having a mass oscillating in the manner of a piston in a cylinder having a first chamber region containing damping fluid on a first side of said mass and a second chamber region containing damping fluid on an opposite second side of said mass, the improvement comprising:

a conduit through said mass interconnecting said first and second chamber regions for the flow of damping fluid upon oscillation of said mass; and

valve means connected to said conduit for adjusting the flow of damping fluid between said first and second chamber regions.

4,266,288

ELECTRONIC TIMEPIECE

Jean-Claude Berney, Epalinges, Switzerland, assignor to Jean-Claude Berney SA, Epalinges, Switzerland

Filed Sep. 25, 1978, Ser. No. 945,384
Claims priority, application Switzerland, Sep. 27, 1977, 011765/77
Int. Cl.³ G04B *19/24;* **G04C** *17/00;* **G04B** *19/00, 27/00*
U.S. Cl. 368—28 **7 Claims**

1. An electronic time piece comprising:

means for producing time base pulses;

means responsive to said time base pulses for producing a plurality of time signals;

a minute hand;

means coupled to said minute hand for producing a signal representative of the position of said minute hand;

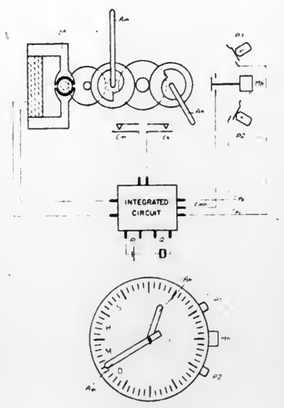
means responsive to a first manual action for producing a first manual command;

means responsive to said first manual command for selecting one of said time signals;

means responsive to said selected one of said time signals and to said minute hand position signal for producing a first comparison signal whenever said one selected time signal is unequal to said minute hand position signal;

means responsive to said first comparison signal for producing driving pulses;

means responsive to said driving pulses for driving said minute hand, thereby causing said minute hand to be



driven to a position corresponding to said one selected time signal in response to said first manual command.

4,266,289

CALENDAR CORRECTING MECHANISM

Hideyuki Nakao, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Nov. 27, 1978, Ser. No. 963,740
Claims priority, application Japan, Nov. 30, 1977, 52-144151
Int. Cl.³ G04B *19/24*
U.S. Cl. 368—35 **2 Claims**



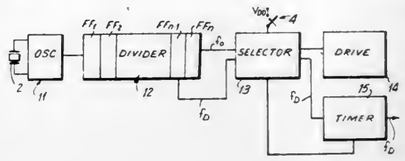
1. A calendar correcting mechanism of an electronic timepiece of the type having a battery power source, the calendar correcting mechanism comprising: a movable calendar member having dates thereon and movable for displaying different dates; switching means cooperative with said movable calendar member for switching between electrical signals to discriminate between 30-day months and 31-day months; a motor for driving said movable calendar member to display different dates; resettable calendar correcting circuit means responsive to the electrical signals switched by said switching means for operating said motor to correct the month-end date of 30-day months by rapidly advancing said movable calendar mechanism from the 30th day to the first day of the month so as not to display the 31st day of the month; a month display member; a correction lever operable for correcting the setting of said month display member; a reset switch for switching a resetting signal applied to reset said calendar correcting circuit means; a month setting switch for switching a month setting signal applied to set said calendar correcting circuit means to the month at which the timepiece starts to be used; and an externally operable member including means for simultaneously actuating said correction lever and said month setting switch.

4,266,290

ELECTRONIC WRISTWATCH CONTROL MECHANISM

Yoshinori Futami, and Tomio Ota, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jul. 19, 1978, Ser. No. 926,165
Claims priority, application Japan, Jul. 19, 1977, 52/86288
Int. Cl.³ G04B *19/00*
U.S. Cl. 368—76 **7 Claims**



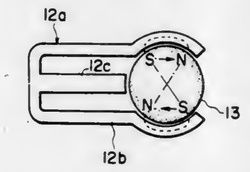
1. In an electronic wristwatch including oscillator means for producing a time frequency time standard signal, divider means including a plurality of series-connected divider stages adapted to receive said high frequency time standard signal and in response thereto produce a low frequency timekeeping signal and at least one intermediate frequency signal, said intermediate frequency signal being used to detect the timing rate of the wristwatch and a step motor means adapted to be driven in response to said low frequency timekeeping signal being applied thereto, the improvement comprising selector means coupled to said divider means, said selector means normally being adapted to be disposed in a first mode for receiving and transmitting said low frequency timekeeping signal to said step motor means, said selector means being further adapted to be disposed into a second mode for receiving and transmitting said intermediate frequency signal, and a manually operative member adapted to be displaced between a first non-engaged position wherein the step motor means is driven and a second engaged position wherein said step motor avoids being driven, said manually operative member being operably coupled to said selector means when said manually operative member is disposed in said second engaged position to thereby dispose said selector means into said second mode.

4,266,291

ELECTROMAGNETIC SWING DEVICE

Katsuhiro Obata, Iida, and Shigenobu Koizumi, Matsukawa, both of Japan, assignors to Iida Sankyo Co., Ltd., Iida, Japan

Filed Dec. 21, 1978, Ser. No. 972,175
Claims priority, application Japan, Dec. 27, 1977, 52-156573; Dec. 27, 1977, 52-156574
Int. Cl.³ G04B *17/00*
U.S. Cl. 368—168 **15 Claims**



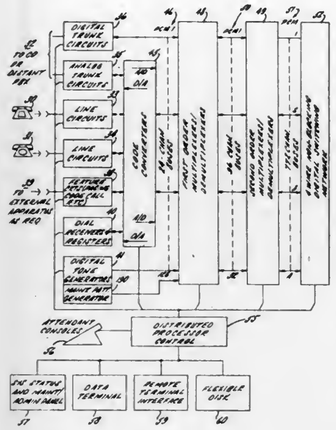
1. An electrical swing device comprising: drive means having a rotor and a stator, said drive means effectuating self-returning reciprocation within the rotation angle of said rotor, said self-returning reciprocation being effected by the reluctance torque of said rotor; intermittent drive transmission means for transmitting the rotation of said drive means to a utilization mechanism; a mechanical reset mechanism associated with said utilization mechanism; and means for exciting said stator with a pulse current.

4,266,292

METHOD AND APPARATUS FOR TESTING ANALOG-TO-DIGITAL AND DIGITAL-TO-ANALOG CODE CONVERTERS

John F. Regan, Lombard; Satyan G. Pitroda, Villa Park, both of Ill., and Byung C. Min, Belmont, Calif., assignors to Wescom Switching, Inc., Oak Brook, Ill.

Filed Nov. 20, 1978, Ser. No. 950,844
Int. Cl.[3] H04J 3/14
U.S. Cl. 370—13 34 Claims



1. In a digital time division, multiplex telecommunications switching system having code converters, each code converter having an A/D section and a D/A section, where the A/D section sequentially time samples analog data presented on A/D section analog inputs from discrete channel lines to provide analog data samples, converts the analog data samples to digital data samples on A/D section digital outputs and transmits the digital data samples in dedicated time division channels, grouped in frames, to a switching network for making time connections under control of a computer and where the D/A section receives digital data samples in dedicated time division channels, grouped in frames, from the switching network on D/A section digital inputs, converts the digital data samples to analog data samples and distributes the analog data samples, via a D/A section analog output, to discrete channel lines, a code converter fault detector comprising:

(a) pattern generator means for generating a test pattern of digital data samples for conducting a test on a code converter which is connected via the switching network to predetermined channels received by the D/A section of the code converter; and

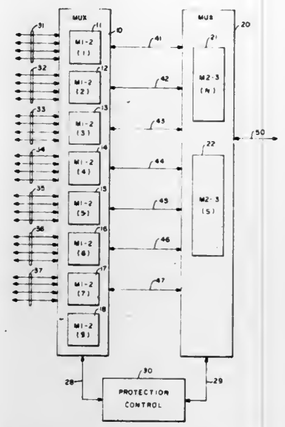
(b) pattern verification means for verifying that the D/A section has accurately converted the test pattern's digital data samples to analog data samples, including comparator means connected to the D/A section analog output for comparing all the analog data samples resulting from the test pattern to a single fixed predetermined value of a reference signal for each test and generating an error signal in response to a discrepancy between the analog data samples and the value of the reference signal so that the D/A section of the code converter can be monitored for fault conditions.

4,266,293

PROTECTION CONTROL UNIT FOR A TDM SYSTEM

Richard L. Anderson, Mountain View, and William E. Fleig, San Jose, both of Calif., assignors to Farinon Corporation, San Mateo, Calif.

Filed Jun. 1, 1979, Ser. No. 44,700
Int. Cl.[3] H04J 3/14
U.S. Cl. 370—14 8 Claims



1. A digital multiplexing system comprising first active multiplexer means connected to a plurality of multi-timeslot digital data buses for multiplexing first digital data on said plurality of buses onto a first multi-timeslot bus, first sampler means for sampling specified ones of said first digital data thereby forming a first serial bit stream, second sampler means for sampling specified ones of said multiplexed data corresponding to said first digital data, second standby multiplexer means connected to said plurality of buses and said first bus for demultiplexing specified ones of said sampled multiplexed data, said first sampler means responsive to said demultiplexed data, thereby forming a second serial bit stream corresponding to said first serial bit stream, protection control apparatus for comparing the corresponding bits of said first and second serial bit streams and for generating an alarm signal when a mismatch occurs between the comparison of said bit streams within a predetermined period of time, and means responsive to said alarm signal for inactivating said active multiplexer means and activating said standby multiplexer means.

4,266,294

COPY REPRODUCTION MACHINE WITH CONTROLLER SELF CHECK SYSTEM

John W. Daughton; Stephen P. Wilczek, both of Fairport, and Edward L. Steiner, Macedon, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 829,031, Aug. 30, 1977, abandoned.
This application Apr. 9, 1979, Ser. No. 28,480
Int. Cl.[3] G06F 11/00; G01R 31/28
U.S. Cl. 371—24 7 Claims

1. In an electrophotographic machine with a plurality of processing elements and with a controller having a CPU and a plurality of control modules, the controller having address and data lines for identifying a particular processing element of the electrophotographic machine and providing data flow with the particular processing element identified, the address and data lines interconnecting the CPU, the control modules, and the processing elements, the method of verifying the integrity of one of said address and data lines associated with one of said plurality of control modules comprising the steps of:

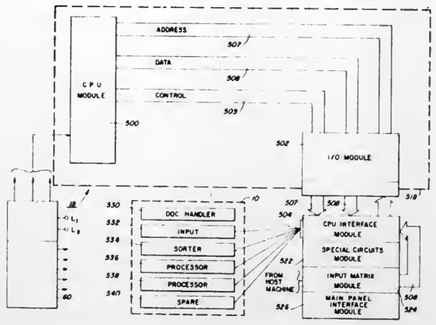
looping a test bit through one of the address and data lines,

between the CPU and a first one of the plurality of control modules,

reading the bit returned,

comparing the returned bit with the test bit sent,

looping a test bit through one of the address and data lines



between the CPU, the first one of the plurality of control modules, and the second one of the plurality of control modules, reading the bit returned and comparing the bit returned with the test bit sent and

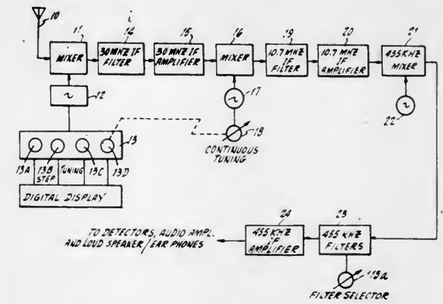
declaring a fault when the returned bit differs from the test bit:

4,266,295

CONTINUOUS TUNING CONTROL PARTICULARLY ADAPTED FOR USE IN VARIABLE FREQUENCY RECEIVERS AND GENERATORS

Henry M. Bach, Jr., P.O. Box 2174, Princeton, N.J. 08540

Filed Dec. 18, 1978, Ser. No. 970,269
Int. Cl.[3] H04B 1/26
U.S. Cl. 455—158 16 Claims



1. A variable frequency generator, comprising:

(a) a tuning control means including a controllable oscillator means coupled thereto for providing an output frequency which is continuous varied from a first to a second frequency by moving said control means from a first limit position to a second limit position according to a given control value specifying the magnitude of said output frequency within a given range,

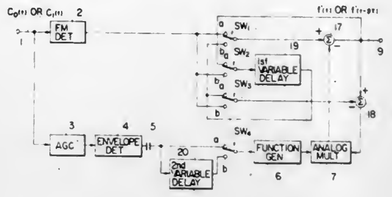
(b) actuatable means coupled to said tuning control means and operative when actuated to abruptly alter said control value to enable continuous tuning of said oscillator means from either said first to said second frequency or from said second to said first frequency by moving said tuning control means between the same limits to therefore vary said magnitude of said output frequency always within said given range, whereby said output frequency may be continuously varied by said tuning control means either from the first to the second frequency or from said second to said first frequency consecutively without either the necessity of continuously varying said output frequency from said second frequency to said first frequency or from said first to said second frequency.

4,266,296

MULTIPATH DISTORTION COMPENSATION CIRCUIT AND METHOD

Yukinobu Ishigaki, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Nov. 7, 1979, Ser. No. 91,938
Claims priority, application Japan, Nov. 16, 1978, 53-140468
Int. Cl.[3] H04B 1/10; H03D 3/00
U.S. Cl. 455—303 13 Claims



1. A multipath distortion compensation circuit comprising:

(a) a demodulator responsive to an angle modulated signal for producing a demodulated signal at its output terminal;

(b) an automatic gain control circuit responsive to said angle modulated signal for maintaining the average magnitude of said angle modulated signal constant;

(c) an envelope detector responsive to the output signal of said automatic gain control circuit;

(d) a capacitor for blocking direct current components contained in the output signal of said envelope detector;

(e) a function generator for giving a predetermined characteristic to its input signal;

(f) an analog multiplier having first and second input terminals and an output terminal, said first input terminal being responsive to the output signal of said function generator;

(g) first and second operational circuits, each of which has first and second input terminals and an output terminal, said second input terminal of said first operational circuit being responsive to the output signal of said analog multiplier, said first input terminal of said second operational circuit being responsive to the output signal of said first operational circuit, and said second input terminal of said analog multiplier being responsive to the output signal of said second operational circuit;

(h) first and second delay circuits, said second delay circuit being responsive to the output signal of said envelope detector through said capacitor; and

(i) switching means which assumes first and second positions respectively, said switching means, when assuming said first position, connecting the output terminal of said demodulator to said first input terminal of said first operational circuit, the output terminal of said first operational circuit to the input terminal of said first delay circuit, the output terminal of said first delay circuit to said second input terminal of said second operational circuit, the output terminal of said envelope detector via said capacitor to the input terminal of said function generator, and on the other hand when assuming said second position, said switching means connecting the output terminal of said demodulator to the input terminal of said first delay circuit and to said second input terminal of said second operational circuit, the output terminal of said first delay circuit to said first input terminal of said first operational circuit, and the output terminal of said second delay circuit to the input terminal of said function generator.

DESIGN PATENTS

GRANTED MAY 5, 1981

ERRATA

For CLASS	See PATENT NO.
D99-048	259,099

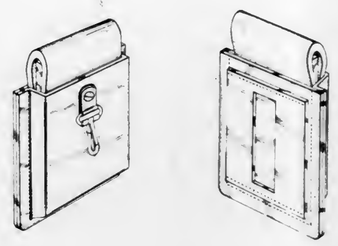
259,070
SLIP
Stuart N. Lazar, New York, N.Y., assignor to Kayser-Roth Corporation, New York, N.Y.
Filed Oct. 3, 1978, Ser. No. 948,270
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—22



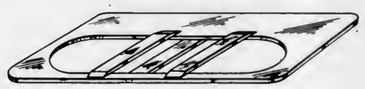
259,071
NURSE'S HEADWEAR
Catherine C. Evans, Milwaukee, Wis., assignor to Will Ross, Inc., Milwaukee, Wis.
Filed Apr. 19, 1979, Ser. No. 31,697
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—240



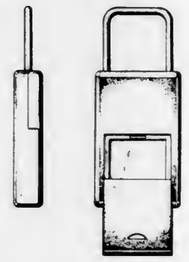
259,072
COMBINED HOLSTERED NOTEBOOK AND KEY RETAINER
Gerald W. Nice, P.O. Box 57, Annabella, Utah 84711
Filed Nov. 6, 1978, Ser. No. 958,129
Term of patent 14 years
Int. Cl. D02—*99*
U.S. Cl. D2—400



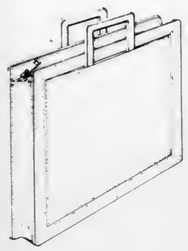
259,073
SPARE KEY HOLDER
Ronnie E. Holmes, P.O. Box 428, Suisun, Calif. 94585
Filed May 11, 1979, Ser. No. 38,084
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—61



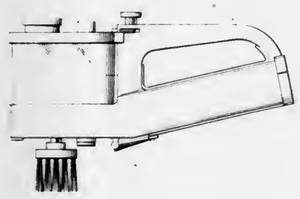
259,074
KEY HOLDER
Robert I. Harris, Providence, R.I., assignor to Garstan Corporation, Providence, R.I.
Filed Nov. 21, 1978, Ser. No. 962,752
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—62

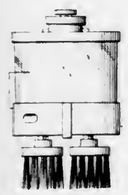


259,075
PORTFOLIO
Daniel Solomon, Youngstown, Ohio, assignor to Airway Industries, Inc., Ellwood City, Pa.
Filed Mar. 28, 1978, Ser. No. 891,154
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71



259,076
BATTERY-OPERATED BRUSH AND SCRUBBER
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Filed Oct. 10, 1978, Ser. No. 949,531
Term of patent 14 years
Int. Cl. D4—*01*; D7—*05*
U.S. Cl. D4—14





259,077
RACK FOR HANGING BATHING SUITS AND THE LIKE
Katherine M. Lane, 7460 NW. 14th St., Plantation, Fla. 33313
Filed Jan. 25, 1979, Ser. No. 6,539
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—28
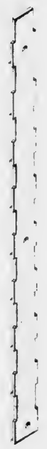


259,078
LAWN CHAIR
Didier Deconinck, Seyssins, France, assignor to Allibert Exploitation Societe Anonyme, Grenoble, France
Filed Mar. 16, 1979, Ser. No. 21,120
Claims priority, application France, Sep. 19, 1978, 78 2497
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—73



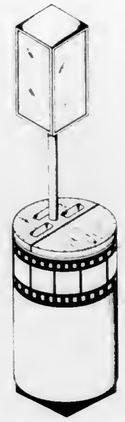
259,079
DINING ROOM CHAIR
Melbourne F. Smith, Jr., Hickory, N.C., assignor to Broyhill Furniture Industries, Inc., Lenoir, N.C.
Filed Oct. 12, 1978, Ser. No. 950,704
The portion of the term of this patent subsequent to Jan. 20, 1995, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—74



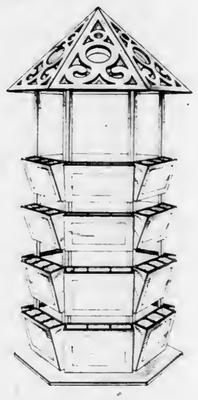
259,080
SHELF BRACKET OR THE LIKE
Rino Conti, Stoughton, Mass., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 11, 1978, Ser. No. 933,002
Term of patent 14 years
Int. Cl. D6—*04*; D8—*08*
U.S. Cl. D6—114



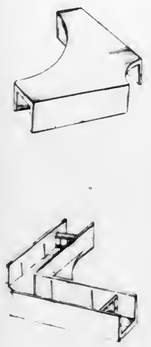
259,081
COMBINED FILM DEPOSITORY KIOSK AND SIGN HOLDER
Claude J. Sharpless, Jr., 7371 E. 82nd Pl., Commerce City, Colo. 80022, and Jules D. Devin, 309 Ridgebriar Dr., Richardson, Tex. 75080
Filed May 14, 1979, Ser. No. 38,492
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—148



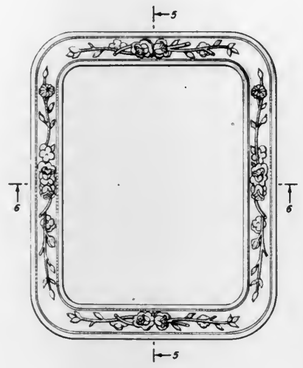
259,082
DISPLAY STAND FOR ARTIFICIAL FLOWERS OR THE LIKE
Ronald J. Corelli, Chappaqua, N.Y., assignor to Corham Artificial Flower Co., White Plains, N.Y.
Filed Jan. 15, 1979, Ser. No. 3,392
Term of patent 14 years
Int. Cl. D20—*02*; D6—*06*
U.S. Cl. D6—149



259,083
CORNER CONNECTOR FOR FURNITURE PANELS
Marlin G. Riegsecker, 1359 Ukiah Way, Upland, Calif. 91786
Filed Jul. 12, 1978, Ser. No. 923,819
Term of patent 14 years
Int. Cl. D06—*06;* D08—*08;* D09—*99*
U.S. Cl. D6—191



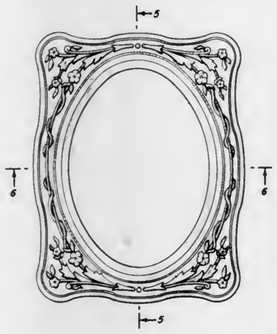
259,085
RECTANGULAR PICTURE FRAME
Pat Cochrane, 208 Tangelo, Irvine, Calif. 92715, and Antonio Montenegro, 2322 N. Larchmont, Santa Ana, Calif. 92706
Filed May 10, 1979, Ser. No. 37,902
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—242



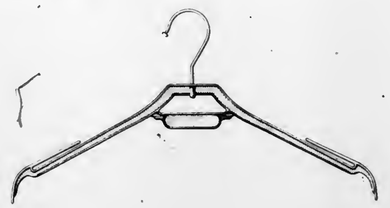
259,084
COMBINED PHOTOGRAPH FRAME AND IMPLEMENT AND NOTE HOLDER
Alwin J. Stahel, II, St. Paul, Minn., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed Apr. 26, 1979, Ser. No. 33,620
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—233



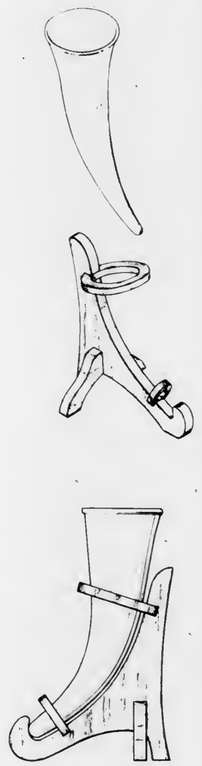
259,086
PICTURE FRAME
Pat Cochrane, 208 Tangelo, Irvine, Calif. 92715, and Antonio Montenegro, 2322 N. Larchmont, Santa Ana, Calif. 92706
Filed May 10, 1979, Ser. No. 37,903
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—244



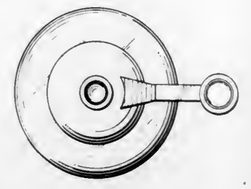
259,087
GARMENT HANGER
Mario Mainetti, Valdagno, Italy, assignor to Mainetti S.p.A., Castelgomberto, Italy
Continuation-in-part of Ser. No. 807,532, Jun. 17, 1977, abandoned. This application Sep. 18, 1978, Ser. No. 943,542
Claims priority, application Italy, Dec. 23, 1976, 61962/76[U]
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—254

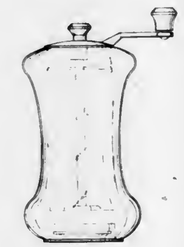


259,088
COMBINED HOLDER AND BEVERAGE GLASS, VASE OR SIMILAR ARTICLE
Eugene R. Signorile, 2637 N. Southport, Chicago, Ill. 60614
Filed Nov. 29, 1978, Ser. No. 964,481
Term of patent 14 years
Int. Cl. D07—*01;* D11—*02*
U.S. Cl. D7—15



259,089
PEPPER MILL
David A. Cowan, London, England, assignor to Cole & Mason, U.S.A., Ltd., Great Neck, N.Y.
Filed Apr. 27, 1979, Ser. No. 34,156
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—53





259,090
COMBINED SALT AND PEPPER MILL
David A. Cowan, London, England, assignor to Cole & Mason, U.S.A., Ltd., Great Neck, N.Y.
Filed Apr. 27, 1979, Ser. No. 34,157
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—53





259,091
PITCHER
James E. Plummer, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 21, 1979, Ser. No. 22,258
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—64



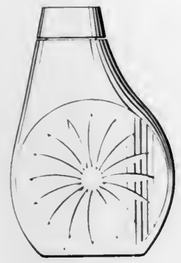
259,092
TAP AND DIE WRENCH
Edward M. Rolnick, North Dartmouth, Mass., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.
Filed Aug. 22, 1977, Ser. No. 826,428
Term of patent 14 years
Int. Cl. D08—*05*
U.S. Cl. D8—98



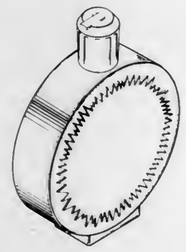
259,093
WINDING ATTACHMENT FOR TAPE CASSETTE
Jerry Iovino, 2 Geraldine Rd., North Arlington, N.J. 07032
Filed Oct. 27, 1978, Ser. No. 955,220
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—310



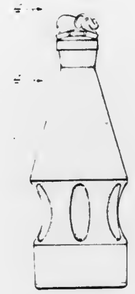
259,094
BOTTLE OR SIMILAR ARTICLE
Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Oct. 30, 1978, Ser. No. 955,995
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—375



259,095
BOTTLE
Stuart E. Benedict, Pleasantville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed Jun. 28, 1978, Ser. No. 919,858
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—409



259,096
BEVERAGE CONTAINER
Rolf Dittmeyer, Reiherstieg-Hauptdeich 39-47, 2102 Hamburg 93, Fed. Rep. of Germany
Filed Feb. 22, 1977, Ser. No. 770,656
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1976, 6610343
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—318



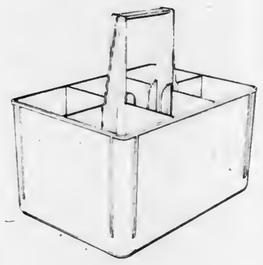
259,097
BOTTLE
Edward J. Kretz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 6, 1978, Ser. No. 884,094
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—394



259,098
COLOGNE BOTTLE
Ralph Lauren, New York, N.Y., assignor to Warner/Lauren Ltd., New York, N.Y.
Filed Jul. 10, 1978, Ser. No. 923,417
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—413



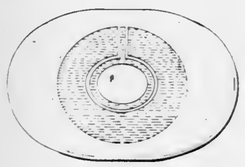
259,099
BOTTLE CARRIER
Frank E. Davis, 3103 Westador Dr., Arlington, Tex. 76015
Filed Jan. 19, 1979, Ser. No. 4,688
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D99—48



259,100
DISPLAY CONTAINER FOR A HANDKERCHIEF
Marvin A. Markowitz, Los Angeles, Calif., assignor to David Hersh & Associates, Los Angeles, Calif.
Filed Feb. 12, 1979, Ser. No. 11,501
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—415



259,101
BOX
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,464
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D9—414



259,102
CARTON
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,474
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—414



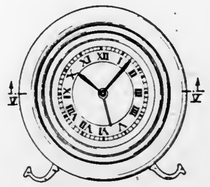
259,103
CONTAINER COVER
Raymond G. Scott, Oak Brook, and Lawrence S. Wysocki, Chicago, both of Ill., assignors to Champion International Corporation, Stamford, Conn.
Filed Dec. 21, 1978, Ser. No. 971,953
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—438



259,104
ARTICLE CARRIER BLANK
Rodney K. Calvert, Dunwoody, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed Mar. 30, 1979, Ser. No. 25,370
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



259,105
ALARM CLOCK
Robert Hocq, Boulogne-Billancourt, France, assignor to Cartier International B.V., Amsterdam, Netherlands
Filed Jul. 5, 1978, Ser. No. 922,161
Claims priority, application France, Jan. 4, 1978, 78 40916
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—23



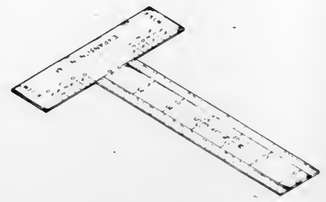
259,106
COMBINED POCKET WATCH AND CALCULATOR
Donald J. Day, Suite 1216, Two Turtle Creek Village, Dallas, Tex. 75219
Filed Sep. 25, 1978, Ser. No. 945,572
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—31



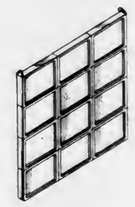
259,107
WRIST WATCH
Yutaka Fukumura, Higashi-murayama, Japan, assignor to Cltizen Watch Co., Ltd., Tokyo, Japan
Filed May 17, 1978, Ser. No. 907,044
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



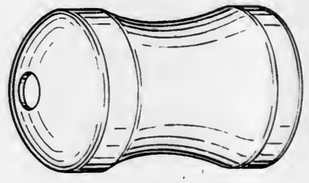
259,108
GRADUATED T-SCALE
Frederick W. Holler, III, Cherry Hill, N.J., assignor to Event Systems, Inc., Moorestown, N.J.
Filed Jul. 19, 1979, Ser. No. 58,958
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—65



259,109
JEWELRY PENDANT
Judith M. Murphy, 400 Bay Dr., West Atlantic City, N.J. 08232
Filed Nov. 2, 1978, Ser. No. 957,202
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—75



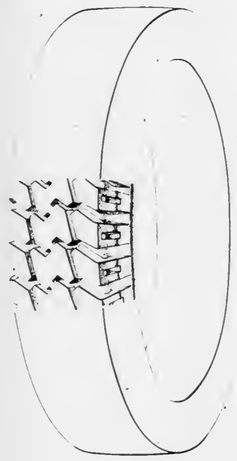
259,110
EARRING FASTENER
Robert Russell, Cranston, R.I., assignor to General Mills Products Corp., Minneapolis, Minn.
Filed Dec. 7, 1978, Ser. No. 967,185
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—88



259,111
SPORT NOVELTY DEVICE
Fay Kinney, P.O. Box 18491, Tampa, Fla. 33609
Filed Oct. 2, 1978, Ser. No. 947,933
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—157



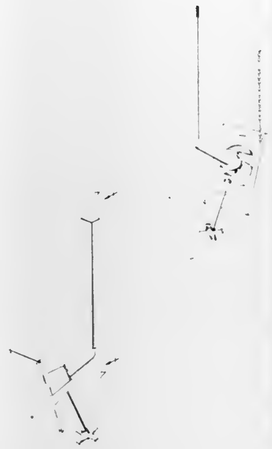
259,112
PNEUMATIC TIRE TREAD AND BUTTRESS
Gerassimos C. Candiliotis, Grosse Pointe Farms, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed May 17, 1979, Ser. No. 40,007
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



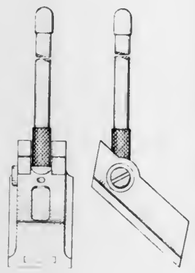
259,113
INSULATED CONDUCTOR STANDOFF
Richard N. Essig, Jackson, Mich., assignor to Plastigage Corporation, Jackson, Mich.
Filed May 9, 1979, Ser. No. 37,960
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—18



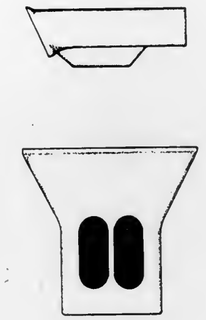
259,114
SPEAKER MOUNTING BRACKET
Alexander Cyrell, 6684 Bonair Pl., Hollywood, Calif. 90028
Filed Jun. 29, 1978, Ser. No. 920,235
Term of patent 14 years
Int. Cl. D14—*01, 99*
U.S. Cl. D14—37



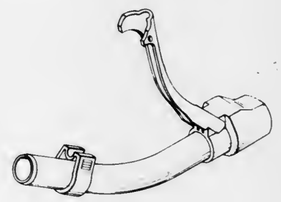
259,115
COMMUNICATIONS ANTENNA ASSEMBLY AND BASE THEREFOR
Robert J. Steinhofer, and Edward E. Elste, both of Franklin Park, Ill., assignors to Avanti Research & Development, Inc., Addison, Ill.
Filed Jun. 9, 1978, Ser. No. 914,845
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—86



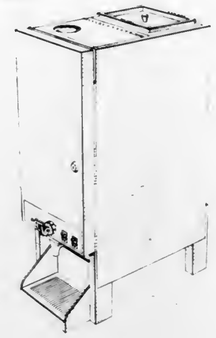
259,116
ENGINE INTAKE MANIFOLD
Anthony J. Pappas, Indianapolis, Ind., assignor to AJP International Inc., Indianapolis, Ind.
Filed Jun. 29, 1978, Ser. No. 920,390
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



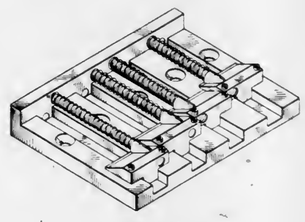
259,117
POWER COUPLING HANDLE FOR USE WITH VACUUM CLEANER
Yoshiaki Ueda, Toyonaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Dec. 12, 1978, Ser. No. 968,670
Claims priority, application Japan, Jun. 14, 1978, 53-25006
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—62



259,118
BEVERAGE DISPENSING MACHINE
William M. Bardeau, 158 Norfinch Dr., Downsview, Ontario, Canada (M3N 1Y1)
Filed Mar. 26, 1979, Ser. No. 24,019
Claims priority, application Canada, Mar. 20, 1979, 20-03-79-3
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D15—112



259,119
COMBINED BRIDGE AND STRING ANCHORING DEVICE FOR BASS GUITARS
Glen D. Quan, 561 Darien Way, San Francisco, Calif. 94127
Filed May 8, 1978, Ser. No. 903,981
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—21



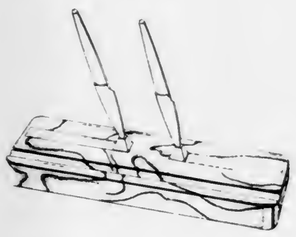
259,120
MUSIC BOX
Chong T. Ahn, 923 Fulton Ave., San Leandro, Calif. 94577
Filed Mar. 13, 1978, Ser. No. 885,789
Term of patent 14 years
Int. Cl. D17—*05*
U.S. Cl. D17—24



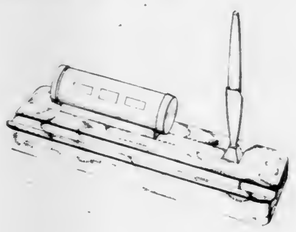
259,121
TEXT EDITING MACHINE
Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Italy
Filed Jun. 27, 1978, Ser. No. 922,334
Claims priority, application Italy, Dec. 27, 1977, 53788 A/77
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—13



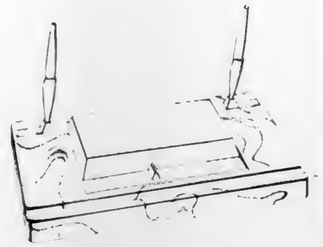
259,122
DESK SET
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 18, 1978, Ser. No. 907,371
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—75



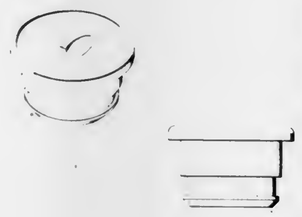
259,123
DESK SET
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 18, 1978, Ser. No. 907,381
Term of patent 14 years
Int. Cl. D19—*03, 06*
U.S. Cl. D19—75



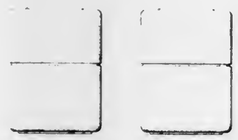
259,124
DESK SET
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 18, 1978, Ser. No. 907,382
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—75



259,125
PEN HOLDER
Clayton A. Laughlin, Minneapolis, Minn., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed Jul. 25, 1979, Ser. No. 60,524
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—84



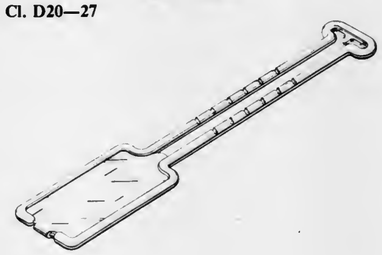
259,126
PENCIL WELL
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed Jul. 18, 1979, Ser. No. 58,999
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—85



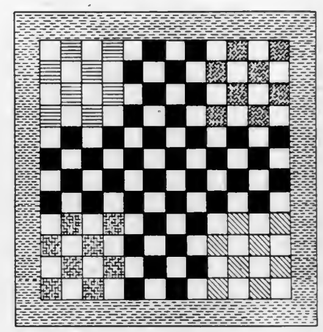
259,127
MEMO PAPER HOLDER OR SIMILAR ARTICLE
David V. Olson, 324 IDS Tower, Minneapolis, Minn. 55402
Filed Dec. 1, 1978, Ser. No. 965,589
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—92



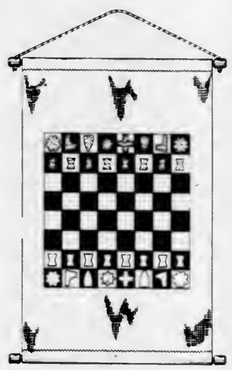
259,128
LUGGAGE MARKER OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 16, 1979, Ser. No. 66,901
Term of patent 14 years
Int. Cl. D20—*99*
U.S. Cl. D20—27



259,129
CHESS BOARD
Gary D. Weiss, 46-233 Kalai St., Kaneohe, Hi. 96744
Filed May 25, 1978, Ser. No. 909,705
The portion of the term of this patent subsequent to Jun. 6, 1995, has been disclaimed.
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—24



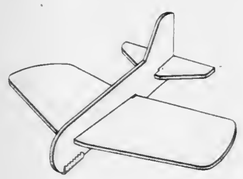
259,130
COMBINED CHESS SCROLL GAME BOARD AND ATTACHED GAME PIECES
John D. Greiner, 307 S. Riverside, Ames, Iowa 50010
Filed Oct. 18, 1978, Ser. No. 952,240
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—24



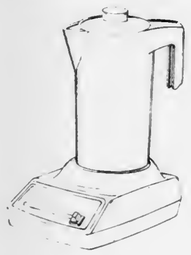
259,131
AMUSEMENT TOY
Hitoshi Itakura, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Japan
Filed Jun. 5, 1978, Ser. No. 912,935
Claims priority, application Japan, May 18, 1978, 78 20501
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



259,132
TOY AIRPLANE
Sheldon N. Spizz, 41 Gage Ct., Freehold, N.J. 07728
Filed Feb. 5, 1979, Ser. No. 9,414
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—89



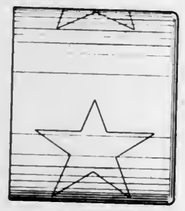
259,133
TOY BLENDER
Ronald R. Klawitter, Gasconade County, Mo., assignor to Steven Manufacturing Company
Filed Apr. 17, 1978, Ser. No. 896,820
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—122

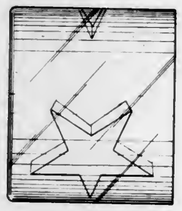


259,134
GOLF PUTTER HEAD
Floyd V. Bernhardt, 5532 N. High School Rd., Indianapolis, Ind. 46254
Filed Nov. 25, 1977, Ser. No. 854,989
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217

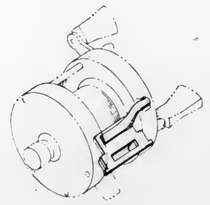


259,135
SKATE WHEEL
Dana C. Dillard, 10123 242nd Pl., Southwest Edmonds, Wash. 98020
Filed Dec. 20, 1977, Ser. No. 862,937
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—227

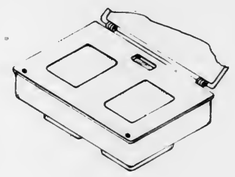




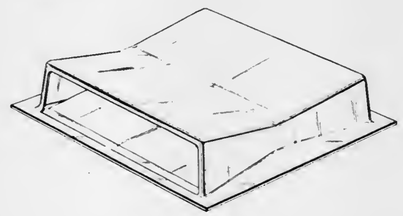
259,136
FISHING REEL FREE SPOOL ACTIVATOR
Robert L. McMickle, Spirit Lake, Iowa, assignor to Berkley & Company, Inc., Spirit Lake, Iowa
Filed Jul. 25, 1979, Ser. No. 60,484
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



259,137
PORTABLE SINK
Donna G. Knox, 1241 McClellan, Detroit, Mich. 48214
Filed May 7, 1979, Ser. No. 36,789
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—62



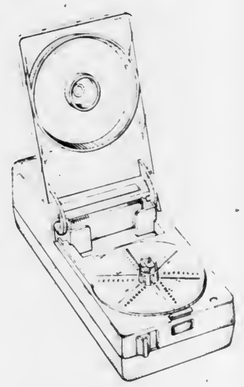
259,138
MOTOR VEHICLE AIR VENT
William E. Giles, 9782 Central, Garden Grove, Calif. 92644
Filed Mar. 22, 1979, Ser. No. 23,016
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—153



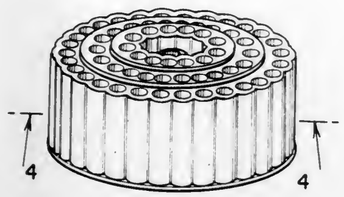
259,139
X-RAY SHIELD
Alice L. Johnson, Redmond, Oreg., assignor to Shielding, Inc., Madras, Oreg.
Filed Dec. 21, 1978, Ser. No. 971,957
Term of patent 14 years
Int. Cl. D24—*99*; D2—*2*
U.S. Cl. D24—2



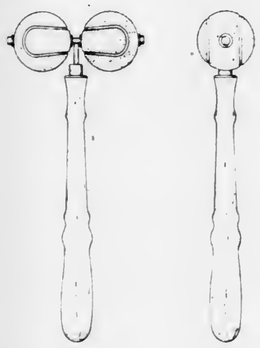
259,140
POCKET-SIZE CENTRIFUGE
Wilhelm Pross; Franz Mühlböck, both of Munich, and Otto Wienchol, Pullach, all of Fed. Rep. of Germany, assignors to Compur-Electronic Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany
Filed Jul. 19, 1978, Ser. No. 926,138
Claims priority, application Fed. Rep. of Germany, Feb. 9, 1978, 11242
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—22



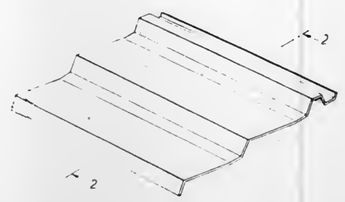
259,141
TEST TUBE HOLDER
Louise I. Oliver, 538 W. 79th St., Los Angeles, Calif. 90044
Filed Feb. 12, 1979, Ser. No. 11,532
Term of patent 14 years
Int. Cl. D24—*02, 99*
U.S. Cl. D24—32



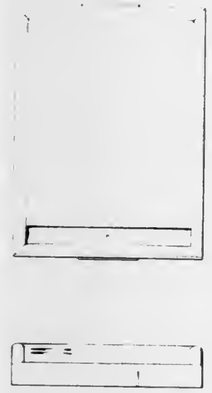
259,142
MASSAGE IMPLEMENT
Robert W. Lee, Rte. 1, Box 42, Baxter, Tenn. 38544, and Robert H. Fulkerson, 1009 E. Pearl St., Hazel Park, Mich. 48030
Filed Nov. 24, 1978, Ser. No. 963,464
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D24—36



259,143
ROOFING PANEL
Nigel G. Aktinson, Aldridge, England, assignor to British Industrial Plastics Limited, Manchester, England
Filed Jun. 12, 1979, Ser. No. 47,693
Claims priority, application United Kingdom, Dec. 16, 1978, 53-987696
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



259,144
SMALL ANIMAL CAGE BASE
Milton O. Carlin, 13111 E. 11th St., Tulsa, Okla. 74108
Filed Jan. 18, 1979, Ser. No. 4,471
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



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TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF MAY, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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A/S Akers Mek. Verksted: *See—*
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Timmerman, Daniel M.; De Winter, Walter F.; and Van Hoof, Albert E., 4,266,044, Cl. 525-336.000.

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Baird, Donald H.: *See*—
Proud, Joseph M.; and Baird, Donald H., 4,266,167, Cl. 315-248.000.

Baird, Leslie L.; and Stolz, Gary M., to General Electric Company. Lift truck for facilitating insertion and removal of horizontal draw-out switchgear unit. 4,265,583, Cl. 414-284.000.

Baird, William C., Jr.: *See*—
Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., 4,265,786, Cl. 252-439.000.

Baker Industries, Inc.: *See*—
Foster, Ronnie D.; and Dickerson, Max R., 4,266,219, Cl. 340-630.000.

Balaban, Alvin R.; and Steckler, Steven A., to RCA Corporation. Differential amplifier current repeater. 4,266,245, Cl. 358-153.000.

Ballast-Nedam Groep N.V.: *See*—
Verpalen, Willem A.; and Koot, Theodorus A. J., 4,265,759, Cl. 210-261.000.

Baltensperger, Rudolf; and Pfister, Hans B. Suspension-cable support saddle for track-type suspended railway. 4,264,996, Cl. 14-21.000.

Baltimore Aircoil Co., Inc.: *See*—
Merrill, Richard P., 4,265,645, Cl. 55-257.0PV.

Balzer & Droll KG: *See*—
Muskulus, Willi, 4,265,012, Cl. 29-736.000.

Banba, Fumio: *See*—
Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, 4,265,288, Cl. 152-209.00R.

Banks, Edwin L., Jr.: *See*—
Luce, Carl T.; Banks, Edwin L., Jr.; and Dowell, Terrence P., 4,265,498, Cl. 308-230.000.

Banno, Taiichi; and Ida, Hideaki, to Olympus Optical Co., Ltd. Liquid agitation apparatus for an absorbance measuring apparatus. 4,265,544, Cl. 356-427.000.

Baran, Joseph: *See*—
Mowry, William H., Jr.; McElligott, Michael J.; Tkalenko, Victor J., Jr.; and Baran, Joseph, 4,265,469, Cl. 283-8.00B.

Barbara S.A.: *See*—
Bena, Gilbert A., 4,265,961, Cl. 428-253.000.

Barclay, Donald J.; and Prowting, Christopher T., to International Business Machines Corporation. Kerr effect apparatus. 4,265,543, Cl. 356-369.000.

Barger, John J., to Combustion Engineering, Inc. Clad welding on an inclined surface. 4,266,110, Cl. 219-73.210.

Bargiotti, Alberto; Cassinelli, Giuseppe; Arcamone, Federico; and DiMarco, Aurelio, to Farmitalia Carlo Erba S.p.A. Anthracyclines containing branched-chain amino-deoxy sugars. 4,265,885, Cl. 424-180.000.

Barker, Charles R., III, to Bose Products, Inc. Loudspeaker system with broad image source. 4,266,092, Cl. 179-1.00E.

Barker, Clark R., to University of Missouri, The Curators of the. High pressure water jet mining machine. 4,265,487, Cl. 299-34.000.

Barker, Joseph K. Tent. 4,265,261, Cl. 135-3.00R.

Barkley, John A., to International Business Machines Corporation. Electrophotographic photoreceptive background areas cleaned by backcharge process. 4,265,998, Cl. 430-125.000.

Barman, Alan W., to Bendix Corporation, The. Microprocessor-based engine control systems. 4,266,274, Cl. 364-431.000.

Barnett, Danny R.: *See*—
Spano, John D.; and Barnett, Danny R., 4,266,191, Cl. 324-158.00F.

Barry Cosmetic Suture Company, Inc.: *See*—
Barry, Robert J., 4,265,246, Cl. 128-330.000.

Barry, Robert J., to Barry Cosmetic Suture Company, Inc. Sterile cosmetic suture and scalp implant for attaching hair pieces. 4,265,246, Cl. 128-330.000.

Barry Wright Corporation: *See*—
Hamilton, Harold V.; and Melendy, Harold A., 4,265,434, Cl. 269-27.000.
Luce, Carl T.; Banks, Edwin L., Jr.; and Dowell, Terrence P., 4,265,498, Cl. 308-230.000.

BASF Aktiengesellschaft: *See*—
Hesse, Anton; Lechtken, Peter; Nicolaus, Walter; and Scholz, Dankmar, 4,265,723, Cl. 204-159.230.
Hjortzberg, Bernhard A., 4,266,241, Cl. 358-4.000.
Mueller-Mall, Rudolf; Wendel, Kurt; Geelhaar, Hans J.; and Melan, Michael, 4,265,796, Cl. 260-29.60R.
Tschang, Chung-Ji; Klefenz, Heinrich; and Sanner, Axel, 4,266,030, Cl. 435-180.000.

BASF Wyandotte Corporation: *See*—
Langdon, William K., 4,265,774, Cl. 252-49.300.

Batson, William A., to Singer Company, The. Motorized miter saw fence mounting. 4,265,154, Cl. 83-468.000.

Battelle Development Corporation: *See*—
Spence, Kemet D.; and Andrews, Robert E., 4,265,880, Cl. 424-93.000.

Battle Research and Development Associates: *See*—
Parker, Dawood, 4,265,250, Cl. 128-635.000.

Bauer, Benjamin B., to CBS Inc. Compatible four channel radio broadcast and receiving system. 4,266,093, Cl. 179-1.0GQ.

Bauer, Daniel; Beck, Jean-Paul; Boiteau, Claude; and Garoche, Didier, to L'Oreal. Electrode-type steam generating device for generating superheated steam. 4,266,116, Cl. 219-274.000.

Bauer, Jack N.: *See*—
DiGiulio, Adolph V.; and Bauer, Jack N., 4,266,037, Cl. 521-82.000.
DiGiulio, Adolph V.; and Bauer, Jack N., 4,266,038, Cl. 521-82.000.

Bauerle, Rolf, to Ciba-Geigy AG. Thermotransfer process for printing synthetic fibre materials with multi-color effects, and carrier for performing the process. 4,265,630, Cl. 8-456.000.

Baugh, Benton F., to Brown Oil Tools, Inc. Coiled tubing apparatus. 4,265,304, Cl. 166-77.000.

Baum, Lennart: *See*—
Weigl, Walter; Bergman, Ulf; and Baum, Lennart, 4,266,133, Cl. 250-402.000.

Bauman, Donald L.; and Toji, Masuo, to Du Pont de Nemours, E. I., and Company. Process for recovering zwitterionic diazonium salts by aggregation. 4,265,810, Cl. 260-141.000.

Baumann, Heinz; and Caille, Charles, to Sulzer Brothers Limited. Weaving machine having noise attenuating means. 4,265,277, Cl. 139-1.00R.

Baur, Robert, to Automation Industries, Inc. Aircraft/pylon multi-contact electrical connector. 4,265,503, Cl. 339-45.00M.

Baus, Heinz G. Evaporation air humidifier. 4,265,839, Cl. 261-91.000.

Baxter Travenol Laboratories, Inc.: *See*—
Ammann, David W.; and Granzow, Daniel B., 4,265,280, Cl. 141-98.000.

Bayer Aktiengesellschaft: *See*—
Birkenstock, Udo; Lachmann, Burkhard; Metten, Josef; and Schmidt, Herbert, 4,265,834, Cl. 564-421.000.
Collin, Reimer; Diehr, Hans-Joachim; and Friesnitz, Uwe, 4,266,082, Cl. 568-639.000.
Doring, Fritz; Beck, Gunther; and Dankert, Gerhard, 4,266,059, Cl. 544-334.000.
Horstmann, Harald; Meng, Karl-August, deceased; Meng, Matthias, legal representative; Seuter, Friedel; and Moller, Eike, 4,265,898, Cl. 424-270.000.
Kinast, Gunther; and Schedel, Michael, 4,266,025, Cl. 435-84.000.
Krebs, Klaus-Werner; and Metzger, Carl, 4,265,832, Cl. 564-163.000.
Lantzsch, Reinhard, 4,265,819, Cl. 260-346.220.
Lurssen, Klaus, 4,265,656, Cl. 71-103.000.
Mitschke, Karl-Heinz; Geisler, Klaus; and Niederprum, Hans, 4,265,831, Cl. 564-96.000.
Nickel, Horst; and Schundehutte, Karl H., 4,265,813, Cl. 260-170.000.
Reinehr, Ulrich; von Falkai, Bela; and Wilschinsky, Horst, 4,265,971, Cl. 428-376.000.
Wagner, Gebhard; and Joseph, Werner, 4,265,929, Cl. 427-33.000.
Werner, Friedrich; and Blank, Heinz U., 4,265,833, Cl. 564-435.000.

Bayer, Raymond M.: *See*—
Drake, Charles A.; and Bayer, Raymond M., 4,265,450, Cl. 273-73.00G.

Bayless, Mark S. Disc shaped projectile having notched portion. 4,265,454, Cl. 273-427.000.

BBC Brown Boveri & Company Limited: *See*—
Eggmann, Jean, 4,265,594, Cl. 416-193.00A.
Eidinger, Adolf; Flossel, Carl D.; Koppl, Georg; Ulrich, Alfred; and Schibli, Hans, 4,266,258, Cl. 361-58.000.

Beasley, Glenn H.; Chong, Berni P.; Ford, Warren T.; and Neely, James W., to Rohm and Haas Company. Ion exchange material prepared from partially pyrolyzed macroporous polymer particles. 4,265,768, Cl. 210-682.000.

Beaver, Robert H.: *See*—
McDonald, Charles J.; and Beaver, Robert H., 4,265,835, Cl. 564-204.000.

Beck, Gunther: *See*—
Doring, Fritz; Beck, Gunther; and Dankert, Gerhard, 4,266,059, Cl. 544-334.000.

Beck, Jean-Paul: *See*—
Bauer, Daniel; Beck, Jean-Paul; Boiteau, Claude; and Garoche, Didier, 4,266,116, Cl. 219-274.000.

Becker, Carl, to Ciba-Geigy Corporation. Aqueous dyestuff preparations of water-insoluble or sparingly water-soluble dyes. 4,265,631, Cl. 8-471.000.

Beckley, Don A., to Hitco. Composite electrodes. 4,265,727, Cl. 204-242.000.

Beckman Instruments, Inc.: *See*—
Frankland, Roger A., 4,266,224, Cl. 340-773.000.

Becton Dickinson & Company: *See*—
Abel, Kenneth; and Buck, Robert T., 4,265,760, Cl. 210-282.000.

Bedard, Brian E.; and Boman, Bertho K., to Motorola, Inc. Stripline filter device. 4,266,206, Cl. 333-204.000.

Bedell, John R., to Allied Chemical Corporation. Foundry molds containing glassy metal alloy filaments. 4,265,665, Cl. 106-38.900.

Beiersdorf Aktiengesellschaft: *See—*
Cohnen, Erich, 4,265,903, Cl. 424-282.000.

Belfatto, Robert V., to Harris Corporation. Method and apparatus using first and second parallel channels, one of which includes an inverter, for producing an electrical signal with an improved on/off ratio. 4,266,201, Cl. 332-9.00R.

Bell & Howell Company: *See—*
Elswood, Ebbert L.; and Reynolds, Wyndall O., 4,266,287, Cl. 367-185.000.
Levy, Avner; and Karsh, Irving, 4,265,386, Cl. 226-190.000.

Bell Telephone Laboratories, Incorporated: *See—*
Bonner, William A.; and Van Uitert, LeGrand G., 4,265,980, Cl. 428-697.000.
Boros, Victor B.; and Ebert, Harry K., Jr., 4,266,182, Cl. 323-267.000.
Cannon, Thomas B.; Dalley, James E.; and George, Andrew S., 4,266,097, Cl. 179-2.00A.
Chai, Soo Young; Sautter, Helmuth O.; and Sherbon, Wallace E., 4,266,249, Cl. 358-260.000.

Bemis, John D.; and Goff, Willie, Jr., to International Business Machines Corporation. Ribbon drive mechanism for high speed printer. 4,265,552, Cl. 400-236.000.

Bena, Gilbert A., to Barbara S.A. Building device. 4,265,961, Cl. 428-253.000.

Benasutti, John E.: *See—*
Wellington, Charles K.; Dakss, Mark L.; and Benasutti, John E., 4,265,514, Cl. 350-96.210.

Bendix Corporation, The: *See—*
Barman, Alan W., 4,266,274, Cl. 364-431.000.
Bourdon, Normand C., 4,265,505, Cl. 339-99.00R.
Hanisko, John C. P., 4,265,210, Cl. 123-490.000.
Marchak, Roman O., 4,266,275, Cl. 364-431.000.
Shutt, Paul B., 4,265,491, Cl. 303-6.00C.

Bengston, Merle A.: *See—*
Reed, Robert D.; and Bengston, Merle A., 4,265,611, Cl. 431-3.000.

Benhase, George J., Jr., to General Electric Company. Apparatus for lubrication of a differential bearing mounted between concentric shafts. 4,265,334, Cl. 184-6.110.

Benner-Nawman, Inc.: *See—*
Nawman, Rollie B., 4,265,499, Cl. 312-100.000.

Bennett, Robert J.: *See—*
Oshel, J. Bryan; and Bennett, Robert J., 4,265,588, Cl. 414-786.000.

Bennett, Thomas H.: *See—*
Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., 4,266,270, Cl. 364-200.000.

Benton, Reuben P.: *See—*
Schreyer, Kenneth D.; Leverentz, Earl T.; Nusz, Thomas R.; and Benton, Reuben P., 4,265,181, Cl. 105-150.000.

Berberick, Norbert J., Jr.: *See—*
Sperti, George S.; and Berberick, Norbert J., Jr., 4,265,926, Cl. 427-2.000.

Beretta, Pier C., to Fabbrica D'Armi Pietro Beretta S.p.A. Double-barrel shotgun. 4,265,044, Cl. 42-41.000.

Beretta, Pier C., to Fabbrica D'Armi Pietro Beretta S.p.A. Means for controlling rapid-fire in an automatic weapon. 4,265,161, Cl. 89-129.00B.

Berger, Ernst; and Herwegh, Norbert, to Datwyler AG.Schweiz, Kabel-, Gummi- und Kunststoffwerke. Solar collector element. 4,265,225, Cl. 126-445.000.

Berglund, David E., to Minnesota Mining and Manufacturing Company. Paper sheet stacker. 4,265,444, Cl. 271-207.000.

Berglund, Neil C.; and Kempke, William G., to International Business Machines Corporation. Transient microcode block check word generation control circuitry. 4,266,272, Cl. 364-200.000.

Bergman, Ulf: *See—*
Weigl, Walter; Bergman, Ulf; and Baum, Lennart, 4,266,133, Cl. 250-402.000.

Bergmann, Gunther, to Licentia Patent-Verwaltungs-G.m.b.H. Circuit arrangement for operating electromechanical switching devices. 4,266,150, Cl. 307-268.000.

Bergwerksverband GmbH: *See—*
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,265,767, Cl. 210-662.000.
Lennartz, Rudiger; and Romey, Ingo, 4,265,771, Cl. 210-769.000.

Berney, Jean-Claude, to Jean-Claude Berney SA. Electronic timepiece. 4,266,288, Cl. 368-28.000.

Bernhardt, Floyd V. Golf putter. 4,265,451, Cl. 273-167.00G.

Bernstein, Seymour; and Poletto, John F., to American Cyanamid Company. Halogenated-naphthalenetriyltris(sulfonylimino)-aryl disulfonic acids and salts thereof. 4,265,829, Cl. 260-510.000.

Bernstein, Seymour: *See—*
Conrow, Ransom B.; and Bernstein, Seymour, 4,265,830, Cl. 260-510.000.
Conrow, Ransom B.; and Bernstein, Seymour, 4,265,908, Cl. 424-315.000.
Conrow, Ransom B.; and Bernstein, Seymour, 4,266,077, Cl. 562-427.000.

Berthelot, Daniel, to S.A. Martin. Automatic lengthwise receiver for stacking panels of different form and size and method of use. 4,265,443, Cl. 271-182.000.

Berton, Marcello; and Ceccarelli, Pietro, to Ing. C. Olivetti & C., S.p.A. Metal furniture in sectional units. 4,265,500, Cl. 312-107.000.

Bertotti, Franco; and Foroni, Mario, to SGS ATES Componenti Elettronici S.p.A. I-C Wafer incorporating junction-type field-effect transistor. 4,266,233, Cl. 357-22.000.

Best, Albert B., to Kanthal Corporation, The. Hairpin-type electric resistance heating element. 4,266,119, Cl. 219-541.000.

Bestenreiner, Friedrich: *See—*
Simm, Walter; and Bestenreiner, Friedrich, 4,265,996, Cl. 430-119.000.

Bestenreiner, Frledrich; and Birgmeir, Klaus, to AGFA-Gevaert, A.G. Photographic camera with automatic focussing system. 4,265,528, Cl. 354-195.000.

Betherb, Inc.: *See—*
Levine, Beth, 4,265,032, Cl. 36-11.500.

Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, to Siemens Aktiengesellschaft. Resonator formed in integrated MOS technology utilizing switched capacitors. 4,266,205, Cl. 333-165.000.

Beynon, Dell R., Jr.: *See—*
Johnson, Earl L.; and Beynon, Dell R., Jr., 4,265,052, Cl. 49-63.000.

Bianco, Andrew S., to Huffy Corporation. Reversible closure-spout assembly. 4,265,378, Cl. 222-539.000.

Biansan, Jean-Paul: *See—*
Saudreau, Lucien; and Biansan, Jean-Paul, 4,266,203, Cl. 333-21.00A.

Bickel, Hans: *See—*
Kocsis, Karoly; Peter, Heinrich; and Bickel, Hans, 4,265,892, Cl. 424-246.000.

Bielefeldt, Ernst-August, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Method and apparatus for separating particles from a flow by centrifugal force. 4,265,640, Cl. 55-1.000.

Bilge, Umit: *See—*
Dubetz, Martin W.; and Bilge, Umit, 4,265,119, Cl. 73-588.000.

Billgren, Per A.; and Karlsson, Stig A., to Uddeholms Aktiebolag AB. Method of separating a solid and a liquid phase of a mass. 4,265,700, Cl. 159-47.00R.

Binks Manufacturing Company: *See—*
Haase, Martin O., Jr., 4,266,262, Cl. 361-228.000.

Birchall, James D.: *See—*
Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., 4,265,406, Cl. 241-16.000.

Birgmeir, Klaus: *See—*
Bestenreiner, Frledrich; and Birgmeir, Klaus, 4,265,528, Cl. 354-195.000.

Birkenstock, Udo; Lachmann, Burkhard; Metten, Josef; and Schmidt, Herbert, to Bayer Aktiengesellschaft. Process for the catalytic hydrogenation of nitrobenzene. 4,265,834, Cl. 564-421.000.

Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, to Agence Nationale de Val orisation de la Recherche (ANVAR). Dipyrido [4,3-b] [3,4-f] indoles and process for obtaining them. 4,266,060, Cl. 546-64.000.

Bishara, Jeries I.: *See—*
Suchanski, Mary R.; and Bishara, Jeries I., 4,265,728, Cl. 204-290.00F.

Black & Decker Inc.: *See—*
Schrock, Martin O.; Howard, Thomas J., Jr.; and Jinkins, Danny R., 4,265,018, Cl. 30-276.000.
Wagster, Robert P.; and Pizzuto, Russell, 4,265,436, Cl. 269-274.000.

Blackburn, Charles M.: *See—*
Reuter, Daniel L.; Reid, Philip L.; Blackburn, Charles M.; and Heffner, Clifton W., 4,265,074, Cl. 53-551.000.

Blaese, Herbert R., to Avanti Research & Development, Inc. Mounting for mobile communications antenna. 4,266,227, Cl. 343-715.000.

Blair, Gerald E.; Merry, J. Bradford; and Wylot, James M., to Eastman Kodak Company. Acousto-optic device and method using tellurite glass composition. 4,265,517, Cl. 350-358.000.

Blair, James E.; and Davis, Lois T., to Sybron Corporation. Process for decolorizing pulp and paper mill wastewater and microorganism capable of same. 4,266,035, Cl. 435-253.000.

Blank, Heinz U.: *See—*
Werner, Friedrich; and Blank, Heinz U., 4,265,833, Cl. 564-435.000.

Blaugher, Richard D.; and Hopkins, Richard H., to Westinghouse Electric Corp. Development of grain-oriented iron sheet for electrical apparatus. 4,265,683, Cl. 148-120.000.

Blodee, Leif; Knapp, Robert L.; and Oppenhuizen, Simon W., to American Seating Company. Panel wall systems with modular component build-up. 4,265,502, Cl. 312-109.000.

Blom, Cornelis W.; and van Keulen, Jacobus M., to Hoeka Sierpleisters En Muurverven B.V. Method for the treatment of wood by a wood preserving agent, as well as wood treated with such a wood preservative agent. 4,265,958, Cl. 428-166.000.

Blome, James C., to Swiss Aluminium Ltd. Molten metal filter. 4,265,659, Cl. 75-93.00R.

Bock, Erich: *See—*
Braun, Erwin; Bock, Erich; Handschuch, Karl; and Schuller, Edmund, 4,265,083, Cl. 57-263.000.

Bocsanczy, Janos; Offermann, Ludwig; and Stalherm, Dieter, to Carl Still, Firma. Method and apparatus for separating gases and solids during the carbonization of coal. 4,265,709, Cl. 201-4.000.

Bodas, Janos: *See—*
Heller, Laszlo; Forgo, Laszlo; Papp, Istvan; Bodas, Janos; Kovacs, Gyula; and Laszlo, Karoly, 4,265,275, Cl. 138-38.000.

Bodine, Albert G. Orbiting mass oscillator with oil film cushioned bearings. 4,265,129, Cl. 74-61.000.

Bodo, Gerhard: *See—*
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, 4,266,024, Cl. 435-68.000.

Boehringer Ingelheim GmbH: *See—*
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, 4,266,024, Cl. 435-68.000.

Boeing Company, The: *See—*
Harp, Marlyn F.; Diepenbrock, James L., Jr.; and Nelsen, M. Dean, 4,265,955, Cl. 428-116.000.
McTigue, Larry D.; and Pinson, George T., 4,266,173, Cl. 318-585.000.
Mercer, Paul W.; and Stock, Howard P., 4,265,687, Cl. 156-73.100.
Watts, John, 4,265,417, Cl. 244-50.000.

Bogdan, Ronald F.: *See—*
Frost, Stuart J.; Riley, Edward J.; and Bogdan, Ronald F., 4,265,023, Cl. 33-174.00C.

Boiteau, Claude: *See—*
Bauer, Daniel; Beck, Jean-Paul; Boiteau, Claude; and Garoche, Didier, 4,266,116, Cl. 219-274.000.

Bolen, Charles E.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,265,563, Cl. 404-75.000.

Boll, Richard, to Vacuumschmelze GmbH. Magnetic core comprised of low-retentivity amorphous alloy. 4,265,684, Cl. 148-121.000.

Bollinger, Wayne A.; and Guay, Roger G., to Monsanto Company. Permeator apparatus. 4,265,763, Cl. 210-323.200.

Boman, Bertho K.: *See—*
Bedard, Brian E.; and Boman, Bertho K., 4,266,206, Cl. 333-204.000.

Bon Aqua, Inc.: *See—*
Menold, Herman E., 4,265,754, Cl. 210-222.000.
Zimmerman, George M., 4,265,755, Cl. 210-222.000.
Zimmerman, George M., Sr.; and Menold, Herman E., 4,265,746, Cl. 210-695.000.

Bondgrade Limited: *See—*
Taylor, George O., 4,265,284, Cl. 144-287.000.

Bonetti, Ralph A., to Advanced Products Development Corporation. Controlled irrigation system for a predetermined area. 4,265,403, Cl. 239-66.000.

Bonjouklian, Rosanne, to Eli Lilly and Company. Process for 3-iodomethyl cephalosporins. 4,266,049, Cl. 544-16.000.

Bonnemann, Helmut; and Samson, Marc, to Studiengesellschaft Kohle mbH. Process for preparation of 2-vinylpyridine from acetylene and acrylonitrile. 4,266,061, Cl. 546-253.000.

Bonner, William A.; and Van Uitert, LeGrand G., to Bell Telephone Laboratories, Incorporated. Technique for the growth of magnetic garnet compositions. 4,265,980, Cl. 428-697.000.

Bonsen, Pieter; Wong, Patrick S.; and Theeuwes, Felix, to Alza Corporation. Method of delivering drug with aid of effervescent activity generated in environment of use. 4,265,874, Cl. 424-15.000.

Borca, Giancarlo C.: *See—*
Donnis, Gian P.; and Borca, Giancarlo C., 4,265,550, Cl. 400-196.100.

Bordas, Robert; Lacharmoise, Paul; and Moteruil, Gilbert. Closet for the conservation of wine in bottles or other foodstuffs. 4,265,097, Cl. 62-438.000.

Borenstein, David E., to Phillips Petroleum Company. Method for producing multifilament thermoplastic yarn having latent crimp. 4,265,849, Cl. 264-168.000.

Boretos, John W.; and Iriguchi, Norio, to United States of America, Health, Education and Welfare. Method of making unitized three leaflet heart valve. 4,265,694, Cl. 156-242.000.

Borg-Warner Corporation: *See—*
Harnish, James R., 4,265,299, Cl. 165-12.000.
Newton, Alwin B., 4,265,093, Cl. 62-198.000.
Smirl, Richard L., 4,265,135, Cl. 74-336.00B.
Sumner, Lee E., Jr.; Cooper, Kenneth W.; and Abendschein, Frederic H., 4,265,298, Cl. 165-2.000.

Bornfleth, Ulrich: *See—*
Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, 4,265,254, Cl. 131-281.000.

Boros, Victor B.; and Ebert, Harry K., Jr., to Bell Telephone Laboratories, Incorporated. Common control with frequency drift compensation for a plurality of switching regulators. 4,266,182, Cl. 323-267.000.

Bose Products, Inc.: *See—*
Barker, Charles R., III, 4,266,092, Cl. 179-1.00E.

Boteler, William C., to Slater Electric Inc. Moisture resistant electrical outlet box. 4,265,365, Cl. 220-3.300.

Bourdois, Claude; Decolle, Maurice; Ferard, Michel; and Marchal, Paul, to Commissariat a l'Energie Atomique. Process for the pneumatic transfer of a pulverulent material. 4,265,572, Cl. 406-114.000.

Bourdon, Normand C., to Bendix Corporation, The. Electrical connector. 4,265,505, Cl. 339-99.00R.

Bowman, Jeffrey M., to International Telephone and Telegraph Corporation. Mechanical force multiplier. 4,265,141, Cl. 74-516.000.

Bowthorpe-Hellermann Limited: *See—*
McCormick, Mathew, 4,265,420, Cl. 248-56.000.

Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N. Thermal-mine oil production method. 4,265,485, Cl. 299-2.000.

Boy, Juergen: *See—*
Lange, Gerhard; and Boy, Juergen, 4,266,260, Cl. 361-120.000.

Boyer, Stanton L.; and Nicholson, Denzel A., to Procter & Gamble Company, The. Detergent compositions containing an aluminosilicate detergency builder and an unsaturated fatty acid soap. 4,265,777, Cl. 252-113.000.

Brachthauser, Kunibert; and Herchenbach, Horst, to Klockner-Humboldt-Deutz AG. Method and apparatus for the thermal treatment of fine-grained material with hot gases. 4,265,670, Cl. 106-100.000.

Bracilovic, Dragomir: *See—*
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, 4,265,790, Cl. 252-532.000.

Braden, Arthur B.: *See—*
Kuwik, John J.; Braden, Arthur B.; Taylor, Samuel K.; and Covic, John, 4,266,135, Cl. 250-445.00T.

Brand, Stanley W. Apparatus and method for de-actuating swimming pool equipment. 4,265,598, Cl. 417-40.000.

Braner Enterprises, Inc.: *See—*
Lopez, Esteban; and Matsunaga, Douglas, 4,265,155, Cl. 83-479.000.

Branner-Jorgensen, Sven, to Novo Industri A/S. Enzyme immobilization. 4,266,029, Cl. 435-176.000.

Branson Ultrasonics Corporation: *See—*
Summo, Arthur M., 4,265,842, Cl. 264-23.000.

Braun, Bernd, to Intermedicat GmbH. Anti-thrombogenic retentive catheter. 4,265,928, Cl. 427-2.000.

Braun, Dennis H.; and Spink, Robert W., to Eaton Corp. Secondary thyristor control for AC wound rotor motors. 4,266,175, Cl. 318-758.000.

Braun, Erwin; Bock, Erich; Handschuch, Karl; and Schuller, Edmund, to Schubert & Salzer. Process and apparatus for individual piecing up of single open end spinning apparatus. 4,265,083, Cl. 57-263.000.

Breithaupt, David W., to RCA Corporation. Remote control TV subcarrier phase shifter system. 4,266,197, Cl. 328-55.000.

Brenholt, David L., to Donaldson Company, Inc. Filter assembly for use in the filtration of medical treatment liquids. 4,265,762, Cl. 210-321.100.

Breskman, Joseph S. Composition and method for treatment of hemorrhoids. 4,265,887, Cl. 424-201.000.

Breslau, Barry R., to Rohm and Haas Company. Catalytic process utilizing hollow fiber membranes. 4,266,026, Cl. 435-99.000.

Breslow, David S., to Hercules Incorporated. Disproportionation of rosin in the presence of dithiin derivatives. 4,265,807, Cl. 260-97.500.

Breveteam S.A.: *See—*
Colijn, Johannes J. V., 4,265,956, Cl. 428-134.000.

Bridgestone Tire Company Limited: *See—*
Abe, Masaru; and Sakai, Yoshihiro, 4,265,287, Cl. 152-209.00R.
Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, 4,265,288, Cl. 152-209.00R.

Bristol, Robert G., to Emhart Industries, Inc. Detection means for multiple capacitive sensing devices. 4,266,144, Cl. 307-116.000.

Britton, Michael W.; Martin, William L.; McDaniel, Jack D.; and Wahl, Harry A., to Continental Oil Company. Fracture preheat oil recovery process. 4,265,310, Cl. 166-259.000.

Brooks, Jackson R., to ABC Extrusion Company. Display signs. 4,265,039, Cl. 40-603.000.

Brown Oil Tools, Inc.: *See—*
Baugh, Benton F., 4,265,304, Cl. 166-77.000.

Brown, Sanford W.: *See—*
Pelser, Robert J.; Pelser, Lewis M.; Hill, Robert W.; Brown, Sanford W.; and Fischer, Robert G., 4,265,680, Cl. 148-103.000.

Brown, Vincent B.; and Kozel, Charles A., to Methode Electronics, Inc. Apparatus for driving pins into a printed circuit board and the like. 4,265,013, Cl. 29-739.000.

Brush, Charles K.; and Weinstock, Joseph, to SmithKline Corporation. 6-Lower alkyl-7,8-dihydroxy-1-phenyl-2,3,4,5-tetrahydro-1H-3-benzazepines. 4,265,889, Cl. 424-244.000.

Buchmayer, Ludwig, to Wild Heerbrugg Aktiengesellschaft. Instrument stand. 4,265,421, Cl. 248-188.000.

Buck, Otto: *See—*
Morris, Winfred L.; Inman, Richard V.; and Buck, Otto, 4,265,120, Cl. 73-600.000.

Buck, Robert T.: *See—*
Abel, Kenneth; and Buck, Robert T., 4,265,760, Cl. 210-282.000.

Bucker, Fritz O.; and Lambrecht, Henning F. W. M. A., to Hermann Screens Manufacturing Company (Proprietary) Limited. Screen element. 4,265,742, Cl. 209-399.000.

Bucy, Raymond W., Jr.; Gallardo, Vicente C., Jr.; Hollett, Ronald C.; and Young, Eric A., to General Electric Company. Turbomachinery blade retaining assembly. 4,265,595, Cl. 416-220.00R.

Budzinski, John C., to Du Pont de Nemours, E. I., and Company. Process for preparing substituted pyridinyloxy ether intermediate. 4,266,063, Cl. 546-302.000.

Buehl, Arnold L.: *See—*
Pardue, Ray L.; and Buehl, Arnold L., 4,266,117, Cl. 219-343.000.

Buescher, Theodore H. Flower pot with controlled moisture. 4,265,050, Cl. 47-79.000.

Buhler, Marcel; Olofsson, Mats; and Fosseux, Pierre-Yves, to Societe d'Assistance Technique pour Produits Nestle S.A. Whey protein recovery. 4,265,924, Cl. 426-582.000.

Buhr, Gerhard; and Ruckert, Hans, to Hoechst Aktiengesellschaft. Light-sensitive mixture. 4,266,001, Cl. 430-192.000.

Builders Concrete, Inc.: *See*—
Sluys, Wesley W., 4,265,193, Cl. 114-267.000.
Burford, Billy R., to Portec, Inc. Variable follower rest for a lathe. 4,265,150, Cl. 82-17.000.
Burgdorf, Jochen, to ITT Industries, Inc. Pressure control valve for a vehicle hydraulic brake system. 4,265,490, Cl. 303-6.00C.
Burke, Courtney L., to Eisner, Albert M., a part interest. Synthetic fuel formulation and process for producing the same. 4,265,638, Cl. 44-56.000.
Burkhardt, Gottfried. Dual pitch carriage drive mechanism. 4,265,555, Cl. 400-320.000.
Burkhart, Gerald W., to Arco Polymers, Inc. Lightweight frothed gypsum structural units. 4,265,964, Cl. 428-306.000.
Burlington Industries, Inc.: *See*—
May, Robert E., 4,265,962, Cl. 428-287.000.
Burnett, Bradley W.; and Fish, Leonard A. Display panel interface circuit. 4,266,225, Cl. 340-799.000.
Burniski, Edward W. Automatic self-leveling instrument mount. 4,265,027, Cl. 33-291.000.
Burns, Edgar, to International Telephone and Telegraph Corporation. Contact retention assembly. 4,265,504, Cl. 339-97.00R.
Burns, Richard D.; and Wesseldyk, Albert J., to General Electric Company. Take-up apparatus for electrical phase insulator fabricating equipment. 4,265,413, Cl. 242-75.300.
Burroughs Corporation: *See*—
McMillan, Andrew H.; and Chambors, John M., 4,265,446, Cl. 271-305.000.
Mowry, William H., Jr.; McElligott, Michael J.; Tkalenko, Victor J., Jr.; and Baran, Joseph, 4,265,469, Cl. 283-8.00B.
Busse, Oswald; and Klesper, Hugo, to Passavant-Werke Michelbacher Huette. Apparatus for conveying and dewatering wet coarse screenings debris. 4,265,171, Cl. 100-118.000.
Busse, Oswald; and Klesper, Hugo, to Passavant-Werke Michelbacher Huette. Chamber filter press. 4,265,749, Cl. 210-138.000.
Butler, Louis; and Ogden, Paul H., to Minnesota Mining and Manufacturing Company. Light sensitive materials with fluorinated polymer antistats. 4,266,015, Cl. 430-527.000.
Byrne, Geoffry A.; and Aylott, Ross I., to Inveresk Research International. Controlled release suppositories. 4,265,875, Cl. 424-19.000.
C. E. Equipment Co., Inc.: *See*—
Tatum, Joe F., 4,265,725, Cl. 204-196.000.
C. L. Frost & Son, Inc.: *See*—
Van Der Meulen, Douglas J.; and Weis, Siegfried K., 4,265,133, Cl. 74-194.000.
C. Plath KG: *See*—
Hallbauer, Hans-Dieter; Gast, Fritz G. H.; Hoenow, Klaus-Werner; and Rahn, Armin, 4,265,109, Cl. 73-862.230.
Caille, Charles: *See*—
Baumann, Heinz; and Caille, Charles, 4,265,277, Cl. 139-1.00R.
Cain, Donald E.; and Gutman, Nathan, to Caterpillar Tractor Co. Governor control having dual power settings. 4,265,203, Cl. 123-367.000.
Caines, Ronald S., to Dow Chemical Company, The. Vermicular expanded graphite composite material. 4,265,952, Cl. 428-36.000.
Cala, Francis R.: *See*—
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, 4,265,790, Cl. 252-532.000.
Calhoun Yarn Services, Inc.: *See*—
Freeman, Danny M.; Knight, Milton M., Jr.; Payton, Clarence M.; Simpson, Robert S.; and Smith, Howard B., Jr., 4,264,993, Cl. 8-149.000.
Calve, Louis: *See*—
Shen, Kuo-Cheng; Fung, David P. C.; and Calve, Louis, 4,265,846, Cl. 264-109.000.
Cambridge Analyzing Instruments Ltd.: *See*—
Ware, Rowland M., 4,265,661, Cl. 75-135.000.
Cameron Iron Works, Inc.: *See*—
Danner, Bailey L., 4,265,470, Cl. 285-39.000.
Jones, Marvin R., 4,265,424, Cl. 251-1.00A.
Cameron, Mable R. Composition and process for treating uterine prolapse. 4,265,883, Cl. 424-154.000.
Campbell, Malcolm D., to Commonwealth Scientific and Industrial Research Organization. Impact-resisting composites. 4,265,981, Cl. 428-591.000.
Campbell, Michael F.; Fiala, Richard J.; Wideman, James D.; and Rasche, John F., to A. E. Staley Manufacturing Company. Bland vegetable protein product and method of manufacture. 4,265,925, Cl. 426-641.000.
Campbell, Robert A. Distance measuring instrument. 4,265,021, Cl. 33-143.00R.
Camras, Marvin, to IIT Research Institute. Capstan drive system for driving tape record media, and having internally mounted transducer head means. 4,266,255, Cl. 360-90.000.
Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defense: *See*—
Cornish, William D., 4,266,208, Cl. 333-218.000.
Canadian General Electric Company Limited: *See*—
Dick, David C., 4,265,325, Cl. 175-410.000.
Canadian Patents and Development Limited: *See*—
Shen, Kuo-Cheng; Fung, David P. C.; and Calve, Louis, 4,265,846, Cl. 264-109.000.
Candor, James T. Method of making electret means. 4,266,088, Cl. 136-206.000.
Cannon, Thomas B.; Dalley, James E.; and George, Andrew S., to Bell Telephone Laboratories, Incorporated. Device control system. 4,266,097, Cl. 179-2.00A.
Canon Kabushiki Kaisha: *See*—
Hasegawa, Tetsuo; Kato, Shigeo; and Miyashita, Takeshi, 4,265,994, Cl. 430-107.000.
Hirai, Yutaka; Komatsu, Toshiyuki; Nakagawa, Katsumi; Misumi, Teruo; and Fukuda, Tadaji, 4,265,991, Cl. 430-64.000.
Matsumoto, Kazuya; Matsumura, Susumu; Nose, Noriyuki; and Okuno, Youichi, 4,265,522, Cl. 354-53.000.
Matsumura, Isao, 4,265,518, Cl. 351-7.000.
Ohara, Katsunobu; and Yoshida, Nobutoshi, 4,265,531, Cl. 355-3.0SC.
Shinohara, Yukimasa; and Ichihashi, Hiroo, 4,265,198, Cl. 118-695.000.
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, 4,265,197, Cl. 118-657.000.
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, 4,265,521, Cl. 354-23.00D.
Yokota, Hideo, 4,265,529, Cl. 354-224.000.
Capel, Denis, to Johnson Controls, Inc. Switch mechanism with independent toggle actuators. 4,266,104, Cl. 200-18.000.
Cappel, Klaus L., to Wyle Laboratories. Motion limiting apparatus. 4,265,123, Cl. 73-663.000.
Carbone, Giovanni M. Articulated flippers for hands and feet, with a surface variable during swimming. 4,264,994, Cl. 9-309.000.
Card-O-Matic Pty. Limited: *See*—
Stanley, Louis; and Sinclair, Robert E., 4,266,102, Cl. 179-90.0CS.
Carl Hurth Maschinen-und Zahnradfabrik: *See*—
Eichinger, Johann, 4,265,625, Cl. 440-53.000.
Erhardt, Manfred; and Stoeckl, Max, 4,265,575, Cl. 409-8.000.
Carl Still, Firma: *See*—
Bocsanczy, Janos; Offermann, Ludwig; and Stalherm, Dieter, 4,265,709, Cl. 201-4.000.
Carle, Udo: *See*—
Vural, Gulertan; Carle, Udo; and Lenkeit, Manfred, 4,265,130, Cl. 74-87.000.
Carlini, Gerardo P. V. Centrifugal fan. 4,265,592, Cl. 415-157.000.
Carosi, Franco; and Reggiani, Tito, to Voxson S.p.A. Systems for the handling and distributing of data. 4,266,284, Cl. 365-189.000.
Carroll, David W.: *See*—
McCreary, William J.; and Carroll, David W., 4,265,982, Cl. 428-608.000.
Carruth, Grant F.; Coffey, Fred S.; and Fulmer, Ray M., to Owens-Corning Fiberglas Corporation. Apparatus for removing long strands from chopped strand material. 4,265,151, Cl. 83-102.000.
Carson, William W.; and Rolfe, Norman F., to Waters Associates, Inc. Electrical zeroing of light beam. 4,265,536, Cl. 356-130.000.
Cartwright, Cyril A.; and Peleckis, Anthony J., Jr., to Warner-Lambert Company. Method and apparatus for forming a razor blade edge. 4,265,055, Cl. 51-80.00B.
Cassella Aktiengesellschaft: *See*—
Ribka, Joachim; Tappe, Horst; Roth, Kurt; and Weyer, Hans-Jurgen, 4,265,629, Cl. 8-449.000.
Cassimally, Khalil A. I. Incision closing method. 4,265,226, Cl. 128-1.00R.
Cassinelli, Giuseppe: *See*—
Bargiotti, Alberto; Cassinelli, Giuseppe; Arcamone, Federico; and DiMarco, Aurelio, 4,265,885, Cl. 424-180.000.
Caswell, Bruce F., to Arcanum Corporation. Preparation of dicalcium phosphate. 4,265,867, Cl. 423-309.000.
Caterpillar Mitsubishi Ltd.: *See*—
Sato, Takayuki, 4,265,138, Cl. 74-481.000.
Caterpillar Tractor Co.: *See*—
Cain, Donald E.; and Gutman, Nathan, 4,265,203, Cl. 123-367.000.
Engel, William K.; and Miller, Dean E., 4,265,165, Cl. 91-490.000.
Fee, David M., 4,265,316, Cl. 169-19.000.
Livesay, Richard E., 4,265,084, Cl. 59-7.000.
Logemann, Larry R., 4,265,139, Cl. 74-485.000.
Muller, Thomas P., 4,265,063, Cl. 52-115.000.
Ostrowski, Richard C., 4,265,296, Cl. 164-165.000.
Peterson, Wayne A., 4,265,273, Cl. 137-625.680.
Cavanagh, Eduardo: *See*—
Cook, Billy D.; and Cavanagh, Eduardo, 4,265,122, Cl. 73-627.000.
CBS Inc.: *See*—
Bauer, Benjamin B., 4,266,093, Cl. 179-1.0GQ.
Ceccarelli, Pietro: *See*—
Berton, Marcello; and Ceccarelli, Pietro, 4,265,500, Cl. 312-107.000.
Celanese Corporation: *See*—
Choe, Eui W., 4,265,802, Cl. 260-40.00P.
Nowak, Michael T., 4,265,976, Cl. 428-486.000.
Yates, Derek N.; and Presta, John C., 4,265,951, Cl. 428-36.000.
Centronics Data Computer Corp.: *See*—
Cote, Henry L., 4,265,549, Cl. 400-124.000.
Chai, Soo Young; Sautter, Helmuth O.; and Sherbon, Wallace E., to Bell Telephone Laboratories, Incorporated. Digital encoder for facsimile transmission. 4,266,249, Cl. 358-260.000.
Chalk, Alan J.; and Magennis, Steven A., to Givaudan Corporation. Process for preparing a myrcenol, cis-ocimenol mixture substantially free of trans-ocimenol. 4,266,087, Cl. 568-875.000.
Chambors, John M.: *See*—
McMillan, Andrew H.; and Chambors, John M., 4,265,446, Cl. 271-305.000.

Chamoff, Martin E.; Miller, Irving L.; and Thorson, Donald L. Reconfigurable cluster of data-entry terminals. 4,266,271, Cl. 364-200.000.
Champion International Corporation: *See*—
Faller, Rudolph A.; and Tolaas, William M., 4,265,390, Cl. 229-30.000.
Schillinger, Joseph F.; and Nielsen, Arthur R., 4,265,366, Cl. 221-33.000.
Chan, Ka-Kong; and Pawson, Beverly A., to Hoffmann-La Roche Inc. Fluorinated aromatic polyenes. 4,266,073, Cl. 560-55.000.
Chancler, Francis X., to Rohm and Haas Company. Polyurethane foam articles coated with a crushed foam and method of producing. 4,265,965, Cl. 428-315.000.
Chang, Cherng. Mass spectrometer for chemical ionization and electron impact ionization operation. 4,266,127, Cl. 250-288.000.
Chang, Clarence D.: *See*—
Audeh, Costandi A.; Chang, Clarence D.; and Lang, William H., 4,265,735, Cl. 208-234.000.
Charles Stark Draper Laboratory, Inc., The: *See*—
Fulton, Donald E., 4,266,176, Cl. 318-801.000.
Charlesworth, Frank D. W.; Dover, William D.; and Taylor, Kenneth A., to Dover & Partners Limited. Probes and apparatus for and methods of measuring crack depths. 4,266,185, Cl. 324-64.000.
Chattem Inc.: *See*—
Pratt, Charles E., 4,265,975, Cl. 428-480.000.
Chemie Linz Aktiengesellschaft: *See*—
Saischek, Gerald; Wegleitner, Karlheinz; Heu, Ferdinand; and Wohlmuth, Roman, 4,265,664, Cl. 106-18.130.
Chemische Werke Huls Aktiengesellschaft: *See*—
Grundmann, Raban; and Maahs, Gunther, 4,265,806, Cl. 260-45.8NT.
Chen, Sow-Mei L.: *See*—
Grudzinskas, Charles V.; Wissner, Allan; and Chen, Sow-Mei L., 4,265,904, Cl. 424-285.000.
Cheng, Dah Y., to International Power Technology, Inc. Method and apparatus for distillation. 4,265,713, Cl. 203-10.000.
Cheng, Lung; and Cross, Warren G., to United States of America, Interior. Portable airborne droplet impactor sampler and method. 4,265,107, Cl. 73-28.000.
Chenot, Charles F., to GTE Products Corporation. Strontium-calcium fluorapatite phosphors and fluorescent lamp containing the same. 4,266,160, Cl. 313-486.000.
Chenot, Charles F.: *See*—
Kasenga, Anthony F.; and Chenot, Charles F., 4,266,161, Cl. 313-487.000.
Chermann, Jean-Claude: *See*—
Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, 4,266,060, Cl. 546-64.000.
Cherry Semiconductor Corporation: *See*—
Kardash, John J., 4,266,218, Cl. 340-628.000.
Chevron Research Company: *See*—
deVries, Louis; and King, John M., 4,265,773, Cl. 252-46.400.
Singer, Malcolm S., 4,266,033, Cl. 435-252.000.
Chicago Pneumatic Tool Company: *See*—
Wallace, William K.; and Giardino, David A., 4,265,108, Cl. 73-862.210.
Wallace, William K.; and Giardino, David A., 4,265,265, Cl. 137-56.000.
Chiron, Bernard; Foure, Jean-Louis; and de Vecchis, Michel, to Societe Lignes Telegraphiques et Telephoniques. Optoelectronic converting termination for optical-fibre transmission cable. 4,265,512, Cl. 350-96.200.
Chisholm, William M., to Western Electric Company, Inc. Intermediate-web held terminal pins. 4,265,508, Cl. 339-221.00R.
Chiu, Kh: *See*—
Hobrecht, Stephen W.; Skawinski, Henry M.; Chiu, Kh; and Hee, Wong, 4,266,254, Cl. 360-62.000.
Chiu, Tony T.; Wright, Bruce M.; Strasser, Jurgen H.; and Harper, Bruce M., to FMC Corporation. Steam table tray spacing apparatus. 4,265,168, Cl. 99-448.000.
Chiyoda, Tsuneyuki; and Ohtani, Masami, to Diesel Kiki Co., Ltd. Refrigerant compressor for air conditioning of vehicles. 4,265,603, Cl. 418-2.000.
Choe, Eui W., to Celanese Corporation. Polyester of para-hydroxy benzoic acid, 1,4-bis(para-carboxyphenoxy) benzene, aromatic diol and aromatic diacid capable of undergoing melt processing. 4,265,802, Cl. 260-40.00P.
Choi, Dai S.; and von Schonfeldt, Hilmar A., to Conoco, Inc. Mine roof control. 4,265,570, Cl. 405-258.000.
Chong, Berni P.: *See*—
Beasley, Glenn H.; Chong, Berni P.; Ford, Warren T.; and Neely, James W., 4,265,768, Cl. 210-682.000.
Chou, Nelson S.: *See*—
Skoch, Leroy V.; Harmon, Bud G.; Dickerson, Charles W.; and Chou, Nelson S., 4,265,916, Cl. 426-74.000.
Chow, Philip Y.: *See*—
Lin, Tung-Yen; Yang, Yue-Chyou; and Chow, Philip Y., 4,265,066, Cl. 52-224.000.
Christensen, Inc.: *See*—
Juergens, Rainer, 4,265,323, Cl. 175-107.000.
Christopherson, Phillips; and Aelion, Rene, to Polymer Cencentrates, Inc. Conductive polymer processable as a thermoplastic. 4,265,789, Cl. 252-511.000.
Chubbuck, John G.; and Turner, James T., to Johns Hopkins University, The. Intracranial pressure implant. 4,265,252, Cl. 128-748.000.
Chuiton, Rene; and MacLeod, Patrick, to Commissariat a l'Energie Atomique. Differential olfactometer. 4,265,248, Cl. 128-630.000.
Church & Dwight Co., Inc.: *See*—
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, 4,265,790, Cl. 252-532.000.
Churilov, Lev D.: *See*—
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Ciba-Geigy AG: *See*—
Bauerle, Rolf, 4,265,630, Cl. 8-456.000.
Jan, Gerald, 4,266,011, Cl. 430-392.000.
Tzikas, Athanassios, 4,265,633, Cl. 8-650.000.
Ciba-Geigy Corporation: *See*—
Becker, Carl, 4,265,631, Cl. 8-471.000.
Dingwall, John G.; Cook, Barry; and Marshall, Alan, 4,265,769, Cl. 210-699.000.
Falk, Robert A.; and Mueller, Karl F., 4,266,080, Cl. 568-45.000.
Farooq, Saleem, 4,265,655, Cl. 71-90.000.
Grieder, Alfred; and Coers, Klaus-Jurgen, 4,266,071, Cl. 560-43.000.
Gsell, Laurenz; Ackermann, Peter; and Wehrli, Rudolf, 4,265,897, Cl. 424-269.000.
Kocsis, Karoly; Peter, Heinrich; and Bickel, Hans, 4,265,892, Cl. 424-246.000.
Ciments Lafarge France: *See*—
Falinower, Charles, 4,265,856, Cl. 422-68.000.
Ciolkevich, John T., to Park-Ohio Industries, Inc. Floating valve seat inductor. 4,266,109, Cl. 219-10.570.
Citadel Management Services, Inc.: *See*—
Angermann, Manfred E., 4,265,006, Cl. 27-14.000.
Citizen Watch Co., Ltd.: *See*—
Ebihara, Heihachiro; Sekiya, Fukuo; and Yamada, Takashi, 4,266,278, Cl. 364-705.000.
Kizaki, Shigeru, 4,266,156, Cl. 310-344.000.
Clancy, Douglas E.; Johnson, Carl F.; McCray, William R.; and Neal, Danny M., to International Business Machines Corporation. Paragraph indent. 4,265,554, Cl. 400-316.000.
Clark, Brian C., to Allis-Chalmers Corporation. Detent release for power shift transmission selector valve. 4,265,144, Cl. 74-752.00C.
Clark, James W., to Envirotech Corporation. Quick-coupling locking mechanism. 4,265,587, Cl. 414-723.000.
Clarke, Stephen E., to General Motors Corporation. Electro-viscous fan clutch with snap action spring valve element for control of fluid gate. 4,265,348, Cl. 192-58.00B.
Cleary, James G.; and Zymboly, Gregory E., to Wyoming Mineral Corporation. Method of reducing radioactive waste and of recovering uranium from it. 4,265,861, Cl. 423-10.000.
Close, James R., to Minnesota Mining and Manufacturing Company. Intumescent stressed skin composite material. 4,265,953, Cl. 428-78.000.
Coates, Clarence A., Jr.: *See*—
Weaver, Max A.; Coates, Clarence A., Jr.; and Fleischer, Jean C., 4,265,812, Cl. 260-158.000.
Cobe Laboratories, Inc.: *See*—
Giurtino, Joel F.; and Anderson, Robert L., 4,265,303, Cl. 165-166.000.
Coers, Klaus-Jurgen: *See*—
Grieder, Alfred; and Coers, Klaus-Jurgen, 4,266,071, Cl. 560-43.000.
Coffey, Fred S.: *See*—
Carruth, Grant F.; Coffey, Fred S.; and Fulmer, Ray M., 4,265,151, Cl. 83-102.000.
Cohen, Milton J. Filter device for injectable fluid. 4,265,242, Cl. 128-272.000.
Cohnen, Erich, to Beiersdorf Aktiengesellschaft. Aryl-substituted furnaces. 4,265,903, Cl. 424-282.000.
Colgate-Palmolive Company: *See*—
Gross, William S.; Gibbons, Edward J.; and Wraga, Joseph B., 4,265,781, Cl. 252-174.000.
Sonenstein, Gerard G., 4,265,778, Cl. 252-117.000.
Colijn, Johannes J. V., to Breveteam S.A. Synthetic net material. 4,265,956, Cl. 428-134.000.
Collin, Reimer; Diehr, Hans-Joachim; and Friesnitz, Uwe, to Bayer Aktiengesellschaft. Preparation of 4-fluoro-3-phenoxy-toluene. 4,266,082, Cl. 568-639.000.
Collington, Eric W.; Finch, Harry; Newton, Roger F.; and Wallis, Christopher J., to Glaxo Group Limited. Prostanoid compounds and compositions. 4,265,891, Cl. 424-244.000.
Collins, Walter W., to Jenkins Metal Corporation. Pocket knife with retractable blade. 4,265,017, Cl. 30-162.000.
Colonia Management-und Beratungsgesellschaft mbH & Co., K.G.: *See*—
Fricke, Jobst; Voigt, Wolfgang; and Schmitz, Jurgen, 4,265,157, Cl. 84-1.190.
Columbus McKinnon Corporation: *See*—
Schreyer, Kenneth D.; Leverentz, Earl T.; Nusz, Thomas R.; and Benton, Reuben P., 4,265,181, Cl. 105-150.000.
Combustion Engineering, Inc.: *See*—
Barger, John J., 4,266,110, Cl. 219-73.210.
Lawrence, Frederick D., 4,265,708, Cl. 176-78.000.

Pomroy, Michael F., 4,265,068, Cl. 52-456.000.
Comiskey, Frederick K.: *See—*
Fraser, Daniel M.; Hausner, John E.; Hawkins, William J.; and Comiskey, Frederick K., 4,266,106, Cl. 200-61.440.
Comiskey, Gary F.: *See—*
Karlin, Richard A.; McDonald, Robert W.; and Comiskey, Gary F., 4,266,189, Cl. 324-117.00H.
Commander Board International, Inc.: *See—*
Edwards, Lindell N., 4,265,041, Cl. 40-620.000.
Commissariat a l'Energie Atomique: *See—*
Bourdois, Claude; Decolle, Maurice; Ferard, Michel; and Marchal, Paul, 4,265,572, Cl. 406-114.000.
Chuiton, Rene; and MacLeod, Patrick, 4,265,248, Cl. 128-630.000.
Contre, Michel; Martin, Philippe; and Quetier, Monique, 4,265,666, Cl. 106-43.000.
Commons, Thomas J.: *See—*
Sheehan, John C.; and Commons, Thomas J., 4,265,882, Cl. 424-114.000.
Commonwealth Scientific and Industrial Research Organization: *See—*
Campbell, Malcolm D., 4,265,981, Cl. 428-591.000.
Compagnie des Transmissions Mecaniques Sedis: *See—*
Dupoyet, Guy J. M., 4,265,134, Cl. 474-231.000.
Compagnie Generale d'Electricite: *See—*
Gaffard, Jean-Paul, 4,265,539, Cl. 356-345.000.
Compagnie Generale des Etablissements Michelin: *See—*
Pommier, Jean, 4,265,289, Cl. 152-209.00A.
Pommier, Jean, 4,265,291, Cl. 152-352.00R.
Compagnie Geofinanciere: *See—*
Issenmann, Olivier, 4,266,277, Cl. 364-498.000.
Compagnie Internationale Pour l'Informatique CII-Honeywell Bull: *See—*
Richard, Andre, 4,266,286, Cl. 365-205.000.
Compton, Bertram L.; and Pierson, Paul B., to RCA Corporation. Optical scanner with variable scan line angle. 4,265,524, Cl. 354-65.000.
Computervision Corporation: *See—*
Snow, Kenneth A., 4,265,542, Cl. 356-356.000.
Conn Chem Group, Limited: *See—*
Suk, Albert, 4,265,797, Cl. 260-29.60E.
Conn, John L. Container with drinking tube. 4,265,363, Cl. 215-229.000.
Conoco, Inc.: *See—*
Anderson, Ardis L., 4,265,637, Cl. 44-51.000.
Choi, Dai S.; and von Schonfeldt, Hilmar A., 4,265,570, Cl. 405-258.000.
Sifferman, Thomas R., 4,265,264, Cl. 137-13.000.
Conrow, Ransom B.; and Bernstein, Seymour, to American Cyanamid Company. Naphthalenetetrayletrakis(sulfonylimino)-aryl disulfonic acids and salts thereof. 4,265,830, Cl. 260-510.000.
Conrow, Ransom B.; and Bernstein, Seymour, to American Cyanamid Company. s-Phenenyltris(sulfonylimino)tri-benzene mono- and di-sulfonic acids and salts complement inhibitors. 4,265,908, Cl. 424-315.000.
Conrow, Ransom B.; and Bernstein, Seymour, to American Cyanamid Company. Naphthalenetetrayltetrakis(sulfonylimino)-aryl multicarboxylic acids and salts thereof. 4,266,077, Cl. 562-427.000.
Consolidated Medical Equipment Inc.: *See—*
Abraham, William W., 4,265,253, Cl. 128-798.000.
Continental Oil Company: *See—*
Britton, Michael W.; Martin, William L.; McDaniel, Jack D.; and Wahl, Harry A., 4,265,310, Cl. 166-259.000.
Contre, Michel; Martin, Philippe; and Quetier, Monique, to Commissariat a l'Energie Atomique. Boron carbide La, Sr and/or Ba hexaboride ceramic material for a low temperature direct heating electric gun cathode. 4,265,666, Cl. 106-43.000.
Cook, Barry: *See—*
Dingwall, John G.; Cook, Barry; and Marshall, Alan, 4,265,769, Cl. 210-699.000.
Cook, Billy D.; and Cavanagh, Eduardo, to University of Houston. Nondestructive testing apparatus and method utilizing time-domain ramp signals. 4,265,122, Cl. 73-627.000.
Cook, Lacy G., to Hughes Aircraft Company. Three mirror anastigmatic optical system. 4,265,510, Cl. 350-55.000.
Cooper, David J.: *See—*
Gandolfo, Daniel; and Cooper, David J., 4,265,779, Cl. 252-135.000.
Cooper, John: *See—*
Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., 4,265,406, Cl. 241-16.000.
Cooper, Kenneth W.: *See—*
Sumner, Lee E., Jr.; Cooper, Kenneth W.; and Abendschein, Frederic H., 4,265,298, Cl. 165-2.000.
Coors Porcelain Company: *See—*
Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., 4,265,669, Cl. 106-73.400.
Copa, William M.; and Gitchel, Wayne B., to Sterling Drug Inc. Disinfection and purification of fluids using focused laser radiation. 4,265,747, Cl. 210-758.000.
Corbeels, Roger J.: *See—*
Kessler, Richard V.; and Corbeels, Roger J., 4,265,407, Cl. 241-21.000.
Cormier, Raymond G.; and Allen, Walter C., to Nashua Corporation. Cassette locking and alignment assembly. 4,265,442, Cl. 271-127.000.
Cornell, Charles R.: *See—*
Klimowicz, Michael A.; and Cornell, Charles R., 4,265,272, Cl. 137-625.620.
Cornell Research Foundation, Inc.: *See—*
Nelson, David A., Jr.; and Ruoff, Arthur L., 4,266,138, Cl. 250-492.00A.
Corning Glass Works: *See—*
Stookey, Stanley D., 4,266,012, Cl. 430-396.000.
Cornish, William D., to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defense. Broadband microwave frequency divider for division by numbers greater than two. 4,266,208, Cl. 333-218.000.
Corradi, Gabriel, to Astin France Assistance Technique Industrielle. Apparatus for longitudinally and transversely cutting strip material. 4,265,152, Cl. 83-106.000.
Cote, Henry L., to Centronics Data Computer Corp. Flat flexible printed circuit cable for a print head. 4,265,549, Cl. 400-124.000.
Coulon, Michel; and Laprade, Gerard, to Essilor International Cie Generale d'Optique. Process and apparatus for the production of spectacle frame parts of synthetic material. 4,265,850, Cl. 264-225.000.
Coulter Systems Corporation: *See—*
Lawson, Terence M., 4,265,987, Cl. 430-49.000.
Couture, Jacques. Lift assembly. 4,265,586, Cl. 414-545.000.
Covic, John: *See—*
Kuwik, John J.; Braden, Arthur B.; Taylor, Samuel K.; and Covic, John, 4,266,135, Cl. 250-445.00T.
Covington, Joseph C. Snow chain. 4,265,399, Cl. 238-14.000.
Cox, Arthur; Thiel, John A.; and Nodov, Eugene, to Mead Corporation, The. Lens system for document scanning. 4,266,252, Cl. 358-293.000.
Cox, Clayton E. Metal cornerboard for pallets. 4,265,184, Cl. 108-55.100.
Cox, Jon N.; and Singh, Balbir, to Scott Paper Company. Web rewinder turret swing control. 4,265,409, Cl. 242-56.00A.
CPS Industries: *See—*
Stone, Arnold F.; and Kinnard, William D., 4,265,692, Cl. 156-180.000.
Crain, Stephen F.: *See—*
Kierbow, Gerald C.; Tomlinson, Harvard L.; Horinek, Herbert J.; and Crain, Stephen F., 4,265,266, Cl. 137-101.190.
Crawford, Juan H., to AccuRay Corporation. Fluid system and method. 4,266,142, Cl. 250-572.000.
Creus, Rufino, to Spurmach Espana S. L. Driven spinning ring device for yarn spinning and twisting machines. 4,265,081, Cl. 57-75.000.
Cribbs, Robert W., to Litton Industrial Products, Inc. High resolution ultrasound diagnostic apparatus. 4,265,121, Cl. 73-607.000.
Cross, Warren G.: *See—*
Cheng, Lung; and Cross, Warren G., 4,265,107, Cl. 73-28.000.
Crosslen, Louis J., to Frank Mayer & Associates, Inc. Display assembly having overlapping and removable sample holders. 4,265,038, Cl. 40-124.200.
Crossley, Leonard S. Chicken marinade draining system. 4,265,766, Cl. 210-455.000.
Crown Controls Corporation: *See—*
Dammeyer, Ned E., 4,265,337, Cl. 187-9.00E.
Crown Zellerbach Corporation: *See—*
Reba, Imants, 4,265,573, Cl. 406-152.000.
Crum, Gerald W.; and Macartney, Lawrence J., to Nordson Corporation. Metering and mixing apparatus for multiple component. 4,265,858, Cl. 422-129.000.
Crum, Louis J.: *See—*
Thoma, Paul E.; Crum, Louis J.; and Frias, Ronald J., 4,265,117, Cl. 73-359.00R.
Cubic Corporation: *See—*
McNaul, William F.; and Eberhardt, Paul R., 4,266,226, Cl. 343-100.0LE.
Curry, Earle. Space heater. 4,265,215, Cl. 126-77.000.
Curtiss, Walter W., Jr.; and O'Flanagan, Patrick T., to Goodyear Tire & Rubber Company, The. Closed tube simplified radial tire, tire/rim assembly and method of making same. 4,265,293, Cl. 152-354.00R.
Cutter Laboratories, Inc.: *See—*
Morin, Marius J., 4,265,425, Cl. 251-9.000.
Cyphelly, Ivan J. Flow control device for use with positive displacement pump. 4,265,267, Cl. 137-117.000.
D. W. Zimmerman Mfg., Inc.: *See—*
Fox, Albert D., 4,265,147, Cl. 81-55.000.
Daane, Robert A., to W. R. Grace & Co. Air bar having asymmetrical inlet. 4,265,384, Cl. 226-97.000.
Dakin, Thomas W.: *See—*
Mandelcorn, Lyon; Dakin, Thomas W.; and Mercier, George E., 4,266,264, Cl. 361-318.000.
Dakss, Mark L.: *See—*
Wellington, Charles K.; Dakss, Mark L.; and Benasutti, John E., 4,265,514, Cl. 350-96.210.
Dale, Bruce E.: *See—*
Tsao, George T.; Dale, Bruce E.; and Ladisch, Michael R., 4,265,675, Cl. 127-37.000.
Dalley, James E.: *See—*
Cannon, Thomas B.; Dalley, James E.; and George, Andrew S., 4,266,097, Cl. 179-2.00A.
Dalton, Robert W. Flotation machines and components thereof. 4,265,739, Cl. 209-169.000.
Dammeyer, Ned E., to Crown Controls Corporation. Fork lift truck speed control dependent upon fork elevation. 4,265,337, Cl. 187-9.00E.
Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., to Motorola, Inc. Microprocessor having plural internal data buses. 4,266,270, Cl. 364-200.000.

Dankert, Gerhard: *See—*
Doring, Fritz; Beck, Gunther; and Dankert, Gerhard, 4,266,059, Cl. 544-334.000.
Dannatt, Hugh St. L., to Pitney Bowes Inc. Hot roll fusing device. 4,266,115, Cl. 219-216.000.
Danner, Bailey L., to Cameron Iron Works, Inc. Tubular connector. 4,265,470, Cl. 285-39.000.
Dany, Franz-Josef: *See—*
Wortmann, Joachim; Rieb, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,265,854, Cl. 422-40.000.
Dark, Robert O.: *See—*
Jack, Stanton E.; and Dark, Robert O., 4,265,938, Cl. 427-163.000.
Darragh, Kirk V.: *See—*
Arzoumanidis, Gregory G.; and Darragh, Kirk V., 4,265,866, Cl. 423-304.000.
Data Instruments, Inc.: *See—*
Weber, Daniel R.; and Webb, Raymond C., 4,266,124, Cl. 250-221.000.
Datapower, Inc.: *See—*
Handler, Howard, 4,266,165, Cl. 315-224.000.
Date, Sukeaki; and Ebato, Seigo, to Mitsubishi Paper Mills, Ltd. Antistatic layer for silver halide photographic materials. 4,266,016, Cl. 430-527.000.
Datwyler AG Schweiz, Kabel-, Gummi- und Kunststoffwerke: *See—*
Berger, Ernst; and Herwegh, Norbert, 4,265,225, Cl. 126-445.000.
Daughton, John W.; Wilczek, Stephen P.; and Steiner, Edward L., to Xerox Corporation. Copy reproduction machine with controller self check system. 4,266,294, Cl. 371-24.000.
Daum, Adam; Fernex, Michel; and Wick, Alexander E., to Hoffmann-La Roche Inc. Diuretic compositions. 4,265,893, Cl. 424-246.000.
Davies, David O., to Rolls-Royce Limited. Cooling air supply arrangement for a gas turbine engine. 4,265,590, Cl. 415-110.000.
Davis, Allan C., to Meyercord Co., The. Cigarette tax stamp applying machine and method. 4,265,355, Cl. 198-427.000.
Davis, David L.: *See—*
Nelson, Alfred M.; and Davis, David L., 4,265,196, Cl. 118-50.000.
Davis, Lois T.: *See—*
Blair, James E.; and Davis, Lois T., 4,266,035, Cl. 435-253.000.
Dawson, Edward S. Air purifier. 4,265,643, Cl. 55-130.000.
Debus, Gerhard; Girg, Friedrich; and Knittel, Volker, to Hoechst Aktiengesellschaft. Additive for concrete or mortar and the use thereof. 4,265,674, Cl. 106-314.000.
Decolle, Maurice: *See—*
Bourdois, Claude; Decolle, Maurice; Ferard, Michel; and Marchal, Paul, 4,265,572, Cl. 406-114.000.
de Cooker, Mario G. R. T.; and Haemers, Anita G. W. G., to Stamicarbon, B.V. Process for preparing cyanuric acid. 4,266,052, Cl. 544-192.000.
de Cortanze, Andre. Frameless motorcycle. 4,265,329, Cl. 180-219.000.
Decorzant, Rene: *See—*
Naf, Ferdinand; and Decorzant, Rene, 4,266,075, Cl. 560-120.000.
Deere & Company: *See—*
Lange, Henry J., 4,265,464, Cl. 280-460.00A.
Peters, Loren W., 4,265,077, Cl. 56-14.600.
Deffendorfer Werft und Eisenbau: *See—*
Miserlis, Constantine D.; Luke, Albert G., Jr.; Laber, Walter; and Guethuber, Friedrich, 4,265,223, Cl. 126-435.000.
Defuans, Jean-Louis, to Formaplex S.A. Underwater still camera. 4,265,523, Cl. 354-64.000.
Deitrich, William J., Sr., to DMI, Inc. Trailer bumper hitch. 4,265,465, Cl. 280-478.00A.
Delattre, Marcel; and Romagnolo, Gerard, to Eurotungstene. Tool for rasping. 4,265,007, Cl. 29-79.000.
De Leo, Richard V.; and Hagen, Floyd W., to Rosemount Inc. Pneumatic averager. 4,265,112, Cl. 73-180.000.
Deluca, Domenico: *See—*
Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, 4,265,785, Cl. 252-429.00B.
DeLuca, Hector F.; Schnoes, Heinrich K.; Hamer, David E.; and Paaren, Herbert E., to Wisconsin Alumni Research Foundation. Process for preparing 1-hydroxylated vitamin D compounds from 5,6-trans-vitamin D compounds. 4,265,822, Cl. 260-397.200.
Demosthene, Claude G.; and Aspisi, Christian R., to Expansia. Process for the preparation of 2-isopropylamino pyrimidine. 4,266,057, Cl. 544-330.000.
Demosthene, Claude G.; and Aspisi, Christian R., to Societe d'Etudes de Produits Chimiques. Synthesis of 2-isopropylamino-pyrimidine. 4,266,058, Cl. 544-330.000.
Dental Essentials, Inc.: *See—*
Lucki, John L.; and Naha, Alan B., 4,265,619, Cl. 433-54.000.
Denton, Medona B.; Windsor, David L.; and Heine, David R., to United States of America, Navy. Dismountable inductively-coupled plasma torch apparatus. 4,266,113, Cl. 219-121.0PQ.
Depoorter, Henri: *See—*
Moelants, Felix J.; and Depoorter, Henri, 4,266,014, Cl. 430-522.000.
Desai, Mahendrakumar D.; and Henderson, Drew, to Trafalgar Industries Inc. Foodstuff vending apparatus employing improved solid-state type control apparatus. 4,265,371, Cl. 222-70.000.
DeSoto, Inc.: *See—*
Lin, Shiow-Ching, 4,266,040, Cl. 521-90.000.
Sekmakas, Kazys; and Shah, Raj, 4,265,795, Cl. 260-29.300.
Deutsche Babcock Aktiengesellschaft: *See—*
Oppenberg, Rolf, 4,265,613, Cl. 431-121.000.
Devanz, Francois M.: *See—*
Hons-Olivier, Jacques P.; Le Thanh, Tri; and Devanz, Francois M., 4,266,039, Cl. 521-85.000.
de Vecchis, Michel: *See—*
Chiron, Bernard; Foure, Jean-Louis; and de Vecchis, Michel, 4,265,512, Cl. 350-96.200.
Devine, Clifford W. Method and apparatus for testing insulators. 4,266,184, Cl. 324-54.000.
deVries, Louis; and King, John M., to Chevron Research Company. Process of preparing molybdenum complexes, the complexes so-produced and lubricants containing same. 4,265,773, Cl. 252-46.400.
De Winter, Walter F.: *See—*
Timmerman, Daniel M.; De Winter, Walter F.; and Van Hoof, Albert E., 4,266,044, Cl. 525-336.000.
Diamond Shamrock Corporation: *See—*
Baczek, Stanley K.; and McCain, G. Howard, 4,266,036, Cl. 521-26.000.
Suchanski, Mary R.; and Bishara, Jeries I., 4,265,728, Cl. 204-290.00F.
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, to Kernforschungsanlage Julich Gesellschaft mit berschrankter Haftung. Method of producing shaped silicon-carbide bodies. 4,265,843, Cl. 264-57.000.
Dick, David C., to Canadian General Electric Company Limited. Percussion rock bit. 4,265,325, Cl. 175-410.000.
Dickerson, Charles W.: *See—*
Skoch, Leroy V.; Harmon, Bud G.; Dickerson, Charles W.; and Chou, Nelson S., 4,265,916, Cl. 426-74.000.
Dickerson, Max R.: *See—*
Foster, Ronnie D.; and Dickerson, Max R., 4,266,219, Cl. 340-630.000.
Dickover, Wesley D.: *See—*
Amacher, Gene L.; and Dickover, Wesley D., 4,266,145, Cl. 307-200.00A.
Didier-Werke AG: *See—*
Eschner, Axel, 4,265,845, Cl. 264-63.000.
Diehr, Hans-Joachim: *See—*
Collin, Reimer; Diehr, Hans-Joachim; and Friesnitz, Uwe, 4,266,082, Cl. 568-639.000.
Diepenbrock, James L., Jr.: *See—*
Harp, Marlyn F.; Diepenbrock, James L., Jr.; and Nelsen, M. Dean, 4,265,955, Cl. 428-116.000.
Diesel Kiki Co., Ltd.: *See—*
Chiyoda, Tsuneyuki; and Ohtani, Masami, 4,265,603, Cl. 418-2.000.
Ohtani, Yoshio, 4,266,192, Cl. 324-168.000.
Sumikawa, Seizi; and Harada, Takesi, 4,265,395, Cl. 236-13.000.
DiGiulio, Adolph V.; and Bauer, Jack N., to Arco Polymers, Inc. Fire-retardant imide copolymers. 4,266,037, Cl. 521-82.000.
DiGiulio, Adolph V.; and Bauer, Jack N., to Arco Polymers, Inc. Rubber-modified fire-retardant imide copolymers. 4,266,038, Cl. 521-82.000.
DiMarco, Aurelio: *See—*
Bargiotti, Alberto; Cassinelli, Giuseppe; Arcamone, Federico; and DiMarco, Aurelio, 4,265,885, Cl. 424-180.000.
Di Marco, Bernard; and Kralik, Andrew J., to Gould Inc. Circuit breaker handle and lost motion connected shield. 4,266,209, Cl. 335-6.000.
Dingwall, John G.; Cook, Barry; and Marshall, Alan, to Ciba-Geigy Corporation. Method of treating aqueous systems with phosphonoadipic acids. 4,265,769, Cl. 210-699.000.
Dinulescu, Mircea, to Kinetics Technology Intl. B.V. Process and apparatus for endothermic reactions. 4,265,732, Cl. 208-106.000.
Dionex Corporation: *See—*
Pohl, Christopher A., 4,265,634, Cl. 23-230.00R.
Dischler, Helmut, to Novopress GmbH Pressen und Presswerkzeuge & Co. KG. Clutch mechanism for power driven hand tools. 4,265,347, Cl. 192-56.00R.
Ditsler, Erwin P., to Textron, Inc. Milling machine system. 4,265,576, Cl. 409-129.000.
DMI, Inc.: *See—*
Deitrich, William J., Sr., 4,265,465, Cl. 280-478.00A.
Dobler, Karl-Ulrich; Mura, Sigurd; and Kraft, Erhard, to International Standard Electric Corporation. System for controlling track-bound vehicles forming a train. 4,266,273, Cl. 364-426.000.
Dr. E. Fresenius Chemisch pharmazeutisch Industrie KG: *See—*
Schindler, Johannes G.; and Schael, Wilfried, 4,265,249, Cl. 128-635.000.
Dolberg, Vladimir I.; Yarovoi, Igor V.; and Dronin, Mikhail I. Device for automatically cutting off damaged branches of pneumatic and hydraulic systems. 4,265,269, Cl. 137-118.000.
Donachiue, James P. Air prefilter. 4,265,647, Cl. 55-315.000.
Donaldson Company, Inc.: *See—*
Brenholt, David L., 4,265,762, Cl. 210-321.100.
Donnis, Gian P.; and Borca, Giancarlo C., to Ing. C. Olivetti & C., S.p.A. Ink ribbon cartridge including a movable ribbon tensioning guide for a printing machine. 4,265,550, Cl. 400-196.100.
Doorakian, George A.; Duquette, Lawrence G.; and Arnett, John F., to Dow Chemical Company, The. Process for preparing tetrahydrocarbylphosphonium bicarbonate salts. 4,266,079, Cl. 568-11.000.
Doring, Fritz; Beck, Gunther; and Dankert, Gerhard, to Bayer Aktiengesellschaft. Process for the preparation of 2,4,5-trichloropyrimidine. 4,266,059, Cl. 544-334.000.
Dorsey, Robert J., to Wehr Corporation. Press for compressing refractory material and including a quick change mold box. 4,265,610, Cl. 425-411.000.

Doss, Glenn D.; and Nylund, Theodore W., to Westinghouse Electric Corp. Method and apparatus for adjusting the elevation of fuel rods in a nuclear reactor fuel assembly. 4,265,010, Cl. 29-402.010.
Douwe Egberts Koninklijke Tabaksfabriek, Koffiebranderijen en Theehandel B.V.: *See*—
Thijssen, Henricus A. C., 4,265,920, Cl. 426-384.000.
Dover Corporation: *See*—
Oberrecht, David A., 4,265,281, Cl. 141-392.000.
Dover & Partners Limited: *See*—
Charlesworth, Frank D. W.; Dover, William D.; and Taylor, Kenneth A., 4,266,185, Cl. 324-64.000.
Dover, William D.: *See*—
Charlesworth, Frank D. W.; Dover, William D.; and Taylor, Kenneth A., 4,266,185, Cl. 324-64.000.
Dow Chemical Company, The: *See*—
Au, Andrew T., 4,266,054, Cl. 544-215.000.
Caines, Ronald S., 4,265,952, Cl. 428-36.000.
Doorakian, George A.; Duquette, Lawrence G.; and Arnett, John F., 4,266,079, Cl. 568-11.000.
Ezzell, Bobby R.; Malone, Jacquelyn M.; and Sorenson, Marius W., 4,265,719, Cl. 204-98.000.
Havens, Carl B., 4,265,853, Cl. 264-519.000.
Hinze, Kenneth J., 4,265,783, Cl. 252-182.000.
McDonald, Charles J.; and Beaver, Robert H., 4,265,835, Cl. 564-204.000.
Owen, Peter W.; Harmon, Zita K.; and Tomalia, Donald A., 4,265,825, Cl. 260-401.000.
Wang, Samuel S. M., 4,265,912, Cl. 424-260.000.
Dow Corning Corporation: *See*—
Homan, Gary R.; and Lee, Chi-Long, 4,265,792, Cl. 260-18.00S.
Keil, Joseph W., 4,265,878, Cl. 424-68.000.
Dowell, Terrence P.: *See*—
Luce, Carl T.; Banks, Edwin L., Jr.; and Dowell, Terrence P., 4,265,498, Cl. 308-230.000.
Doyle, Walter M., to Laser Precision Corporation. Refractively scanned interferometer. 4,265,540, Cl. 356-346.000.
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Schwanbom, Erik; and Warnow, Detlef, 4,265,237, Cl. 128-204.240.
Drago, Gary A.; Mix, Arthur L., Jr.; and Ritchie, Robert T., to International Business Machines Corp. Ink jet with retractable electrode and secondary ink catcher. 4,266,231, Cl. 346-75.000.
Drake, Charles A.; and Bayer, Raymond M., to Leach Industries. Metal racketball rackets. 4,265,450, Cl. 273-73.00G.
Dravo Corporation: *See*—
Naruns, Laimons; Terry, Dennis W.; and Stellfox, Samuel K., 4,265,579, Cl. 414-138.000.
Dreher, Ernst; Stroezel, Reinhold; Spittler, Siegfried; and Wolf, Richard, to Robert Bosch GmbH. Rotary pneumatic tool with valve-closing pin actuated upon overspeed. 4,265,604, Cl. 418-43.000.
Dresser Industries, Inc.: *See*—
Greenlee, Donald R.; and Hyde, Bill J., 4,265,459, Cl. 277-212.00C.
Dronin, Mikhail I.: *See*—
Dolberg, Vladimir I.; Yarovoi, Igor V.; and Dronin, Mikhail I., 4,265,269, Cl. 137-118.000.
Du Pont Canada, Inc.: *See*—
Hetherington, Brian L., 4,265,616, Cl. 432-8.000.
Dubetz, Martin W.; and Bilge, Umit, to General Motors Corporation. Ultrasonic method of inspecting spot welds. 4,265,119, Cl. 73-588.000.
Ducret, Lucien C. Cable splitter. 4,265,016, Cl. 30-90.800.
Ducrocq, Claire: *See*—
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Duinker, Simon, to N. V. Optische Industrie "De Oude Delft". Tomography wherein signal profiles derived from an out-fanning beam of penetrating radiation can be reconstructed corresponding with parallel incident rays. 4,266,136, Cl. 250-445.00T.
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Struger, Odo J.; and Dummermuth, Ernst H., 4,266,281, Cl. 364-900.000.
Dunbar, Ronald C., to Siemens Corporation. Control circuit for a telephone system for the control of visual and audible signals. 4,266,101, Cl. 179-84.00C.
Dunlop Limited: *See*—
Jackson, William L., 4,265,290, Cl. 152-330.0RF.
Dunn, Garf L. Auxiliary hydraulic maneuvering system for small boats. 4,265,192, Cl. 114-151.000.
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Bauman, Donald L.; and Toji, Masuo, 4,265,810, Cl. 260-141.000.
Budzinski, John C., 4,266,063, Cl. 546-302.000.
Kring, Elbert V., 4,265,635, Cl. 23-232.00R.
Dupoyet, Guy J. M., to Compagnie des Transmissions Mecaniques Sedis. Transmission chain. 4,265,134, Cl. 474-231.000.
Duquette, Lawrence G.: *See*—
Doorakian, George A.; Duquette, Lawrence G.; and Arnett, John F., 4,266,079, Cl. 568-11.000.
Duracell International Inc.: *See*—
Kaye, Gordon E., 4,265,984, Cl. 429-178.000.
Durant, Graham J.; Young, Rodney C.; and Tashma, Zev, to Smith Kline & French Laboratories Limited. Amidinosulphonic acid derivatives. 4,265,896, Cl. 424-263.000.
Durapipe Limited: *See*—
Nash, David D., 4,265,471, Cl. 285-111.000.
Durbin, Anthony T.; and Kennedy, Bruce A., to Gulf Oil Corporation; and Standard Oil Company. Apparatus for in-situ retorting. 4,265,486, Cl. 299-2.000.
Duro Dyne Corporation: *See*—
Hinden, Milton, 4,264,995, Cl. 10-1.00R.
Duwel, Edward C.: *See*—
Eckert, Alton B.; and Duwel, Edward C., 4,266,222, Cl. 340-679.000.
Duwell, Michael J.; and Specht, Paul B., to Heartland Chemicals. System for opening and emptying containers. 4,265,584, Cl. 414-412.000.
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Swiatosz, Edmund; Dykes, Wiley V.; Grimmer, Paul D.; and Lane, Bruce V., 4,265,238, Cl. 128-205.120.
Dynamit Nobel Aktiengesellschaft: *See*—
Kuhnel, Werner; and Spielau, Paul, 4,266,041, Cl. 521-92.000.
E. R. Squibb & Sons, Inc.: *See*—
Rovnyak, George C., 4,266,065, Cl. 548-379.000.
Varma, Ravi K., 4,265,815, Cl. 260-239.55R.
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O'Banion, John D., 4,265,752, Cl. 210-172.000.
Easter, Ross A.: *See*—
Anderson, George R.; Ott, Walter R.; Smoke, Edward J.; Easter, Ross A.; and Sholl, Jeffrey J., 4,266,108, Cl. 219-10.55E.
Eastern Associated Coal Corp.: *See*—
Hill, Alvin J., 4,265,353, Cl. 198-321.000.
Eastman Kodak Company: *See*—
Blair, Gerald E.; Merry, J. Bradford; and Wylot, James M., 4,265,517, Cl. 350-358.000.
Martin, Thomas W.; and Sandhu, M. Akram, 4,266,017, Cl. 430-533.000.
McCreary, Michael D.; Farley, William C.; and Erickson, Wayne F., 4,266,002, Cl. 430-218.000.
Weaver, Max A.; Coates, Clarence A., Jr.; and Fleischer, Jean C., 4,265,812, Cl. 260-158.000.
White, Weimar W.; and Kimble, Laurie A., 4,265,862, Cl. 423-21.100.
Zannucci, Joseph S.; and Wininger, John M., 4,265,804, Cl. 260-45.8NT.
Eaton Corp.: *See*—
Braun, Dennis H.; and Spink, Robert W., 4,266,175, Cl. 318-758.000.
Goscenski, Edward J., Jr.; and Konkle, Phillip E., 4,265,143, Cl. 74-710.500.
Klimowicz, Michael A.; and Cornell, Charles R., 4,265,272, Cl. 137-625.620.
Eaton, Melvin H., II. Dental floss. 4,265,258, Cl. 132-93.000.
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Date, Sukeaki; and Ebato, Seigo, 4,266,016, Cl. 430-527.000.
Eberhardt, Paul R.: *See*—
McNaul, William F.; and Eberhardt, Paul R., 4,266,226, Cl. 343-100.0LE.
Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., to Exxon Research & Engineering Co. Reforming with multimetallic catalysts. 4,265,786, Cl. 252-439.000.
Ebert, Harry K., Jr.: *See*—
Boros, Victor B.; and Ebert, Harry K., Jr., 4,266,182, Cl. 323-267.000.
Ebihara, Heihachiro; Sekiya, Fukuo; and Yamada, Takashi, to Citizen Watch Co., Ltd. Portable electronic device equipped with calculation and timekeeping functions. 4,266,278, Cl. 364-705.000.
Ebitani, Atsushi; Inoue, Takehisa; and Tsunoi, Kazuo, to Toray Industries, Inc. Adsorbent for separating para-xylene, and process for the preparation thereof. 4,265,788, Cl. 252-455.00Z.
Eckert, Alton B.; and Duwel, Edward C., to Pitney Bowes Inc. Electronic postage meter having reset base warning. 4,266,222, Cl. 340-679.000.
Eckle, Otto, to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH. Combined boring and milling tool. 4,265,574, Cl. 408-188.000.
Ecodyne Corporation: *See*—
Lankenau, Henry G., 4,265,701, Cl. 159-47.0WL.
Econoray, Inc.: *See*—
Pardue, Ray L.; and Buehl, Arnold L., 4,266,117, Cl. 219-343.000.
Edwards, Lindell N., to Commander Board International, Inc. Indicia-supporting clip. 4,265,041, Cl. 40-620.000.
Edwards, Thomas M. Multi purpose carrier for vehicle. 4,265,382, Cl. 224-320.000.
Egami, Tsuneyuki: *See*—
Arao, Umeo; Egami, Tsuneyuki; Kosuda, Tooru; and Takeuchi, Yasuhiro, 4,265,163, Cl. 91-361.000.
Eggmann, Jean, to BBC Brown Boveri & Company Limited. Turbine blade having heat localization segments. 4,265,594, Cl. 416-193.00A.
Egli, Alwin. Apparatus for charging receptacles with items of like size and shape. 4,265,072, Cl. 53-501.000.
Eibeck, Richard E.: *See*—
Felice, Charles J., Jr.; Evans, Francis E.; Robinson, Martin A.; and Eibeck, Richard E., 4,265,871, Cl. 423-531.000.
Eichelburg, Robert J. Oral ingesta for animals. 4,265,913, Cl. 426-2.000.
Eichinger, Johann, to Carl Hurth Maschinen-und Zahnradfabrik. Z-drive for watercrafts. 4,265,625, Cl. 440-53.000.
Eickmann, Karl. Radial bearing. 4,265,497, Cl. 308-215.000.
Eidinger, Adolf; Flossel, Carl D.; Koppl, Georg; Ulrich, Alfred; and Schibli, Hans, to BBC Brown Boveri & Company Limited. Current limiting device for high voltage switching mechanisms. 4,266,258, Cl. 361-58.000.
Eisner, Albert M.: *See*—
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Electro-Nucleonics, Inc.: *See*—
Mandle, Richard M.; Karsai, Frank; and Krautheim, Raymond S., 4,265,855, Cl. 422-65.000.
Elgart, Alan. Work-holding device. 4,265,476, Cl. 294-64.00R.
Eli Lilly and Company: *See*—
Bonjouklian, Rosanne, 4,266,049, Cl. 544-16.000.
Gesellchen, Paul D.; and Shuman, Robert T., 4,265,808, Cl. 260-112.50R.
O'Doherty, George O. P., 4,265,901, Cl. 424-273.00B.
Elkins, Lincoln F., to Standard Oil Company. Shale oil recovery. 4,265,307, Cl. 166-248.000.
Ellsworth, James P.: *See*—
Mrenna, Stephen A.; and Ellsworth, James P., 4,266,210, Cl. 335-201.000.
El-Souessi, Monti. Selective drum series marking head. 4,265,172, Cl. 101-29.000.
Elswood, Ebbert L.; and Reynolds, Wyndall O., to Bell & Howell Company. Transducer systems with controlled damping. 4,266,287, Cl. 367-185.000.
Ely, John W., to Halliburton Company. Methods of water flooding and fracturing using clean, non-damaging fracturing fluids. 4,265,311, Cl. 166-271.000.
Emhart Industries, Inc.: *See*—
Bristol, Robert G., 4,266,144, Cl. 307-116.000.
Emmadi, Ramakrishna. Control valve mechanism for hydraulic clutch in a power transmission mechanism. 4,265,346, Cl. 192-0.034.
Emmert, Philip H.; Stevens, Richard A.; and Walkush, Glenn A., to General Motors Corporation. Closed loop air-fuel ratio controller with air bleed control. 4,265,208, Cl. 123-440.000.
Emonet, Henri, to Maco-Meudon. Compressed air feed control system for a tapping device. 4,265,322, Cl. 173-169.000.
Energy Materials Corporation: *See*—
Jewett, David N., 4,265,859, Cl. 422-199.000.
Enever, James A.: *See*—
Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., 4,265,406, Cl. 241-16.000.
Engel, Gerhard: *See*—
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Engel, William K.; and Miller, Dean E., to Caterpillar Tractor Co. Radial piston fluid translating device with power conserving scavenging means. 4,265,165, Cl. 91-490.000.
Engeler, William E.: *See*—
Papadofrangakis, Emmanuel; Engeler, William E.; and Fakiris, John A., 4,265,126, Cl. 73-861.250.
Engelsmann, Dieter; Wagner, Karl; and Hackenberg, Hubert, to AGFA-Gevaert, A.G. Flash unit and camera. 4,265,527, Cl. 354-144.000.
Envirotech Corporation: *See*—
Clark, James W., 4,265,587, Cl. 414-723.000.
Epstein, Howard C.; and Uebbing, John J., to Hewlett-Packard Company. Optical shaft angle encoder. 4,266,125, Cl. 250-231.0SE.
Erdmann, Fritz: *See*—
Stahlhofen, Paul; and Erdmann, Fritz, 4,266,000, Cl. 430-192.000.
Erhardt, Manfred; and Stoeckl, Max, to Carl Hurth Maschinen-und Zahnradfabrik. Tooth-edge gear working machine. 4,265,575, Cl. 409-8.000.
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Ericksson, Jan C.; and Larsson, Rolf L., to Aminkemi AB. Method of heparinizing a charged surface of a medical article intended for blood contact. 4,265,927, Cl. 427-2.000.
Eriksson, Bengt O.; and Pahnke, Bror E. Device for marking and/or cutting pipes. 4,265,430, Cl. 266-54.000.
Ernst, Roland: *See*—
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Gallottini, Emilio, 4,265,764, Cl. 210-390.000.
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Essilor International Cie Generale d'Optique: *See*—
Coulon, Michel; and Laprade, Gerard, 4,265,850, Cl. 264-225.000.
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Hayes, Thomas H.; and Lo Maglio, Lewis C., 4,265,948, Cl. 428-35.000.
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Delattre, Marcel; and Romagnolo, Gerard, 4,265,007, Cl. 29-79.000.
Evans, Francis E.: *See*—
Felice, Charles J., Jr.; Evans, Francis E.; Robinson, Martin A.; and Eibeck, Richard E., 4,265,871, Cl. 423-531.000.
Evans, Michael G.: *See*—
Payne, Harris F.; and Evans, Michael G., 4,265,597, Cl. 417-32.000.
Evans, Paul S., to Garrett Corporation, The. Fluidic temperature sensor. 4,265,116, Cl. 73-357.000.
Exergie Societe de Personnes a Responsabilitie Limitee: *See*—
Wajc, Samuel J., 4,265,863, Cl. 423-119.000.
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Todeschini, Giuseppe, 4,265,104, Cl. 72-330.000.
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Demosthene, Claude G.; and Aspisi, Christian R., 4,266,057, Cl. 544-330.000.
Extra, Piet M. J.; van den Honert, Taco H. J.; and van Lieshout, Jacobus J., to Oce-Nederland B.V. Automatic toner control. 4,265,997, Cl. 430-122.000.
Exxon Research & Engineering Co.: *See*—
Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., 4,265,786, Cl. 252-439.000.
Hatsell, William A., 4,265,553, Cl. 400-238.000.
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,266,034, Cl. 435-253.000.
Eymard, Michel, to ZODIAC. Elongated inflatable structures for flying device bodies. 4,265,418, Cl. 244-125.000.
Ezzell, Bobby R.; Malone, Jacquelyn M.; and Sorenson, Marius W., to Dow Chemical Company, The. Electrolysis of aqueous solutions of alkali-metal halides employing a flexible polymeric hydraulically-impermeable membrane disposed against a roughened surface cathode. 4,265,719, Cl. 204-98.000.
Fabbrica D'Armi Pietro Beretta S.p.A.: *See*—
Beretta, Pier C., 4,265,044, Cl. 42-41.000.
Beretta, Pier C., 4,265,161, Cl. 89-129.00B.
Fabre, Albert, to Rhone-Poulenc Industries. Binder compositions for texturized proteins and their use in the preparation of foodstuff. 4,265,917, Cl. 426-104.000.
Fakiris, John A.: *See*—
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Falco, Charles M.: *See*—
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Falinower, Charles, to Ciments Lafarge France. Analysis reactor and its use for volumetric analysis of a sample of a substance in powder form. 4,265,856, Cl. 422-68.000.
Falk, Robert A.; and Mueller, Karl F., to Ciba-Geigy Corporation. Perfluoroalkylthioethyl ether derivatives. 4,266,080, Cl. 568-45.000.
Faller, Rudolph A.; and Tolaas, William M., to Champion International Corporation. Paperboard tray. 4,265,390, Cl. 229-30.000.
Falomo, Lodovico. Apparatus for washing developed photographic and like films. 4,265,431, Cl. 266-101.000.
Fang, Jin-Liou: *See*—
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Fanning, William J., to Western Electric Company, Inc. Machine for winding strip material. 4,265,410, Cl. 242-56.100.
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Farinon Corporation: *See*—
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Farley, Lloyd J.: *See*—
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Farley, William C.: *See*—
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Bargiotti, Alberto; Cassinelli, Giuseppe; Arcamone, Federico; and DiMarco, Aurelio, 4,265,885, Cl. 424-180.000.
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Koskenniska, Lasse A.; and Puhakka, Marie M., 4,265,824, Cl. 260-397.250.
Farooq, Saleem, to Ciba-Geigy Corporation. 2-Oxo- and 2-thioxo-1,3-dithiol compounds as active substances for regulating plant metabolism and their use. 4,265,655, Cl. 71-90.000.
Fasano, Osvaldo, to Studi Apparecchiature E Ricerche Tecniche. Control mechanism for parking brake. 4,265,345, Cl. 192-3.00R.
Fasolak, Ambrozy J. Paper roll backstand. 4,265,411, Cl. 242-58.600.
Faul, Wolfgang; Furst, Leander; and Kastening, Bertel, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method of processing the surface of workpieces including particularly the etching of surfaces containing copper or copper alloys. 4,265,722, Cl. 204-129.600.
Feakins, Patrick G., to Shell Internationale Research Maatschappij B.V. Animal ear-tags, their manufacture and their use. 4,265,876, Cl. 424-28.000.
Fee, David M., to Caterpillar Tractor Co. Fire extinguishing system having a linkage operated valve. 4,265,316, Cl. 169-19.000.
Feldstein, Nathan. Non-noble metal colloidal compositions comprising reaction products for electroless deposition. 4,265,942, Cl. 427-304.000.
Felice, Charles J., Jr.; Evans, Francis E.; Robinson, Martin A.; and Eibeck, Richard E., to Allied Chemical Corporation. Purification of boron-containing sulfuric acid. 4,265,871, Cl. 423-531.000.
Felix, Raymond A., to Stauffer Chemical Company. Novel cyclohexenone amino phenyl amides and their use as herbicides. 4,265,658, Cl. 71-118.000.
Feltrop, Floyd L. Hopper for mechanical seed planters. 4,265,368, Cl. 221-10.000.
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Fiedler, Willy A. Fuel control and injection system for I.C. engines. 4,265,209, Cl. 123-450.000.
Fields, Joseph E.; and Johnson, John H., to Monsanto Company. Method for controlling blood triglycerides. 4,265,879, Cl. 424-78.000.
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Finlayson, James W.; and Johnson, Harold P., to Westinghouse Electric Corp. Inspection probe. 4,265,025, Cl. 33-178.00F.
Firmenich, S.A.: *See*—
Naf, Ferdinand; and Decorzant, Rene, 4,266,075, Cl. 560-120.000.
Fischer, Charles M., Jr.; and Price, Robert S. Gas scavenging exhaust system. 4,265,239, Cl. 128-205.170.
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Fish, Leonard A.: *See*—
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Flaherty, Louis W.; and Huber, Harold H. Remote fireplace damper control. 4,265,217, Cl. 126-288.000.
Fleig, William E.: *See*—
Anderson, Richard L.; and Fleig, William E., 4,266,293, Cl. 370-14.000.
Fleischer, Henry. Folding baby carriers. 4,265,481, Cl. 297-30.000.
Fleischer, Jean C.: *See*—
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Flider, Frank S., to Justrite Manufacturing Company. Safety dispensing apparatus for flammable liquids. 4,265,375, Cl. 222-189.000.
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FMC Corporation: *See*—
Chiu, Tony T.; Wright, Bruce M.; Strasser, Jurgen H.; and Harper, Bruce M., 4,265,168, Cl. 99-448.000.
Presnall, Lance O.; and Thurner, Gary H., 4,265,332, Cl. 181-211.000.
Fodor, William G., to Sandvik, Inc. Combination cross and rip cut handsaw. 4,265,285, Cl. 145-31.00R.
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Scott, Orland B.; and Van Camp, Garrett S., 4,265,340, Cl. 188-73.300.
Wilson, Donald H., 4,265,838, Cl. 261-52.000.
Ford, Warren T.: *See*—
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Formhals, Gary G. Grain auger jack. 4,265,429, Cl. 254-100.000.
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Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, to Rosenthal Technik AG; and Kernforschungsanlage Julich GmbH. Heat exchanger. 4,265,302, Cl. 165-165.000.
Fosdick, Dale P.: *See*—
Rosaen, Borje O.; and Fosdick, Dale P., 4,265,271, Cl. 137-540.000.
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Fosseux, Pierre-Yves: *See*—
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Foster, Ronnie D.; and Dickerson, Max R., to Baker Industries, Inc. Supervisory control system for a smoke detector. 4,266,219, Cl. 340-630.000.
Foster, Stephen W., to Almor Corporation. Convertible single-double belt check-out counter. 4,265,336, Cl. 186-66.000.
Four Star Corporation: *See*—
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Tamai, Yasuo; and Ogawa, Hiroshi, 4,265,931, Cl. 427-48.000.
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Seragnoli, Enzo, 4,265,073, Cl. 53-542.000.
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Nahta, Roop C., 4,265,704, Cl. 162-156.000.
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Gallottini, Emilio, to Esmil B.V. Rotary drum vacuum filter. 4,265,764, Cl. 210-390.000.
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Nylen, Ulf T. G.; Olsson, Lars-Goran; Paulsson, Bengt G.; Qvarnstrom, Lars A. G.; and Wichers, Rolf H. L., 4,266,021, Cl. 435-14.000.
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Rosemeier, Friedrich; and Killmaier, Horst, 4,265,428, Cl. 251-346.000.
Gammon, Michael W., to Metallurgical Processes Limited; and I.S.C. Smelting. Condensation of metal vapor. 4,265,644, Cl. 55-257.0NP.
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Garner, John N., to Northern Telecom Limited. Power filling of cable core units. 4,265,686, Cl. 156-48.000.
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Evans, Paul S., 4,265,116, Cl. 73-357.000.
Wickson, Arthur K., 4,266,148, Cl. 307-252.00J.
Gartzke, Rudolf E. Ratchet tool. 4,265,148, Cl. 81-57.290.
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Gast, Fritz G. H.: *See*—
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Gaule, Gerhart K.; Yarwood, John C.; Tyler, Derek E.; and Yun, Ik Y., to Olin Corporation. Duflex impedance shield for shape control in electromagnetic casting. 4,265,294, Cl. 164-49.000.
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Peters, John W.; and Gebhart, Frank L., 4,265,932, Cl. 427-53.100.
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Baird, Leslie L.; and Stolz, Gary M., 4,265,583, Cl. 414-284.000.
Benhase, George J., Jr., 4,265,334, Cl. 184-6.110.
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Ipsen, Peter G., 4,265,472, Cl. 285-179.000.
Jablonski, Richard J.; and Kruh, Daniel, 4,266,047, Cl. 528-322.000.
Johnson, Kenneth O.; Fogg, Harold E.; and Hope, Ned A., 4,265,099, Cl. 64-13.000.
Mailer, Hugh; and Laskos, Stanley, Jr., 4,265,784, Cl. 252-299.000.
Marshall, Robert A., 4,266,154, Cl. 310-219.000.
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Clarke, Stephen E., 4,265,348, Cl. 192-58.00B.
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Emmert, Philip H.; Stevens, Richard A.; and Walkush, Glenn A., 4,265,208, Cl. 123-440.000.
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Suszko, Donald H.; and Zens, John F., 4,265,468, Cl. 280-729.000.
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Gleim, William K. T. Method of enhancing distillate yield in a hydrocarbonaceous material thermocracking process. 4,265,711, Cl. 201-29.000.

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Glover, Charles G., to Lodge & Shipley Company, The. Apparatus for combining articles from plural lanes into a single lane. 4,265,356, Cl. 198-444.000.

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Goldsmith, Sydney A. Harvesting apparatus. 4,265,080, Cl. 56-330.000.

Goldstein, Rachel; Kukanskis, Peter E.; and Grunwald, John J., to MacDermid Incorporated. Method and composition for continuous electroless copper deposition using a hypophosphite reducing agent in the presence of cobalt or nickel ions. 4,265,943, Cl. 427-305.000.

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Curtiss, Walter W., Jr.; and O'Flanagan, Patrick T., 4,265,293, Cl. 152-354.00R.
Stalter, Robert J., 4,265,484, Cl. 297-452.000.

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Gordon, Roy G. Electrically conductive, infrared reflective, transparent coatings of stannic oxide. 4,265,974, Cl. 428-432.000.

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Di Marco, Bernard; and Kralik, Andrew J., 4,266,209, Cl. 335-6.000.
Perkins, Norman P., Jr., 4,266,105, Cl. 200-50.00A.

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Aleck, Benjamin J., 4,265,467, Cl. 280-721.000.

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Krause, Robert F.; Pavlik, Norman M.; and Grunert, Kurt A., 4,265,681, Cl. 148-111.000.

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Goldstein, Rachel; Kukanskis, Peter E.; and Grunwald, John J., 4,265,943, Cl. 427-305.000.

Gsell, Laurenz; Ackermann, Peter; and Wehrli, Rudolf, to Ciba-Geigy Corporation. N-N-Dimethyl-1-(1'-methyl-2'-methoxyethyl)-1,2,4-triazolylcarbamates. 4,265,897, Cl. 424-269.000.

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White, Thomas E., 4,266,103, Cl. 179-99.00E.

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McNeill, William H.; Feuersanger, Alfred E.; Haugsjaa, Paul O.; and Regan, Robert J., 4,266,162, Cl. 315-39.000.
Proud, Joseph M.; and Smith, Robert K., 4,266,166, Cl. 315-248.000.
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Chenot, Charles F., 4,266,160, Cl. 313-486.000.
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Bollinger, Wayne A.; and Guay, Roger G., 4,265,763, Cl. 210-323.200.

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Durbin, Anthony T.; and Kennedy, Bruce A., 4,265,486, Cl. 299-2.000.

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Gurov, Evgeny I.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.

Gustav Georg Veith GmbH & Co. KG: *See—*
Veith, Gustav G., 4,265,178, Cl. 104-88.000.

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Cain, Donald E.; and Gutman, Nathan, 4,265,203, Cl. 123-367.000.

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Haasis, Hans, Jr. Unitized refrigeration and water heating system. 4,265,094, Cl. 62-238.600.

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Lauber, Ernst, 4,265,326, Cl. 180-8.00R.

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Hachisuka, Shunji; Kurashige, Shinji; and Saahiro, Yasuo, to Tokyo Rope Mfg. Co., Ltd. Metal wire cord. 4,265,678, Cl. 148-12.00B.

Hackenberg, Hubert: *See—*
Engelsmann, Dieter; Wagner, Karl; and Hackenberg, Hubert, 4,265,527, Cl. 354-144.000.

Hackmyer, Saul A. Commercial hydrogen gas production by electrolysis of water while being subjected to microwave energy. 4,265,721, Cl. 204-129.000.

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Haemers, Anita G. W. G.: *See—*
de Cooker, Mario G. R. T.; and Haemers, Anita G. W. G., 4,266,052, Cl. 544-192.000.

Hagen, Floyd W.: *See—*
De Leo, Richard V.; and Hagen, Floyd W., 4,265,112, Cl. 73-180.000.

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Moy, David, 4,266,070, Cl. 560-24.000.

Hall, Clarence J. Home rotary paint mixer. 4,265,548, Cl. 366-208.000.

Hall, John B.: *See—*
Wiegers, Wilhelmus J.; and Hall, John B., 4,265,836, Cl. 570-230.000.

Hall, John H., to Micro Power Systems Inc. High temperature refractory metal contact assembly and multiple layer interconnect structure. 4,265,935, Cl. 427-89.000.

Hall, Thornton D. Folding sideboard gooseneck trailer. 4,265,477, Cl. 296-14.000.

Hallbauer, Hans-Dieter; Gast, Fritz G. H.; Hoenow, Klaus-Werner; and Rahn, Armin, to C. Plath KG. Wrench with angular rotation readout. 4,265,109, Cl. 73-862.230.

Halliburton, Charles R. Modular Shelving. 4,265,501, Cl. 312-108.000.

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Ely, John W., 4,265,311, Cl. 166-271.000.
Kierbow, Gerald C.; Tomlinson, Harvard L.; Horinek, Herbert J.; and Crain, Stephen F., 4,265,266, Cl. 137-101.190.

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Jollow, David J.; and Halushka, Perry V., 4,265,909, Cl. 424-324.000.

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Hamas, Robert S. Mammary prosthesis. 4,264,990, Cl. 3-36.000.

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DeLuca, Hector F.; Schnoes, Heinrich K.; Hamer, David E.; and Paaren, Herbert E., 4,265,822, Cl. 260-397.200.

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Jordon, John V. W., 4,265,400, Cl. 238-14.400.

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Handler, Howard, to Datapower, Inc. High intensity discharge lamp starting circuit. 4,266,165, Cl. 315-224.000.

Handler, Sid: *See—*
Parker, John A.; Handler, Sid; and Snook, Randolph W., 4,265,166, Cl. 98-58.000.

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Braun, Erwin; Bock, Erich; Handschuch, Karl; and Schuller, Edmund, 4,265,083, Cl. 57-263.000.

Handte, Herbert, to Moog GmbH. Jig for storing adjustment positions. 4,265,024, Cl. 33-175.000.

Hanisko, John C. P., to Bendix Corporation, The. Electric control apparatus for internal combustion engines. 4,265,210, Cl. 123-490.000.

Hansen, Kjell, to Jon Erlend Glommen. Apparatus for the remote control of mains operated DC and AC welding machines. 4,266,114, Cl. 219-132.000.

Hara, Akio: *See—*
Miyake, Masaya; Nakano, Minol; Yamamoto, Takaharu; and Hara, Akio, 4,265,662, Cl. 75-238.000.

Hara, Hajime: *See—*
Omika, Hiroyoshi; Hara, Hajime; Otsuki, Yutaka; Araki, Yoshihiko; and Aoyama, Kazuho, 4,265,793, Cl. 260-23.0EP.

Hara, Kazuyuki; and Kamada, Takeshi, to Ricoh Company, Ltd. Facsimile transmission and reception apparatus. 4,266,251, Cl. 358-286.000.

Harada, Takesi: *See—*
Sumikawa, Seizi; and Harada, Takesi, 4,265,395, Cl. 236-13.000.

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Skoch, Leroy V.; Harmon, Bud G.; Dickerson, Charles W.; and Chou, Nelson S., 4,265,916, Cl. 426-74.000.

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Owen, Peter W.; Harmon, Zita K.; and Tomalia, Donald A., 4,265,825, Cl. 260-401.000.

Harnish, James R., to Borg-Warner Corporation. Heat pump control system. 4,265,299, Cl. 165-12.000.

Harp, Marlyn F.; Diepenbrock, James L., Jr.; and Nelsen, M. Dean, to Boeing Company, The. Honeycomb core with internal septum and method of making same. 4,265,955, Cl. 428-116.000.

Harper, Bruce M.: *See—*
Chiu, Tony T.; Wright, Bruce M.; Strasser, Jurgen H.; and Harper, Bruce M., 4,265,168, Cl. 99-448.000.

Harrell, Terry R.; and Pfeiffer, Robert C., to Allied Chemical Corporation. Emergency release device for seat belt retractor. 4,265,415, Cl. 242-107.40A.

Harris Corporation: *See—*
Belfatto, Robert V., 4,266,201, Cl. 332-9.00R.

Harsch, Klaus: *See—*
Streit, Klaus; Harsch, Klaus; and Schulzke, Peter, 4,266,261, Cl. 361-154.000.

Hartwell Corporation: *See—*
Poe, L. Richard, 4,265,474, Cl. 292-241.000.

Hasegawa, Hiroshi, to Tokyo Engine Kogyo Kabushiki Kaisha. Foot controller for electrical dental instruments. 4,265,622, Cl. 433-101.000.

Hasegawa, Tetsuo; Kato, Shigeo; and Miyashita, Takeshi, to Canon Kabushiki Kaisha. Pressure fixable capsule toner. 4,265,994, Cl. 430-107.000.

Hasegawa, Toshio: *See—*
Kawamura, Takayuki; Tazaki, Kichiya; Sakakiyama, Takashi; and Hasegawa, Toshio, 4,265,977, Cl. 428-511.000.

Hashimoto, Minoru: *See—*
Fujimori, Yoshinori; Ishizawa, Akio; and Hashimoto, Minoru, 4,265,841, Cl. 264-22.000.

Hashimoto, Naoto; and Kishi, Toyokazu, to Takeda Chemical Industries. Matansinol 3-n-hexadecanoate. 4,265,814, Cl. 260-239.30P.

Hatada, Kenji; Kobayashi, H.; and Yokura, Miyoshi, to Toray Industries, Inc. Plastic tube having a crosslinked thin layer on the surface. 4,265,276, Cl. 138-177.000.

Hathorn, Jack L.; and Scheier, Donald J., to Gordon Johnson Company. Opening method for poultry carcasses. 4,265,001, Cl. 17-11.000.

Hatsell, William A., to Exxon Research & Engineering Co. Ribbon threading assembly for an impact printer. 4,265,553, Cl. 400-238.000.

Hatton, C. W.; Orr, J. C.; and Stevenson, R. G. Stall stabilizer for a centrifugal rotor. 4,265,593, Cl. 416-183.000.

Haugsjaa, Paul O.: *See—*
McNeill, William H.; Feuersanger, Alfred E.; Haugsjaa, Paul O.; and Regan, Robert J., 4,266,162, Cl. 315-39.000.

Hauni-Werke Korber & Co. KG.: *See—*
Helms, Adolf, 4,265,255, Cl. 131-69.000.
Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, 4,265,254, Cl. 131-281.000.

Hausner, John E.: *See—*
Fraser, Daniel M.; Hausner, John E.; Hawkins, William J.; and Comiskey, Frederick K., 4,266,106, Cl. 200-61.440.

Haussmann, Robert H.: *See—*
Steensma, Peter D.; Haussmann, Robert H.; and Polcer, Anton J., 4,266,183, Cl. 324-52.000.

Havens, Carl B., to Dow Chemical Company, The. Method and apparatus for forming of reinforced tube. 4,265,853, Cl. 264-519.000.

Hawkins, J. C. Personnel alarm circuit for industrial machinery. 4,266,221, Cl. 340-679.000.

Hawkins, Wallace H. Loading device for vehicle beds. 4,265,585, Cl. 414-541.000.

Hawkins, William J.: *See—*
Fraser, Daniel M.; Hausner, John E.; Hawkins, William J.; and Comiskey, Frederick K., 4,266,106, Cl. 200-61.440.

Hayakawa, Shuzo: *See—*
Okushima, Hiromi; Fujimori, Shinichiro; Furuya, Rikizo; and Hayakawa, Shuzo, 4,265,816, Cl. 260-239.55C.

Hayakawa, Yoshihiro: *See—*
Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, 4,265,288, Cl. 152-209.00R.

Hayakawa, Yoshiichi: *See—*
Uda, Masayuki; and Hayakawa, Yoshiichi, 4,266,158, Cl. 313-325.000.

Hayashi, Shigeki; and Okamoto, Takemitsu, to Nusco Kabushiki Kaisha. Cutting control apparatus. 4,266,276, Cl. 364-475.000.

Hayashi, Yuzuru: *See—*
Kawaguchi, Takeyuki; Taketani, Yutaka; Hayashi, Yuzuru; Ono, Tomoyoshi; and Mori, Koh, 4,265,745, Cl. 210-654.000.

Hayashida, Takanori, to Yamaha Hatsukoki Kabushiki Kaisha. Induction system of four stroke internal combustion engine. 4,265,207, Cl. 123-432.000.

Hayes, Thomas H.; and Lo Maglio, Lewis C., to Ethyl Corporation. Collapsible dispensing tube. 4,265,948, Cl. 428-35.000.

Hayssen Manufacturing Company: *See—*
Mainberger, Walter A.; and Gerritsen, Adrian, 4,265,070, Cl. 53-433.000.

Heaney, James J., to Anthony's Manufacturing Company, Inc. Method of forming frangible door containers. 4,265,069, Cl. 53-399.000.

Heartland Chemicals: *See—*
Duwell, Michael J.; and Specht, Paul B., 4,265,584, Cl. 414-412.000.

Hebenstreit, Ernst: *See—*
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,266,205, Cl. 333-165.000.

Heckele, Helmut, to Richard Wolf GmbH. Holders for medical apparatus. 4,265,561, Cl. 403-3.000.

Heckethorn, John E., to Heckethorn Manufacturing Company. U-Bolt clamp saddle construction. 4,265,005, Cl. 24-277.000.

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Hedges, James H.; and Glinsmann, Gilbert R., to Phillips Petroleum Company. Oil recovery method using unique salinity for oil recovery surfactant system. 4,265,308, Cl. 166-252.000.

Hee, Wong: *See—*
Hobrecht, Stephen W.; Skawinski, Henry M.; Chiu, Kh; and Hee, Wong, 4,266,254, Cl. 360-62.000.

Heffner, Clifton W.: *See—*
Reuter, Daniel L.; Reid, Philip L.; Blackburn, Charles M.; and Heffner, Clifton W., 4,265,074, Cl. 53-551.000.

Heine, David R.: *See—*
Denton, Medona B.; Windsor, David L.; and Heine, David R., 4,266,113, Cl. 219-121.0PQ.

Heinzl, Joachim; and Kattner, Erich, to Siemens Aktiengesellschaft. Arrangement for the optoelectrical scanning of a master. 4,266,250, Cl. 358-285.000.

Heinzl, Joachim; Schlossbauer, Hubert; Miller, Heide-Marie; and Uhden, Irene, to Siemens Aktiengesellschaft. Method for storing serial data on a recording carrier. 4,266,280, Cl. 364-900.000.

Heller, Laszlo; Forgo, Laszlo; Papp, Istvan; Bodas, Janos; Kovacs, Gyula; and Laszlo, Karoly, to Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat. Internal fin tube heat exchanger. 4,265,275, Cl. 138-38.000.

Helms, Adolf, to Hauni-Werke Korber & Co. KG. Method and machine for processing webs of cigarette paper or the like. 4,265,255, Cl. 131-69.000.

Henderson, Drew: *See—*
Desai, Mahendrakumar D.; and Henderson, Drew, 4,265,371, Cl. 222-70.000.

Henderson's Industries Limited: *See—*
Park, Ronald S., 4,266,042, Cl. 521-123.000.

Hendrickson, Thomas E., to Honeywell Inc. Semiconductor apparatus. 4,266,237, Cl. 357-41.000.

Henle, Robert A.; and Johnson, Alfred H., to International Business Machines Corporation. Vertical semiconductor integrated circuit chip packaging. 4,266,282, Cl. 365-52.000.

Hennig, Michael F.: *See—*
Reiner, Lawrence L.; Marra, Michael; and Hennig, Michael F., 4,265,449, Cl. 273-41.000.

Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., to Zoecon Corporation; and Imperial Chemical Industries Limited. Phenyl uracils. 4,266,056, Cl. 544-311.000.

Herbst, Heiner; Pfleiderer, Hans-Jorg; Koch, Rudolf; and Tihanyi, Jeno, to Siemens Aktiengesellschaft. Optoelectronic sensor according to the principle of carrier injection. 4,266,235, Cl. 357-30.000.

Herchenbach, Horst: *See—*
Brachthauser, Kunibert; and Herchenbach, Horst, 4,265,670, Cl. 106-100.000.

Hercules Incorporated: *See—*
Breslow, David S., 4,265,807, Cl. 260-97.500.
Hughes, Norman E.; and Scheve, Bernard J., 4,266,007, Cl. 430-306.000.

Hermann Berstorff Maschinenbau GmbH: *See—*
Martin, Gerhard, 4,265,547, Cl. 366-79.000.

Hermann Screens Manufacturing Company (Proprietary) Limited: *See—*
Bucker, Fritz O.; and Lambrecht, Henning F. W. M. A., 4,265,742, Cl. 209-399.000.

Herr, John A.; and Jaffe, Wolfgang, to Singer Company, The. Method of and apparatus for cooling electric motors and totally enclosed electric motors incorporating same. 4,266,152, Cl. 310-59.000.

Herrmann, Robert P.; Pease, Floyd T.; and Ray, Donald R., to Offshore Company, The. Gravity base, jack-up platform - method and apparatus. 4,265,568, Cl. 405-196.000.

Herrnring, Gunther; and Nussen, Klaus P., to Montblanc-Simplo GmbH. Aluminum plating cell. 4,265,726, Cl. 204-202.000.

Herskovitz, Sheldon B.; Marlin, Jay; and Stiglitz, Martin R., to Solar Energy Technology, Inc. Electrically heated endodontic syringe for injecting thermoplastic material into a root canal cavity. 4,265,618, Cl. 433-32.000.

Herwegh, Norbert: *See—*
Berger, Ernst; and Herwegh, Norbert, 4,265,225, Cl. 126-445.000.

Hesse, Anton; Lechtken, Peter; Nicolaus, Walter; and Scholz, Dankmar, to BASF Aktiengesellschaft. Photocurable molding, impregnating and coating compositions. 4,265,723, Cl. 204-159.230.

Hestermann, Klaus: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.

Hetherington, Brian L., to Du Pont Canada, Inc. Process for producing a heat-weakened strip in polyolefin film. 4,265,616, Cl. 432-8.000.

Hetz, Heinz K., to Yarway Corporation. Modulating flow control valve assembly. 4,265,268, Cl. 137-117.000.

Heu, Ferdinand: *See—*
Saischek, Gerald; Wegleitner, Karlheinz; Heu, Ferdinand; and Wohlmuth, Roman, 4,265,664, Cl. 106-18.130.

Hewlett-Packard Company: *See—*
Epstein, Howard C.; and Uebbing, John J., 4,266,125, Cl. 250-231.0SE.

Hibbard, George A., to Joy Manufacturing Company. Rock drill. 4,265,321, Cl. 173-78.000.

Hickey, Albert A.: *See—*
Rowell, Robert; and Hickey, Albert A., 4,265,333, Cl. 182-92.000.

Higgins, Wayne G. Markers for electric fences. 4,265,195, Cl. 116-209.000.

Higuchi, Masahiro: *See—*
Morishita, Sadao; Okumura, Fumio; and Higuchi, Masahiro, 4,265,978, Cl. 428-537.000.

Hill, Alvin J., to Eastern Associated Coal Corp. Capsule apparatus for transporting a disabled person. 4,265,353, Cl. 198-321.000.

Hill, Robert W.: *See—*
Pelser, Robert J.; Pelser, Lewis M.; Hill, Robert W.; Brown, Sanford W.; and Fischer, Robert G., 4,265,680, Cl. 148-103.000.

Hill, Roger C., to Johnson & Johnson. Stoma adaptor. 4,265,244, Cl. 128-283.000.

Hills, Robert A. Manual stock feeder. 4,265,385, Cl. 226-127.000.

Hillstead, David P.: *See—*
Neff, Robert K.; and Hillstead, David P., 4,265,182, Cl. 105-197.00D.

Hilti Aktiengesellschaft: *See—*
Lippacher, Wolfgang; and Teger, Gerhard, 4,265,008, Cl. 29-240.000.

Hinden, Milton, to Duro Dyne Corporation. Insulation support fixture and method of making the same. 4,264,995, Cl. 10-1.00R.

Hines, Kenneth W., to Motorola, Inc. Memory system for a Doppler radar incorporating a fast Fourier transform computer. 4,266,279, Cl. 364-726.000.

Hinze, Kenneth J., to Dow Chemical Company, The. Stabilization of polyether polyols and polyurethane foams prepared therefrom. 4,265,783, Cl. 252-182.000.

Hirai, Masahide: *See—*
Uejima, Hiroyuki; Hirai, Masahide; and Sakaida, Tsutomu, 4,266,045, Cl. 528-161.000.

Hirai, Yutaka; Komatsu, Toshiyuki; Nakagawa, Katsumi; Misumi, Teruo; and Fukuda, Tadaji, to Canon Kabushiki Kaisha. Electrophotographic photosensitive member and process for production thereof. 4,265,991, Cl. 430-64.000.

Hirakawa, Manabu: *See—*
Sano, Takezo; Shimomura, Takatoshi; Murase, Ichiki; and Hirakawa, Manabu, 4,265,959, Cl. 428-216.000.

Hirakawa, Yukio: *See—*
Miyagaki, Katsunori; Noguchi, Shozo; and Hirakawa, Yukio, 4,266,239, Cl. 357-84.000.

Hirakura, Koji; Sawada, Yasuo; and Watase, Kenta, to Ricoh Company, Ltd. Toner developing ability measuring system for electrostatography. 4,266,141, Cl. 250-564.000.

Hirano, Masachika: *See—*
Fujimoto, Keimei; Ohno, Nobuo; Okuno, Yoshitoshi; Mizutani, Toshio; Ohno, Isao; Hirano, Masachika; Itaya, Nobushige; and Matsuo, Takashi, 4,266,074, Cl. 560-105.000.

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Adachi, Keiichi; Hirano, Shigeo; and Tsujino, Nobuyuki, 4,266,013, Cl. 430-410.000.

Hirose, Masahiko; and Akai, Yoshimi, to Tokyo Shibaura Denki K.K. Surface treating apparatus utilizing plasma generated by microwave discharge. 4,265,730, Cl. 204-298.000.

Hirose, Minoru, to Tokyo Shibaura Denki Kabushiki Kaisha. Receipt slip issuing apparatus. 4,266,121, Cl. 235-381.000.

Hitachi, Ltd.: *See—*
Kato, Katsuhiko; and Kojima, Tosaku, 4,266,256, Cl. 360-128.000.
Kawazoe, Kazuyoshi; Takata, Yoshinori; Suzuki, Mon; and Uehara, Shizuo, 4,266,196, Cl. 324-464.000.
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Kawanishi, Tsuneaki; Mukoh, Akio; and Morishita, Hirosada, 4,265,993, Cl. 430-107.000.

Hitco: *See—*
Beckley, Don A., 4,265,727, Cl. 204-242.000.

Hjortzberg, Bernhard A., to BASF Aktiengesellschaft. Color signal encoding methods and apparatus for video recording and playback. 4,266,241, Cl. 358-4.000.

Hlavka, Lloyd F., to Varian Associates, Inc. Sensor for VT probes. 4,266,194, Cl. 324-315.000.

Hobbs, James W., to Phillips Petroleum Company. Non-linear level controller. 4,265,263, Cl. 137-2.000.

Hobrecht, Stephen W.; Skawinski, Henry M.; Chiu, Kh; and Hee, Wong, to National Semiconductor Corp. Integrated circuit for recording and playback of such recording. 4,266,254, Cl. 360-62.000.

Hoechst Aktiengesellschaft: *See—*
Buhr, Gerhard; and Ruckert, Hans, 4,266,001, Cl. 430-192.000.
Debus, Gerhard; Girg, Friedrich; and Knittel, Volker, 4,265,674, Cl. 106-314.000.
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.
Legutke, Gunter; Scholz, Harald; and Schuchardt, Kurt, 4,265,837, Cl. 570-243.000.
Munster, Gerhard; Riess, Gerhard; and Russow, Jurgen, 4,265,865, Cl. 423-300.000.
Papenfuhs, Theodor; and Teige, Wolfgang, 4,265,632, Cl. 8-512.000.
Schell, Loni, 4,265,999, Cl. 430-189.000.
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Hoeka Sierpleisters En Muurverven B.V.: *See—*
Blom, Cornelis W.; and van Keulen, Jacobus M., 4,265,958, Cl. 428-166.000.

Hoenow, Klaus-Werner: *See—*
Hallbauer, Hans-Dieter; Gast, Fritz G. H.; Hoenow, Klaus-Werner; and Rahn, Armin, 4,265,109, Cl. 73-862.230.

Hoffman, Douglas L. Collet chuck aligning assembly for gem faceting machines. 4,265,057, Cl. 51-229.000.

Hoffmann, Kurt; and Ernst, Roland, to Siemens Aktiengesellschaft. Semiconductor circuit with at least two field effect transistors united in a semiconductor crystal. 4,266,151, Cl. 307-297.000.

Hoffmann-La Roche Inc.: *See—*
Chan, Ka-Kong; and Pawson, Beverly A., 4,266,073, Cl. 560-55.000.
Daum, Adam; Fernex, Michel; and Wick, Alexander E., 4,265,893, Cl. 424-246.000.

Hoffmann, Ralph L., to Perfection Manufacturing Company, The. Rigid grass catcher. 4,265,079, Cl. 56-202.000.

Hoke, Kenneth E.: *See—*
Frederick, Louis J.; Hoke, Kenneth E.; Greene, Jerrold W.; and Miller, Stephen D., 4,265,578, Cl. 414-130.000.

Holcomb, Normand P.: *See—*
Stone, Frederick A.; and Holcomb, Normand P., 4,265,305, Cl. 166-113.000.

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Pace, Gary W.; and Holding, Trevor J., 4,265,673, Cl. 106-177.000.

Hollett, Ronald C.: *See—*
Bucy, Raymond W., Jr.; Gallardo, Vicente C., Jr.; Hollett, Ronald C.; and Young, Eric A., 4,265,595, Cl. 416-220.00R.

Hollyday, Robert D., to AMP Incorporated. Filtered connector assembly. 4,265,506, Cl. 339-147.00R.

Holmes, Howard H., to Textron, Inc. Sliding valve assembly for use in gas meters or the like. 4,265,113, Cl. 73-266.000.

Holset Engineering Company Limited: *See—*
Atkin, Howard S., 4,265,456, Cl. 277-95.000.

Holsopple, Dale B.; Kurple, Wasyl W.; Kurple, William M.; and Kurple, Kenneth R. Method of making epoxide-lignin resins. 4,265,809, Cl. 260-124.00R.

Holzler, Georg; and Knoche, Jochem, to Siemens Aktiengesellschaft. Electromechanical control device for displacing an object. 4,266,169, Cl. 318-490.000.

Homan, Gary R.; and Lee, Chi-Long, to Dow Corning Corporation. Compositions including mercaptoorganopolysiloxanes and stannic salts of carboxylic acids. 4,265,792, Cl. 260-18.00S.

Honeywell Inc.: *See—*
Hendrickson, Thomas E., 4,266,237, Cl. 357-41.000.
Stuhr, Leslie P., 4,265,115, Cl. 73-349.000.

Honeywell Information Systems, Inc.: *See—*
Panepinto, William, Jr., 4,266,285, Cl. 365-189.000.

Hons-Olivier, Jacques P.; Le Thanh, Tri; and Devanz, Francois M., to Impervia, Societe d'Etudes et de Realisations. Fireproof elastic packing material. 4,266,039, Cl. 521-85.000.

Hope, Ned A.: *See—*
Johnson, Kenneth O.; Fogg, Harold E.; and Hope, Ned A., 4,265,099, Cl. 64-13.000.

Hopkins, Donald L., to Alf Hannaford & Co. Pty. Ltd. Method and apparatus to assist in provoking forward movement of animals. 4,265,199, Cl. 119-29.000.

Hopkins, Richard H.: *See—*
Blaugher, Richard D.; and Hopkins, Richard H., 4,265,683, Cl. 148-120.000.

Hoppner, Dietrich; and Kohlbacher, Gerhard, to Licentia Patent-Verwaltungs-G.m.b.H. Monolithically integrated semiconductor circuit. 4,266,100, Cl. 179-18.0GF.

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Nagatomo, Shigeru; and Hori, Kiyotaka, 4,266,010, Cl. 430-355.000.

Horike, Akihiro: *See—*
Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, 4,266,053, Cl. 544-196.000.

Horinek, Herbert J.: *See—*
Kierbow, Gerald C.; Tomlinson, Harvard L.; Horinek, Herbert J.; and Crain, Stephen F., 4,265,266, Cl. 137-101.190.

Horio, Motohiko: *See—*
Furusawa, Motoyoshi; Horio, Motohiko; Togashi, Shyuichi; and Ohmiya, Akio, 4,265,412, Cl. 242-71.400.

Hornbeck, Larry J.; and Hosack, Harold H., to Texas Instruments Incorporated. Parallel readout stratified channel CCD. 4,266,234, Cl. 357-24.000.

Horrell, Charles I. Device for sharpening lawn mower blades. 4,265,146, Cl. 76-82.100.

Horstmann, Harald; Meng, Karl-August, deceased (by Meng, Ilse Heide Frieda, legal representative); by Meng, Matthias, legal representative; Seuter, Friedel; and Moller, Eike, to Bayer Aktiengesellschaft. Imidazo[2,1-b]-[1,3,4]-thiadiazole compounds, composition and their medicinal use. 4,265,898, Cl. 424-270.000.

Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased (by Philips, J. Christopher, administrator), to United States of America, Health, Education and Welfare. Synthesis of analogs of 3'-phosphoadenosine 5'-phosphosulfate (PAPS). 4,266,048, Cl. 536-27.000.

Hosack, Harold H.: *See—*
Hornbeck, Larry J.; and Hosack, Harold H., 4,266,234, Cl. 357-24.000.

Hoshino, Yasushi: *See—*
Tateishi, Kazuyoshi; Hoshino, Yasushi; and Takano, Rikuo, 4,265,989, Cl. 430-57.000.

Hosiden Electronics Co., Ltd.: *See—*
Uda, Masayuki; and Hayakawa, Yoshiichi, 4,266,158, Cl. 313-325.000.

Hosken, James C. Magnetic fastening means. 4,265,002, Cl. 24-201.00B.

Hosokawa, Shuji: *See—*
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, 4,265,320, Cl. 173-12.000.

Hospital and Welfare Board of Hillsborough County, The: *See—*
Ruge, Walter, 4,265,227, Cl. 128-23.000.

Hotine, William. Fluent material level control system. 4,265,262, Cl. 137-2.000.

Hou, Ching-Tsang: *See—*
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,266,034, Cl. 435-253.000.

Howard, Thomas J., Jr.: *See—*
Schrock, Martin O.; Howard, Thomas J., Jr.; and Jinkins, Danny R., 4,265,018, Cl. 30-276.000.

Howell, Edward K., to General Electric Company. Long-time and short-time overcurrent signal processor for circuit breaker static trip units. 4,266,259, Cl. 361-97.000.

Hoyt, Hazen L., 4th; and Uhr, Daniel R., Jr., to Pfizer Inc. Manganese micronutrient solutions. 4,265,653, Cl. 71-11.000.

Huang, Max W., to Rust Engineering Company, The. Biomass liquefaction process. 4,266,083, Cl. 585-240.000.

Huber, Harold H.: *See—*
Flaherty, Louis W.; and Huber, Harold H., 4,265,217, Cl. 126-288.000.

Huffy Corporation: *See—*
Bianco, Andrew S., 4,265,378, Cl. 222-539.000.

Hughes Aircraft Company: *See—*
Cook, Lacy G., 4,265,510, Cl. 350-55.000.
Ladd, Glenn O., Jr., 4,265,934, Cl. 427-84.000.
Peters, John W.; and Gebhart, Frank L., 4,265,932, Cl. 427-53.100.

Hughes, Norman E.; and Scheve, Bernard J., to Hercules Incorporated. Multilayer printing plates and process for making same. 4,266,007, Cl. 430-306.000.

Humes Limited: *See—*
Jordon, John V. W., 4,265,400, Cl. 238-14.400.

Hunt & Moscrop (Textile Machinery) Limited: *See—*
Gasse, Robert W., 4,265,533, Cl. 355-110.000.

Hunt, Peter; and Trelford, Aston M., to Kirby Pharmaceuticals Ltd. Tabletting process. 4,265,847, Cl. 264-122.000.

Hunter Douglas International N.V.: *See—*
Vecchiarelli, Francis, 4,265,423, Cl. 248-264.000.

Hunter, Edwin J., to Toro Company, The. Support structure for traveling sprinkler. 4,265,404, Cl. 239-186.000.

Hunter, Lee. Vehicle wheel alignment diagnosing apparatus. 4,265,537, Cl. 356-155.000.

Huo, Anne: *See—*
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.

Hurley, Byron H.; and Ricks, Walter G. Labeling apparatus. 4,265,695, Cl. 156-285.000.

Hyde, Bill J.: *See—*
Greenlee, Donald R.; and Hyde, Bill J., 4,265,459, Cl. 277-212.00C.

I.S.C. Smelting: *See—*
Gammon, Michael W., 4,265,644, Cl. 55-257.0NP.

Ichihashi, Hiroo: *See—*
Shinohara, Yukimasa; and Ichihashi, Hiroo, 4,265,198, Cl. 118-695.000.

Ichiyanagi, Toshikazu: *See—*
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, 4,265,521, Cl. 354-23.00D.

Ida, Hideaki: *See—*
Banno, Taiichi; and Ida, Hideaki, 4,265,544, Cl. 356-427.000.

Idelson, Elbert M., to Polaroid Corporation. Novel azo dyes. 4,265,811, Cl. 260-147.000.

Iida, Masaaki; Kato, Chihiro; Ohshima, Shigemitsu; and Yazawa, Yoshiyuki, to Ajinomoto Company, Incorporated. Method for fractionating an oil or fat to separate the high melting point components thereof. 4,265,826, Cl. 260-428.000.

Iida Sankyo Co., Ltd.: *See—*
Obata, Katsuhiro; and Koizumi, Shigenobu, 4,266,291, Cl. 368-168.000.

IIT Research Institute: *See—*
Camras, Marvin, 4,266,255, Cl. 360-90.000.

Iizawa, Osamu: *See—*
Fujiwara, Shinobu; Furukawa, Kiyoshi; Kikuchi, Nobuaki; Iizawa, Osamu; and Tanaka, Hitoshi, 4,265,668, Cl. 106-73.300.

Iizuka, Hiromichi: *See—*
Maeda, Eizo; and Iizuka, Hiromichi, 4,265,164, Cl. 91-417.00R.

Ikeda Bussan Co. Ltd.: *See—*
Nishimura, Shinichi; and Izumida, Satoshi, 4,265,482, Cl. 297-391.000.

Ikeda, Tadashi; Sakai, Takeo; Takei, Haruo; and Inoue, Noriyuki, to Fuji Photo Film Co., Ltd. Silver halide photographic emulsions. 4,266,003, Cl. 430-264.000.

Ikeda, Yoshirou; and Kaite, Yoshikazu, to Nippon Sheet Glass Co., Ltd. Step-type light-transmitting body having excellent water resistance. 4,265,667, Cl. 106-47.00Q.

ILC Technology, Inc.: *See—*
Juvan, Christian H. A., 4,266,180, Cl. 322-4.000.

Im, Chang J. Apparatus and method for separating diverse particles of a slurry. 4,265,741, Cl. 209-211.000.

Imafuku, Shigehisa: *See—*
Sugahara, Yujiro; Naito, Hiroyuki; Takai, Kiyoshi; and Imafuku, Shigehisa, 4,265,864, Cl. 423-121.000.

Imagawa, Takashi: *See—*
Kagitani, Yoshio; Imagawa, Takashi; Inahara, Hirohisa; and Watanabe, Ryozo, 4,265,888, Cl. 424-233.000.

Imamura, Junji, to Mitsuboshi Belting Ltd. Power transmission belt. 4,265,627, Cl. 474-267.000.

Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, to Teijin Limited. Melamine group-containing (meth)acrylate. 4,266,053, Cl. 544-196.000.

IMED Corporation: *See—*
Jenkins, Jon A., 4,265,240, Cl. 128-214.00E.

Impact International Pty. Limited: *See—*
Lajovic, Dimitri E.; and Lassner, Hans, 4,265,432, Cl. 266-220.000.

Imperial Chemical Industries Limited: *See—*
Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., 4,266,056, Cl. 544-311.000.
Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., 4,265,406, Cl. 241-16.000.

Impervia, Societe d'Etudes et de Realisations: *See—*
Hons-Olivier, Jacques P.; Le Thanh, Tri; and Devanz, Francois M., 4,266,039, Cl. 521-85.000.

Inahara, Hirohisa: *See—*
Kagitani, Yoshio; Imagawa, Takashi; Inahara, Hirohisa; and Watanabe, Ryozo, 4,265,888, Cl. 424-233.000.

Ing. C. Olivetti & C., S.p.A.: *See—*
Berton, Marcello; and Ceccarelli, Pietro, 4,265,500, Cl. 312-107.000.
Donnis, Gian P.; and Borca, Giancarlo C., 4,265,550, Cl. 400-196.100.

Ingersoll-Rand Company: *See—*
Luthi, Oscar, 4,265,740, Cl. 209-211.000.

Inman, Richard V.: *See—*
Morris, Winfred L.; Inman, Richard V.; and Buck, Otto, 4,265,120, Cl. 73-600.000.

Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,266,170, Cl. 318-565.000.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Safety arrangement for NC systems. 4,266,170, Cl. 318-565.000.

Inoue, Noriyuki: *See—*
Ikeda, Tadashi; Sakai, Takeo; Takei, Haruo; and Inoue, Noriyuki, 4,266,003, Cl. 430-264.000.

Inoue, Takehisa: *See—*
Ebitani, Atsushi; Inoue, Takehisa; and Tsunoi, Kazuo, 4,265,788, Cl. 252-455.00Z.

Inoue, Teruo, to Toyo Rubber Industry Co., Ltd., The. Radial tires. 4,265,292, Cl. 152-354.00R.

Inoue, Tomohiro; and Masuzawa, Sigeaki, to Sharp Kabushiki Kaisha. Audible output device for talking timepieces, talking calculators and the like. 4,266,096, Cl. 179-1.50M.

Inoue, Yoshiharu; Tanimoto, Fumio; and Kitano, Hisao, to Nippon Kasei Chemical Co., Ltd. Tris(3-acetylthiopropyl)isocyanurate and preparation thereof. 4,266,055, Cl. 544-221.000.

Inouye, Kozo: *See—*
Kobayashi, Hidetoshi; Tanaka, Mitsugu; Inouye, Kozo; and Naito, Hideki, 4,266,019, Cl. 430-551.000.

Inouye, Shigeharu: *See—*
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.

Institut Francais du Petrole: *See—*
Arnaudeau, Marcel, 4,265,313, Cl. 166-366.000.

Institutul De Cercetart Si Proiectari Tehnologice In Transporturi: *See—*
Scorteanu, Ionel R., 4,265,419, Cl. 246-247.000.

Instrumentarium OY: *See—*
Ahjopalo, Hannu; and Auvinen, Jorma J., 4,266,131, Cl. 250-341.000.

Intec Corporation: *See—*
Slaker, Frank A., 4,265,545, Cl. 356-431.000.

Intel Corporation: *See—*
Perlegos, George; and Johnson, William S., 4,266,283, Cl. 365-104.000.

Intermedicat GmbH: *See—*
Braun, Bernd, 4,265,928, Cl. 427-2.000.
Griesel, Karl-Heinz, 4,265,118, Cl. 73-427.000.

International Business Machines Corporation: *See—*
Aakalu, Nandakumar G.; and Rittmiller, Lawrence A., 4,265,775, Cl. 252-573.000.
Barclay, Donald J.; and Prowting, Christopher T., 4,265,543, Cl. 356-369.000.
Barkley, John A., 4,265,998, Cl. 430-125.000.
Bemis, John D.; and Goff, Willie, Jr., 4,265,552, Cl. 400-236.000.
Berglund, Neil C.; and Kempke, William G., 4,266,272, Cl. 364-200.000.
Clancy, Douglas E.; Johnson, Carl F.; McCray, William R.; and Neal, Danny M., 4,265,554, Cl. 400-316.000.
Drago, Gary A.; Mix, Arthur L., Jr.; and Ritchie, Robert T., 4,266,231, Cl. 346-75.000.
Henle, Robert A.; and Johnson, Alfred H., 4,266,282, Cl. 365-52.000.
Juliana, Anthony, Jr.; Koepcke, Richard W.; Mills, Ross N.; and Talke, Frank E., 4,266,232, Cl. 346-140.00R.
Krieg, Michael L.; and Quinn, Paul A., Jr., 4,265,556, Cl. 400-342.000.

International Flavors & Fragrances Inc.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,265,923, Cl. 426-538.000.
Wiegers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,265,818, Cl. 260-345.200.
Wiegers, Wilhelmus J.; and Hall, John B., 4,265,836, Cl. 570-230.000.

International Harvester Company: *See—*
Oshel, J. Bryan; and Bennett, Robert J., 4,265,588, Cl. 414-786.000.

International Power Technology, Inc.: *See—*
Cheng, Dah Y., 4,265,713, Cl. 203-10.000.

International Standard Electric Corporation: *See—*
Dobler, Karl-Ulrich; Mura, Sigurd; and Kraft, Erhard, 4,266,273, Cl. 364-426.000.

International Telephone and Telegraph Corporation: *See—*
Bowman, Jeffrey M., 4,265,141, Cl. 74-516.000.
Burns, Edgar, 4,265,504, Cl. 339-97.00R.
Kao, Charles K., 4,265,515, Cl. 350-96.330.
Perrotti, Emmanuel J., 4,266,228, Cl. 343-771.000.
Steensma, Peter D.; Haussmann, Robert H.; and Polcer, Anton J., 4,266,183, Cl. 324-52.000.

Inveresk Research International: *See—*
Byrne, Geoffry A.; and Aylott, Ross I., 4,265,875, Cl. 424-19.000.

Ipsen, Peter G., to General Electric Company. Pipe elbow connection. 4,265,472, Cl. 285-179.000.

Iriguchi, Norio: *See—*
Boretos, John W.; and Iriguchi, Norio, 4,265,694, Cl. 156-242.000.

Ishigaki, Yukinobu, to Victor Company of Japan, Limited. Multipath distortion compensation circuit and method. 4,266,296, Cl. 455-303.000.

Ishiguro, Shoji; Shishido, Tadao; Sakai, Takeo; Sasaki, Noboru; Nagaoka, Joji; and Matsuki, Minoru, to Fuji Photo Film Co., Ltd. Silver halide photographic emulsions. 4,266,018, Cl. 430-550.000.

Ishihara, Kanji, to Tokico Ltd. Disc brake. 4,265,339, Cl. 188-72.500.

Ishihara Sangyo Kaisha Ltd.: *See—*
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Tsujii, Yasuhiro; and Nishimura, Shigeyuki, 4,266,064, Cl. 546-345.000.

Ishikawa, Ro: *See—*
Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, 4,265,513, Cl. 350-96.200.

Ishizawa, Akio: *See—*
Fujimori, Yoshinori; Ishizawa, Akio; and Hashimoto, Minoru, 4,265,841, Cl. 264-22.000.

Isola, Raymond O. Cartridge retriever mounting and attaching device for a colt M-16 rifle. 4,265,042, Cl. 42-1.00T.

Isotronics, Incorporated: *See—*
Scherer, Jeremy D., 4,266,089, Cl. 174-52.0FP.
Scherer, Jeremy D., 4,266,090, Cl. 174-52.0FP.

Issenmann, Olivier, to Compagnie Geofinanciere. Chromatographic analysis of gaseous matter. 4,266,277, Cl. 364-498.000.

Itaya, Nobushige: *See—*
Fujimoto, Keimei; Ohno, Nobuo; Okuno, Yoshitoshi; Mizutani, Toshio; Ohno, Isao; Hirano, Masachika; Itaya, Nobushige; and Matsuo, Takashi, 4,266,074, Cl. 560-105.000.

Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, 4,265,906, Cl. 424-304.000.

Ito, Kazuichi. Rotary pump with wedge roller eccentric means driving the rotor. 4,265,605, Cl. 418-63.000.

Ito, Shohei, to Seiko Seiki Kabushiki Kaisha. Internal grinding machine. 4,265,054, Cl. 51-5.00D.

Itoh, Katsumi: *See—*
Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,266,181, Cl. 322-28.000.

Itoh, Yasuo, to Victor Company of Japan, Limited. System for detecting the initial point of a digital signal in a composite digital signal reproducing system. 4,266,244, Cl. 358-142.000.

ITT Industries, Inc.: *See—*
Burgdorf, Jochen, 4,265,490, Cl. 303-6.00C.
Pitt, Gillies D., 4,265,535, Cl. 356-70.000.
Renschke, Joachim, 4,266,213, Cl. 340-166.00R.

Iura, Yukio: *See—*
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, 4,265,521, Cl. 354-23.00D.

Ivanoff, Alexander. Device for removing oil slicks. 4,265,757, Cl. 210-242.300.

Ives, Frank E.; and Saurwein, Albert C., to Venus Products, Inc. Automated parking system and subassemblies therefor. 4,265,581, Cl. 414-228.000.

Iwasaki, Hiroshi: *See—*
Mizuno, Kenichi; Iwasaki, Hiroshi; and Nambu, Hirohiko, 4,266,081, Cl. 568-578.000.

Iwashita, Tomonori: *See—*
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, 4,265,521, Cl. 354-23.00D.

Iwata, Kaoru: *See—*
Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, 4,266,053, Cl. 544-196.000.

Izard, David G.: *See—*
Baehr, Donald O.; and Izard, David G., 4,265,979, Cl. 428-171.000.

Izumida, Satoshi: *See—*
Nishimura, Shinichi; and Izumida, Satoshi, 4,265,482, Cl. 297-391.000.

J. I. Case Company: *See—*
Seaberg, David H., 4,265,319, Cl. 172-811.000.

J & W Scientific, Incorporated: *See—*
Jennings, Walter G.; Wohleb, Robert H.; and Wohlers, Norman W., 4,265,860, Cl. 422-280.000.

Jablonski, Richard J.; and Kruh, Daniel, to General Electric Company. Novel polymers of olefin terminated prepolymers and amine terminated prepolymers. 4,266,047, Cl. 528-322.000.

Jack, Stanton E.; and Dark, Robert O., to Alcan Research & Development Limited. Retro-reflecting sheet material and method of making same. 4,265,938, Cl. 427-163.000.

Jackson, Bertie, to L. B. Foster Company. Adjustable guard rail structures. 4,265,401, Cl. 238-17.000.

Jackson, Liam R.; Weidner, John P.; Small, William J.; and Martin, James A., to United States of America, National Aeronautics and Space Administration. Orbiter/launch system. 4,265,416, Cl. 244-2.000.

Jackson, William L., to Dunlop Limited. Tire and wheel rim assemblies. 4,265,290, Cl. 152-330.0RF.

Jacoby, George V., to Sperry Rand Corporation. Delay line signal equalizer for magnetic recording signal detection circuits. 4,266,204, Cl. 333-28.00R.

Jacoby, Henry I.: *See—*
Rasmussen, C. Royce; and Jacoby, Henry I., 4,265,900, Cl. 424-273.00R.

Jaffe, Wolfgang: *See—*
Herr, John A.; and Jaffe, Wolfgang, 4,266,152, Cl. 310-59.000.

Jager, Heimo: *See—*
Plockinger, Erwin; Kuhnelt, Gert; Machner, Peter; and Jager, Heimo, 4,265,295, Cl. 164-52.000.

Jan, Gerald, to Ciba-Geigy AG. Process for the production of colored photographic images by the silver dye-bleach process. 4,266,011, Cl. 430-392.000.

Jarvis, Eugene R. Snow handling apparatus. 4,265,475, Cl. 294-54.000.

Jassawalla, Jal S.: *See—*
Portner, Peer M.; and Jassawalla, Jal S., 4,265,241, Cl. 128-260.000.

Jassniker, Kurt, to Sulzer Brothers Limited. Ventilating system for a weaving machine. 4,265,278, Cl. 139-1.00C.

Jean-Claude Berney SA: *See—*
Berney, Jean-Claude, 4,266,288, Cl. 368-28.000.

Jean Walterscheid GmbH: *See—*
Geisthoff, Hubert, 4,265,327, Cl. 180-53.00D.

Jeffrey, Cyril, to Plessey Handel und Investments AG. Methods of joining glass objects. 4,265,689, Cl. 156-73.200.

Jenkins, Jon A., to IMED Corporation. Apparatus for providing a controlled introduction of intravenous fluid to a patient. 4,265,240, Cl. 128-214.00E.

Jenkins, Kenneth A. Motor vehicle dryer stand. 4,265,029, Cl. 34-39.000.

Jenkins Metal Corporation: *See—*
Collins, Walter W., 4,265,017, Cl. 30-162.000.

Jenkins, William A., to Monarch Marking Systems, Inc. Endless printing band and support assembly. 4,265,174, Cl. 101-111.000.

Jennings, Walter G.; Wohleb, Robert H.; and Wohlers, Norman W., to J & W Scientific, Incorporated. High pressure Soxhlet extractor. 4,265,860, Cl. 422-280.000.

Jeno's, Inc.: *See—*
Munter, Arnold M.; and Ahlgren, David W., 4,265,919, Cl. 426-283.000.

Jensen, Phillip C.: *See—*
Marshall, Larry J.; and Jensen, Phillip C., 4,265,216, Cl. 126-263.000.

Jewett, David N., to Energy Materials Corporation. Apparatus for producing semiconductor grade silicon and replenishing the melt of a crystal growth system. 4,265,859, Cl. 422-199.000.

Jinkins, Danny R.: *See—*
Schrock, Martin O.; Howard, Thomas J., Jr.; and Jinkins, Danny R., 4,265,018, Cl. 30-276.000.

Johannesson, Stig-Erik; and Kruk, Stanislaw J., to AB Volvo. Gear selector mechanism for a vehicle gearbox. 4,265,137, Cl. 74-473.00R.

John Zink Company: *See—*
Reed, Robert D.; and Bengston, Merle A., 4,265,611, Cl. 431-3.000.

Johns Hopkins University, The: *See—*
Chubbuck, John G.; and Turner, James T., 4,265,252, Cl. 128-748.000.

Johnson, Alfred H.: *See—*
Henle, Robert A.; and Johnson, Alfred H., 4,266,282, Cl. 365-52.000.

Johnson (Bulsiewicz), Noreen C.: *See—*
Rosegren, Donald R.; Johnson (Bulsiewicz), Noreen C.; and Stevens, Peter, 4,265,715, Cl. 204-46.00R.

Johnson, Carl F.: *See—*
Clancy, Douglas E.; Johnson, Carl F.; McCray, William R.; and Neal, Danny M., 4,265,554, Cl. 400-316.000.

Johnson Controls, Inc.: *See—*
Capel, Denis, 4,266,104, Cl. 200-18.000.
Rudich, George, Jr., 4,266,257, Cl. 361-27.000.

Johnson, David J., to Studio One Services, Inc. Kiosk. 4,265,059, Cl. 52-66.000.

Johnson, Donald L., to Teledyne Industries, Inc. Electrical connector for strip conductors. 4,265,507, Cl. 339-176.0MF.

Johnson, Earl L.; and Beynon, Dell R., Jr. Storm window construction. 4,265,052, Cl. 49-63.000.

Johnson, Edward M., Jr.: *See—*
Nash, Edward M.; and Johnson, Edward M., Jr., 4,265,283, Cl. 144-286.00R.

Johnson, Harold P.: *See—*
Finlayson, James W.; and Johnson, Harold P., 4,265,025, Cl. 33-178.00F.

Johnson, John H.: *See—*
Fields, Joseph E.; and Johnson, John H., 4,265,879, Cl. 424-78.000.

Johnson & Johnson: *See—*
Hill, Roger C., 4,265,244, Cl. 128-283.000.

Johnson & Johnson Baby Products Company: *See—*
Armstrong, David P.; and Verdicchio, Robert J., 4,265,782, Cl. 252-174.190.

Johnson, Kenneth O.; Fogg, Harold E.; and Hope, Ned A., to General Electric Company. Flexible coupling. 4,265,099, Cl. 64-13.000.

Johnson, Paul H.: *See—*
Mills, King L.; and Johnson, Paul H., 4,265,870, Cl. 423-450.000.

Johnson, William S.: *See—*
Perlegos, George; and Johnson, William S., 4,266,283, Cl. 365-104.000.

Johnstone, Richard, to Kearney & Trecker Corporation. Unmanned machining center with tool checking. 4,266,120, Cl. 235-92.0CT.

Jollow, David J.; and Halushka, Perry V. Inhibiting platelet aggregation with substituted acetanilides. 4,265,909, Cl. 424-324.000.

Jon Erlend Glommen: *See—*
Hansen, Kjell, 4,266,114, Cl. 219-132.000.

Jonas, Walter K., to Minnesota Mining and Manufacturing Company. Sheet dispensing device for use with copying machines, and a container for the stack of sheets. 4,265,441, Cl. 271-19.000.

Jones, Howard: *See—*
Shen, Tsung-Ying; and Jones, Howard, 4,265,905, Cl. 424-304.000.

Jones, Kenneth L., to Procter & Gamble Company, The. Antistatic, fabric-softening detergent additive. 4,265,772, Cl. 252-8.600.

Jones, Marvin R., to Cameron Iron Works, Inc. Blowout preventer and improved ram packer structure. 4,265,424, Cl. 251-1.00A.

Jordan, John P.; and Lampkin, Curtis, to Photon Power, Inc. Photovoltaic cell. 4,265,933, Cl. 427-54.100.

Jordon, Donald A. Traction splint. 4,265,230, Cl. 128-87.00R.

Jordon, John V. W., to Humes Limited; and Hamersley Iron Pty. Limited. Concrete sleeper for track circuitry. 4,265,400, Cl. 238-14.400.

Joseloff, Stanley S. Check-out counter. 4,265,335, Cl. 186-63.000.

Joseph, Werner: *See—*
Wagner, Gebhard; and Joseph, Werner, 4,265,929, Cl. 427-33.000.

Joy Manufacturing Company: *See—*
Hibbard, George A., 4,265,321, Cl. 173-78.000.

Judin, Vladimir N.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.

Juergens, Rainer, to Christensen, Inc. Direct bit drive for deep drilling tools. 4,265,323, Cl. 175-107.000.

Juliana, Anthony, Jr.; Koepcke, Richard W.; Mills, Ross N.; and Talke, Frank E., to International Business Machines Corporation. Voltage

modulated drop-on-demand ink jet method and apparatus. 4,266,232, Cl. 346-140.00R.

Jundt, Werner; and Roozenbeek, Herman, to Robert Bosch GmbH. Ignition control system with closure angle independent of residual energy stored in ignition coil. 4,265,204, Cl. 123-418.000.

Juntgen, Harald: *See—*
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,265,767, Cl. 210-662.000.

Justrite Manufacturing Company: *See—*
Flider, Frank S., 4,265,375, Cl. 222-189.000.

Jutte, Hans: *See—*
Stuckmann, Dieter; and Jutte, Hans, 4,265,565, Cl. 405-145.000.

Juvan, Christian H. A., to ILC Technology, Inc. Method of and means for high performance direct current electrical pulse generation utilizing mechanical energy storage. 4,266,180, Cl. 322-4.000.

Jyojiki, Masao: *See—*
Tokutomi, Seijiro; Jyojiki, Masao; and Nakamura, Kazuo, 4,265,520, Cl. 354-23.00D.

Kabushiki Kaisha ASAHI Enterprise: *See—*
Maeda, Eizo; and Iizuka, Hiromichi, 4,265,164, Cl. 91-417.00R.

Kabushiki Kaisha Daini Seikosha: *See—*
Nakao, Hideyuki, 4,266,289, Cl. 368-35.000.

Kabushiki Kaisha Sato Kenkyusho: *See—*
Sato, Yo, 4,265,176, Cl. 101-292.000.

Kabushiki Kaisha Suwa Seikosha: *See—*
Asakawa, Tatsushi, 4,266,178, Cl. 320-39.000.
Futami, Yoshinori; and Ota, Tomio, 4,266,290, Cl. 368-76.000.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Kobayashi, Hisao, 4,265,091, Cl. 62-126.000.

Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*
Katagiri, Haruo; Fujikake, Kenji; and Yamada, Katsuhito, 4,265,596, Cl. 416-236.00A.

Kabushikikaisha: *See—*
Yamamoto, Osamu, 4,265,056, Cl. 51-128.000.

Kabushikikaisha Kanagawa Seisakusho: *See—*
Goto, Hajime; Amemiya, Ikuzo; and Nakayama, Masanobu, 4,265,652, Cl. 65-273.000.

Kaede, Kazuhisa: *See—*
Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, 4,265,513, Cl. 350-96.200.

Kagitani, Yoshio; Imagawa, Takashi; Inahara, Hirohisa; and Watanabe, Ryozo, to Green Cross Corporation, The. Acetylsalicylate powder preparation for injection. 4,265,888, Cl. 424-233.000.

Kai Cutlery Center Company Limited: *See—*
Asano, Tamoru, 4,265,015, Cl. 30-41.000.

Kaiser, Carl: *See—*
Holden, Kenneth G.; and Kaiser, Carl, 4,265,890, Cl. 424-244.000.

Kaite, Yoshikazu: *See—*
Ikeda, Yoshirou; and Kaite, Yoshikazu, 4,265,667, Cl. 106-47.00Q.

Kaji, Hisatsugu; Kameyama, Iwawo; Hamaguti, Takashi; and Miyamori, Tamotsu, to Kureha Kagaku Kogyo Kabushiki Kaisha. Method of and apparatus for making pitch fiber infusible. 4,265,869, Cl. 423-447.400.

Kamada, Takeshi: *See—*
Hara, Kazuyuki; and Kamada, Takeshi, 4,266,251, Cl. 358-286.000.

Kameya, Toru; Makino, Shinichi; and Tsuruta, Masayuki, to Taiyo Steel Co., Ltd. Method for producing a colored reflective plate having excellent durability and fabricability. 4,265,937, Cl. 427-163.000.

Kameyama, Iwawo: *See—*
Kaji, Hisatsugu; Kameyama, Iwawo; Hamaguti, Takashi; and Miyamori, Tamotsu, 4,265,869, Cl. 423-447.400.

Kamody, John F., to Koppers Company, Inc. Production of carbon monoxide by the gasification of carbonaceous materials. 4,265,868, Cl. 423-415.00A.

Kampel, Marian: *See—*
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, 4,265,843, Cl. 264-57.000.

Kampwirth, Robert T.; Schuller, Ivan K.; and Falco, Charles M., to United States of America, Energy. Method for etching thin films of niobium and niobium-containing compounds for preparing superconductive circuits. 4,266,008, Cl. 430-318.000.

Kanbe, Junichiro: *See—*
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, 4,265,197, Cl. 118-657.000.

Kandler, Joachim: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.
Wortmann, Joachim; Rieb, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,265,854, Cl. 422-40.000.

Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, to Bridgestone Tire Co., Ltd. Pneumatic safety tire with excellent long-running ability after puncture employing rubber having specifically defined properties for sidewall inserts and tread. 4,265,288, Cl. 152-209.00R.

Kanthal Corporation, The: *See—*
Best, Albert B., 4,266,119, Cl. 219-541.000.

Kao, Charles K., to International Telephone and Telegraph Corporation. Optical fiber waveguide with effective refractive index profile. 4,265,515, Cl. 350-96.330.

Kao, Dai-Hae; and Shieh, Shii-San. Signal device for fishing rods. 4,266,217, Cl. 340-573.000.

Kapany, Narinder S.; and Unterleitner, Fred C. See-through solar collector. 4,265,222, Cl. 126-431.000.

Kaplan, Harold. Blood identification means. 4,265,101, Cl. 70-57.000.

Karasudani, Yasuo. Disc brake assembly with torque absorbing bracket. 4,265,342, Cl. 188-73.600.

Kardash, John J., to Cherry Semiconductor Corporation. Alarm system control circuit. 4,266,218, Cl. 340-628.000.

Karl Lautenschlager KG, Mobelbeschlagfabrik: *See—*
Lautenschlager, Karl, Jr., 4,265,000, Cl. 16-129.000.

Karlin, Richard A.; McDonald, Robert W.; and Comiskey, Gary F., to Sun Electric Corporation. Current measuring apparatus and method. 4,266,189, Cl. 324-117.00H.

Karlsson, Stig A.: *See—*
Billgren, Per A.; and Karlsson, Stig A., 4,265,700, Cl. 159-47.00R.

Karsai, Frank: *See—*
Mandle, Richard M.; Karsai, Frank; and Krautheim, Raymond S., 4,265,855, Cl. 422-65.000.

Karsh, Irving: *See—*
Levy, Avner; and Karsh, Irving, 4,265,386, Cl. 226-190.000.

Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, to Sumitomo Chemical Company, Limited. Low mammalian toxic and/or low fish toxic insecticides and/or acaricides. 4,265,906, Cl. 424-304.000.

Kasaoka, Katsuyuki: *See—*
Sasaki, Yoshiyuki; and Kasaoka, Katsuyuki, 4,265,082, Cl. 57-207.000.

Kasenga, Anthony F.; and Chenot, Charles F., to GTE Products Corporation. Cool white lamp using a two-component phosphor. 4,266,161, Cl. 313-487.000.

Kassai Kabushikikaisha: *See—*
Kassai, Kenzou, 4,265,466, Cl. 280-648.000.

Kassai, Kenzou, to Kassai Kabushikikaisha. Baby carriage. 4,265,466, Cl. 280-648.000.

Kastening, Bertel: *See—*
Faul, Wolfgang; Furst, Leander; and Kastening, Bertel, 4,265,722, Cl. 204-129.600.

Kastner, Josef: *See—*
Haberl, Rainer; and Kastner, Josef, 4,266,263, Cl. 361-283.000.

Katagiri, Haruo; Fujikake, Kenji; and Yamada, Katsuhito, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Axial flow fan with auxiliary blades. 4,265,596, Cl. 416-236.00A.

Kato, Chihiro: *See—*
Iida, Masaaki; Kato, Chihiro; Ohshima, Shigemitsu; and Yazawa, Yoshiyuki, 4,265,826, Cl. 260-428.000.

Kato, Katsuhiko; and Kojima, Tosaku, to Hitachi, Ltd. Cleaner ribbon for magnetic tape. 4,266,256, Cl. 360-128.000.

Kato, Kenichi, to Fuji Photo Optical Co., Ltd.; and Sano Kiko Co., Ltd. Pressure applying rollers for instant photographic cameras and method of producing the same. 4,265,940, Cl. 427-292.000.

Kato, Michio: *See—*
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, 4,265,320, Cl. 173-12.000.

Kato, Shigeo: *See—*
Hasegawa, Tetsuo; Kato, Shigeo; and Miyashita, Takeshi, 4,265,994, Cl. 430-107.000.

Kato, Takashi: *See—*
Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, 4,265,906, Cl. 424-304.000.

Kattner, Erich: *See—*
Heinzl, Joachim; and Kattner, Erich, 4,266,250, Cl. 358-285.000.

Kaufman, Lance R. Positioning means for optically couplable circuit elements. 4,266,140, Cl. 250-551.000.

Kawaguchi, Takeyuki; Taketani, Yutaka; Hayashi, Yuzuru; Ono, Tomoyoshi; and Mori, Koh, to Teijin Limited. Permselective membrane. 4,265,745, Cl. 210-654.000.

Kawamura, Takayuki; Tazaki, Kichiya; Sakakiyama, Takashi; and Hasegawa, Toshio, to Asahi-Dow Limited. Paper coating composition of unsaturated acid and mono-olefin polymerized in the presence of a preformed styrene/butadiene latex. 4,265,977, Cl. 428-511.000.

Kawanishi, Tsuneaki; Mukoh, Akio; and Morishita, Hirosada, to Hitachi Metals, Ltd. Magnetic toner for electrostatic images and transfer copying. 4,265,993, Cl. 430-107.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See—*
Uozumi, Yukio, 4,265,180, Cl. 104-247.000.

Kawasaki Steel Corporation: *See—*
Ohashi, Nobuo; Ono, Yutaka; Nohara, Kiyohiko; Shimomura, Junichi; and Miyawaki, Tetsuo, 4,265,679, Cl. 148-12.00E.

Kawasaki, Toshisuke: *See—*
Yamashina, Ikuo; Kawasaki, Toshisuke; and Tsukuda, Michiko, 4,265,881, Cl. 424-106.000.

Kawazoe, Kazuyoshi; Takata, Yoshinori; Suzuki, Mon; and Uehara, Shizuo, to Hitachi, Ltd. Gas detecting means utilizing electric discharge. 4,266,196, Cl. 324-464.000.

Kayabakogyokabushikikaisha: *See—*
Teruyama, Hideo, 4,265,602, Cl. 418-1.000.

Kayalioglu, Inanc; Roman, Vincent G.; and Lewandowski, Ted J., to Northern Telecom Limited. Pulse rejection and duration correction circuit. 4,266,099, Cl. 179-16.0EA.

Kaye, Gordon E., to Duracell International Inc. Battery housing. 4,265,984, Cl. 429-178.000.

Kearney & Trecker Corporation: *See—*
Johnstone, Richard, 4,266,120, Cl. 235-92.0CT.

Keefner, Eugene F.; and Keefner, John R. Water detector. 4,266,195, Cl. 324-439.000.

Keefner, John R.: *See—*
Keefner, Eugene F.; and Keefner, John R., 4,266,195, Cl. 324-439.000.

Keil, Joseph W., to Dow Corning Corporation. Antiperspirant stick compositions. 4,265,878, Cl. 424-68.000.

Keith, W. Louis. Rod holder device. 4,265,046, Cl. 43-21.200.

Kelada, Nabih P.; Lue-Hing, Cecil; and Lordi, David T., to Metropolitan Sanitary District of Greater Chicago, The. In-line distillation system. 4,265,857, Cl. 422-101.000.

Keller, Douglas V., Jr.: *See—*
Smith, Clay D.; and Keller, Douglas V., Jr., 4,265,737, Cl. 209-3.000.

Keller, Rudolf: *See—*
Loutfy, Raouf O.; Keller, Rudolf; and Yao, Neng-Ping, 4,265,716, Cl. 204-67.000.

Kelly, Edward A., to Merrow Machine Company, The. Sewing machine with trimmer drive mechanism. 4,265,191, Cl. 112-288.000.

Kempke, William G.: *See—*
Berglund, Neil C.; and Kempke, William G., 4,266,272, Cl. 364-200.000.

Kendall Company, The: *See—*
Schaar, Charles H., 4,265,234, Cl. 128-156.000.
Taylor, Glenn N., 4,265,243, Cl. 128-275.000.

Kendon Concepts: *See—*
Whinnery, Lewis A., 4,265,221, Cl. 126-422.000.

Kennedy, Bruce A.: *See—*
Durbin, Anthony T.; and Kennedy, Bruce A., 4,265,486, Cl. 299-2.000.

Kern, Roland J., to Monsanto Company. Photoimageable material of polymeric material having organic sulfide and photo-oxidation sensitizer. 4,266,004, Cl. 430-269.000.

Kernforschungsanlage Julich Gesellschaft mit berschrankter Haftung: *See—*
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, 4,265,843, Cl. 264-57.000.

Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See—*
Faul, Wolfgang; Furst, Leander; and Kastening, Bertel, 4,265,722, Cl. 204-129.600.
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.
Schwarzer, Klemens, 4,265,707, Cl. 176-37.000.

Kessels, Cornelis P. H., to Oce-van der Grinten N.V. Self-sticking adhesive tape. 4,265,988, Cl. 430-56.000.

Kessler, Richard V.; and Corbeels, Roger J., to Texaco Inc. Method of producing a coal-water slurry of predetermined consistency. 4,265,407, Cl. 241-21.000.

Khodos, Yulian, to Mid-West Conveyor Co., Inc. Article transfer arrangement. 4,265,360, Cl. 198-774.000.

Kierbow, Gerald C.; Tomlinson, Harvard L.; Horinek, Herbert J.; and Crain, Stephen F., to Halliburton Company. Controlled additive metering system. 4,265,266, Cl. 137-101.190.

Kikuchi, Nobuaki: *See—*
Fujiwara, Shinobu; Furukawa, Kiyoshi; Kikuchi, Nobuaki; Iizawa, Osamu; and Tanaka, Hitoshi, 4,265,668, Cl. 106-73.300.

Kikuchi, Tsuyoshi: *See—*
Asakuma, Kazutaka; and Kikuchi, Tsuyoshi, 4,265,297, Cl. 164-303.000.

Killmaier, Horst: *See—*
Rosemeier, Friedrich; and Killmaier, Horst, 4,265,428, Cl. 251-346.000.

Kilmer, Lauren G. Filament vegetation trimmer. 4,265,019, Cl. 30-276.000.

Kim, Leo; Paxson, Timm E.; and Tang, Sunny C., to Shell Oil Company. Olefin disproportionation process. 4,266,085, Cl. 585-645.000.

Kimble, Laurie A.: *See—*
White, Weimar W.; and Kimble, Laurie A., 4,265,862, Cl. 423-21.100.

Kimmon Manufacturing Co., Ltd.: *See—*
Onoda, Hajime, 4,265,127, Cl. 73-861.780.

Kimura, Masao; Sobata, Tamotu; and Wada, Hideo, to Nippon Paint Co., Ltd. Process for cleaning of tin-plated steel cans. 4,265,780, Cl. 252-156.000.

Kinast, Gunther; and Schedel, Michael, to Bayer Aktiengesellschaft. Production of N-substituted derivatives of 1-desoxy-nojirimycin. 4,266,025, Cl. 435-84.000.

Kinetics Technology Intl. B.V.: *See—*
Dinulescu, Mircea, 4,265,732, Cl. 208-106.000.

King, John M.: *See—*
deVries, Louis; and King, John M., 4,265,773, Cl. 252-46.400.

King, Joseph A. Spring loaded free floating stripper finger with stabilizer for a web corrugating machine. 4,265,697, Cl. 156-473.000.

Kingsbury Machine Tool Corporation: *See—*
Grover, Robert R., 4,265,131, Cl. 74-89.160.

Kinnard, William D.: *See—*
Stone, Arnold F.; and Kinnard, William D., 4,265,692, Cl. 156-180.000.

Kirby Pharmaceuticals Ltd: *See—*
Hunt, Peter; and Trelford, Aston M., 4,265,847, Cl. 264-122.000.

Kirchhoff, Bernhard, to O&K Orenstein & Koppel Aktiengesellschaft. Rotary drum mounted by means of running rings. 4,265,031, Cl. 34-108.000.

Kirin Beer Kabushiki Kaisha: *See—*
Nakamura, Katsumi; and Kitamura, Kumpei, 4,266,028, Cl. 435-118.000.

Kirschner, Lawrence: *See—*
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, 4,265,790, Cl. 252-532.000.

Kishi, Toyokazu: *See—*
Hashimoto, Naoto; and Kishi, Toyokazu, 4,265,814, Cl. 260-239.30P.

Kishimoto, Toshio: *See—*
Fujii, Osamu; Kishimoto, Toshio; and Kobayashi, Akio, 4,266,043, Cl. 521-175.000.

Kitagawa, Tsuneo: *See—*
Shibazaki, Kenji; Arai, Kenichi; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,265,440, Cl. 271-9.000.

Kitahara, Yutaka. Method and apparatus for molding concrete block products. 4,265,609, Cl. 425-260.000.

Kitamura, Kumpei: *See—*
Nakamura, Katsumi; and Kitamura, Kumpei, 4,266,028, Cl. 435-118.000.

Kitano, Hisao: *See—*
Inoue, Yoshiharu; Tanimoto, Fumio; and Kitano, Hisao, 4,266,055, Cl. 544-221.000.

Kiwala, Jacob: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,265,923, Cl. 426-538.000.

Kizaki, Shigeru, to Citizen Watch Co., Ltd. Subminiature piezoelectric quartz vibrator. 4,266,156, Cl. 310-344.000.

Klay, Hans. Apparatus for manufacturing a plastic insulator equipped with helical-shaped shields. 4,265,607, Cl. 425-113.000.

Kleemann, Manfred: *See—*
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.

Klefenz, Heinrich: *See—*
Tschang, Chung-Ji; Klefenz, Heinrich; and Sanner, Axel, 4,266,030, Cl. 435-180.000.

Klein, Jurgen: *See—*
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,265,767, Cl. 210-662.000.

Klesper, Hugo: *See—*
Busse, Oswald; and Klesper, Hugo, 4,265,171, Cl. 100-118.000.
Busse, Oswald; and Klesper, Hugo, 4,265,749, Cl. 210-138.000.

Klibofske, Virgil L. Foundation covering. 4,265,062, Cl. 52-97.000.

Klimeck, Hugo: *See—*
Schupphaus, Herbert; and Klimeck, Hugo, 4,265,488, Cl. 299-43.000.

Klimowicz, Michael A.; and Cornell, Charles R., to Eaton Corporation. Transient start-up eliminator for pressure piloted valve. 4,265,272, Cl. 137-625.620.

Klockner-Humboldt-Deutz AG: *See—*
Brachthauser, Kunibert; and Herchenbach, Horst, 4,265,670, Cl. 106-100.000.
Weiffen, Karl-Heinz, 4,265,744, Cl. 209-457.000.

Kloek, James A., to Monsanto Company. Herbicidal compositions containing α-halo acetanilides and substituted bicyclo(3.3.1)non-2-ene compounds as safening agents. 4,265,657, Cl. 71-106.000.

Knapp, Robert L.: *See—*
Blodee, Leif; Knapp, Robert L.; and Oppenhuizen, Simon W., 4,265,502, Cl. 312-109.000.

Knecht, Werner. Fire resistant Material. 4,265,317, Cl. 169-50.000.

Knifton, John F., to Texaco Development Corp. Manufacture of ethylene glycol from synthesis gas. 4,265,828, Cl. 260-449.00L.

Knight, Milton M., Jr.: *See—*
Freeman, Danny M.; Knight, Milton M., Jr.; Payton, Clarence M.; Simpson, Robert S.; and Smith, Howard B., Jr., 4,264,993, Cl. 8-149.000.

Knittel, Volker: *See—*
Debus, Gerhard; Girg, Friedrich; and Knittel, Volker, 4,265,674, Cl. 106-314.000.

Knoche, Jochem: *See—*
Holzler, Georg; and Knoche, Jochem, 4,266,169, Cl. 318-490.000.

Knorr-Bremse GmbH: *See—*
Meinicke, Hans-Peter, 4,265,489, Cl. 303-3.000.
Pollinger, Hans, 4,265,492, Cl. 303-14.000.

Knudsen, Ernest W., Jr.: *See—*
Graves, Daniel G.; Graves, Vernard L.; and Knudsen, Ernest W., Jr., 4,265,696, Cl. 156-443.000.

Koa Oil Company, Limited: *See—*
Noguchi, Kosaku; and Komi, Nobuyuki, 4,265,710, Cl. 201-27.000.

Kobayashi, Akio: *See—*
Fujii, Osamu; Kishimoto, Toshio; and Kobayashi, Akio, 4,266,043, Cl. 521-175.000.

Kobayashi, H.: *See—*
Hatada, Kenji; Kobayashi, H.; and Yokura, Miyoshi, 4,265,276, Cl. 138-177.000.

Kobayashi, Hidehiko: *See—*
Ueda, Takeshi; Sasaguri, Kiichiro; and Kobayashi, Hidehiko, 4,266,009, Cl. 430-346.000.

Kobayashi, Hidetoshi; Tanaka, Mitsugu; Inouye, Kozo; and Naito, Hideki, to Fuji Photo Film Co., Ltd. Silver halide photographic material containing yellow coupler. 4,266,019, Cl. 430-551.000.

Kobayashi, Hisao, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Refrigerant compressor protecting device. 4,265,091, Cl. 62-126.000.

Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, to Hauni-Werke Korber & Co. KG. Apparatus for perforating cigarette paper or the like. 4,265,254, Cl. 131-281.000.

Koch, Rudolf: *See—*
Herbst, Heiner; Pfleiderer, Hans-Jorg; Koch, Rudolf; and Tihanyi, Jeno. 4,266,235, Cl. 357-30.000.

Kocsis, Karoly; Peter, Heinrich; and Bickel, Hans, to Ciba-Geigy Corporation. Cephalosporins having an α-acylaminoacetic acid side chain. 4,265,892, Cl. 424-246.000.

Koda, Hirokazu: *See—*
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,188, Cl. 112-158.00B.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,189, Cl. 112-158.00E.

Koehring GmbH - Bomag Division: *See—*
Vural, Gulertan; Carle, Udo; and Lenkeit, Manfred, 4,265,130, Cl. 74-87.000.

Koepcke, Richard W.: *See—*
Juliana, Anthony, Jr.; Koepcke, Richard W.; Mills, Ross N.; and Talke, Frank E., 4,266,232, Cl. 346-140.00R.

Koetter, Robert E., to UMC Industries, Inc. Apparatus for totalizing sales. 4,265,351, Cl. 194-1.00M.

Kofink, Wolfgang, to Robert Bosch GmbH. Apparatus for long-term bearing lubrication. 4,265,496, Cl. 308-122.000.

Kofod, Hans, to Nordisk Insulinlaboratorium. Therapeutically active polypeptides or acid addition salts thereof and a process for producing such compounds. 4,265,884, Cl. 424-177.000.

Kohlbacher, Gerhard: *See—*
Hoppner, Dietrich; and Kohlbacher, Gerhard, 4,266,100, Cl. 179-18.0GF.

Kohler, Elke: *See—*
Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, 4,265,254, Cl. 131-281.000.

Koizumi, Shigenobu: *See—*
Obata, Katsuhiro; and Koizumi, Shigenobu, 4,266,291, Cl. 368-168.000.

Kojima, Tosaku: *See—*
Kato, Katsuhiko; and Kojima, Tosaku, 4,266,256, Cl. 360-128.000.

Kolb, Erich; and Laurent, Heinrich, to Robert Bosch GmbH. Wiping arrangement for wiping a vehicle window. 4,264,997, Cl. 15-250.290.

Komatsu, Toshiyuki: *See—*
Hirai, Yutaka; Komatsu, Toshiyuki; Nakagawa, Katsumi; Misumi, Teruo; and Fukuda, Tadaji, 4,265,991, Cl. 430-64.000.

Komatsu, Yasuhiro: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,265,910, Cl. 424-325.000.

Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH: *See—*
Eckle, Otto, 4,265,574, Cl. 408-188.000.

Komi, Nobuyuki: *See—*
Noguchi, Kosaku; and Komi, Nobuyuki, 4,265,710, Cl. 201-27.000.

Kommanditgesellschaft Schwarzhaupt: *See—*
Lamprecht, Walther, 4,266,022, Cl. 435-26.000.

Kondo, Kiyoshi: *See—*
Fujisawa, Tamotsu; Kondo, Kiyoshi; and Sakai, Kunikazu, 4,266,067, Cl. 549-79.000.

Koninklijke Adriaan Volker Groep B.V.: *See—*
Goedvolk, Arie, 4,265,035, Cl. 37-58.000.

Konkle, Phillip E.: *See—*
Goscenski, Edward J., Jr.; and Konkle, Phillip E., 4,265,143, Cl. 74-710.500.

Konnai, Makoto: *See—*
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.

Koot, Theodorus A. J.: *See—*
Verpalen, Willem A.; and Koot, Theodorus A. J., 4,265,759, Cl. 210-261.000.

Koppers Company, Inc.: *See—*
Kamody, John F., 4,265,868, Cl. 423-415.00A.

Koppl, Georg: *See—*
Eidinger, Adolf; Flossel, Carl D.; Koppl, Georg; Ulrich, Alfred; and Schibli, Hans, 4,266,258, Cl. 361-58.000.

Korsgaard, Carl E. Safety locking mechanism for wheelchairs. 4,265,478, Cl. 296-65.00R.

Kosek, John A.: *See—*
Nolan, Mary E.; Kosek, John A.; and La Conti, Anthony B., 4,265,714, Cl. 204-1.00T.

Kosinski, Robert E.: *See—*
Nobile, Arthur, 4,265,823, Cl. 260-397.400.

Koskenniska, Lasse A.; and Puhakka, Marie M., to Farmos-Yhtyma Oy. Process for the isolation of β-sitosterol containing a low percentage of α-sitosterol. 4,265,824, Cl. 260-397.250.

Kosuda, Tooru: *See—*
Arao, Umeo; Egami, Tsuneyuki; Kosuda, Tooru; and Takeuchi, Yasuhiro, 4,265,163, Cl. 91-361.000.

Kotthuas, Erich, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Apparatus for grinding cutting tools. 4,265,053, Cl. 51-3.000.

Kouchi, Toshihiro; Takayama, Hiroshi; and Aizawa, Tatsuo, to Mita Industrial Company Limited. Coated magnetic developer particles for electrophotography containing vinyl and olefin resins. 4,265,992, Cl. 430-107.000.

Kovacs, Gyula: *See—*
Heller, Laszlo; Forgo, Laszlo; Papp, Istvan; Bodas, Janos; Kovacs, Gyula; and Laszlo, Karoly, 4,265,275, Cl. 138-38.000.

Koyama, Hiroyasu: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,265,910, Cl. 424-325.000.

Kozel, Charles A.: *See—*
Brown, Vincent B.; and Kozel, Charles A., 4,265,013, Cl. 29-739.000.

Kraft, Erhard: *See—*
Dobler, Karl-Ulrich; Mura, Sigurd; and Kraft, Erhard, 4,266,273, Cl. 364-426.000.

Kraftwerk Union AG: *See—*
Schuh, Heinz, 4,265,966, Cl. 428-324.000.

Kralik, Andrew J.: *See—*
Di Marco, Bernard; and Kralik, Andrew J., 4,266,209, Cl. 335-6.000.

Krause, Robert F.; Pavlik, Norman M.; and Grunert, Kurt A., to Westinghouse Electric Corp. Method of producing low loss pressed magnetic cores from microlaminations. 4,265,681, Cl. 148-111.000.

Krauth, Axel: *See—*
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.

Krautheim, Raymond S.: *See—*
Mandle, Richard M.; Karsai, Frank; and Krautheim, Raymond S., 4,265,855, Cl. 422-65.000.

Krebs, Klaus-Werner; and Metzger, Carl, to Bayer Aktiengesellschaft. Preparation of anthranilamides. 4,265,832, Cl. 564-163.000.

Kretchman, Gerald L.; Mulder, James R.; and Pielemeier, John W., to Whirlpool Corporation. Pivotal siphon bleach dispenser for automatic washer. 4,265,100, Cl. 68-12.00R.

Krieg, Michael L.; and Quinn, Paul A., Jr., to International Business Machines Corporation. Apparatus for setting proportional margins based upon the width of a scanned sheet of paper. 4,265,556, Cl. 400-342.000.

Kring, Elbert V., to Du Pont de Nemours, E. I., and Company. Gaseous contaminant dosimeter with diffusion device therefor and method. 4,265,635, Cl. 23-232.00R.

Kristensen, Leif: *See—*
Lundborg, Hans; Kristensen, Leif; and Nyqvist, Stig, 4,265,177, Cl. 102-275.900.

Kroenke, William J., to B. F. Goodrich Company, The. Hexamethylenetetramine molybdate. 4,266,051, Cl. 544-181.000.

Kroyer, Karl K. K. Method of utilizing fly ash from power works and refuse disposal plants in the production of cement clinkers, and a plant for carrying out said method. 4,265,671, Cl. 106-103.000.

Krueger, Hans: *See—*
Greubel, Waldemar; and Krueger, Hans, 4,265,516, Cl. 350-345.000.

Kruh, Daniel: *See—*
Jablonski, Richard J.; and Kruh, Daniel, 4,266,047, Cl. 528-322.000.

Kruk, Stanislaw J.: *See—*
Johannesson, Stig-Erik; and Kruk, Stanislaw J., 4,265,137, Cl. 74-473.00R.

Krulwich, Lester S. Magnetic tracing stand. 4,265,624, Cl. 434-88.000.

Krutz, Gary W., to Purdue Research Foundation. Device for treating agricultural products to enhance drying. 4,265,076, Cl. 56-14.400.

Kubo, Sueki, to Kurosaki Refractories Co., Ltd. Apparatus for repairing the tap hole of a converter. 4,265,433, Cl. 266-273.000.

Kubota, Ltd.: *See—*
Matsubara, Yoshitaka; Shimoie, Shizuo; Watanabe, Takao; and Tomiyama, Yoshio, 4,265,494, Cl. 305-12.000.

Kubota, Reiko: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,265,910, Cl. 424-325.000.

Kueper, Theodore V.; Schack, Warren R.; and Rock, Harry, to Swift & Company. Preparation of partially dehydrated meat products. 4,265,918, Cl. 426-264.000.

Kugimiya, Kazuya, to Mitsui Petrochemical Industries, Ltd. Multilayer bag structure for packaging. 4,265,949, Cl. 428-35.000.

Kuhn, Peter M., to United States of America, Commerce. Method and apparatus for detecting clear air turbulences. 4,266,130, Cl. 250-339.000.

Kuhnel, Werner; and Spielau, Paul, to Dynamit Nobel Aktiengesellschaft. Process for the production of foamed plastics from polyolefins. 4,266,041, Cl. 521-92.000.

Kuhnelt, Gert: *See—*
Plockinger, Erwin; Kuhnelt, Gert; Machner, Peter; and Jager, Heimo, 4,265,295, Cl. 164-52.000.

Kukanskis, Peter E.: *See—*
Goldstein, Rachel; Kukanskis, Peter E.; and Grunwald, John J., 4,265,943, Cl. 427-305.000.

Kumins, Charles A.; and Warford, Milan L., to Tremco, Incorporated. Waterproofing sheet material. 4,265,967, Cl. 428-332.000.

Kunze, Bernhard: *See—*
Wittkopp, Helmut; and Kunze, Bernhard, 4,265,149, Cl. 82-8.000.

Kuo, Mau-Jung: *See—*
Miller, Robert E.; Kuo, Mau-Jung; and Lewis, Charles, Jr., 4,266,032, Cl. 435-241.000.

Kuramoto, Minoru, to Nissan Motor Company, Limited. Easy-to-assemble sliding arrangement in disc brake. 4,265,341, Cl. 188-73.300.

Kurashige, Shinji: *See—*
Hachisuka, Shunji; Kurashige, Shinji; and Saahiro, Yasuo, 4,265,678, Cl. 148-12.00B.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Kaji, Hisatsugu; Kameyama, Iwawo; Hamaguti, Takashi; and Miyamori, Tamotsu, 4,265,869, Cl. 423-447.400.

Nishimoto, Yoshiharu; and Yamazaki, Kengo, 4,265,693, Cl. 156-218.000.

Kurimoto, Yoshitane. Greenhouse device. 4,265,300, Cl. 165-47.000.

Kurosaki Refractories Co., Ltd.: *See—*
Kubo, Sueki, 4,265,433, Cl. 266-273.000.

Kurple, Kenneth R.: *See—*
Holsopple, Dale B.; Kurple, Wasyl W.; Kurple, William M.; and Kurple, Kenneth R., 4,265,809, Cl. 260-124.00R.

Kurple, Wasyl W.: *See—*
Holsopple, Dale B.; Kurple, Wasyl W.; Kurple, William M.; and Kurple, Kenneth R., 4,265,809, Cl. 260-124.00R.

Kurple, William M.: *See—*
Holsopple, Dale B.; Kurple, Wasyl W.; Kurple, William M.; and Kurple, Kenneth R., 4,265,809, Cl. 260-124.00R.

Kurt Manufacturing Company, Inc.: *See—*
Lenz, John O., 4,265,282, Cl. 144-219.000.

Kurt Wayne, Inc.: *See—*
Wayne, Kurt, 4,265,098, Cl. 63-2.000.

Kurumada, Tomoyuki: *See—*
Soma, Nobuo; Morimura, Syoji; Yoshioka, Takao; and Kurumada, Tomoyuki, 4,265,803, Cl. 260-45.8NZ.

Kuse, Kazuki: *See—*
Yoshieda, Keiichi; and Kuse, Kazuki, 4,265,014, Cl. 29-766.000.

Kuvshinov, Nikolai S.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.

Kuwik, John J.; Braden, Arthur B.; Taylor, Samuel K.; and Covic, John, to Ohio Nuclear, Inc. Method of determining collimator aperture efficiency and apparatus with an efficient collimator aperture size. 4,266,135, Cl. 250-445.00T.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Terada, Osamu; Uwajima, Takayuki; Mihara, Akira; Aisaka, Kazuo; Akita, Hiroko; Nagai, Toshiaki; and Shimizu, Yoshiaki, 4,266,023, Cl. 435-28.000.

L. B. Foster Company: *See—*
Jackson, Bertie, 4,265,401, Cl. 238-17.000.

Laber, Walter: *See—*
Miserlis, Constantine D.; Luke, Albert G., Jr.; Laber, Walter; and Guetlhuber, Friedrich, 4,265,223, Cl. 126-435.000.

Labovitz, Jeffrey N.: *See—*
Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., 4,266,056, Cl. 544-311.000.

Lacharmoise, Paul: *See—*
Bordas, Robert; Lacharmoise, Paul; and Moteruil, Gilbert, 4,265,097, Cl. 62-438.000.

Lachmann, Burkhard: *See—*
Birkenstock, Udo; Lachmann, Burkhard; Metten, Josef; and Schmidt, Herbert, 4,265,834, Cl. 564-421.000.

La Conti, Anthony B.: *See—*
Nolan, Mary E.; Kosek, John A.; and La Conti, Anthony B., 4,265,714, Cl. 204-1.00T.

Ladany, Ivan, to RCA Corporation. Etching of optical fibers. 4,265,699, Cl. 156-657.000.

Ladd, Glenn O., Jr., to Hughes Aircraft Company. Method for making improved Schottky-barrier gate gallium arsenide field effect devices. 4,265,934, Cl. 427-84.000.

Ladisch, Michael R.: *See—*
Tsao, George T.; Dale, Bruce E.; and Ladisch, Michael R., 4,265,675, Cl. 127-37.000.

L'Air Liquide, Societe Anonyme pour l'Etude l'Ecploitation des Procedes Georges Claude: *See—*
Lermuzeaux, Andre, 4,265,921, Cl. 426-444.000.

Lajovic, Dimitri E.; and Lassner, Hans, to Impact International Pty. Limited. Degassing molten metals. 4,265,432, Cl. 266-220.000.

Lallemand, Pierre: *See—*
Leclerc, Pierre; Puech, Claude; Papuchon, Michel; and Lallemand, Pierre, 4,265,541, Cl. 356-350.000.

Lambie, John W., to Neptune Glenfield Limited. Shaft seals. 4,265,457, Cl. 277-105.000.

Lambrecht, Henning F. W. M. A.: *See—*
Bucker, Fritz O.; and Lambrecht, Henning F. W. M. A., 4,265,742, Cl. 209-399.000.

Lamouric, Pol. Device for assembling tools on a wheel, particularly cutting tools on a trenching machine. 4,265,037, Cl. 37-94.000.

Lampkin, Curtis: *See—*
Jordan, John P.; and Lampkin, Curtis, 4,265,933, Cl. 427-54.100.

Lamprecht, Walther, to Kommanditgesellschaft Schwarzhaupt. Process for the determination of at least one of the iso-enzymes of lactatedehydrogenase. 4,266,022, Cl. 435-26.000.

Lane, Bruce V.: *See—*
Swiatosz, Edmund; Dykes, Wiley V.; Grimmer, Paul D.; and Lane, Bruce V., 4,265,238, Cl. 128-205.120.

Lang, William H.: *See—*
Audeh, Costandi A.; Chang, Clarence D.; and Lang, William H., 4,265,735, Cl. 208-234.000.

Langdon, William K., to BASF Wyandotte Corporation. Oxyalkylated polyglycerols and water-based lubricants prepared therefrom. 4,265,774, Cl. 252-49.300.

Lange, Gerhard; and Boy, Juergen, to Siemens Aktiengesellschaft. Surge arrester. 4,266,260, Cl. 361-120.000.

Lange, Henry J., to Deere & Company. Tractor draft link structure. 4,265,464, Cl. 280-460.00A.

Lange, Norbert: *See—*
Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, 4,265,254, Cl. 131-281.000.

Langner, Fred R. Photocopier collator. 4,265,445, Cl. 271-296.000.

Langston, Larry D. Side opening, shiftable cover for trucks or wagon beds. 4,265,479, Cl. 296-100.000.

Lankenau, Henry G., to Ecodyne Corporation. Liquid concentration method. 4,265,701, Cl. 159-47.0WL.

Lantzsch, Reinhard, to Bayer Aktiengesellschaft. Preparation of dihalogenovinylcyclopropanecarboxylic acids and esters. 4,265,819, Cl. 260-346.220.

Lanvin, Serge, to Societe Marinoni. Tucker cylinder. 4,265,438, Cl. 493-428.000.

Laprade, Gerard: *See—*
Coulon, Michel; and Laprade, Gerard, 4,265,850, Cl. 264-225.000.

Larsson, Rolf L.: *See—*
Ericksson, Jan C.; and Larsson, Rolf L., 4,265,927, Cl. 427-2.000.

Lasalandra, Raffaele. Foldable bathtub liner tank. 4,264,991, Cl. 4-514.000.

Laser Precision Corporation: *See—*
Doyle, Walter M., 4,265,540, Cl. 356-346.000.

Laskin, Allen I.: *See—*
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,266,034, Cl. 435-253.000.

Laskos, Stanley, Jr.: *See—*
Mailer, Hugh; and Laskos, Stanley, Jr., 4,265,784, Cl. 252-299.000.

Lassner, Hans: *See—*
Lajovic, Dimitri E.; and Lassner, Hans, 4,265,432, Cl. 266-220.000.

Laszlo, Karoly: *See—*
Heller, Laszlo; Forgo, Laszlo; Papp, Istvan; Bodas, Janos; Kovacs, Gyula; and Laszlo, Karoly, 4,265,275, Cl. 138-38.000.

Lauber, Ernst, to Habegger, Willy. Rolling and stepping vehicle. 4,265,326, Cl. 180-8.00R.

Laurent, Heinrich: *See—*
Kolb, Erich; and Laurent, Heinrich, 4,264,997, Cl. 15-250.290.

Lautenschlager, Karl, Jr., to Karl Lautenschlager KG, Mobelbeschlagfabrik. Furniture hinge. 4,265,000, Cl. 16-129.000.

Law, Andrew B.: *See—*
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,265,899, Cl. 424-270.000.

Lawrence, Frederick D., to Combustion Engineering, Inc. Radially channeled guide post for a nuclear fuel assembly. 4,265,708, Cl. 176-78.000.

Lawrence, Rodney G.: *See—*
Gilicinski, George A.; and Lawrence, Rodney G., 4,265,663, Cl. 106-10.000.

Lawson, Martial: *See—*
MacLennan, Mary E.; and Lawson, Martial, 4,265,915, Cl. 426-28.000.

Lawson, Terence M., to Coulter Systems Corporation. Lithographic printing plate and method for the preparation of same. 4,265,987, Cl. 430-49.000.

Lay, William D. Cotton gleaner. 4,265,078, Cl. 56-28.000.

Leach Industries: *See—*
Drake, Charles A.; and Bayer, Raymond M., 4,265,450, Cl. 273-73.00G.

Lebouc, Bernard, to Framatome. Remote-controlled screwing device. 4,265,011, Cl. 29-720.000.

Lechtken, Peter: *See—*
Hesse, Anton; Lechtken, Peter; Nicolaus, Walter; and Scholz, Dankmar, 4,265,723, Cl. 204-159.230.

Leclerc, Pierre; Puech, Claude; Papuchon, Michel; and Lallemand, Pierre, to Thomson-CSF. Interferometric laser gyrometer. 4,265,541, Cl. 356-350.000.

Lee, Chi-Long: *See—*
Homan, Gary R.; and Lee, Chi-Long, 4,265,792, Cl. 260-18.00S.

Leeds & Northrup Company: *See—*
Wertheimer, Alan L., 4,265,538, Cl. 356-246.000.

Legutke, Gunter; Scholz, Harald; and Schuchardt, Kurt, to Hoechst Aktiengesellschaft. Production of 1,2-dichloroethane. 4,265,837, Cl. 570-243.000.

Lehnus, Edward L. Fositive displacement pulse free rotary fluid pump. 4,265,606, Cl. 418-201.000.

Leitnaker, James M., to United States of America, Energy. Delta ferrite-containing austenitic stainless steel resistant to the formation of undesirable phases upon aging. 4,265,983, Cl. 428-683.000.

Lengyel, Stephen P.: *See—*
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, 4,265,790, Cl. 252-532.000.

Lenkeit, Manfred: *See—*
Vural, Gulertan; Carle, Udo; and Lenkeit, Manfred, 4,265,130, Cl. 74-87.000.

Lennartz, Rudiger; and Romey, Ingo, to Bergwerksverband GmbH. Alluvial filter candle apparatus and a method of cleaning the same. 4,265,771, Cl. 210-769.000.

Lenz, John O., to Kurt Manufacturing Company, Inc. Tubular rotating cutter. 4,265,282, Cl. 144-219.000.

Lenz, Robert W.; and Vert, Michel, to Research Corporation. Malic acid polymers. 4,265,247, Cl. 128-335.500.

Leonard, Willie B. Fluidic repeater. 4,265,331, Cl. 181-119.000.

Lermuzeaux, Andre, to L'Air Liquide, Societe Anonyme pour l'Etude l'Ecploitation des Procedes Georges Claude. Process for quick-freezing of food products. 4,265,921, Cl. 426-444.000.

Lesher, George Y.; and Gruett, Monte D., to Sterling Drug Inc. 1,2-Dihydro-5-pyridinyl-3H-pyrazolo[3,4-b]pyridin-3-ones and their use as cardiotonics. 4,265,895, Cl. 424-256.000.

Le Thanh, Tri: *See*—
Hons-Olivier, Jacques P.; Le Thanh, Tri; and Devanz, Francois M., 4,266,039, Cl. 521-85.000.

Leverentz, Earl T.: *See*—
Schreyer, Kenneth D.; Leverentz, Earl T.; Nusz, Thomas R.; and Benton, Reuben P., 4,265,181, Cl. 105-150.000.

Levine, Beth, to Betherb, Inc. Expandable article of footwear. 4,265,032, Cl. 36-11.500.

Levy, Avner; and Karsh, Irving, to Bell & Howell Company. Torsional fluid damper system. 4,265,386, Cl. 226-190.000.

Levy, Paul M. Television system. 4,266,240, Cl. 358-3.000.

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Kayalioglu, Inanc; Roman, Vincent G.; and Lewandowski, Ted J., 4,266,099, Cl. 179-16.0EA.

Lewis, Charles, Jr.: *See*—
Miller, Robert E.; Kuo, Mau-Jung; and Lewis, Charles, Jr., 4,266,032, Cl. 435-241.000.

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LGZ Landis & Gyr Zug AG: *See*—
Schmidhauser, Rolf, 4,266,122, Cl. 235-454.000.

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Bergmann, Gunther, 4,266,150, Cl. 307-268.000.
Hoppner, Dietrich; and Kohlbacher, Gerhard, 4,266,100, Cl. 179-18.0GF.
Stiltz, Erwin; Lindenmayer, Heinz; Geis, Wilhelm; and Wolf, Otto, 4,265,435, Cl. 269-139.000.

Licitis, Gunars, Jr.: *See*—
Meyer, Burton C.; Morrison, Howard J.; and Licitis, Gunars, Jr., 4,265,047, Cl. 46-232.000.

Lieber, Albert J.: *See*—
Sutphin, Howard D.; and Lieber, Albert J., 4,266,247, Cl. 358-217.000.

Liebman, Theodore; and Nemiroff, Robert V. Color organ. 4,265,159, Cl. 84-464.00R.

Lim, Teong C.; and Staples, Edward J., to Rockwell International Corporation. Remote acoustic wave sensors. 4,265,124, Cl. 73-703.000.

Limare, Armand; and Maillot, Francois, to Societe Metallurgique le Nickel S. L. N. Method for producing hydroxylated nickel compounds. 4,265,718, Cl. 204-96.000.

Lin, Shiow-Ching, to DeSoto, Inc. Polyazlactone-electron deficient ethylenically unsaturated resinous compositions and method for foaming same. 4,266,040, Cl. 521-90.000.

Lin, Tung-Yen; Yang, Yue-Chyou; and Chow, Philip Y., to T. Y. Lin International. Prestressed concrete pressure vessels. 4,265,066, Cl. 52-224.000.

Lindenmayer, Heinz: *See*—
Stiltz, Erwin; Lindenmayer, Heinz; Geis, Wilhelm; and Wolf, Otto, 4,265,435, Cl. 269-139.000.

Lindner-Frimmel, Silvia J.: *See*—
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, 4,266,024, Cl. 435-68.000.

Linnell, John W.: *See*—
Sweet, Barry A.; and Linnell, John W., 4,265,061, Cl. 52-93.000.

Lipman, Kenneth, to United Technologies Corporation. Dual core magnetic amplifier sensor. 4,266,190, Cl. 324-117.00R.

Lippacher, Wolfgang; and Teger, Gerhard, to Hilti Aktiengesellschaft. Tool for placing self-drilling dowels. 4,265,008, Cl. 29-240.000.

Litton Industrial Products, Inc.: *See*—
Cribbs, Robert W., 4,265,121, Cl. 73-607.000.

Liu, Chi-sheng; Weaver, Lelland A. C.; and Williams, Roy K. Metal halide laser tube structure. 4,266,200, Cl. 331-94.50G.

Livesay, Richard E., to Caterpillar Tractor Co. Method and apparatus for assembly of a track chain with minimum end play. 4,265,084, Cl. 59-7.000.

Lloyd, Havelock D., to Vivitar Corporation. Incident metering electronic flash control. 4,266,163, Cl. 315-151.000.

Lo, Jhy-Dou R.: *See*—
Tebbens, Klaas; Fischer, Erhardt; and Lo, Jhy-Dou R., 4,265,939, Cl. 427-222.000.

Lockheed Missiles & Space Company, Inc.: *See*—
Meyer, John W., 4,265,580, Cl. 414-217.000.

Lodge & Shipley Company, The: *See*—
Glover, Charles G., 4,265,356, Cl. 198-444.000.

Logemann, Larry R., to Caterpillar Tractor Co. Tilt steering wheel and support column apparatus. 4,265,139, Cl. 74-485.000.

LogEtronics Inc.: *See*—
McIntosh, Walter L., 4,265,532, Cl. 355-20.000.

Logsdon, Duane D., to Logsdon Foundation, The. Roof flashing structures. 4,265,058, Cl. 52-58.000.

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Logsdon, Duane D., 4,265,058, Cl. 52-58.000.

Lohmann, Robert P.; and Markowski, Stanley J., to United Technologies Corporation. Fuel injection system for low emission burners. 4,265,615, Cl. 431-353.000.

Lo Maglio, Lewis C.: *See*—
Hayes, Thomas H.; and Lo Maglio, Lewis C., 4,265,948, Cl. 428-35.000.

Longi, Paolo: *See*—
Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, 4,265,785, Cl. 252-429.00B.

Lonnstrom Oy: *See*—
Vaananen, Raimo, 4,265,396, Cl. 236-68.00R.

Loof, Rupert H. C. Automatic golf teeing devices. 4,265,453, Cl. 273-201.000.

Loomis, Russell M., to Unarco Industries, Inc. Two-piece curtain-like lading-restraining device. 4,265,577, Cl. 410-118.000.

Lopez, Esteban; and Matsunaga, Douglas, to Braner Enterprises, Inc. Slitter having pivotal multiple spaced pairs of arbors. 4,265,155, Cl. 83-479.000.

Lordi, David T.: *See*—
Kelada, Nabih P.; Lue-Hing, Cecil; and Lordi, David T., 4,265,857, Cl. 422-101.000.

L'Oreal: *See*—
Bauer, Daniel; Beck, Jean-Paul; Boiteau, Claude; and Garoche, Didier, 4,266,116, Cl. 219-274.000.

Louis Marx & Co., Inc.: *See*—
Reiner, Lawrence L.; Marra, Michael; and Hennig, Michael F., 4,265,449, Cl. 273-41.000.

Loutfy, Raouf O.; Keller, Rudolf; and Yao, Neng-Ping, to United States of America, Energy. Method of winning aluminum metal from aluminous ore. 4,265,716, Cl. 204-67.000.

Lowenhar, Herman. Method of forming transmission lines using tubular extendible structures. 4,265,690, Cl. 156-161.000.

Luce, Carl T.; Banks, Edwin L., Jr.; and Dowell, Terrence P., to Barry Wright Corporation. Thrust bearing. 4,265,498, Cl. 308-230.000.

Lucki, John L.; and Naha, Alan B., to Dental Essentials, Inc. Method and apparatus for processing dental models. 4,265,619, Cl. 433-54.000.

Lue-Hing, Cecil: *See*—
Kelada, Nabih P.; Lue-Hing, Cecil; and Lordi, David T., 4,265,857, Cl. 422-101.000.

Luebke, Robert W., to True Temper Corporation. Variable thickness mat for stress transition zones of railroad track crossings, switches, and the like, and method of use. 4,265,398, Cl. 238-1.000.

Luhleich, Hartmut: *See*—
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, 4,265,843, Cl. 264-57.000.

Luke, Albert G., Jr.: *See*—
Miserlis, Constantine D.; Luke, Albert G., Jr.; Laber, Walter; and Guetlhuber, Friedrich, 4,265,223, Cl. 126-435.000.

Lundborg, Hans; Kristensen, Leif; and Nyqvist, Stig, to Nitro Nobel AB. Device in blasting cap for low-energy fuse. 4,265,177, Cl. 102-275.900.

Lundgren, Bengt, to SKF Nova AB. Sealing device. 4,265,455, Cl. 277-53.000.

Lurssen, Klaus, to Bayer Aktiengesellschaft. Compositions and methods for inhibiting the growth of cereals. 4,265,656, Cl. 71-103.000.

Luthi, Oscar, to Ingersoll-Rand Company. Centrifugal separator. 4,265,740, Cl. 209-211.000.

M. T. I. Corporation: *See*—
Noguchi, Hironori; and Sakuma, Kenji, 4,265,022, Cl. 33-174.00P.

Maahs, Gunther: *See*—
Grundmann, Raban; and Maahs, Gunther, 4,265,806, Cl. 260-45.8NT.

Macartney, Lawrence J.: *See*—
Crum, Gerald W.; and Macartney, Lawrence J., 4,265,858, Cl. 422-129.000.

MacDermid Incorporated: *See*—
Goldstein, Rachel; Kukanskis, Peter E.; and Grunwald, John J., 4,265,943, Cl. 427-305.000.

Machinefabriek W. Hubert & Co. B.V.: *See*—
Sinnema, Hendrik, 4,265,354, Cl. 198-374.000.

Machner, Peter: *See*—
Plockinger, Erwin; Kuhnelt, Gert; Machner, Peter; and Jager, Heimo, 4,265,295, Cl. 164-52.000.

MacLennan, Mary E.; and Lawson, Martial. Protein-containing food material. 4,265,915, Cl. 426-28.000.

MacLeod, Patrick: *See*—
Chuiton, Rene; and MacLeod, Patrick, 4,265,248, Cl. 128-630.000.

MacNitt, Donald G., Jr.; and Walker, Bryant H., to United Technologies Corporation. Forging apparatus. 4,265,105, Cl. 72-354.000.

Maco-Meudon: *See*—
Emonet, Henri, 4,265,322, Cl. 173-169.000.

Maeda, Eizo; and Iizuka, Hiromichi, to Kabushiki Kaisha ASAHI Enterprise. Pressure detecting device. 4,265,164, Cl. 91-417.00R.

Magennis, Steven A.: *See*—
Chalk, Alan J.; and Magennis, Steven A., 4,266,087, Cl. 568-875.000.

Magnie, Robert L., to Terry, Ruel C. Evaluation and production of attic oil. 4,265,309, Cl. 166-252.000.

Mahany, Richard J. Flowmeter method and apparatus. 4,265,125, Cl. 73-861.030.

Maher, Galeb H., to Sprague Electric Company. Ceramic capacitor and method for making the same. 4,266,265, Cl. 361-321.000.

Mahle GmbH: *See*—
Ruhle, Martin, 4,266,186, Cl. 324-65.00R.

Maier, Horst R.: *See*—
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.

Mailer, Hugh; and Laskos, Stanley, Jr., to General Electric Company. Azine liquid crystal compounds for use in light-control devices. 4,265,784, Cl. 252-299.000.

Maillot, Francois: *See*—
Limare, Armand; and Maillot, Francois, 4,265,718, Cl. 204-96.000.

Mainberger, Walter A.; and Gerritsen, Adrian, to Hayssen Manufacturing Company. Method of and apparatus for packaging. 4,265,070, Cl. 53-433.000.

Makino, Shinichi: *See*—
Kameya, Toru; Makino, Shinichi; and Tsuruta, Masayuki, 4,265,937, Cl. 427-163.000.

Malinowski, William J. Self-calibrating smoke detector and method. 4,266,220, Cl. 340-630.000.

Malone, Jacquelyn M.: *See*—
Ezzell, Bobby R.; Malone, Jacquelyn M.; and Sorenson, Marius W., 4,265,719, Cl. 204-98.000.

Mammino, Joseph, to Xerox Corporation. Carrier core surface treatment. 4,265,995, Cl. 430-107.000.

Mandelcorn, Lyon; Dakin, Thomas W.; and Mercier, George E., to Westinghouse Electric Corp. Meta isopropyl biphenyl insulated electrical apparatus. 4,266,264, Cl. 361-318.000.

Mandle, Richard M.; Karsai, Frank; and Krautheim, Raymond S., to Electro-Nucleonics, Inc. System for performing immunochemical and other analyses involving phase separation. 4,265,855, Cl. 422-65.000.

Mandroian, Harold. Pump apparatus. 4,265,600, Cl. 417-379.000.

Mandroian, Harold. Three valve precision pump apparatus with head pressure flowthrough protection. 4,265,601, Cl. 417-379.000.

Manion, Francis M.: *See*—
Neradka, Vincent F.; and Manion, Francis M., 4,265,162, Cl. 91-3.000.

Maniscalco, Joseph P.: *See*—
Allain, Ronald J.; and Maniscalco, Joseph P., 4,266,068, Cl. 556-430.000.

Mann, Glenn E. Duct assembling tool. 4,265,009, Cl. 29-244.000.

Mansukhani, Ishwar R., to Whittaker Corporation. Light sensitive jet inks. 4,266,229, Cl. 346-1.100.

Manuel, Maylam. Aeration filtration tank and water treatment system. 4,265,753, Cl. 210-199.000.

Manyo Tool Kabushiki Kaisha: *See*—
Senzaki, Chikara, 4,265,460, Cl. 279-97.000.

Marchak, Roman O., to Bendix Corporation, The. Acceleration enrichment feature for electronic fuel injection system. 4,266,275, Cl. 364-431.000.

Marchal, Paul: *See*—
Bourdois, Claude; Decolle, Maurice; Ferard, Michel; and Marchal, Paul, 4,265,572, Cl. 406-114.000.

Marciante, Antonina: *See*—
Villani, Franco; and Marciante, Antonina, 4,265,748, Cl. 210-132.000.

Marcon Electronics Co. Ltd.: *See*—
Yokomizo, Yuji; and Minami, Kiyoshi, 4,265,844, Cl. 264-61.000.

Markowski, Stanley J.: *See*—
Lohmann, Robert P.; and Markowski, Stanley J., 4,265,615, Cl. 431-353.000.

Marlin, Jay: *See*—
Herskovitz, Sheldon B.; Marlin, Jay; and Stiglitz, Martin R., 4,265,618, Cl. 433-32.000.

Marra, Michael: *See*—
Reiner, Lawrence L.; Marra, Michael; and Hennig, Michael F., 4,265,449, Cl. 273-41.000.

Marshall, Alan: *See*—
Dingwall, John G.; Cook, Barry; and Marshall, Alan, 4,265,769, Cl. 210-699.000.

Marshall, Geoffrey B.: *See*—
Thurston, Victor N.; and Marshall, Geoffrey B., 4,265,426, Cl. 251-306.000.

Marshall, J. Howard, III, to MDH Industries, Inc. Apparatus for controlling neutrons escaping from an elemental analyzer measuring gamma rays arising from neutron capture in bulk substances. 4,266,132, Cl. 250-359.000.

Marshall, Larry J.; and Jensen, Phillip C., to Raychem Corporation. Self-contained exothermic heat recoverable chemical heater. 4,265,216, Cl. 126-263.000.

Marshall, Robert A., to General Electric Company. Permeable mesh current collector for DC machines. 4,266,154, Cl. 310-219.000.

Martel, Jacques; Tessier, Jean; and Teche, Andre, to Roussel Uclaf. Novel chiral ethers and their use in resolution of alcohols and phenols. 4,265,817, Cl. 260-343.30R.

Martin, Gerhard, to Hermann Berstorff Maschinenbau GmbH. Reverse degasification screw extruder with vacuum seal. 4,265,547, Cl. 366-79.000.

Martin, James A.: *See*—
Jackson, Liam R.; Weidner, John P.; Small, William J.; and Martin, James A., 4,265,416, Cl. 244-2.000.

Martin, Philippe: *See*—
Contre, Michel; Martin, Philippe; and Quetier, Monique, 4,265,666, Cl. 106-43.000.

Martin, Thomas W.; and Sandhu, M. Akram, to Eastman Kodak Company. Color imaging devices having integral color filter arrays. 4,266,017, Cl. 430-533.000.

Martin, William L.: *See*—
Britton, Michael W.; Martin, William L.; McDaniel, Jack D.; and Wahl, Harry A., 4,265,310, Cl. 166-259.000.

Martinez, Renato G. Composite staple-type fastener having relatively movable locking portions. 4,265,160, Cl. 411-442.000.

Marvin Glass & Associates: *See*—
Meyer, Burton C.; Morrison, Howard J.; and Licitis, Gunars, Jr., 4,265,047, Cl. 46-232.000.

Marvin M. Stark Research Foundation: *See*—
Soelberg, Kenneth B.; Stark, Marvin M.; Thompson, Tommy H.; and Yamaguchi, Akia, 4,265,623, Cl. 433-139.000.

Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., to Owens-Corning Fiberglas Corporation. Road pavement and repair. 4,265,563, Cl. 404-75.000.

Mase, Akira: *See*—
Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,266,181, Cl. 322-28.000.

Mashimo, Tohru, to Toyo Kogyo Co., Ltd. Advance control system for use in a drilling apparatus. 4,266,171, Cl. 318-571.000.

Masonite Corporation: *See*—
Palmer, Fred I., 4,265,067, Cl. 52-309.900.

Massachusetts Institute of Technology: *See*—
Sheehan, John C.; and Commons, Thomas J., 4,265,882, Cl. 424-114.000.

Mastromatteo, Michael. Method of welding a diaphragm assembly. 4,265,389, Cl. 228-219.000.

Masuda, Masafumi: *See*—
Yasuda, Nobu; Masuda, Masafumi; and Morita, Tomoichi, 4,265,969, Cl. 428-342.000.

Masuzawa, Sigeaki: *See*—
Inoue, Tomohiro; and Masuzawa, Sigeaki, 4,266,096, Cl. 179-1.50M.

Matalon, Ralph, to Arco Polymers, Inc. Flameproof and fireproof products containing monoethanolamine, diethylamine or morpholine. 4,265,963, Cl. 428-288.000.

Matchell, Raymond: *See*—
Waldron, Christopher J.; and Matchell, Raymond, 4,266,246, Cl. 358-216.000.

Matherat, Philippe, to Thomson-CSF. Processor for a graphic terminal. 4,266,253, Cl. 358-903.000.

Matsubara, Yoshitaka; Shimoie, Shizuo; Watanabe, Takao; and Tomiyama, Yoshio, to Kubota, Ltd. Crawler travelling apparatus. 4,265,494, Cl. 305-12.000.

Matsuda, Yoshio, to Yoshida Kogyo K.K. Warp-knit tape fabric for slide fasteners. 4,265,003, Cl. 24-205.10C.

Matsuki, Minoru: *See*—
Ishiguro, Shoji; Shishido, Tadao; Sakai, Takeo; Sasaki, Noboru; Nagaoka, Joji; and Matsuki, Minoru, 4,266,018, Cl. 430-550.000.

Matsumoto, Hiromitsu, to Yamaha Hatsukoki Kabushiki Kaisha. Induction system for an internal combustion engine. 4,265,202, Cl. 123-308.000.

Matsumoto, Kazuya; Matsumura, Susumu; Nose, Noriyuki; and Okuno, Youichi, to Canon Kabushiki Kaisha. Camera having a holographic indicator. 4,265,522, Cl. 354-53.000.

Matsumoto, Shinichi: *See*—
Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; Furutani, Toshinobu; and Wakizaka, Hiroshi, 4,265,930, Cl. 427-34.000.

Matsumura, Isao, to Canon Kabushiki Kaisha. Variable magnification apparatus having illumination compensating ability. 4,265,518, Cl. 351-7.000.

Matsumura, Susumu: *See*—
Matsumoto, Kazuya; Matsumura, Susumu; Nose, Noriyuki; and Okuno, Youichi, 4,265,522, Cl. 354-53.000.

Matsunaga, Douglas: *See*—
Lopez, Esteban; and Matsunaga, Douglas, 4,265,155, Cl. 83-479.000.

Matsuo, Takashi: *See*—
Fujimoto, Keimei; Ohno, Nobuo; Okuno, Yoshitoshi; Mizutani, Toshio; Ohno, Isao; Hirano, Masachika; Itaya, Nobushige; and Matsuo, Takashi, 4,266,074, Cl. 560-105.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Satoda, Hajime; Ohta, Hiromi; and Ushirokajitani, Yoshiyuki, 4,265,614, Cl. 431-329.000.
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, 4,265,320, Cl. 173-12.000.

Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, to Nippon Electric Co., Ltd. Light switch. 4,265,513, Cl. 350-96.200.

Mauldin, Charles H.: *See*—
Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., 4,265,786, Cl. 252-439.000.

May, Robert E., to Burlington Industries, Inc. Low penetration coating fabric. 4,265,962, Cl. 428-287.000.

McAlister, Roy E. Multiple fluid medium system and improved hot water supply tank assembly utilized therein. 4,265,220, Cl. 126-421.000.

McArdle, Beryl L. Binary code randomizing system. 4,266,095, Cl. 179-1.50R.

McCain, G. Howard: *See*—
Baczek, Stanley K.; and McCain, G. Howard, 4,266,036, Cl. 521-26.000.

McClain, Dorothee M., to National Distillers and Chemical Corp. Alcohol-wet particles of ethylene-vinyl ester interpolymer. 4,265,799, Cl. 260-33.40R.

McConachie, John W. Apparatus for storing and dispensing leafy vegetables. 4,265,095, Cl. 62-373.000.

McCormick, Mathew, to Bowthorpe-Hellermann Limited. Clip for fixing an electric cable to a support structure. 4,265,420, Cl. 248-56.000.

McCoy, Reginald F. H., to Vital Industries, Inc. Television special effects arrangement. 4,266,242, Cl. 358-22.000.
McCray, William R.: *See—*
Clancy, Douglas E.; Johnson, Carl F.; McCray, William R.; and Neal, Danny M., 4,265,554, Cl. 400-316.000.
McCreary, Michael D.; Farley, William C.; and Erickson, Wayne F., to Eastman Kodak Company. Substituted 1-phenyl-3-pyrazolidinone electron transfer agents. 4,266,002, Cl. 430-218.000.
McCreary, William J.; and Carroll, David W., to United States of America, Energy. Coated woven materials and method of preparation. 4,265,982, Cl. 428-608.000.
McDaniel, Jack D.: *See—*
Britton, Michael W.; Martin, William L.; McDaniel, Jack D.; and Wahl, Harry A., 4,265,310, Cl. 166-259.000.
McDonald, Charles J.; and Beaver, Robert H., to Dow Chemical Company, The. Conversion of carboxamide to N-substituted derivative thereof using carbon magnetic analysis. 4,265,835, Cl. 564-204.000.
McDonald, Robert W.: *See—*
Karlin, Richard A.; McDonald, Robert W.; and Comiskey, Gary F., 4,266,189, Cl. 324-117.00H.
McElligott, Michael J.: *See—*
Mowry, William H., Jr.; McElligott, Michael J.; Tkalenko, Victor J., Jr.; and Baran, Joseph, 4,265,469, Cl. 283-8.00B.
McEntire, Edward E.; and Gipson, Robert M., to Texaco Dev. Corp. Substituted alkylene oxides from substituted alkylene carbonates. 4,265,821, Cl. 260-348.160.
McIntosh, Walter L., to LogEtronics Inc. Photo printing by intensity and velocity modulation. 4,265,532, Cl. 355-20.000.
McLaughlin, Gary D.: *See—*
Webster, Noel E.; and McLaughlin, Gary D., 4,265,380, Cl. 223-85.000.
McLean, Peter J. Water purification system. 4,265,712, Cl. 202-166.000.
McMahon, Donald H., to Sperry Corporation. High speed holographic optical printing system. 4,265,509, Cl. 350-3.780.
McMaster, Tom; and Reid, Thomas. Pipe-bending apparatus. 4,265,106, Cl. 72-389.000.
McMillan, Andrew H.; and Chambors, John M., to Burroughs Corporation. Self configuring controller for the stacker area of a document sorting system. 4,265,446, Cl. 271-305.000.
McNaul, William F.; and Eberhardt, Paul R., to Cubic Corporation. Sidelobe discriminator. 4,266,226, Cl. 343-100.0LE.
McNeilab, Inc.: *See—*
Rasmussen, C. Royce; and Jacoby, Henry I., 4,265,900, Cl. 424-273.00R.
Rasmussen, Chris R., 4,266,062, Cl. 546-281.000.
McNeill, William H.; Feuersanger, Alfred E.; Haugsjaa, Paul O.; and Regan, Robert J., to GTE Laboratories Incorporated. Electromagnetic discharge apparatus with double-ended power coupling. 4,266,162, Cl. 315-39.000.
McTigue, Larry D.; and Pinson, George T., to Boeing Company, The. Roll compensated seeker head. 4,266,173, Cl. 318-585.000.
McVey, Kenneth E. Tip for dental aspirator. 4,265,621, Cl. 433-91.000.
MDH Industries, Inc.: *See—*
Marshall, J. Howard, III, 4,266,132, Cl. 250-359.000.
Mead Corporation, The: *See—*
Cox, Arthur; Thiel, John A.; and Nodov, Eugene, 4,266,252, Cl. 358-293.000.
Zornes, Larry; Farley, Lloyd J.; and Powlenko, Edward J., 4,265,391, Cl. 229-34.00R.
Meier, Ernst, to Stopinc Aktiengesellschaft. Closure element of a slide closure for use in liquid melt containers. 4,265,379, Cl. 222-600.000.
Meiji Seika Kaisha Ltd.: *See—*
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.
Meindl, Peter: *See—*
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, 4,266,024, Cl. 435-68.000.
Meinicke, Hans-Peter, to Knorr-Bremse GmbH. Electropneumatic brake for rail vehicles. 4,265,489, Cl. 303-3.000.
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Melendy, Harold A.: *See—*
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Meloeny, Michael R., to General Motors Corporation. Distributorless internal combustion engine ignition system. 4,265,211, Cl. 123-643.000.
Mendenhall, Robert L. Asphalt-aggregate drum mixing apparatus. 4,265,546, Cl. 366-7.000.
Meng, Ilse Heide Frieda, legal representative: *See—*
Horstmann, Harald; Meng, Karl-August, deceased; Meng, Matthias, legal representative; Seuter, Friedel; and Moller, Eike, 4,265,898, Cl. 424-270.000.
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Menold, Herman E., to Bon Aqua, Inc. Water treating apparatus and methods. 4,265,754, Cl. 210-222.000.
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Zimmerman, George M., Sr.; and Menold, Herman E., 4,265,746, Cl. 210-695.000.
Mercer, Paul W.; and Stock, Howard P., to Boeing Company, The. Ultrasonic tape tie strapping method and apparatus. 4,265,687, Cl. 156-73.100.
Mercier, George E.: *See—*
Mandelcorn, Lyon; Dakin, Thomas W.; and Mercier, George E., 4,266,264, Cl. 361-318.000.
Merck & Co., Inc.: *See—*
Shen, Tsung-Ying; and Jones, Howard, 4,265,905, Cl. 424-304.000.
Merkenich, Karl: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.
Merrill, Richard P., to Baltimore Aircoil Co., Inc. Injector type cooling tower having air discharge slots. 4,265,645, Cl. 55-257.0PV.
Merrow Machine Company, The: *See—*
Kelly, Edward A., 4,265,191, Cl. 112-288.000.
Merry, J. Bradford: *See—*
Blair, Gerald E.; Merry, J. Bradford; and Wylot, James M., 4,265,517, Cl. 350-358.000.
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Bielefeldt, Ernst-August, 4,265,640, Cl. 55-1.000.
Gorski, Ekkehard, 4,265,688, Cl. 156-73.100.
Metallurgical Processes Limited: *See—*
Gammon, Michael W., 4,265,644, Cl. 55-257.0NP.
Methode Electronics, Inc.: *See—*
Brown, Vincent B.; and Kozel, Charles A., 4,265,013, Cl. 29-739.000.
Metropolitan Sanitary District of Greater Chicago, The: *See—*
Kelada, Nabih P.; Lue-Hing, Cecil; and Lordi, David T., 4,265,857, Cl. 422-101.000.
Metten, Josef: *See—*
Birkenstock, Udo; Lachmann, Burkhard; Metten, Josef; and Schmidt, Herbert, 4,265,834, Cl. 564-421.000.
Metzger, Carl: *See—*
Krebs, Klaus-Werner; and Metzger, Carl, 4,265,832, Cl. 564-163.000.
Meunier, Gabriel. Bar screen filtering device. 4,265,750, Cl. 210-159.000.
Meyer, Burton C.; Morrison, Howard J.; and Licitis, Gunars, Jr., to Marvin Glass & Associates. Vehicle instrumentation and control apparatus. 4,265,047, Cl. 46-232.000.
Meyer, Hans. Internal measuring device. 4,265,026, Cl. 33-178.00R.
Meyer, John W., to Lockheed Missiles & Space Company, Inc. System for throttling and compensation for variable feedstock properties. 4,265,580, Cl. 414-217.000.
Meyer, Stanley A. Multi-stage solar storage system. 4,265,224, Cl. 126-436.000.
Meyercord Co., The: *See—*
Davis, Allan C., 4,265,355, Cl. 198-427.000.
Micaelli, Odile: *See—*
Gruffaz, Max; and Micaelli, Odile, 4,266,076, Cl. 560-247.000.
Micro Power Systems Inc.: *See—*
Hall, John H., 4,265,935, Cl. 427-89.000.
Mid-West Conveyor Co., Inc.: *See—*
Khodos, Yulian, 4,265,360, Cl. 198-774.000.
Midcontinent Specialties Manufacturing, Inc.: *See—*
Scott, James J., 4,265,571, Cl. 405-259.000.
Middleton, John N.: *See—*
Abbin, Joseph P., Jr.; Middleton, John N.; and Schildknecht, Harold E., 4,266,107, Cl. 200-61.530.
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Silk, George R.; and Midgelow, David, 4,265,330, Cl. 180-230.000.
Mihara, Akira: *See—*
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Miller, Dean E.: *See—*
Engel, William K.; and Miller, Dean E., 4,265,165, Cl. 91-490.000.
Miller, Frank E.; and Anderson, James J., to Whirlpool Corporation. Compactor control with selective pause operation. 4,266,174, Cl. 318-753.000.
Miller, Franklyn D.: *See—*
Muller, Werner C.; and Miller, Franklyn D., 4,266,027, Cl. 435-99.000.
Miller, George A.: *See—*
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,265,899, Cl. 424-270.000.
Miller, Grigory G.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Miller, Heide-Marie: *See—*
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Miller, Irving L.: *See—*
Chamoff, Martin E.; Miller, Irving L.; and Thorson, Donald L., 4,266,271, Cl. 364-200.000.
Miller, James A.: *See—*
Smith, James D.; and Miller, James A., 4,265,071, Cl. 53-492.000.
Miller, Robert E.; Kuo, Mau-Jung; and Lewis, Charles, Jr., to Monsanto Company. Method of culturing microcarrier supported cells. 4,266,032, Cl. 435-241.000.
Miller, Stephen D.: *See—*
Frederick, Louis J.; Hoke, Kenneth E.; Greene, Jerrold W.; and Miller, Stephen D., 4,265,578, Cl. 414-130.000.
Mills, King L.; and Johnson, Paul H., to Phillips Petroleum Company. Method for producing carbon black. 4,265,870, Cl. 423-450.000.
Mills, Ross N.: *See—*
Juliana, Anthony, Jr.; Koepcke, Richard W.; Mills, Ross N.; and Talke, Frank E., 4,266,232, Cl. 346-140.00R.
Mills, William R., Jr., to Mobil Oil Corporation. Pulsed radiation decay logging. 4,266,126, Cl. 250-264.000.
Min, Byung C.: *See—*
Regan, John F.; Pitroda, Satyan G.; and Min, Byung C., 4,266,292, Cl. 370-13.000.
Minami, Kiyoshi: *See—*
Yokomizo, Yuji; and Minami, Kiyoshi, 4,265,844, Cl. 264-61.000.
Minnesota Mining and Manufacturing Company: *See—*
Berglund, David E., 4,265,444, Cl. 271-207.000.
Butler, Louis; and Ogden, Paul H., 4,266,015, Cl. 430-527.000.
Close, James R., 4,265,953, Cl. 428-78.000.
Jonas, Walter K., 4,265,441, Cl. 271-19.000.
Price, Lawrence D., Jr., 4,265,153, Cl. 83-372.000.
Minolta Camera Kabushiki Kaisha: *See—*
Shibazaki, Kenji; Arai, Kenichi; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,265,440, Cl. 271-9.000.
Ueda, Hiroshi; and Saito, Mitsuru, 4,265,526, Cl. 354-106.000.
Watanabe, Yutaka, 4,265,142, Cl. 74-625.000.
Mir, Leon; and Zahka, Joseph, to Abcor, Inc. Process of removal of solvent vapors. 4,265,642, Cl. 55-85.000.
Miserlis, Constantine D.; Luke, Albert G., Jr.; Laber, Walter; and Guetlhuber, Friedrich, to Badger Company, Inc., The; and Deffendorfer Werft und Eisenbau. Method and apparatus for utilizing solar energy. 4,265,223, Cl. 126-435.000.
Mishakov, Vladimir N.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Mishra, Anupama, to Uniroyal Ltd. Isocyanurate products and polyurethanes therefrom. 4,265,798, Cl. 260-32.400.
Misra, Radhey S.: *See—*
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.
Misumi, Teruo: *See—*
Hirai, Yutaka; Komatsu, Toshiyuki; Nakagawa, Katsumi; Misumi, Teruo; and Fukuda, Tadaji, 4,265,991, Cl. 430-64.000.
Mita Industrial Company Limited: *See—*
Kouchi, Toshihiro; Takayama, Hiroshi; and Aizawa, Tatsuo, 4,265,992, Cl. 430-107.000.
Mitchell, Norris W., to Phillips Petroleum Company. Separation and processing of crude oil. 4,265,731, Cl. 208-80.000.
Mito, Ikuo: *See—*
Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, 4,265,513, Cl. 350-96.200.
Mitschke, Karl-Heinz; Geisler, Klaus; and Niederprum, Hans, to Bayer Aktiengesellschaft. Process for the preparation of hydroxyalkylperfluoroalkane sulphonamides. 4,265,831, Cl. 564-96.000.
Mitsubishi Chemical Industries, Ltd.: *See—*
Okushima, Hiromi; Fujimori, Shinichiro; Furuya, Rikizo; and Hayakawa, Shuzo, 4,265,816, Cl. 260-239.55C.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Takase, Akio; Tsutsumi, Takao; and Tsukahara, Hiroaki, 4,266,118, Cl. 219-492.000.
Mitsubishi Paper Mills, Ltd.: *See—*
Date, Sukeaki; and Ebato, Seigo, 4,266,016, Cl. 430-527.000.
Morishita, Sadao; Okumura, Fumio; and Higuchi, Masahiro, 4,265,978, Cl. 428-537.000.
Yasuda, Nobu; Masuda, Masafumi; and Morita, Tomoichi, 4,265,969, Cl. 428-342.000.
Mitsuboshi Belting Ltd.: *See—*
Imamura, Junji, 4,265,627, Cl. 474-267.000.
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Kugimiya, Kazuya, 4,265,949, Cl. 428-35.000.
Mizuno, Kenichi; Iwasaki, Hiroshi; and Nambu, Hirohiko, 4,266,081, Cl. 568-578.000.
Mix, Arthur L., Jr.: *See—*
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Miyagaki, Katsunori; Noguchi, Shozo; and Hirakawa, Yukio, to Nippon Electric Co., Ltd. Semiconductor device having improved high frequency characteristics. 4,266,239, Cl. 357-84.000.
Miyake, Masaya; Nakano, Minoi; Yamamoto, Takaharu; and Hara, Akio, to Sumitomo Electric Industries, Ltd. Hard alloy containing molybdenum and tungsten. 4,265,662, Cl. 75-238.000.
Miyamori, Tamotsu: *See—*
Kaji, Hisatsugu; Kameyama, Iwawo; Hamaguti, Takashi; and Miyamori, Tamotsu, 4,265,869, Cl. 423-447.400.
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Miyawaki, Tetsuo: *See—*
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Mizuno, Kenichi; Iwasaki, Hiroshi; and Nambu, Hirohiko, to Mitsui Petrochemical Industries Ltd. Process for preparation of peroxides. 4,266,081, Cl. 568-578.000.
Mizuno, Tiaki, to Nippondenso Co., Ltd. Apparatus for controlling vehicle directional lamps. 4,266,212, Cl. 340-81.00R.
Mizusawa Kagaku Kogyo Kabushiki Kaisha: *See—*
Sugahara, Yujiro; Naito, Hiroyuki; Takai, Kiyoshi; and Imafuku, Shigehisa, 4,265,864, Cl. 423-121.000.
Mizutani, Toshio: *See—*
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Mobil Oil Corporation: *See—*
Arbit, Harold A.; and Tinger, Harold G., 4,265,960, Cl. 428-220.000.
Audeh, Costandi A.; Chang, Clarence D.; and Lang, William H., 4,265,735, Cl. 208-234.000.
Mills, William R., Jr., 4,266,126, Cl. 250-264.000.
Paul, Jill H., 4,265,907, Cl. 424-304.000.
Schwartz, Albert B., 4,265,787, Cl. 252-455.00Z.
Thompson, Francis, 4,266,188, Cl. 324-65.00R.
Moelants, Felix J.; and Depoorter, Henri, to AGFA-Gevaert N.V. Photographic materials containing light absorbing methine dyes. 4,266,014, Cl. 430-522.000.
Moen, Lenard E. Multiple nozzle fluid dispenser having uniform openings in an operating bar. 4,265,377, Cl. 222-486.000.
Moertel, George B., to Textron, Inc. Sewing aid for slide fastener and method. 4,265,190, Cl. 112-265.200.
Mojonnier Bros. Co.: *See—*
Mojonnier, Harry G.; and Skoli, Sigmund P., 4,265,167, Cl. 99-323.200.
Mojonnier, Harry G.; and Skoli, Sigmund P., to Mojonnier Bros. Co. Deoxygenating unit. 4,265,167, Cl. 99-323.200.
Moller, Eike: *See—*
Horstmann, Harald; Meng, Karl-August, deceased; Meng, Matthias, legal representative; Seuter, Friedel; and Moller, Eike, 4,265,898, Cl. 424-270.000.
Monarch Marking Systems, Inc.: *See—*
Jenkins, William A., 4,265,174, Cl. 101-111.000.
Monsanto Company: *See—*
Bach, Hartwig C., 4,265,970, Cl. 428-364.000.
Bollinger, Wayne A.; and Guay, Roger G., 4,265,763, Cl. 210-323.200.
Fields, Joseph E.; and Johnson, John H., 4,265,879, Cl. 424-78.000.
Kern, Roland J., 4,266,004, Cl. 430-269.000.
Kloek, James A., 4,265,657, Cl. 71-106.000.
Miller, Robert E.; Kuo, Mau-Jung; and Lewis, Charles, Jr., 4,266,032, Cl. 435-241.000.
Natarajan, Subbiah, 4,265,641, Cl. 55-2.000.
Sabacky, Milton J., 4,265,827, Cl. 260-440.000.
Monson, Clifford L. Rotary flooring surface treating device. 4,264,999, Cl. 15-321.000.
Montagnier, Luc: *See—*
Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, 4,266,060, Cl. 546-64.000.
Montblanc-Simplo GmbH: *See—*
Herrnring, Gunther; and Nussen, Klaus P., 4,265,726, Cl. 204-202.000.
Montecatini Edison S.p.A.: *See—*
Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, 4,265,785, Cl. 252-429.00B.
Moody, Anthony G.; and Penneck, Richard J., to Raychem Limited. Polymeric blends containing a monoorganic polysiloxane resin. 4,265,801, Cl. 260-40.00R.
Moog GmbH: *See—*
Handte, Herbert, 4,265,024, Cl. 33-175.000.
Morel, Jean, to Verreries Mecaniques Champenoises. Rotary fire-finishing machine for glass articles. 4,265,651, Cl. 65-252.000.
Mori, Kazumasa: *See—*
Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,266,181, Cl. 322-28.000.
Mori, Koh: *See—*
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Morigaki, Masakazu: *See—*
Sakai, Nobuo; Nakamura, Kotaro; Morigaki, Masakazu; and Furutachi, Nobuo, 4,266,020, Cl. 430-551.000.
Morimura, Syoji: *See—*
Soma, Nobuo; Morimura, Syoji; Yoshioka, Takao; and Kurumada, Tomoyuki, 4,265,803, Cl. 260-45.8NZ.
Morin, Marius J., to Cutter Laboratories, Inc. Flow control device. 4,265,425, Cl. 251-9.000.
Morishita, Hirosada: *See—*
Kawanishi, Tsuneaki; Mukoh, Akio; and Morishita, Hirosada, 4,265,993, Cl. 430-107.000.

Morishita, Sadao; Okumura, Fumio; and Higuchi, Masahiro, to Mitsubishi Paper Mills, Ltd. Heat-sensitive recording paper improved in keeping quality of ground color. 4,265,978, Cl. 428-537.000.

Morita, Tomoichi: *See*—
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Moro, Gianni; and Picchi, Mario. System for simulating the condyle movements. 4,265,620, Cl. 433-69.000.

Morris, John F.; and Worrell, Robert V., to Smith International, Inc. Eccentric counterbore for diamond insert stud. 4,265,324, Cl. 175-329.000.

Morris, Winfred L.; Inman, Richard V.; and Buck, Otto, to Rockwell International Corporation. Fatigue detection utilizing acoustic harmonics. 4,265,120, Cl. 73-600.000.

Morrison, Charles F., Jr., to Vac-Tec Systems, Inc. Magnetically enhanced sputtering device. 4,265,729, Cl. 204-298.000.

Morrison, Howard J.: *See*—
Meyer, Burton C.; Morrison, Howard J.; and Licitis, Gunars, Jr., 4,265,047, Cl. 46-232.000.

Morton, Paul H. Hydropneumatic energy system. 4,265,599, Cl. 417-54.000.

Most, Allen F.: *See*—
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Most, Lynn W.; and Most, Allen F. Means for detecting metal objects. 4,266,193, Cl. 324-236.000.

Moteruil, Gilbert: *See*—
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Motonami, Masanao: *See*—
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Motorola, Inc.: *See*—
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Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., 4,266,270, Cl. 364-200.000.
Hines, Kenneth W., 4,266,279, Cl. 364-726.000.

Motsenbocker, Don M. Saddle. 4,265,075, Cl. 54-44.000.

Moulin, Pierre A., to Schlumberger Technology Corp. Downhole cable tension measuring apparatus. 4,265,110, Cl. 73-151.000.

Mowry, William H., Jr.; McElligott, Michael J.; Tkalenko, Victor J., Jr.; and Baran, Joseph, to Burroughs Corporation. Protected document and method of making same. 4,265,469, Cl. 283-8.00B.

Moy, David, to Halcon Research and Development Corp. Catalytic process for the manufacture of urethanes. 4,266,070, Cl. 560-24.000.

Mrenna, Stephen A.; and Ellsworth, James P., to Westinghouse Electric Corp. Circuit breaker with improved arc extinguishing means. 4,266,210, Cl. 335-201.000.

Mueller, Karl F.: *See*—
Falk, Robert A.; and Mueller, Karl F., 4,266,080, Cl. 568-45.000.

Mueller-Mall, Rudolf; Wendel, Kurt; Geelhaar, Hans J.; and Melan, Michael, to BASF Aktiengesellschaft. Preparation of aqueous polyacrylate dispersions having improved flow characteristics. 4,265,796, Cl. 260-29.60R.

Mukoh, Akio: *See*—
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Mulder, James R.: *See*—
Kretchman, Gerald L.; Mulder, James R.; and Pielemeier, John W., 4,265,100, Cl. 68-12.00R.

Muller, Gerhard; and Rausch, Werner, to Oxy Metal Industries Corporation. Phosphatizing prior to cathodic electropainting. 4,265,677, Cl. 148-6.15Z.

Muller, Thomas P., to Caterpillar Tractor Co. Guard structure for hydraulic conduits of a mobile apparatus. 4,265,063, Cl. 52-115.000.

Muller, Werner C.; and Miller, Franklyn D., to National Distillers and Chemical Corp. Process for the hydrolysis of starch and fermentable hydrolysates obtained therefrom. 4,266,027, Cl. 435-99.000.

Munster, Gerhard; Riess, Gerhard; and Russow, Jurgen, to Hoechst Aktiengesellschaft. Process for the manufacture of phosphorus pentachloride. 4,265,865, Cl. 423-300.000.

Munter, Arnold M.; and Ahlgren, David W., to Jeno's, Inc. Process for producing a food product. 4,265,919, Cl. 426-283.000.

Munzer, Rudolf: *See*—
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, 4,265,843, Cl. 264-57.000.

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Murase, Ichiki: *See*—
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Murata, Tomoji: *See*—
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Musa, Fuad H.: *See*—
Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., 4,266,270, Cl. 364-200.000.

Muscatell, Steven C. Beverage and liquified food belt. 4,265,381, Cl. 224-148.000.

Muskulus, Willi, to Balzer & Droll KG. Device for collecting windings in stators or the like. 4,265,012, Cl. 29-736.000.

Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, to Nippondenso Co., Ltd. Voltage regulator system for vehicle generator. 4,266,181, Cl. 322-28.000.

N. V. Optische Industrie "De Oude Delft": *See*—
Duinker, Simon, 4,266,136, Cl. 250-445.00T.

Naf, Ferdinand; and Decorzant, Rene, to Firmenich, S.A. Bicyclic aldehyde derivatives, their use as perfuming and flavoring ingredients and process for their preparation. 4,266,075, Cl. 560-120.000.

Nagai, Toshiaki: *See*—
Terada, Osamu; Uwajima, Takayuki; Mihara, Akira; Aisaka, Kazuo; Akita, Hiroko; Nagai, Toshiaki; and Shimizu, Yoshiaki, 4,266,023, Cl. 435-28.000.

Nagano, Masashi, to Shimano Industrial Company, Limited. Operating cable. 4,265,140, Cl. 139-501.00R.

Nagaoka, Joji: *See*—
Ishiguro, Shoji; Shishido, Tadao; Sakai, Takeo; Sasaki, Noboru; Nagaoka, Joji; and Matsuki, Minoru, 4,266,018, Cl. 430-550.000.

Nagase, Toshio: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; and Sato, Shosuke, 4,265,173, Cl. 101-79.000.

Nagata, Kenzo: *See*—
Shibazaki, Kenji; Arai, Kenichi; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,265,440, Cl. 271-9.000.

Nagatomo, Shigeru; and Hori, Kiyotaka, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive material. 4,266,010, Cl. 430-355.000.

Nagel, George W., to Westinghouse Electric Corp. Flue damper control system. 4,265,394, Cl. 236-1.00G.

Naha, Alan B.: *See*—
Lucki, John L.; and Naha, Alan B., 4,265,619, Cl. 433-54.000.

Nahta, Roop C., to GAF Corporation. Method of dispersing bundles of glass fibers for making glass fiber mats by the wet-laid process. 4,265,704, Cl. 162-156.000.

Naito, Hideki: *See*—
Kobayashi, Hidetoshi; Tanaka, Mitsugu; Inouye, Kozo; and Naito, Hideki, 4,266,019, Cl. 430-551.000.

Naito, Hiroyuki: *See*—
Sugahara, Yujiro; Naito, Hiroyuki; Takai, Kiyoshi; and Imafuku, Shigehisa, 4,265,864, Cl. 423-121.000.

Naito, Kazuyoshi: *See*—
Shimakata, Ryuji; and Naito, Kazuyoshi, 4,265,102, Cl. 72-58.000.

Najer, Henry; and Obitz, Daniel, to Synthelabo. Propionamidoxime derivatives. 4,265,911, Cl. 424-326.000.

Nakagawa, Katsumi: *See*—
Hirai, Yutaka; Komatsu, Toshiyuki; Nakagawa, Katsumi; Misumi, Teruo; and Fukuda, Tadaji, 4,265,991, Cl. 430-64.000.

Nakamatsu, Hiroshi: *See*—
Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, 4,266,053, Cl. 544-196.000.

Nakamura, Hitoshi: *See*—
Takahashi, Akio; Tsumuki, Chiaki; Nakamura, Hitoshi; and Ozaki, Juro, 4,265,388, Cl. 228-135.000.

Nakamura, Katsumi; and Kitamura, Kumpei, to Kirin Beer Kabushiki Kaisha. Process for preparation of prodigiosin. 4,266,028, Cl. 435-118.000.

Nakamura, Kazuo: *See*—
Tokutomi, Seijiro; Jyojiki, Masao; and Nakamura, Kazuo, 4,265,520, Cl. 354-23.00D.

Nakamura, Kenichi: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,188, Cl. 112-158.00B.
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Sakai, Nobuo; Nakamura, Kotaro; Morigaki, Masakazu; and Furutachi, Nobuo, 4,266,020, Cl. 430-551.000.

Nakamura, Shohei; and Suenaga, Yoshiyuki, to Asahi Kasei Kogyo Kabushiki Kaisha. Photosensitive elastomeric composition. 4,266,005, Cl. 430-271.000.

Nakamura, Shunji: *See*—
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, 4,265,197, Cl. 118-657.000.

Nakano, Minol: *See*—
Miyake, Masaya; Nakano, Minol; Yamamoto, Takaharu; and Hara, Akio, 4,265,662, Cl. 75-238.000.

Nakao, Hideyuki, to Kabushiki Kaisha Daini Seikosha. Calendar correcting mechanism. 4,266,289, Cl. 368-35.000.

Nakayama, Masanobu: *See*—
Goto, Hajime; Amemiya, Ikuzo; and Nakayama, Masanobu, 4,265,652, Cl. 65-273.000.

Nalco Chemical Company: *See*—
Allain, Ronald J.; and Maniscalco, Joseph P., 4,266,068, Cl. 556-430.000.

Nambu, Hirohiko: *See*—
Mizuno, Kenichi; Iwasaki, Hiroshi; and Nambu, Hirohiko, 4,266,081, Cl. 568-578.000.

Naoumidis, Aristidis: *See*—
Dias, Francisco J.; Gupta, Ashok K.; Gyarmati, Erno; Kampel, Marian; Luhleich, Hartmut; Munzer, Rudolf; and Naoumidis, Aristidis, 4,265,843, Cl. 264-57.000.

Naruns, Laimons; Terry, Dennis W.; and Stellfox, Samuel K., to Dravo Corporation. Bulk material unloader. 4,265,579, Cl. 414-138.000.

Nash, David D., to Durapipe Limited. Pipe joint. 4,265,471, Cl. 285-111.000.

Nash, Edward M.; and Johnson, Edward M., Jr., to Triangle Corporation, The. Work bench structure. 4,265,283, Cl. 144-286.00R.

Nashua Corporation: *See*—
Cormier, Raymond G.; and Allen, Walter C., 4,265,442, Cl. 271-127.000.

Natarajan, Subbiah, to Monsanto Company. Method and apparatus for particle charging and particle collecting. 4,265,641, Cl. 55-2.000.

National Can Coporation: *See*—
Sauer, Donald G., 4,265,852, Cl. 264-512.000.

National Distillers and Chemical Corp.: *See*—
McClain, Dorothee M., 4,265,799, Cl. 260-33.40R.
Muller, Werner C.; and Miller, Franklyn D., 4,266,027, Cl. 435-99.000.

National Semiconductor Corp.: *See*—
Hobrecht, Stephen W.; Skawinski, Henry M.; Chiu, Kh; and Hee, Wong, 4,266,254, Cl. 360-62.000.

Nawman, Rollie B., to Benner-Nawman, Inc. Protective telephone stand. 4,265,499, Cl. 312-100.000.

Nawrata, Gunter, to AKG Akustische u. Kino-gerate Gesellschaft m.b.H. Process of forming a sound needle and sound needle construction. 4,265,698, Cl. 156-630.000.

NCR Corporation: *See*—
Amacher, Gene L.; and Dickover, Wesley D., 4,266,145, Cl. 307-200.00A.

Neal, Danny M.: *See*—
Clancy, Douglas E.; Johnson, Carl F.; McCray, William R.; and Neal, Danny M., 4,265,554, Cl. 400-316.000.

Neco AG: *See*—
Polli, Claudio, 4,266,230, Cl. 346-22.000.

Neel, N. Ray: *See*—
Rice, Harold E.; and Neel, N. Ray, 4,265,229, Cl. 128-66.000.

Neely, James W.: *See*—
Beasley, Glenn H.; Chong, Berni P.; Ford, Warren T.; and Neely, James W., 4,265,768, Cl. 210-682.000.

Neenan, John P.: *See*—
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.

Neff, Robert K.; and Hillstead, David P., to ACF Industries, Inc. Damping railway car truck. 4,265,182, Cl. 105-197.00D.

Nelsen, M. Dean: *See*—
Harp, Marlyn F.; Diepenbrock, James L., Jr.; and Nelsen, M. Dean, 4,265,955, Cl. 428-116.000.

Nelson, Alfred M.; and Davis, David L., to AM International, Inc. Toner applicator apparatus. 4,265,196, Cl. 118-50.000.

Nelson, David A., Jr.; and Ruoff, Arthur L., to Cornell Research Foundation, Inc. Diamond targets for producing high intensity soft x-rays and a method of exposing x-ray resists. 4,266,138, Cl. 250-492.00A.

Nemiroff, Robert V.: *See*—
Liebman, Theodore; and Nemiroff, Robert V., 4,265,159, Cl. 84-464.00R.

Neptune Glenfield Limited: *See*—
Lambie, John W., 4,265,457, Cl. 277-105.000.

Neradka, Vincent F.; and Manion, Francis M. Servovalve having fluidic actuator. 4,265,162, Cl. 91-3.000.

Nes, Aasmund E.; and Slevolden, Sverre, to Norsk Hydro a.s. Process for manufacture of strip-casted Al-sheet material with improved mechanical and thermomechanical qualities. 4,265,676, Cl. 148-2.000.

Newton, Alwin B., to Borg-Warner Corporation. Evaporator feed and control system. 4,265,093, Cl. 62-198.000.

Newton, Harry V., to SWS Silicones Corporation. Stabilized heat curable silicone elastomers. 4,265,800, Cl. 260-37.0SB.

Newton, Roger F.: *See*—
Collington, Eric W.; Finch, Harry; Newton, Roger F.; and Wallis, Christopher J., 4,265,891, Cl. 424-244.000.

Ng, Ting F. Apparatus for producing electrical energy from ocean waves. 4,266,143, Cl. 290-53.000.

Nguyen, Vu H.: *See*—
O'Rell, Dennis D.; Palmer, Nigel I.; and Nguyen, Vu H., 4,265,985, Cl. 429-225.000.

Nichols, William K. Grain drill with oscillating planter bar. 4,265,186, Cl. 111-85.000.

Nicholson, Denzel A.: *See*—
Boyer, Stanton L.; and Nicholson, Denzel A., 4,265,777, Cl. 252-113.000.

Nicholson, Richard R.; Smith, Ray E.; and Shukla, Jayendra G., to Velsicol Chemical Corporation. Novel phosphoric acid. 4,265,791, Cl. 252-8.100.

Nicia, Antonius J. A.; and Potters, Cornelis J. T., to U.S. Philips Corporation. Detachable connector for optical fibres. 4,265,511, Cl. 350-96.180.

Nickel, Horst; and Schundehutte, Karl H., to Bayer Aktiengesellschaft. Azo dyestuffs. 4,265,813, Cl. 260-170.000.

Nicolaus, Walter: *See*—
Hesse, Anton; Lechtken, Peter; Nicolaus, Walter; and Scholz, Dankmar, 4,265,723, Cl. 204-159.230.

Niedermeyer, William P. Web-cutting process. 4,266,112, Cl. 219-121.0LN.

Niederprum, Hans: *See*—
Mitschke, Karl-Heinz; Geisler, Klaus; and Niederprum, Hans, 4,265,831, Cl. 564-96.000.

Nielsen, Arthur R.: *See*—
Schillinger, Joseph F.; and Nielsen, Arthur R., 4,265,366, Cl. 221-33.000.

Nielsen, Grethe C.: *See*—
Tang, Peter; Nielsen, Grethe C.; Gibson, Keith; Aunstrup, Knud; and Schiff, Hans, 4,266,031, Cl. 435-188.000.

Niemela, Paul W., to Singer Company, The. Brush holder assembly. 4,266,155, Cl. 310-239.000.

Nihon Technical Kabushiki Kaisha: *See*—
Ohshima, Hideki, 4,265,128, Cl. 74-10.150.

Nimura, Takayasu: *See*—
Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,266,181, Cl. 322-28.000.

Nippon Air Brake Co., Ltd.: *See*—
Ryuichi, Tanaka, 4,265,493, Cl. 303-24.00C.

Nippon Electric Co., Ltd.: *See*—
Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, 4,265,513, Cl. 350-96.200.
Miyagaki, Katsunori; Noguchi, Shozo; and Hirakawa, Yukio, 4,266,239, Cl. 357-84.000.
Ueda, Kazuyoshi, 4,266,236, Cl. 357-34.000.

Nippon Kasei Chemical Co., Ltd.: *See*—
Inoue, Yoshiharu; Tanimoto, Fumio; and Kitano, Hisao, 4,266,055, Cl. 544-221.000.

Nippon Kinzoku Co., Ltd.: *See*—
Ohashi, Nobuo; Ono, Yutaka; Nohara, Kiyohiko; Shimomura, Junichi; and Miyawaki, Tetsuo, 4,265,679, Cl. 148-12.00E.

Nippon Oil Company, Ltd.: *See*—
Omika, Hiroyoshi; Hara, Hajime; Otsuki, Yutaka; Araki, Yoshihiko; and Aoyama, Kazuho, 4,265,793, Cl. 260-23.0EP.

Nippon Paint Co., Ltd.: *See*—
Kimura, Masao; Sobata, Tamotu; and Wada, Hideo, 4,265,780, Cl. 252-156.000.

Nippon Sheet Glass Co., Ltd.: *See*—
Ikeda, Yoshirou; and Kaite, Yoshikazu, 4,265,667, Cl. 106-47.00Q.

Nippon Soken, Inc.: *See*—
Arao, Umeo; Egami, Tsuneyuki; Kosuda, Tooru; and Takeuchi, Yasuhiro, 4,265,163, Cl. 91-361.000.

Nippon Telegraph & Telephone Public Corporation: *See*—
Tateishi, Kazuyoshi; Hoshino, Yasushi; and Takano, Rikuo, 4,265,989, Cl. 430-57.000.

Nippon Zeon Co., Ltd.: *See*—
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, 4,265,946, Cl. 427-393.500.

Nippondenso Co., Ltd.: *See*—
Mizuno, Tiaki, 4,266,212, Cl. 340-81.00R.
Muto, Katsuya; Mori, Kazumasa; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,266,181, Cl. 322-28.000.

Nishida, Yoshikazu: *See*—
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, 4,265,320, Cl. 173-12.000.

Nishimoto, Yoshiharu; and Yamazaki, Kengo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Method of molding tubular laminate. 4,265,693, Cl. 156-218.000.

Nishimura, Shigeyuki: *See*—
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Tsujii, Yasuhiro; and Nishimura, Shigeyuki, 4,266,064, Cl. 546-345.000.

Nishimura, Shinichi; and Izumida, Satoshi, to Nissan Motor Company Limited; and Ikeda Bussan Co. Ltd. Head-rest adjusting device. 4,265,482, Cl. 297-391.000.

Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Tsujii, Yasuhiro; and Nishimura, Shigeyuki, to Ishihara Sangyo Kaisha Ltd. Process for producing chloro β-trifluoromethylpyridines. 4,266,064, Cl. 546-345.000.

Nishizawa, Jun-ichi, to Zaidan Hojin Handotai Kenkyu Shinkokai. Semiconductor device having high-speed operation and integrated circuit using same. 4,266,238, Cl. 357-48.000.

Nissan Motor Company, Limited: *See*—
Kuramoto, Minoru, 4,265,341, Cl. 188-73.300.
Nishimura, Shinichi; and Izumida, Satoshi, 4,265,482, Cl. 297-391.000.

Nisshin Flour Milling Co., Ltd.: *See*—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,265,910, Cl. 424-325.000.

Nitro Nobel AB: *See*—
Lundborg, Hans; Kristensen, Leif; and Nyqvist, Stig, 4,265,177, Cl. 102-275.900.

Nix, Douglas E. Beverage container receiving and storing apparatus. 4,265,352, Cl. 194-4.00D.

Noack, Jurgen. Relating to cold sheet metal roll forming apparatus. 4,265,103, Cl. 72-180.000.

Nobile, Arthur, to Kosinski, Robert E., a part interest. Aurothiosteroids. 4,265,823, Cl. 260-397.400.

Nodov, Eugene: *See*—
Cox, Arthur; Thiel, John A.; and Nodov, Eugene, 4,266,252, Cl. 358-293.000.

Noguchi, Hironori; and Sakuma, Kenji, to M. T. I. Corporation. Contour measuring apparatus. 4,265,022, Cl. 33-174.00P.

Noguchi, Kosaku; and Komi, Nobuyuki, to Koa Oil Company, Limited. Process for calcining coke. 4,265,710, Cl. 201-27.000.

Noguchi, Shozo: *See*—
Miyagaki, Katsunori; Noguchi, Shozo; and Hirakawa, Yukio, 4,266,239, Cl. 357-84.000.

Nohara, Kiyohiko: *See*—
Ohashi, Nobuo; Ono, Yutaka; Nohara, Kiyohiko; Shimomura, Junichi; and Miyawaki, Tetsuo, 4,265,679, Cl. 148-12.00E.

Nola, Frank J., to United States of America, National Aeronautics and Space Administration. Power factor control system for AC induction motors. 4,266,177, Cl. 318-810.000.

Nolan, Mary E.; Kosek, John A.; and La Conti, Anthony B., to General Electric Company. Gas sensing and measuring device and process using catalytic graphite sensing electrode. 4,265,714, Cl. 204-1.00T.

Noomen, Arie: *See—*
Schuurink, Pieter H. J.; and Noomen, Arie, 4,265,973, Cl. 428-424.800.
Nordisk Insulinlaboratorium: *See—*
Kofod, Hans, 4,265,884, Cl. 424-177.000.
Nordson Corporation: *See—*
Crum, Gerald W.; and Macartney, Lawrence J., 4,265,858, Cl. 422-129.000.
Norsk Hydro a.s.: *See—*
Nes, Aasmund E.; and Slevolden, Sverre, 4,265,676, Cl. 148-2.000.
Northern Telecom Limited: *See—*
Garner, John N., 4,265,686, Cl. 156-48.000.
Kayalioglu, Inanc; Roman, Vincent G.; and Lewandowski, Ted J., 4,266,099, Cl. 179-16.0EA.
Nose, Noriyuki: *See—*
Matsumoto, Kazuya; Matsumura, Susumu; Nose, Noriyuki; and Okuno, Youichi, 4,265,522, Cl. 354-53.000.
Novak, Albert P. Device to automatically screen incoming telephone calls, determine the identity of the caller and process the call accordingly. 4,266,098, Cl. 179-5.500.
Novo Industri A/S: *See—*
Branner-Jorgensen, Sven, 4,266,029, Cl. 435-176.000.
Tang, Peter; Nielsen, Grethe C.; Gibson, Keith; Aunstrup, Knud; and Schiff, Hans, 4,266,031, Cl. 435-188.000.
Novo Products, Inc.: *See—*
Smallegan, Jon M., 4,265,030, Cl. 34-104.000.
Novopress GmbH Pressen und Presswerkzeuge & Co. KG: *See—*
Dischler, Helmut, 4,265,347, Cl. 192-56.00R.
Nowak, Michael T., to Celanese Corporation. Radiation-curable coated article having moisture barrier propetes. 4,265,976, Cl. 428-486.000.
Nuovo Pignone, S.p.A.: *See—*
Vinciguerra, Costantino, 4,265,427, Cl. 251-315.000.
Nusco Kabushiki Kaisha: *See—*
Hayashi, Shigeki; and Okamoto, Takemitsu, 4,266,276, Cl. 364-475.000.
Nussen, Klaus P.: *See—*
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Nusz, Thomas R.: *See—*
Schreyer, Kenneth D.; Leverentz, Earl T.; Nusz, Thomas R.; and Benton, Reuben P., 4,265,181, Cl. 105-150.000.
N.V. Optische Industrie "De Oude Delft": *See—*
Versteeg, Frits J.; and Groeneweg, Abraham, 4,266,129, Cl. 250-330.000.
Nybo, Reidar, to A/S Akers Mek. Verksted. Riser device. 4,265,567, Cl. 405-195.000.
Nylen, Ulf T. G.; Olsson, Lars-Goran; Paulsson, Bengt G.; Qvarnstrom, Lars A. G.; and Wichers, Rolf H. L., to Gambro AB. Method and apparatus for the measurement of the concentration of a compound in a liquid medium. 4,266,021, Cl. 435-14.000.
Nylund, Theodore W.: *See—*
Doss, Glenn D.; and Nylund, Theodore W., 4,265,010, Cl. 29-402.010.
Nyqvist, Stig: *See—*
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O&K Orenstein & Koppel Aktiengesellschaft: *See—*
Kirchhoff, Bernhard, 4,265,031, Cl. 34-108.000.
O'Banion, John D., to E-Z Fill Corporation. Self venting gas cap. 4,265,752, Cl. 210-172.000.
Obata, Katsuhiro; and Koizumi, Shigenobu, to Iida Sankyo Co., Ltd. Electromagnetic swing device. 4,266,291, Cl. 368-168.000.
Oberrecht, David A., to Dover Corporation. Removable rack for a liquid dispensing nozzle. 4,265,281, Cl. 141-392.000.
Obitz, Daniel: *See—*
Najer, Henry; and Obitz, Daniel, 4,265,911, Cl. 424-326.000.
Obrezkov, Alexandr I.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Occidental Research Corporation: *See—*
Frankiewicz, Theodore C., 4,265,636, Cl. 44-1.00C.
Oce-Nederland B.V.: *See—*
Extra, Piet M. J.; van den Honert, Taco H. J.; and van Lieshout, Jacobus J., 4,265,997, Cl. 430-122.000.
Oce-van der Grinten N.V.: *See—*
Kessels, Cornelis P. H., 4,265,988, Cl. 430-56.000.
Ochiai, Takeji: *See—*
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, 4,265,946, Cl. 427-393.500.
O'Doherty, George O. P., to Eli Lilly and Company. 2-Oxybenzimidazoline compounds. 4,265,901, Cl. 424-273.00B.
Offermann, Ludwig: *See—*
Bocsanczy, Janos; Offermann, Ludwig; and Stalherm, Dieter, 4,265,709, Cl. 201-4.000.
Offshore Company, The: *See—*
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O'Flanagan, Patrick T.: *See—*
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Ogawa, Hiroshi: *See—*
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Ogawa, Hisashi: *See—*
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Ogden, Paul H.: *See—*
Butler, Louis; and Ogden, Paul H., 4,266,015, Cl. 430-527.000.
Ohara, Katsunobu; and Yoshida, Nobutoshi, to Canon Kabushiki Kaisha. Electrophotography. 4,265,531, Cl. 355-3.0SC.
Ohara, Naoki: *See—*
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,188, Cl. 112-158.00B.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,189, Cl. 112-158.00E.
Ohashi, Nobuo; Ono, Yutaka; Nohara, Kiyohiko; Shimomura, Junichi; and Miyawaki, Tetsuo, to Kawasaki Steel Corporation; and Nippon Kinzoku Co., Ltd. Process for producing stainless steels for spring having a high strength and an excellent fatigue resistance. 4,265,679, Cl. 148-12.00E.
Ohio Nuclear, Inc.: *See—*
Kuwik, John J.; Braden, Arthur B.; Taylor, Samuel K.; and Covic, John, 4,266,135, Cl. 250-445.00T.
Ohmiya, Akio: *See—*
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Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, 4,265,906, Cl. 424-304.000.
Ohsawa, Kazuo: *See—*
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Ohshima, Hideki, to Nihon Technical Kabushiki Kaisha. Turret type frequency selector. 4,265,128, Cl. 74-10.150.
Ohshima, Shigemitsu: *See—*
Iida, Masaaki; Kato, Chihiro; Ohshima, Shigemitsu; and Yazawa, Yoshiyuki, 4,265,826, Cl. 260-428.000.
Ohsumi, Tadashi: *See—*
Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, 4,265,906, Cl. 424-304.000.
Ohta, Hiromi: *See—*
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Ohtani, Masami: *See—*
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Ohtani, Yoshio, to Diesel Kiki Co., Ltd. Rotational speed detecting apparatus. 4,266,192, Cl. 324-168.000.
Okamoto, Takemitsu: *See—*
Hayashi, Shigeki; and Okamoto, Takemitsu, 4,266,276, Cl. 364-475.000.
Okubo, Masahisa. Combined plaything and receptacle for infants. 4,265,461, Cl. 280-1.130.
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Morishita, Sadao; Okumura, Fumio; and Higuchi, Masahiro, 4,265,978, Cl. 428-537.000.
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Gaule, Gerhart K.; Yarwood, John C.; Tyler, Derek E.; and Yun, Ik Y., 4,265,294, Cl. 164-49.000.
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Onoda, Hajime, to Kimmon Manufacturing Co., Ltd. Low meter system provided with a pulse generator. 4,265,127, Cl. 73-861.780.

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Ostrowski, Richard C., to Caterpillar Tractor Co. Investment casting mold forming apparatus. 4,265,296, Cl. 164-165.000.
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Futami, Yoshinori; and Ota, Tomio, 4,266,290, Cl. 368-76.000.
Otis Engineering Corporation: *See—*
Stout, Gregg W., 4,265,306, Cl. 166-237.000.
Otisca Industries, Ltd.: *See—*
Smith, Clay D.; and Keller, Douglas V., Jr., 4,265,737, Cl. 209-3.000.
Otsuka, Yasuhiro: *See—*
Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; Furutani, Toshinobu; and Wakizaka, Hiroshi, 4,265,930, Cl. 427-34.000.
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Anderson, George R.; Ott, Walter R.; Smoke, Edward J.; Easter, Ross A.; and Sholl, Jeffrey J., 4,266,108, Cl. 219-10.55E.
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Friberg, Nelson, 4,266,123, Cl. 250-205.000.
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Carruth, Grant F.; Coffey, Fred S.; and Fulmer, Ray M., 4,265,151, Cl. 83-102.000.
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,265,563, Cl. 404-75.000.
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Oxy Metal Industries Corporation: *See—*
Muller, Gerhard; and Rausch, Werner, 4,265,677, Cl. 148-6.15Z.
Rosegren, Donald R.; Johnson (Bulsiewicz), Noreen C.; and Stevens, Peter, 4,265,715, Cl. 204-46.00R.
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Takahashi, Akio; Tsumuki, Chiaki; Nakamura, Hitoshi; and Ozaki, Juro, 4,265,388, Cl. 228-135.000.
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Pacella, Angelo M. Portable inhalator device. 4,265,236, Cl. 128-203.230.
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Eriksson, Bengt O.; and Pahnke, Bror E., 4,265,430, Cl. 266-54.000.
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Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., to Imperial Chemical Industries Limited. Comminution process. 4,265,406, Cl. 241-16.000.
Pallos, Ferenc M., to Stauffer Chemical Company. N-Acylsulfonamide herbicidal antidotes. 4,266,078, Cl. 564-91.000.
Palmer, Fred I., to Masonite Corporation. Foamed plastic core door. 4,265,067, Cl. 52-309.900.
Palmer, Nigel I.: *See—*
O'Rell, Dennis D.; Palmer, Nigel I.; and Nguyen, Vu H., 4,265,985, Cl. 429-225.000.
Panepinto, William, Jr., to Honeywell Information Systems, Inc. Row selection circuits for memory circuits. 4,266,285, Cl. 365-189.000.
Papadofrangakis, Emmanuel; Engeler, William E.; and Fakiris, John A., to General Electric Company. Measurement of true blood velocity by an ultrasound system. 4,265,126, Cl. 73-861.250.
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Papuchon, Michel: *See—*
Leclerc, Pierre; Puech, Claude; Papuchon, Michel; and Lallemand, Pierre, 4,265,541, Cl. 356-350.000.
Pardue, Ray L.; and Buehl, Arnold L., to Econoray, Inc. Self-ventilating infra-red ray heater. 4,266,117, Cl. 219-343.000.
Parezo, Allen. Basement waterproofing system. 4,265,064, Cl. 52-169.500.
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Ciolkevich, John T., 4,266,109, Cl. 219-10.570.
Park, Ronald S., to Henderson's Industries Limited. Polyether-based polyurethane foams including a flame-retardant system containing antimony trioxide, a chlorinated paraffin and alumina trihydrate and method of preparation. 4,266,042, Cl. 521-123.000.
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Parker, John A.; Handler, Sid; and Snook, Randolph W., to Pullman Incorporated. Corrosion resistant membrane for chimney liner. 4,265,166, Cl. 98-58.000.
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Chan, Ka-Kong; and Pawson, Beverly A., 4,266,073, Cl. 560-55.000.
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Kim, Leo; Paxson, Timm E.; and Tang, Sunny C., 4,266,085, Cl. 585-645.000.
Payne, Harris F.; and Evans, Michael G., to A.R.A. Manufacturing Co. Blower systems circuit interrupting apparatus and method. 4,265,597, Cl. 417-32.000.
Payton, Clarence M.: *See—*
Freeman, Danny M.; Knight, Milton M., Jr.; Payton, Clarence M.; Simpson, Robert S.; and Smith, Howard B., Jr., 4,264,993, Cl. 8-149.000.
Pease, Floyd T.: *See—*
Herrmann, Robert P.; Pease, Floyd T.; and Ray, Donald R., 4,265,568, Cl. 405-196.000.
Peeples, Denny L., to General Motors Corporation. Hydraulic motor seal and valve arrangement. 4,265,087, Cl. 60-550.000.
Pegel, Karl H., to Roecar Holdings (Netherlands Antilles (NV). Spiroketalins and their applications. 4,265,886, Cl. 424-182.000.
Peisner, Israel D.; and Stol, George H., to Whitehead & Kales Company. Upper closure for an end door of a rail car. 4,265,183, Cl. 105-410.000.
Peleckis, Anthony J., Jr.: *See—*
Cartwright, Cyril A.; and Peleckis, Anthony J., Jr., 4,265,055, Cl. 51-80.00B.
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Pelser, Robert J.; Pelser, Lewis M.; Hill, Robert W.; Brown, Sanford W.; and Fischer, Robert G., 4,265,680, Cl. 148-103.000.
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Penneck, Richard J.: *See—*
Moody, Anthony G.; and Penneck, Richard J., 4,265,801, Cl. 260-40.00R.
Perfection Manufacturing Company, The: *See—*
Hoffmann, Ralph L., 4,265,079, Cl. 56-202.000.
Perkins, Norman P., Jr., to Gould Inc. Biasing means for combination actuator. 4,266,105, Cl. 200-50.00A.
Perlegos, George; and Johnson, William S., to Intel Corporation. Electrically alterable read-mostly memory. 4,266,283, Cl. 365-104.000.
Perrotti, Emmanuel J., to International Telephone and Telegraph Corporation. Circularly polarized crossed slot waveguide antenna array. 4,266,228, Cl. 343-771.000.
Perruso, Robert S. Combination vehicle for towing, dumping and the like. 4,265,463, Cl. 280-402.000.
Perry, John C. Trimming device to control propeller forces affecting propeller driven boats. 4,265,626, Cl. 440-66.000.
Peter, Heinrich: *See—*
Kocsis, Karoly; Peter, Heinrich; and Bickel, Hans, 4,265,892, Cl. 424-246.000.
Peters, John W.; and Gebhart, Frank L., to Hughes Aircraft Company. Mobile transparent window apparatus and method for photochemical vapor deposition. 4,265,932, Cl. 427-53.100.
Peters, Joseph, Jr. Electronically operable game scoring apparatus. 4,266,214, Cl. 340-323.00R.

Peters, Loren W., to Deere & Company. Blower system for an axial flow rotary combine cleaning shoe. 4,265,077, Cl. 56-14.600.
Peters, R. Donald, to United States of America, Army. Piezoelectric resonator assembly with thin molybdenum mounting clips. 4,266,157, Cl. 310-353.000.
Petersen, Christian C., to Polaroid Corporation. Shutter blade drive system. 4,265,530, Cl. 354-235.000.
Petersen, Kurt-Eckard: *See—*
Koch, Franz-Peter; Pinck, Peter; Petersen, Kurt-Eckard; Lange, Norbert; Kohler, Elke; and Bornfleth, Ulrich, 4,265,254, Cl. 131-281.000.
Peterson, Wayne A., to Caterpillar Tractor Co. High pressure implement circuit for loader with slow and fast dump position. 4,265,273, Cl. 137-625.680.
Petrolite Corporation: *See—*
Gilicinski, George A.; and Lawrence, Rodney G., 4,265,663, Cl. 106-10.000.
Pett, Robert A.; Rao, V. Durga N.; and Qaderi, S. Burhan A., to Ford Motor Company. Moldable mixture of sacrificial binder and sinterable particulate solids. 4,265,794, Cl. 260-28.50R.
Pfeiffer, Robert C.: *See—*
Harrell, Terry R.; and Pfeiffer, Robert C., 4,265,415, Cl. 242-107.40A.
Pfister, Hans B.: *See—*
Baltensperger, Rudolf; and Pfister, Hans B., 4,264,996, Cl. 14-21.000.
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Hoyt, Hazen L., 4th; and Uhr, Daniel R., Jr., 4,265,653, Cl. 71-11.000.
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Herbst, Heiner; Pfleiderer, Hans-Jorg; Koch, Rudolf; and Tihanyi, Jeno, 4,266,235, Cl. 357-30.000.
Philips, J. Christopher, administrator: *See—*
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.
Philips, Kerstin D., deceased: *See—*
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.
Phillips Petroleum Company: *See—*
Borenstein, David E., 4,265,849, Cl. 264-168.000.
Hedges, James H.; and Glinsmann, Gilbert R., 4,265,308, Cl. 166-252.000.
Hobbs, James W., 4,265,263, Cl. 137-2.000.
Mills, King L.; and Johnson, Paul H., 4,265,870, Cl. 423-450.000.
Mitchell, Norris W., 4,265,731, Cl. 208-80.000.
Romanek, Gerald A., 4,265,954, Cl. 428-85.000.
Tabler, Donald C.; and Gray, Bobby G., 4,265,733, Cl. 208-179.000.
Wu, Yulin, 4,266,046, Cl. 528-309.000.
Photon Power, Inc.: *See—*
Jordan, John P.; and Lampkin, Curtis, 4,265,933, Cl. 427-54.100.
Picchi, Mario: *See—*
Moro, Gianni; and Picchi, Mario, 4,265,620, Cl. 433-69.000.
Pielemeier, John W.: *See—*
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Pierson, Paul B.: *See—*
Compton, Bertram L.; and Pierson, Paul B., 4,265,524, Cl. 354-65.000.
Pilatovsky, Viktor P.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Pillsbury Company, The: *See—*
Anderson, George R.; Ott, Walter R.; Smoke, Edward J.; Easter, Ross A.; and Sholl, Jeffrey J., 4,266,108, Cl. 219-10.55E.
Pinck, Peter: *See—*
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Pinson, George T.: *See—*
McTigue, Larry D.; and Pinson, George T., 4,266,173, Cl. 318-585.000.
Piterskikh, Georgy P.; Sukhov, Stanislav A.; Slobodchikov, Vladimir B.; Sutyagin, Ivan S.; and Terentiev, Albert M. Apparatus for spray drying of liquid and paste-like materials. 4,265,617, Cl. 432-58.000.
Pitney Bowes Inc.: *See—*
Dannatt, Hugh St. L., 4,266,115, Cl. 219-216.000.
Eckert, Alton B.; and Duwel, Edward C., 4,266,222, Cl. 340-679.000.
Pitroda, Satyan G.: *See—*
Regan, John F.; Pitroda, Satyan G.; and Min, Byung C., 4,266,292, Cl. 370-13.000.
Pitt, Gillies D., to ITT Industries, Inc. Oil-in-water method and detector. 4,265,535, Cl. 356-70.000.
Pizzuto, Russell: *See—*
Wagster, Robert P.; and Pizzuto, Russell, 4,265,436, Cl. 269-274.000.
Plessey Handel und Investments AG: *See—*
Jeffrey, Cyril, 4,265,689, Cl. 156-73.200.
Plockinger, Erwin; Kuhnelt, Gert; Machner, Peter; and Jager, Heimo, to Vereinigte Edelstahlwerke Aktiengesellschaft (VEW). Method of producing steel ingots. 4,265,795, Cl. 164-52.000.
Poe, L. Richard, to Hartwell Corporation. Flush type rotary drive for latches. 4,265,474, Cl. 292-241.000.
Pohl, Christopher A., to Dionex Corporation. Chromatographic separation and quantitative analysis of ionic species. 4,265,634, Cl. 23-230.00R.
Pohlmann, Hans-Jurgen: *See—*
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.
Polaroid Corporation: *See—*
Idelson, Elbert M., 4,265,811, Cl. 260-147.000.
Petersen, Christian C., 4,265,530, Cl. 354-235.000.
Stella, Joseph A.; and Wright, Joseph H., 4,265,525, Cl. 354-76.000.
Polcer, Anton J.: *See—*
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Poletto, John F.: *See—*
Bernstein, Seymour; and Poletto, John F., 4,265,829, Cl. 260-510.000.
Polli, Claudio, to Neco AG. Time verification apparatus. 4,266,230, Cl. 346-22.000.
Pollinger, Hans, to Knorr-Bremse GmbH. Braking apparatus for vehicles. 4,265,492, Cl. 303-14.000.
Pols, Sidney R. Shoe to be worn over cast. 4,265,033, Cl. 36-110.000.
Polymer Cencentrates, Inc.: *See—*
Christopherson, Phillips; and Aelion, Rene, 4,265,789, Cl. 252-511.000.
Polysar Limited: *See—*
Tebbens, Klaas; Fischer, Erhardt; and Lo, Jhy-Dou R., 4,265,939, Cl. 427-222.000.
Pomerantzeff, Oleg, to Retina Foundation. Wide-angle ophthalmoscope. 4,265,519, Cl. 351-16.000.
Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Tire with asymmetric reinforcement employing carcass expansion correction block. 4,265,289, Cl. 152-209.00A.
Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Radial carcass tire employing carcass expansion limiting block. 4,265,291, Cl. 152-352.00R.
Pomroy, Michael F., to Combustion Engineering, Inc. Security panel door. 4,265,068, Cl. 52-456.000.
Portec, Inc.: *See—*
Burford, Billy R., 4,265,150, Cl. 82-17.000.
Portner, Peer M.; and Jassawalla, Jal S., to Andros Incorporated. Implantable infusion device. 4,265,241, Cl. 128-260.000.
Potomac Applied Mechanics, Inc.: *See—*
Stubbings, James H., 4,265,156, Cl. 83-530.000.
Potters, Cornelis J. T.: *See—*
Nicia, Antonius J. A.; and Potters, Cornelis J. T., 4,265,511, Cl. 350-96.180.
Powlenko, Edward J.: *See—*
Zornes, Larry; Farley, Lloyd J.; and Powlenko, Edward J., 4,265,391, Cl. 229-34.00R.
PPG Industries, Inc.: *See—*
Reese, Thomas J.; and Thomas, Dean L., 4,265,650, Cl. 65-104.000.
Pratt, Charles E., to Chattem Inc. Polyester resin composition containing oxy aluminum acylates. 4,265,975, Cl. 428-480.000.
Presnall, Lance O.; and Thurner, Gary H., to FMC Corporation. Heat extracting muffler system. 4,265,332, Cl. 181-211.000.
Presta, John C.: *See—*
Yates, Derek N.; and Presta, John C., 4,265,951, Cl. 428-36.000.
Prewo, Karl M., to United Technologies Corporation. High strength, high thermally conductive articles. 4,265,968, Cl. 428-336.000.
Pricca, Angelo: *See—*
Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, 4,265,785, Cl. 252-429.00B.
Price, Lawrence D., Jr., to Minnesota Mining and Manufacturing Company. Copy machine with automatic roll supplied copy paper feeding and cutting apparatus and control circuitry. 4,265,153, Cl. 83-372.000.
Price, Robert S.: *See—*
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Prilutsky, Anatoly N.: *See—*
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Procter & Gamble Company, The: *See—*
Boyer, Stanton L.; and Nicholson, Denzel A., 4,265,777, Cl. 252-113.000.
Gandolfo, Daniel; and Cooper, David J., 4,265,779, Cl. 252-135.000.
Jones, Kenneth L., 4,265,772, Cl. 252-8.600.
Prohaska, Theodore, Jr. Vehicle refinishing process. 4,265,936, Cl. 427-140.000.
Proud, Joseph M.; and Smith, Robert K., to GTE Laboratories Incorporated. Compact fluorescent light source having metallized electrodes. 4,266,166, Cl. 315-248.000.
Proud, Joseph M.; and Baird, Donald H., to GTE Laboratories Incorporated. Compact fluorescent light source and method of excitation thereof. 4,266,167, Cl. 315-248.000.
Prowting, Christopher T.: *See—*
Barclay, Donald J.; and Prowting, Christopher T., 4,265,543, Cl. 356-369.000.

Prudhon, Francois; and Scicluna, Augustin, to Rhone-Poulenc Industries. Method and apparatus for the treatment of heat-sensitive materials. 4,265,702, Cl. 159-48.00R.
Puech, Claude: *See—*
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Puhakka, Marie M.: *See—*
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Pullman Incorporated: *See—*
Parker, John A.; Handler, Sid; and Snook, Randolph W., 4,265,166, Cl. 98-58.000.
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Krutz, Gary W., 4,265,076, Cl. 56-14.400.
Tsao, George T.; Dale, Bruce E.; and Ladisch, Michael R., 4,265,675, Cl. 127-37.000.
Pyykkonen, Markku, to Valmet Oy. Apparatus for cleaning doctor blades in paper machines. 4,265,705, Cl. 162-272.000.
Qaderi, S. Burhan A.: *See—*
Pett, Robert A.; Rao, V. Durga N.; and Qaderi, S. Burhan A., 4,265,794, Cl. 260-28.50R.
Quetier, Monique: *See—*
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Quinn, Paul A., Jr.: *See—*
Krieg, Michael L.; and Quinn, Paul A., Jr., 4,265,556, Cl. 400-342.000.
Qvarnstrom, Lars A. G.: *See—*
Nylen, Ulf T. G.; Olsson, Lars-Goran; Paulsson, Bengt G.; Qvarnstrom, Lars A. G.; and Wichers, Rolf H. L., 4,266,021, Cl. 435-14.000.
Raftery, William B.; Whitwam, Ronald L.; and Wisniewski, Joseph M., to Steelcase Inc. Modular seating arrangement. 4,265,483, Cl. 297-440.000.
Rahn, Armin: *See—*
Hallbauer, Hans-Dieter; Gast, Fritz G. H.; Hoenow, Klaus-Werner; and Rahn, Armin, 4,265,109, Cl. 73-862.230.
Rakovsky, Naftula L.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Ralson Purina Company: *See—*
Skoch, Leroy V.; Harmon, Bud G.; Dickerson, Charles W.; and Chou, Nelson S., 4,265,916, Cl. 426-74.000.
Ram Products, Inc.: *See—*
Romanelli, Pat; Romanelli, Robert J.; and Shutt, Richard W., 4,265,612, Cl. 431-66.000.
Rank Organisation Limited, The: *See—*
Waldron, Christopher J.; and Matchell, Raymond, 4,266,246, Cl. 358-216.000.
Rannenberg, George C., to United Technologies Corporation. Combined fresh air regenerator and air cycle heat pump. 4,265,397, Cl. 237-2.00B.
Rao, V. Durga N.: *See—*
Pett, Robert A.; Rao, V. Durga N.; and Qaderi, S. Burhan A., 4,265,794, Cl. 260-28.50R.
Rapoport, George. Attache case with removable file folder. 4,265,286, Cl. 150-1.600.
Rasche, John F.: *See—*
Campbell, Michael F.; Fiala, Richard J.; Wideman, James D.; and Rasche, John F., 4,265,925, Cl. 426-641.000.
Rasmussen, C. Royce; and Jacoby, Henry I., to McNeilab, Inc. N-Aryl-N'-imidazol-2-ylureas. 4,265,900, Cl. 424-273.00R.
Rasmussen, Chris R., to McNeilab, Inc. (1-Methyl-2-pyridinylidene) derivatives of guanidine. 4,266,062, Cl. 546-281.000.
Rasmussen, Glen: *See—*
Tsuchiya, Takuzo; Fang, Jin-Liou; and Rasmussen, Glen, 4,265,922, Cl. 426-520.000.
Rasmussen, Henry. Heater. 4,265,214, Cl. 126-77.000.
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Tickner, Ernest G., 4,265,251, Cl. 128-660.000.
Rathmell, William G.: *See—*
Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., 4,266,056, Cl. 544-311.000.
Rausch, Werner: *See—*
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Ray, Donald R.: *See—*
Herrmann, Robert P.; Pease, Floyd T.; and Ray, Donald R., 4,265,568, Cl. 405-196.000.
Raychem Corporation: *See—*
Marshall, Larry J.; and Jensen, Phillip C., 4,265,216, Cl. 126-263.000.
Raychem Limited: *See—*
Moody, Anthony G.; and Penneck, Richard J., 4,265,801, Cl. 260-40.00R.
Raymond Corporation, The: *See—*
Adams, Walter P., 4,266,215, Cl. 340-347.00P.
RCA Corporation: *See—*
Balaban, Alvin R.; and Steckler, Steven A., 4,266,245, Cl. 358-153.000.
Breithaupt, David W., 4,266,197, Cl. 328-55.000.
Compton, Bertram L.; and Pierson, Paul B., 4,265,524, Cl. 354-65.000.
Ladany, Ivan, 4,265,699, Cl. 156-657.000.
Siekanowicz, Wieslaw W., 4,266,159, Cl. 313-422.000.
Realty and Industrial Corporation: *See—*
Gubelmann, William S., deceased; Gubelmann, Walter S., executor; and Grier, William R., 4,265,558, Cl. 400-672.200.
Reba, Imants, to Crown Zellerbach Corporation. Particulate matter dispersing and transporting system. 4,265,573, Cl. 406-152.000.
Reed, Robert D.; and Bengston, Merle A., to John Zink Company. Control system for purge gas to flare. 4,265,611, Cl. 431-3.000.
Reese, Thomas J.; and Thomas, Dean L., to PPG Industries, Inc. Method of bending glass sheets in unison to complicated shapes. 4,265,650, Cl. 65-104.000.
Regan, John F.; Pitroda, Satyan G.; and Min, Byung C., to Wescom Switching, Inc. Method and apparatus for testing analog-to-digital and digital-to-analog code converters. 4,266,292, Cl. 370-13.000.
Regan, Robert J.: *See—*
McNeill, William H.; Feuersanger, Alfred E.; Haugsjaa, Paul O.; and Regan, Robert J., 4,266,162, Cl. 315-39.000.
Reggiani, Tito: *See—*
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Reid, Philip L.: *See—*
Reuter, Daniel L.; Reid, Philip L.; Blackburn, Charles M.; and Heffner, Clifton W., 4,265,074, Cl. 53-551.000.
Reid, Thomas: *See—*
McMaster, Tom; and Reid, Thomas, 4,265,106, Cl. 72-389.000.
Reilly, David H. Portable liquid metering device. 4,265,370, Cl. 222-25.000.
Reinehr, Ulrich; von Falkai, Bela; and Wilschinsky, Horst, to Bayer Aktiengesellschaft. Hydrophilic filaments and fibres of polycarbonates with a high second order transition temperature. 4,265,971, Cl. 428-376.000.
Reiner, Lawrence L.; Marra, Michael; and Hennig, Michael F., to Louis Marx & Co., Inc. Simulated bowling game. 4,265,449, Cl. 273-41.000.
Reist, Walter; and Glatz, Werner, to Ferag AG. Method and apparatus for folding multi-sheet paper products, especially for the further longitudinal folding of newspapers having a transverse break. 4,265,437, Cl. 493-435.000.
Remijan, Paul W. Optical apparatus and method for producing the same. 4,265,534, Cl. 356-2.000.
Renschke, Joachim, to ITT Industries, Inc. Circuit arrangement for an input keyboard. 4,266,213, Cl. 340-166.00R.
Research Corporation: *See—*
Lenz, Robert W.; and Vert, Michel, 4,265,247, Cl. 128-335.500.
Retina Foundation: *See—*
Pomerantzeff, Oleg, 4,265,519, Cl. 351-16.000.
Reuter, Daniel L.; Reid, Philip L.; Blackburn, Charles M.; and Heffner, Clifton W., to Sigma Systems, Inc. Web processing mechanism for forming packages. 4,265,074, Cl. 53-551.000.
Reynolds, Wyndall O.: *See—*
Elswood, Ebbert L.; and Reynolds, Wyndall O., 4,266,287, Cl. 367-185.000.
Rhone-Poulenc Industries: *See—*
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Gruffaz, Max; and Micaelli, Odile, 4,266,076, Cl. 560-247.000.
Prudhon, Francois; and Scicluna, Augustin, 4,265,702, Cl. 159-48.00R.
Ribka, Joachim; Tappe, Horst; Roth, Kurt; and Weyer, Hans-Jurgen, to Cassella Aktiengesellschaft. Process for the production of resist effects of polyester/cellulose mixed fibre textiles. 4,265,629, Cl. 8-449.000.
Rice, Harold E.; and Neel, N. Ray. Oral hygiene apparatus for showers. 4,265,229, Cl. 128-66.000.
Richard, Andre, to Compagnie Internationale Pour l'Informatique CII-Honeywell Bull. Arrangement for extraction and receiving data for a refreshable memory. 4,266,286, Cl. 365-205.000.
Richard Wolf GmbH: *See—*
Heckele, Helmut, 4,265,561, Cl. 403-3.000.
Ricks, Walter G.: *See—*
Hurley, Byron H.; and Ricks, Walter G., 4,265,695, Cl. 156-285.000.
Ricoh Company, Ltd.: *See—*
Hara, Kazuyuki; and Kamada, Takeshi, 4,266,251, Cl. 358-286.000.
Hirakura, Koji; Sawada, Yasuo; and Watase, Kenta, 4,266,141, Cl. 250-564.000.
Rieb, Gerhard: *See—*
Wortmann, Joachim; Rieb, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,265,854, Cl. 422-40.000.
Riegler, Ernst; and Schmidt, Manfred, to Voest-Alpine Aktiengesellschaft. Torque support arrangement. 4,265,136, Cl. 74-380.000.
Riess, Gerhard: *See—*
Munster, Gerhard; Riess, Gerhard; and Russow, Jurgen, 4,265,865, Cl. 423-300.000.
Riley, Edward J.: *See—*
Frost, Stuart J.; Riley, Edward J.; and Bogdan, Ronald F., 4,265,023, Cl. 33-174.00C.
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Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., 4,265,669, Cl. 106-73.400.
Ritchie, Robert T.: *See—*
Drago, Gary A.; Mix, Arthur L., Jr.; and Ritchie, Robert T., 4,266,231, Cl. 346-75.000.

Rittmiller, Lawrence A.: *See—*
Aakalu, Nandakumar G.; and Rittmiller, Lawrence A., 4,265,775, Cl. 252-573.000.
Rivalle, Christian: *See—*
Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, 4,266,060, Cl. 546-64.000.
Robert Bosch GmbH: *See—*
Dreher, Ernst; Stroezel, Reinhold; Spittler, Siegfried; and Wolf, Richard, 4,265,604, Cl. 418-43.000.
Haecker, Wolf-Dieter; Friese, Karl-Hermann; and Topp, Bernhard, 4,265,724, Cl. 204-195.00S.
Jundt, Werner; and Roozenbeek, Herman, 4,265,204, Cl. 123-418.000.
Kofink, Wolfgang, 4,265,496, Cl. 308-122.000.
Kolb, Erich; and Laurent, Heinrich, 4,264,997, Cl. 15-250.290.
Streit, Klaus; Harsch, Klaus; and Schulzke, Peter, 4,266,261, Cl. 361-154.000.
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Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,265,563, Cl. 404-75.000.
Robertson, James R. Linear-rotary translator. 4,265,132, Cl. 74-104.000.
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Felice, Charles J., Jr.; Evans, Francis E.; Robinson, Martin A.; and Eibeck, Richard E., 4,265,871, Cl. 423-531.000.
Rock, Harry: *See—*
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Rockwell International Corporation: *See—*
Lim, Teong C.; and Staples, Edward J., 4,265,124, Cl. 73-703.000.
Morris, Winfred L.; Inman, Richard V.; and Buck, Otto, 4,265,120, Cl. 73-600.000.
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Torre, Giancarlo D., 4,265,187, Cl. 112-121.260.
Rodney Hunt Company: *See—*
Watelet, Robert P., 4,265,564, Cl. 405-105.000.
Roecar Holdings (Netherlands Antilles (NV): *See—*
Pegel, Karl H., 4,265,886, Cl. 424-182.000.
Rogers Corporation: *See—*
Fukuda, Sunichi, 4,266,091, Cl. 174-72.00B.
Rohlfs, Hans-Adolf: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.
Rohm and Haas Company: *See—*
Beasley, Glenn H.; Chong, Berni P.; Ford, Warren T.; and Neely, James W., 4,265,768, Cl. 210-682.000.
Breslau, Barry R., 4,266,026, Cl. 435-99.000.
Chancler, Francis X., 4,265,965, Cl. 428-315.000.
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,265,899, Cl. 424-270.000.
Rolfe, Norman F.: *See—*
Carson, William W.; and Rolfe, Norman F., 4,265,536, Cl. 356-130.000.
Rolls-Royce Limited: *See—*
Davies, David O., 4,265,590, Cl. 415-110.000.
Romagnolo, Gerard: *See—*
Delattre, Marcel; and Romagnolo, Gerard, 4,265,007, Cl. 29-79.000.
Roman, Vincent G.: *See—*
Kayalioglu, Inanc; Roman, Vincent G.; and Lewandowski, Ted J., 4,266,099, Cl. 179-16.0EA.
Romanek, Gerald A., to Phillips Petroleum Company. Selective-area fusion of non-woven fabrics. 4,265,954, Cl. 428-85.000.
Romanelli, Pat; Romanelli, Robert J.; and Shutt, Richard W., to Ram Products, Inc. Intermittent pulsing gas ignition system. 4,265,612, Cl. 431-66.000.
Romanelli, Robert J.: *See—*
Romanelli, Pat; Romanelli, Robert J.; and Shutt, Richard W., 4,265,612, Cl. 431-66.000.
Romey, Ingo: *See—*
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Roozenbeek, Herman: *See—*
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Rosaen, Borje O.; and Fosdick, Dale P. Relief valve. 4,265,271, Cl. 137-540.000.
Rosaen, Borje O.; and Fosdick, Dale P. Fluid filtering device. 4,265,761, Cl. 210-315.000.
Rosegren, Donald R.; Johnson (Bulsiewicz), Noreen C.; and Stevens, Peter, to Oxy Metal Industries Corporation. Silver electrodeposition process. 4,265,715, Cl. 204-46.00R.
Rosemeier, Friedrich; and Killmaier, Horst, to Gambro Dialysatoren GmbH & Co. KG. Connection device for providing selective fluid communication between first and second conduits. 4,265,428, Cl. 251-346.000.
Rosemount Inc.: *See—*
De Leo, Richard V.; and Hagen, Floyd W., 4,265,112, Cl. 73-180.000.
Rosenthal Technik AG: *See—*
Forster, Siegfried; Kleemann, Manfred; Krauth, Axel; Maier, Horst R.; and Pohlmann, Hans-Jurgen, 4,265,302, Cl. 165-165.000.
Rossi, Pier P.; Tempesti, Aldo; and Filippi, Aldo, to SNIA Viscosa Societa' Nazionale Industria. Process for the manufacture of fire resistant acrylic polymer-yarns and films. 4,265,628, Cl. 8-115.500.
Roth Freres S.A.: *See—*
Roth, Jacques, 4,265,851, Cl. 264-321.000.
Roth, Jacques, to Roth Freres S.A. Process for moulding cellular polycarbodiimide. 4,265,851, Cl. 264-321.000.
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Ribka, Joachim; Tappe, Horst; Roth, Kurt; and Weyer, Hans-Jurgen, 4,265,629, Cl. 8-449.000.
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Martel, Jacques; Tessier, Jean; and Teche, Andre, 4,265,817, Cl. 260-343.30R.
Rovnyak, George C., to E. R. Squibb & Sons, Inc. Mercaptoacyldihydropyrazole carboxylic acid derivatives. 4,266,065, Cl. 548-379.000.
Rowa, Jan-Erik; and Sundgren, Anders. Device for resiliently supporting a driver's compartment, particularly in heavy-duty trucks. 4,265,328, Cl. 180-89.130.
Rowell, Robert; and Hickey, Albert A. Portable fence stile. 4,265,333, Cl. 182-92.000.
Rowlands, Kenneth C. Extractor arrangement for firearms. 4,265,043, Cl. 42-25.000.
Rozhin, Jurij: *See—*
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.
Ruckert, Hans: *See—*
Buhr, Gerhard; and Ruckert, Hans, 4,266,001, Cl. 430-192.000.
Rudich, George, Jr., to Johnson Controls, Inc. Motor over-heating protection circuit. 4,266,257, Cl. 361-27.000.
Rudner, Bernard. Coated fibers and related process. 4,265,972, Cl. 428-392.000.
Ruegg, Eugen H., to General Electric Company. Mounting arrangement for transistors and the like. 4,266,267, Cl. 361-386.000.
Ruge, Walter, to Hospital and Welfare Board of Hillsborough County, The. Infant extremity positioner and illuminator. 4,265,227, Cl. 128-23.000.
Ruhle, Martin, to Mahle GmbH. Method of testing silicon content in aluminium alloys. 4,266,186, Cl. 324-65.00R.
Runckel, John L. Goggles. 4,264,987, Cl. 2-428.000.
Runge, J. Marvin. Keyboard apparatus. 4,265,557, Cl. 400-479.000.
Ruoff, Arthur L.: *See—*
Nelson, David A., Jr.; and Ruoff, Arthur L., 4,266,138, Cl. 250-492.00A.
Rusch, Heinz, to Willy Rusch GmbH & Co. KG. Method for the production of a medical instrument. 4,265,848, Cl. 264-130.000.
Russo, Baldassare. Means and technique for interconnecting the ends of spaced coaxial conduits with an expansion joint having a reduced axial dimension. 4,265,473, Cl. 285-229.000.
Russow, Jurgen: *See—*
Munster, Gerhard; Riess, Gerhard; and Russow, Jurgen, 4,265,865, Cl. 423-300.000.
Rust Engineering Company, The: *See—*
Huang, Max W., 4,266,083, Cl. 585-240.000.
Ruzin, Leonid M.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Ryuichi, Tanaka, to Nippon Air Brake Co., Ltd. Brake fluid pressure control valve responsive to deceleration. 4,265,493, Cl. 303-24.00C.
Saahiro, Yasuo: *See—*
Hachisuka, Shunji; Kurashige, Shinji; and Saahiro, Yasuo, 4,265,678, Cl. 148-12.00B.
Sabacky, Milton J., to Monsanto Company. Catalytic asymmetric hydrogenation. 4,265,827, Cl. 260-440.000.
Sagami Chemical Research Center: *See—*
Fujisawa, Tamotsu; Kondo, Kiyoshi; and Sakai, Kunikazu, 4,266,067, Cl. 549-79.000.
Saint-Gobain Industries: *See—*
Achener, Claude, 4,265,649, Cl. 65-18.000.
Saipem, S.p.A.: *See—*
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Saischek, Gerald; Wegleitner, Karlheinz; Heu, Ferdinand; and Wohlmuth, Roman, to Chemie Linz Aktiengesellschaft. Spirocyclic boron compounds, a process for their manufacture and their use as a flame-retardant additive. 4,265,664, Cl. 106-18.130.
Saito, Hiroki, to Fuji Photo Film Co., Ltd. Differential pressure coating system. 4,265,941, Cl. 427-296.000.
Saito, Mitsuru: *See—*
Ueda, Hiroshi; and Saito, Mitsuru, 4,265,526, Cl. 354-106.000.
Saito, Yoichi: *See—*
Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, 4,266,053, Cl. 544-196.000.
Sakai, Kunikazu: *See—*
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Sakai, Nobuo; Nakamura, Kotaro; Morigaki, Masakazu; and Furutachi, Nobuo, to Fuji Photo Film Co., Ltd. Color photographic light-sensitive material. 4,266,020, Cl. 430-551.000.
Sakai, Takeo: *See—*
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Ishiguro, Shoji; Shishido, Tadao; Sakai, Takeo; Sasaki, Noboru; Nagaoka, Joji; and Matsuki, Minoru, 4,266,018, Cl. 430-550.000.

Sakai, Yoshihiro: *See—*
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Sakaida, Tsutomu: *See—*
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Sakakiyama, Takashi: *See—*
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Sakuma, Kenji: *See—*
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Salomon, Georges P. J., to S.A. Etablissements Francois Salomon & Fils. Ski boot. 4,265,034, Cl. 36-121.000.
Salyer, James R. Power driven dental floss cleaner. 4,265,257, Cl. 132-92.00R.
Samson, Marc: *See—*
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Sandhu, M. Akram: *See—*
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Sandvik, Inc.: *See—*
Fodor, William G., 4,265,285, Cl. 145-31.00R.
Sankyo Company Limited: *See—*
Soma, Nobuo; Morimura, Syoji; Yoshioka, Takao; and Kurumada, Tomoyuki, 4,265,803, Cl. 260-45.8NZ.
Sanner, Axel: *See—*
Tschang, Chung-Ji; Klefenz, Heinrich; and Sanner, Axel, 4,266,030, Cl. 435-180.000.
Sanner, George E. Electrical fixture intended primarily for outdoor use and designed to protect an electrical device housed therein from the elements. 4,266,266, Cl. 361-357.000.
Sano Kiko Co., Ltd.: *See—*
Kato, Kenichi, 4,265,940, Cl. 427-292.000.
Sano, Takezo; Shimomura, Takatoshi; Murase, Ichiki; and Hirakawa, Manabu, to Sumitomo Chemical Company, Limited. Process for producing semipermeable membranes. 4,265,959, Cl. 428-216.000.
Santilli, Arthur A., to American Home Products Corporation. 1,2-Dihydro-4-hydroxy-2-imino-N-substituted-3-quinolinecarboxamide derivatives. 4,266,050, Cl. 544-128.000.
Sarishvili, Naskid G.; Oreshkina, Alla E.; and Storchevoi, Evgeny N. Continuous-flow wine champagnization process. 4,265,914, Cl. 426-13.000.
Sarkisian, Robert. Two-sided display devices. 4,265,040, Cl. 40-618.000.
Sasaguri, Kiichiro: *See—*
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Sasaki, Noboru: *See—*
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Sasaki, Yoshiyuki; and Kasaoka, Katsuyuki, to Teijin Limited. Spun-like yarn and a process for manufacturing the same. 4,265,082, Cl. 57-207.000.
Sato, Shosuke: *See—*
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Sato, Takayuki, to Caterpillar Mitsubishi Ltd. Emergency brake apparatus for track-type vehicle. 4,265,138, Cl. 74-481.000.
Sato, Yo, to Kabushiki Kaisha Sato Kenkyusho. Clog preventive device for label printing and applying machine. 4,265,176, Cl. 101-292.000.
Satoda, Hajime; Ohta, Hiromi; and Ushirokajitani, Yoshiyuki, to Matsushita Electric Industrial Co., Ltd. Combustion apparatus. 4,265,614, Cl. 431-329.000.
Satoh, Ryozo, to Tel-Thermco Engineering Co., Ltd. Remote-controlled pressure regulator. 4,265,270, Cl. 137-505.390.
Saudreau, Lucien; and Biansan, Jean-Paul, to Thomson-CSF. Microwave polarization transformer. 4,266,203, Cl. 333-21.00A.
Sauer, Donald G., to National Can Coporation. Process for forming a plastic article. 4,265,852, Cl. 264-512.000.
Saurwein, Albert C.: *See—*
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Sautter, Helmuth O.: *See—*
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Saw, Samuel C. K., to Visy Board Company Pty., Ltd. Reinforced container. 4,265,392, Cl. 229-37.00R.
Sawada, Yasuo: *See—*
Hirakura, Koji; Sawada, Yasuo; and Watase, Kenta, 4,266,141, Cl. 250-564.000.
Schaar, Charles H., to Kendall Company, The. Dressing composite. 4,265,234, Cl. 128-156.000.
Schack, Warren R.: *See—*
Kueper, Theodore V.; Schack, Warren R.; and Rock, Harry, 4,265,918, Cl. 426-264.000.
Schaeffer, Georg: *See—*
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Schael, Wilfried: *See—*
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Schalk, Karl, to Siemens Aktiengesellschaft. Circuit arrangement for forming a speed-proportional output voltage from a speed-proportional pulse sequence. 4,266,147, Cl. 307-492.000.
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Eidinger, Adolf; Flossel, Carl D.; Koppl, Georg; Ulrich, Alfred; and Schibli, Hans, 4,266,258, Cl. 361-58.000.
Schiesser AG: *See—*
Schiesser, Walter H., 4,265,756, Cl. 210-236.000.
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Abbin, Joseph P., Jr.; Middleton, John N.; and Schildknecht, Harold E., 4,266,107, Cl. 200-61.530.
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Moulin, Pierre A., 4,265,110, Cl. 73-151.000.
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Birkenstock, Udo; Lachmann, Burkhard; Metten, Josef; and Schmidt, Herbert, 4,265,834, Cl. 564-421.000.
Schmidt, Manfred: *See—*
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Schnoes, Heinrich K.: *See—*
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Scholtz, Myndert T. Combustion catalysts. 4,265,639, Cl. 44-57.000.
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Hesse, Anton; Lechtken, Peter; Nicolaus, Walter; and Scholz, Dankmar, 4,265,723, Cl. 204-159.230.
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Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,266,205, Cl. 333-165.000.
Schreyer, Kenneth D.; Leverentz, Earl T.; Nusz, Thomas R.; and Benton, Reuben P., to Columbus McKinnon Corporation. Rolling bearing wheel and hub support combination. 4,265,181, Cl. 105-150.000.
Schrock, Martin O.; Howard, Thomas J., Jr.; and Jinkins, Danny R., to Black & Decker Inc. Grass trimmer device. 4,265,018, Cl. 30-276.000.
Schroeder, Becky J. Electroluminescent backing sheet for reading and writing in the dark. 4,266,164, Cl. 315-169.100.
Schroeder, Roger A., to American Can Company. Apparatus for handling wound rolls of fibrous webs. 4,265,361, Cl. 209-617.000.
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Braun, Erwin; Bock, Erich; Handschuch, Karl; and Schuller, Edmund, 4,265,083, Cl. 57-263.000.
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Schuh, Heinz, to Kraftwerk Union AG. Method of using nitrogen-containing polyester resins as epoxy resin hardening accelerators in winding bands for high-voltage insulation of electric machines and apparatus and mica tape therefor. 4,265,966, Cl. 428-324.000.

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Braun, Erwin; Bock, Erich; Handschuch, Karl; and Schuller, Edmund, 4,265,083, Cl. 57-263.000.
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Schulze, Everett E., Jr. Solenoid actuated container crusher. 4,265,170, Cl. 100-49.000.
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Schupphaus, Herbert; and Klimeck, Hugo, to Gerb. Eickhoff Maschinenfabrik und Eisengiesserei m.b.H. Track on a conveyor for a mining machine. 4,265,488, Cl. 299-43.000.
Schuurink, Pieter H. J.; and Noomen, Arie, to Akzo N.V. Method for coating an object made of a vulcanized polyalkylene rubber. 4,265,973, Cl. 428-424.800.
Schwanbom, Erik; and Warnow, Detlef, to Dragerwerk Aktiengesellschaft. Apparatus for enhancing a person's breathing and/or artificial respiration. 4,265,237, Cl. 128-204.240.
Schwartz, Albert B., to Mobil Oil Corporation. Cracking catalyst. 4,265,787, Cl. 252-455.00Z.
Schwarzer, Klemens, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method and apparatus for separating fission and activation products from gas atmospheres. 4,265,707, Cl. 176-37.000.
Scicluna, Augustin: *See—*
Prudhon, Francois; and Scicluna, Augustin, 4,265,702, Cl. 159-48.00R.
Scodino, Ambrogio, to Saipem, S.p.A. Apparatus for supporting pipes suspended over depressions in the sea bed, including those situated at great depth, and the method for installing it. 4,265,566, Cl. 405-172.000.
Scorteanu, Ionel R., to Institutul De Cercetart Si Proiectari Tehnologice In Transporturi. Apparatus for car counting and discrimination. 4,265,419, Cl. 246-247.000.
Scott, James J., to Midcontinent Specialties Manufacturing, Inc. Cable sling for support and stabilization of underground openings. 4,265,571, Cl. 405-259.000.
Scott, Orland B.; and Van Camp, Garrett S., to Ford Motor Company. Disk brake mounting. 4,265,340, Cl. 188-73.300.
Scott Paper Company: *See—*
Cox, Jon N.; and Singh, Balbir, 4,265,409, Cl. 242-56.00A.
Seaberg, David H., to J. I. Case Company. Pushbeam to blade hinge connection. 4,265,319, Cl. 172-811.000.
Sebalos, Adam. Pressure liquid dispenser. 4,265,374, Cl. 222-95.000.
Seel, Ralph G., to Singer Company, The. Locking device for mounting pins and the like. 4,265,562, Cl. 403-374.000.
Seifert, Gerd: *See—*
Franke, Kurt; and Seifert, Gerd, 4,266,134, Cl. 250-409.000.
Seiko Seiki Kabushiki Kaisha: *See—*
Ito, Shohei, 4,265,054, Cl. 51-5.00D.
Seki, Masatoshi, to Hitachi, Ltd. Utilizing simultaneous masking and diffusion of peripheral substrate areas. 4,265,685, Cl. 148-174.000.
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Ebihara, Heihachiro; Sekiya, Fukuo; and Yamada, Takashi, 4,266,278, Cl. 364-705.000.
Sekiya, Masayoshi: *See—*
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, 4,265,946, Cl. 427-393.500.
Sekmakas, Kazys; and Shah, Raj, to DeSoto, Inc. Cationic amine-functional copolymer mixture with aminoplast resin and aqueous baths containing the same. 4,265,795, Cl. 260-29.300.
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Haberl, Rainer; and Kastner, Josef, 4,266,263, Cl. 361-283.000.
Senzaki, Chikara, to Manyo Tool Kabushiki Kaisha. Tool holder. 4,265,460, Cl. 279-97.000.
Seragnoli, Enzo, to G.D. S.p.A. Apparatus for forming and overwrapping batches of products. 4,265,073, Cl. 53-542.000.
Seuter, Friedel: *See—*
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Severance, Wesley A.; and Shaw, Julie Y. L., to General Signal Corporation. Multi-layered, fiberglass-reinforced floor covering systems. 4,265,957, Cl. 428-143.000.
SGS ATES Componenti Elettronici S.p.A.: *See—*
Bertotti, Franco; and Foroni, Mario, 4,266,233, Cl. 357-22.000.
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Palara, Sergio, 4,266,199, Cl. 330-274.000.
Shafer, Bernice A. Car tray and exercising apparatus. 4,265,447, Cl. 272-73.000.
Shaffer, Francis N., to GTE Products Corporation. Cerium activated yttrium gadolinium phosphate x-ray phosphors, process for producing same, an x-ray intensifying screen employing same. 4,266,137, Cl. 250-483.000.
Shah, Raj: *See—*
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Shank, Herbert C., Jr., to Anchor Hocking Corporation. Thermoplastic ink decorated, polymer coated glass articles. 4,265,947, Cl. 428-35.000.
Sharp Kabushiki Kaisha: *See—*
Inoue, Tomohiro; and Masuzawa, Sigeaki, 4,266,096, Cl. 179-1.50M.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,188, Cl. 112-158.00B.
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Shaw, Julie Y. L.: *See—*
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Shea, Andrew S.; and Shea, Frances. Wheel and ground engaging emergency brake. 4,265,338, Cl. 188-4.00R.
Shea, Frances: *See—*
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Sheehan, John C.; and Commons, Thomas J., to Massachusetts Institute of Technology. Sulphur analogs of penicillins having a nucleophile substituted in the 6 and 7 position, respectively. 4,265,882, Cl. 424-114.000.
Sheehy, Michael J.; Sondel, Paul M.; Bach, Fritz H.; Bach, Marilyn L.; and Wank, Rudolf, to Wisconsin Alumni Research Foundation. Method for typing human leukocyte antigens. 4,265,873, Cl. 424-1.000.
Shell Internationale Research Maatschappij B.V.: *See—*
Feakins, Patrick G., 4,265,876, Cl. 424-28.000.
Shell Oil Company: *See—*
Kim, Leo; Paxson, Timm E.; and Tang, Sunny C., 4,266,085, Cl. 585-645.000.
Shen, Kuo-Cheng; Fung, David P. C.; and Calve, Louis, to Canadian Patents and Development Limited. Method of binding lignocellulosic materials. 4,265,846, Cl. 264-109.000.
Shen, Tsung-Ying; and Jones, Howard, to Merck & Co., Inc. Method of treating inflammation employing acyl cyanoguanidines. 4,265,905, Cl. 424-304.000.
Shephard, Margaret C.: *See—*
Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., 4,266,056, Cl. 544-311.000.
Sherbon, Wallace E.: *See—*
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Sheremeta, Ostap O.: *See—*
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Shevchuk, Viktor I.: *See—*
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Shibazaki, Kenji; Arai, Kenichi; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, to Minolta Camera Kabushiki Kaisha. Computer-controlled paper feeder. 4,265,440, Cl. 271-9.000.
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Shimakata, Ryuji; and Naito, Kazuyoshi, to Tokyo Press & Die Co., Ltd. Method for molding a bulge. 4,265,102, Cl. 72-58.000.
Shimano Industrial Company, Limited: *See—*
Nagano, Masashi, 4,265,140, Cl. 139-501.00R.
Shimizu, Yoshiaki: *See—*
Terada, Osamu; Uwajima, Takayuki; Mihara, Akira; Aisaka, Kazuo; Akita, Hiroko; Nagai, Toshiaki; and Shimizu, Yoshiaki, 4,266,023, Cl. 435-28.000.
Shimoie, Shizuo: *See—*
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Shimomura, Junichi: *See—*
Ohashi, Nobuo; Ono, Yutaka; Nohara, Kiyohiko; Shimomura, Junichi; and Miyawaki, Tetsuo, 4,265,679, Cl. 148-12.00E.
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Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; Furutani, Toshinobu; and Wakizaka, Hiroshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Process for producing oxygen sensing element. 4,265,930, Cl. 427-34.000.
Shinohara, Yukimasa; and Ichihashi, Hiroo, to Canon Kabushiki Kaisha. Apparatus for fixing heat-fusible toner images formed on a web. 4,265,198, Cl. 118-695.000.
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Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, 4,265,288, Cl. 152-209.00R.
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Shukla, Jayendra G.: *See—*
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Shuman, Robert T.: *See—*
Gesellchen, Paul D.; and Shuman, Robert T., 4,265,808, Cl. 260-112.50R.

Shutt, Paul B., to Bendix Corporation, The. Master cylinder and sleeve for controlling a proportioning valve. 4,265,491, Cl. 303-6.00C.
Shutt, Richard W.: *See—*
Romanelli, Pat; Romanelli, Robert J.; and Shutt, Richard W., 4,265,612, Cl. 431-66.000.
Shutterly, Harold B., to Westinghouse Electric Corp. Scrambling system for television sound signals. 4,266,243, Cl. 358-121.000.
Siekanowicz, Wieslaw W., to RCA Corporation. Electron current collector for flat panel display devices. 4,266,159, Cl. 313-422.000.
Siemens Aktiengesellschaft: *See—*
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,266,205, Cl. 333-165.000.
Franke, Kurt; and Seifert, Gerd, 4,266,134, Cl. 250-409.000.
Friebel, Eberhard, 4,265,145, Cl. 74-805.000.
Greubel, Waldemar; and Krueger, Hans, 4,265,516, Cl. 350-345.000.
Heinzl, Joachim; and Kattner, Erich, 4,266,250, Cl. 358-285.000.
Heinzl, Joachim; Schlossbauer, Hubert; Miller, Heide-Marie; and Uhden, Irene, 4,266,280, Cl. 364-900.000.
Herbst, Heiner; Pfleiderer, Hans-Jorg; Koch, Rudolf; and Tihanyi, Jeno, 4,266,235, Cl. 357-30.000.
Hoffmann, Kurt; and Ernst, Roland, 4,266,151, Cl. 307-297.000.
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Lange, Gerhard; and Boy, Juergen, 4,266,260, Cl. 361-120.000.
Schalk, Karl, 4,266,147, Cl. 307-492.000.
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Siemens Corporation: *See—*
Dunbar, Ronald C., 4,266,101, Cl. 179-84.00C.
Weigl, Walter; Bergman, Ulf; and Baum, Lennart, 4,266,133, Cl. 250-402.000.
Sifferman, Thomas R., to Conoco, Inc. Method of transporting viscous hydrocarbons. 4,265,264, Cl. 137-13.000.
Sigma Systems, Inc.: *See—*
Reuter, Daniel L.; Reid, Philip L.; Blackburn, Charles M.; and Heffner, Clifton W., 4,265,074, Cl. 53-551.000.
Sih, John C., to Upjohn Company, The. 19-Hydroxy-7,8-didehydro-PGI$_1$ compounds. 4,265,820, Cl. 260-346.220.
Sih, John C., to Upjohn Company, The. 11-Deoxy-inter-phenylene-19-oxo-PGF$_1$ compounds. 4,266,072, Cl. 560-53.000.
Silk, George R.; and Midgelow, David. Motorcycle gear box and rear wheel suspension system. 4,265,330, Cl. 180-230.000.
Silvestrini, Jesus A. Method and apparatus for producing pitted olives. 4,265,169, Cl. 99-494.000.
Simm, Walter; and Bestenreiner, Friedrich, to AGFA-Gevaert, A.G. Method of improving the electrical contact between the insulating image carrier and conductive support in electrographic recording processes. 4,265,996, Cl. 430-119.000.
Simpson, Robert S.: *See—*
Freeman, Danny M.; Knight, Milton M., Jr.; Payton, Clarence M.; Simpson, Robert S.; and Smith, Howard B., Jr., 4,264,993, Cl. 8-149.000.
Sinclair, Robert E.: *See—*
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Singer Company, The: *See—*
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Niemela, Paul W., 4,266,155, Cl. 310-239.000.
Seel, Ralph G., 4,265,562, Cl. 403-374.000.
Singer, Malcolm S., to Chevron Research Company. Cellulose fermentation process. 4,266,033, Cl. 435-252.000.
Singh, Balbir: *See—*
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Sinnema, Hendrik, to Machinefabriek W. Hubert & Co. B.V. Apparatus for positioning prismatic bricks upon a longitudinal small side, symmetrically with respect to each other. 4,265,354, Cl. 198-374.000.
Skawinski, Henry M.: *See—*
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Skewis, John D.: *See—*
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SKF Nova AB: *See—*
Lundgren, Bengt, 4,265,455, Cl. 277-53.000.
Skidell, Seymour S. Beverage carbonation and dispensing container. 4,265,376, Cl. 222-189.000.
Skimovex B. V.: *See—*
Verpalen, Willem A.; and Koot, Theodorus A. J., 4,265,759, Cl. 210-261.000.
Skipper, Kevin G. Plug mix seed planter. 4,265,185, Cl. 111-1.000.
Skoch, Leroy V.; Harmon, Bud G.; Dickerson, Charles W.; and Chou, Nelson S., to Ralson Purina Company. Animal feed block containing ferrous sulfate and finely ground magnesium oxide. 4,265,916, Cl. 426-74.000.
Skoli, Sigmund P.: *See—*
Mojonnier, Harry G.; and Skoli, Sigmund P., 4,265,167, Cl. 99-323.200.
Slaker, Frank A., to Intec Corporation. Multiple source laser scanning inspection system. 4,265,545, Cl. 356-431.000.
Slater Electric Inc.: *See—*
Boteler, William C., 4,265,365, Cl. 220-3.300.
Slevolden, Sverre: *See—*
Nes, Aasmund E.; and Slevolden, Sverre, 4,265,676, Cl. 148-2.000.
Slobodchikov, Vladimir B.: *See—*
Piterskikh, Georgy P.; Sukhov, Stanislav A.; Slobodchikov, Vladimir B.; Sutyagin, Ivan S.; and Terentiev, Albert M., 4,265,617, Cl. 432-58.000.
Slough, Carlton M., to Texaco Inc. Method and apparatus for measuring effectiveness of a corrosion inhibitor. 4,266,187, Cl. 324-65.0CR.
Sluys, Wesley W., to Builders Concrete, Inc. Concrete marine float and method of fabricating. 4,265,193, Cl. 114-267.000.
Small, William J.: *See—*
Jackson, Liam R.; Weidner, John P.; Small, William J.; and Martin, James A., 4,265,416, Cl. 244-2.000.
Smallegan, Jon M., to Novo Products, Inc. Article dryer. 4,265,030, Cl. 34-104.000.
Smallwood, Paul R., Jr.: *See—*
Watson, Thomas E.; and Smallwood, Paul R., Jr., 4,265,589, Cl. 415-47.000.
Smejda, Richard K. Central support arrangement for printing systems. 4,265,175, Cl. 101-115.000.
Smirl, Richard L., to Borg-Warner Corporation. Automotive accessory drive. 4,265,135, Cl. 74-336.00B.
Smith, Clay D.; and Keller, Douglas V., Jr., to Otisca Industries, Ltd. Methods and apparatus for transporting and processing solids. 4,265,737, Cl. 209-3.000.
Smith, Howard B., Jr.: *See—*
Freeman, Danny M.; Knight, Milton M., Jr.; Payton, Clarence M.; Simpson, Robert S.; and Smith, Howard B., Jr., 4,264,993, Cl. 8-149.000.
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Morris, John F.; and Worrell, Robert V., 4,265,324, Cl. 175-329.000.
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Smith Kline & French Laboratories Limited: *See—*
Durant, Graham J.; Young, Rodney C.; and Tashma, Zev, 4,265,896, Cl. 424-263.000.
Smith, Ray E.: *See—*
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Smith, Robert K.: *See—*
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SmithKline Corporation: *See—*
Brush, Charles K.; and Weinstock, Joseph, 4,265,889, Cl. 424-244.000.
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Smoke, Edward J.: *See—*
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SNIA Viscosa Societa' Nazionale Industria: *See—*
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Snook, Randolph W.: *See—*
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Snow, Kenneth A., to Computervision Corporation. Apparatus and method for fine alignment of a photomask to a semiconductor wafer. 4,265,542, Cl. 356-356.000.
Sobata, Tamotu: *See—*
Kimura, Masao; Sobata, Tamotu; and Wada, Hideo, 4,265,780, Cl. 252-156.000.
Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Spada, Bernardino, 4,266,198, Cl. 329-50.000.
S.A. Etablissements Francois Salomon & Fils: *See—*
Salomon, Georges P. J., 4,265,034, Cl. 36-121.000.
S.A. Martin: *See—*
Berthelot, Daniel, 4,265,443, Cl. 271-182.000.
Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
Buhler, Marcel; Olofsson, Mats; and Fosseux, Pierre-Yves, 4,265,924, Cl. 426-582.000.
Societe d'Etudes de Produits Chimiques: *See—*
Demosthene, Claude G.; and Aspisi, Christian R., 4,266,058, Cl. 544-330.000.
Societe Lignes Telegraphiques et Telephoniques: *See—*
Chiron, Bernard; Foure, Jean-Louis; and de Vecchis, Michel, 4,265,512, Cl. 350-96.200.
Societe Marinoni: *See—*
Lanvin, Serge, 4,265,438, Cl. 493-428.000.
Societe Metallurgique le Nickel S. L. N.: *See—*
Limare, Armand; and Maillot, Francois, 4,265,718, Cl. 204-96.000.
Soelberg, Kenneth B.; Stark, Marvin M.; Thompson, Tommy H.; and Yamaguchi, Akia, to Marvin M. Stark Research Foundation. Clamp for a dental dam. 4,265,623, Cl. 433-139.000.
Solar Energy Technology, Inc.: *See—*
Herskovitz, Sheldon B.; Marlin, Jay; and Stiglitz, Martin R., 4,265,618, Cl. 433-32.000.
Solent & Pratt (Engineering) Limited: *See—*
Thurston, Victor N.; and Marshall, Geoffrey B., 4,265,426, Cl. 251-306.000.
Soma, Nobuo; Morimura, Syoji; Yoshioka, Takao; and Kurumada, Tomoyuki, to Sankyo Company Limited. Polymers containing polyalkylpiperidines and use thereof as stabilizers. 4,265,803, Cl. 260-45.8NZ.
Sommer, Klaus: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.
Sondel, Paul M.: *See—*
Sheehy, Michael J.; Sondel, Paul M.; Bach, Fritz H.; Bach, Marilyn L.; and Wank, Rudolf, 4,265,873, Cl. 424-1.000.

Sonenstein, Gerard G., to Colgate-Palmolive Company. Soap bar. 4,265,778, Cl. 252-117.000.
Sony Corporation: *See—*
Yoshida, Tadao, 4,266,149, Cl. 307-255.000.
Sorenson, Marius W.: *See—*
Ezzell, Bobby R.; Malone, Jacquelyn M.; and Sorenson, Marius W., 4,265,719, Cl. 204-98.000.
Sozio, Ralph B.: *See—*
Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., 4,265,669, Cl. 106-73.400.
Spada, Bernardino, to Societa Italiana Telecomunicazioni Siemens S.p.A. Sampling system for decoding biphase-coded data messages. 4,266,198, Cl. 329-50.000.
Spano, John D.; and Barnett, Danny R. Test probe alignment apparatus. 4,266,191, Cl. 324-158.00F.
Specht, Paul B., to Vallen Corporation. Protective splash goggle. 4,264,988, Cl. 2-431.000.
Specht, Paul B.: *See—*
Duwell, Michael J.; and Specht, Paul B., 4,265,584, Cl. 414-412.000.
Spence, Kemet D.; and Andrews, Robert E., to Battelle Development Corporation. Microbial insecticide. 4,265,880, Cl. 424-93.000.
Sperry Corporation: *See—*
McMahon, Donald H., 4,265,509, Cl. 350-3.780.
Sperry Rand Corporation: *See—*
Jacoby, George V., 4,266,204, Cl. 333-28.00R.
Sperti, George S.; and Berberick, Norbert J., Jr. Method of treating gelatin capsules and product resulting therefrom. 4,265,926, Cl. 427-2.000.
Spica, Joseph P., to 2500 Corporation, The. Disposable toothbrush with self-contained toothpaste supply. 4,265,560, Cl. 401-183.000.
Spielau, Paul: *See—*
Kuhnel, Werner; and Spielau, Paul, 4,266,041, Cl. 521-92.000.
Spielmann, Werner; and Schaeffer, Georg, to Hoechst Aktiengesellschaft. Process for the manufacture of ketones. 4,266,066, Cl. 549-64.000.
Spink, Robert W.: *See—*
Braun, Dennis H.; and Spink, Robert W., 4,266,175, Cl. 318-758.000.
Spittler, Siegfried: *See—*
Dreher, Ernst; Stroezel, Reinhold; Spittler, Siegfried; and Wolf, Richard, 4,265,604, Cl. 418-43.000.
Sportelli, Louis; and Winterstein, James F. Composite shielding means and mounting means for x-ray machines. 4,266,139, Cl. 250-515.000.
Spradling, Michael D. Apparatus for winding fire hose. 4,265,414, Cl. 242-86.200.
Sprague Electric Company: *See—*
Maher, Galeb H., 4,266,265, Cl. 361-321.000.
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Use of cyclohexenemethanols in augmenting or enhancing the aroma or taste of foodstuffs. 4,265,923, Cl. 426-538.000.
Sprecker, Mark A.: *See—*
Wiegers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,265,818, Cl. 260-345.200.
Spurmach Espana S. L.: *See—*
Creus, Rufino, 4,265,081, Cl. 57-75.000.
Staats, William J. Bucket dredging and conveying system. 4,265,036, Cl. 37-71.000.
Stahlhofen, Paul; and Erdmann, Fritz, to Hoechst Aktiengesellschaft. Photosensitive copying composition. 4,266,000, Cl. 430-192.000.
Stalherm, Dieter: *See—*
Bocsanczy, Janos; Offermann, Ludwig; and Stalherm, Dieter, 4,265,709, Cl. 201-4.000.
Stalter, Robert J., to Goodyear Tire & Rubber Company, The. Reinforced foamed body support member. 4,265,484, Cl. 297-452.000.
Stamicarbon, B.V.: *See—*
de Cooker, Mario G. R. T.; and Haemers, Anita G. W. G., 4,266,052, Cl. 544-192.000.
Standard Oil Company: *See—*
Durbin, Anthony T.; and Kennedy, Bruce A., 4,265,486, Cl. 299-2.000.
Elkins, Lincoln F., 4,265,307, Cl. 166-248.000.
Standard Oil Company (Indiana): *See—*
Allen, John K., 4,266,084, Cl. 585-469.000.
Stanley, Louis; and Sinclair, Robert E., to Card-O-Matic Pty. Limited. Automatic dialing device. 4,266,102, Cl. 179-90.0CS.
Staples, Edward J.: *See—*
Lim, Teong C.; and Staples, Edward J., 4,265,124, Cl. 73-703.000.
Stark, Marvin M.: *See—*
Soelberg, Kenneth B.; Stark, Marvin M.; Thompson, Tommy H.; and Yamaguchi, Akia, 4,265,623, Cl. 433-139.000.
Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., to Coors Porcelain Company; Sozio, Ralph B.; and Riley, Edwin J., part interest to each. Shrink-free ceramic and method and raw batch for the manufacture thereof. 4,265,669, Cl. 106-73.400.
Stauffer Chemical Company: *See—*
Arzoumanidis, Gregory G.; and Darragh, Kirk V., 4,265,866, Cl. 423-304.000.
Felix, Raymond A., 4,265,658, Cl. 71-118.000.
Pallos, Ferenc M., 4,266,078, Cl. 564-91.000.
Steckler, Steven A.: *See—*
Balaban, Alvin R.; and Steckler, Steven A., 4,266,245, Cl. 358-153.000.
Steelcase Inc.: *See—*
Raftery, William B.; Whitwam, Ronald L.; and Wisniewski, Joseph M., 4,265,483, Cl. 297-440.000.
Steensma, Peter D.; Haussmann, Robert H.; and Polcer, Anton J., to International Telephone and Telegraph Corporation. Fault locating arrangement for a two-way repeatered transmission link. 4,266,183, Cl. 324-52.000.
Steiner, Edward L.: *See—*
Daughton, John W.; Wilczek, Stephen P.; and Steiner, Edward L., 4,266,294, Cl. 371-24.000.
Stella, Joseph A.; and Wright, Joseph H., to Polaroid Corporation. Disc camera. 4,265,525, Cl. 354-76.000.
Stellfox, Samuel K.: *See—*
Naruns, Laimons; Terry, Dennis W.; and Stellfox, Samuel K., 4,265,579, Cl. 414-138.000.
Stephan, James E.: *See—*
Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., 4,265,669, Cl. 106-73.400.
Sterling Drug Inc.: *See—*
Copa, William M.; and Gitchel, Wayne B., 4,265,747, Cl. 210-758.000.
Lesher, George Y.; and Gruett, Monte D., 4,265,895, Cl. 424-256.000.
Stevens, Fred C. Controlled wheel braking system. 4,265,343, Cl. 188-181.00T.
Stevens, Peter: *See—*
Rosegren, Donald R.; Johnson (Bulsiewicz), Noreen C.; and Stevens, Peter, 4,265,715, Cl. 204-46.00R.
Stevens, Richard A.: *See—*
Emmert, Philip H.; Stevens, Richard A.; and Walkush, Glenn A., 4,265,208, Cl. 123-440.000.
Stevenson, R. G.: *See—*
Hatton, C. W.; Orr, J. C.; and Stevenson, R. G., 4,265,593, Cl. 416-183.000.
Steyer, William: *See—*
Weinstein, Barry; and Steyer, William, 4,265,646, Cl. 55-306.000.
Stiglitz, Martin R.: *See—*
Herskovitz, Sheldon B.; Marlin, Jay; and Stiglitz, Martin R., 4,265,618, Cl. 433-32.000.
Stiltz, Erwin; Lindenmayer, Heinz; Geis, Wilhelm; and Wolf, Otto, to Licentia Patent-Verwaltungs-G.m.b.H. Home work bench. 4,265,435, Cl. 269-139.000.
Stock, Howard P.: *See—*
Mercer, Paul W.; and Stock, Howard P., 4,265,687, Cl. 156-73.100.
Stoeckl, Max: *See—*
Erhardt, Manfred; and Stoeckl, Max, 4,265,575, Cl. 409-8.000.
Stol, George H.: *See—*
Peisner, Israel D.; and Stol, George H., 4,265,183, Cl. 105-410.000.
Stolka, Milan; Pai, Damodar M.; and Yanus, John F., to Xerox Corporation. Imaging system with a diamine charge transport material in a polycarbonate resin. 4,265,990, Cl. 430-59.000.
Stolz, Gary M.: *See—*
Baird, Leslie L.; and Stolz, Gary M., 4,265,583, Cl. 414-284.000.
Stone, Arnold F.; and Kinnard, William D., to CPS Industries. Method for producing tear tape and seal and tear line for packaging. 4,265,692, Cl. 156-180.000.
Stone, Frederick A.; and Holcomb, Normand P., to Teleco Oilfield Services Inc. Mounting and shock absorber assembly for borehole telemetry apparatus. 4,265,305, Cl. 166-113.000.
Stonich, Timothy. Inclined arm support for stroke victims. 4,265,232, Cl. 128-133.000.
Stoody, William R. Pressurized dispenser with dip tube extending through sac-in-can. 4,265,373, Cl. 222-94.000.
Stookey, Stanley D., to Corning Glass Works. Color photographic process utilizing polychromatic glass. 4,266,012, Cl. 430-396.000.
Stopinc Aktiengesellschaft: *See—*
Meier, Ernst, 4,265,379, Cl. 222-600.000.
Storchevoi, Evgeny N.: *See—*
Sarishvili, Naskid G.; Oreshkina, Alla E.; and Storchevoi, Evgeny N., 4,265,914, Cl. 426-13.000.
Stout, Gregg W., to Otis Engineering Corporation. Latch for well tools. 4,265,306, Cl. 166-237.000.
Strasser, Jurgen H.: *See—*
Chiu, Tony T.; Wright, Bruce M.; Strasser, Jurgen H.; and Harper, Bruce M., 4,265,168, Cl. 99-448.000.
Stratton, Donald W., to Anderson Company of Indiana, The. Windshield wiper flexor. 4,264,998, Cl. 15-250.420.
Streit, Klaus; Harsch, Klaus; and Schulzke, Peter, to Robert Bosch GmbH. Method and apparatus for operating an electromagnetic load, especially an injection valve in internal combustion engines. 4,266,261, Cl. 361-154.000.
Stroezel, Reinhold: *See—*
Dreher, Ernst; Stroezel, Reinhold; Spittler, Siegfried; and Wolf, Richard, 4,265,604, Cl. 418-43.000.
Stroh Brewery Co., The: *See—*
Fraser, Daniel M.; Hausner, John E.; Hawkins, William J.; and Comiskey, Frederick K., 4,266,106, Cl. 200-61.440.
Stroud, Robert D.: *See—*
Starling, Lynn B.; Stephan, James E.; and Stroud, Robert D., 4,265,669, Cl. 106-73.400.
Strouse, Earl. Apparatus for installing shingles onto a roof. 4,265,387, Cl. 227-7.000.
Struger, Odo J.; and Dummermuth, Ernst H., to Allen-Bradley Company. Microprogrammed programmable controller. 4,266,281, Cl. 364-900.000.

Stubbings, James H., to Potomac Applied Mechanics, Inc. Steel stock cutting. 4,265,156, Cl. 83-530.000.
Stuckmann, Dieter; and Jutte, Hans, to Gewerkschaft Eisenhutte Westfalia. Tunnel drive shield. 4,265,565, Cl. 405-145.000.
Studi Apparecchiature E Ricerche Tecniche: *See—*
Fasano, Osvaldo, 4,265,345, Cl. 192-3.00R.
Studiengesellschaft Kohle mbH: *See—*
Bonnemann, Helmut; and Samson, Marc, 4,266,061, Cl. 546-253.000.
Studio One Services, Inc.: *See—*
Johnson, David J., 4,265,059, Cl. 52-66.000.
Stuhr, Leslie P., to Honeywell Inc. Averaging temperature responsive apparatus. 4,265,115, Cl. 73-349.000.
Suchanski, Mary R.; and Bishara, Jeries I., to Diamond Shamrock Corporation. Method and electrode with manganese dioxide coating. 4,265,728, Cl. 204-290.00F.
Suenaga, Yoshiyuki: *See—*
Nakamura, Shohei; and Suenaga, Yoshiyuki, 4,266,005, Cl. 430-271.000.
Sugahara, Yujiro; Naito, Hiroyuki; Takai, Kiyoshi; and Imafuku, Shigehisa, to Mizusawa Kagaku Kogyo Kabushiki Kaisha. Process for treating bauxite or similar raw material. 4,265,864, Cl. 423-121.000.
Sugimoto, Shigetoki: *See—*
Matsushita, Shigeo; Ishikawa, Ro; Kaede, Kazuhisa; Mito, Ikuo; and Sugimoto, Shigetoki, 4,265,513, Cl. 350-96.200.
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, to Unitika Ltd. Material for wound healing. 4,265,233, Cl. 128-156.000.
Suk, Albert, to Conn Chem Group, Limited. Aerosol water-based paint composition. 4,265,797, Cl. 260-29.60E.
Sukhov, Stanislav A.: *See—*
Piterskikh, Georgy P.; Sukhov, Stanislav A.; Slobodchikov, Vladimir B.; Sutyagin, Ivan S.; and Terentiev, Albert M., 4,265,617, Cl. 432-58.000.
Sukrushev, Vitaly S.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Sullivan, Joseph T. Fire alarm heat sensor. 4,265,194, Cl. 116-106.000.
Sulzer Brothers Limited: *See—*
Baumann, Heinz; and Cailler, Charles, 4,265,277, Cl. 139-1.00R.
Jassniker, Kurt, 4,265,278, Cl. 139-1.00C.
Sumikawa, Seizi; and Harada, Takesi, to Diesel Kiki Co., Ltd. Temperature control apparatus for an automobile air conditioner. 4,265,395, Cl. 236-13.000.
Sumitomo Chemical Company Limited: *See—*
Fujimoto, Keimei; Ohno, Nobuo; Okuno, Yoshitoshi; Mizutani, Toshio; Ohno, Isao; Hirano, Masachika; Itaya, Nobushige; and Matsuo, Takashi, 4,266,074, Cl. 560-105.000.
Kasamatsu, Kiyoshi; Ohsumi, Tadashi; Itaya, Nobushige; Ohno, Nobuo; and Kato, Takashi, 4,265,906, Cl. 424-304.000.
Sano, Takezo; Shimomura, Takatoshi; Murase, Ichiki; and Hirakawa, Manabu, 4,265,959, Cl. 428-216.000.
Sumitomo Electric Industries, Ltd.: *See—*
Miyake, Masaya; Nakano, Minoi; Yamamoto, Takaharu; and Hara, Akio, 4,265,662, Cl. 75-238.000.
Summo, Arthur M., to Branson Ultrasonics Corporation. Method of forming a corner in a thermoplastic material using ultrasonic vibrations. 4,265,842, Cl. 264-23.000.
Sumner, Lee E., Jr.; Cooper, Kenneth W.; and Abendschein, Frederic H., to Borg-Warner Corporation. Microcomputer control for supplemental heating with night set-back. 4,265,298, Cl. 165-2.000.
Sun Electric Corporation: *See—*
Karlin, Richard A.; McDonald, Robert W.; and Comiskey, Gary F., 4,266,189, Cl. 324-117.00H.
Sundberg, Sture, to Aktiebolaget Platmanufaktur. Method and apparatus for folding a tubular length of hose material to form a package. 4,265,439, Cl. 493-451.000.
Sundgren, Anders: *See—*
Rowa, Jan-Erik; and Sundgren, Anders, 4,265,328, Cl. 180-89.130.
Suonvieri, Elaine. Device for releasably holding relatively slim articles. 4,265,362, Cl. 211-60.00R.
Suszko, Donald H.; and Zens, John F., to General Motors Corporation. Inflatable restraint system. 4,265,468, Cl. 280-729.000.
Sutphin, Howard D.; and Lieber, Albert J., to General Engineering & Applied Research. Proximity focused streak tube and streak camera using the same. 4,266,247, Cl. 358-217.000.
Sutyagin, Ivan S.: *See—*
Piterskikh, Georgy P.; Sukhov, Stanislav A.; Slobodchikov, Vladimir B.; Sutyagin, Ivan S.; and Terentiev, Albert M., 4,265,617, Cl. 432-58.000.
Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Passive seatbelt system. 4,265,480, Cl. 280-803.000.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, to Aisin Seiki Kabushiki Kaisha; and Sharp Kabushiki Kaisha. Electric sewing machine. 4,265,188, Cl. 112-158.00B.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, to Sharp Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Sewing pattern displaying arrangements. 4,265,189, Cl. 112-158.00E.
Suzuki, Mon: *See—*
Kawazoe, Kazuyoshi; Takata, Yoshinori; Suzuki, Mon; and Uehara, Shizuo, 4,266,196, Cl. 324-464.000.
Suzuki, Shigeru; and Ohsawa, Kazuo. Electron microscope with optical microscope. 4,266,128, Cl. 250-311.000.
Suzuki, Tamotsu: *See—*
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, 4,265,946, Cl. 427-393.500.
Sweet, Barry A.; and Linnell, John W. Building system. 4,265,061, Cl. 52-93.000.
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, to Boehringer Ingelheim GmbH. Process for the production of human interferon. 4,266,024, Cl. 435-68.000.
Swiatosz, Edmund; Dykes, Wiley V.; Grimmer, Paul D.; and Lane, Bruce V., to United States of America, Navy. Simulated oxygen breathing apparatus. 4,265,238, Cl. 128-205.120.
Swift & Company: *See—*
Kueper, Theodore V.; Schack, Warren R.; and Rock, Harry, 4,265,918, Cl. 426-264.000.
Swiss Aluminium Ltd.: *See—*
Blome, James C., 4,265,659, Cl. 75-93.00R.
SWS Silicones Corporation: *See—*
Newton, Harry V., 4,265,800, Cl. 260-37.0SB.
Sybron Corporation: *See—*
Blair, James E.; and Davis, Lois T., 4,266,035, Cl. 435-253.000.
Sylvania Inc.: *See—*
Wellington, Charles K.; Dakss, Mark L.; and Benasutti, John E., 4,265,514, Cl. 350-96.210.
Synthelabo: *See—*
Najer, Henry; and Obitz, Daniel, 4,265,911, Cl. 424-326.000.
T. Y. Lin International: *See—*
Lin, Tung-Yen; Yang, Yue-Chyou; and Chow, Philip Y., 4,265,066, Cl. 52-224.000.
Tabakov, Vladimir P.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Tabler, Donald C.; and Gray, Bobby G., to Phillips Petroleum Company. De-ashing lubricating oils. 4,265,733, Cl. 208-179.000.
Tachibana, Kunitaka: *See—*
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.
Taguchi, Tetsuya: *See—*
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, 4,265,521, Cl. 354-23.00D.
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, to Nisshin Flour Milling Co., Ltd. Isoprenylamines. 4,265,910, Cl. 424-325.000.
Taiyo Steel Co., Ltd.: *See—*
Kameya, Toru; Makino, Shinichi; and Tsuruta, Masayuki, 4,265,937, Cl. 427-163.000.
Takagi, Kunihiko: *See—*
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, 4,265,233, Cl. 128-156.000.
Takagi, Tosio. Sprinkler nozzle. 4,265,405, Cl. 239-440.000.
Takahashi, Akio; Tsumuki, Chiaki; Nakamura, Hitoshi; and Ozaki, Juro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Process for manufacture of assembled cam shaft. 4,265,388, Cl. 228-135.000.
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; and Sato, Shosuke, to Tokyo Keiki Company Ltd.; and Totec Co., Ltd. Numbering machine with check digit function. 4,265,173, Cl. 101-79.000.
Takahashi, Shuichi. Electronic musical instrument. 4,265,158, Cl. 84-1.220.
Takahashi, Tohru: *See—*
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, 4,265,197, Cl. 118-657.000.
Takahashi, Toshihiro: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,265,910, Cl. 424-325.000.
Takai, Kiyoshi: *See—*
Sugahara, Yujiro; Naito, Hiroyuki; Takai, Kiyoshi; and Imafuku, Shigehisa, 4,265,864, Cl. 423-121.000.
Takano, Rikuo: *See—*
Tateishi, Kazuyoshi; Hoshino, Yasushi; and Takano, Rikuo, 4,265,989, Cl. 430-57.000.
Takase, Akio; Tsutsumi, Takao; and Tsukahara, Hiroaki, to Mitsubishi Denki Kabushiki Kaisha. Cooking control circuit for cooking range. 4,266,118, Cl. 219-492.000.
Takata, Yoshinori: *See—*
Kawazoe, Kazuyoshi; Takata, Yoshinori; Suzuki, Mon; and Uehara, Shizuo, 4,266,196, Cl. 324-464.000.
Takayama, Hiroshi: *See—*
Kouchi, Toshihiro; Takayama, Hiroshi; and Aizawa, Tatsuo, 4,265,992, Cl. 430-107.000.
Takeda Chemical Industries: *See—*
Hashimoto, Naoto; and Kishi, Toyokazu, 4,265,814, Cl. 260-239.30P.

Takei, Haruo: *See*—
Ikeda, Tadashi; Sakai, Takeo; Takei, Haruo; and Inoue, Noriyuki, 4,266,003, Cl. 430-264.000.
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, to Meiji Seika Kaisha Ltd. Herbicidal compositions. 4,265,654, Cl. 71-86.000.
Taketani, Yutaka: *See*—
Kawaguchi, Takeyuki; Taketani, Yutaka; Hayashi, Yuzuru; Ono, Tomoyoshi; and Mori, Koh, 4,265,745, Cl. 210-654.000.
Takeuchi, Yasuhiro: *See*—
Arao, Umeo; Egami, Tsuneyuki; Kosuda, Tooru; and Takeuchi, Yasuhiro, 4,265,163, Cl. 91-361.000.
Talke, Frank E.: *See*—
Juliana, Anthony, Jr.; Koepcke, Richard W.; Mills, Ross N.; and Talke, Frank E., 4,266,232, Cl. 346-140.00R.
Talres Development (N.A.) N.V.: *See*—
Pace, Gary W.; and Holding, Trevor J., 4,265,673, Cl. 106-177.000.
Tamai, Yasuo; and Ogawa, Hiroshi, to Fuji Photo Film Co., Ltd. Process for the production of a magnetic recording member. 4,265,931, Cl. 427-48.000.
Tambourin, Pierre: *See*—
Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, 4,266,060, Cl. 546-64.000.
Tamura, Yasuyuki: *See*—
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, 4,265,197, Cl. 118-657.000.
Tanaka, Hitoshi: *See*—
Fujiwara, Shinobu; Furukawa, Kiyoshi; Kikuchi, Nobuaki; Iizawa, Osamu; and Tanaka, Hitoshi, 4,265,668, Cl. 106-73.300.
Tanaka, Mitsugu: *See*—
Kobayashi, Hidetoshi; Tanaka, Mitsugu; Inouye, Kozo; and Naito, Hideki, 4,266,019, Cl. 430-551.000.
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, to Matsushita Electric Industrial Co., Ltd. Electrically powered torque-controlled tool. 4,265,320, Cl. 173-12.000.
Tang, Peter; Nielsen, Grethe C.; Gibson, Keith; Aunstrup, Knud; and Schiff, Hans, to Novo Industri A/S. Protease product of reduced allergenicity. 4,266,031, Cl. 435-188.000.
Tang, Sunny C.: *See*—
Kim, Leo; Paxson, Timm E.; and Tang, Sunny C., 4,266,085, Cl. 585-645.000.
Tanimoto, Fumio: *See*—
Inoue, Yoshiharu; Tanimoto, Fumio; and Kitano, Hisao, 4,266,055, Cl. 544-221.000.
Tappe, Horst: *See*—
Ribka, Joachim; Tappe, Horst; Roth, Kurt; and Weyer, Hans-Jurgen, 4,265,629, Cl. 8-449.000.
Tashma, Zev: *See*—
Durant, Graham J.; Young, Rodney C.; and Tashma, Zev, 4,265,896, Cl. 424-263.000.
Tateishi, Kazuyoshi; Hoshino, Yasushi; and Takano, Rikuo, to Nippon Telegraph & Telephone Public Corporation. Photosensitive member for electrophotography. 4,265,989, Cl. 430-57.000.
Tatsuta, Sumitaka: *See*—
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, 4,265,946, Cl. 427-393.500.
Tatum, Joe F., to C. E. Equipment Co., Inc. Anode connection. 4,265,725, Cl. 204-196.000.
Tayco Developments, Inc.: *See*—
Taylor, Paul H., 4,265,344, Cl. 188-322.000.
Taylor, George O., to Bondgrade Limited. Work bench. 4,265,284, Cl. 144-287.000.
Taylor, Glenn N., to Kendall Company, The. Collection container with siphon assembly. 4,265,243, Cl. 128-275.000.
Taylor, Kenneth A.: *See*—
Charlesworth, Frank D. W.; Dover, William D.; and Taylor, Kenneth A., 4,266,185, Cl. 324-64.000.
Taylor, Paul H., to Tayco Developments, Inc. Liquid spring with integral plastic body and seal and fabrication method therefor. 4,265,344, Cl. 188-322.000.
Taylor, Samuel K.: *See*—
Kuwik, John J.; Braden, Arthur B.; Taylor, Samuel K.; and Covic, John, 4,266,135, Cl. 250-445.00T.
Tazaki, Kichiya: *See*—
Kawamura, Takayuki; Tazaki, Kichiya; Sakakiyama, Takashi; and Hasegawa, Toshio, 4,265,977, Cl. 428-511.000.
TDK Electronics Co., Ltd.: *See*—
Fujiwara, Shinobu; Furukawa, Kiyoshi; Kikuchi, Nobuaki; Iizawa, Osamu; and Tanaka, Hitoshi, 4,265,668, Cl. 106-73.300.
Tebbens, Klaas; Fischer, Erhardt; and Lo, Jhy-Dou R., to Polysar Limited. Particulate rubber process. 4,265,939, Cl. 427-222.000.
Teche, Andre: *See*—
Martel, Jacques; Tessier, Jean; and Teche, Andre, 4,265,817, Cl. 260-343.30R.
Tecnocar S p A: *See*—
Villani, Franco; and Marciante, Antonina, 4,265,748, Cl. 210-132.000.
Teger, Gerhard: *See*—
Lippacher, Wolfgang; and Teger, Gerhard, 4,265,008, Cl. 29-240.000.
Teige, Wolfgang: *See*—
Papenfuhs, Theodor; and Teige, Wolfgang, 4,265,632, Cl. 8-512.000.
Teijin Limited: *See*—
Imanaka, Yoshihiko; Nakamatsu, Hiroshi; Horike, Akihiro; Saito, Yoichi; and Iwata, Kaoru, 4,266,053, Cl. 544-196.000.
Kawaguchi, Takeyuki; Taketani, Yutaka; Hayashi, Yuzuru; Ono, Tomoyoshi; and Mori, Koh, 4,265,745, Cl. 210-654.000.
Sasaki, Yoshiyuki; and Kasaoka, Katsuyuki, 4,265,082, Cl. 57-207.000.
Teiling, Torbern, to Aktiebolaget Bofors. Device for determining vertical direction. 4,265,111, Cl. 73-178.00R.
Tel-Thermco Engineering Co., Ltd.: *See*—
Satoh, Ryozo, 4,265,270, Cl. 137-505.390.
Teleco Oilfield Services Inc.: *See*—
Stone, Frederick A.; and Holcomb, Normand P., 4,265,305, Cl. 166-113.000.
Teledyne Industries, Inc.: *See*—
Johnson, Donald L., 4,265,507, Cl. 339-176.0MF.
Temme, Helmut, to Gewerkschaft Eisenhutte Westfalia. Scraper assembly for a scraper chain conveyor. 4,265,359, Cl. 198-731.000.
Tempesti, Aldo: *See*—
Rossi, Pier P.; Tempesti, Aldo; and Filippi, Aldo, 4,265,628, Cl. 8-115.500.
Tenta, Louis T. Composition containing sodium fluoride in a chewing gum base. 4,265,877, Cl. 424-48.000.
Teruda, Osamu; Uwajima, Takayuki; Mihara, Akira; Aisaka, Kazuo; Akita, Hiroko; Nagai, Toshiaki; and Shimizu, Yoshiaki, to Kyowa Hakko Kogyo Co., Ltd. Glycerol oxidase and process for the production thereof and method for the quantitative determination of glycerol by glycerol oxidase. 4,266,023, Cl. 435-28.000.
Teraoka, Masao, to Tochigi-Fuji Sangyo Kabushiki Kaisha. Hub clutch. 4,265,349, Cl. 192-95.000.
Terentiev, Albert M.: *See*—
Piterskikh, Georgy P.; Sukhov, Stanislav A.; Slobodchikov, Vladimir B.; Sutyagin, Ivan S.; and Terentiev, Albert M., 4,265,617, Cl. 432-58.000.
Terliska, Jacques, to Arjomari-Prioux. Method of preparing a fibrous structure containing metallic fibers. 4,265,703, Cl. 162-146.000.
Terry, Dennis W.: *See*—
Naruns, Laimons; Terry, Dennis W.; and Stellfox, Samuel K., 4,265,579, Cl. 414-138.000.
Terry, Ruel C.: *See*—
Magnie, Robert L., 4,265,309, Cl. 166-252.000.
Teruyama, Hideo, to Kayabakogyokabushikikaisha. Gear pump with low pressure shaft lubrication. 4,265,602, Cl. 418-1.000.
Tessier, Jean: *See*—
Martel, Jacques; Tessier, Jean; and Teche, Andre, 4,265,817, Cl. 260-343.30R.
Tetra Consultants, Inc.: *See*—
Van Ewijk, William, 4,265,902, Cl. 424-273.00R.
Texaco Dev. Corp.: *See*—
McEntire, Edward E.; and Gipson, Robert M., 4,265,821, Cl. 260-348.160.
Texaco Development Corp.: *See*—
Knifton, John F., 4,265,828, Cl. 260-449.00L.
Texaco Inc.: *See*—
Kessler, Richard V.; and Corbeels, Roger J., 4,265,407, Cl. 241-21.000.
Slough, Carlton M., 4,266,187, Cl. 324-65.0CR.
Texacone Company, The: *See*—
Wheeler, John H., 4,265,458, Cl. 277-205.000.
Texas Instruments Incorporated: *See*—
Hornbeck, Larry J.; and Hosack, Harold H., 4,266,234, Cl. 357-24.000.
Textron, Inc.: *See*—
Ditsler, Erwin P., 4,265,576, Cl. 409-129.000.
Holmes, Howard H., 4,265,113, Cl. 73-266.000.
Moertel, George B., 4,265,190, Cl. 112-265.200.
Thayer, Victor R. Process and apparatus for reducing the energy required to separate liquids by distillation. 4,265,736, Cl. 208-353.000.
Theeuwes, Felix: *See*—
Bonsen, Pieter; Wong, Patrick S.; and Theeuwes, Felix, 4,265,874, Cl. 424-15.000.
Thein, Dennis J., to Thein Well Company, Incorporated. Method for developing water wells. 4,265,312, Cl. 166-312.000.
Thein Well Company, Incorporated: *See*—
Thein, Dennis J., 4,265,312, Cl. 166-312.000.
Theobald, Adolf. Arrangement for storing of pallets used for holding material. 4,265,582, Cl. 414-279.000.
Thiel, John A.: *See*—
Cox, Arthur; Thiel, John A.; and Nodov, Eugene, 4,266,252, Cl. 358-293.000.
Thijssen, Henricus A. C., to Douwe Egberts Koninklijke Tabaksfabriek, Koffiebranderijen en Theehandel B.V. Process for concentration of alcoholic beverages. 4,265,920, Cl. 426-384.000.
Thoma, Paul E.; Crum, Louis J.; and Frias, Ronald J. Surface temperature detecting apparatus. 4,265,117, Cl. 73-359.00R.
Thomas, Dean L.: *See*—
Reese, Thomas J.; and Thomas, Dean L., 4,265,650, Cl. 65-104.000.
Thomas, James P., to Amstar Corporation. Separation of suspended solids from phosphate tailings. 4,265,770, Cl. 210-715.000.
Thomas, Jerome P. Horseshoe with a continuous wedge-shaped calk. 4,265,315, Cl. 168-/29.000.
Thomas, Richard W., to American Cyanamid Company. Polymeric light stabilizers containing tetralkyl piperidine moieties. 4,265,805, Cl. 260-45.80N.
Thomason, Harry E. Solar heating (cooling) system. 4,265,219, Cl. 126-419.000.

Thompson, Francis, to Mobil Oil Corporation. Method and apparatus for measuring a component in a flow stream. 4,266,188, Cl. 324-65.00R.
Thompson, Tommy H.: *See*—
Soelberg, Kenneth B.; Stark, Marvin M.; Thompson, Tommy H.; and Yamaguchi, Akia, 4,265,623, Cl. 433-139.000.
Thomson-CSF: *See*—
Leclerc, Pierre; Puech, Claude; Papuchon, Michel; and Lallemand, Pierre, 4,265,541, Cl. 356-350.000.
Matherat, Philippe, 4,266,253, Cl. 358-903.000.
Saudreau, Lucien; and Biansan, Jean-Paul, 4,266,203, Cl. 333-21.00A.
Thorson, Donald L.: *See*—
Chamoff, Martin E.; Miller, Irving L.; and Thorson, Donald L., 4,266,271, Cl. 364-200.000.
Thurner, Gary H.: *See*—
Presnall, Lance O.; and Thurner, Gary H., 4,265,332, Cl. 181-211.000.
Thurston, Victor N.; and Marshall, Geoffrey B., to Solent & Pratt (Engineering) Limited. Butterfly valve. 4,265,426, Cl. 251-306.000.
Tickner, Ernest G., to Rasor Associates, Inc. Method of determining pressure within liquid containing vessel. 4,265,251, Cl. 128-660.000.
Tihanyi, Jeno: *See*—
Herbst, Heiner; Pfleiderer, Hans-Jorg; Koch, Rudolf; and Tihanyi, Jeno, 4,266,235, Cl. 357-30.000.
Timmerman, Daniel M.; De Winter, Walter F.; and Van Hoof, Albert E., to AGFA-GEVAERT N.V. Novel polymeric mordanting agents for anionic compounds. 4,266,044, Cl. 525-336.000.
Tinger, Harold G.: *See*—
Arbit, Harold A.; and Tinger, Harold G., 4,265,960, Cl. 428-220.000.
Tkacenko, Nikola. Switching power supply having energy storage inductor in primary circuit of output transformer. 4,266,268, Cl. 363-49.000.
Tkalenko, Victor J., Jr.: *See*—
Mowry, William H., Jr.; McElligott, Michael J.; Tkalenko, Victor J., Jr.; and Baran, Joseph, 4,265,469, Cl. 283-8.00B.
Toba, Akira, to Tokyo Shibaura Denki Kabushiki Kaisha. Fly-back transformer. 4,266,269, Cl. 363-68.000.
Tobishi Pharmaceutical Co., Ltd.: *See*—
Yamashina, Ikuo; Kawasaki, Toshisuke; and Tsukuda, Michiko, 4,265,881, Cl. 424-106.000.
Tochigi-Fuji Sangyo Kabushiki Kaisha: *See*—
Teraoka, Masao, 4,265,349, Cl. 192-95.000.
Todeschini, Giuseppe, to Exfin, S.A. Method and device for cutting a metal strip simultaneously into at least three continuous comb-shaped components. 4,265,104, Cl. 72-330.000.
Togashi, Shyuichi: *See*—
Furusawa, Motoyoshi; Horio, Motohiko; Togashi, Shyuichi; and Ohmiya, Akio, 4,265,412, Cl. 242-71.400.
Toji, Masuo: *See*—
Bauman, Donald L.; and Toji, Masuo, 4,265,810, Cl. 260-141.000.
Tokico Ltd.: *See*—
Ishihara, Kanji, 4,265,339, Cl. 188-72.500.
Tokutomi, Seijiro; Jyojiki, Masao; and Nakamura, Kazuo, to Asahi Kogaku Kogyo Kabushiki Kaisha. Focus detecting device in single lens reflex camera. 4,265,520, Cl. 354-23.00D.
Tokyo Engine Kogyo Kabushiki Kaisha: *See*—
Hasegawa, Hiroshi, 4,265,622, Cl. 433-101.000.
Tokyo Keiki Company Ltd.: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; and Sato, Shosuke, 4,265,173, Cl. 101-79.000.
Tokyo Press & Die Co., Ltd.: *See*—
Shimakata, Ryuji; and Naito, Kazuyoshi, 4,265,102, Cl. 72-58.000.
Tokyo Rope Mfg. Co., Ltd.: *See*—
Hachisuka, Shunji; Kurashige, Shinji; and Saahiro, Yasuo, 4,265,678, Cl. 148-12.00B.
Tokyo Shibaura Denki K.K.: *See*—
Hirose, Masahiko; and Akai, Yoshimi, 4,265,730, Cl. 204-298.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Fujimori, Yoshinori; Ishizawa, Akio; and Hashimoto, Minoru, 4,265,841, Cl. 264-22.000.
Hirose, Minoru, 4,266,121, Cl. 235-381.000.
Toba, Akira, 4,266,269, Cl. 363-68.000.
Tolaas, William M.: *See*—
Faller, Rudolph A.; and Tolaas, William M., 4,265,390, Cl. 229-30.000.
Tomalia, Donald A.: *See*—
Owen, Peter W.; Harmon, Zita K.; and Tomalia, Donald A., 4,265,825, Cl. 260-401.000.
Tomiyama, Yoshio: *See*—
Matsubara, Yoshitaka; Shimoie, Shizuo; Watanabe, Takao; and Tomiyama, Yoshio, 4,265,494, Cl. 305-12.000.
Tomlinson, Harvard L.: *See*—
Kierbow, Gerald C.; Tomlinson, Harvard L.; Horinek, Herbert J.; and Crain, Stephen F., 4,265,266, Cl. 137-101.190.
Topp, Bernhard: *See*—
Haecker, Wolf-Dieter; Friese, Karl-Hermann; and Topp, Bernhard, 4,265,724, Cl. 204-195.00S.
Toray Industries, Inc.: *See*—
Ebitani, Atsushi; Inoue, Takehisa; and Tsunoi, Kazuo, 4,265,788, Cl. 252-455.00Z.
Hatada, Kenji; Kobayashi, H.; and Yokura, Miyoshi, 4,265,276, Cl. 138-177.000.
Toro Company, The: *See*—
Hunter, Edwin J., 4,265,404, Cl. 239-186.000.
Torre, Giancarlo D., to Rockwell-Rimoldi, S.p.A. Apparatus for applying elastic rings to tubular garments. 4,265,187, Cl. 112-121.260.
Toshiba Kikai Kabushiki Kaisha: *See*—
Asakuma, Kazutaka; and Kikuchi, Tsuyoshi, 4,265,297, Cl. 164-303.000.
Totec Co., Ltd.: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; and Sato, Shosuke, 4,265,173, Cl. 101-79.000.
Tovim, Igal. Horse shoes. 4,265,314, Cl. 168-4.000.
Toyo Kogyo Co., Ltd.: *See*—
Mashimo, Tohru, 4,266,171, Cl. 318-571.000.
Toyo Rubber Chemical Industrial Corporation: *See*—
Fujii, Osamu; Kishimoto, Toshio; and Kobayashi, Akio, 4,266,043, Cl. 521-175.000.
Toyo Rubber Industry Co., Ltd., The: *See*—
Inoue, Teruo, 4,265,292, Cl. 152-354.00R.
Toyono, Tsutomu; Nakamura, Shunji; Kanbe, Junichiro; Tamura, Yasuyuki; and Takahashi, Tohru, to Canon Kabushiki Kaisha. Developing method and apparatus using application of first and second alternating bias voltages for latent image end portions and tone gradation, respectively. 4,265,197, Cl. 118-657.000.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; Furutani, Toshinobu; and Wakizaka, Hiroshi, 4,265,930, Cl. 427-34.000.
Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, 4,265,480, Cl. 280-803.000.
Takahashi, Akio; Tsumuki, Chiaki; Nakamura, Hitoshi; and Ozaki, Juro, 4,265,388, Cl. 228-135.000.
Trafalgar Industries Inc.: *See*—
Desai, Mahendrakumar D.; and Henderson, Drew, 4,265,371, Cl. 222-70.000.
Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat: *See*—
Heller, Laszlo; Forgo, Laszlo; Papp, Istvan; Bodas, Janos; Kovacs, Gyula; and Laszlo, Karoly, 4,265,275, Cl. 138-38.000.
Trelford, Aston M.: *See*—
Hunt, Peter; and Trelford, Aston M., 4,265,847, Cl. 264-122.000.
Tremco, Incorporated: *See*—
Kumins, Charles A.; and Warford, Milan L., 4,265,967, Cl. 428-332.000.
Triangle Corporation, The: *See*—
Nash, Edward M.; and Johnson, Edward M., Jr., 4,265,283, Cl. 144-286.00R.
Trillwood, Richard E., to Wentgate Engineers (1976) Limited. Apparatus for transferring work through a region of reduced pressure for the performance of an operation thereon. 4,266,111, Cl. 219-121.0EN.
Tromp, Gerardus M. Paper sheet cartridge. 4,264,992, Cl. 4-244.000.
True Temper Corporation: *See*—
Luebke, Robert W., 4,265,398, Cl. 238-1.000.
Trusty, Von A. Combination portable intrusion alarm and flashlight. 4,266,216, Cl. 340-546.000.
Tsai, Wen-Ying. Strobed liquid display device and head therefor. 4,265,402, Cl. 239-20.000.
Tsao, George T.; Dale, Bruce E.; and Ladisch, Michael R., to Purdue Research Foundation. Nontoxic cellulose solvent and process for forming and utilizing the same. 4,265,675, Cl. 127-37.000.
Tschang, Chung-Ji; Klefenz, Heinrich; and Sanner, Axel, to BASF Aktiengesellschaft. Macroporous polymeric carrier for covalently binding proteins, its preparation and its use for fixing active proteins. 4,266,030, Cl. 435-180.000.
Tsuchiya, Takuzo; Fang, Jin-Liou; and Rasmussen, Glen, to General Mills, Inc. Induction heating method for processing food material. 4,265,922, Cl. 426-520.000.
Tsujii, Yasuhiro: *See*—
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Tsujii, Yasuhiro; and Nishimura, Shigeyuki, 4,266,064, Cl. 546-345.000.
Tsujino, Nobuyuki: *See*—
Adachi, Keiichi; Hirano, Shigeo; and Tsujino, Nobuyuki, 4,266,013, Cl. 430-410.000.
Tsukahara, Hiroaki: *See*—
Takase, Akio; Tsutsumi, Takao; and Tsukahara, Hiroaki, 4,266,118, Cl. 219-492.000.
Tsukuda, Michiko: *See*—
Yamashina, Ikuo; Kawasaki, Toshisuke; and Tsukuda, Michiko, 4,265,881, Cl. 424-106.000.
Tsumuki, Chiaki: *See*—
Takahashi, Akio; Tsumuki, Chiaki; Nakamura, Hitoshi; and Ozaki, Juro, 4,265,388, Cl. 228-135.000.
Tsunoi, Kazuo: *See*—
Ebitani, Atsushi; Inoue, Takehisa; and Tsunoi, Kazuo, 4,265,788, Cl. 252-455.00Z.
Tsuruoka, Takashi: *See*—
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.
Tsuruta, Masayuki: *See*—
Kameya, Toru; Makino, Shinichi; and Tsuruta, Masayuki, 4,265,937, Cl. 427-163.000.
Tsutsumi, Takao: *See*—
Takase, Akio; Tsutsumi, Takao; and Tsukahara, Hiroaki, 4,266,118, Cl. 219-492.000.
Tsuya, Noboru; and Arai, Kenichi, to Tsuya, Norboru. High silicon steel thin strips and a method for producing the same. 4,265,682, Cl. 148-112.000.
Tsuya, Norboru: *See*—
Tsuya, Noboru; and Arai, Kenichi, 4,265,682, Cl. 148-112.000.

Tunador Engineering, Inc.: *See—*
Tunador, Malik; and Wangu, Manoj K., 4,265,608, Cl. 425-149.000.
Tunador, Malik; and Wangu, Manoj K., to Tunador Engineering, Inc. Endless belt molding apparatus. 4,265,608, Cl. 425-149.000.
Tupper, Alan W.; and Flux, Peter R., to Tupper, Alan William. Load-transfer device. 4,265,179, Cl. 104-182.000.
Tupper, Alan William: *See—*
Tupper, Alan W.; and Flux, Peter R., 4,265,179, Cl. 104-182.000.
Tuppy, Hans: *See—*
Swetly, Peter; Adolf, Gunther R.; Bodo, Gerhard; Lindner-Frimmel, Silvia J.; Meindl, Peter; and Tuppy, Hans, 4,266,024, Cl. 435-68.000.
Turner, James T.: *See—*
Chubbuck, John G.; and Turner, James T., 4,265,252, Cl. 128-748.000.
Tutarinov, Valery M.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Tyler, Derek E.: *See—*
Gaule, Gerhart K.; Yarwood, John C.; Tyler, Derek E.; and Yun, Ik Y., 4,265,294, Cl. 164-49.000.
Tyler Refrigeration Corporation: *See—*
Abraham, Fayez, 4,265,092, Cl. 62-155.000.
Abraham, Fayez F., 4,265,090, Cl. 62-82.000.
Tzikas, Athanassios, to Ciba-Geigy AG. Process for the manufacture of vat dyes. 4,265,633, Cl. 8-650.000.
Uchidoi, Masanori; Iwashita, Tomonori; Taguchi, Tetsuya; Iura, Yukio; Ichiyanagi, Toshikazu; and Aizawa, Hiroshi, to Canon Kabushiki Kaisha. Digital control camera. 4,265,521, Cl. 354-23.00D.
Uda, Masayuki; and Hayakawa, Yoshiichi, to Hosiden Electronics Co., Ltd. Cathode ray tube socket with a spark gap. 4,266,158, Cl. 313-325.000.
Uddeholms Aktiebolag AB: *See—*
Billgren, Per A.; and Karlsson, Stig A., 4,265,700, Cl. 159-47.00R.
Uebbing, John J.: *See—*
Epstein, Howard C.; and Uebbing, John J., 4,266,125, Cl. 250-231.0SE.
Ueda, Hiroshi; and Saito, Mitsuru, to Minolta Camera Kabushiki Kaisha. Camera provided with a data recording device. 4,265,526, Cl. 354-106.000.
Ueda, Kazuyoshi, to Nippon Electric Co., Ltd. Transistor having emitter resistors for stabilization at high power operation. 4,266,236, Cl. 357-34.000.
Ueda, Takeshi; Sasaguri, Kiichiro; and Kobayashi, Hidehiko, to Asahi Kasei Kogyo Kabushiki Kaisha. Imaging material and method of producing image thereon. 4,266,009, Cl. 430-346.000.
Uehara, Shizuo: *See—*
Kawazoe, Kazuyoshi; Takata, Yoshinori; Suzuki, Mon; and Uehara, Shizuo, 4,266,196, Cl. 324-464.000.
Uejima, Hiroyuki; Hirai, Masahide; and Sakaida, Tsutomu, to Unitika Ltd. Etherified phenolic chelate resin, process for its production, and method for adsorption treatment. 4,266,045, Cl. 528-161.000.
Uematsu, Masataka: *See—*
Tanaka, Tamotsu; Kato, Michio; Uematsu, Masataka; Nishida, Yoshikazu; and Hosokawa, Shuji, 4,265,320, Cl. 173-12.000.
Uhden, Irene: *See—*
Heinzl, Joachim; Schlossbauer, Hubert; Miller, Heide-Marie; and Uhden, Irene, 4,266,280, Cl. 364-900.000.
Uhlig, Fritz; and Wehlmnn, Kurt A., to Hoechst Aktiengesellschaft. Process for the manufacture of imaged articles. 4,266,006, Cl. 430-300.000.
Uhr, Daniel R., Jr.: *See—*
Hoyt, Hazen L., 4th; and Uhr, Daniel R., Jr., 4,265,653, Cl. 71-11.000.
Ulanet, Herman. Snap action thermostats. 4,266,211, Cl. 335-208.000.
Ulrich, Alfred: *See—*
Eidinger, Adolf; Flossel, Carl D.; Koppl, Georg; Ulrich, Alfred; and Schibli, Hans, 4,266,258, Cl. 361-58.000.
UMC Industries, Inc.: *See—*
Koetter, Robert E., 4,265,351, Cl. 194-1.00M.
Unarco Industries, Inc.: *See—*
Loomis, Russell M., 4,265,577, Cl. 410-118.000.
Uniroyal, Inc.: *See—*
Allen, Deborah L.; Farber, Milton; and Skewis, John D., 4,265,986, Cl. 430-18.000.
Uniroyal Ltd.: *See—*
Mishra, Anupama, 4,265,798, Cl. 260-32.400.
United States Gypsum Company: *See—*
Baehr, Donald O.; and Izard, David G., 4,265,979, Cl. 428-171.000.
United States of America
Agriculture: *See—*
Frank, Arlen W., 4,265,945, Cl. 427-353.000.
Schepers, James S.; and Gloor, Cary A., 4,265,048, Cl. 47-1.500.
Army: *See—*
Peters, R. Donald, 4,266,157, Cl. 310-353.000.
Commerce: *See—*
Kuhn, Peter M., 4,266,130, Cl. 250-339.000.
Energy: *See—*
Abbin, Joseph P., Jr.; Middleton, John N.; and Schildknecht, Harold E., 4,266,107, Cl. 200-61.530.
Kampwirth, Robert T.; Schuller, Ivan K.; and Falco, Charles M., 4,266,008, Cl. 430-318.000.
Leitnaker, James M., 4,265,983, Cl. 428-683.000.
Loutfy, Raouf O.; Keller, Rudolf; and Yao, Neng-Ping, 4,265,716, Cl. 204-67.000.
McCreary, William J.; and Carroll, David W., 4,265,982, Cl. 428-608.000.
Health, Education and Welfare: *See—*
Boretos, John W.; and Iriguchi, Norio, 4,265,694, Cl. 156-242.000.
Horwitz, Jerome P.; Neenan, John P.; Misra, Radhey S.; Rozhin, Jurij; Huo, Anne; and Philips, Kerstin D., deceased, 4,266,048, Cl. 536-27.000.
Interior: *See—*
Cheng, Lung; and Cross, Warren G., 4,265,107, Cl. 73-28.000.
National Aeronautics and Space Administration: *See—*
Jackson, Liam R.; Weidner, John P.; Small, William J.; and Martin, James A., 4,265,416, Cl. 244-2.000.
Nola, Frank J., 4,266,177, Cl. 318-810.000.
Navy: *See—*
Denton, Medona B.; Windsor, David L.; and Heine, David R., 4,266,113, Cl. 219-121.0PQ.
Swiatosz, Edmund, Dykes, Wiley V.; Grimmer, Paul D.; and Lane, Bruce V., 4,265,238, Cl. 128-205.120.
U.S. Philips Corporation: *See—*
Adamek, Manfred; and Wurscher, Horst, 4,265,551, Cl. 400-221.100.
Nicia, Antonius J. A.; and Potters, Cornelis J. T., 4,265,511, Cl. 350-96.180.
Van Roermund, Arthur H. M., 4,266,146, Cl. 307-221.00D.
Van Roosmalen, Johannes H. T., 4,266,248, Cl. 358-223.000.
United Technologies Corporation: *See—*
Fox, Theodore G.; and Zeisser, Melvin H., 4,265,085, Cl. 60-39.060.
Frost, Stuart J.; Riley, Edward J.; and Bogdan, Ronald F., 4,265,023, Cl. 33-174.00C.
Lipman, Kenneth, 4,266,190, Cl. 324-117.00R.
Lohmann, Robert P.; and Markowski, Stanley J., 4,265,615, Cl. 431-353.000.
MacNitt, Donald G., Jr.; and Walker, Bryant H., 4,265,105, Cl. 72-354.000.
Prewo, Karl M., 4,265,968, Cl. 428-336.000.
Rannenberg, George C., 4,265,397, Cl. 237-2.00B.
Unitika Ltd.: *See—*
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, 4,265,233, Cl. 128-156.000.
Uejima, Hiroyuki; Hirai, Masahide; and Sakaida, Tsutomu, 4,266,045, Cl. 528-161.000.
Universal Precision Machining Co.: *See—*
Graves, Daniel G.; Graves, Vernard L.; and Knudsen, Ernest W., Jr., 4,265,696, Cl. 156-443.000.
University of Houston: *See—*
Cook, Billy D.; and Cavanagh, Eduardo, 4,265,122, Cl. 73-627.000.
University of Missouri, The Curators of the: *See—*
Barker, Clark R., 4,265,487, Cl. 299-34.000.
Unterleitner, Fred C.: *See—*
Kapany, Narinder S.; and Unterleitner, Fred C., 4,265,222, Cl. 126-431.000.
Uozumi, Yukio, to Kawasaki Jukogyo Kabushiki Kaisha. Steering means for guided vehicles. 4,265,180, Cl. 104-247.000.
Upjohn Company, The: *See—*
Sih, John C., 4,265,820, Cl. 260-346.220.
Sih, John C., 4,266,072, Cl. 560-53.000.
Walker, Jerry A., 4,266,069, Cl. 560-20.000.
Ushirokajitani, Yoshiyuki: *See—*
Satoda, Hajime; Ohta, Hiromi; and Ushirokajitani, Yoshiyuki, 4,265,614, Cl. 431-329.000.
Usui, Fumio. Process for producing a multi-layered glass fiber sheet. 4,265,691, Cl. 156-172.000.
UTI Corporation: *See—*
Schafer, Robert H., 4,266,207, Cl. 333-206.000.
Uwabe, Toshio: *See—*
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; and Sato, Shosuke, 4,265,173, Cl. 101-79.000.
Uwajima, Takayuki: *See—*
Terada, Osamu; Uwajima, Takayuki; Mihara, Akira; Aisaka, Kazuo; Akita, Hiroko; Nagai, Toshiaki; and Shimizu, Yoshiaki, 4,266,023, Cl. 435-28.000.
Vaananen, Raimo, to Lonnstrom Oy. Control system for central heating. 4,265,396, Cl. 236-68.00R.
Vac-Tec Systems, Inc.: *See—*
Morrison, Charles F., Jr., 4,265,729, Cl. 204-298.000.
Vacuumschmelze GmbH: *See—*
Boll, Richard, 4,265,684, Cl. 148-121.000.
Vallen Corporation: *See—*
Specht, Paul B., 4,264,988, Cl. 2-431.000.
Valmet Oy: *See—*
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Scott, Orland B.; and Van Camp, Garrett S., 4,265,340, Cl. 188-73.300.
van den Honert, Taco H. J.: *See—*
Extra, Piet M. J.; van den Honert, Taco H. J.; and van Lieshout, Jacobus J., 4,265,997, Cl. 430-122.000.
Van Der Meulen, Douglas J.; and Weis, Siegfried K., to C. L. Frost & Son, Inc. Drive disc-pulley assembly. 4,265,133, Cl. 74-194.000.

Van Ewijk, William, to Tetra Consultants, Inc. Therapeutic treatment of horses. 4,265,902, Cl. 424-273.00R.
Van Hoof, Albert E.: *See—*
Timmerman, Daniel M.; De Winter, Walter F.; and Van Hoof, Albert E., 4,266,044, Cl. 525-336.000.
van Keulen, Jacobus M.: *See—*
Blom, Cornelis W.; and van Keulen, Jacobus M., 4,265,958, Cl. 428-166.000.
Van Leeuwen, Matthew J., to Atlantic Richfield Company. Pole mounting solar panel assembly. 4,265,422, Cl. 248-219.100.
van Lieshout, Jacobus J.: *See—*
Extra, Piet M. J.; van den Honert, Taco H. J.; and van Lieshout, Jacobus J., 4,265,997, Cl. 430-122.000.
Van Roermund, Arthur H. M., to U.S. Philips Corporation. Charge transfer devices having switchable blocking electrodes. 4,266,146, Cl. 307-221.00D.
Van Roosmalen, Johannes H. T., to U.S. Philips Corporation. Device having a camera tube. 4,266,248, Cl. 358-223.000.
Van Steenwyk, Brett H., to Applied Technologies Associates. Survey apparatus and method employing canted tilt sensor. 4,265,028, Cl. 33-304.000.
Van Uitert, LeGrand G.: *See—*
Bonner, William A.; and Van Uitert, LeGrand G., 4,265,980, Cl. 428-697.000.
Varian Associates, Inc.: *See—*
Hlavka, Lloyd F., 4,266,194, Cl. 324-315.000.
Varma, Ravi K., to E. R. Squibb & Sons, Inc. 17-(Substituted thio)androst-4-ene[16,17-b]-[1,4]benzodioxin-3-ones. 4,265,815, Cl. 260-239.55R.
Vaughan, Robert W. Clutch. 4,265,350, Cl. 192-95.000.
Vecchiarelli, Francis, to Hunter Douglas International N.V. Support bracket for a venetian blind head rail. 4,265,423, Cl. 248-264.000.
Veenhof, Willem D. Conveyor belt cleaner and scraper blade therefor. 4,265,358, Cl. 198-499.000.
Veith, Gustav G., to Gustav Georg Veith GmbH & Co. KG. Conveyor apparatus for intraplant conveyance. 4,265,178, Cl. 104-88.000.
Vella, Tony J., to Vella, Tony J. Golf club. 4,265,452, Cl. 273-167.00G.
Velsicol Chemical Corporation: *See—*
Nicholson, Richard R.; Smith, Ray E.; and Shukla, Jayendra G., 4,265,791, Cl. 252-8.100.
Venus Products, Inc.: *See—*
Ives, Frank E.; and Saurwein, Albert C., 4,265,581, Cl. 414-228.000.
Verdicchio, Robert J.: *See—*
Armstrong, David P.; and Verdicchio, Robert J., 4,265,782, Cl. 252-174.190.
Vereinigte Edelstahlwerke Aktiengesellschaft (VEW): *See—*
Plockinger, Erwin; Kuhnelt, Gert; Machner, Peter; and Jager, Heimo, 4,265,295, Cl. 164-52.000.
Verpalen, Willem A.; and Koot, Theodorus A. J., to Ballast-Nedam Groep N.V.; and Skimovex B. V. Device for separating a mixture. 4,265,759, Cl. 210-261.000.
Verreries Mecaniques Champenoises: *See—*
Morel, Jean, 4,265,651, Cl. 65-252.000.
Versteeg, Frits J.; and Groeneweg, Abraham, to N.V. Optische Industrie "De Oude Delft". Device for viewing residual light in the visible and the near infrared spectrum. 4,266,129, Cl. 250-330.000.
Vert, Michel: *See—*
Lenz, Robert W.; and Vert, Michel, 4,265,247, Cl. 128-335.500.
Victor Company of Japan, Limited: *See—*
Ishigaki, Yukinobu, 4,266,296, Cl. 455-303.000.
Itoh, Yasuo, 4,266,244, Cl. 358-142.000.
Villani, Franco; and Marciante, Antonina, to Tecnocar S p A. Lubricant filter for internal combustion engines. 4,265,748, Cl. 210-132.000.
Vinals, Joaquin F.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,265,923, Cl. 426-538.000.
Vinciguerra, Costantino, to Nuovo Pignone, S.p.A. Spherical sealtight valve for fluids. 4,265,427, Cl. 251-315.000.
Visy Board Company Pty., Ltd.: *See—*
Saw, Samuel C. K., 4,265,392, Cl. 229-37.00R.
Vital Industries, Inc.: *See—*
McCoy, Reginald F. H., 4,266,242, Cl. 358-22.000.
Vivitar Corporation: *See—*
Lloyd, Havelock D., 4,266,163, Cl. 315-151.000.
Vock, Manfred H.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,265,923, Cl. 426-538.000.
Wiegers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,265,818, Cl. 260-345.200.
Voelskow, Peter. Sorting machine. 4,265,408, Cl. 241-87.000.
Voest-Alpine Aktiengesellschaft: *See—*
Riegler, Ernst; and Schmidt, Manfred, 4,265,136, Cl. 74-380.000.
Vogt, Kuno J. Easy opening top closure member for a container. 4,265,367, Cl. 220-269.000.
Voigt, Wolfgang: *See—*
Fricke, Jobst; Voigt, Wolfgang; and Schmitz, Jurgen, 4,265,157, Cl. 84-1.190.
von Falkai, Bela: *See—*
Reinehr, Ulrich; von Falkai, Bela; and Wilschinsky, Horst, 4,265,971, Cl. 428-376.000.
von Schonfeldt, Hilmar A.: *See—*
Choi, Dai S.; and von Schonfeldt, Hilmar A., 4,265,570, Cl. 405-258.000.
Voronin, Pavel G.: *See—*
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Voxson S.p.A.: *See—*
Carosi, Franco; and Reggiani, Tito, 4,266,284, Cl. 365-189.000.
Vural, Gulertan; Carle, Udo; and Lenkeit, Manfred, to Koehring GmbH - Bomag Division. Vibration generator with adjustable eccentric weight. 4,265,130, Cl. 74-87.000.
W. H. Brady Co.: *See—*
Frame, Norman J., 4,266,223, Cl. 340-719.000.
W. Hegenscheidt Gesellschaft mbH, Firma: *See—*
Wittkopp, Helmut; and Kunze, Bernhard, 4,265,149, Cl. 82-8.000.
W. R. Grace & Co.: *See—*
Daane, Robert A., 4,265,384, Cl. 226-97.000.
O'Rell, Dennis D.; Palmer, Nigel I.; and Nguyen, Vu H., 4,265,985, Cl. 429-225.000.
Wada, Hideo: *See—*
Kimura, Masao; Sobata, Tamotu; and Wada, Hideo, 4,265,780, Cl. 252-156.000.
Wagner, Gebhard; and Joseph, Werner, to Bayer Aktiengesellschaft. Single-bake two-layer enamelling with electrostatic powder coating. 4,265,929, Cl. 427-33.000.
Wagner, Karl: *See—*
Engelsmann, Dieter; Wagner, Karl; and Hackenberg, Hubert, 4,265,527, Cl. 354-144.000.
Wagster, Robert P.; and Pizzuto, Russell, to Black & Decker Inc. Workpiece support device and auxiliary support body arrangement. 4,265,436, Cl. 269-274.000.
Wahl, Harry A.: *See—*
Britton, Michael W.; Martin, William L.; McDaniel, Jack D.; and Wahl, Harry A., 4,265,310, Cl. 166-259.000.
Wainberg, Lawrence. Container and dispenser-cutter unit combination for containing and holding detachable flexible form-fill-seal plastic pouches. 4,265,372, Cl. 222-82.000.
Waite, Frederick A.: *See—*
Palgrave, Derek A.; Waite, Frederick A.; Birchall, James D.; Cooper, John; and Enever, James A., 4,265,406, Cl. 241-16.000.
Wajc, Samuel J., to Exergie Societe de Personnes a Responsabilitie Limitee. Integrated process for treatment of residual solutions from anodization plants. 4,265,863, Cl. 423-119.000.
Wakizaka, Hiroshi: *See—*
Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; Furutani, Toshinobu; and Wakizaka, Hiroshi, 4,265,930, Cl. 427-34.000.
Waldron, Christopher J.; and Matchell, Raymond, to Rank Organisation Limited, The. Continuous motion telecine apparatus and method. 4,266,246, Cl. 358-216.000.
Walker, Bryant H.: *See—*
MacNitt, Donald G., Jr.; and Walker, Bryant H., 4,265,105, Cl. 72-354.000.
Walker, Jerry A., to Upjohn Company, The. Processes for the preparation of hydratropic acids and esters. 4,266,069, Cl. 560-20.000.
Walkush, Glenn A.: *See—*
Emmert, Philip H.; Stevens, Richard A.; and Walkush, Glenn A., 4,265,208, Cl. 123-440.000.
Wallace, William K.; and Giardino, David A., to Chicago Pneumatic Tool Company. Pneumatic nut runner with torque indicator. 4,265,108, Cl. 73-862.210.
Wallace, William K.; and Giardino, David A., to Chicago Pneumatic Tool Company. Pneumatic tool governor. 4,265,265, Cl. 137-56.000.
Wallis, Christopher J.: *See—*
Collington, Eric W.; Finch, Harry; Newton, Roger F.; and Wallis, Christopher J., 4,265,891, Cl. 424-244.000.
Walton, Basil V. E.; and Wannamaker, William E. J. Powdered telephone cable filling compound. 4,265,672, Cl. 106-115.000.
Wang, Samuel S. M., to Dow Chemical Company, The. Glaucine lactate salts. 4,265,912, Cl. 424-260.000.
Wangu, Manoj K.: *See—*
Tunador, Malik; and Wangu, Manoj K., 4,265,608, Cl. 425-149.000.
Wank, Rudolf: *See—*
Sheehy, Michael J.; Sondel, Paul M.; Bach, Fritz H.; Bach, Marilyn L.; and Wank, Rudolf, 4,265,873, Cl. 424-1.000.
Wannamaker, William E. J.: *See—*
Walton, Basil V. E.; and Wannamaker, William E. J., 4,265,672, Cl. 106-115.000.
Ware, Rowland M., to Cambridge Analyzing Instruments Ltd. Direct synthesis of intermetallic compounds. 4,265,661, Cl. 75-135.000.
Warford, Milan L.: *See—*
Kumins, Charles A.; and Warford, Milan L., 4,265,967, Cl. 428-332.000.
Warner-Lambert Company: *See—*
Cartwright, Cyril A.; and Peleckis, Anthony J., Jr., 4,265,055, Cl. 51-80.00B.
Warnow, Detlef: *See—*
Schwanbom, Erik; and Warnow, Detlef, 4,265,237, Cl. 128-204.240.
Wasel-Nielen, Horst-Dieter: *See—*
Gohla, Werner; Hestermann, Klaus; Kandler, Joachim; Wasel-Nielen, Horst-Dieter; Sommer, Klaus; Rohlfs, Hans-Adolf; and Merkenich, Karl, 4,265,776, Cl. 252-98.000.

Watanabe, Ryozo: *See*—
Kagitani, Yoshio; Imagawa, Takashi; Inahara, Hirohisa; and Watanabe, Ryozo, 4,265,888, Cl. 424-233.000.
Watanabe, Takao: *See*—
Matsubara, Yoshitaka; Shimoie, Shizuo; Watanabe, Takao; and Tomiyama, Yoshio, 4,265,494, Cl. 305-12.000.
Watanabe, Tetsuro: *See*—
Takematsu, Tetsuo; Konnai, Makoto; Tachibana, Kunitaka; Tsuruoka, Takashi; Inouye, Shigeharu; and Watanabe, Tetsuro, 4,265,654, Cl. 71-86.000.
Watanabe, Yutaka, to Minolta Camera Kabushiki Kaisha. Manual and power motivated drive means. 4,265,142, Cl. 74-625.000.
Watase, Kenta: *See*—
Hirakura, Koji; Sawada, Yasuo; and Watase, Kenta, 4,266,141, Cl. 250-564.000.
Watelet, Robert P., to Rodney Hunt Company. Sluice gate assembly. 4,265,564, Cl. 405-105.000.
Waters Associates, Inc.: *See*—
Carson, William W.; and Rolfe, Norman F., 4,265,536, Cl. 356-130.000.
Watkins, Hugh: *See*—
Wiegers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,265,818, Cl. 260-345.200.
Watson, Thomas E.; and Smallwood, Paul R., Jr., to Westinghouse Electric Corp. Method and apparatus for surge detection and control in centrifugal gas compressors. 4,265,589, Cl. 415-47.000.
Watts, John, to Boeing Company, The. Hydraulic nose landing gear steering actuator for an airplane. 4,265,417, Cl. 244-50.000.
Wayne, Kurt, to Kurt Wayne, Inc. Device for carrying a removable pendant. 4,265,098, Cl. 63-2.000.
Weaver, Lelland A. C.: *See*—
Liu, Chi-sheng; Weaver, Lelland A. C.; and Williams, Roy K., 4,266,200, Cl. 331-94.50G.
Weaver, Max A.; Coates, Clarence A., Jr.; and Fleischer, Jean C., to Eastman Kodak Company. Azo dyes derived from 3-amino-2,1-benzisothiazoles and aromatic amine couplers containing sulfo groups, or salts thereof. 4,265,812, Cl. 260-158.000.
Webb, Raymond C.: *See*—
Weber, Daniel R.; and Webb, Raymond C., 4,266,124, Cl. 250-221.000.
Webb, William M., to General Electric Company. Ice making apparatus and method. 4,265,089, Cl. 62-72.000.
Weber, Daniel R.; and Webb, Raymond C., to Data Instruments, Inc. Photoelectric object detector system. 4,266,124, Cl. 250-221.000.
Weber Tackle Company: *See*—
Wolf, Rodney A., 4,265,212, Cl. 124-20.00A.
Webster, Noel E.; and McLaughlin, Gary D. Garment hanger lock. 4,265,380, Cl. 223-85.000.
Wedege, Erling. Centrifuge for separating gas mixtures. 4,265,648, Cl. 55-409.000.
Wegleitner, Karlheinz: *See*—
Saischek, Gerald; Wegleitner, Karlheinz; Heu, Ferdinand; and Wohlmuth, Roman, 4,265,664, Cl. 106-18.130.
Wehlmnn, Kurt A.: *See*—
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Wehr Corporation: *See*—
Dorsey, Robert J., 4,265,610, Cl. 425-411.000.
Wehrli, Rudolf: *See*—
Gsell, Laurenz; Ackermann, Peter; and Wehrli, Rudolf, 4,265,897, Cl. 424-269.000.
Weidner, John P.: *See*—
Jackson, Liam R.; Weidner, John P.; Small, William J.; and Martin, James A., 4,265,416, Cl. 244-2.000.
Weiffen, Karl-Heinz, to Klockner-Humboldt-Deutz AG. Discharge-controlled method for a compressed air-controlled wet settling machine. 4,265,744, Cl. 209-457.000.
Weigl, Walter; Bergman, Ulf; and Baum, Lennart, to Siemens Corporation. Multiple focus X-ray generator. 4,266,133, Cl. 250-402.000.
Weikert, Roy J. Package for maintaining asepsis of a sterile web of bags and method of using. 4,265,279, Cl. 141-10.000.
Weinstein, Barry; and Steyer, William, to General Electric Company. Foreign particle separator system. 4,265,646, Cl. 55-306.000.
Weinstock, Joseph: *See*—
Brush, Charles K.; and Weinstock, Joseph, 4,265,889, Cl. 424-244.000.
Weis, Siegfried K.: *See*—
Van Der Meulen, Douglas J.; and Weis, Siegfried K., 4,265,133, Cl. 74-194.000.
Wellington, Charles K.; Dakss, Mark L.; and Benasutti, John E., to GTE Laboratories Incorporated; and Sylvania Inc. Guide capsule for optical fiber connectors. 4,265,514, Cl. 350-96.210.
Wendel, Kurt: *See*—
Mueller-Mall, Rudolf; Wendel, Kurt; Geelhaar, Hans J.; and Melan, Michael, 4,265,796, Cl. 260-29.60R.
Wendling, Francoise: *See*—
Bisagni, Emile; Ducrocq, Claire; Rivalle, Christian; Tambourin, Pierre; Wendling, Francoise; Chermann, Jean-Claude; and Montagnier, Luc, 4,266,060, Cl. 546-64.000.
Wentgate Engineers (1976) Limited: *See*—
Trillwood, Richard E., 4,266,111, Cl. 219-121.0EN.
Werber, Fred W. K. R. Garment designing aid. 4,265,020, Cl. 33-14.000.
Werkzeugmaschinenfabrik Oerlikon-Buhrle AG: *See*—
Kotthuas, Erich, 4,265,053, Cl. 51-3.000.
Werner, Friedrich; and Blank, Heinz U., to Bayer Aktiengesellschaft. Process for the preparation of hydroxy-diphenylamines. 4,265,833, Cl. 564-435.000.
Wertheimer, Alan L., to Leeds & Northrup Company. Optical sample cell for analysis of particles in liquid suspension. 4,265,538, Cl. 356-246.000.
Wescom Switching, Inc.: *See*—
Regan, John F.; Pitroda, Satyan G.; and Min, Byung C., 4,266,292, Cl. 370-13.000.
Wessel, Wolf; and Engel, Gerhard, to Robert Bosch GmbH. Method and apparatus for controlling the onset of fuel injection in diesel engines. 4,265,200, Cl. 123-501.000.
Wesseldyk, Albert J.: *See*—
Burns, Richard D.; and Wesseldyk, Albert J., 4,265,413, Cl. 242-75.300.
Western Electric Company, Inc.: *See*—
Chisholm, William M., 4,265,508, Cl. 339-221.00R.
Fanning, William J., 4,265,410, Cl. 242-56.100.
Westinghouse Electric Corp.: *See*—
Blaugher, Richard D.; and Hopkins, Richard H., 4,265,683, Cl. 148-120.000.
Doss, Glenn D.; and Nylund, Theodore W., 4,265,010, Cl. 29-402.010.
Finlayson, James W.; and Johnson, Harold P., 4,265,025, Cl. 33-178.00F.
Goldie, Harry, 4,266,202, Cl. 333-13.000.
Graff, Eugene A., 4,265,950, Cl. 428-35.000.
Krause, Robert F.; Pavlik, Norman M.; and Grunert, Kurt A., 4,265,681, Cl. 148-111.000.
Mandelcorn, Lyon; Dakin, Thomas W.; and Mercier, George E., 4,266,264, Cl. 361-318.000.
Mrenna, Stephen A.; and Ellsworth, James P., 4,266,210, Cl. 335-201.000.
Nagel, George W., 4,265,394, Cl. 236-1.00G.
Shutterly, Harold B., 4,266,243, Cl. 358-121.000.
Watson, Thomas E.; and Smallwood, Paul R., Jr., 4,265,589, Cl. 415-47.000.
Weyer, Hans-Jurgen: *See*—
Ribka, Joachim; Tappe, Horst; Roth, Kurt; and Weyer, Hans-Jurgen, 4,265,629, Cl. 8-449.000.
Wheeler, John H., to Texacone Company, The. Seal for elevator drive mechanism. 4,265,458, Cl. 277-205.000.
Whinnery, Lewis A., to Kendon Concepts. Solar energy collector assembly and method and apparatus for controlling the flow of a transfer medium. 4,265,221, Cl. 126-422.000.
Whirlpool Corporation: *See*—
Kretchman, Gerald L.; Mulder, James R.; and Pielemeier, John W., 4,265,100, Cl. 68-12.00R.
Miller, Frank E.; and Anderson, James J., 4,266,174, Cl. 318-753.000.
White, Thomas E., to GTE Automatic Electric Laboratories Inc. Key telephone exclusion circuit. 4,266,103, Cl. 179-99.00E.
White, Weimar W.; and Kimble, Laurie A., to Eastman Kodak Company. Process for purifying rare-earth compositions using fractional sulfate precipitation. 4,265,862, Cl. 423-21.100.
Whitehead & Kales Company: *See*—
Peisner, Israel D.; and Stol, George H., 4,265,183, Cl. 105-410.000.
Whittaker Corporation: *See*—
Mansukhani, Ishwar R., 4,266,229, Cl. 346-1.100.
Whitwam, Ronald L.: *See*—
Raftery, William B.; Whitwam, Ronald L.; and Wisniewski, Joseph M., 4,265,483, Cl. 297-440.000.
Wichers, Rolf H. L.: *See*—
Nylen, Ulf T. G.; Olsson, Lars-Goran; Paulsson, Bengt G.; Qvarnstrom, Lars A. G.; and Wichers, Rolf H. L., 4,266,021, Cl. 435-14.000.
Wick, Alexander E.: *See*—
Daum, Adam; Fernex, Michel; and Wick, Alexander E., 4,265,893, Cl. 424-246.000.
Wickson, Arthur K., to Garrett Corporation, The. Fast closing switch system. 4,266,148, Cl. 307-252.00J.
Wideman, James D.: *See*—
Campbell, Michael F.; Fiala, Richard J.; Wideman, James D.; and Rasche, John F., 4,265,925, Cl. 426-641.000.
Wiegers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. Indane alkanols and tricyclic isochromans and organoleptic uses thereof. 4,265,818, Cl. 260-345.200.
Wiegers, Wilhelmus J.; and Hall, John B., to International Flavors & Fragrances Inc. Process for producing cis-pent-2-enyl-1-chloride. 4,265,836, Cl. 570-230.000.
Wielezynski, Lech G. Method for regeneration of used lubricant oils. 4,265,734, Cl. 208-180.000.
Wilczek, Stephen P.: *See*—
Daughton, John W.; Wilczek, Stephen P.; and Steiner, Edward L., 4,266,294, Cl. 371-24.000.
Wild Heerbrugg Aktiengesellschaft: *See*—
Buchmayer, Ludwig, 4,265,421, Cl. 248-188.000.
Wilder, William B., Jr.: *See*—
Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., 4,266,270, Cl. 364-200.000.
Wiles, Michael F.: *See*—
Daniels, R. Gary; Musa, Fuad H.; Wilder, William B., Jr.; Wiles, Michael F.; and Bennett, Thomas H., 4,266,270, Cl. 364-200.000.
Wiley, Jack P. Artificial larynx. 4,264,989, Cl. 3-1.300.
Willi, Hans-Anton. Support device for skiers. 4,265,462, Cl. 280-11.360.

Williams, Clarence E. Door having improved closing and latching systems. 4,265,051, Cl. 49-7.000.
Williams, Roy K.: *See*—
Liu, Chi-sheng; Weaver, Lelland A. C.; and Williams, Roy K., 4,266,200, Cl. 331-94.50G.
Willinger, Allan H., to Willinger Bros., Inc. External biological aquarium filter. 4,265,751, Cl. 210-169.000.
Willinger Bros., Inc.: *See*—
Willinger, Allan H., 4,265,751, Cl. 210-169.000.
Willy Rusch GmbH & Co. KG: *See*—
Rusch, Heinz, 4,265,848, Cl. 264-130.000.
Wilschinsky, Horst: *See*—
Reinehr, Ulrich; von Falkai, Bela; and Wilschinsky, Horst, 4,265,971, Cl. 428-376.000.
Wilson, Donald H., to Ford Motor Company. Carburetor fast idle cam mechanism. 4,265,838, Cl. 261-52.000.
Wiltzius, Raymond D., to Aluminum Company of America. Method and apparatus for protecting electrodes from thermal shock during start up. 4,265,717, Cl. 204-67.000.
Windsor, David L.: *See*—
Denton, Medona B.; Windsor, David L.; and Heine, David R., 4,266,113, Cl. 219-121.0PQ.
Wininger, John M.: *See*—
Zannucci, Joseph S.; and Wininger, John M., 4,265,804, Cl. 260-45.8NT.
Winstel, Guenter, to Siemens Aktiengesellschaft. Storage material for hydrogen. 4,265,720, Cl. 204-129.000.
Winston, Anthony E.; Cala, Francis R.; Lengyel, Stephen P.; Kirschner, Lawrence; and Bracilovic, Dragomir, to Church & Dwight Co., Inc. Method of preparing a dry blended laundry detergent containing coarse granular silicate particles. 4,265,790, Cl. 252-532.000.
Winterstein, James F.: *See*—
Sportelli, Louis; and Winterstein, James F., 4,266,139, Cl. 250-515.000.
Wisconsin Alumni Research Foundation: *See*—
DeLuca, Hector F.; Schnoes, Heinrich K.; Hamer, David E.; and Paaren, Herbert E., 4,265,822, Cl. 260-397.200.
Sheehy, Michael J.; Sondel, Paul M.; Bach, Fritz H.; Bach, Marilyn L.; and Wank, Rudolf, 4,265,873, Cl. 424-1.000.
Wisniewski, Joseph M.: *See*—
Raftery, William B.; Whitwam, Ronald L.; and Wisniewski, Joseph M., 4,265,483, Cl. 297-440.000.
Wissner, Allan: *See*—
Grudzinskas, Charles V.; Wissner, Allan; and Chen, Sow-Mei L., 4,265,904, Cl. 424-285.000.
Wittkopp, Helmut; and Kunze, Bernhard, to W. Hegenscheidt Gesellschaft mbH, Firma. Method and apparatus for truing railroad wheels. 4,265,149, Cl. 82-8.000.
Wohleb, Robert H.: *See*—
Jennings, Walter G.; Wohleb, Robert H.; and Wohlers, Norman W., 4,265,860, Cl. 422-280.000.
Wohlers, Norman W.: *See*—
Jennings, Walter G.; Wohleb, Robert H.; and Wohlers, Norman W., 4,265,860, Cl. 422-280.000.
Wohlmuth, Roman: *See*—
Saischek, Gerald; Wegleitner, Karlheinz; Heu, Ferdinand; and Wohlmuth, Roman, 4,265,664, Cl. 106-18.130.
Wolf, Otto: *See*—
Stiltz, Erwin; Lindenmayer, Heinz; Geis, Wilhelm; and Wolf, Otto, 4,265,435, Cl. 269-139.000.
Wolf, Richard: *See*—
Dreher, Ernst; Stroezel, Reinhold; Spittler, Siegfried; and Wolf, Richard, 4,265,604, Cl. 418-43.000.
Wolf, Rodney A., to Weber Tackle Company. Hand catapult. 4,265,212, Cl. 124-20.00A.
Wong, Patrick S.: *See*—
Bonsen, Pieter; Wong, Patrick S.; and Theeuwes, Felix, 4,265,874, Cl. 424-15.000.
Woodhams, Edward J. Ventilation baffle. 4,265,060, Cl. 52-92.000.
Worrell, Robert V.: *See*—
Morris, John F.; and Worrell, Robert V., 4,265,324, Cl. 175-329.000.
Wortmann, Joachim; Rieb, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, to Hoechst Aktiengesellschaft. Process inhibiting the coalescence of flowable phosphorus pentachloride in closed containers. 4,265,854, Cl. 422-40.000.
Wraga, Joseph B.: *See*—
Gross, William S.; Gibbons, Edward J.; and Wraga, Joseph B., 4,265,781, Cl. 252-174.000.
Wright, Bruce M.: *See*—
Chiu, Tony T.; Wright, Bruce M.; Strasser, Jurgen H.; and Harper, Bruce M., 4,265,168, Cl. 99-448.000.
Wright, Joseph H.: *See*—
Stella, Joseph A.; and Wright, Joseph H., 4,265,525, Cl. 354-76.000.
Wu, Yulin, to Phillips Petroleum Company. Esterification process. 4,266,046, Cl. 528-309.000.
Wurscher, Horst: *See*—
Adamek, Manfred; and Wurscher, Horst, 4,265,551, Cl. 400-221.100.
Wyle Laboratories: *See*—
Cappel, Klaus L., 4,265,123, Cl. 73-663.000.
Wylot, James M.: *See*—
Blair, Gerald E.; Merry, J. Bradford; and Wylot, James M., 4,265,517, Cl. 350-358.000.
Wyoming Mineral Corporation: *See*—
Cleary, James G.; and Zymboly, Gregory E., 4,265,861, Cl. 423-10.000.
Xerox Corporation: *See*—
Daughton, John W.; Wilczek, Stephen P.; and Steiner, Edward L., 4,266,294, Cl. 371-24.000.
Mammino, Joseph, 4,265,995, Cl. 430-107.000.
Stolka, Milan; Pai, Damodar M.; and Yanus, John F., 4,265,990, Cl. 430-59.000.
Yabe, Masao; Tatsuta, Sumitaka; Ochiai, Takeji; Suzuki, Tamotsu; and Sekiya, Masayoshi, to Fuji Photo Film Co., Ltd.; and Nippon Zeon Co., Ltd. Process for forming a subbing layer on a plastic support. 4,265,946, Cl. 427-393.500.
Yabushita, Yasunori: *See*—
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, 4,265,233, Cl. 128-156.000.
Yamada, Katsuhito: *See*—
Katagiri, Haruo; Fujikake, Kenji; and Yamada, Katsuhito, 4,265,596, Cl. 416-236.00A.
Yamada, Takashi: *See*—
Ebihara, Heihachiro; Sekiya, Fukuo; and Yamada, Takashi, 4,266,278, Cl. 364-705.000.
Yamaguchi, Akia: *See*—
Soelberg, Kenneth B.; Stark, Marvin M.; Thompson, Tommy H.; and Yamaguchi, Akia, 4,265,623, Cl. 433-139.000.
Yamaha Hatsukoki Kabushiki Kaisha: *See*—
Hayashida, Takanori, 4,265,207, Cl. 123-432.000.
Matsumoto, Hiromitsu, 4,265,202, Cl. 123-308.000.
Yamamoto, Osamu, to Kabushikikaisha. Electric can-opener with knife sharpener. 4,265,056, Cl. 51-128.000.
Yamamoto, Takaharu: *See*—
Miyake, Masaya; Nakano, Minol; Yamamoto, Takaharu; and Hara, Akio, 4,265,662, Cl. 75-238.000.
Yamashina, Ikuo; Kawasaki, Toshisuke; and Tsukuda, Michiko, to Tobishi Pharmaceutical Co., Ltd. Plasminogen-activating substance and the preparation and use of such substance. 4,265,881, Cl. 424-106.000.
Yamauchi, Makoto: *See*—
Kaneko, Yoshio; Yamauchi, Makoto; Shiozawa, Shinji; Hayakawa, Yoshihiro; and Banba, Fumio, 4,265,288, Cl. 152-209.00R.
Yamazaki, Etuo, to Fujitsu Fanuc Limited. Tracer control system. 4,266,172, Cl. 318-578.000.
Yamazaki, Kengo: *See*—
Nishimoto, Yoshiharu; and Yamazaki, Kengo, 4,265,693, Cl. 156-218.000.
Yang, Yue-Chyou: *See*—
Lin, Tung-Yen; Yang, Yue-Chyou; and Chow, Philip Y., 4,265,066, Cl. 52-224.000.
Yanus, John F.: *See*—
Stolka, Milan; Pai, Damodar M.; and Yanus, John F., 4,265,990, Cl. 430-59.000.
Yao, Neng-Ping: *See*—
Loutfy, Raouf O.; Keller, Rudolf; and Yao, Neng-Ping, 4,265,716, Cl. 204-67.000.
Yarovoi, Igor V.: *See*—
Dolberg, Vladimir I.; Yarovoi, Igor V.; and Dronin, Mikhail I., 4,265,269, Cl. 137-118.000.
Yarway Corporation: *See*—
Hetz, Heinz K., 4,265,268, Cl. 137-117.000.
Yarwood, John C.: *See*—
Gaule, Gerhart K.; Yarwood, John C.; Tyler, Derek E.; and Yun, Ik Y., 4,265,294, Cl. 164-49.000.
Yasuda, Nobu; Masuda, Masafumi; and Morita, Tomoichi, to Mitsubishi Paper Mills, Ltd. Method for manufacturing cast-coated paper. 4,265,969, Cl. 428-342.000.
Yates, Derek N.; and Presta, John C., to Celanese Corporation. Fiber reinforced composite shaft with metallic connector sleeves mounted by longitudinal groove interlock. 4,265,951, Cl. 428-36.000.
Yazawa, Yoshiyuki: *See*—
Iida, Masaaki; Kato, Chihiro; Ohshima, Shigemitsu; and Yazawa, Yoshiyuki, 4,265,826, Cl. 260-428.000.
Yokomichi, Isao: *See*—
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Tsujii, Yasuhiro; and Nishimura, Shigeyuki, 4,266,064, Cl. 546-345.000.
Yokomizo, Yuji; and Minami, Kiyoshi, to Marcon Electronics Co. Ltd. Method of manufacturing a voltage-nonlinear resistor. 4,265,844, Cl. 264-61.000.
Yokota, Hideo, to Canon Kabushiki Kaisha. Camera viewfinder. 4,265,529, Cl. 354-224.000.
Yokura, Miyoshi: *See*—
Hatada, Kenji; Kobayashi, H.; and Yokura, Miyoshi, 4,265,276, Cl. 138-177.000.
Yoshida Kogyo K.K.: *See*—
Akashi, Shunji, 4,265,004, Cl. 24-205.11R.
Matsuda, Yoshio, 4,265,003, Cl. 24-205.10C.
Yoshieda, Keiichi; and Kuse, Kazuki, 4,265,014, Cl. 29-766.000.
Yoshida, Nobutoshi: *See*—
Ohara, Katsunobu; and Yoshida, Nobutoshi, 4,265,531, Cl. 355-3.0SC.
Yoshida, Tadao, to Sony Corporation. Pulse signal amplifier. 4,266,149, Cl. 307-255.000.
Yoshieda, Keiichi; and Kuse, Kazuki, to Yoshida Kogyo K.K. Apparatus for press-bonding a reinforced tape to a slide fastener with a separable end stop. 4,265,014, Cl. 29-766.000.

Yoshikawa, Syuich: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,188, Cl. 112-158.00B.
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,265,189, Cl. 112-158.00E.
Yoshioka, Takao: *See*—
Soma, Nobuo; Morimura, Syoji; Yoshioka, Takao; and Kurumada, Tomoyuki, 4,265,803, Cl. 260-45.8NZ.
Young, Eric A.: *See*—
Bucy, Raymond W., Jr.; Gallardo, Vicente C., Jr.; Hollett, Ronald C.; and Young, Eric A., 4,265,595, Cl. 416-220.00R.
Young, Rodney C.: *See*—
Durant, Graham J.; Young, Rodney C.; and Tashma, Zev, 4,265,896, Cl. 424-263.000.
Younge, Earl G. Method of and apparatus for extraction of gold from placer gravel. 4,265,743, Cl. 209-452.000.
Yun, Ik Y.: *See*—
Gaule, Gerhart K.; Yarwood, John C.; Tyler, Derek E.; and Yun, Ik Y., 4,265,294, Cl. 164-49.000.
Zahid, Abduz, to Greer Hydraulics, Incorporated. Pulsation dampener for low output systems. 4,265,274, Cl. 138-30.000.
Zahka, Joseph: *See*—
Mir, Leon; and Zahka, Joseph, 4,265,642, Cl. 55-85.000.
Zaidan Hojin Handotai Kenkyu Shinkokai: *See*—
Nishizawa, Jun-ichi, 4,266,238, Cl. 357-48.000.
Zannucci, Joseph S.; and Wininger, John M., to Eastman Kodak Company. Oriented polyester articles having improved ultraviolet stability (III). 4,265,804, Cl. 260-45.8NT.
Zeisser, Melvin H.: *See*—
Fox, Theodore G.; and Zeisser, Melvin H., 4,265,085, Cl. 60-39.060.
Zens, John F.: *See*—
Suszko, Donald H.; and Zens, John F., 4,265,468, Cl. 280-729.000.
Zenyu Kinzoku Co., Ltd.: *See*—
Baba, Isamu, 4,265,364, Cl. 215-249.000.
Zimmerman, George M., to Bon Aqua, Inc. Magnetic fluid treating unit. 4,265,755, Cl. 210-222.000.
Zimmerman, George M., Sr.; and Menold, Herman E., to Bon Aqua, Inc. Water treating apparatus and methods. 4,265,746, Cl. 210-695.000.
ZODIAC: *See*—
Eymard, Michel, 4,265,418, Cl. 244-125.000.
Zoecon Corporation: *See*—
Henrick, Clive A.; Labovitz, Jeffrey N.; Fox, Roland T. V.; Rathmell, William G.; and Shephard, Margaret C., 4,266,056, Cl. 544-311.000.
Zoll, Paul M. Mechanical pacemaker. 4,265,228, Cl. 128-55.000.
Zornes, Larry; Farley, Lloyd J.; and Powlenko, Edward J., to Mead Corporation, The. Nestable box and box blank. 4,265,391, Cl. 229-34.00R.
Zubkov, Vitaly S.: *See*—
Boxerman, Arkady A.; Kuvshinov, Nikolai S.; Rakovsky, Naftula L.; Tabakov, Vladimir P.; Churilov, Lev D.; Sheremeta, Ostap O.; Pilatovsky, Viktor P.; Gurov, Evgeny I.; Voronin, Pavel G.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Zubkov, Vitaly S.; Tutarinov, Valery M.; Mishakov, Vladimir N.; Miller, Grigory G.; Ruzin, Leonid M.; and Judin, Vladimir N., 4,265,485, Cl. 299-2.000.
Zymboly, Gregory E.: *See*—
Cleary, James G.; and Zymboly, Gregory E., 4,265,861, Cl. 423-10.000.
2500 Corporation, The: *See*—
Spica, Joseph P., 4,265,560, Cl. 401-183.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF MAY, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Cremer, George D.: *See*—
Long, John V.; and Cremer, George D., Re. 30,600, Cl. 277-96.100.
Gist-Brocades N.V.: *See*—
TeNijenhuis, Bauke, Re. 30,602, Cl. 252-99.000.
Grindheim, Earl A., to Rosemount Inc. Two wire current transmitter responsive to a resistive temperature sensor input signal. Re. 30,597, Cl. 73-362.0AR.
Grindheim, Earl A., to Rosemount Inc. Two wire current transmitter responsive to a resistance sensor input signal. Re. 30,603, Cl. 324-57.00R.
Honda Giken Kogyo Kabushiki Kaisha: *See*—
Yagi, Toru; and Nakamura, Akihisa, Re. 30,599, Cl. 123-408.000.
Honeywell Information Systems Inc.: *See*—
Kowalski, John L., Re. 30,604, Cl. 357-70.000.
Horr, Andrew F.; and White, William F., to International Business Machines Corporation. Alignment apparatus. Re. 30,601, Cl. 355-76.000.
International Business Machines Corporation: *See*—
Horr, Andrew F.; and White, William F., Re. 30,601, Cl. 355-76.000.
International Harvester Company: *See*—
Long, John V.; and Cremer, George D., Re. 30,600, Cl. 277-96.100.
Kowalski, John L., to Honeywell Information Systems Inc. Reusable fixture for an integrated circuit chip. Re. 30,604, Cl. 357-70.000.
Long, John V.; and Cremer, George D., to International Harvester Company. Compliant structural members. Re. 30,600, Cl. 277-96.100.
Nakamura, Akihisa: *See*—
Yagi, Toru; and Nakamura, Akihisa, Re. 30,599, Cl. 123-408.000.
Paper Converting Machine Company: *See*—
Spencer, Harvey J., Re. 30,598, Cl. 83-14.000.
Rosemount Inc.: *See*—
Grindheim, Earl A., Re. 30,597, Cl. 73-362.0AR.
Grindheim, Earl A., Re. 30,603, Cl. 324-57.00R.
Spencer, Harvey J., to Paper Converting Machine Company. Method for transverse cutting. Re. 30,598, Cl. 83-14.000.
TeNijenhuis, Bauke, to Gist-Brocades N.V. Alkaline protease produced by a bacillus. Re. 30,602, Cl. 252-99.000.
White, William F.: *See*—
Horr, Andrew F.; and White, William F., Re. 30,601, Cl. 355-76.000.
Yagi, Toru; and Nakamura, Akihisa, to Honda Giken Kogyo Kabushiki Kaisha. Ignition timing control for engine. Re. 30,599, Cl. 123-408.000.

LIST OF DESIGN PATENTEES

Ahn, Chong T. Music box. 259,120, 5-5-81, Cl. D17-24.000.
Airway Industries, Inc.: *See*—
Solomon, Daniel, 259,075, Cl. D3-71.000.
AJP International Inc.: *See*—
Pappas, Anthony J., 259,116, Cl. D15-5.000.
Aktinson, Nigel G., to British Industrial Plastics Limited. Roofing panel. 259,143, 5-5-81, Cl. D25-74.000.
Allibert Exploitation Societe Anonyme: *See*—
Deconinck, Didier, 259,078, Cl. D6-73.000.
American Cyanamid Company: *See*—
Grodin, Adam J., 259,101, Cl. D9-414.000.
Grodin, Adam J., 259,102, Cl. D9-414.000.
Avanti Research & Development, Inc.: *See*—
Steinhofer, Robert J.; and Elste, Edward E., 259,115, Cl. D14-86.000.
Bardeau, William M. Beverage dispensing machine. 259,118, 5-5-81, Cl. D15-112.000.
Bellini, Mario, to Ing. C. Olivetti & C., S.p.A. Text editing machine. 259,121, 5-5-81, Cl. D18-13.000.
Benedict, Stuart E., to Union Carbide Corporation. Bottle. 259,095, 5-5-81, Cl. D9-409.000.
Berkley & Company, Inc.: *See*—
McMickle, Robert L., 259,136, Cl. D22-25.000.
Bernhardt, Floyd V. Golf putter head. 259,134, 5-5-81, Cl. D21-217.000.
British Industrial Plastics Limited: *See*—
Aktinson, Nigel G., 259,143, Cl. D25-74.000.
Broyhill Furniture Industries, Inc.: *See*—
Smith, Melbourne F., Jr., 259,079, Cl. D6-74.000.
Calvert, Rodney K., to Mead Corporation, The. Article carrier blank. 259,104, 5-5-81, Cl. D9-433.000.
Candiliotis, Gerassimos C., to Uniroyal, Inc. Pneumatic tire tread and buttress. 259,112, 5-5-81, Cl. D12-146.000.
Carlin, Milton O. Small animal cage base. 259,144, 5-5-81, Cl. D30-2.000.
Cartier International B.V.: *See*—
Hocq, Robert, 259,105, Cl. D10-23.000.
Champion International Corporation: *See*—
Scott, Raymond G.; and Wysocki, Lawrence S., 259,103, Cl. D9-438.000.
Citizen Watch Co., Ltd.: *See*—
Fukumura, Yutaka, 259,107, Cl. D10-38.000.
Cochrane, Pat; and Montenegro, Antonio. Rectangular picture frame. 259,085, 5-5-81, Cl. D6-242.000.
Cochrane, Pat; and Montenegro, Antonio. Picture frame. 259,086, 5-5-81, Cl. D6-244.000.
Cole & Mason, U.S.A., Ltd.: *See*—
Cowan, David A., 259,089, Cl. D7-53.000.
Cowan, David A., 259,090, Cl. D7-53.000.
Compur-Electronic Gesellschaft mit beschrankter Haftung: *See*—
Pross, Wilhelm; Muhlbock, Franz; and Wienchol, Otto, 259,140, Cl. D24-22.000.
Conti, Rino, to Dart Industries Inc. Shelf bracket or the like. 259,080, 5-5-81, Cl. D6-114.000.
Corelli, Ronald J., to Corham Artificial Flower Co. Display stand for artificial flowers or the like. 259,082, 5-5-81, Cl. D6-149.000.
Corham Artificial Flower Co.: *See*—
Corelli, Ronald J., 259,082, Cl. D6-149.000.
Cowan, David A., to Cole & Mason, U.S.A., Ltd. Pepper mill. 259,089, 5-5-81, Cl. D7-53.000.
Cowan, David A., to Cole & Mason, U.S.A., Ltd. Combined salt and pepper mill. 259,090, 5-5-81, Cl. D7-53.000.
Cyrell, Alexander. Speaker mounting bracket. 259,114, 5-5-81, Cl. D14-37.000.
Daenen, Robert H. C. M., to Dart Industries Inc. Luggage marker or the like. 259,128, 5-5-81, Cl. D20-27.000.
Dart Industries Inc.: *See*—
Conti, Rino, 259,080, Cl. D6-114.000.
Daenen, Robert H. C. M., 259,128, Cl. D20-27.000.
David Hersh & Associates: *See*—
Markowitz, Marvin A., 259,100, Cl. D9-415.000.
Davis, Frank E. Bottle carrier. 259,099, 5-5-81, Cl. D99-48.000.
Day, J. Donald. Combined pocket watch and calculator. 259,106, 5-5-81, Cl. D10-31.000.
Deconinck, Didier, to Allibert Exploitation Societe Anonyme. Lawn chair. 259,078, 5-5-81, Cl. D6-73.000.
Devin, Jules D.: *See*—
Sharpless, Claude J., Jr.; and Devin, Jules D., 259,081, Cl. D6-148.000.
Dillard, Dana C. Skate wheel. 259,135, 5-5-81, Cl. D21-227.000.

Dittmeyer, Rolf. Beverage container. 259,096, 5-5-81, Cl. D9-318.000.
Doyel, John S. Battery-operated brush and scrubber. 259,076, 5-5-81, Cl. D4-14.000.
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CLASSIFICATION OF PATENTS

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NOTE.—First number, class; second number, subclass; third number, patent number

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8 R 4,265,326
53 D 4,265,327
89.13 4,265,328
219 4,265,329
230 4,265,330

CLASS 181

119 4,265,331
211 4,265,332

CLASS 182

92 4,265,333

CLASS 184

6.11 4,265,334

CLASS 186

63 4,265,335
66 4,265,336

CLASS 187

9 E 4,265,337

CLASS 188

4 R 4,265,338
72.5 4,265,339
73.3 4,265,340
4,265,341
73.6 4,265,342
181 T 4,265,343
322 4,265,344

CLASS 192

0.034 4,265,346
3 R 4,265,345
56 R 4,265,347
58 B 4,265,348
95 4,265,349
4,265,350

CLASS 194

1 M 4,265,351
4 D 4,265,352

CLASS 198

321 4,265,353
374 4,265,354
427 4,265,355
444 4,265,356
460 4,265,357
499 4,265,358
731 4,265,359
774 4,265,360

CLASS 200

18 4,266,104
50 A 4,266,105
61.44 4,266,106
61.53 4,266,107

CLASS 201

4 4,265,709
27 4,265,710
29 4,265,711

CLASS 202

166 4,265,712

CLASS 203

10 4,265,713

CLASS 204

1 T 4,265,714
46 R 4,265,715
67 4,265,716
4,265,717
96 4,265,718
98 4,265,719
129 4,265,720
4,265,721
129.6 4,265,722
159.23 4,265,723
195 S 4,265,724
196 4,265,725
202 4,265,726
242 4,265,727
290 F 4,265,728
298 4,265,729
4,265,730

CLASS 208

80 4,265,731
106 4,265,732
179 4,265,733
180 4,265,734
234 4,265,735
353 4,265,736

CLASS 209

3 4,265,737
31 4,265,738
169 4,265,739
211 4,265,740
4,265,741
399 4,265,742
452 4,265,743
457 4,265,744
617 4,265,361

CLASS 210

132 4,265,748
138 4,265,749
159 4,265,750
169 4,265,751
172 4,265,752
199 4,265,753
222 4,265,754
4,265,755
236 4,265,756
242.3 4,265,757
4,265,758
261 4,265,759
282 4,265,760
315 4,265,761
321.1 4,265,762
323.2 4,265,763
390 4,265,764
401 4,265,765
455 4,265,766
654 4,265,745
662 4,265,767
682 4,265,768
695 4,265,746
699 4,265,769
715 4,265,770
758 4,265,747
769 4,265,771

CLASS 211

60 R 4,265,362

CLASS 215

229 4,265,363
249 4,265,364

CLASS 219

10.55 E 4,266,108
10.57 4,266,109
73.21 4,266,110
121 EN 4,266,111
121 LN 4,266,112
121 PQ 4,266,113
132 4,266,114
216 4,266,115
274 4,266,116
343 4,266,117
492 4,266,118
541 4,266,119

CLASS 220

3.3 4,265,365
269 4,265,367

CLASS 221

10 4,265,368
33 4,265,366
87 4,265,369

CLASS 222

25 4,265,370
70 4,265,371
82 4,265,372
94 4,265,373
95 4,265,374
189 4,265,375
4,265,376
486 4,265,377
539 4,265,378
600 4,265,379

CLASS 223

85 4,265,380

CLASS 224

148 4,265,381
320 4,265,382
326 4,265,383

CLASS 226

97 4,265,384
127 4,265,385
190 4,265,386

CLASS 227

7 4,265,387

CLASS 228

135 4,265,388
219 4,265,389

CLASS 229

30 4,265,390
34 R 4,265,391
37 R 4,265,392
40 4,265,393

CLASS 235

92 CT 4,266,120
381 4,266,121
454 4,266,122

CLASS 236

1 G 4,265,394
13 4,265,395
68 R 4,265,396

CLASS 237

2 B 4,265,397

CLASS 238

1 4,265,398
14 4,265,399
14.4 4,265,400
17 4,265,401

CLASS 239

20 4,265,402
66 4,265,403
186 4,265,404
440 4,265,405

CLASS 241

16 4,265,406
21 4,265,407
87 4,265,408

CLASS 242

56 A 4,265,409
56.1 4,265,410
58.6 4,265,411
71.4 4,265,412
75.3 4,265,413
86.2 4,265,414
107.4 A 4,265,415

CLASS 244

2 4,265,416
50 4,265,417
125 4,265,418

CLASS 246

247 4,265,419

CLASS 248

56 4,265,420
188 4,265,421
219.1 4,265,422
264 4,265,423

CLASS 250

205 4,266,123
221 4,266,124
231 SE 4,266,125
264 4,266,126
288 4,266,127
311 4,266,128
330 4,266,129
339 4,266,130
341 4,266,131
359 4,266,132
402 4,266,133
409 4,266,134
445 T 4,266,135
4,266,136
483 4,266,137
492 A 4,266,138
515 4,266,139
551 4,266,140
564 4,266,141
572 4,266,142

CLASS 251

1 A 4,265,424
9 4,265,425
306 4,265,426
315 4,265,427
346 4,265,428

CLASS 252

8.1 4,265,791
8.6 4,265,772
46.4 4,265,773
49.3 4,265,774
98 4,265,776
99 Re.30,602
113 4,265,777
117 4,265,778
135 4,265,779
156 4,265,780
174 4,265,781
174.19 4,265,782
182 4,265,783
299 4,265,784
429 B 4,265,785
439 4,265,786
455 Z 4,265,787
4,265,788
511 4,265,789
532 4,265,790
573 4,265,775

CLASS 254

100 4,265,429

CLASS 260

18 S 4,265,792
23 EP 4,265,793
28.5 R 4,265,794
29.3 4,265,795
29.6 E 4,265,797
29.6 R 4,265,796
32.4 4,265,798
33.4 R 4,265,799
37 SB 4,265,800
40 P 4,265,802
40 R 4,265,801
45.8 N 4,265,805
45.8 NT 4,265,804
4,265,806
45.8 NZ 4,265,803
97.5 4,265,807
112.5 R 4,265,808
124 R 4,265,809
141 4,265,810
147 4,265,811
158 4,265,812
170 4,265,813
239.3 P 4,265,814
239.55 C 4,265,816
239.55 R 4,265,815
343.3 R 4,265,817
345.2 4,265,818
346.22 4,265,819
4,265,820
348.16 4,265,821
397.2 4,265,822
397.25 4,265,824
397.4 4,265,823
401 4,265,825
428 4,265,826
440 4,265,827
449 L 4,265,828
510 4,265,829
4,265,830

CLASS 261

52 4,265,838
91 4,265,839
115 4,265,840

CLASS 264

22 4,265,841
23 4,265,842
57 4,265,843
61 4,265,844
63 4,265,845
109 4,265,846
122 4,265,847
130 4,265,848
168 4,265,849
225 4,265,850
321 4,265,851
512 4,265,852
519 4,265,853

CLASS 266

54 4,265,430
101 4,265,431
220 4,265,432
273 4,265,433

CLASS 269

27 4,265,434
139 4,265,435
274 4,265,436

CLASS 271

9 4,265,440
19 4,265,441
127 4,265,442
182 4,265,443
207 4,265,444
296 4,265,445
305 4,265,446

CLASS 272

73 4,265,447

CLASS 273

29 A 4,265,448
41 4,265,449
73 G 4,265,450
167 G 4,265,451
4,265,452
201 4,265,453
427 4,265,454

CLASS 277

53 4,265,455
95 4,265,456
96.1 Re.30,600
105 4,265,457
205 4,265,458
212 C 4,265,459

CLASS 279

97 4,265,460

CLASS 280

1.13 4,265,461
11.36 4,265,462
402 4,265,463
460 A 4,265,464
478 A 4,265,465
648 4,265,466
721 4,265,467
729 4,265,468
803 4,265,480

CLASS 283

8 B 4,265,469

CLASS 285

39 4,265,470
111 4,265,471
179 4,265,472
229 4,265,473

CLASS 290

53 4,266,143

CLASS 292

241 4,265,474

CLASS 294

54 4,265,475
64 R 4,265,476

CLASS 296

14 4,265,477
65 R 4,265,478
100 4,265,479

CLASS 297

30 4,265,481
391 4,265,482
440 4,265,483
452 4,265,484

CLASS 299

2 4,265,485
4,265,486
34 4,265,487
43 4,265,488

CLASS 303

3 4,265,489
6 C 4,265,490
4,265,491
14 4,265,492
24 C 4,265,493

CLASS 305

12 4,265,494

CLASS 307

116 4,266,144
200 A 4,266,145
221 D 4,266,146
252 J 4,266,148
255 4,266,149
268 4,266,150
297 4,266,151
492 4,266,147

CLASS 308

23 4,265,495
122 4,265,496
215 4,265,497
230 4,265,498

CLASS 310

59 4,266,152
111 4,266,153
219 4,266,154
239 4,266,155
344 4,266,156
353 4,266,157

CLASS 312

100 4,265,499
107 4,265,500
108 4,265,501
109 4,265,502

CLASS 313

325 4,266,158
422 4,266,159
486 4,266,160
487 4,266,161

CLASS 315

39 4,266,162
151 4,266,163
169.1 4,266,164
224 4,266,165
248 4,266,166
4,266,167

CLASS 318

331 4,266,168
490 4,266,169
565 4,266,170
571 4,266,171
578 4,266,172
585 4,266,173
753 4,266,174
758 4,266,175
801 4,266,176
810 4,266,177

CLASS 320

39 4,266,178

CLASS 322

2 R 4,266,179
4 4,266,180
28 4,266,181

CLASS 323

267 4,266,182

CLASS 324

52 4,266,183
54 4,266,184
57 R Re.30,603
64 4,266,185
65 CR 4,266,187
65 R 4,266,186
4,266,188
117 H 4,266,189
117 R 4,266,190
158 F 4,266,191
168 4,266,192
236 4,266,193
315 4,266,194
439 4,266,195
464 4,266,196

CLASS 328

55 4,266,197

CLASS 329

50 4,266,198

CLASS 330

274 4,266,199

CLASS 331

94.5 G 4,266,200

CLASS 332

9 R 4,266,201

CLASS 333

13 4,266,202
21 A 4,266,203
28 R 4,266,204
165 4,266,205
204 4,266,206

206 4,266,207
218 4,266,208

CLASS 335

6 4,266,209
201 4,266,210
208 4,266,211

CLASS 339

45 M 4,265,503
97 R 4,265,504
99 R 4,265,505
147 R 4,265,506
176 MF 4,265,507
221 R 4,265,508

CLASS 340

81 R 4,266,212
166 R 4,266,213
323 R 4,266,214
347 P 4,266,215
546 4,266,216
573 4,266,217
628 4,266,218
630 4,266,219
4,266,220
679 4,266,221
4,266,222
719 4,266,223
773 4,266,224
799 4,266,225

CLASS 343

100 LE 4,266,226
715 4,266,227
771 4,266,228

CLASS 346

1.1 4,266,229
22 4,266,230
75 4,266,231
140 R 4,266,232

CLASS 350

3.78 4,265,509
55 4,265,510
96.18 4,265,511
96.20 4,265,512
4,265,513
96.21 4,265,514
96.33 4,265,515
345 4,265,516
358 4,265,517

CLASS 351

7 4,265,518
16 4,265,519

CLASS 354

23 D 4,265,520
4,265,521
53 4,265,522
64 4,265,523
65 4,265,524
76 4,265,525
106 4,265,526
144 4,265,527
195 4,265,528
224 4,265,529
235 4,265,530

CLASS 355

3 SC 4,265,531
20 4,265,532
76 Re.30,601
110 4,265,533

CLASS 356

2 4,265,534
70 4,265,535
130 4,265,536
155 4,265,537
246 4,265,538
345 4,265,539
346 4,265,540
350 4,265,541
356 4,265,542
369 4,265,543
427 4,265,544
431 4,265,545

CLASS 357

22 4,266,233
24 4,266,234
30 4,266,235
34 4,266,236
41 4,266,237
48 4,266,238
70 Re.30,604
84 4,266,239

CLASS 358

3 4,266,240
4 4,266,241
22 4,266,242
121 4,266,243
142 4,266,244
153 4,266,245
216 4,266,246
217 4,266,247
223 4,266,248
260 4,266,249
285 4,266,250
286 4,266,251
293 4,266,252
903 4,266,253

CLASS 360

62 4,266,254
90 4,266,255
128 4,266,256

CLASS 361

27 4,266,257
58 4,266,258
97 4,266,259
120 4,266,260
154 4,266,261
228 4,266,262
283 4,266,263
318 4,266,264
321 4,266,265
357 4,266,266
386 4,266,267

CLASS 363

49 4,266,268
68 4,266,269

CLASS 364

200 4,266,270
4,266,271
4,266,272
426 4,266,273
431 4,266,274
4,266,275
475 4,266,276
498 4,266,277
705 4,266,278
726 4,266,279
900 4,266,280
4,266,281

CLASS 365

52 4,266,282
104 4,266,283
189 4,266,284
4,266,285
205 4,266,286

CLASS 366

7 4,265,546
79 4,265,547
208 4,265,548

CLASS 367

185 4,266,287

CLASS 368

28 4,266,288
35 4,266,289
76 4,266,290
168 4,266,291

CLASS 370

13 4,266,292
14 4,266,293

CLASS 371

24 4,266,294

CLASS 400

124 4,265,549
196.1 4,265,550
221.1 4,265,551
236 4,265,552
238 4,265,553
316 4,265,554
320 4,265,555
342 4,265,556
479 4,265,557
672.2 4,265,558

CLASS 401

48 4,265,559
183 4,265,560

CLASS 403

3 4,265,561
374 4,265,562

CLASS 404

75 4,265,563

CLASS 405

105 4,265,564
145 4,265,565
172 4,265,566
195 4,265,567
196 4,265,568
217 4,265,569
258 4,265,570
259 4,265,571

CLASS 406

114 4,265,572
152 4,265,573

CLASS 408

188 4,265,574

CLASS 409

8 4,265,575
129 4,265,576

CLASS 410

118 4,265,577

CLASS 411

442 4,265,160

CLASS 414

130 4,265,578
138 4,265,579
217 4,265,580
228 4,265,581
279 4,265,582
284 4,265,583
412 4,265,584
541 4,265,585
545 4,265,586
723 4,265,587
786 4,265,588

CLASS 415

47 4,265,589
110 4,265,590
148 4,265,591
157 4,265,592

CLASS 416

183 4,265,593
193 A 4,265,594
220 R 4,265,595
236 A 4,265,596

CLASS 417

32 4,265,597
40 4,265,598
54 4,265,599
379 4,265,600
4,265,601

CLASS 418

1 4,265,602
2 4,265,603
43 4,265,604
63 4,265,605
201 4,265,606

CLASS 422

40 4,265,854
65 4,265,855
68 4,265,856
101 4,265,857
129 4,265,858
199 4,265,859
280 4,265,860

CLASS 423

10 4,265,861
21.1 4,265,862
119 4,265,863
121 4,265,864
300 4,265,865
304 4,265,866
309 4,265,867
415 A 4,265,868
447.4 4,265,869
450 4,265,870
531 4,265,871
598 4,265,872

CLASS 424

1 4,265,873
15 4,265,874
19 4,265,875
28 4,265,876
48 4,265,877
68 4,265,878
78 4,265,879
93 4,265,880
106 4,265,881
114 4,265,882
154 4,265,883
177 4,265,884
180 4,265,885
182 4,265,886
201 4,265,887
233 4,265,888
244 4,265,889
4,265,890
4,265,891
246 4,265,892
4,265,893
250 4,265,894
256 4,265,895
260 4,265,912
263 4,265,896
269 4,265,897
270 4,265,898
4,265,899
273 B 4,265,901
273 R 4,265,900
4,265,902
282 4,265,903
285 4,265,904
304 4,265,905
4,265,906
4,265,907
315 4,265,908
324 4,265,909
325 4,265,910
326 4,265,911

CLASS 425

113 4,265,607
149 4,265,608
260 4,265,609
411 4,265,610

CLASS 426

2 4,265,913
13 4,265,914
28 4,265,915
74 4,265,916
104 4,265,917
264 4,265,918
283 4,265,919
384 4,265,920
444 4,265,921
520 4,265,922
538 4,265,923
582 4,265,924
641 4,265,925

CLASS 427

2 4,265,926
4,265,927
4,265,928
33 4,265,929
34 4,265,930
48 4,265,931
53.1 4,265,932
54.1 4,265,933
84 4,265,934
89 4,265,935
140 4,265,936
163 4,265,937
4,265,938
222 4,265,939
292 4,265,940
296 4,265,941
304 4,265,942
305 4,265,943
353 4,265,944
4,265,945
393.5 4,265,946

CLASS 428

35 4,265,947
4,265,948
4,265,949
4,265,950
36 4,265,951
4,265,952
78 4,265,953
85 4,265,954
116 4,265,955
134 4,265,956
143 4,265,957
166 4,265,958
171 4,265,979
216 4,265,959
220 4,265,960
253 4,265,961
287 4,265,962
288 4,265,963
306 4,265,964
315 4,265,965
324 4,265,966
332 4,265,967
336 4,265,968
342 4,265,969
364 4,265,970
376 4,265,971
392 4,265,972
424.8 4,265,973
432 4,265,974
480 4,265,975
486 4,265,976
511 4,265,977
537 4,265,978
591 4,265,981
608 4,265,982
683 4,265,983
697 4,265,980

CLASS 429

178 4,265,984
225 4,265,985

CLASS 430

18 4,265,986
49 4,265,987
56 4,265,988
57 4,265,989
59 4,265,990
64 4,265,991
107 4,265,992
4,265,993
4,265,994
4,265,995
119 4,265,996
122 4,265,997
125 4,265,998
189 4,265,999
192 4,266,000
4,266,001
4,266,002
218 4,266,003
264 4,266,004
269 4,266,005
271 4,266,006
300 4,266,007
306 4,266,008
318 4,266,009
346 4,266,010
355 4,266,011
392 4,266,012
396 4,266,013
410 4,266,014
522 4,266,015
527 4,266,016
533 4,266,017
550 4,266,018
551 4,266,019
4,266,020

CLASS 431

3 4,265,611
66 4,265,612
121 4,265,613
329 4,265,614
353 4,265,615

CLASS 432

8 4,265,616
58 4,265,617

CLASS 433

32 4,265,618
54 4,265,619
69 4,265,620
91 4,265,621
101 4,265,622
139 4,265,623

CLASS 434

88 4,265,624

CLASS 435

14 4,266,021
26 4,266,022
28 4,266,023
68 4,266,024
84 4,266,025
99 4,266,026
4,266,027
118 4,266,028
176 4,266,029
180 4,266,030
188 4,266,031
241 4,266,032
252 4,266,033
253 4,266,034
4,266,035

CLASS 440

53 4,265,625
66 4,265,626

CLASS 455

158 4,266,295
303 4,266,296

CLASS 474

231 4,265,134
267 4,265,627

CLASS 493

428 4,265,438
435 4,265,437
451 4,265,439

CLASS 521

26 4,266,036
82 4,266,037
4,266,038
85 4,266,039
90 4,266,040
92 4,266,041
123 4,266,042
175 4,266,043

CLASS 525

336 4,266,044

CLASS 528

161 4,266,045
309 4,266,046
322 4,266,047

CLASS 536

27 4,266,048

CLASS 544

16 4,266,049
128 4,266,050
181 4,266,051
192 4,266,052
196 4,266,053
215 4,266,054
221 4,266,055
311 4,266,056
330 4,266,057
4,266,058
334 4,266,059

CLASS 546

64 4,266,060
253 4,266,061
281 4,266,062
302 4,266,063
345 4,266,064

CLASS 548

379 4,266,065

CLASS 549

64 4,266,066
79 4,266,067

CLASS 556

430 4,266,068

CLASS 560

20 4,266,069
24 4,266,070
43 4,266,071
53 4,266,072
55 4,266,073
105 4,266,074
120 4,266,075
247 4,266,076

CLASS 562

427 4,266,077

CLASS 564

91 4,266,078
96 4,265,831
163 4,265,832
204 4,265,835
421 4,265,834
435 4,265,833

CLASS 568

11 4,266,079
45 4,266,080
578 4,266,081
639 4,266,082
875 4,266,087

CLASS 570

230 4,265,836
243 4,265,837

CLASS 585

240 4,266,083
469 4,266,084
645 4,266,085
810 4,266,086

CLASSIFICATION OF DESIGNS

D2—	22	259,070		191	259,083		394	259,097		88	259,110	D19—	75	259,122		217	259,134
	240	259,071		233	259,084		409	259,095		157	259,111			259,123		227	259,135
	400	259,072		242	259,085		413	259,098	D12—	146	259,112			259,124	D22—	25	259,136
D3—	61	259,073		244	259,086		414	259,101	D13—	18	259,113		84	259,125	D23—	62	259,137
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DEFENSIVE PUBLICATIONS APPLICATIONS

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DEFENSIVE PUBLICATIONS APPLICATIONS

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SIDNEY A. DIAMOND,
January 13, 1981. *Commissioner of Patents and Trademarks.*

Removal From Register

Pursuant to the provisions of 37 C.F.R. 1.347, a letter was directed on Nov. 19, 1980, to the last post office address furnished to the Committee on Enrollment by each of the persons whose name and address appear on the following list. With respect to some of the letters, no reply was received within the period of forty-five (45) days therein set. Other letters were returned by the Post Office with notations to the effect that the addressee was deceased, unknown, or had moved and left no forwarding address.

Accordingly, the names of the following persons will be removed from the Register of Patent Attorneys and Patent Agents, effective June 30, 1981.

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REISSUE APPLICATION FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,142,888, Re. S.N. 237,513, Filed Feb. 23, 1981, Cl. 075/201, METHOD FOR HOT CONSOLIDATING POWDER, Walter J. Rozmus, Owner of Record: *Kelsey-Hayes Co., Romulus, Mich.*, Attorney or Agent: Harold W. Milton, Jr., Ex. Gp.: 223

PATENT NOTICES

Certificates of Correction for the Week of May 12, 1981

Re. 30,507	4,222,761	4,238,368	4,247,039
D. 257,740	4,222,763	4,238,391	4,247,165
3,744,947	4,223,111	4,238,417	4,247,223
3,810,539	4,224,108	4,238,745	4,247,257
3,877,375	4,225,610	4,238,772	4,247,626
4,000,151	4,225,850	4,238,851	4,247,763
4,006,218	4,226,394	4,239,325	4,247,907
4,018,211	4,226,835	4,239,710	4,247,932
4,050,680	4,226,846	4,240,298	4,248,078
4,052,552	4,226,986	4,240,432	4,248,254
4,055,602	4,227,119	4,240,775	4,248,395
4,083,930	4,227,847	4,240,824	4,248,601
4,102,131	4,230,186	4,240,958	4,248,906
4,135,329	4,230,283	4,241,042	4,248,981
4,155,878	4,231,383	4,241,080	4,249,505
4,157,448	4,231,886	4,241,148	4,249,572
4,159,238	4,232,078	4,241,192	4,249,878
4,173,843	4,232,187	4,241,981	4,250,477
4,185,598	4,232,207	4,242,146	4,250,544
4,189,427	4,232,818	4,242,176	4,250,558
4,194,110	4,233,470	4,242,361	4,250,629
4,199,571	4,234,347	4,242,756	4,250,809
4,201,351	4,234,668	4,243,235	4,250,822
4,201,705	4,234,930	4,243,295	4,251,054
4,206,809	4,235,152	4,243,347	4,251,134
4,211,884	4,235,407	4,243,474	4,251,137
4,213,801	4,235,431	4,243,686	4,251,139
4,214,691	4,235,693	4,243,745	4,251,387
4,214,966	4,235,708	4,243,825	4,251,456
4,215,056	4,235,937	4,243,978	4,251,549
4,217,048	4,236,100	4,244,673	4,251,610
4,217,264	4,236,329	4,244,813	4,251,883
4,217,592	4,237,134	4,244,967	4,251,903
4,217,778	4,237,388	4,245,342	4,252,444
4,218,353	4,237,417	4,245,352	4,252,906
4,218,451	4,237,439	4,245,613	4,253,110
4,218,919	4,237,597	4,245,865	4,253,380
4,219,609	4,237,837	4,246,145	4,253,676
4,219,740	4,237,865	4,246,157	4,253,752
4,221,377	4,237,875	4,246,353	4,253,913
4,222,044	4,238,239	4,246,538	4,254,136
4,222,589	4,238,305	4,247,028	

Dedications

3,807,344.—*Dante Giacosa*, Turin, Italy. OUTBOARD MOTOR HAVING A WATER JET IMPELLOR UNIT. Patent dated Apr. 30, 1974. Dedication filed Jan. 13, 1981, by the assignee, *FIAT S.p.A.*

Hereby dedicates to the Public the term of the patent subsequent to December 24, 1980.

3,842,787.—*Dante Giacosa*, Turin, Italy. WATER JET IMPELLOR UNIT HAVING A STEERING CONTROL DEVICE. Patent dated Oct. 22, 1974. Dedication filed Jan 13, 1981, by the assignee, *FIAT S.p.A.*

Hereby dedicates to the Public the term of the patent subsequent to December 24, 1980.

Disclaimers

3,958,685.—*David Ian McDonald; George William Sederberg; Gary David Stephenson* and *James Gordon Wiatt*, Cincinnati, Ohio. COUPLING FOR HANDLING WORKPIECE, CONVEYOR COMBINED THEREWITH, AND METHOD. Patent dated May 25, 1976. Disclaimer filed Jan. 12, 1981, by the assignee, *Cincinnati Milacron Inc.*

Hereby enters this disclaimer to claims 1, 2, 3 and 4 of said patent.

4,050,806.—*Seiichi Miyakawa* and *Tadahiro Eda*, Tokyo, Japan. METHOD AND APPARATUS FOR ELECTRICALLY BIASING DEVELOPING ELECTRODE OF ELECTROPHOTOGRAPHIC DEVICE. Patent dated Sept. 27, 1977. Disclaimer filed Nov. 21, 1980, by the assignee, *Ricoh Co., Ltd.*

Hereby enters this disclaimer to claims 1. 2, 3, 4, 5 and 22 of said patent.

4,087,647.—*Milton Luther Embree*, Reading, Pa. and *John Francis O'Neill*, Boulder, Colo. CIRCUIT FOR SUPPLYING DIRECT CURRENT TO TELEPHONE STATION SETS. Patent dated May 2, 1978. Disclaimer filed Mar. 17, 1981, by the assignee, *Bell Telephone Laboratories, Inc.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

4,107,173.—*David A. Berges*, Wayne, Pa. 3-SULFOMETHYL-1, 2, 4-TRIAZOLE-5-THIOL AND ITS ALKALI METAL SALTS. Patent dated Aug. 15, 1978. Disclaimer filed Feb. 11, 1981, by the assignee, *SmithKline Corp.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,164,947.—*John E. Wilson*, Colona, Ill. ROTOR FOR AN AXIAL FLOW ROTARY SEPARATOR. Patent dated Aug. 21, 1979. Disclaimer filed Mar. 6, 1981, by the assignee, *Deere & Co.*

Hereby enters this disclaimer to all the claims, 1–14 of said patent.

4,202,614.—*Donald M. Harvey*, Webster, N.Y. PHOTOGRAPHIC CAMERAS. Patent dated May 13, 1980. Disclaimer filed Feb. 9, 1981, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to claims 1 through 3 of said patent.

Disclaimer and Dedication

4,017,185.—*Vernon L. Chupp*, Los Altos, Calif. OPTICAL ARRANGEMENTS FOR COUPLING MONOCHROMATORS WITH EXTERNAL SYSTEMS. Patent dated Apr. 12, 1977. Disclaimer and Dedication filed Jan. 21, 1981, by the assignee, *Varian Associates, Inc.*

Hereby disclaims and dedicates to the Public all claims of said patent.

National Technical Information Services

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Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE ARMY/OTJAG
Chief, Intellectual Property Division
Room 2D 444, Pentagon
Washington, D.C. 20310

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U.S. DEPARTMENT OF AGRICULTURE
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Science & Education Administration
Hyattsville, Md. 20782

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

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Director, Navy Patent Program/
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Office of Naval Research
Code 302
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

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U.S. DEPARTMENT OF COMMERCE
National Tech. Information Service
Office of Government Inventions and Patents
Springfield, Va. 22161

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Patent 4,127,519. Octadecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Octadecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

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Patent 4,127,523. Novel Undecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Undecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,524. Novel Dodecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Dodecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,525. Novel Tridecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Tridecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,526. Novel Tetradecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Tetradecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,527. Novel Pentadecapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Pentadecapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,528. Novel Derivatives of Alpha-Endorphin, Intermediates Therefor and Compositions and Methods Employing Said Derivatives. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

Patent 4,127,529. Novel Eicosapeptides, Intermediates Therefor and Pharmaceutical Compositions and Methods Employing Said Eicosapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

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Patent 4,127,533. Novel Octapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Octapeptides. Filed June 16, 1977. Patented Nov. 28, 1978. Not available NTIS.

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Patent 4,139,504. Novel Nonapeptides, Intermediates Therefor, and Compositions and Methods Employing Said Nonapeptides. Filed June 16, 1977. Patented Feb. 13, 1979. Not available NTIS.

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Patent 4,213,968. Enkephalin Derivatives. Filed June 5, 1978. Patented July 22, 1980. Not available NTIS.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
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	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
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	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
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North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
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	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
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	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
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	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF Mar. 21, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins, Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	10-22-79
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	2-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-01-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT Generation and Utilization, General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	7-10-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-05-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240— A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	7-09-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	2-12-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-29-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-01-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-18-77
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	7-27-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during Feb. 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents . . . . . Numbers 3,122,749 to 3,127,613, inclusive
Plant Patents . . . . . Numbers 2,368 to 2,388, inclusive

REISSUES

MAY 12, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,605
GOOSE AND DUCK BLIND

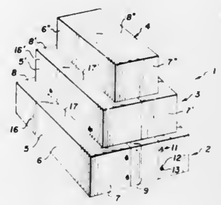
Gordon Witt, Box 252, Millet, Alberta, Canada

Original No. 4,123,869, dated Nov. 7, 1978, Ser. No. 845,346, Oct. 25, 1977. Application for reissue Feb. 27, 1980, Ser. No. 125,247

Claims priority, application Canada, Jun. 12, 1978, 305270

Int. Cl.[3] **A01M** *31/00*

U.S. Cl. 43—1 **5 Claims**



5. A game hunting blind comprising:

a box-like cap element having a top wall and side and end walls;

first and second pairs of box-like elements, each having a side wall, two end walls and a partially cut-away top wall;

means for disengagably connecting the first pair of box-like elements to form a base tier;

means for hingably and disengagably connecting each of the second pair of box-like elements with one of the base tier elements to form a middle tier wherein each of said second pair of elements rests on the partially cut-away top wall of one of the base tier elements, said hinge connection being operative to permit the middle tier elements to be pivoted outwardly; and

means for hingably and disengagably connecting the cap element with a middle tier element to complete the formation of a pyramid-like structure wherein the cap element rests on the partially cut away top walls of the middle tier elements, said hinge connection being operative to permit the cap element to be pivoted outwardly, said box-like elements, when assembled in pyramid-like fashion, enclosing a space sufficient to house a hunter.

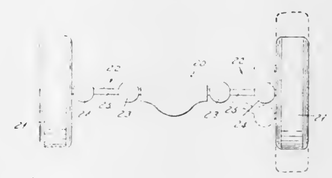
Re. 30,606
TELESCOPING UNIVERSAL JOINTS

Everett H. Sharp, 344 E. Maryknoll, Rochester, Mich. 48063

Original No. 4,068,499, dated Jan. 17, 1978, Ser. No. 652,511, Jan. 26, 1976. Application for reissue Nov. 13, 1978, Ser. No. 960,609

Int. Cl.[3] **F16D** *3/02*

U.S. Cl. 64—8 **75 Claims**



69. A telescoping universal joint comprising

a driving member,

a driven member,

torque transmitting means between the driving and driven members,

and means for limiting relative axial outward movement between said members and for maintaining said members in fixed axial relationship while limiting said axial movement between said members as the joint rotates at any angular alignment of the members,

means for enclosing and sealing one end of said joint comprising a pair of cooperating surfaces, one of which is mounted for axial movement relative to the member which carries it and is urged axially into contact with its cooperating surface,

one of said cooperating surfaces being permitted limited radial movement relative to the member which carries it.

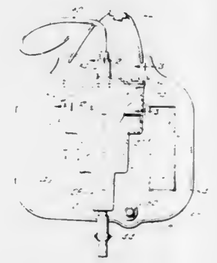
Re. 30,607
COMBINATION URINE METER AND DRAINAGE RECEPTACLE

James G. Manschot, Eagle; Byron L. Mather, and Larry A. Salvadori, both of Milwaukee, all of Wis., assignors to Plastronics, Inc., Milwaukee, Wis.

Original No. 4,095,589, dated Jun. 20, 1978, Ser. No. 573,853, May 20, 1975. Application for reissue Jun. 18, 1979, Ser. No. 49,060

Int. Cl.[3] **A61B** *19/00*

U.S. Cl. 128—762 **14 Claims**



1. A combination urine meter and drainage receptacle comprising:

a liquid meter of semi-rigid material having at least one volume calibrated chamber and an inlet opening through which liquid may be introduced into the interior thereof, said meter having an upper portion in which said inlet opening is located and a lower portion in which said liquid can accumulate;

a liquid draining receptacle in the form of a bag made of flexible material, said bag having an upper portion positioned adjacent said meter upper portion; and

a liquid communication means for said meter and drainage receptacle comprising a liquid conduit extending from the upper portion of said meter to the upper portion of said drainage receptacle, said liquid communication means adapted to permit relative movement of said meter with respect to said drainage receptacle to thereby facilitate drainage of liquid from the interior of the meter through said liquid conduit and into said drainage receptacle by simply tilting said meter with respect to said drainage receptacle, said liquid communication means including a semi-rigid tubular assembly fastened at one end to said meter and fastened at its other end to said liquid drainage receptacle, said semi-rigid tubular assembly comprised of a tubular fitting having a flange sealed to one wall of said liquid drainage receptacle, said tubular fitting having a pair of concentrically spaced circular walls providing a

groove therebetween, said tubular assembly further including a collar formed integrally with one wall of said meter, said collar being sealed in said groove by said tubular fitting to thereby provide a fluid tight liquid conduit between said meter and said receptacle.

Re. 30,608

TEMPERATURE RESPONSIVE COUPLING

Warren G. Bopp, Farmington Hills, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Original No. 3,972,399, dated Aug. 3, 1976, Ser. No. 528,187, Nov. 29, 1974. Application for reissue Nov. 7, 1977, Ser. No. 849,193

Int. Cl.³ F16D *35/00, 43/25*

U.S. Cl. 192—58 B **7 Claims**



19. A viscous coupling comprising:

a first rotatable member defining a housing rotatable about an axis;

a second member disposed in the interior of said housing and rotatable about said axis;

a working chamber defined by said members and containing an inventory of viscous fluid for transmitting torque from one of said members to the other of said members by fluid shear stress in response to relative rotation of said members;

an annular reservoir defined by said first member and the outer diameter of said reservoir being defined by an annular wall portion projecting axially outward from said housing;

first and second passage means for communicating said working chamber with said reservoir;

means for pumping fluid from said working chamber to said reservoir via said first passage;

an arcuate valving member having one end pivotally connected to said housing and the other end associated with said second passage means, said valving member moveable between a first position wherein said other end covers said second passage means and blocks fluid flow from said reservoir to said working chamber and a second position wherein said other end uncovers said second passage means and allows fluid flow from said reservoir to said working chamber; and

temperature sensing means for sensing temperature changes exterior of said coupling and mounted on said annular wall portion, said sensing means including means containing a liquid-solid phase change substance having a high coefficient of expansion during phase change and operative to move said valving member between said first and second positions in response to said phase change occurring over a predetermined temperature range, and said sensing means including a piston connecting said phase change substance with said arcuate valving member and operative to pivotally move said valving member to said second position in response to said substance changing from a solid to a liquid.

Re. 30,609

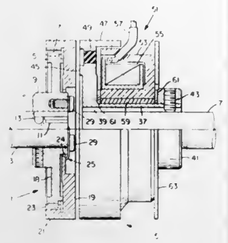
RESILIENT CONNECTION BETWEEN INNER AND OUTER POLES ON ELECTROMAGNETIC CLUTCH

Donald L. Miller, Horseheads, N.Y., assignor to Facet Enterprises, Inc., Tulsa, Okla.

Original No. 3,978,953, dated Sep. 7, 1976, Ser. No. 589,816, Jun. 24, 1975. Application for reissue Nov. 28, 1977, Ser. No. 855,119

Int. Cl.³ F16D *27/10*

U.S. Cl. 192—84 C **3 Claims**



7. An electromagnetic clutch comprising:

a driven clutch member;

a driving clutch member mounted adjacent said driven clutch member for cooperation with said driven clutch member;

an armature mounted to one of said members;

electromagnetic means mounted to the other of said members, said electromagnetic means further comprising an annular inner pole member; an annular outer pole member surrounding said inner pole member for rotation therewith; and magnetically non-permeable resilient means for connecting the inner and outer pole members to provide relative movement between said inner and outer pole members to enable both pole members to engage said armature with substantially equal engaging force.

Re. 30,610

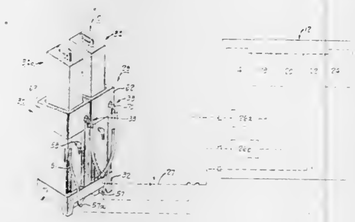
FLUID MIXING AND DISPENSING SYSTEM

Leonard W. Gacki, White Plains, and Robert E. Daly, Farmingdale, both of N.Y., assignors to Picker Corporation, Cleveland, Ohio

Original No. 4,103,358, dated Jul. 25, 1978, Ser. No. 609,957, Sep. 3, 1975. Application for reissue Feb. 9, 1979, Ser. No. 10,812

Int. Cl.³ B01F *15/02, 15/04*

U.S. Cl. 366—153 **50 Claims**



18. [The method of claim **17**, wherein the step of providing a first fluid supply also includes:] *A method of mixing fluids in a reservoir, comprising the steps of:*

(a) providing a first fluid supply in communication with the reservoir under the influence of gravity; including:

i. disposing a first fluid in a vessel;

ii. positioning the vessel overlying the reservoir;

[(a)] *iii.* disposing a container above the reservoir, the container having a plurality of openings; and

[(b)] *iv.* inserting a plurality of vessels into the container, each vessel being disposed adjacent an opening[.];

(b) disposing a fluid release assembly intermediate the first fluid supply and the reservoir;

(c) providing a second fluid supply in communication with the reservoir, the fluid release assembly being disposed intermediate the second fluid supply and the reservoir;

(d) sensing the presence of a predetermined amount of fluid in the first fluid supply and in the reservoir; and thereafter

(e) introducing fluid from the second fluid supply to the reservoir only if the predetermined amount of fluid in the supply is present, the flow of the second fluid actuating the fluid release assembly to introduce fluid from the first fluid supply to the reservoir.

Re. 30,611

TRUCK MOUNTED HOIST

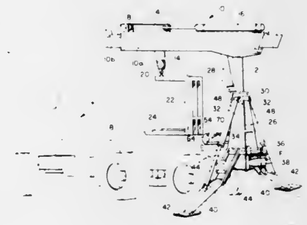
Joachim H. R. Wappler, 317 Kenollia Rd., Mississauga, Ontario, Canada

Original No. 4,111,316, dated Sep. 5, 1978, Ser. No. 786,281, Apr. 11, 1977. Application for reissue Jun. 27, 1979, Ser. No. 52,462

Claims priority, application Canada, Apr. 13, 1976, 250198

Int. Cl.³ B60P *1/54*

U.S. Cl. 414—542 **3 Claims**



1. Hoist apparatus of the type adapted to be mounted on a truck adjacent the truck bed, leaving the truck bed clear, for use in unloading or loading the truck or the like, and comprising;

boom means;

hoist means on said boom means;

a vertical support column, said boom means being swingably mounted on the upper end of said column, and said support column being rotatably mounted for rotating said boom means and said column in unison;

drive gear means located adjacent the lower end of a said support column for rotating the same;

rack means meshing with said drive gear means and moveable to and fro along a linear path relative to said drive gear;

a non-rotatable vertically oriented housing means supporting and enclosing a portion of said vertical column and said gear means adapted for mounting in fixed position on a portion of said truck, and supporting said vertical column along a substantial portion of its length;

power operated means connected with said rack means, and mounted on said housing *means* for driving said rack means to and fro thereby rotating said support column and said boom means in unison on either side of said truck bed further said power operated means includes a cylinder means; a protective shield member covering a portion of said power operated means, said shield member being in the shape of a shell having a semi-circular cross section and covered at each end by a plate having the shape of a half circle such that the plane of the open portion of said shield member bisects said cylinder means along its longitudinal axis, said rack means comprises an elongated linear rack member having tooth means on one side, adapted to engage said drive gear means, the other side of said rack member being flat and smooth, said rack member being located within said cylinder means and moving along a predetermined linear reciprocal path to and fro therewithin, and including a pressure pad located within said cylinder means and engaging said flat, smooth side of said rack member for holding the same with said tooth means in engagement with said drive gear means, said pad having a substantially rectangular contact surface with said flat, smooth side of said rack member, and adjustment means including two adjustable threaded means for adjustment of the pressure applied by said pressure pad on said rack member, further said protective shield member having an opening to permit access to said adjustment means;

supporting frame members forming part of said housing means for supporting *said* vertical column; [and]

attachment brackets extending from a lower portion of said housing means at an angle downwardly on opposite sides thereof;

ground engaging strut means swingably attached to the lower outer ends of said [frame members] *attachment* brackets and,

power cylinder means extending between the upper end of said housing means [above said frame means] and respective said strut means, operation of said power cylinder means swinging said strut means between upwardly angled disengaged positions and downwardly angled ground engaging positions, said power cylinder means thereby directly supporting and stabilizing the upper end of said vertical housing *means* and said column enclosed therein against heavy loads applied at the end of said boom means, when said boom means are swung outwardly on one or the other side of said truck.

Re. 30,612

POLYURETHANE-MODIFIED ALKYD RESIN

Robert R. Harris, Burnham, and Warren J. Pollack, Carpentersville, both of Ill., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Original No. 4,116,902, dated Sep. 26, 1978, Ser. No. 839,718, Oct. 5, 1977. Application for reissue Nov. 13, 1979, Ser. No. 93,357

Int. Cl.³ C09D *3/64, 5/08*

U.S. Cl. 260—22 TN **8 Claims**

1. An air-drying, water-soluble, polyurethane-modified alkyd resin having superior corrosion resistance and hardness obtained by the steps of:

(a) (1) forming an alkyd resin by melting together at 175° F. a mixture of trimethylpentanediol 1170 parts, linoleic acid 1848 parts, and phthalic anhydride 1465 parts,

(2) with agitation adding thereto trimethylolethane 698 parts, dimethylolpropionic acid 567 parts, and dibutyl tin oxide 6.5 parts,

(3) heating the mixture slowly under a nitrogen blanket to 210° C. until an acid number of 52–57 is obtained,

(4) cooling the mixture to 160° C. and adding ethyl benzene 517 parts, cooling to 82° F. and adding methyl ethyl ketone 339 parts, and cooling to 65° C.,

(b). adding thereto toluene diisocyanate 730 parts over a two-hour period, maintaining the temperature at 82° C. or below *adding thereto additional toluene diisocyanate 50 parts*, then heating to 100°–105° C. for about 1.5 hours, and then diluting with inert solvent.

PLANT PATENTS

GRANTED MAY 12, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,711
ROSE PLANT
Ernest Schwartz, deceased, late of Kingsville, Md. (by Hazel E. Schwartz, executrix), assignor to Nor'East Miniature Roses, Inc., Rowley, Mass.
Filed Apr. 21, 1980, Ser. No. 142,412
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—9 **1 Claim**

1. A new and distinct variety of rose plant of the miniature class, substantially as shown and described, characterized particularly by pale pink and near white blooms with yellow tones at petal point of attachment, excellent bud and flower form and excellent substance.

4,712
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed Apr. 21, 1980, Ser. No. 142,405
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by peach colored flowers of heavy petalage borne primarily singly to a stem and a vigorous plant with abundant attractive dark green foliage.

4,713
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed Apr. 14, 1980, Ser. No. 139,837
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—26 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by clusters of soft pink colored flowers which lighten upon aging beginning with buds showing yellow coloring at petal point of attachment and pink at petal edge and opening to soft pink blooms showing golden yellow centers in freshly open flowers.

4,714
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed Apr. 14, 1980, Ser. No. 140,117
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—27 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by high centered flowers of Spinel red and yellow, borne primarily in small clusters but also singly to a stem and which retain the unusual dual coloring upon aging, but lightening to Neyron red and pale yellow.

4,715
ORCHID PLANT: GOLDEN KING
Shuh-Lih Guo, 21, Lane 626, Lin-Shen Rd., Hu-Wei Chen, Yun-Lin Hsien, Taiwan
Filed Oct. 4, 1979, Ser. No. 81,642
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinctive variety of orchid hybrid plant of the genus Phalaenopsis substantially as herein described and illustrated, characterized particularly by its matchless and distinguished yellow flowers which are unusually large, profuse, and long-lasting when compared with other flowers of this genus.

4,716
CHRYSANTHEMUM PLANT
Jack M. Meek, and William E. Duffett, both of Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Jan. 11, 1980, Ser. No. 111,379
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of *Chrysanthemum morifolium*, Ramat., plant known by the cultivar name Heirloom and particularly characterized as to uniqueness by the combined characteristics of flat capitulum form; daisy capitulum type; white ray floret color; diameter across face of capitulum ranging from 85 to 95 mm. at maturity; uniform nine week photoperiodic flowering response to short days; medium peduncle length; medium plant height when grown as a single stem cut spray; and semi-upright branching pattern.

PATENTS

GRANTED MAY 12, 1981

ERRATA

For CLASS	See PATENT NO.
474–227	4,266,435
493–219	4,266,469
081–001 R	4,266,587
411–307	4,266,590
411–167	4,266,591
294–163	4,266,705
369–041	4,266,783
369–077	4,266,784
369–216	4,266,785
260–040 R	4,267,310

PATENTS

GRANTED MAY 12, 1981

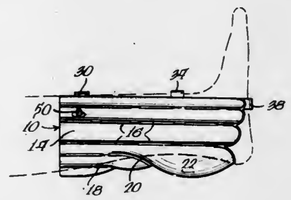
GENERAL AND MECHANICAL

4,266,297
BULLET RESISTANT BALLISTIC PANEL CARRIER GARMENT
John H. Atkins, Cincinnati, Ohio, assignor to A & B Industries, Inc., Cincinnati, Ohio
Filed Jun. 12, 1979, Ser. No. 47,896
Int. Cl.³ F41H *1/02*
U.S. Cl. 2—2.5 **9 Claims**



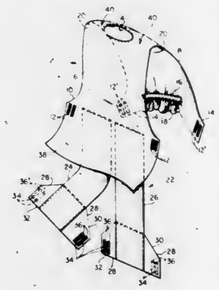
1. A bullet resistant ballistic panel carrier garment comprising a shirt-like carrier garment having a back portion and a front portion, wherein said front portion includes left and right closable chest sections and means for closing said sections, a rear pocket-like ballistic panel receiving receptacle, means attaching said rear receptacle to the inner surface of said back portion, whereby at least the lower portion of said rear receptacle swings freely from said back portion and forms an air space between said rear receptacle and the adjacent inner surface of said back portion, and a front pocket-like ballistic panel receiving receptacle, said front receptacle comprising left and right ballistic panel receiving receptacles, means attaching said front left and right receptacles to the inner surfaces of said left and right chest sections, respectively, whereby at least the lower portions of said left and right receptacles swing freely from said left and right chest sections and form an air space between said left and right receptacles and the corresponding inner surfaces of said left and right chest section, said left and right receptacles including a vertically positioned opening along one edge thereof such that said openings are in substantially aligned facing relationship with each other when said garment is being worn.

4,266,298
INFLATABLE HEEL PROTECTOR
Joseph L. Graziano, Oak Park, Ill., assignor to Marlene S. Mindey, Chicago, Ill.
Filed Jan. 31, 1980, Ser. No. 117,373
Int. Cl.³ A41D *13/06*
U.S. Cl. 2—22 **14 Claims**



1. A heel protector for cushioning a foot comprising:
a first wall adapted to contact a foot;
a second wall joined with said first wall generally along its respective peripheral edge to form a bag, said first and second walls being adapted to distribute the forces exerted on the second wall over a larger area of the first wall and said second wall being separated from said first wall by a cushion of fluid along most of its interior surface, means joining portions of the interior of the first wall to corresponding portions of the interior of the second wall to form interconnecting pillow segments, so that fluid in any pillow segment can communicate with fluid in other pillow segments, to further aid in the distribution of forces exerted on the second wall over a wider area on the first wall; and
means to fasten said protector in a generally U-shaped arrangement where it can function to protect that which it surrounds against damage.

4,266,299
PROTECTIVE GARMENT
Geraldine F. Beal, 55 Tillotson Rd., Needham, Mass. 02192
Filed Jul. 27, 1979, Ser. No. 61,492
Int. Cl.³ A41D *27/12*
U.S. Cl. 2—46 **3 Claims**



1. A protective garment comprising an upper portion, said upper portion having an opening therein adapted to fit about the neck of a wearer, said upper portion comprising a front panel adapted to extend generally coextensive with the chest of said wearer, front panel tab portions extending from each side of said front panel and adapted to overlie the sides of said wearer, a back panel adapted to extend generally coextensive with the back of said wearer, and back panel tab portions extending from each side of said back panel and adapted to overlie said sides of said wearer, said front and back panel tab portions having first connecting means disposed at the waist of said wearer for releasable interconnection of said front and back panels, an apron depending from said front panel and said front panel tab portions throughout the length of said front panel tab portions, and a lower portion connected to an undersurface of said front panel, said front panel and said apron overlying said lower portion, said lower portion comprising first and second leg extensions, each of said extensions being generally rectangularly-shaped and having at its end remote from said upper portion flap means adapted to encircle a leg portion of said wearer, and second connecting means disposed on said flap means, whereby said extensions may be fastened about the leg portions of said wearer.

4,266,300

ATTACHABLE AND DETACHABLE POCKET FOR A GARMENT

Aileen A. Partridge, 2018 W. Superior St., Apt. 4, Duluth, Minn. 55806

Filed Jul. 30, 1979, Ser. No. 61,948
Int. Cl.³ A41D *27/20*
U.S. Cl. 2—247 **2 Claims**



1. An attachable and detachable pocket for a garmet comprising:

(a) a back portion,

(b) a front portion secured to said back portion along the sides and bottom and open at one end to form a pocket,

(c) a single panel having a pressure sensitive adhesive surface on the rear thereof for the sole connection with a garment, a portion thereof adhesively connected to the upper front portion of said back portion with the outer portion thereof extended beyond said back portion,

(d) said other portion of said single panel having

(e) means for protecting said pressure sensitive adhesive surface of said other portion prior to exposure of the adhesive surface for securing the pocket to a garment by pressing the exposed pressure sensitive area of the extended portion directly upon a garment.

4,266,301

CHEMICAL-BIOLOGICAL AGENT PROTECTIVE HOOD

William R. Canda, Custer County, Colo., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 5, 1979, Ser. No. 100,578
Int. Cl.³ A42B *3/00, 3/02*
U.S. Cl. 2—410 **6 Claims**



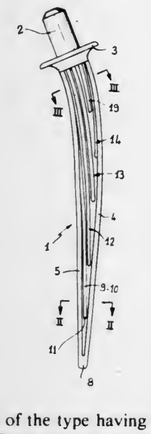
1. A protective hood for the protection of a flight crewmember from chemical-biological agent with the hood being positioned over a conventional flight helmet having a conventional visor assembly and oxygen mask attached and with an oxygen hose connected between the oxygen mask and a conventional chemical-biological agent filter with the hood having a portion partially covering the upper portion of the crewmember flight suit assembly, comprising: a helmet covering member; a hose enclosure member secured to said helmet covering member; a rigid transparent lens sealed to said helmet covering member and being adapted to fit over the visor assembly on said helmet and being spaced from said visor assembly and said oxygen mask; means, secured to the helmet covering member for covering the upper portion of the crewmember flight suit; said helmet covering, said hose enclosure member and said means for covering the upper portion of the crewmember flight suit being made of chemical-biological agent nonpermeable material; means including flow director means secured to the rear portion of the rigid transparent lens for blowing air inside the protective hood; fastener means, on the front of said protective hood, for closing the hood around the helmet and the upper portion of the flight suit; fastener means, on said hose enclosure member, for closing the hose enclosure member around the oxygen hose and means for positioning the protective hood on said flight helmet.

4,266,302

FEMORAL PIN FOR HIP PROSTHESIS

Alain Tornier, Le Brocey-Crolles, France, assignor to Etablissements Tornier, St. Ismier, France

Filed Oct. 2, 1979, Ser. No. 81,228
Claims priority, application France, Oct. 11, 1978, 78 29594
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—1.912 **4 Claims**



1. In a hip prosthesis of the type having a hilt member for engaging the end of a femur and having a pivot member extending from the hilt member in one direction and having a pin member extending longitudinally in the other direction from the hilt member along a curved axis with a tapered contour shaped to fit into the medullary cavity of the femur, the improvement wherein the pin member comprises:

(a) a multiplicity of funicular strands grouped together to form the composite contour of said pin member, the strands having first ends fixed to said hilt member, and the strands having graduated lengths and being grouped according to lengths and having second ends connected together; and

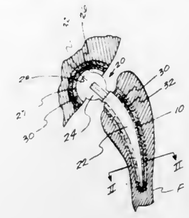
(b) the longest strands forming the outer contour of the pin member, and the shorter strands having their second ends terminating at multiple points inside the pin member, which points are located progressively closer to the hilt member within said tapered contour.

4,266,303

METHOD OF ORTHOPEDIC IMPLANTATION AND IMPLANT PRODUCT

Joon B. Park, Clemson, S.C., assignor to Clemson University, Clemson, S.C.

Filed Sep. 24, 1979, Ser. No. 78,225
Int. Cl.³ A61F *1/24, 1/20*
U.S. Cl. 3—1.91 **21 Claims**



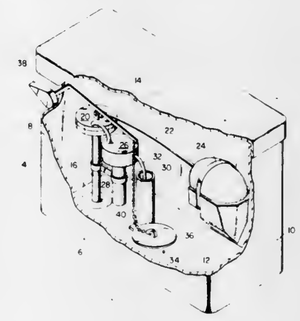
1. An orthopedic implant prosthesis comprising a base material structurally defined as to shape and strength to assimilate a portion of hard tissue of a warm blooded mammal, said prosthesis having a polymer coating over substantially the entire surface of same that is to be contacted with bone cement to secure the prosthesis within the hard tissue, said polymer coating having been substantially completely polymerized under appropriate temperature and pressure conditions to achieve a substantially pore free outer surface, said polymer being compatible with a bone cement to be used during surgical implantation of the prosthesis to achieve an adequate adhesive bond therebetween.

4,266,304

FLUSH TANK WATER SAVER

Edward L. Kohrn, 9 Sunset Dr., Cape Arthur, Severna Park, Md. 21146, and Seymour Globus, 268 Wakely Ter., Bel Air, Md. 21024

Filed May 24, 1979, Ser. No. 42,218
Int. Cl.³ E03D *1/00;* A47K *17/00*
U.S. Cl. 4—415 **4 Claims**



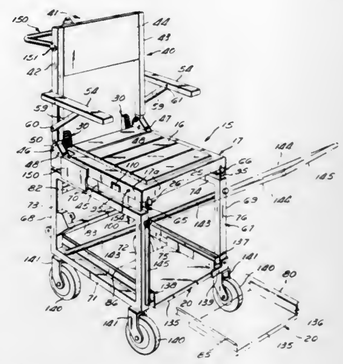
1. In a flush toilet including a water tank in which the water level is held at a predetermined level by a float valve controlled by a ball float and a bouyant water-saving device attached to said ball float, the improvement wherein said bouyant water-saving device comprises a bouyant unitary member comprised of a tapered portion having a plurality of sides and a side portion integral with and projecting laterally from one of said sides of said tapered portion, said tapered portion and said portion jointly having a concave section for receipt of said ball float, the length of said concave section being over half but less than the entire length of said ball float, said tapered portion containing a lowermost wedge section, means for attaching said device to said ball float, and means extending peripherally around said side portion for receipt of said attaching means.

4,266,305

WHEELCHAIR FOR TRANSPORTATION VEHICLES

Peter P. Kavaloski, Los Angeles, and Thomas K. Hale, Glendale, both of Calif., assignors to Lockheed Corporation, Burbank, Calif.

Filed Nov. 14, 1979, Ser. No. 94,397
Int. Cl.³ A47K *11/06*
U.S. Cl. 4—480 **20 Claims**



1. A wheelchair for transporting a disabled person into position over a toilet opening in the shroud of a bench type toilet comprising:

a frame mounted on wheels;

a seat stabilizer mounted on said frame by first slide means for movement of said seat stabilizer outwardly of said frame to an outward position;

a translating seat assembly mounted on said frame by second slide means for movement of said seat assembly outwardly of said frame to an outward position and located above said seat stabilizer;

a cut out in said seat stabilizer and an opening in said seat assembly, both located over said toilet opening when said seat stabilizer and then said seat assembly are moved to said outward positions; and

said seat stabilizer having means at the end thereof for engaging said shroud on opposite sides of said toilet opening after said seat stabilizer has been moved to its outward position to prevent tipping of said frame upon movement of said seat assembly to its outward position.

4,266,306

BATH SEAT FOR BABIES

Seung B. Lee, 258-16 Sooyoo-dong, Dobong-ku, Seoul, Rep. of Korea

Filed Jun. 8, 1979, Ser. No. 46,949
Claims priority, application Rep. of Korea, Aug. 13, 1978, 4840/1978
Int. Cl.³ A47K *3/024, 3/164;* A47C *3/20*
U.S. Cl. 4—572 **7 Claims**

1. A bath seat for babies comprising:

a seat including at least one hole formed on a central part of a curved upper surface thereof and groove portions formed at a central portion of opposite sides of said seat;

a first and second lever member disposed within said groove portions and each including lower end portions;

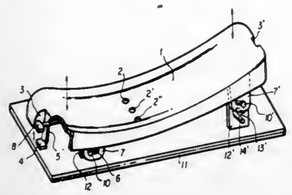
a base member disposed beneath said seat;

a plurality of vertically extending supporting plates connected to said base and including first idle-holes formed therein;

a plurality of elongated support legs connected to said seat,

downwardly extending therefrom, and having second idle-holes formed therein, said lever members being pivotably mounted on said support legs; and

first and second supporting rods connected to said lower end portions of said first and second lever members, adjustably



positioned within said idle-holes of said supporting plate and said support leg and connected to said end portions of said first and second lever members, respectively, for adjustment of positioning within said idle-holes of said supporting rods and corresponding positioning of said seat.

4,266,307

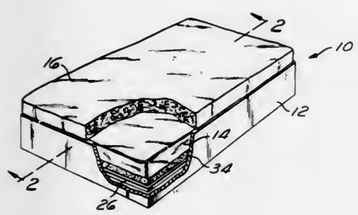
WATERBED FOUNDATION CONSTRUCTION

Frank W. Critelli, 22882 Leo La., El Toro, Calif. 92630

Filed Feb. 17, 1978, Ser. No. 878,691

Int. Cl.[2] A47C *27/08*

U.S. Cl. 5—451 **6 Claims**



1. In a waterbed construction:

a frame, said frame including vertically disposed side members and end members joined together to form a substantially rectangular shape, said side members and said end members having an upper edge and a lower edge;

a lateral support platform adapted to be disposed within said side members and said end members and being affixed to said side members and said end members;

a water bladder having a top surface and a bottom surface, said water bladder being comprised of a flexable waterproof material, said water bladder being disposed entirely within said frame and upon said support, said water bladder being adapted to be filled with water to a level so that, the top surface thereof reaches a level substantially to the upper edge of said side member and said end member; and

an upper mattress having dimensions so that said mattress rests upon said water bladder.

4,266,308

BED COVERING

Mark F. Shatz, 1204 Short St., Union City, Tenn. 38261

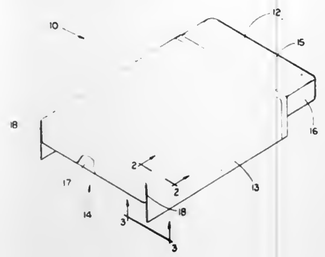
Filed Nov. 5, 1979, Ser. No. 91,090

Int. Cl.[3] A47G *9/00*; **A47C** *23/00*

U.S. Cl. 5—494 **10 Claims**

1. An improved bed covering which comprises:

a first sheet defining a pocket adapted for fitting upon an end of a mattress, said first sheet including a top portion to overlie the mattress, said first sheet further including side portions and an end portion depending from corresponding sides and an end of the top portion, respectively, the side portions being attached to the end portions at corner locations corresponding to the end corners of the mattress, the side and end portions including extensions adapted to underlie the mattress, the pocket being defined by the top, side and end portions and the extensions of the side and end portions; and



a second sheet secured to said first sheet adjacent the corner locations, said second sheet being unsecured to said first sheet along the side portions of said first sheet, whereby installing said first sheet to the end of a mattress secures said second sheet to the mattress.

4,266,309

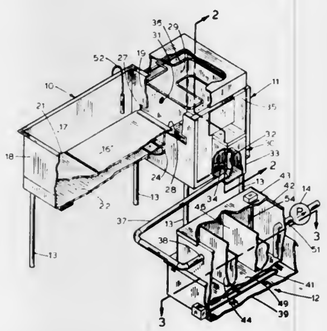
METHOD AND APPARATUS FOR SEPARATING HONEY FROM HONEYCOMBS

Glen L. Stanley, Des Moines, Iowa, assignor to The Jefferson Industries Company, Fairfield, Iowa

Filed Feb. 27, 1980, Ser. No. 125,180

Int. Cl.[3] A01K *59/00*

U.S. Cl. 6—12 R **6 Claims**



1. Apparatus for separating honey from honeycombs including:

(a) an elongated melting tank for receiving the honeycombs having a bottom wall and end walls, said honeycombs being supplied to the tank adjacent one end thereof,

(b) means for heating the bottom wall of the melting tank to a wax melting temperature to provide for the flow of a honey and melted wax mixture from said one end to the opposite end thereof,

(c) an upright settling tank at said opposite end of the melting tank for receiving said mixture, with the honey in the mixture settling toward the bottom of the settling tank and the melted wax in said mixture accumulating adjacent the upper end thereof,

(d) a wax drain for removing the melted wax from the settling tank,

(e) a honey clarifying unit having an inlet portion and an outlet portion,

(f) a honey drain on the settling tank located below the level of said melted wax drain for draining the honey therefrom to said inlet portion, and

(g) means for withdrawing the honey from said outlet portion.

4,266,310

ARRANGEMENT FOR FORMING METAL PARTS

Frederick Perrault, 2644 W. 225th St., Torrance, Calif. 90505, and Raymond E. Perrault, 2404 Colt Rd., Rancho Palos Verdes, Calif. 90274

Continuation-in-part of Ser. No. 842,605, Oct. 17, 1977, abandoned. This application Oct. 31, 1978, Ser. No. 956,427

Int. Cl.[3] B21D *53/24*

U.S. Cl. 10—86 R **139 Claims**



1. The method of forming a part having a screw thread having flanks at a predetermined angle comprising the steps of

engaging one side of a workpiece with means having ridges thereon so as to provide a plurality of substantially parallel grooves in said one side of said workpiece extending from adjacent a first edge of said workpiece to adjacent a second edge of said workpiece opposite from said first edge,

said engagement first being by at least one member in which said ridges have at least some sidewalls which are more steeply inclined than the flanks of said screw thread so as to produce grooves in said one side of said workpiece having correspondingly inclined sidewalls, and then by another member having ridges thereon having sidewalls which are more shallowly inclined than are said sidewalls of said ridges of said one member and which conform substantially to the angle of the flanks of said screw thread so as to cause said grooves to have sidewalls corresponding in inclination to the flanks of said screw thread, and then bringing said first and second edges into proximate relationship relative to each other to impart a substantially cylindrical configuration to said workpiece with the ends of adjacent ones of said grooves being positioned substantially in alignment with each other at said first and second edges to define a helix and produce a screw thread on said workpiece.

4,266,311

MACHINE FOR REEVING AND/OR LASTING SHOES IN THE HEEL AND ANKLE PART

Gerhard Winter, Hauenstein, Fed. Rep. of Germany, assignor to Schon & Cie GmbH Maschinenfabrik, Pirmasens, Fed. Rep. of Germany

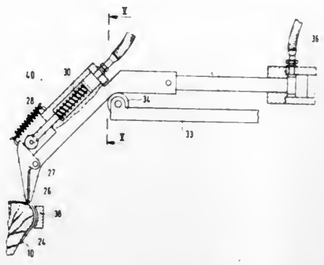
Filed Jun. 15, 1979, Ser. No. 49,188

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1978, 2826740

Int. Cl.[3] A43D *21/00, 23/00*

U.S. Cl. 12—10.1 **5 Claims**

1. A shoe lasting machine comprising a receiving device for a last, a heel band for holding a shoe upper on the last, a first wiper for shearing a heel portion of the shoe upper, a second wiper for wiping a side portion of the shoe upper, a pincer disposed between said first and second wiper for gripping an edge portion of the upper, and means for moving said pincer over the last in a direction outwardly away from the last so



that a pull directed outwardly away from the last is exerted on the edge portion to avoid forming a pocket in the upper.

4,266,312

APPARATUS FOR USE IN LAMINATING A WORKPIECE

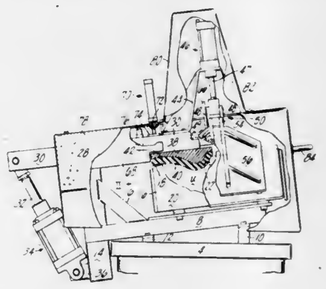
Dennis S. Hall, Leicester, England, assignor to USM Corporation, Farmington, Conn.

Filed Jun. 28, 1979, Ser. No. 53,098

Claims priority, application United Kingdom, Aug. 19, 1978, 33950/78

Int. Cl.[3] A43D *11/00, 95/00*

U.S. Cl. 12—52 **7 Claims**



1. Apparatus for laminating a workpiece including at least a portion of a shoe upper and a lining through the use of an interposed layer of adhesive, said apparatus comprising:

a form for positioning the workpiece, said form having an upper surface which has portions of different radius of curvature along its length and two opposite side surfaces, each of which is generally planar and inclined to the vertical so that the form tapers upwardly;

means to heat the workpiece;

pressing means operable to press the workpiece positioned on the form, said pressing means including a first presser member having a surface generally complementary to the upper surface of the form, and two generally planar second presser members, one associated with each of the side surfaces of the form;

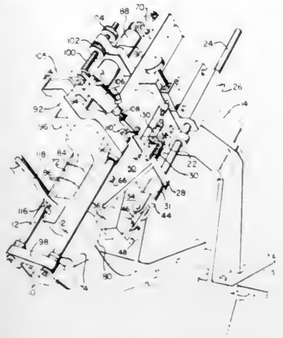
first moving means operable to move the first presser member into an operative position in which it presses the central portion of the workpiece against the upper surface of the form, and second moving means operable with the second presser members, arranged to index after operation of the first moving means to move the second presser members so that they press the edge portions of the workpiece disposed on the form against the opposite side surfaces of the form.

4,266,313

BOOT UPPER QUARTER MOLDING MACHINE

Walter Vornberger, Tewksbury, MA, assignor to International Shoe Machine Corporation, Nashua, N.H.

Filed Jan. 23, 1980, Ser. No. 114,766
Int. Cl.[3] A43D *11/00*
U.S. Cl. 12—54.3 **4 Claims**



1. A boot upper quarter molding machine comprising: a frame; a male mold; mounting means mounting the male mold bottom-up; a female mold so mounted to the frame as to be movable between an idle position wherein the female mold is spaced from the male mold and a working position wherein the female mold presses a quarter mounted on the male mold against the rearmost end and the sides of the male mold; means for initially maintaining the female mold in its idle position; and actuable means for thereafter moving the female mold to its working position; characterized in that said mounting means comprises: a stem secured to and extending upwardly of the bottom surface of the male mold; and connecting means so connecting the stem to the frame as to render the rearmost end of the male mold visible from above the connecting means; the machine being so constructed and arranged that the space beneath the downwardly facing top surface of the male mold is free of any machine parts for a distance sufficient to accommodate the shaft of the boot upper.

4,266,314

METHOD OF MANUFACTURE OF SPORTS SHOES, AND SHOES MANUFACTURED BY SAID METHOD

Rosette Londner epouse Ours, 62, Avenue Clarisse, F-92420 Vaucresson, France

Filed Sep. 7, 1979, Ser. No. 73,543
Int. Cl.[3] A43D *9/00;* **A43C** *13/08*
U.S. Cl. 12—142 P **4 Claims**



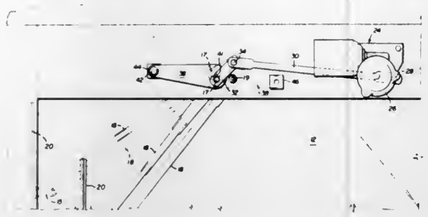
1. A method of manufacture of a sports shoe, such as a football boot, comprising the steps of forming a lining fabricated from a slipper of leather or other suitable material having an upper and a sole; overmolding of a first layer of plastic material to cover the entire upper and the sole of said slipper to obtain an assembly; overmolding on said assembly of a second layer of a stiffening reinforcement of plastic material having greater rigidity than that of said first layer, said second layer overlapping said first layer and constituting only a shell which surrounds the rear counter of the upper and a thin intermediate sole which covers the sole of the slipper; and applying and fixing an outer wearing sole of molded plastic material to the outer surface of said thin intermediate sole.

4,266,315

WINDOW WIPER STORAGE SYSTEM

Richard J. Skahill, Bettendorf, Iowa, assignor to J.I. Case Company, Racine, Wis.

Filed Nov. 9, 1979, Ser. No. 92,824
Int. Cl.[3] B60S *1/24*
U.S. Cl. 15—250.16 **3 Claims**



3. In a windshield wiper drive mechanism for use in an enclosure having at least one movable windshield panel, said windshield wiper drive mechanism including a motor and drive means mounted to said motor, a wiper blade assembly including a wiper blade and a drive shaft, said drive means being connected to said drive shaft for rotating said drive shaft a set amount both clockwise and counter-clockwise thereby causing said wiper blade to sweep laterally within a predetermined wiping area on said windshield panel during normal wiping operation, the improvement comprising:

said drive shaft being mounted eccentrically at a first position within a hub and sleeve assembly for normal wiping operation;

actuator means being mounted to said hub for selectively rotating said hub and drive shaft such that said drive shaft assumes a second eccentric position, said drive means causing said drive shaft to rotate more than said set amount when said actuator means is rotated whereby said wiper blade is swung laterally onto said frame and out of contact with said windshield panel.

4,266,316

SUCTION TUBE ASSEMBLY FOR RING FURNACE

Paul A. Schneider, Oslo, and Carlo Eliassen, Ardalstangen, both of Norway, assignors to Ardal Og Sunndal Verk A.S., Oslo, Norway

Filed Sep. 21, 1979, Ser. No. 77,761
Int. Cl.[3] A47L *5/14*
U.S. Cl. 15—304 **3 Claims**

1. A suction tube unit for use in a ring furnace for producing carbon bodies used in the metallurgical industries, such furnace being of the type including at least one baking chamber substantially filled with carbon bodies to be baked, with narrow vertical spaces between the carbon bodies and the chamber walls, such vertical spaces being filled with small pieces of packing coke during operation of the furnace, said suction tube unit being employed for removing the packing coke from the vertical spaces during unloading of the furnace, said suction tube unit comprising:

a plurality of elongated suction tubes and a plurality of elongated air-supply tubes, said tubes being arranged to extend parallel to each other and being aligned in a single straight row, with each adjacent pair of said suction tubes being separated by a separate one of said air-supply tubes, thereby forming an elongated and thin assembly of dimensions sufficient to be vertically extended into and to fit within a furnace vertical space filled with packing coke;

telescopic mounting means supporting said assembly at an upper portion thereof for vertically and horizontally guiding said assembly within a furnace vertical space and into packing coke therein;

said suction tubes and said air-supply tubes having substantially downwardly facing open lower ends;

suction means, connected to upper ends of said suction tubes, for creating a vacuum within said suction tubes and



for thereby withdrawing the packing coke from the furnace vertical space upwardly through said suction tubes; and

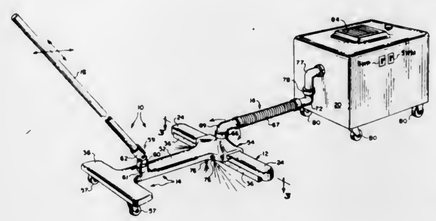
upper portions of said air-supply tubes having therein orifice means opening into the surrounding ambient atmosphere for, upon the creation of said vacuum within said suction tubes and in response to said vacuum, causing ambient air to enter said air-supply tubes and flow downwardly therethrough and for thereby facilitating the withdrawal upwardly through said suction tubes of the packing coke.

4,266,317

VACUUM CLEANING APPARATUS

John Duda, 6313 N. Wayne Ave., Chicago, Ill. 60660

Filed May 18, 1979, Ser. No. 40,091
Int. Cl.[3] A47L *7/00*
U.S. Cl. 15—322 **12 Claims**



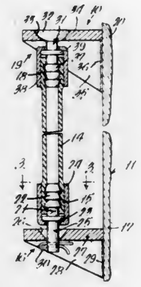
1. In a floor cleaning and sanitizing apparatus of the character described, in combination a cleaning unit comprising an elongated transversely extending inverted cup-shaped suction head designed for direct support on, and universal multidirectional sliding movement over a floor surface to be cleaned and including a transversely elongated top wall, depending end walls, and front and rear spaced apart depending flexible floor-engaging members establishing an internal downwardly opening suction chamber, said suction head having means whereby said chamber may be connected to a source of sub-atmospheric pressure, a guide carriage for said suction head in the form of a generally T-shaped member including a longitudinally extending beam connected at its forward end to a medial region of the suction head and extending rearwardly therefrom and having a transversely extending T-head at its rear end, thus rendering the cleaning unit generally of H-shape configuration, caster means tractionally supporting the T-head from the floor, an elongated operating handle for said unit, and a universal joint connecting the lower end of said handle to said beam in close proximity to said T-head, whereby components of rearward, as well as side-to-side, movements of the handle will effect commensurate trailing sliding movements of the suction head on the floor.

4,266,318

HAND RAIL ASSEMBLY

Fred R. Dauwalder, Yorkville, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 29, 1979, Ser. No. 83,991
Int. Cl.[3] B60N *3/02;* **B60R** *27/00*
U.S. Cl. 16—111 R **11 Claims**



1. A hand rail assembly (**10**) comprising:

graspable means (**14**);

first breakable connectihg means (**16**) associated with a first portion (**15**) of said graspable means for releasably securing said first portion to a support (**11**); and

second connecting means (**19**) associated with a second portion (**18**) of said graspable means (**14**) spaced from said first portion (**15**) for providing a maintained securing of said second portion of the graspable means to the support notwithstanding a force being applied to said assembly sufficient to break said first connecting means (**16**), each of said first and second connecting means (**16,19**) comprising brackets (**28,35**) carried by the support (**11**), a mounting element (**21**) fixedly connected to the graspable means (**14**), first, breakable means (**30**) securing the mounting (**21**) of the first connecting means to the bracket (**28**) thereof, and second, unbreakable means (**32**) securing the mounting element (**31**) of the second connecting means (**19**) to the bracket (**35**) thereof.

4,266,319

APPARATUS FOR FACILITATING ATTACHMENT OF A BAG TO A LAWNMOWER

David R. Mason, 4162 Dearborn St., East Chicago, Ind. 46312

Filed Nov. 13, 1979, Ser. No. 93,860
Int. Cl.[3] A01D *53/00;* **A47B** *95/02*
U.S. Cl. 16—111 A **8 Claims**

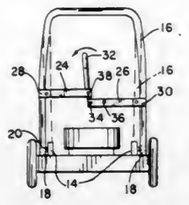
1. An adaptor kit for use in a lawnmower, the lawnmower having a frame, a pair of brackets secured to the frame, and a pair of handlebars releasably attachable to said pair of brackets in a first position, and detachable from said pair of brackets in a second position,

comprising in combination:

first and second attachment means releasably securable to said handlebars, respectively, including first and second clamps securable to said handlebars, respectively, and first

and second bars extending inwardly from said first and second clamps, respectively, so as to substantially overlap one another, and

shifting means securable to said attachment means for shifting said handlebars between said first and second positions, including a lever connected to said bars and normally occupying an initial position, when said handlebars occupy said first position, said lever being shiftable to an operative position for moving said handlebars to said second position, whereby a bag is easily attachable to said frame when said handlebars are in said second position, and upon said bag being attached to said frame, said handlebars may be returned to said first position.



4,266,320

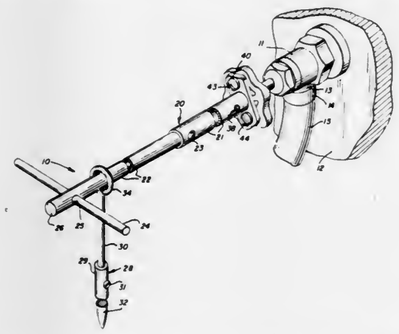
FAUCET EXTENDER

Cary E. Grant, 1077 Coventry Dr., Lake Forest, Ill. 60045

Filed Sep. 27, 1979, Ser. No. 79,442

Int. Cl.³ E05B *1/00*

U.S. Cl. 16—114 R **7 Claims**



1. A device for use with a faucet on the outside of a house and having an externally threaded outlet portion for attachment to a fitting at the end of a garden hose and a valve controlled by an outwardly projecting generally horizontal rotatable shaft, said device comprising: an elongated extension member for extending generally horizontally in axial alignment with said shaft from an inner end adjacent the faucet to an outer end spaced a substantial distance therefrom, handle means on the outer end of said extension member for engagement by the hand of a user to effect rotation of said extension member, connection means secured to said inner end of said extension member and arranged for connection to said shaft to effect rotation of said shaft upon rotation of said extension member, an elongated support member arranged to extend vertically from a lower end adapted to be driven into the ground to an upper end adjacent said outer end of said extension member, and journaling means on said upper end of said support member for supporting and journaling said outer end of said extension member.

4,266,321

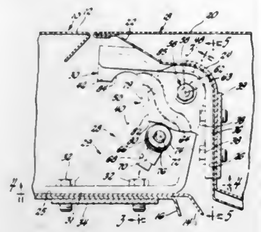
HINGE AND HOLD-OPEN ASSEMBLY

Paul F. Pelchat, Canton, and Alfonsas Arlauskas, Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 20, 1979, Ser. No. 50,186

Int. Cl.³ E05D *11/10*

U.S. Cl. 16—145 **3 Claims**



1. A hinge and hold-open assembly comprising a pair of hinge straps, an integral hold-open spring and pivot pin member having a pivot pin portion and a spring portion, means on said hinge straps for cooperating with said pin portion to pivotally connect said hinge straps for relative pivotal movement between a closed condition and an open condition, means on one of said hinge straps for preventing turning of said spring and pin member relative to said one hinge strap while permitting radial deflection of said spring portion relative to said pin portion, a rotary cam follower rotatably mounted on said spring portion, and cam means on the other of said hinge straps for guiding said cam follower, said cam means including a first lobe portion for establishing said spring portion in a relaxed condition when said hinge straps are in their closed condition and forcing gradual radial deflection of said spring portion in one direction during relative pivotal movement of said hinge straps to their open condition, said cam means further including a second lobe portion with a convex profile for guiding said cam follower to permit relatively abrupt but limited radial unflexure of said spring portion in the opposite direction upon the hinge straps assuming their open condition to thereby yieldingly hold the hinge straps in their open condition and whereby less effort is required to establish the hold-open condition then is required to release same.

4,266,322

DEVICE FOR MAKING A CUT EXTENDING FROM THE VENT TOWARD THE BREAST IN A SLAUGHTERED BIRD

Martinus P. G. van Mil, Boxmeer, Netherlands, assignor to Stork PMT B.V., Boxmeer, Netherlands

Filed Feb. 8, 1979, Ser. No. 10,233

Claims priority, application Netherlands, Feb. 15, 1978, 7801712

Int. Cl.³ A22C *21/00*

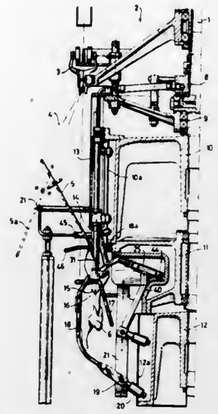
U.S. Cl. 17—11 **26 Claims**

1. Apparatus for making a cut in a slaughtered bird to open the skin of the bird forward of the vent toward the breast point of the bird and in which the bird is being conveyed on conveyor means along a path relative to a generally fixed support, the support and apparatus having cooperating drive structure including driving and driven means for operating said apparatus along a particular cutting locus of said support as the bird passes said locus, there being means for positioning the bird with its vent-to-neck axis generally vertical at least while at said cutting locus and said apparatus comprising:

A. a rotary knife, means carrying said rotary knife and moving in synchronism with said conveyor means, said rotary knife being rotatable about a substantially vertical axis, said rotary knife adapted to be reciprocated on said axis while rotating to cut a circular opening at said vent and thereafter retract as said rotary knife carrying means and bird pass through said cutting locus;

B. a generally straight edge second knife, mounting means for said second knife and a swinging arm having said mounting means coupled thereto, a framework moving in synchronism with said conveyor means and rotary knife carrying means, said framework having said arm pivotally connected thereto;

C. the driving and driven means being effective while said



bird, rotary knife carrying means and framework pass said cutting locus to swing said arm in a plane which is generally parallel with if not defined by said axis while transporting the second knife into the circular opening after the rotary knife has retracted away from said opening, along a tortuous path in the bird's skin a distance toward the breast point spaced from said vent and then in a reverse direction substantially along the same path;

D. said mounting means for said second knife and framework having means cooperating to define said path.

4,266,323

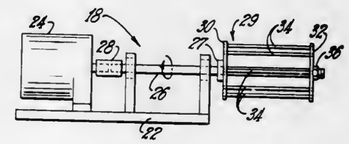
APPARATUS FOR CHOPPING STRANDS

John A. Waugh, Aiken, S.C., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 10, 1979, Ser. No. 65,689

Int. Cl.³ D01G *1/04*

U.S. Cl. 19—0.56 **3 Claims**



1. Apparatus for collecting undesirably long sections of strand from advancing discrete segments of strand comprising:

means for forming said discrete segments of strand from an input strand said segments moving along a path;

rotatably driven spaced apart rods oriented substantially parallel to the axis of rotation thereof, the axis of rotation being oriented substantially transverse to the path of the advancing discrete segments to collect said undesirably long sections of strand on said rods while permitting said discrete segments to pass therethrough.

4,266,324

SILVER WEIGHT UNEVENNESS CORRECTING APPARATUS

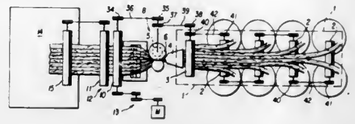
Junzo Hasegawa, Obu; Susumu Kawabata, Aichi; Hiroshi Niimi; Yasuhiko Suzuki, both of Nagoya; Masaki Akatsuka, Kariya, and Takahiko Tsunekawa, Aichi, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya and Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, both of, Japan

Filed Dec. 27, 1979, Ser. No. 107,571

Claims priority, application Japan, Dec. 27, 1978, 53-163856; Jan. 24, 1979, 54-7966; Feb. 9, 1979, 54-14605; Feb. 15, 1979, 54-16905

Int. Cl.³ D01H *5/38*

U.S. Cl. 19—239 **30 Claims**



1. Sliver weight unevenness correcting apparatus comprising:

a sliver weight measuring section having a sliver weight detecting sensor for detecting the variations in weight of a bundle of slivers;

a correcting draft device having front rollers disposed downstream of said sliver weight measuring section relative to the direction of advancement of slivers, said front rollers being rotated at a constant speed, and back rollers disposed between said sliver weight measuring section and said front rollers, said back rollers being rotated at a variable speed;

rotation detecting means for detecting the number (N_F) of revolutions of said front rollers;

an unevenness correcting circuit having a ratio circuit for operating a ratio (E_0/E_1) between a reference weight (E_0) of the bundle of slivers and a detected weight (E_1) thereof, and

a contrasting operational circuit for multiplying said operational ratio (E_0/E_1) from said ratio circuit and a ratio (N_F/k) between the number (N_F) of revolutions of said front rollers from said rotation detecting means and a reference draft value (k), and for producing a multiplied signal ($E_0/E_1 \cdot N_F k$); and

a speed control circuit for producing a speed control signal responsive to the multiplied signal ($E_0/E_1 \cdot N_F/k$) from said contrasting operational circuit, said speed control circuit connected with the back rollers via a rotation transmitting mechanism, thereby controlling the speed of rotation of said back rollers through the rotation transmitting mechanism.

4,266,325

SAFETY BELT FOR VEHICLES

Leif Ennerdal, Alingsas, and Lars E. Berg, Vargarda, both of Sweden, assignors to Autoliv AB, Vargarda, Sweden

Continuation of Ser. No. 815,268, Jul. 13, 1977, abandoned. This application Mar. 28, 1979, Ser. No. 24,572

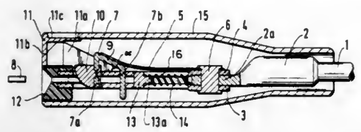
Claims priority, application Sweden, Jul. 19, 1976, 7608200

Int. Cl.³ A44B *11/26*

U.S. Cl. 24—230 A **4 Claims**

1. A receiving part for a safety belt for vehicles, wherein the safety belt has a substantially disc-shaped coupling tongue, comprising: guiding plate means forming a space therebetween for receiving said coupling tongue, locking means in said receiving part and movable in a direction transverse to said guiding plate means to lock said tongue therebetween, a wedge-shaped operating member displaceable along at least one of said guiding plate means, said operating member having

surface means forming a wedge angle with said guiding plate means and facing away therefrom, said locking means having a wedge-shaped portion with substantial surface areas extending parallel to and resting on said surface means of said operating member, and spring means biasing said locking means such that said areas engage said surface means of said operating member.

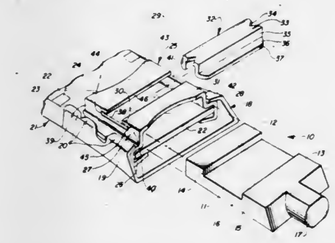


4,266,326

WATCHBAND CONNECTOR

Lai F. Hong, Blk. E & G, 15/F., Kingsway Ind. Bldg., 173-175, Wo Yi Hop Rd., Kwai Chung, N.T., Hong Kong

Filed Aug. 6, 1979, Ser. No. 63,725
Int. Cl.³ A44C *5/18*
U.S. Cl. 24—265 WS **2 Claims**



1. An arrangement for connecting a wrist watch case to a watch band, comprising:

at least one male lug member projecting outwardly from the watch case,

a female connector assembly disposed on at least one end of the watch band, and

a locking member for preventing disengagement of said male lug member and said female connector assembly,

said male lug member comprising a transversely disposed slotted portion of configuration as to accommodate said locking member,

said female connector assembly comprising at least one side wall provided with an opening portion of such configuration as to enable access of said locking member through the side wall to said slotted portion of said male lug member,

said male lug member comprising two coplanar raised flat, spaced-apart surfaces extending transversely to the long axis of the watch band and a parallel lowered flat surface disposed between said raised flat surfaces,

said female connector assembly side wall comprising two parallel raised sections and a lowered section disposed between said raised sections,

said female connector assembly further comprising a first and a coplanar second flat upper face spaced apart from each other, with each of said faces bridging one of said raised sections of said side wall, with the edge of each of the faces forming lips which extend over the lowered section of said side wall, and with each of said flat upper faces overlying one of said raised surfaces of said male lug member when said male lug member is engaged within said female connector assembly, with the space between said upper face being less than that between the male lug member surfaces,

said locking member comprising an elongated planar top portion of substantially the same length as the bridging axis of the connector assembly,

a first and second neck portion parallel to each other and substantially perpendicular to and below said top portion,

a first and a second shoulder portion being attached to said first and second neck portions, respectively, and extending substantially perpendicularly outwardly therefrom,

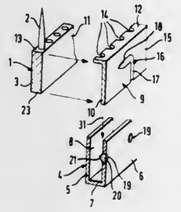
one edge of said male lug member abutting against said side wall of said female connector assembly after insertion through said opening formed by said first side wall and said lips of said female portion and the outwardly directed edges of said shoulders abutting the inward edges of said two raised surfaces of said male lug member.

4,266,327

RELEASABLY INTERLOCKING NEEDLESTRIP AND NEEDLE-CARRIER FOR TEXTILE MACHINES

Josef Egerer, Schwabach, Fed. Rep. of Germany, assignor to Staedtler & Uhl, Schwabach, Fed. Rep. of Germany

Filed Feb. 8, 1980, Ser. No. 119,611
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1979, 2909525
Int. Cl.³ D06C *3/10*; D01H *5/14*; D01G *19/10*
U.S. Cl. 28—299 **10 Claims**



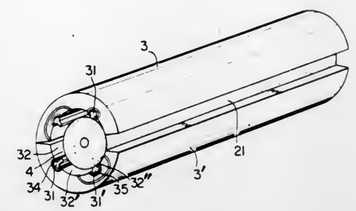
1. Releasably interlockable needlestrip and needle-carrier for textile machines comprising a generally U-shaped elongated needle carrier having a pair of longitudinally extending spaced legs connected at one each of the corresponding ends thereof by a transverse bight section, said legs and bight section thereby defining a longitudinally extending recess therebetween, a plurality of protuberances provided on one of said legs projecting into said recess, an elongated needlestrip having opposed sidewalls and top and bottom faces, a bracket member having a least a pair of legs angularly connected relative to each other such that one of said legs is positionable in abutting relationship with one of the sidewalls of said needlestrip and the other of said legs is positionable in abutting relationship with the top face of said needlestrip, said needlestrip and bracket member when positioned in said abutting relationship being dimensioned and configured to fit snugly within the recess of said needle carrier, and a plurality of slots formed in the surface of said one leg of the bracket member remote from the sidewall of the needlestrip, each said slot having a first vertically extending segment and a second longitudinally extending segment, said protuberances and slots being so configured and arranged on said needle-carrier and bracket member that upon insertion of the needlestrip and abutting bracket member into the recess of said needle carrier said protuberances are alignable with the vertical segments of corresponding slots and are slidable therein for mechanical and releasable interlocking of the needlestrip, bracket member and needle-carrier.

4,266,328

DEVELOPING ROLL FOR USE IN ELECTROSTATIC DEVELOPING APPARATUS EMPLOYING MAGNETIC PARTICLES

Hideki Harada, Urawa; Keitaro Yamashita, Kamisatomachi, and Katsunobu Yamamoto, Kumagaya, all of Japan, assignors to Hitachi Metals, Ltd., Japan

Division of Ser. No. 839,446, Oct. 5, 1977, Pat. No. 4,168,481. This application May 10, 1979, Ser. No. 37,905
Int. Cl.³ B21B *13/02*; G03G *15/09*
U.S. Cl. 29—116 R **2 Claims**



1. A developing roll for use in electrostatic image-developing apparatus employing magnetic particles comprising:

a shaft;

a columnar permanent magnet mounted on the shaft and having on its curved surface an even number of evenly spaced magnetic poles for producing evenly spaced major peaks of magnetic flux of alternating polarity in an axially extending uniform magnetic field with peripheral reversals of polarity; and

an outer non-magnetic shell surrounding the permanent magnet in a spaced relation therefrom, said shell and said magnet being rotatable relative to each other;

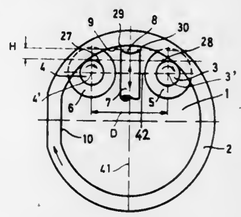
said magnet having partially weakened magnetic field portions along its peripheral line for producing a minor peak associated with each of individual ones of said evenly spaced major peaks, said associated major and minor peaks being of the same polarity for easing the gradient of polarity inversion.

4,266,329

APPARATUS FOR POSITIONING OUT-OF-ROUND WORKPIECES PARTICULARLY PISTON RINGS

Otto Feller, Leichlingen; Alois Skrobek, Burscheid, and Wilfried Schmitz, Cologne, all of Fed. Rep. of Germany, assignors to Goetze AG, Burscheid, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,090
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840863
Int. Cl.³ B23P *15/10*
U.S. Cl. 29—222 **13 Claims**



1. Apparatus for positioning an out-of-round workpiece in the form of a ring having an out-of-round inner circumferential face with a radially inwardly directed portion that deviates from said out-of-round contour, said apparatus comprising first and second spaced cylindrical rollers having a predetermined distance therebetween, the diameter of each of said rollers being substantially less than the diameter of said workpiece;

means for rotating said rollers about their respective longitudinal axes in the same direction; and

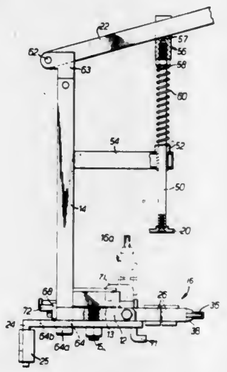
braking means interposed between said rollers and spaced therefrom, the frontal face of said braking means facing said workpiece being positioned with respect to the peripheral surfaces of said cylindrical rollers so that said frontal face contacts only the portion of the inner circumferential face of said workpiece which deviates from said out-of-round contour, said rollers being spaced from said workpiece when the frontal face of said braking means is in contact with said workpiece and in contact with said workpiece at all other positions thereof, only the weight of said workpiece resting on said rollers.

4,266,330

SECUREMENT OF COUPLINGS TO LENGTHS OF HOSE

Laurino Conte, 2 Gladhall Ave., Thornbury, Victoria, Australia

Filed Oct. 24, 1978, Ser. No. 954,280
Claims priority, application Australia, Oct. 28, 1977, PD2230
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—267 **21 Claims**



1. Apparatus for mounting an end-fitting on a hose comprising:

respective first and second adjustable clamp assemblies carried by a support plate at spaced apart positions along the periphery thereof, which first clamp assembly defines opposed arcuate edges or faces defining an adjustable opening outwardly of the plate in which a length of hose may be clamped for application of an end-fitting thereto, while the second clamp assembly defines opposed straight edges or faces between which parallel side edges of a first part of the end-fitting may be thereafter clamped to facilitate tightening of a second part of the end-fitting onto the length of hose;

a post demountably or fixedly carried by said support plate;

a press head moveably disposed relative to said post and having a press face overlying said adjustable opening of the first clamp assembly; and

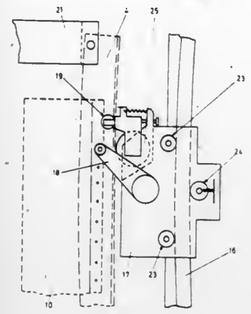
a lever assembly supported by said post for moving the press head towards said opening for forcing the end-fitting, or part thereof, onto the end of the hose held in the opening.

4,266,331

METHOD OF MAKING A MIRROR

Jerome Grassin, Vanves; Maurice Thouvenin, Parmain, and Jean-Claude Epie, Montmorency, all of France, assignors to Saint-Gobain Industries, Aubervillers, France

Division of Ser. No. 776,613, Mar. 11, 1977, Pat. No. 4,150,874.
This application Mar. 12, 1979, Ser. No. 19,615
Claims priority, application France, Mar. 17, 1976, 76 07756
Int. Cl.³ B23P *11/02*
U.S. Cl. 29—449 **12 Claims**



1. A method for making a mirror in which a plurality of reflecting components are supported by a frame, said method comprising the steps of:

inserting a deformable object into two spaced-apart thrust bearings such that said deformable object is adjacent a structural member that is rigid enough to hold said object in a contour to which it is deformed,

contacting said deformable object with movable apparatus for deforming said object, said apparatus being movable in a direction substantially parallel to that of said deformable object and said structural member,

elastically deforming said object as the deforming apparatus is moved along said object and simultaneously attaching the deformable object to the structural member, the foregoing steps being performed at least twice to make a plurality of spaced-apart, substantially parallel curved support members that constitute said frame, said support members being curved to conform substantially to the contour of a continuously curved mirror, and

mounting at least one of said reflecting components on a pair of said support members by deforming a plane rectangular reflecting strip to conform to the curvature of said support members and attaching said strip thereto, said deformation taking place at the time the reflecting strip is attached to said support members.

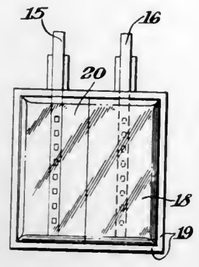
4,266,332

THIN ELECTROLYTIC CAPACITOR MANUFACTURE

Mark Markarian, Williamstown, and Henry F. Puppolo, North Adams, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Apr. 2, 1979, Ser. No. 26,466
Int. Cl.³ H01G *9/10*
U.S. Cl. 29—570 **5 Claims**

1. The method of producing a flat electrolytic capacitor section with a vapor barrier comprising the steps of winding anode and cathode foils with interleaved spacers and attaching electrode tabs to form a capacitor section and partially flattening said section, impregnating with electrolyte, and compressing said section to complete the flattening and squeeze out excess electrolyte, then thermally sealing said section in a heat sealable vapor-barrier material chosen from the group consisting of films of polyester, perfluoroethylene, cellophane, polyolefin, and laminates thereof with aluminum foil in the form of a polymer-foil-polymer laminate, said heat-sealable material being adhesive-coated, said sealing being attained by placing said section between layers of said heat sealable material, said electrode tabs extending beyond said section and beyond the edges of said heat sealable material, said heat sealable material enveloping said section and extending to a point on said tabs



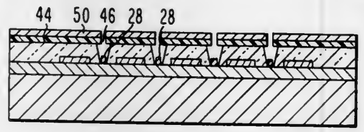
short of the site of a tab-lead connection, placing an adhesive between said tabs and that portion of said heat sealable material adjacent said tabs, and heat-sealing said heat sealable material at least all around the periphery of said section including said tabs to provide a sealed section having said vapor barrier.

4,266,333

METHOD OF MAKING A SCHOTTKY BARRIER FIELD EFFECT TRANSISTOR

Walter F. Reichert, East Brunswick, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 27, 1979, Ser. No. 33,827
Int. Cl.³ H01L *21/28*
U.S. Cl. 29—571 **7 Claims**



1. A method of making a Schottky barrier field effect transistor comprising the steps of:

(a) forming spaced source and drain contacts on a surface of a body of a semiconductor material,

(b) coating the source and drain contacts and the exposed portions of said surface of the semiconductor body with a relatively thick layer of an insulating material,

(c) providing on said insulating layer a layer of photoresist having an opening therethrough over the space between the source and drain contacts,

(d) forming through the opening in the photoresist layer an opening through the coating layer to the surface of the semiconductor body such that the walls of the opening in the insulating layer extend back away from the edge of the opening in the photoresist layer,

(e) simultaneously depositing separate metal layers on the photoresist layer and on the surface of the semiconductor body through the opening in the photoresist layer with the metal layer on the semiconductor body being of a width corresponding to the width of the opening in the photoresist layer,

(f) removing the photoresist layer and the metal layer thereon, and

(g) leaving the insulating layer on the source and drain contacts and the semiconductor body.

4,266,334

MANUFACTURE OF THINNED SUBSTRATE IMAGERS

Thomas W. Edwards, Mount Joy, and Ronald S. Pennypacker, East Petersburg, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 29, 1979, Ser. No. 98,699
Claims priority, application United Kingdom, Jul. 25, 1979, 25870/79
Int. Cl.³ H01L *21/96*
U.S. Cl. 29—583 **13 Claims**



1. A method of manufacturing thinned substrate imagers comprising the steps of:

masking one surface, hereafter termed the "front surface" and the peripheral edge of the opposite surface, hereafter termed the "back surface" of a wafer formed of the substrate to prevent attack by the thinning bath described in the following step:

placing the wafer in a thinning bath which attacks that part of the wafer which is not masked, for a length of time sufficient to remove the unmasked portion of the back surface to a desired depth, whereby there remains a thinned wafer with an unthinned rim around its peripheral edge;

removing the thinned wafer from the bath; and

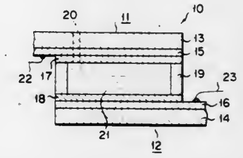
glueing to the thinned region of the back surface of the wafer, a sheet of glass which fits into wafer within the unthinned rim thereof.

4,266,335

METHOD OF PRODUCING ELECTROCHROMIC DISPLAY DEVICE

Shoichi Matsumoto; Hirohisa Kato, both of Yokohama, and Yusuke Wada, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 2, 1979, Ser. No. 16,786
Claims priority, application Japan, Mar. 10, 1978, 53-26663
Int. Cl.³ G02F *1/13*
U.S. Cl. 29—592 R **9 Claims**



1. A method of producing an electrochromic display device comprising:

applying under an inert atmosphere a solution containing at least one transition metal compound selected from the group consisting of halides and alkoxides of transition metals dissolved in an organic solvent to the surface of at least one of two electrode substrates, at least one of said substrates being transparent, thereby forming a thin layer of said solution;

drying the thin layer of solution by using a temperature between room temperature and 120° C. to form an electrochronic layer on the surface of the electrode substrate; and

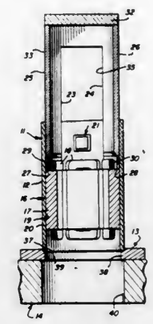
fixing the two electrode substrates in a manner to face each other with an ionic conductor layer disposed therebetween.

4,266,336

FIXTURES AND METHODS FOR DYNAMO SERVICING

Michael K. Kasey, Palatine, Ill., assignor to The Echlin Manufacturing Company, Branford, Conn.

Filed Jul. 26, 1979, Ser. No. 60,910
Int. Cl.³ H02K *15/02, 15/14*
U.S. Cl. 29—596 **13 Claims**



1. Apparatus for use between a pair of press elements which are movable toward each other in effecting axial movement of a field structure of a dynamo relative to a casing structure thereof, said field structure including a core having an external cylindrical surface and winding means on said core having portions projecting axially from opposite ends thereof and said casing structure including an internal cylindrical surface engageable by said external cylindrical surface with a press fit, said apparatus comprising: a fixture having an engagement surface for engagement with one of said press elements and at least a pair of wall portions disposed in diametrically opposed relation with respect to a central axis normal to said engagement surface, said wall portions having cylindrical outer surface portions for sliding engagement with diametrically opposed portions of said internal cylindrical surface of said casing structure and having end surfaces in a plane transverse to said central axis for engagement with end surface portions of said core of said field structure.

4,266,337

ELECTRIC HEATING ELEMENTS

George C. Gedeon, Pittsburgh, Pa., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Jul. 11, 1979, Ser. No. 56,554
Int. Cl.³ H01C *17/00*; B21B *37/02*
U.S. Cl. 29—614 **9 Claims**

1. Apparatus for rolling a rectilinear metal-sheathed electric heating element to a final target length, comprising:

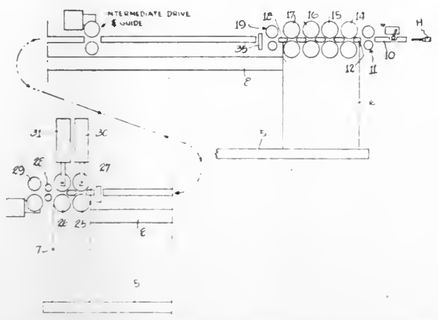
a first set of reduction rolls for reducing the cross section of said sheath an amount less than the amount at final target length,

a pair of measuring devices at longitudinally-spaced places along the movement of said sheath through said apparatus, one measuring device cooperable with an unrolled portion of said sheat as it passes through said apparatus and another measuring device cooperable with a rolled portion of said sheath as it passes through said apparatus, said other device providing a signal indicative of an increase in sheath length as a result of rolling by said first set of reduction rolls.

a further set of reduction rolls downstream of said measuring devices, and

means actuated by said signal to adjust the bight of said

further set of reduction rolls, so as to further reduce the cross section of said sheath to equal that at said final target



length and thereby increase sheath length to said final target length within acceptable tolerances.

4,266,338

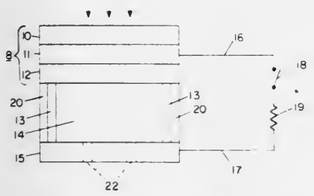
METHOD OF MANUFACTURING PHOTOELECTROCHEMICAL CELL

Schoen-nan Chen, North Brunswick, N.J.; Michael A. Russak, Farmingdale, N.Y.; Horst Witzke, Princeton, N.J.; Joseph Reichman, Great Neck, N.Y., and Satyendra K. Deb, East Brunswick, N.J., assignors to Grumman Aerospace, Bethpage, N.Y. and Refac Electronics, Barkhamsted, Conn.

Division of Ser. No. 880,071, Feb. 22, 1978, Pat. No. 4,172,925. This application Mar. 14, 1979, Ser. No. 20,373

Int. Cl.³ H01M *6/30, 6/36*

U.S. Cl. 29—623.2 **4 Claims**



1. A method of fabrication of a photoelectrochemical cell comprising the steps of:

(a) depositing a semiconductor thin film containing a material other than zinc selenide on a conductive substrate transmissive to electromagnetic irradiation, thereby forming a first electrode,

(b) performing a post deposition treatment of the coated substrate,

(c) placing an inert gasket material around the perimeter of said electrode,

(d) placing a stable counterelectrode on said gasket,

(e) sealing the cell with a non-conductive sealant, and

(f) filling the cell with an electrolyte;

wherein said depositing step comprises one or more of the group of steps of sputtering, chemical vapor deposition, vacuum evaporation, and electrodisposition; and further

wherein said depositing step comprises the step of doping said semiconductor with zinc selenide.

4,266,339

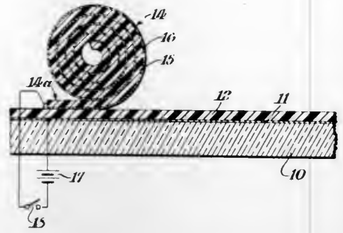
METHOD FOR MAKING ROLLING ELECTRODE FOR ELECTROSTATIC DEVICE

Charles G. Kalt, Williamstown, Mass., assignor to Dielectric Systems International, Inc., North Adams, Mass.

Filed Jun. 7, 1979, Ser. No. 46,270

Int. Cl.³ H05K *3/00*

U.S. Cl. 29—829 **12 Claims**



1. A method for making an electrostatically controllable device having a rolling electrode comprising:

(a) depositing a metal film on only one side of a tentered plastic sheet;

(b) heating said tentered sheet to a temperature greater than that corresponding to the 0.5 percent tenter-relief shrinkage characteristic of said sheet;

(c) cooling said sheet to shrink said plastic and to cause said metallized sheet to cure metal-outward to form a tight roll; and

(d) attaching the outermost end of said roll to an insulated surface of a fixed electrode so that when a voltage is impressed between said metallized plastic sheet and said fixed electrode, said tight roll is attracted to said fixed electrode and is unrolled.

4,266,340

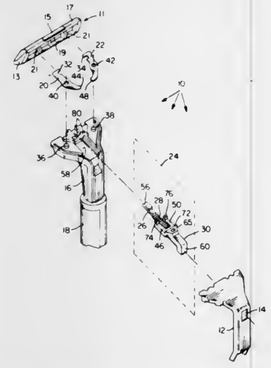
RAZOR HANDLE FOR MOUNTING PIVOTABLE RAZOR BLADE CARTRIDGES

Peter Bowman, Sandy Hook, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Jun. 11, 1979, Ser. No. 47,592

Int. Cl.³ B26B *21/06, 21/52*

U.S. Cl. 30—89 **7 Claims**



1. In a razor handle comprising a housing having first and second pivot means, first and second arms mounted on said first and second pivot means respectively and adapted to engage first and second portions respectively of a razor blade assembly, cam follower means disposed within said housing and comprising a substantially rigid spring-biased member having a forward end projecting from said housing and being

reciprocably movable in response to a force applied thereto by pivotal movement of said razor blade assembly on said first and second arms, a pusher means disposed on said housing and operatively connected to said first and second arms, said pusher means, upon actuation thereof by an operator, effecting movement of said first and second arms each away from the other upon said first and second respective pivot means whereby to release said blade assembly, the improvement comprising

said cam follower member including a first stop surface extending transversely of said direction of reciprocation and facing substantially in the direction of said cam follower member forward end and a second stop surface extending transversely of said direction of reciprocation and facing substantially opposite to the direction of said cam follower means forward end;

said pusher means including a recess for slidably receiving a rear portion of said reciprocable cam follower member and a stop surface extending transversely of said direction of cam follower member reciprocation and positioned to engage said cam follower member first stop surface; and

said biasing spring comprising compression spring means encircling a portion of said cam follower member, said spring acting in compression oppositely on said cam follower member second stop surface and said pusher means to bias said cam follower member forward relative to said pusher means such that said cam follower member first stop surface and said pusher means stop surface are normally in limiting engagement when no blade assembly is in said razor.

4,266,341

HAIR TRIMMING APPARATUS

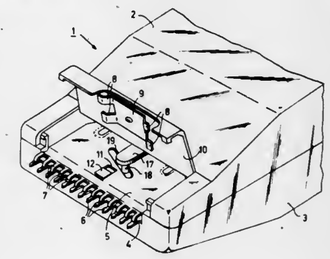
Antonius P. J. A. Claassens, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 26, 1979, Ser. No. 24,126

Claims priority, application Netherlands, Jun. 30, 1978, 7807173

Int. Cl.³ B26B *19/00*

U.S. Cl. 30—195 **6 Claims**



1. A hair trimming device, which comprises a stationary cutting element having a longitudinally extending side provided with teeth extending in a direction substantially transverse to said side; a second cutting element drivable relative to the stationary cutting element in said transverse direction, said drivable cutting element having a longitudinally extending side provided with teeth extending in a direction substantially transverse to said latter side, each tooth of the drivable cutting element cooperating with a corresponding tooth of the stationary cutting element to form a pair, the two teeth in each pair at least partly overlapping each other, and adjacent pairs being spaced from each other; a recess formed in at least one side edge of each tooth of one of said cutting elements, at least a part of the edge of said recess constituting a cutting edge; and cutting edge on each tooth of the other cutting element, the cutting edges on the teeth of each pair cooperating with each other.

4,266,342

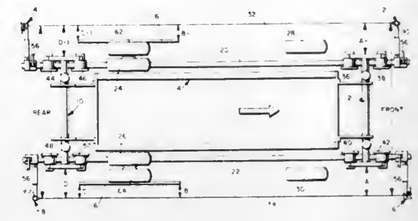
SUPPORTING ASSEMBLY FOR AN ALIGNMENT LINE

Bernard E. Cors, deceased, late of Aurora, Ill., and Bette M. Cors, executrix, 403 W. Galena Blvd., P.O. Box 1406, Aurora, Ill. 60506

Filed May 2, 1978, Ser. No. 902,119

Int. Cl.³ G01B *5/00*

U.S. Cl. 33—1 Q **7 Claims**



1. An apparatus for use in providing a point of reference for aligning vehicles with respect to a railway track comprising:

a first reference line support device for engaging with the top of a first rail of said track, said first support device including a first reference line support arm, a first coupling arm having a first end connected with said first reference line support arm and a second end connected to a first clamping mechanism for attaching said first support device to the top of said first rail;

a second reference line support device for engaging with the top of said first rail, said second support device including a second reference line support arm, a second coupling arm having a first end connected with said second reference line support arm and a second end connected to a second clamping mechanism for attaching said second support device to the top of said first rail;

a first reference line for interconnecting said first and second support arms;

a first reference line attachment device attached to said first support arm;

a reference line supply spool attached to said second support arm to which one end of said first reference line is coupled, said first reference line being further provided at its other end with a second reference line attachment device for engaging with said first attachment device;

a handle coupled to said supply spool for imparting rotative movement thereto and a locking mechanism for locking said supply spool to prevent its rotation;

said first and second clamping mechanism each comprising a stationary frame for engaging with the top and a side of said first rail and a pivotal adjustable releasable lockable vise clamp mechanism for engaging with another side of said first rail; and,

said first and second coupling arms being adjustable and allowing relative movement between respective said first and second support arms and said first rail, each said first and second coupling arms comprising a first tubular outer sleeve coupled to a respective said stationary frame for engagement with said first rail and a first tubular inner sleeve connected to a respective said support arm and adapted for slidable movement in said first tubular outer sleeve.

4,266,343

SPRING LOADED CLAMPING DEVICE FOR DRAFTING PARALLEL LINES

Roman Gorelik, 1150 S. Glencoe St., Denver, Colo. 80222

Filed Sep. 13, 1979, Ser. No. 75,497

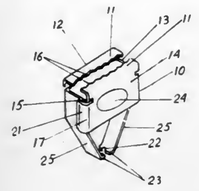
Int. Cl.³ B43L *13/00*

U.S. Cl. 33—41 D **2 Claims**

1. An apparatus for drawing parallel lines, comprising in combination:

two line making means, each including a body of generally elongated cylindrical shape ending in a marking point;

a pair of generally flat planar arms disposed in opposed facing relationship and adapted to be operatively connected together to clamp said line making means therebetween, each arm including a clamping portion facing the opposite arm, said clamping portions adapted to grasp the body of the said two line making means therebetween; and



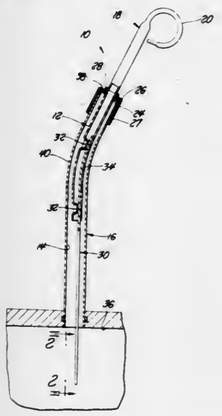
a leaf spring connected to and extending from each of said arms, each of said leaf springs having an opening at the termination thereof adapted to receive and hold said line making means, each of said leaf springs exerting a force against one of said line making means to thereby position said one line making means against the other line making means.

4,266,344

DIPSTICK ALIGNMENT GUIDE

Mason E. Richardson, Clinton Township, Macomb County, Mich., assignor to Estan Manufacturing Company, Troy, Mich.

Filed Sep. 18, 1979, Ser. No. 76,760
Int. Cl.[3] G01F *23/06*
U.S. Cl. 33—126.7 R **13 Claims**



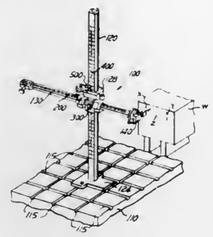
1. A dipstick assembly of the type used for measuring the fluid level within a chamber, said dipstick assembly comprising: an insertion means for indicating the fluid level within a chamber, access means connected to said chamber, said insertion means including a rigid arcuate body portion and a flexible elongated fluid level indicating means connected to said insertion means and extending outwardly therefrom, said access means receiving said insertion means and said indicating means, said access means including a rigid arcuate portion of substantially the same arcuate contour as said rigid arcuate portion of said insertion means, said access means and said body portion of said insertion means cooperating to limit insertion of said insertion means and to prevent excessive relative rotation of said insertion means when received in said access means whereby said fluid level indicating means will be properly oriented so as to accurately indicate the level of the fluid within said chamber.

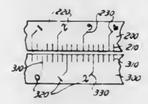
4,266,345

MEASUREMENT INDICATORS FOR A MEASURING MACHINE

Martin B. Alice, Englewood, and John W. Grass, Middletown, both of Ohio, assignors to The Bendix Corporation, Southfield, Mich.

Filed May 27, 1980, Ser. No. 153,498
Int. Cl.[3] G01B *5/20, 3/02*
U.S. Cl. 33—169 R **2 Claims**





1. A measuring apparatus comprising: a base; a probe; a horizontal and vertical members, with said horizontal and vertical members movably coupled together and mounting said probe to said base while allowing movement of the probe in horizontal and vertical directions; and measurement scales mounted on each of said members, each scale including spaced measurement divisions along its length and means associated with said scale for indicating a measurement, the improvement wherein:

the two measurement scales are substantially identical in their measurement indicia including a plurality of reference numerals associated with respective measurement divisions, said reference numerals being positioned at an acute angle of approximately 45° with respect to the length of said scale.

4,266,346

METHOD AND APPARATUS FOR GAGING

Robert D. Olschefski, Wixom, Mich., assignor to N.B.E. Corporation, Walled Lake, Mich.

Filed Jun. 5, 1980, Ser. No. 156,826
Int. Cl.[3] G01B *7/12, 7/31*
U.S. Cl. 33—174 Q **22 Claims**

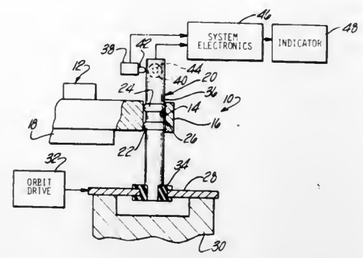
1. A method of gaging a feature of circular shape on a workpiece, the method comprising the steps of:

interfitting a circularly-shaped contact section of an elongate probe over said feature with a clearance space therebetween;

causing said probe to undergo a wobbling rotation, said wobbling rotation being constrained in part by contact with the surface of said gaged feature;

measuring the motion of a probe extension section axially displaced from said contact section along orthogonal axes in a plane normal to the axis of said feature as said probe undergoes said wobbling rotation;

whereby said motion thereof along said orthogonal axes varies in accordance with the diameter of said gaged feature and with said axis position of said gaged feature due to the constraint of said contact section with said surface of said gaged feature to thereby establish a measurement of the diameter and axis position of said gaged feature.

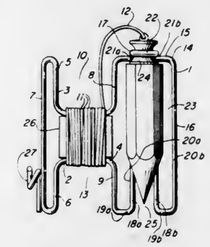


4,266,347

HOLDER FOR A PLUMB BOB

Lester Illgen, Rte. 2 - Box 34, Lockport, Ill. 60441

Filed Sep. 7, 1979, Ser. No. 73,403
Int. Cl.[3] G01C *15/10*
U.S. Cl. 33—393 **10 Claims**



1. A holder for a plumb bob, comprising a planar spool section on which to wind the cord of a plumb bob, said planar spool section lying in a single plane, and a rack section to receive and hold a plumb bob, said rack section including a planar portion lying in a first plane and an extending portion extending outwardly from said first plane to hold said plumb bob in spaced apart relationship with said planar portion of said rack section.

4,266,348

FLUIDIZED BED PROCESS

Willard E. Ledding, Clarendon Hills, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

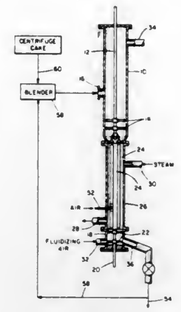
Division of Ser. No. 970,069, Dec. 15, 1978, Pat. No. 4,237,619. This application Mar. 31, 1980, Ser. No. 136,131
Int. Cl.[3] F26B *3/08;* **C13L** *1/00*
U.S. Cl. 34—10 **5 Claims**

1. A process for the fluidized drying of starch comprising the steps of:

(a) feeding supply starch having a moisture content of up to 27% by weight to an upper fluidized zone while continuously subjecting the starch therein to mechanical agitation,

(b) passing the agitated fluidized solids in the upper fluidized zone downwardly against the fluidizing gas through a plurality of tubular zones to a lower fluidized zone while mechanically agitating the starch in the lower fluidized zone,

(c) contacting the tubular zones with heat exchange media to supply heat to the starch in the tubular zones to a temperature such that the wet-bulb temperature of the fluidizing gases exiting from the upper fluidized zone is at least 54° C., and



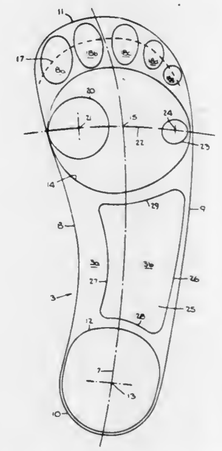
(d) recovering starch having a moisture content of less than 19% by weight.

4,266,349

CONTINUOUS SOLE FOR SPORTS SHOE

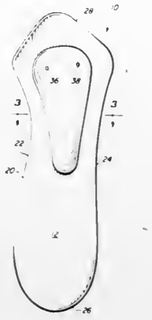
Michael W. Schmohl, Nuremberg, Fed. Rep. of Germany, assignor to Uniroyal GmbH, Aachen, Fed. Rep. of Germany

Filed Nov. 17, 1978, Ser. No. 961,915
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1977, 2753205
Int. Cl.[3] A43B *13/04;* **A43C** *15/00*
U.S. Cl. 36—32 R **18 Claims**



1. Footwear having a toe portion and a heel and a continuous outsole from said toe portion to said heel portion, said outsole having a profile pattern comprising a first pattern section in the area of the ball of the foot and a second pattern section in the area of the heel of the foot, said first and second pattern sections being respectively characterized by first and second substantially large circular shapes at the ball and heel areas for facilitating rotation of said foot at said ball and heel areas, said first and second large circular shapes having center points disposed substantially on a longitudinal dividing line extending from an end of said toe portion to an end of said heel portion and dividing said outsole into two substantially equal longitudinal areas, and wherein said first large circular shape encompasses the ball area of the foot and at least one small circular shape, said one small circular shape having a center point disposed on one side of the longitudinal dividing line.

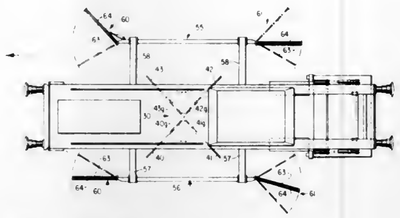
4,266,350
FOOTWEAR INSOLE
Joseph J. Laux, Scottsdale, Ariz., assignor to Ormid Company, Phoenix, Ariz.
Filed Aug. 20, 1979, Ser. No. 67,691
Int. Cl.³ A43B *13/40, 7/06*
U.S. Cl. 36—44 **2 Claims**



1. An insole for footwear comprising:
(a) An upper laminate of split suede leather having the entire upper surface of suitable texture to minimize slippage relative to the wearer's foot, said upper laminate having adequate porosity to "breath", allowing air to the wearer's foot;
(b) a lower laminate of resilient material having a bottom surface having suitable frictional characteristics to minimize slipping relative to footwear;
(c) said upper and lower laminate being joined over substantially the entire contact area and having an outer configuration generally conforming to footwear to be worn and having a lateral side, medial side and front and rear edges, and at least said front edge of said lower laminate being upwardly and outwardly beveled toward said upper laminate whereby the front edge of said insole does not present an obstructing edge to the wearer's foot;
(d) an adhesive area on the bottom side of said lower laminate, said adhesive area being covered by a removable covering; and
(e) resilient cushioning means interposed between said upper and lower laminate generally in the area conforming to the metatarsal area of the foot, said resilient cushioning means being a resilient foam and extending rearwardly to an area intermediate to said front and rear edges, said upper laminate defining at least one aperture therethrough in the area occupied by said resilient cushioning means to further allow the insole to "breath".

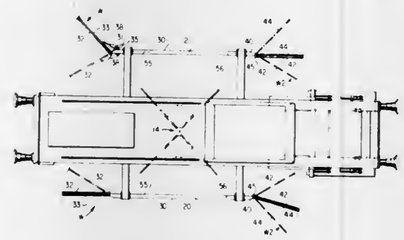
4,266,351
CENTER PLOW FOR RAILROAD BALLAST
Emmett W. Cox, West Columbia, S.C., assignor to Canron Corporation, West Columbia, S.C.
Filed Oct. 11, 1979, Ser. No. 83,947
Int. Cl.³ E01B *27/04*
U.S. Cl. 37—104 **6 Claims**

1. A railroad ballast plow comprising a four element plow member of substantially X shaped configuration mounted to be centrally of the track on a track travelling vehicle for vertical movement into and out of engagement with the ballast, each plow element having at its end adjacement the intersection



point of the X a ballast passing gate, and means to individually open and shut each of the four gates.

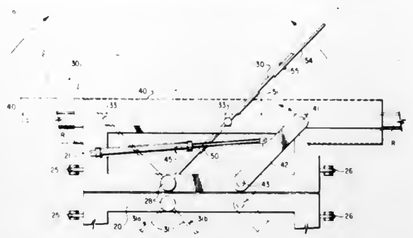
4,266,352
BALLAST SIDE PLOW
George R. Newman, West Columbia, S.C., assignor to Canron Corporation, West Columbia, S.C.
Filed Oct. 11, 1979, Ser. No. 83,945
Int. Cl.³ E01B *27/04*
U.S. Cl. 37—105 **3 Claims**



1. A railroad ballast plow device attached in a parallel upright position to one side of a railroad ballast plowing machine, said plow device comprising a longitudinally extending substantially rectangular main plowboard; a first wing means pivotally connected to a leading edge of said plowboard; a second wing means pivotally attached to a trailing edge of said plowboard; and first and second wing means each comprising an inner and an outer flap independently rotatable about a substantially vertical hinge line on one of said leading and trailing edges, relatively to said plowboard; and means to rotate said flaps.

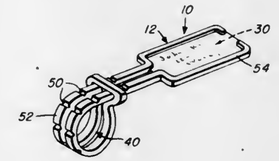
4,266,353
DEVICE FOR PLOWING BALLAST
George R. Newman, West Columbia, S.C., assignor to Canron Corporation, West Columbia, S.C.
Filed Oct. 11, 1979, Ser. No. 83,946
Int. Cl.³ E01B *27/04*
U.S. Cl. 37—105 **3 Claims**

1. A railroad ballast plow comprising a wheeled chassis, a pair of plow blade means each pivotally mounted on a frame means located beneath and centrally of said chassis for pivotal movement about a substantially vertical axis, each plow blade means extending outwardly from its pivotal mount; longitudinally extending tunnel means for covering each track rail, pivotally mounted on and carried by its respective plow blade means; and means to pivot each blade means relative to said



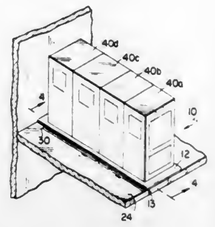
chassis and on its tunnel means, to adopt a plurality of ballast plowing configurations.

4,266,354
LUGGAGE MARKER
Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 16, 1979, Ser. No. 66,899
Int. Cl.³ G09F *3/14, 3/20*
U.S. Cl. 40—21 R **6 Claims**



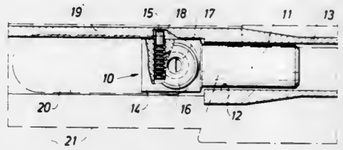
1. A unitary molded luggage marker comprising an elongated indicia receiving body portion, an axially extending elongated bifurcated strap having spaced apart legs defining an axially extending slot, said strap extending axially from said body portion, said strap legs distal to said body portion being closed by a bight portion defining a transversely extending elongated slot, the bifurcation of the strap being dimensioned to allow the passage of the body portion therethrough with the legs received in the opposed end portions of the elongated slot for providing a strap loop for fastening the marker to a piece of luggage, means integral with the strap for selectively fixing the dimension of a loop so formed as the strap is pulled tight, said means for selectively fixing the dimension of a strap loop formed comprising lock means carried by said bight portion and said legs for releasably securing said bight portion relative to said spaced apart legs of said elongated bifurcated strap, said lock means including a tab means carried by said bight portion and comprising a transversely extending axially disposed and projecting tab for coaction with tab detent means, said detent means being carried by said strap legs on a surface thereof that upon formation of a strap loop is on the outer surface of the strap loop, said detent means comprising aligned pairs of transverse notches in said strap legs whereby formation of a strap loop is facilitated by a hinging effect provided by said notches, and said transversely extending axially disposed and projecting tab including an intermediate portion sized to maintain said legs in said transversely extending slot with the tab lockingly engaged in a pair of aligned notches in said strap legs.

4,266,355
SHELF DISPLAY
Jerome A. Moss, 333 West End Ave., New York, N.Y. 10023
Filed Dec. 26, 1978, Ser. No. 973,750
Int. Cl.³ G09F *1/00*
U.S. Cl. 40—124.1 **12 Claims**



1. A display comprising a base member and a display member movably connected to said base member, and said display member comprising a message display surface, and a connecting member, one end thereof being movably connected to said base member and the other end thereof being movably connected to said display member and elastic means disposed between said base member and display member and operatively associated with said members to move said display member from a folded down position upwardly from said base member, said elastic means further comprising spring means disposed between said base member and said display means, whereby said spring means initiates the movement of said display member and said elastic means completes said movement, said display being adapted to be disposed on a shelf with merchandise on said display member, whereby removal of the merchandise actuates the elastic means to cause the display member to move upwardly from the base member so that the message display surface is viewable from the front of the shelf.

4,266,356
DEVICE FOR PREVENTING UNAUTHORIZED USE OF A FIREARM
Järvinen Uro T., Sätunavägen 18, 195 00 Märsta, Sweden
Filed Feb. 28, 1979, Ser. No. 16,078
Claims priority, application Sweden, Mar. 2, 1978, 7802389
Int. Cl.³ F41C *27/00*
U.S. Cl. 42—1 LP **2 Claims**



1. A device for preventing unauthorized use of a firearm, said device comprising a plug which is adapted to be inserted at least partially into a cartridge chamber in a barrel of a firearm and locking means for locking the plug in a position in which it projects into said chamber;
said locking means comprising a locking member which is slidably mounted in the plug or a portion rigidly connected thereto for displacement in a direction substantially perpendicular to the longitudinal axis of the plug between an inoperative or retracted position, in which it permits an unimpeded insertion of the plug into the cartridge chamber as well as an unimpeded removal of the plug from said chamber, and an operative or extended position, in which it is adapted to project into a recess in the wall of a rearwardly extending integral portion of the barrel to prevent

removal of the plug from the cartridge chamber by acting against a rear wall of said recess,

said locking means further comprising a lock, by means of which the locking member may be locked in relation to the plug in its said operative or extended position.

4,266,357

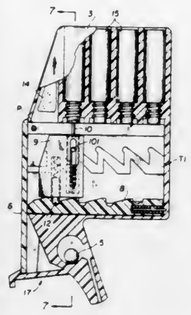
MULTIPLE UNIT FLARE LAUNCHER

John M. Greenleaf, Syosset, N.Y., assignor to Bristol Marine, Inc., Jericho, N.Y.

Continuation-in-part of Ser. No. 909,223, May 24, 1978, abandoned, which is a continuation of Ser. No. 735,559, Oct. 26, 1976, abandoned. This application Aug. 20, 1979, Ser. No. 67,964

Int. Cl.³ F41C *3/02*

U.S. Cl. 42—1 Z **12 Claims**



1. A multiple signal unit launcher comprising a plurality of signal units positioned in side by side array, and communicating at their lower ends with a common slot, single unit firing means positioned beneath said slot and said units, slide means for moving said firing means from adjacent one unit to the next and complementary cam and cam follower means engaged with each other for guiding said firing means and for activating the same for firing each unit separately.

4,266,358

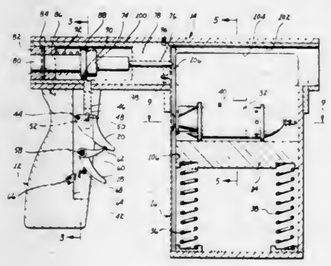
UNDERWATER FIREARM

John C. Phillips, 3148 S. 48th St., Phoenix, Ariz. 85040, and Michael D. Nobel, 3525 E. Montecito Ave., #3, Phoenix, Ariz. 85018

Filed Jan. 18, 1979, Ser. No. 4,548

Int. Cl.³ F41C *9/06*

U.S. Cl. 42—39.5 **16 Claims**



1. A firearm for discharging projectiles, said firearm comprising in combination:

(a) a barrel for discharging a projectile, said barrel having a longitudinal axis and including a firing chamber and an opening for lateral insertion of the projectile into said firing chamber to load said firearm;

(b) means for retaining the projectile within said firing chamber until discharge of the projectile or unloading of said firearm;

(c) an inner sleeve rotatably mounted within said barrel for closing said opening on rotation of said inner sleeve, said inner sleeve including an aperture configured commensurate with said opening to accommodate admission therethrough of the projectile;

(d) a mechanism for actuating a firing pin to discharge a projectile;

(e) a swing arm pivotable through an arc about the longitudinal axis of said barrel for cocking said mechanism and simultaneously rotating said inner sleeve to admit and enclose a projectile within said firing chamber; and

(f) trigger means for triggering said mechanism to actuate the firing pin and discharge a projectile.

4,266,359

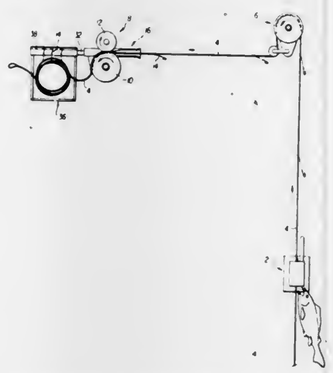
LONG LINE HOOK ARRANGING APPARATUS

Wayne E. Alex, Box 95, Juneau, Ak. 99802

Filed Oct. 9, 1979, Ser. No. 82,895

Int. Cl.³ A01K *91/06*

U.S. Cl. 43—6.5 **6 Claims**



1. A long line hook arranging apparatus comprising:

a line hauling wheel arranged to draw a fishing line along a path with spaced hooks on said line depending freely therefrom;

means defining a guide chute adjacent but below said wheel and extending along said path, said chute having an open end to receive depending hooks moving along said path;

orienting means in said chute for engaging hooks moving along said path in said chute and orienting all said hooks with their hook portions extending toward said wheel;

a fixed bar extending generally tangent to said wheel and along the top of said chute adjacent said wheel, said bar extending between said wheel and said hooks whereby, when said line is directed around said wheel away from said chute said oriented hooks successively and slidably engage over said bar;

an open topped container having an upper edge flange portion in axial alignment with said fixed bar whereby hooks on said fixed bar may be slid therefrom onto said flange while said line leaving said wheel is being coiled in said container, said upper edge flange being in the form of a downwardly open channel overlying and removably embracing an end portion of said fixed bar.

4,266,360

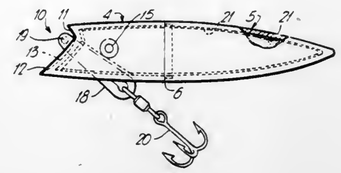
ARTIFICAL BAIT

Brian F. Smith, 1132 Chalet Rd., R.R. 1, Sidney, BC, Canada (V8L 3R9)

Filed Jun. 15, 1979, Ser. No. 48,907

Int. Cl.³ A01K *85/00*

U.S. Cl. 43—42.09 **5 Claims**



1. Artificial bait of the type having an elongate, hollow, generally transparent body portion including transparent side wall means and a generally biunt transparent front end wall portion having an exterior and an interior surface; a coloured insert received within said body to provide same with a desired first colour means, said insert having a front edge portion spaced from said front end wall portion, whereby a front part of said side wall means adjacent to said front end wall portion is uncolored by said insert, said front end wall portion being provided with second colour means distinct from said first color means and applied only to said front end wall portion, said second color means being visible through said front part of said side wall means.

4,266,361

FISHING-TACKLE TO BE USED AS A COMBINED JIG AND SPINNER

Ole Joergensen, 24 Upsalagade, 2100 Copenhagen, Denmark, assignor to Ole Joergensen, Copenhagen, Denmark

Filed Jul. 27, 1978, Ser. No. 928,376

Claims priority, application Denmark, Aug. 3, 1977, 3463/77

Int. Cl.³ A01K *85/00*

U.S. Cl. 43—42.46 **2 Claims**



1. A fishing tackle to be used as a combined jig and spinner comprising an elongated body provided with means for securing a line or a hook, respectively, said body tapering in cross-sectional size from the rearward end to the forward end and having at said forward end a pair of wings extending outwardly from opposite sides, said wings being pitched rearwardly and upwardly from the forward end and merging into said body, thereby locating the center of gravity of said fishing tackle at approximately mid-way between the ends thereof.

4,266,362

ANIMAL TRAP LOCKING MECHANISM

Delmer E. Campbell, 1903 South Ave., Springfield, Mo. 65807, and John T. Gargis, 1507 Rocky Ford Rd., Fort Oglethorpe, Ga. 30742

Filed Nov. 5, 1979, Ser. No. 90,878

Int. Cl.³ A01M *23/08*

U.S. Cl. 43—66 **4 Claims**

1. For use in an animal trap having a housing with a swingable gate therein for controlling access to an animal capture area, said gate being swingable from a normal closure position in response to animal exertion thereagainst, means for locking said gate at said normal position comprising:

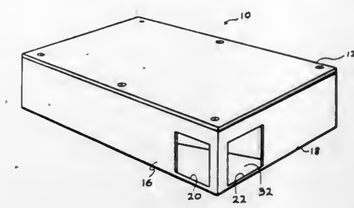
a hinge assembly including first and second leaves with each leaf having first and second ends, said respective first ends pivotally mounted about a common hinge pin;

means mounted to said gate for pivotally mounting said second end of said first leaf thereto;

means fixed to said housing and spaced from said gate for pivotally mounting said second leaf thereto so as to provide a swinging motion to said hinge accompanying said gate movement;

an imaginary axis passing through said gate pivot and said housing pivot; and

said hinge pin positioned relative to said axis at said normal gate position so as to prevent said hinge motion whereby said attached gate is non-responsive to said exertion of said animal.



4,266,363

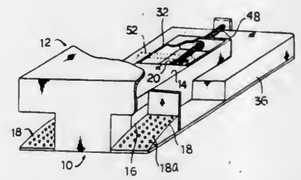
AUTOMATIC TRAP FOR CATCHING COCKROACH

Chang C. Chen, No. 7, 12 La., Tsuey St., Pan Chiao Shih, Taipei Hsien, Taiwan

Filed Aug. 28, 1979, Ser. No. 70,465

Int. Cl.³ A01M *1/12*

U.S. Cl. 43—73 **7 Claims**



1. An automatic trap for catching cockroach comprising

a transmission mechanism including

a first clutch-pulley and a second clutch-pulley,

a transmission gear set connected for driving said first and second clutch-pulleys,

a motor connected to drive said transmission gear set;

a trapping mechanism operatively connected to said transmission mechanism and including

a trapping house forming a centrally spaced casing with an opening at its rear,

an entrance to said trapping house at two lateral sides of its front end,

a sectional U-shaped rail having slots therein located substantially centrally in said trapping house,

a connector connected for horizontal movement in said slots by extension in said slots,

a pair of slipping plates with one of each connected on opposite sides of said connector,

a sloped passage outside each said entrance of said trapping house,

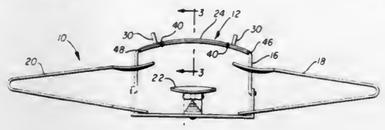
a pedal switch inside said trapping house near said entrance connected for switching on said motor to move said slipping plates.

a collecting room extending from said rear opening of said trapping house,

a turning plate located for closing said rear opening between said collecting room and said trapping house,

an electric current reversing switch located substantially toward the rear of said trapping house operatively connected to reverse operation of said motor.

4,266,364
HUMANE TRAP DEVICE
Roy T. McBride, Box 725, Alpine, Tex. 79830
Filed Aug. 13, 1979, Ser. No. 66,032
Int. Cl.³ A01M *23/26*
U.S. Cl. 43—90 **5 Claims**



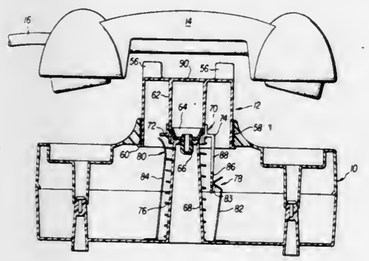
1. In an animal trap having coacting, opposed, U-shaped jaws journaled to a base for pivotal movement towards and away from one another for trapping an animal therebetween, the combination of said trap and an attachment means by which a trapped animal is rendered subdued;

said attachment means includes a body, means attaching said body to one of said jaws;

a resilient member affixed to said body and extending away from the jaw; said resilient member having a chamber formed therewithin, within which a substance for subduing animals can be stored;

whereby, a substance for subduing animals can be placed within said chamber, so that when an animal is caught in the trap, and the trapped animal bites the resilient member, the substance stored within the chamber is ingested by the animal, thereby subduing the animal.

4,266,365
RINGING TOY TELEPHONE
Charles A. Cummings, and Gerald Rodmaker, both of Cincinnati, Ohio, assignors to C.P.G. Products Corp., New York, N.Y.
Filed Sep. 17, 1979, Ser. No. 76,316
Int. Cl.³ A63H *33/30*
U.S. Cl. 46—33 **11 Claims**



1. A toy telephone comprising:

a base member having a bell thereon;

a handpiece supporting cradle on said base, mounted thereon for vertical movement;

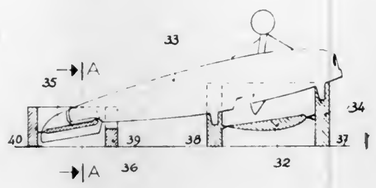
biasing means urging said cradle to move upwardly;

a movable handpiece of sufficient weight to move said cradle downwardly against said biasing means when placed thereon;

bell ringing means response to downward movement of said cradle to effect ringing of said bell; and

delay means for slowing downward movement of said cradle and thereby delaying ringing of said bell to a time substantially subsequent to placing said handpiece on said cradle.

4,266,366
PREFABRICATED AIRPLANE MODEL KIT
Philippe Lapierre, 4 rue Pauly, 75014 Paris, France
Filed Jan. 9, 1979, Ser. No. 2,202
Claims priority, application France, Jan. 13, 1978, 78 00972
Int. Cl.³ A63H *27/00, 27/02*
U.S. Cl. 46—76 R **15 Claims**



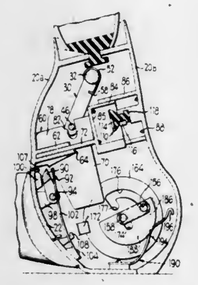
1. An airplane model kit for forming an airplane model comprising:

a fuselage;

a frame-wing assembly including at least one wing and a temporary frame with which at least a portion of said at least one wing is prefabricated in an integral manner; and

means for ensuring an accurate matching of said frame-wing assembly with respect to the fuselage.

4,266,367
SITTING DOLL
Wayne A. Kuna, Elmhurst; Allison W. Katzman, and Rouben T. Terzian, both of Chicago, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 1, 1979, Ser. No. 8,519
Int. Cl.³ A63H *11/14*
U.S. Cl. 46—149 **17 Claims**



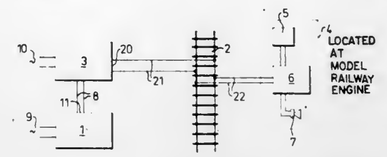
1. An articulated doll having limb members and a torso and capable of assuming a sitting position from a standing position without the assistance of the user, said doll comprising:

means within said doll torso for moving said doll from a standing to a sitting position, said moving means comprising pivotal leg members being pivoted with respect to said torso;

means for controlling operation of said moving means, said controlling means comprising means for retaining said pivotal leg members in a standing position and rotatable means extending from the outer surface of said doll torso and being actuated by the user of said doll to operate said controlling means; and

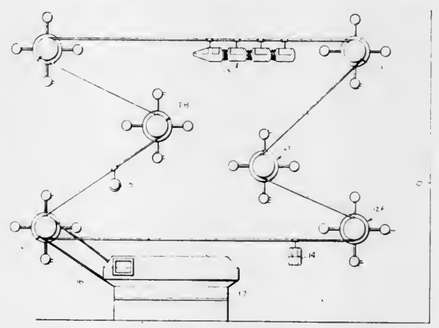
means within said doll for delaying operation of said moving means after operation of said controlling means.

4,266,368
DEVICE FOR GENERATING A SYNCHRONOUS SOUND REFERRING TO A MODEL RAILWAY ENGINE
Bo Nyman, Stockholm, Sweden, assignor to Alice Nyman, Stockholm, Sweden
Filed Aug. 7, 1979, Ser. No. 64,435
Int. Cl.³ A63H *33/26*
U.S. Cl. 46—232 **2 Claims**



1. In combination with a model railway engine, a device for generating a synchronous sound imitative of a model railway engine, said device comprising a first unit having means including electronic circuits for generating sound signals adapted to imitate a certain engine and capable of emitting the generated sound signals via conductor means which also supply operating voltage to the engine, and a second unit located at the engine, which includes a loudspeaker, said second unit comprising a synchronization set capable of emitting pulses in time with the rotation of the engine wheel, which synchronization set is connected to said first unit via said conductor means and thereby capable of emitting the pulses to the first unit, said first unit being capable of emitting an a-c voltage corresponding to a sound pulse via said conductor means to teh loudspeaker when a pulse or a plurality of pulses are emitted from the synchronization set, characterized in that said synchronization set comprises a light-emitting diode, a phototransistor and marks made on the inside surface of the engine wheel, where the light-emitting diode and, respectively, the phototransistor are located to light said inside surface, and respectively, receive light reflected from the inside surface.

4,266,369
TOY CABLEWAY
Donald Spector, 380 Mountain Rd., Union City, N.J. 07087
Filed May 8, 1979, Ser. No. 37,047
Int. Cl.³ A63H *18/12*
U.S. Cl. 46—260 **9 Claims**



1. A detachable toy cableway system comprising:

A. a plurality of standards which are attachable to a vertical wall at selected sites thereon to create any one of several different travel patterns, each standard having a pedestal whose base is provided with adhesive to anchor the standard at a wall site selected therefor and a pulley wheel rotatably mounted at the end of a shaft projecting outwardly from the pedestal at right angles to the wall;

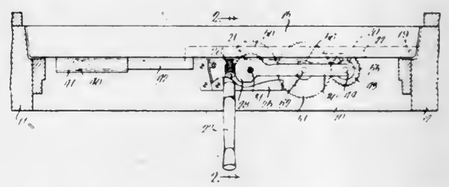
B. an endless cable of stretchable material strung over the pulley wheels to provide an expandable cable length which can be accommodated to any one of the different travel patterns, one of the wheels being driven to cause said cable to advance in a path determined by the selected travel pattern; and

C. play elements suspended from said cable at various points thereon.

4,266,370
AGRICULTURAL COVERING FILM OR SHEET AND METHOD FOR THERMAL INSULATION
Yoshiaki Kodera, Kusatsu; Kiyoyuki Watanabe, Jyoyo, and Takayuki Kusu, Minoo, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Japan
Division of Ser. No. 911,956, Jun. 1, 1978. This application Sep. 19, 1979, Ser. No. 76,948
Int. Cl.³ A01G *7/00*
U.S. Cl. 47—29 **5 Claims**

1. A method for maintaining an agricultural locus at temperatures suitable for the growth of plants, which comprises covering the locus with a covering film or sheet of a resin composition comprising (A) 100 parts by weight of a thermoplastic olefinic resin and (B) about 1 to about 20 parts by weight of an acetal resin.

4,266,371
OPERATOR FOR A CASEMENT-TYPE WINDOW
Arthur G. Erdman, Roseville, and Jeffory A. Peterson, Canby, both of Minn., assignors to Truth Incorporated, Owatonna, Minn.
Filed May 23, 1979, Ser. No. 41,722
Int. Cl.³ E05D *15/30*
U.S. Cl. 49—252 **9 Claims**



1. An operator for a casement-type window having a sash mounted adjacent one edge thereof for combined pivoting about a pivot axis and linear movement of the sash relative to a window frame comprising, a member movably engaged with said sash adjacent an outer edge thereof remote from said one edge for imparting opening and closing force to the sash, and means including a link pivotable about an axis generally parallel with said pivot axis for moving said member in a path which closely approximates the movement of the sash outer edge to cause said member to always act adjacent said outer edge.

4,266,372
SLIDING DOOR
Genshi Taniwaki, Kumamoto, Japan, assignor to Kongo Co., Ltd., Kumamoto, Japan
Continuation-in-part of Ser. No. 802,445, Jun. 1, 1977, Pat. No. 4,162,592. This application Feb. 21, 1979, Ser. No. 13,529
Claims priority, application Japan, Jun. 2, 1976, 51-71245; Jun. 2, 1976, 51-71246; Jun. 15, 1976, 51-77298
Int. Cl.³ E05F *11/00*
U.S. Cl. 49—358 **10 Claims**

1. A door adapted to be moved on a rail laid along a wall thereby to close an opening formed in the wall comprising:

a door body having a plurality of wheels and an axle for mounting each of said wheels on said body;

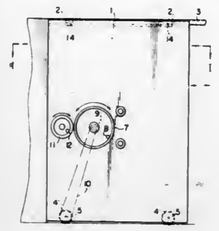
manually operable means rotatably attached to one side wall of the door, and including first and second rotatable shafts and a third partially rotatable shaft;

a rotary driving member of a predetermined diameter coaxially carried by the first shaft;

a rotary driven member carried by one of said axles and having a diameter larger than that of said driving member;

an endless power transmission member connected between said driving and driven members;

a locking means fixedly carried by said third partially rotatable shaft of said manually operable means, said third rotatable shaft being operatively coupled to said second rotatable shaft, said locking means locking said door body



in the closed position when said manually operable means are operated; and

stopper means having detecting means partially extending out of the side end of the door and positioned for detecting a wall contact, and engagement means for locking said second shaft of said manually operable means when said detecting means does not detect a wall contact wherein said stopper means comprises a toothed wheel coaxially mounted on said second rotatable shaft of said manually operable means, said detecting means comprising a projecting member extending out of the side end of the door, said detecting means actuating said engagement means for engagement with said toothed wheel when said detecting means does not detect a wall contact.

4,266,373

APPARATUS FOR DEBURRING EDGES

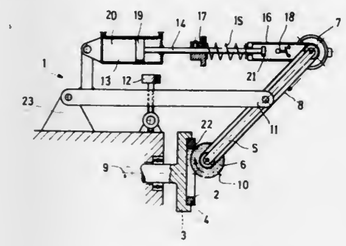
Horst Bornefeld, Burscheid; Gerd Comberg; Werner Engel, both of Leverkusen, and Johannes Neyer, Odenthal-Erberich, all of Fed. Rep. of Germany, assignors to Goetze AG, Burscheid, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 88,062

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1978, 2847192

Int. Cl.³ B24B *9/00*

U.S. Cl. 51—99 **17 Claims**



1. In an apparatus for deburring a circumferential edge of a workpiece, including a rotary deburring tool having an axis of rotation; the tool and the workpiece edge defining a location of contact during the deburring of the edge; the improvement wherein said axis is substantially parallel to the tangent belonging to the workpiece edge at said location; further comprising

(a) a tool lever having an end carrying said rotary deburring tool;

(b) means for pivotally supporting said tool lever and including a guide lever being articulated to said tool lever at a predetermined distance from said end thereof; said guide lever being pivotally supported at a location spaced from the articulation with said tool lever;

(c) a linear motor coupled to said tool lever for pivotally urging said tool lever toward the workpiece edge at a predetermined angle; and

(d) force-equalizing means coupled to said linear motor and said tool lever for setting and maintaining substantially constant the tool feeding force derived from said linear motor.

4,266,374

GRINDING MACHINE WITH TRUING APPARATUS FOR GRINDING WHEEL MADE OF CUBIC BORON NITRIDE

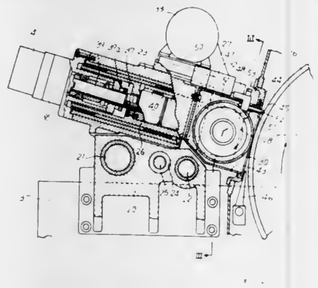
Hiroaki Asano; Ikuo Suzuki, both of Chiryu, and Minoru Enomoto, Ohbu, all of Japan, assignors to Toyoda-Koki Kabushiki-Kaisha, Kariya, Japan

Filed Apr. 13, 1979, Ser. No. 29,904

Claims priority, application Japan, Apr. 18, 1978, 53-45707

Int. Cl.³ B24B *49/18*

U.S. Cl. 51—165.87 **6 Claims**



1. A grinding machine comprising:

a bed;

work support means mounted on said bed for rotatably supporting a workpiece to be ground;

a wheel support slidably mounted on said bed for rotatably carrying a grinding wheel made of cubic boron nitride;

a traverse carriage slidable in a direction parallel to the axis of said grinding wheel;

traverse feed means for moving said traverse carriage;

a truing head slidably mounted on said traverse carriage so as to be moved toward and away from the grinding surface of said grinding wheel;

a truing wheel rotatably carried on said truing head;

a detection member mounted on said truing head in spaced relationship with said truing wheel in an axial direction of said truing wheel and movable toward said grinding wheel;

means for detecting the contact between said detection member and said grinding wheel;

feed means for feeding said truing head toward said grinding wheel until said contact detecting means detects the contact between said detection member and said grinding wheel;

said feed means being operable to feed said truing head toward and past said grinding wheel by a first predetermined distance for truing said grinding wheel in response to the detection of the contact between said detection member and said grinding wheel by said contact detecting means, said detection member being ground by said grinding wheel to a depth equal to the first predetermined distance;

said traverse feed means being operable to move said traverse carriage in one direction to perform a truing operation on said grinding wheel by said truing wheel after said truing head is fed toward said grinding wheel by the first predetermined distance;

means for moving said detection member a second predetermined distance toward said grinding wheel after said grinding wheel is trued by said truing wheel;

said traverse feed means being operable to move said traverse carriage in the other direction to cause said detection member to be ground by said trued grinding wheel so as to be aligned with said truing wheel relative to the periphery of said grinding wheel after said detection member is moved the second predetermined distance; and

said feed means being operable to retract said truing head a third predetermined distance after said detection member is ground by said trued grinding wheel.

4,266,375

FEED CONTROL APPARATUS FOR A MACHINE TOOL CARRIAGE

Hideo Nishimura, Aichi; Yasufumi Tokura, Toyota; Kunihiko Unno, Kariya; Minoru Enomoto; Isamu Yokoe, both of Ohbu; Norihiko Shimizu, Nagoya, and Haruo Ohmura, Okazaki, all of Japan, assignors to Toyoda-Koki Kabushiki-Kaisha, Kariya, Japan

Filed Mar. 7, 1980, Ser. No. 128,154

Claims priority, application Japan, Mar. 28, 1979, 54-36394

Int. Cl.³ B24B *49/00*

U.S. Cl. 51—165.71 **7 Claims**

1. A feed control apparatus for a carriage which is drivingly connected to a servomotor through a feed screw for slide movement on a guide base of a machine tool, comprising:

a numerical controller responsive to numerical control information for outputting feed pulses sselectively at a first frequency for rapid feed, a second frequency for slow-down feed and a third frequency for machining feed;

servomotor control means connected to said numerical controller and said servomotor for controlling rotation of said servomotor in response to said feed pulses output from said numerical controller;

detection means for detecting whether or not said carriage has reached a velocity checking point defined within a slow-down feed range of said carriage, so as to emit a velocity checking signal when the reaching of said carriage to said velocity checking point is detected;

abnormality confirmation circuit means capable of confirming whether or not the actual feed rate of said carriage has been reduced below a reference feed rate, which is lower by a predetermined value than a rapid feed rate, and responsive to said velocity checking signal for outputting an abnormality signal when it is confirmed that the actual feed rate of said carriage still exceeds said reference feed rate; and

emergency stop circuit means connected to said servomotor control means and said abnormality confirmation circuit means and responsive to said abnormality signal for causing said servomotor control means to immediately discontinue rotation of said servomotor.

4,266,376

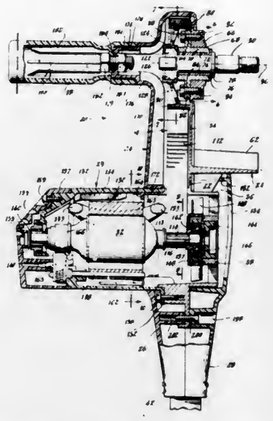
PORTABLE ELECTRICALLY ENERGIZED SURFACE FINISHING TOOL

Colin Overy, Brockville, Canada, assignor to Black & Decker Inc., Newark, Del.

Filed Feb. 9, 1979, Ser. No. 10,912

Int. Cl.³ B24B *23/00*

U.S. Cl. 51—170 R **21 Claims**



1. An improved, portable, electrically energized surface finishing tool adapted to be hand held and supported by a user during operation and to be maneuvered by the user for advancing a rotating, peripherally acting surface finishing tool into engagement with a workpiece, comprising:

a. an elongated, portable, tool body having a length, distal first and second opposite ends, and first and second sides thereof;

b. a first hand-gripping, tool support handle positioned adjacent said first end of the tool for providing manual support of said tool at said first end;

c. a support spindle, adapted to receive a peripherally acting surface finishing tool, positioned adjacent said second opposite end of the tool;

d. said spindle having first and second opposite ends thereof;

e. said spindle rotatably supported near a first end thereof and having said second spindle end unsupported and protruding from a side of said tool whereby a hub of a peripheral acting surface finishing tool can be positioned on said spindle from said second end;

f. said first handle and spindle mutually orientated for providing that said handle is positioned rearwardly of said spindle on said body and said spindle extends horizontally and transversely to said tool body length when said support handle is positioned vertically;

g. a second hand-gripping tool support handle positioned adjacent said spindle at said second end of said body for providing manual support of said tool adjacent said second end;

h. a guard means positioned between said spindle and said first support handle, said guard means configured to inhibit projection of workpiece particles from said second relatively forward end of said tool body to said first relatively rearward end at which position a user is located;

i. said guard means configured for enabling a periphery of a rotating surface finishing tool to be advanced into engagement with a workpiece upon advancement of the tool in directions generally parallel to the length of the body;

j. electric motor means protruding transversely from said

second side of said tool body at a location rearwardly of said spindle and intermediate said spindle and first handle;

k. said motor means including an armature shaft having a longitudinal axis thereof extending transverse to the length of said tool body; and,

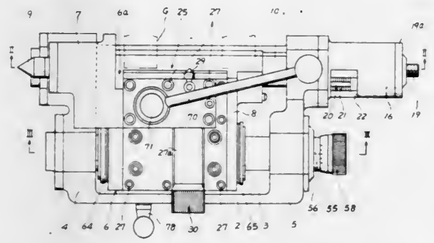
l a flexible coupling means extending in the direction of the length of said tool body for coupling said armature shaft and said spindle for imparting rotary action to said spindle.

4,266,377

TAILSTOCK DEVICE

Makoto Kikuchi, Kariya, and Ikuo Ohtsu, Toyota, both of Japan, assignors to Toyoda-Koki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 21, 1979, Ser. No. 77,591
Claims priority, application Japan, Sep. 22, 1978, 53-116817
Int. Cl.[3] B24B *53/00*
U.S. Cl. 51—262 T **5 Claims**



1. A tailstock device for a grinding machine to grind a workpiece in a dead stop grinding mode comprising:

a tailstock base provided with support portions at opposite ends thereof;

a pilot shaft supported by said support portions;

a tailstock body supported on said pilot shaft between said support portions so as to be movable in a horizontal direction of the axis of said pilot shaft and to be rotatable about the axis of said pilot shaft;

a center carried by said tailstock body in parallel relationship with and upwardly of said pilot shaft for supporting one end of a workpiece to be ground by a grinding wheel;

a spring member for urging said tailstock body and said center toward said workpiece;

a dressing housing supported on said tailstock body at the rear of said center;

a dressing tool adjustably supported by said dressing housing to be movable in a horizontal direction perpendicular to the axis of said center for dressing said grinding wheel;

the tip of said dressing tool being in a horizontal plane which includes the axis of said center;

means for adjustably positioning said dressing tool so as to bring the tip of said dressing tool into a position corresponding to the finished surface of said workpiece;

said pilot shaft being formed with a notched portion thereon so as to permit the periphery of said grinding wheel to move into a position corresponding to the axis of said center in a dressing operation; and

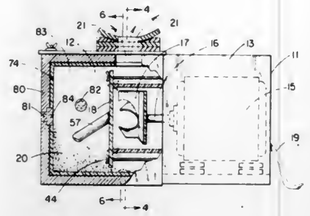
taper adjusting means for adjustably swinging said tailstock body about the axis of said pilot shaft to adjust the angular position of said center.

4,266,378

GLASS ETCHING DEVICE

J. Peter Johnson, 4002 E. 75th St., Indianapolis, Ind. 46250

Filed May 21, 1979, Ser. No. 41,010
Int. Cl.[3] B24C *1/04, 3/32*
U.S. Cl. 51—432 **7 Claims**



2. An apparatus for etching a curved outer surface of fixed contour of a container comprising:

an etching device including a frame with a closed abrasive particulate storage compartment with said frame having an outlet through which abrasive particulate from said compartment may pass;

first means mounted to said frame and located in said compartment being positioned to force abrasive particulate from said compartment through said outlet;

power means associated with said first means operable to power said first means;

a flexible grommet mounted to said frame defining a passage in line with said outlet, said grommet having a radially depressible outer surface assuming said fixed contour and conformingly and sealingly engaging said curved surface, said outer surface limiting the location of said container which is in a position other than in said passage to allow unobstructed movement of said abrasive particulate within said passage; and

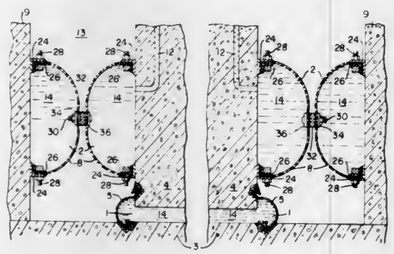
a plurality of masks, each having a differently configured opening extending therethrough defining a symbol to be etched, each mask positionable between and against said grommet and curved surface with said opening aligned with said passage to allow abrasive particulate to pass.

4,266,379

ASEISMIC SYSTEM FOR STRUCTURE FOUNDATION

Hector Valencia Aguilar, Cerro Gordo No. 44, Col. Campestre-Churubusco, Mexico 21, D.F., Mexico

Filed Mar. 6, 1979, Ser. No. 17,860
Int. Cl.[3] E04H *9/00*
U.S. Cl. 52—1 **7 Claims**



1. An aseismic system comprising in combination:

a. a structure foundation;

b. a lower slab beneath said foundation with retaining walls extending upwardly therefrom along opposite sides of said foundation to isolate said foundation from the ground;

c. foundation fluid means disposed between said foundation and said lower slab;

d. lateral fluid means separate and distinct from said foundation fluid means disposed between said foundation and each of said retaining walls;

e. duct means for passage of fluid into and out of said foundation fluid means and said lateral fluid means;

f. first valve means for permitting fluid flow into said foundation fluid to effect leveling of said foundation;

g. second valve means for permitting fluid flow to and from said lateral fluid means thereby maintaining stability of said foundation with respect to the ground; and

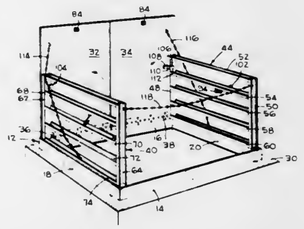
h. means for sensing horizontal movement tending to compress said lateral fluid means and in response thereto activating said second valve means to inject additional fluid to said lateral fluid means and for sensing horizontal movement tending to dilate said lateral fluid means and in response thereto activating said second valve means to eject fluid from said lateral fluid means.

4,266,380

HIGH STRENGTH COVER FOR UNDERGROUND UTILITY BOX

Alfonso A. Samolis, Danville, Calif., assignor to Christy Concrete Products, Inc., Colma, Calif.

Filed Feb. 9, 1979, Ser. No. 10,513
Int. Cl.[2] E02D *29/14*
U.S. Cl. 52—19 **7 Claims**



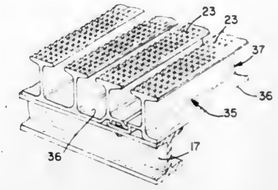
1. A high strength cover for an underground utility box adapted to be installed substantially flush with ground level comprising a substantially rectangular frame including mutually parallel end members defining first and second end edges and mutually parallel side members defining first and second side edges that are perpendicular to the end edges so as to define therewith a substantially rectangular access opening, first and second substantially congruent rectangular structural frameworks having a combined outlinear shape adapted to fit in said access opening, said structural frameworks being formed by elongate structural members having vertical dimensions adequate to resist bending of the frame in response to loads imposed thereon, first and second hinge means for joining the edges of respective frameworks to respective said end edges to afford hinged movement of said frames, first and second substantially congruent cover plates which in combination have an extent sufficient to cover said access opening, third and fourth hinge means for joining said cover plates to said first side edge for hinged movement on an axis perpendicular to the axes of movement of said frameworks, said plates in the lower position closing said access opening and being supported by said frameworks, and means for releasably engaging respective said plates to respective said frameworks when the same are pivoted upward so as to define an upstanding barrier on three sides of said rectangular opening.

4,266,381

EXTRUDED NONSKID TREADWAY

Robert J. Deller, Buffalo Grove, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 3, 1979, Ser. No. 99,682
Int. Cl.[3] B44D *5/08:* **B32B** *3/30*
U.S. Cl. 52—177 **16 Claims**



1. A treadway comprising a plurality of extruded panels supported on support means, each panel including an upper support surface, said panel comprising:

a plurality of upper horizontal and laterally spaced tread strips, said strips forming the entire upper surface of the panel,

vertically extending horizontally spaced support members connected to said tread strip for individual supporting of each said tread strip in a raised position relative to and standing upon said associated support means,

interlocking means on each panel adapted to interlock ends of said panels and adjoining said support means,

a plurality of nonskid members integrally formed in each of said tread strips, and

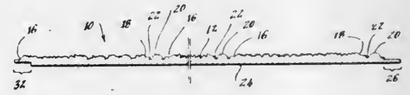
said nonskid members extending in contiguous and rectilinear relation.

4,266,382

HARDBOARD PANEL SIDING

Stephen J. Tellman, Patterson, N.Y., assignor to Champion International Corporation, Stamford, Conn.

Filed May 18, 1979, Ser. No. 40,177
Int. Cl.[3] E04D *1/00*
U.S. Cl. 52—316 **1 Claim**



1. An exterior grade hardboard siding panel for application to vertical surfaces to protect the surfaces from the weather and to provide the appearance of a multiplicity of vertically-applied solid lumber planks having a bead and cove detail, comprising a thin rectangular panel having:

(a) a front surface configured with a plurality of adjacent areas each simulating a vertical solid wood plank, wherein each area has a shallow cove recess at one edge and a like cove recess adjacent to a bead at the opposite edge, and said plurality of areas are arranged such that (i) the cove recess of one edge of one area and the cove recess adjacent to the bead of the next adjacent area have their recessed surfaces facing said bead of said next adjacent area, (ii) both said coves are separated from said bead by narrow grooves, and (iii) said bead extends upwardly from the base of said grooves to a crest which is approximately tangential to the outermost plane of the front surface;

(b) a substantially planar back surface;

(c) a first edge of reduced thickness forming the bottom lap of a shiplap joint the back surface of which is a continuation of said substantially planar back surface, and the front

surface of which is recessed to a level below the base of a groove which terminates the front surface configuration directly adjacent to the recessed area; and

(d) a second edge of reduced thickness opposite said first edge, forming the top lap of a shiplap joint, the back surface of which is recessed from said substantially planar back surface, and the front surface of which is a substantial continuation of the front surface configuration and terminates with a recessed cove, and wherein the radius of curvature of the cove which terminates the front surface of said second edge is less than the radius of curvature of the coves formed on the rest of said panel, and wherein the linear extent of all said coves, measured across the width of said panel, is substantially identical, whereby the strength of said second edge is improved, since less material is removed from said panel, while the appearance of the bead and cove detail is maintained.

4,266,383

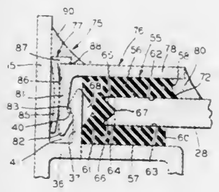
SOLAR ENERGY COLLECTOR

Wallace F. Krueger, Toledo, and Anthony R. Shaw, Waterville, both of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Continuation-in-part of Ser. No. 892,110, Mar. 31, 1978. This application Mar. 5, 1979, Ser. No. 17,428

Int. Cl.³ E06B *3/64*; F24J *3/02*

U.S. Cl. 52—400 **7 Claims**



1. A sealing member comprising: an elongated elastic body of generally U-shaped configuration in cross section and formed of resiliently yieldable material; said body having a side wall and a pair of walls in spaced, parallel relation formed integral with said side wall for slip fitted engagement over the marginal edge of a glazing panel; said spaced walls terminating in generally flat edges; one of said spaced walls having a sealing lip formed integral therewith adjacent the associated edge and extending toward the other wall; said side wall comprising a pair of inclined portions extending inwardly from the inner edges of said spaced walls in a converging relation and meeting at an apex to form a rib lengthwise of said body for engagement with the peripheral edge of said glazing panel to maintain said panel centered within said elastic body; said inclined portions defining a cavity behind said apex for accommodating displacement of said inclined portions upon rectilinear movement of said glazing panel within said elastic body.

4,266,384

FIRE RESISTANT CEILING FURRING SYSTEM

David L. Orals, Arlington Heights, and James D. Laffoon, Des Plaines, both of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Jun. 22, 1979, Ser. No. 51,314

Int. Cl.³ E04B *1/76, 1/38*

U.S. Cl. 52—410 **30 Claims**

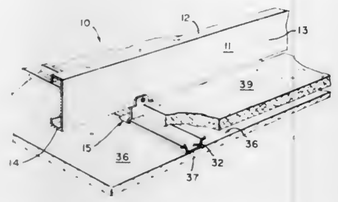
1. A fire resistant ceiling furring system comprising:

support joists in generally parallel alignment having a bottom surface and a side surface;

furring clips attaching furring channels to the joists, said clips having a flat body portion with upper joist engageable means fastened to said joists and lower furring channel engageable means engaging furring channels, said upper engageable means comprising at least one tab bottom extending from an upper edge of said body portion and said lower engageable means comprising a flange extending at generally righ angles from said body portion, said flange having end folds at opposite ends thereof, said end folds rebent under said flange to opposingly face and create opposing slots engaging flanges of a furring channel;

furring channels in generally parallel alignment at substantially ring angles to said joists thereby forming a generally grid-like configuration, said furring channels connected at grid intersection points to said joists by means of said furring clips wherein said furring channels have a lower attachment surface and upper sideward extending flanges engaged by the slots of said furring clips for supportive engagement and wherein at least one flange is screw-attached to the furring clip;

first resistant gypsum ceiling panels affixed to the lower



attachment surfaces of said furring channels by mechanical fastener means; and,

mineral fiber insulation provided for substantially the full expance of the ceiling and being disposed above, and supported by, said furring channels forming a continuous layer beneath said joists and having a thickness no greater than the depth of the furring clip body portion;

whereby upon exposure to heat from below the furring channels continue to support the mineral fiber insulation and remain engaged to said ceiling panels during heat distortion by means of said furring clips retaining the sideward extending flanges of the furring channels, wherein the fire resistant ceiling panels are held in place and retard cracking and contraction from said heat, whereby said mineral fiber insulation reduces heat transmission to said joists thereby retarding harmful distortion to said joists to inhibit flame spread and heat damage to upper building portions above said fire resistant ceiling furring system.

4,266,385

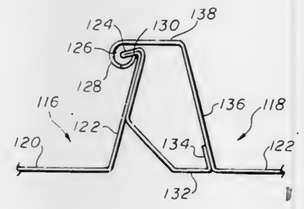
INTERLOCKING BUILDING PANEL CONSTRUCTION

James A. Oehlert, P.O. Box 5026, Longview, Tex. 75604

Filed Jun. 1, 1979, Ser. No. 44,580

Int. Cl.³ E04D *3/361*

U.S. Cl. 52—521 **7 Claims**



1. An interlocking building panel construction comprising:

an intermediate panel portion;

first and second batten portions being defined at respective sides of said intermediate panel portion and adapted for

interlocking mating relation with the batten portions of adjacent building panels;

said first batten portion being formed to define a first batten channel side wall extending in transverse relation to said intermediate panel portion and an outer protective channel wall being in offset relation with said intermediate portion, said first batten portion further defining an elongated interlocking receptacle arcuately curved inwardly from said protective channel wall and having an upwardly facing edge shaped apart from the inside of said outer protective channel wall;

said second batten portion being formed to define a second batten channel side wall and an interlocking flange, said interlocking flange being formed back from said second batten side wall to form a corner therebetween, said interlocking flange being adapted to extend between said edge and said inside of said outer protector channel wall into said interlocking receptacle with said corner receiving said edge to form a substantial seal therewith, said second batten portion further defining a fastening wall being substantially coplanar with said intermediate panel portion.

4,266,386

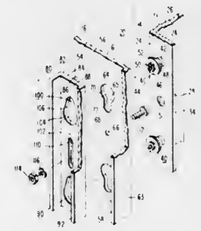
PANEL JOINT FOR ASSEMBLING PANEL MEMBERS

Gurdip S. Bains, Bonneauville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 2, 1979, Ser. No. 80,973

Int. Cl.³ E04C *1/10*

U.S. Cl. 52—584 **7 Claims**



1. A panel joint, comprising:

first and second upstanding metallic panel members each having upper and lower edges, and first and second major opposed surfaces,

a plurality of spacer members having head and shank portions, with their shank portions being fixed to only said first panel member, in predetermined vertically spaced relation with one another on a selected portion of the first major surface thereof,

an elongated locking member slidably attached to the second major surface of said second panel member,

said locking member having a plurality of vertically spaced, vertically oriented elongated slots therein, having upper and lower ends, with its lower end having an enlarged spacer head receiving portion, and with a narrower, spacer shank receiving portion extending upwardly therefrom towards its upper end,

said second panel member having a plurality of vertically spaced, openings therein,

said slots and openings of said locking member and said second panel member, respectively, being disposed to define a plurality of cooperative pairs, with portions of the slot and opening of each pair being aligned as the locking member is operated between predetermined upper and lower travel limits,

said second panel member being disposed such that a selected portion of its first major surface butts against the selected portion of the first major surface of the first panel member on which said spacer members are fixed, with each of said spacer members extending through an opening defined by a cooperative pair,

said first and second panel members having said selected portions of their first major surfaces forced tightly together when the locking member has been forced towards its lower travel limit to provide a joint between said first and second panel members in which said locking member is visible from only one side thereof; regardless of the relative orientation between said first and second panel members.

4,266,387

CONSTRUCTIONAL MEMBER FOR BUILDINGS

Jon Karlsson, Götalandsvägen 194, S-125 55 Älvsjö, Sweden

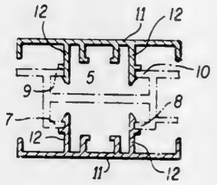
PCT No. PCT/SE78/00017, § 371 Date Mar. 19, 1979, § 102(e) Date Mar. 13, 1979, PCT Pub. No. WO79/00047, PCT Pub. Date Feb. 8, 1979.

This PCT application filed Mar. 13, 1979, Ser. No. 23,195

Claims priority, application Sweden, Jul. 19, 1977, 7708343

Int. Cl.³ E04B *2/62*; E06B *1/12*

U.S. Cl. 52—731 **6 Claims**



1. A constructional member for use with prefabricated building elements used in ceiling, wall, door, and window installations, comprising a base rail with a substantially U-shaped cross section having a web portion and two leg portions of resilient material, one of said leg portions being releasingly attached to one end of the web portion by means of resilient engagement between latching members arranged on these portions, wherein the base rail is provided with two supporting limbs opposingly directed in relation to the leg portions, the outer distance between the supporting limbs corresponding to the inner distance between the leg portions, so that the base rails can fit into each other, and in that the central part of the web portion is formed with two U-shaped attachment rails with a common web portion and opposingly directed shank pairs which together with the attachment web portion define similar channels, in which building members and/or clamping elements of the constructional member is insertable; including a fastening element associated with the constructional member and consisting of a clamping rail which is U-shaped in cross section and provided with a web portion and two shanks, the height of which from the outer surface of the web portion facing away from the shanks substantially corresponds to the height of the supporting limbs of the base web portion and that the web portion of the clamping rail is also formed with two gripping elements which are at the ends provided with hooks and intended for engagement with the shank ends of the attachment rails.

4,266,388

SHINGLING TEMPLATE AND METHOD

David N. Flood, Clearwater, Fla., assignor to The Celotex Corporation

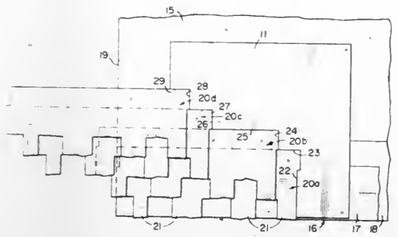
Filed Sep. 7, 1979, Ser. No. 73,580

Int. Cl.³ E04D *3/32, 15/02*

U.S. Cl. 52—748 **21 Claims**

12. A method of installing an array of overlapping cover units in successive courses on a surface comprising the steps of placing on the surface a template which has a side edge contoured to match the recurring cover unit side edge pattern to be established within the array,

employing the contoured side edge of the template as a guide for positioning on the surface the first cover unit of



each of the successive courses in an orderly, overlapping aggregate, and

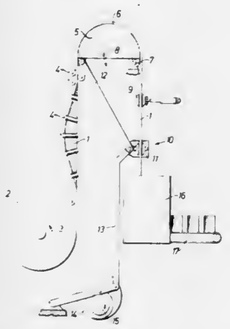
fastening each of the first cover units to the surface.

4,266,389

METHOD AND AN ARRANGEMENT FOR THE ADVANCING OF A PACKING MATERIAL WEB THROUGH A PACKING MACHINE

Björn H. Linde, Lund, Sweden, and Wilhelm Reil, Bensheim-Auerbach, Fed. Rep. of Germany, assignors to Tetra Pak International AB, Lund, Sweden

Filed Nov. 29, 1978, Ser. No. 964,623
Claims priority, application Sweden, Nov. 29, 1977, 7713491
Int. Cl.³ B65B *41/12, 41/14*
U.S. Cl. 53—396 **10 Claims**



1. A method for advancing a packing material web in a packing machine comprising the steps of:

clamping the material web at a first location;

pivoting a curved surface about a fixed pivot against a first portion of the packing material web without sequential sliding between said web and said curved surface, said pivot being positioned substantially at one end of said surface, the first portion being rearward, in a machine direction, with respect to the first location, to advance the first portion of the packing material web;

clamping the material web at a second location, said second location being forward, in a machine direction, with respect to the first location;

releasing said material web at the first location;

pivoting said curved surface about said pivot away from the first portion, said web being under substantially less tension than during said first mentioned pivoting step and a substantial portion of said curved surface being out of the path of said web to substantially minimize frictional damage to the web caused by sliding contact between the web and the curved surface; and

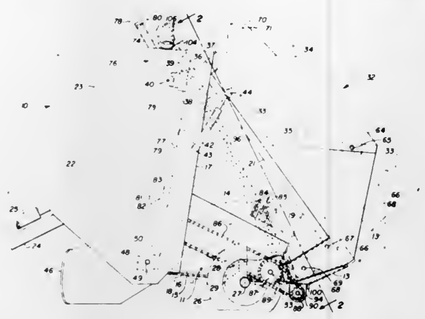
urging said clamped material web at the second location forward in a machine direction toward a package forming unit.

4,266,390

METHOD FOR COLLECTING AND RECYCLING CROP MATERIAL PARTICLES IN A ROLL FORMING MACHINE

Aquila D. Mast; Lancaster, Pa., assignor to Sperry Corporation, New Holland, Pa.

Division of Ser. No. 866,330, Jan. 3, 1978, Pat. No. 4,187,667.
This application Sep. 17, 1979, Ser. No. 75,922
Int. Cl.³ A01D *39/00*
U.S. Cl. 56—1 **4 Claims**



1. The method of recycling crop material particles back into the roll forming region of a mobile crop roll forming machine during the roll forming process, comprising the steps of:

(a) towing the roll forming machine across a field of crop material to pick up crop material from the ground and form said crop material into a roll;

(b) collecting the particles of crop material lost from the roll during the roll forming process at a collection location within the roll forming machine before said lost particles come into contact with the ground;

(c) transporting the collected crop material particles from the collection location along a predetermined path; and

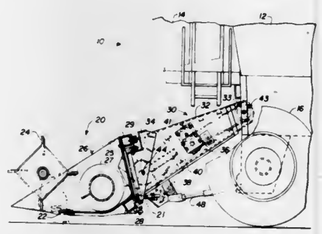
(d) depositing the transported crop material particles in the roll forming region for inclusion in the roll of crop material.

4,266,391

HEADER ATTACHMENT MECHANISM FOR COMBINES

James W. McDuffie; Larimer J. Knepper, and Larimer J. Knipper, all of New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Nov. 5, 1979, Ser. No. 91,436
Int. Cl.³ A01D *41/02*
U.S. Cl. 56—14.5 **40 Claims**



1. A feeder house extending from a mobile combine base unit for transferring crop material collected by a detachable header

to the base unit for further harvesting treatment, the header including a transversely disposed cutting means for severing crop material from the ground and a frame having a transverse main beam for detachably supporting the header from the feeder house, said feeder house comprising:

a frame;

an elongated forwardly extending body portions supported by said frame, said body portion having a forward end adjacent the header, a rearward end adjacent the base unit, a centerline extending between said forward and rearward ends such that said feeder house is substantially equally situated on either side of said centerline, two laterally spaced sidewalls extending between said forward and rearward ends substantially parallel to said centerline, and a passageway extending from said forward end to said rearward end between said sidewalls, said passageway terminating in a crop inlet opening at said forward end and in a crop outlet opening at said rearward end;

a crop conveying means housed within said passageway for transporting crop material rearwardly to the base unit, said crop conveying means including a transverse rotatable shaft member adjacent and substantially parallel to said forward end, said shaft member defining a transverse axis substantially perpendicular to said feeder house centerline, said transverse axis being rearward of said forward end;

a front face member selectively movably attached to said body portion for selective rotative movement in a fore-and-aft direction relative to said body portion, said front face member projecting forwardly for connection to the cradle assembly set forth below such that the angular relationship of the cutting means relative to the ground can be altered by rotatably moving said front face member in a fore-and-aft direction;

a cradle assembly having pivot means pivotably attaching said cradle assembly to said front face member, said cradle assembly having a crop passage opening therethrough substantially registered with said crop inlet opening, said cradle assembly including a header connecting means for attaching the header to said cradle assembly to prevent relative movement therebetween, a retaining means cooperable with said front face member to prevent relative fore-and-aft movement therebetween while allowing pivotal movement of said cradle assembly in a substantially vertical plane and a pivot control means cooperatively associated with said cradle assembly and said front face member for selectively controlling the extent of pivotal movement therebetween; and

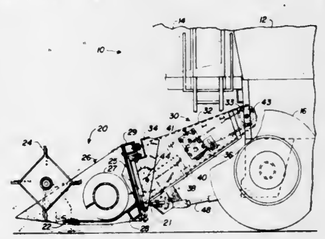
drive means for driving said crop conveying means.

4,266,392

HEADER CUTTING ANGLE ADJUSTMENT MECHANISM

Larimer J. Knepper; James W. McDuffie, and Robert A. Wagstaff, all of New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Nov. 5, 1979, Ser. No. 91,446
Int. Cl.³ A01D *41/02*
U.S. Cl. 56—14.5 **22 Claims**



1. A feeder house extending from a mobile combine base unit for transferring harvested crop material collected by a detachable header to said base unit for further harvesting treatment, said header including a transversely disposed cutting means for severing crop material from the ground, said feeder house comprising:

a frame;

an elongated forwardly extending body portion supported by said frame, said body portion having a forward end adjacent the header, a rearward end adjacent the base unit, and a passageway therethrough between said forward and rearward ends;

a crop conveying means housed within said passageway for transporting said crop material rearwardly to the base unit, said crop conveying means including a transverse rotatable shaft member adjacent and substantially parallel to said forward end, said shaft member defining a transverse axis substantially perpendicular to the line of travel of said combine, said transverse axis being rearward of the header; and

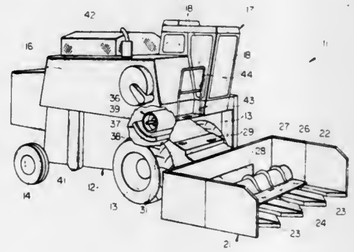
a front face member selectively movably attached to said body portion for selective rotative movement in a fore-and-aft direction relative to said body portion, said front face member projecting forwardly for connection to the header such that the header is movable with said front face member, said front face member including stabilizing means for selectively restricting and controlling said movement about said transverse axis, whereby the angle of cut of the header cutting means relative to the ground can be selectively varied according to the extent of fore-and-aft rotative movement of said front face member relative to said forward end.

4,266,393

SESAME SEED HARVESTER

Clyde L. Taylor, 1545 Chinoworth St., Visalia, Calif. 93277

Continuation of Ser. No. 907,760, May 19, 1978, abandoned.
This application Dec. 7, 1979, Ser. No. 101,553
Int. Cl.³ A01F *11/00*
U.S. Cl. 56—14.6 **10 Claims**



1. In an apparatus for harvesting sesame seed from sesame stalks having pods thereon, a framework, a cylinder structure rotatably mounted in the framework, means for rotating said cylinder structure about an axis of rotation, a concave structure mounted in a fixed position in said framework and generally underlying said cylinder structure to form an entrance area, a separating area and an exit area in cooperation with the cylinder structure, means carried by the framework for delivering sesame stalks with pods thereon, sesame seed pods and sesame seeds to said entrance area so that they are introduced between the cylinder structure and the concave structure in a direction substantially at right angles to the direction of rotation of the cylinder structure and thereafter pass through the separating area with the stalk and pod fragments being discharged through the exit area and also in a direction substantially at right angles to the direction of rotation of the cylinder structure, the concave structure being formed in such a manner so that at least some of the sesame seeds which are separated from the pods can drop through the concave structure, means

for moving the stalk and pod fragments from the exit area and means for collecting sesame seeds as sesame seeds are separated from the pod and stalk fragments as they are advanced through the separating area and from the exit area, said cylinder structure and said concave structure each having a plurality of spaced apart rows of spaced apart blades having knife-like leading edges for slicing open said pods so that sesame seeds may be readily separated from the pods, the rows of spaced apart blades on one of said structures being inclined at an angle with respect to the axis of rotation of the cylinder structure so that the cutting action of said blades will be progressive, said cylinder structure comprising a member having a continuous cylindrical surface and wherein said blades of said cylinder structure are secured in spaced apart rows on said cylindrical surface.

4,266,394

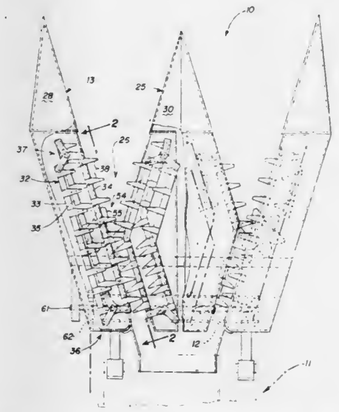
GATHERING MEANS MOUNTING ASSEMBLY FOR ROW CROP HARVESTERS

Robert M. VanGinhoven, Lancaster, and Carl D. Brown, Hershey, both of Pa., assignors to Sperry Corporation, New Holland, Pa.

Continuation of Ser. No. 943,411, Sep. 18, 1978, abandoned. This application Jul. 28, 1980, Ser. No. 172,690

Int. Cl.³ A01D *45/00*

U.S. Cl. 56—94 **1 Claim**



1. A row crop attachment for a mobile forage harvester unit adapted to advance over a field of crop planted in rows, said attachment comprising in combination:

a pair of dividers being of a construction sufficient for forming a narrowing crop passageway;

a first and a second rotatable element connected to each divider, the first and second rotatable elements of one divider being interconnected by a plurality of one-piece substantially linear bars in stacked relationship, the first and second rotatable elements of the other of the dividers being interconnected by a plurality of one-piece, substantially curvilinear bars in stacked relationship, said linear and curvilinear bars being of a construction sufficient for movement with said rotating elements adjacent said narrowing crop passageway; and

means for moving crop material through said narrowing passageway, said means being a plurality of crop engaging elements connected to each of said bars and extending into said narrowing passageway for intermeshing in timed relationship.

4,266,395

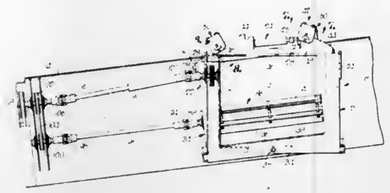
APPARATUS TO PERMIT AND CONTROL TILTING OF THE HEADER PORTION OF A COMBINE RELATIVE TO THE THROAT PORTION THEREOF ABOUT THE AXIS OF FORWARD TRAVEL OF THE COMBINE

Carl G. Basham, Cowgill, Mo., assignor to Thomas W. Basham, Excelsior Springs, Mo., a part interest

Filed Jul. 9, 1979, Ser. No. 55,602

Int. Cl.³ A01D *75/28*

U.S. Cl. 56—209 **13 Claims**



1. In a harvesting machine having a receiving portion adapted for advancement along a certain path of travel across a field, a header portion spaced forwardly from said receiving portion and adapted for severing crop materials from the field during said advancement and collecting said severed materials, and a throat spanning the distance between said portions to provide a conduit through which the severed crop materials may be transferred from the header portion to said receiving portion, the improvement comprising:

a lower pivotal coupling between said throat and the header portion adapting the latter for lateral rocking movement about a generally fore-and-aft axis relative to said path of travel and located adjacent a normally lower section of said throat; and

selectively operable power means between said throat and said header portion for effecting said rocking movement to the extent and in the direction necessary to permit accommodation of variations in ground contour between one lateral end of said header portion and the opposite lateral end thereof,

said throat and said header portion being provided with an adapter assembly therebetween providing said coupling and said power means, said assembly including means releasably attaching the same to said throat and means releasably attaching the same to said header portion,

said assembly including a pair of tubular components adapted for substantially axially aligned registration with one another so as to define a crop material passage therethrough, one of said components remaining with said throat during rocking of the header portion and the other of said components moving with said header portion during said rocking, said coupling including a pivot interconnecting said components.

4,266,396

IMPROVEMENTS IN AND RELATING TO ROPES

Ian M. Thomson, Wokingham, England, assignor to Cable Belt, Ltd., Edinburgh, Scotland

PCT No. PCT/GB78/00019, § 371 Date Jun. 5, 1979, § 102(e) Date Jun. 1, 1979, PCT Pub. No. WO79/00182, PCT Pub. Date Apr. 19, 1979.

This PCT application filed Jun. 1, 1979, Ser. No. 103,945

Claims priority, application United Kingdom, Oct. 5, 1977, 41301/77

Int. Cl.³ D07B *1/16*

U.S. Cl. 57—221 **2 Claims**

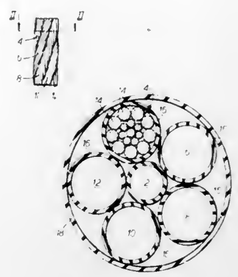
1. A wire rope, comprising

a plurality of strands twisted together, each strand comprising a plurality of wires twisted together,

the direction of twist of at least the outer wires in at least some of the strands being opposite to the direction of twist of at least the outer wires in the strands adjacent thereto

an outer sheath of rubber or rubber substitute covering all the strands together, and

a strand sheath of rubber or rubber substitute covering each strand individually,



whereby adjacent wires of adjacent strands extend substantially parallel to one another with respective strand sheaths therebetween to reduce stress between the wires.

4,266,397

METHOD AND APPARATUS FOR RESTARTING INDIVIDUAL WINDING UNITS OF A RING SPINNING OR TWISTING FRAME

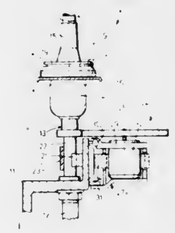
Atilla Dönmez, and Wolfgang Igel, both of Ebersbach, Fed. Rep. of Germany, assignors to Zinser Textilmaschinen, Ebersbach, Fed. Rep. of Germany

Continuation of Ser. No. 729,009, Oct. 4, 1976, abandoned. This application Jun. 29, 1978, Ser. No. 929,041

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1975, 2544319

Int. Cl.³ D01H *15/00, 7/56, 7/58, 1/24*

U.S. Cl. 57—261 **12 Claims**



1. Apparatus for restarting, following a thread break, an individual winding unit of a running ring spinning or twisting machine of the type having a plurality of driven spindles, each surrounded by a rotatable ring supporting a traveler for free rotation thereon, comprising:

spindle drive means positionable into engagement with any preselected spindle for driving said spindle in its normal rotational thread winding direction independently of the normal drive means of the machine; and

means for activating said drive means to drive said spindle at speeds up to the normal operating speed of the normal drive means of the machine until the relative rpm between the traveler and the ring can no longer exceed a predetermined limit.

4,266,398

METHOD AND APPARATUS FOR THE LAYERWISE SZ TWISTING OF ELEMENTS OF ELECTRICAL OR OPTICAL CABLES

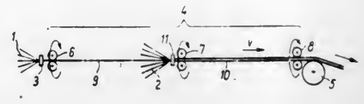
Dieter Vogelsberg, Coburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,288

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1978, 2828959

Int. Cl.³ H01B *13/04*; D07B *3/00*

U.S. Cl. 57—293 **7 Claims**



1. In a method for the continuous SZ twisting of twisting elements of electrical or optical cables and lines to form a stranded group, in which the twisting elements are twisted together a first time in three steps following each other in the same operation; are conducted subsequently as a stranded group in a twisted, taut condition temporarily through open air or by means of special guide elements and are thereupon twisted together a second time; in which furthermore, one or more of the process parameters causing the twisting are periodically changed in steps at intervals which are an uneven part of the time interval between the first and the second twisting of a longitudinal section of the twisting elements of the stranded group; and the superposition of the first and the second twisting leads to a resultant twist with a twist direction which changes from section to section, a method for also obtaining multi-layer twisting of twisting elements to form standed layers on the stranded group comprising: placing the twisting elements of each stranded layer to be placed on the stranded group thereon after the first, but still before the second, twisting of the twisting elements of the stranded group; twisting the twisting elements of said stranded layer a first time; later twisting said twisting elements of said stranded layer a second time together with the twisting elements of the stranded group; changing one or more of the process parameters causing the twist in m even, at least four, successive steps increasing and decreasing uniformly and periodically; and selecting the spacings in time between the first and second twisting of a longitudinal section of the twisting elements of the stranded group or a stranded layer to be different from stranded group to twisting layer or from twisting layer to twisting layer by an amount that is larger or smaller by one step duration than an arbitrary multiple of the period.

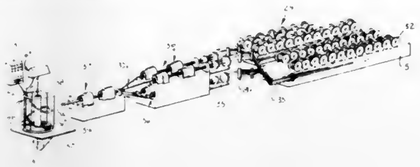
2. In apparatus for the multi-layer SZ twisting of twisting elements of electrical or optical cables and lines including stationary supplies for twisting elements; an SZ twisting device with a first and a second twisting point; at least one rotating twisting head associated with the second twisting point, said twisting head gripping the material to be stranded tensionally from the outside; and a pulling-off and windup device, the improvement comprising: a further twisting closer for placing a stranded layer on a stranded group which is formed between the first and second twisting points and a rotating twisting head immediately following said twisting closer, a twisting closer and twisting head being provided for each stranded layer to be placed on the stranded group, said twisting closer and twisting head, disposed between the first and second twisting points.

4,266,399

METHODS OF AND APPARATUS FOR MAKING CABLE

Benjamin C. Ellis, Jr., Snellville, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Aug. 2, 1979, Ser. No. 63,009
Int. Cl.[3] H01B *13/04*
U.S. Cl. 57—293 20 Claims



1. A method of making cable, said method comprising the steps of:
advancing each of a plurality of conductors through an associated guide of a plurality of spaced guides which are arranged about a common axis;
reciprocally rotating said guides about said common axis;
gathering said conductors together into a unit;
moving the unit to a distribution plane above a stationary takeup container;
directing successive increments of the unit downwardly into the container and causing the unit to be deposited in a predetermined pattern within the container; while
maintaining a substantially constant speed at which the unit is moved.

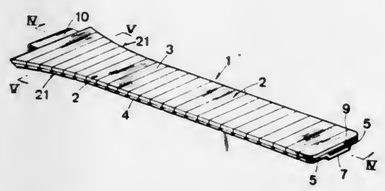
11. An apparatus for making cable, said apparatus comprising:
a plurality of spaced guides which are arranged in a predetermined pattern about a common axis;
means for advancing each of a plurality of conductors through an associated one of the guides;
a stationary container;
means for reciprocally rotating said plurality of guides about said common axis;
means for gathering the conductors together into a unit;
means for moving the unit to a distribution plane above the stationary takeup container;
means for directing successive increments of the unit downwardly into the container and for causing the downwardly moving unit to be deposited in a predetermined pattern within the container; and
means for causing the speed at which the unit is moved to be maintained substantially constant.

4,266,400

WRIST WATCH BAND AND MANUFACTURING METHOD THEREFOR

Kazutaka Tabata, Tokyo, Japan, assignor to The Bambi Incorporated, Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 54,855
Int. Cl.[3] B21L *5/02*
U.S. Cl. 59—35 R 8 Claims



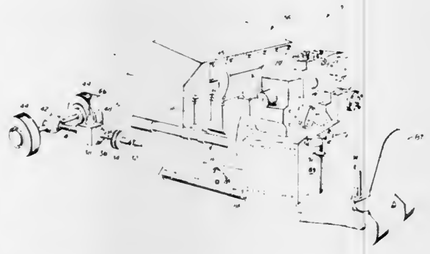
1. A method of manufacturing a wrist watch band having a plurality of links respectively connected by at least one flexible connecting member, comprising the steps of:
forming from a first metal blank a series of upper members, each of said upper members comprising a plurality of upper strips;
forming from a second metal blank a series of lower members, each of said lower members comprising a plurality of lower strips having stepped-down intermediate portions with side portions on both sides thereof and separated from one another by a series of lateral slits;
placing said upper members over said lower members, respectively, such that each of said upper strips is centered over one of said lower strips to define an opening corresponding to the stepped-down portion of the lower strip, and fixing said upper members to said lower members in that condition to form a series of link members with said openings aligned longitudinally of the series;
cutting the link members to the desired band lengths;
inserting a continuous connecting member through the aligned openings and fixing the link members at both ends of the band lengths to the connecting member;
cutting the side portions of the band lengths into designated band shapes and cutting the continuous connecting member at appropriate locations to separate respective watch bands.

4,266,401

GAS TURBINE ENGINE FUEL CONTROL

Robert B. Sumegi; Geoffrey D. Woodhouse, both of Phoenix; George B. Mattson, Scottsdale; Harvey B. Jansen, Tempe; Frederic E. Bolliger, Phoenix, all of Ariz., and Robert A. Hatch, Boca Raton, Fla., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 22, 1977, Ser. No. 863,205
Int. Cl.[3] F02C *9/04*
U.S. Cl. 60—39.16 R 9 Claims



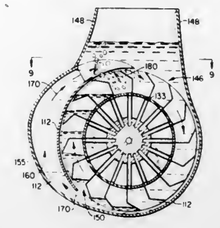
1. A free turbine type gas turbine engine comprising:
a gas generator section having a drive shaft and an air inlet;
means for delivering fuel flow to said gas generator section to maintain a combustion process therein and produce a motive output flow therefrom;
a power turbine section driven by said output gas flow from said gas generator section and having a power output drive shaft;
means for sensing the speeds of said gas generator and power output drive shafts;
means for adjusting the incidence of said motive gas flow onto said power turbine section to alter the power transmitted to said drive shaft of the power turbine section; and
control means for controlling fuel flow to said gas generator section in relation to the sensed speed of said gas generator section, and for controlling said adjusting means in relation to the sensed speed of said power turbine shaft, said control means including a manual input fuel lever coupled with said adjusting means for selecting a desired power turbine shaft speed, said control means operable to control said adjusting means to alter power transmitted to the power turbine section to tend to maintain power turbine shaft speed at a level indicative of the position of said fuel lever.

4,266,402

RECIRCULATING SUBMERSIBLE TURBINE

Robert L. Pruett, Rte. 2, Box 69, Gardnerville, Nev. 89410

Continuation-in-part of Ser. No. 857,635, Dec. 5, 1977, Pat. No. 4,170,114. This application May 14, 1979, Ser. No. 38,602
Int. Cl.[3] F03B *13/10*
U.S. Cl. 60—496 7 Claims



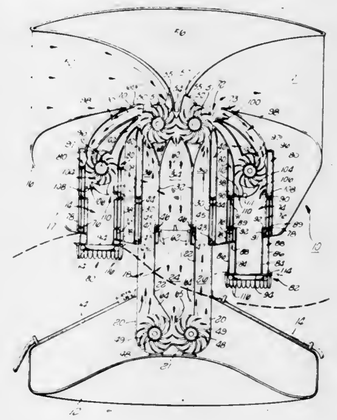
1. In a turbine having a wheel with a plurality of chambers on its periphery, the wheel being submerged in liquid, wherein gas trapped in chambers on one side of the wheel provides buoyant lift to those chambers causing the wheel to rotate, the improvement comprising:
means defining a plurality of radial conduits corresponding to said plurality of chambers, each said radial conduit being communicated to a radially innermost portion of a corresponding chamber;
means for sequentially communicating a source of pressurized gas to said conduits when the chamber corresponding to each of said conduits is disposed within a predetermined angular portion of the rotation of said wheel.

4,266,403

WIND AND WAVE ENERGY GENERATOR

Farrokh Hirbod, 6424 Via Colinita, Rancho Palos Verdes, Calif. 90274

Filed Oct. 30, 1979, Ser. No. 89,679
Int. Cl.[3] F03B *13/12*; F03D *9/00*
U.S. Cl. 60—698 6 Claims



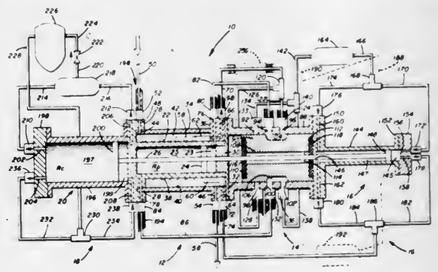
1. An apparatus for harnessing both wind and wave energy comprising:
a first housing having a first internal cavity having a lower end and with at least one turbine rotatably mounted in said lower end;
a buoyant second housing slidably mounted on said first housing and having a second internal cavity in fluid communication with said first internal cavity, said second internal cavity having an upper end;
at least one turbine rotatably mounted in said upper end;
an inlet passage in said second housing which gathers wind driven air flow and directs it onto said at least one turbine in said upper end;
said first and second cavities each being divided respectively, into an outer and inner chamber in fluid communication with the inner chamber in said first inner cavity being in fluid communication with the inner chamber of said second inner cavity and the outer chamber of said first inner cavity being in fluid communication with the outer chamber in said second inner cavity;
a one-way flow valve mounted in said second internal cavity so as to prevent air flow between said inner chambers when said second housing is moving downwardly toward said first housing.

4,266,404

METHOD AND APPARATUS FOR CONSERVING WASTE ENERGY

Ahmed A. ElDifrawi, Westmont, Ill., assignor to Letcher T. White, Manchester, Ky.

Filed Aug. 6, 1979, Ser. No. 63,691
Int. Cl.[3] F25B *7/00, 27/02*
U.S. Cl. 62—79 29 Claims



18. A method for converting waste heat from an internal combustion engine into useful energy comprising,
conveying a carrier liquid heated by waste heat from an internal combustion engine,
transferring heat from the heated carrier liquid to a refrigerant,
heating the refrigerant with the heat energy extracted from the heated carrier liquid to the temperature of vaporization of the refrigerant,
pressurizing the refrigerant by heating the refrigerant,
conveying the pressurized refrigerant to one side of a power piston-cylinder means to move the power piston-cylinder means in a first direction and to the opposite side of the power piston-cylinder means to move the power piston-cylinder means in an opposite direction,
alternately admitting the pressurized refrigerant in timed sequence to the opposite sides of the power piston-cylinder means,
alternately releasing the pressurized refrigerant in opposite timed sequence from the power piston-cylinder means on the side thereof opposite that side admitting the pressurized refrigerant,
condensing the vaporized refrigerant to form liquid refrigerant,
conveying the liquid refrigerant through an expansion valve and thereby decreasing the pressure of the liquid refrigerant, and

evaporating the liquid refrigerant to produce a reduction in the temperature thereof.

27. Apparatus for converting waste heat from an internal combustion engine into useful energy comprising:

means for conveying a carrier liquid heated by waste heat from an internal combustion engine,

heat exchanger means for transferring heat from the heated carrier liquid to a refrigerant,

said heat exchanger means being operable to pressurize the refrigerant by heating the refrigerant with the heat energy extracted from the heated carrier liquid to the temperature of vaporization of the refrigerant,

said heat exchanger means includes a pair of generators,

said geneators each including coil means for conveying therethrough either said heated carrier liquid or a cooling fluid and a chamber surrounding said coil means,

said chamber having an inlet and and outlet for conveying the refrigerant therethrough,

means for performing work with the pressurized refrigerant,

condenser means for receiving the vaporized refrigerant under pressure, said condenser means being operable to condense the vaporized refrigerant to form liquid refrigerant,

expansion means for drawing the liquid refrigerant from said condenser means, said expansion means being operable to subject the liquid refrigerant to a decreased pressure, and

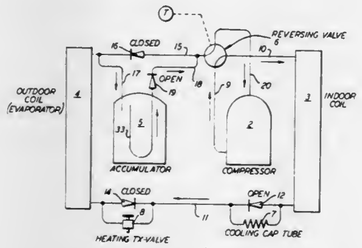
evaporation means associated with said expansion means for subjecting the liquid refrigerant to an evaporation process so that the liquid refrigerant evaporates in said evaporation means thereby reducing the temperature in said evaporation means.

4,266,405

HEAT PUMP REFRIGERANT CIRCUIT

Allen Trask, 288 Genesee St., Utica, N.Y. 13502

Filed Jun. 6, 1979, Ser. No. 46,006
Int. Cl.³ F25B *13/00*
U.S. Cl. 62—160 **9 Claims**



1. An air-to-air heat pump for operation in both heating and cooling cycles comprising:

(a) indoor and outdoor air coils connected by a first line for flow of refrigerant therebetween;

(b) first valve means for controlling the direction of flow through said first line from said indoor to said outdoor coil during heating cycles and from said outdoor to said indoor coil during cooling cycles;

(c) a refrigerant compressor;

(d) a trap-type accumulator for preventing flow of liquid refrigerant and oil into said compressor during heating cycles;

(e) a selectively adjustable, indoor thermostat; and

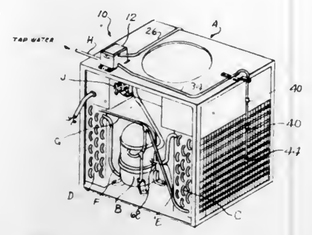
(f) second valve means operable in response to said thermostat to connect said outdoor coil through a second line to said accumulator and thence to said compressor and said indoor coil during heating cycles, and to connect said indoor coil for refreigerant flow to said compressor and thence through a third line directly to said outdoor coil, bypassing said accumulator, during cooling cycles.

4,266,406

COOLING SYSTEM FOR CONDENSER COILS

Frank Ellis, 3104 Colbert St., Sheffield, Ala. 35660

Filed Jan. 22, 1980, Ser. No. 114,406
Int. Cl.³ F25B *39/04*
U.S. Cl. 62—183 **22 Claims**



1. A cooling system adapted for cooling refrigerant circulating in condenser coils, comprising:

fluid valve means adapted for controlling the flow of a cooling fluid therethrough;

means for sensing temperature differentials in the condenser coils refrigerant, and sensing means further adapted to activate said fluid valve means upon sensing a predetermined increase in the refrigerant temperature and deactivate said fluid means upon sensing a predetermined decrease in the refrigerant temperature;

means adapted to receive a flow of the cooling fluid upon activation of said fluid valve means, said receiving means further adapted to introduce condensate into the flow of said cooling fluid so that said condensate mixes with said cooling fluid; and

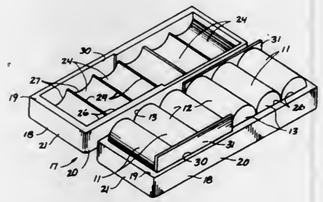
spray means for receiving the mixture of cooling fluid and condensate and adapted for spraying said mixture over the outside surfaces of said condenser coils to thereby lower the temperature of refrigerant flowing therethrough.

4,266,407

PORTABLE COOLER

David E. Gibson, 3400 W. 1st Pl. Apt. 17, Kennewick, Wash. 99336

Filed Jan. 22, 1980, Ser. No. 114,291
Int. Cl.³ F25D *3/08, 3/10*
U.S. Cl. 62—371 **10 Claims**



1. A portable beverage cooler, comprising:

a molded storage container formed in two separable halves adapted to be arranged facing inwardly and in abutment with one another for selectively encasing a prescribed number of beverage containers, each storage container half having a number of beverage container receiving indentations for receiving an equal number of beverage containers with opposite ends of the beverage containers located along parallel planes and with adjacent beverage containers physically contacting one another;

said molded storage container being formed of a lightweight heat insulative material;

a recess formed in at least one of the storage container halves adjoining and in open communication with one end of the indentations therein; and

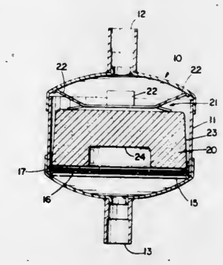
cold pack means removably received within the recess and selectively removable to be frozen, then subsequently reinserted within the recess to physically engage beverage containers within the indentations for cooling the contents of the beverage containers by conduction.

4,266,408

FILTER BLOCK AND METHOD OF MAKING THE SAME

Walter O. Krause, Newark, N.Y., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Division of Ser. No. 962,532, Nov. 20, 1978, Pat. No. 4,220,553, which is a division of Ser. No. 864,560, Dec. 27, 1977, Pat. No. 4,144,171. This application Dec. 4, 1979, Ser. No. 100,312
Int. Cl.³ F25B *43/00*
U.S. Cl. 62—474 **2 Claims**



1. In a refrigeration system that includes a closed circuit for the refrigerant fluid, a filter-drier unit having a porous block comprising particles of an adsorbed bound together by a copolymer formed from phenolic resin and a polyurethane resin, the ratio of the weight of the initial phenolic resin component to the weight of the finished block and the ratio of the weight of the initial polyurethane resin component to the weight of the finished block being selected so that the pressure drop of air at room temperature flowing through a one square inch section of ⅜ inch thickness of said finished block at 400 cubic feet per hour has a pressure drop of no greater than about 4 inches of water.

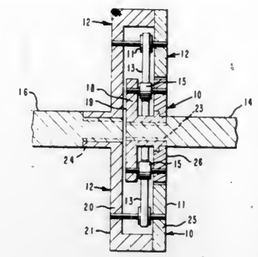
4,266,409

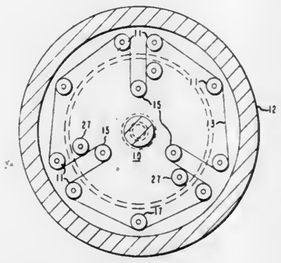
ENERGY-ABSORBING TORQUE TRANSMITTER

Howard J. Kutsch, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 16, 1979, Ser. No. 13,193
Int. Cl.³ F16D *3/58*
U.S. Cl. 64—12 **11 Claims**

1. In an energy-absorbing torque transmitter comprising a hub member and a rim member, one of which is connected to an output shaft, the other to an input shaft, the hub member having hub means mounted thereon, the rim member of larger diameter having rim means mounted thereon, said hub and rim members being operably connected by at least one belt, the improvement wherein the hub means and rim means are rollers and the number of rim rollers is at least twice the number of hub rollers that are circumferentially arranged around the common axis of hub and rim members and the belt is a composite belt of two copolyetherester elastomers having different melting points trained over hub and rim rollers, the higher melting point copolyetherester elastomer is in the form of strands, tapes or films which are monoaxially oriented in the direction of their length, and the lower melting point copolyetherester elastomer is bonded thereto in an unoriented form as a matrix surrounding the individual strands, tapes or film of oriented copolyetherester elastomer, said belt capable of being stretched by up to about 60% of its original length upon application of force to either shaft to permit relative rotation of said hub member with respect to said rim member so that torque is transferred from one shaft to the other through said belt.



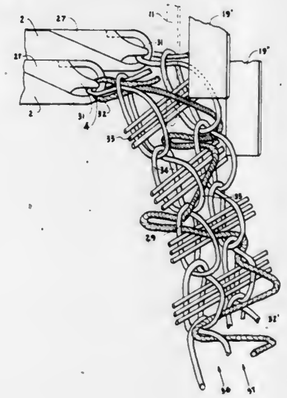


4,266,410

METHOD AND WARP KNITTING MACHINE FOR THE MANUFACTURE OF A LOOPED PILE WARP KNIT FABRIC HAVING A PILE PATTERN

Manfred Schneider, Karl Marx Stadt; Gottfried Kahmann, Auerswalde; Wolfgang Göhler, and Andreas Kircheiss, both of Karl Marx Stadt, all of German Democratic Rep., assignors to Textima, VEB Wirkmaschinenbau-Karl-Marx Stadt, Karl Marx Stadt, German Democratic Rep.

Filed Oct. 15, 1979, Ser. No. 84,795
Claims priority, application German Democratic Rep., Oct. 20, 1978, 208575
Int. Cl.³ D04B *23/06*
U.S. Cl. 66—84 R **6 Claims**



1. A method of producing a looped pile fabric exhibiting a

pile pattern using a warp knitting machine, the warp knitting machine comprising

a row of extendable and retractable knitting needles;

a warp thread laying bar operative for feeding warp threads to the needles for the formation of chain stitches;

weft thread guides operative for laying inlay threads;

at least one row of pile thread guides for feeding pile threads to the needles, and

a row of pile loop supports, each pile loop support being located in a respective interneedle gap,

the method comprising

using the row of pile thread guides to feed a pile thread to each needle during the formation of each course of the fabric,

clamping each pile thread to the respective needle during the formation of each course of the fabric,

using a row of pile-thread reserve-forming elements to form a reserve length of pile thread in the pile thread clamped to each needle,

selecting pile threads and maintaining the selected pile threads clamped to their respective needles as the respective needles perform a castoff of their old chain stitches, by releasing the reserve lengths of the selected pile threads prior to castoff of the old chain stitches, so that during castoff of the old chain stitches the reserve lengths of the selected and still clamped pile threads can be pulled by their respective needles through the old chain stitches on these needles and thus be pulled through to the first side of the fabric,

and not releasing the reserve lengths of the non-selected pile threads, so that upon retraction of the needles the non-selected pile threads, due to the non-release of their reserve lengths, pull free of the clamping action, cease to be clamped and as a result remain on the second side of the fabric in the form of pile loops.

4,266,411

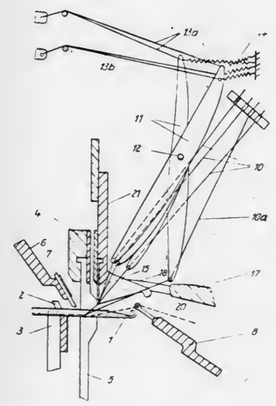
METHOD AND MACHINE FOR FORMING PLUSH-LOOP WARP KNIT FABRIC

Heinz Lindner; Fritz Stopp, both of Geyer; Wolfgang Georgie, Tannenberg; Werner Oehm, Geyer; Lisbet Müller, Tannenberg, and Brigitte Graubner, Geyer, all of German Democratic Rep., assignors to Veb Wirkmaschinenbau Karl-Marx-Stadt, Karl-Marx-Stadt, German Democratic Rep.

Filed Oct. 15, 1979, Ser. No. 84,805

Int. Cl.³ D04B *23/06*

U.S. Cl. 66—84 R **7 Claims**



1. In a warp knitting machine operative for producing patterned plush-loop warp knit fabric, in combination, means for forming a ground fabric, including a row of hooked knitting needles, means cooperating with the knitting needles for feeding knitting thread onto the needles and forming the interlaced adjacent wales of a ground fabric, and means for inlaying inlay thread into the ground fabric; a row of plush bars located intermediate adjoining needles; a respective set of pile-thread guiders for each needle of the row of needles, the pile-thread guiders of each such set being individually displaceable between a non-selected position and a selected position; and a guide-comb structure operative for maintaining separation between the pile threads of selected pile-thread guiders and the pile threads of non-selected pile-thread guiders, the guide comb structure being mounted for shogging motion in the direction in which successive needles of the needle row are spaced one from the next and also for lifting and lowering motion in a direction generally perpendicular to the general plane defined by the row of needles, the guide-comb structure having a series of blades defining first inter-blade gaps alternating with second inter-blade gaps, the first inter-blade gaps serving to guide pile threads from the pile-thread guiders to the fabric produced, the guide-comb structure being so located relative to the row of needles and relative to the selected and non-selected positions or the pile-thread guiders that non-selected pile threads pass through the first inter-blade gaps at one location in the first gaps whereas the selected pile threads pass through the first inter-blade gaps at another location in the first gaps, the knitting needles when moving from cast-off to extended position passing through the second gaps of the guide-comb structure; and a pile-thread-laying bar provided with pile-thread-laying members mounted to pass through the inter-blade gaps of the guide comb structure and lay the selected pile threads into the hooks of the needles.

4,266,412

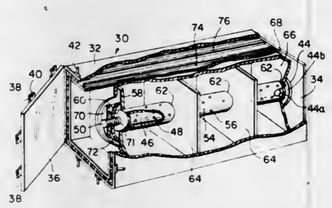
FILTERING DEVICE FOR DRY CLEANING

Rosario Merenda, 966 Port Washington Blvd., Port Washington, N.Y. 11050

Filed Jun. 29, 1979, Ser. No. 53,245

Int. Cl.³ D06F *43/08*

U.S. Cl. 68—18 F **3 Claims**



1. A dry cleaning system for cleaning clothes by cleaning solvent circulating therethrough, comprising a drum in which the clothes to be cleaned are placed, a tank for receiving the cleaning solvent after use in the drum for washing, a pump for circulating the cleaning solvent in the tank to the drum, a first filtering device situated between the drum and the pump for removing impurities dissolved in the cleaning solvent before re-using the solvent, and at least one second filtering device connected to the first filtering device for removing solid impurities before the soluble impurities are removed at the first filtering device, said second filtering device comprising a casing including a front door and a rear end wall having an annular shoulder projecting inwardly therefrom, an inlet conduit means situated in said casing and passing through the rear end wall, said inlet conduit means having a plurality of perforations at the periphery thereof and a threaded front projection, outlet conduit means at the rear end wall of the casing, a first filter assembly including an elongated base member to substantially cover said inlet conduit means and to snugly fit with the annular shoulder of the rear end wall, said base member having a plurality of perforations at the periphery thereof, a plurality of flanges detachably connected around said base member and first filter means carried by said flanges to substantially cover

said base member, said threaded front projection of the inlet conduit means extending through the front flange of the first filter assembly and being fastened by a nut to thereby position the first filter assembly around the inlet conduit means, spacer means situated between said first filter means and said casing, said spacer means including a porous wall and a plurality of ribs provided at the outer periphery of the porous wall, and a plurality of second filter assemblies situated between the flanges of the first filter assembly, each second filter assembly including a frame having outer vertical flanges abutting said flanges of said first filter assembly and a perforated wall having a contracted section intermediate the ends thereof, and second filter means replaceably supported by said outer flanges of the second filter assembly, whereby the cleaning solvent flowing from the tank into the second filtering device through the inlet conduit means passes through the second and first filter means, so that the solid impurities are removed, and flows through spaces between the spacer means, and the solvent is transferred to the first filtering device by means of the outlet conduit means.

4,266,413

MEANS FOR WASHING CELLULOSE PULP

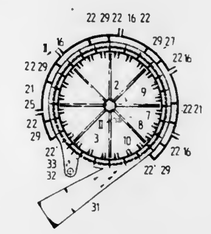
Erkki Yli-Vakkuri, Savonlinna, Finland, assignor to Enso-Gutzeit Osakeyhtö03, Finland

Filed Jan. 23, 1980, Ser. No. 114,501

Claims priority, application Finland, Jan. 26, 1979, 790251

Int. Cl.³ D21C *9/06*

U.S. Cl. 68—158 **5 Claims**



1. In an apparatus for washing cellulose pulp, including a drum with open ends rotating about a horizontal axis and onto the surface of which the cellulose is introduced in the form of a continuous fibre web, said drum having an outer shell which is coated with a wire fabric serving as filtering member for the web, and having stationary housings provided with a perforated bottom and having the same length as the drum, said drum having an outside encircled by said housings for introducing a pressurized washing liquid against the fibre web upon the wire fabric, and compartments affixed within the drum and formed by partitions with a length equalling that of the drum for receiving a suspension liquid displaced by the washing liquid from within the fibre web, each housing being provided with a washing liquid input connector and the compartments being provided with draining pipes for the displaced suspension liquid, and the housings being isolated from each other in the direction of rotation of the drum by means of front and rear walls, the pure washing liquid introduced through the connector of the housing which is last in the direction of rotation of the drum passing through the holes in the bottom to meet the fibre web, forcing an equivalent quantity of suspension liquid contained in the fibre web to pass through the wire fabric and through the holes in the drum's shell into the compartments under the housing and through the draining pipes to a valve on the axis at one end of the drum, said valve combining the suspension liquid flows coming from a plurality of compartments and conducting them to the supply connector, connected to the outer surface of the valve, of the last but one housing in the direction of rotation of the drum, whereafter this displaced suspension liquid in its turn displaces, under pressure, suspension liquid from within the pulp web, the flow resistances encountered by the washing liquid between the different housings causing a differential pressure between the washing liquids in different housings, and radial lamellae for inhibiting leakage of washing liquid thereby caused directly from one housing to the next, or leakage of suspension liquid displaced from within the fibre web from one compartment to another, by cooperation of said radial lamellae on the surface of the drum and unperforated zones associated with the bottoms and adjacent to the front and rear walls of the housings, wherein the improvement comprises that the mutual spacing of the lamellae on the continuation of the partitions, on the drum circumference, is less than the length of the unperforated zone, so that as the drum rotates there is at any time at least one of the lamellae in sealing contact with each unperforated zone located between the front and rear walls of each housing.

4,266,414

STEERING COLUMN AND IGNITION LOCK FOR MOTOR VEHICLE

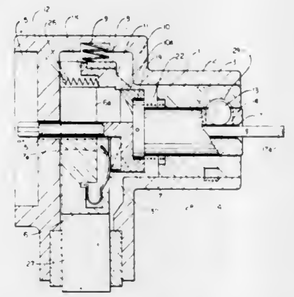
Rudolf Eichenauer, Höllbergstrasse 1, D-6000 Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 22, 1978, Ser. No. 944,692

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1977, 2749158

Int. Cl.³ B60R *25/02*

U.S. Cl. 70—252 **1 Claim**



1. In a lock arrangement for a motor vehicle having a steering column, which comprises

(a) a housing defining an axial bore and a cross bore intersecting therewith,

(b) a key controlled lock cylinder mounted in the axial bore of the housing for spring-biased axial displacement from an outwardly into an inwardly displaced position, and for rotation by the key about the axis of the bore in the inwardly displaced position into selected operating positions including a driving position, a ready-to-lock position and a locking position,

(1) the lock cylinder having an axial keyhole for inserting the key in one axial direction and withdrawing the key in the opposite axial direction,

(c) a lock bolt mounted in the cross bore for displacement from a retracted position into a locking position upon withdrawal of the key from the keyhole in the opposite axial direction,

(1) the bolt having a keeper engaging a recess in the steering column in the locking position,

(d) spring means engaging the lock bolt and biased to displace the lock bolt into the locking position,

(e) latch means mounted on the lock bolt and cooperating with the lock cylinder for maintaining the lock bolt in the retracted position when the lock cylinder is in the inwardly displaced position, and

(f) actuating means arranged to displace the lock bolt between the retracted and locking positions, the bolt actuating means including

(1) a driving member operated by the rotation of the lock cylinder to displace the bolt against the bias of the spring means into the retracted position to disengage the keeper from the steering column, the driving member including a control ring rotating and axially displaced with the lock cylinder, the control ring having a periphery for engagement with the latch means in the retracted position of the lock bolt, and a cam projecting from the control ring towards the lock bolt:

(g) the improvement of a leaf spring having one end seated in a recess in the lock bolt and another end extending towards the cam, the leaf spring and the cam being arranged to press the lock cylinder axially outwardly in the ready-to-lock position and the leaf spring being moved by the lock bolt out of contact with the cam when the bolt is moved into the locking position.

4,266,415

PNEUMATIC DOOR LOCKS

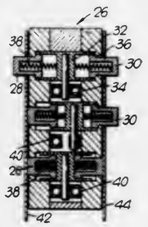
Walter W. H. Clarke, Brooklands, Marsh La., Eversley, Hampshire, England

Filed Aug. 6, 1979, Ser. No. 63,908

Claims priority, application United Kingdom, Aug. 8, 1978, 32587/78

Int. Cl.³ E05B *19/06, 35/08, 37/16, 51/02*

U.S. Cl. 70—264 **5 Claims**



1. A door lock comprising an operating handle for mounting on an external face of the door and a locking bolt for securing the door in a closed position, the lock comprising a coding valve assembly comprising a plurality of pairs of spring-loaded plungers each pair biassing a valve member to a central, neutral position, a continuous length of a resiliently flexible tube disposed at opposite sides of each of said valve members, a fluid pressurising member operable in response to operation of the handle being connected to one end of the tube, a complementary fluid pressurized member operable to release the bolt being connected to the other end of the tube, a first code card insertable in the lock and cooperable with the ends of the plungers at one side of the valve assembly, a second code card and access means in the lock for introducing the second code card into the lock to cooperate with the ends of the plungers at the opposite side of the valve assembly whereby, in the event that the coding on the second code card matches the coding on the first card the pairs of valve plungers are subjected to the same constraints and the valve members remain in their central, neutral positions to permit communication between the fluid pressurising member and the complementary release member to release the lock bolt and in the event of a mismatching of the coding on said cards at least one of the plungers is displaced to move the associated valve member, to squeeze closed the tube thereby blocking communication between the pressurising member and the complementary member to prevent release of the lock bolt.

4,266,416

DEVICE FOR THE PRODUCTION OF BLISTERS

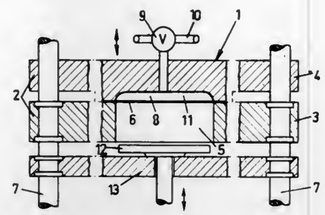
Werner Festag, and Hans-Ueli Müller, both of Schaffhausen, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Mar. 14, 1979, Ser. No. 20,216

Claims priority, application Switzerland, Mar. 31, 1978, 3460/78

Int. Cl.³ B21D *26/04*

U.S. Cl. 72—60 **9 Claims**



1. A device for the manufacture of blisters using a metal-plastic composite foil which can be deep drawn which comprises a clamping facility having at least one closed chamber therein and having two separable parts between which said metal-plastic composite foil can be clamped in such a way that it is immovably and fixedly held, said clamping facility including means for shaping the foil into a blister, means for pre-stretching said foil into a pendant bubble comprising at least one pipeline communicating with said chamber and fitted with a valve for supplying a fluid medium to said chamber for pre-stretching the foil, wherein said closed chamber is formed together with the foil clamped firmly in the clamping facility, said device including a shaping tool for finally shaping the foil operatively associated with said foil, thereby obtaining improved depth in the finally shaped product.

4,266,417

STEEL FLANGED WHEEL RIMS FOR MOTORIZED BICYCLES OR TWO-WHEELED VEHICLES AND A PROCESS FOR PRODUCING THE RIMS

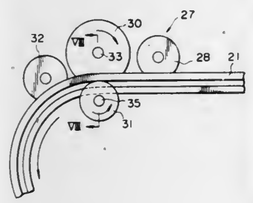
Kazuo Imamura, and Toshio Minamoto, both of Kaga, Japan, assignors to Daido Kogyo Co., Ltd., Ishikawa, Japan

Filed Apr. 18, 1979, Ser. No. 31,026

Claims priority, application Japan, May 9, 1978, 53-54096

Int. Cl.³ B21D *5/08, 11/10*

U.S. Cl. 72—168 **2 Claims**



1. A process for producing an integral and unitary steel flanged wheel rim, said process comprising:

providing a single steel band, and passing said steel band longitudinally and successively through a series of shaping rolls and therein sequentially plastically deforming said steel band to form a longitudinal wheel rim blank having a cross-sectional configuration including a rim body, a pair of spaced and parallel hollow ears extending outwardly from a first side of said rim body at opposite lateral edges thereof, each said hollow ear including a laterally outer leg portion and a laterally inner leg portion, a pair of beads, each said bead extending laterally inwardly from a laterally inward portion of a respective said inner leg portion of a respective said hollow ear, a recess formed in said rim body laterally centrally thereof between laterally inner ends of said beads, said recess opening at said first side of said rim body and convexly extending from an opposite second side of said rim body, and a flange extending from said second side of said rim body at said convexly extending recess, said flange having a pair of leg portions;

providing a bending machine including presser roll means, outer and inner feed roll means, said inner feed roll means including a pair of axially spaced rolls with a space therebetween, said pair of rolls being axially movable toward and away from each other, and bending roll means;

feeding said blank through said bending machine by rotating said outer and inner feed roll means in contact with said first and second sides, respectively, of said blank;

pressing said presser roll means against said first side of said blank at a position upstream of said feed roll means, and pressing said bending roll means against said first side of said blank at a position downstream of said feed roll means, and thereby bending said blank about said inner feed roll means as a fulcrum and thus forming said blank into a ring-shaped member with said flange extending radially inwardly; and

during said steps of feeding and bending, axially moving said pair of rolls of said inner feed roll means together and thereby pressing said leg portions of said flange together and thus substantially preventing radial compression and corrugation of said flange during said step of bending.

4,266,418

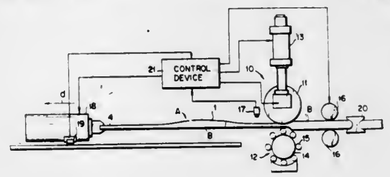
METHOD FOR MANUFACTURING A TAPER SPRING

Yoshihiro Sakai, and Jun Takahashi, both of Yokohama, Japan, assignors to NHK Spring Co., Ltd., Yokohama, Japan

Filed Jun. 18, 1979, Ser. No. 49,176

Int. Cl.³ B21B *1/42*

U.S. Cl. 72—197 **4 Claims**



1. In a method of manufacturing a taper spring by rolling a material at varied rolling thicknesses, the improvement comprising:

applying a predetermined longitudinal tension to said material being rolled by drawing said material in the rolling direction by a drawing means located at the outlet side of a rolling mill and passing said material through a pair of relatively movable feed rolls located at the inlet side of said rolling mill, said feed rolls being relatively movable toward and away from each other to press against said material with a force which is a function of said predetermined tension; and

rolling said material by means of a planetary rolling mill while said predetermined longitudinal tension is being applied, said planetary rolling mill being located between said means and said feed rolls.

4,266,419

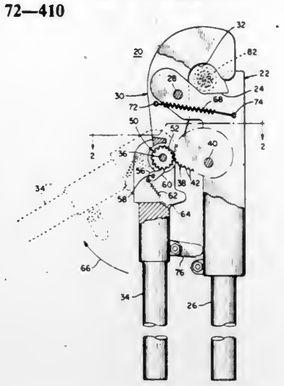
COMPRESSION TOOL

Michael A. Grundfest, Forest Hills, N.Y., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Jul. 10, 1978, Ser. No. 923,008

Int. Cl.² B21D *7/06*

U.S. Cl. 72—410 **12 Claims**



1. A compression tool, comprising: a first and a second die carrying member; means pivotally coupling said first die carrying member to said second die carrying member; a cam member rotatably mounted on said first die carrying member and having a cam surface; a cam driver rotatably mounted through its central axis of rotation on said second die carrying member and having a cam surface in selective contacting relationship with said cam surface of said cam member for selectively moving said first and said second die carrying members with respect to one another in response to the angular position of said cam member relative to said cam driver; a lever member coupled to said cam driver for selectively driving said cam driver about its central axis of rotation in a first direction; and a projection on said lever member extending towards said first die carrying member and arranged for abutting contact therewith to provide a fulcrum for said lever member at selective positions of said lever member relative to said first die carrying member.

4,266,420

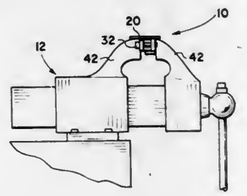
CRIMPING TOOL

John A. Walker, Claremore, Okla., assignor to Unit Rig & Equipment Co., Tulsa, Okla.

Filed Oct. 26, 1979, Ser. No. 88,415

Int. Cl.³ B21D *7/00*

U.S. Cl. 72—416 **4 Claims**



1. A crimping tool comprising a top plate, a bottom plate, said plates being parallel, a rigid arm disposed between said plates and being affixed thereto, a movable arm positioned adjacent said rigid arm and having one end thereof pivotally mounted to said plates adjacent one end of said rigid arm, said rigid arm and said movable arm being positioned so that the free ends of said arms opposite said one end comprise opposed

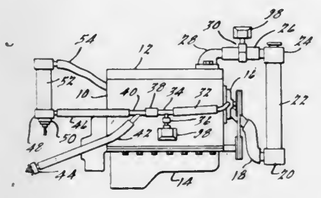
crimping jaws, said crimping jaws allowing for positioning of a portion of a circle clamp therebetween when said arms are in an open position, said top plate having a sufficient width to allow said top plate to rest atop the open jaws of a bench vise while said crimping jaws are fully opened, said bottom plate having a width no greater than the combined widths of said arms in order to allow the jaws of said bench vise to close against said arms, resilient means for holding said crimping jaws open for facilitating the positioning of a portion of said circle clamp therebetween, and means for alignment of said crimping tool within said jaws of said bench vise whereby said crimping jaws extend beyond said jaws of said bench vise.

4,266,421

VIBRATION SENSORS FOR INTERNAL COMBUSTION ENGINES

John A. McDougal, 14388 Harbor Island, Detroit, Mich. 48215

Filed Aug. 20, 1979, Ser. No. 67,991
Int. Cl.³ G01H *3/12*; G01M *15/00*; G01N *33/22*
U.S. Cl. 73—1 DV **24 Claims**



1. For an internal combustion engine having a liquid coolant supply for cooling said engine, a combustion condition sensing system comprising:

passage means communicating with said engine for containing said coolant, said passage means extending away from said engine to provide a portion which is remote from said engine and being at least in part elastomeric to isolate said remote portion from substantial direct vibrations of said engine,

a vibration sensor which is responsive to vibrations indicative of said combustion condition; and

mounting means for mounting said vibration sensor on said remote portion of said passage means so that said vibration sensor is in vibration communication with said coolant for sensing vibrations transmitted through said coolant from said engine but is isolated from substantial direct vibration of said engine.

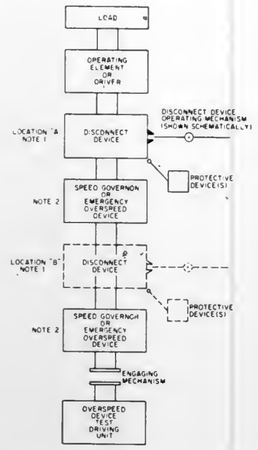
4,266,422

OVERSPEED DEVICE TEST DISCONNECT DEVICE

Richard L. Ullinger, 407 Jeffris Ave., Beach Haven, N.J. 08008

Filed Mar. 17, 1980, Ser. No. 131,228
Int. Cl.³ G01P *21/00*
U.S. Cl. 73—2 **1 Claim**

1. In an installation of rotational equipment having a speed responsive device normally connected thereto the improvement comprising: a disconnect device for interrupting the connection between the rotational equipment and the speed responsive device in a test mode, a protective device responsive to the disconnect device for rendering the rotational equipment inoperative in the test mode, the speed responsive device further having a means for engagement by a driving



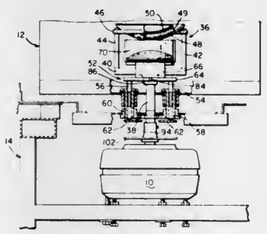
device for driving the speed responsive device at a known speed in the test mode.

4,266,423

USE OF ACID AS AN ANALYSIS AID IN SALTED MEAT SAMPLES

James P. Hadden, Tipp City, Ohio, assignor to Hobart Corporation, Troy, Ohio

Filed Oct. 1, 1979, Ser. No. 80,841
Int. Cl.³ G01N *5/04*
U.S. Cl. 73—15 B **8 Claims**



1. In a method of determining the amount of fat in a sample of a salted meat wherein the fat is heat releasable in liquid form from the sample, said method including the steps of (a) applying energy to said sample to heat the same and cause fat in said sample to be rendered as a liquid, (b) continuously monitoring the weight of said sample during the applying of energy thereto at least from a time when said sample begins losing weight, and (c) terminating the applying of energy to said sample once the residue of said sample reaches a predetermined chemical consistency, the improvement comprising:

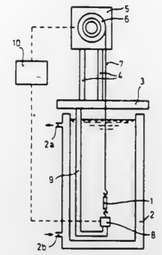
preparatory to applying energy to said sample, mixing with said sample an amount of acid sufficient to lower the pH of the sample to below the isoelectric point of the protein contained therein.

4,266,424

APPARATUS FOR DETERMINING THE STRESS-STRAIN PROPERTIES OF VISCOELASTIC MATERIALS IN THE MOLTEN STATE

Helmut Muenstedt, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 27, 1979, Ser. No. 15,617
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1978, 2812275
Int. Cl.³ G01N *3/08*
U.S. Cl. 73—15.6 **2 Claims**



1. Apparatus for determining the stress-strain properties of viscoelastic liquid, especially of polymers in the molten state, comprising:

a vessel containing a thermostable liquid bath;

a bar-shaped test specimen of viscoelastic liquid arranged vertically in the bath, so that the bath is inert to the test specimen and has a density adjusted to be virtually equal to the density of the test specimen;

means for heating the bath in the vessel and for maintaining a uniform bath temperature over the length of the test specimen; and

means to stretch the test specimen, comprising a tape, one end of which is attached to the upper end of the test specimen and the other end of which is attached to a motor-driven reel, and a load cell which is located in a fixed position inside the bath and is connected directly or indirectly to the lower end of the test specimen,

the load cell being arranged so as to measure continuously the tensile forces along the vertical center line of the combination of the test specimen and the means to stretch the test specimen, and

the load cell being firmly attached to the lower, angled portion of the support, the upper end of which extends beyond the surface of the thermostable bath and is firmly attached outside the bath.

4,266,425

METHOD FOR CONTINUOUSLY DETERMINING THE COMPOSITION AND MASS FLOW OF BUTTER AND SIMILAR SUBSTANCES FROM A MANUFACTURING PROCESS

John J. Allport, Saratoga, Calif., assignor to Zikonix Corporation, Sunnyvale, Calif.

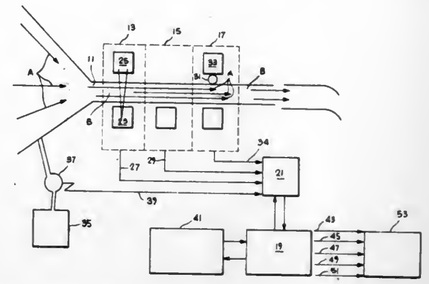
Filed Nov. 9, 1979, Ser. No. 92,983
Int. Cl.³ G01N *33/06, 23/203, 27/22*
U.S. Cl. 73—61 R **12 Claims**

1. A non-destructive method for continuously determining the water and fat content of a material with known curd content such as butter as it emerges from the manufacturing process comprising:

continuously measuring the dielectric constant of the material after it emerges from the manufacturing process,

continuously measuring the density of the material after it emerges from the manufacturing process,

continuously calculating the water and fat content of the material by comparing the measured dielectric constant,



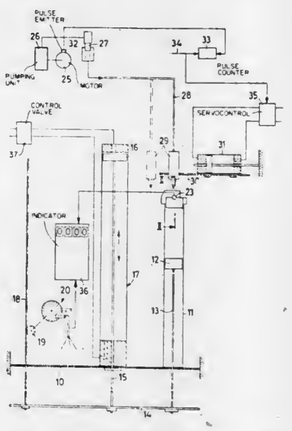
the measured density and the known curd content to calibration values determined from prior laboratory tests.

4,266,426

APPARATUS FOR CALIBRATING THE RATE OF DELIVERY OF INJECTION PUMPS FOR DIESEL ENGINES

Roberto Gandini, Quinzano D'Oglio, Italy, assignor to Officine Meccaniche Odolini Catullo S.A.S. di Roberto Gandini & C., Quinzano D'Oglio, Italy

Filed Mar. 9, 1978, Ser. No. 885,006
Claims priority, application Italy, Mar. 9, 1977, 21092 A/77
Int. Cl.³ G01F *1/72*; G01M *15/00*
U.S. Cl. 73—119 A **7 Claims**



1. An apparatus for measuring the rate of delivery of a liquid pumping unit, particularly for an injection pump for a Diesel engine, said apparatus comprising a pumping unit, motor means for driving said pumping unit, at least one vertically disposed cylindrical vessel having an open top end, a duct fed by said pumping unit opening into said vessel through said open top for selectively causing discharge of liquid from said pumping unit into said vessel, counting means for counting the number of revolutions of said motor means, control means for simultaneously starting the discharge of liquid into said vessel and the operation of said counting means, said counting means being operable to stop said discharge of liquid when said counting means reaches a preselected number, said vessel having a bottom wall in the form of a piston axially movable within said vessel, driving means operable at the end of each liquid discharging period of said duct for moving said piston axially from a lowered rest position to a top position to cause the received liquid to overflow from the vessel through an

overflow cutaway arranged at a predetermined overflow level, first sensing means arranged at said overflow level for sensing the attainment of said overflow level by said discharged liquid and then sensing when said piston is in said top position, second sensing means for sensing the lifting movement of said piston, and a piston stroke indicator controlled by said first and second sensing means for indicating the stroke of said piston from the position at which said discharged liquid reaches said overflow level to said top position of said piston, said indicated piston stroke being thus representative of the volume of liquid discharged during said preselected number of revolutions of said motor means and therefore representative of the rate of delivery of said pumping unit.

4,266,427

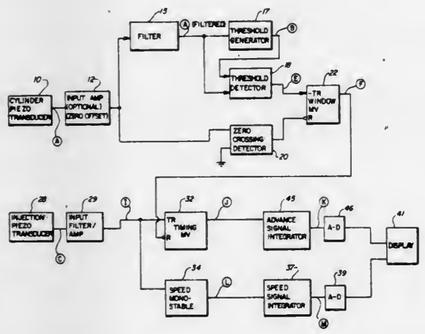
COMBUSTION TIMING METHOD AND APPARATUS WITH DIRECT TDC DETECTION

William M. Wesley, Kildeer, Ill., assignor to Creative Tool Company, Lyons, Ill.

Continuation-in-part of Ser. No. 56,501, Jul. 11, 1979. This application May 9, 1980, Ser. No. 148,543

Int. Cl.³ G01M *15/00*

U.S. Cl. 73—119 A **14 Claims**



1. A system for detecting the top dead center position of an engine piston during its combustion cycle comprising

transducer circuit means coupled to the combustion chamber of at least one cylinder of said engine for producing an output signal the amplitude of which varies substantially in accordance with the first derivative of pressure within said cylinder;

a signal processing circuit responsive to said first derivative signal for producing an output signal upon a change of polarity of said first derivative signal which occurs between the compression and expansion of volume in the combustion chamber during the combustion cycle; and,

means for utilizing said polarity change as an indication of the achievement of the top dead center position by said piston.

4,266,428

METHOD AND APPARATUS FOR NON-DESTRUCTIVE INSPECTION OF TIRES

Morris D. Ho, Walnut Creek, Calif., assignor to Bandag Incorporated, Muscatine, Iowa

Filed Apr. 19, 1979, Ser. No. 31,962

Int. Cl.³ G01N *29/04*

U.S. Cl. 73—146 **44 Claims**

1. A nondestructive tire testing apparatus comprising:

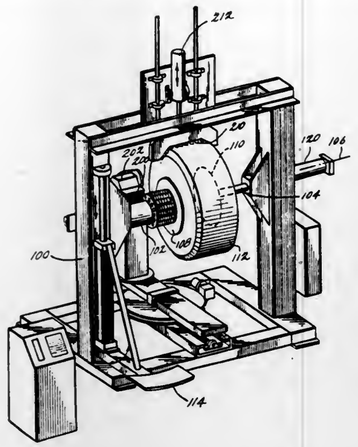
an ultrasonic acoustic transmitter,

an ultrasonic acoustic receiver spaced from said transmitter so as to permit the passage of a single tire wall therebetween, said receiver being operatively aligned to receive ultrasonic acoustic signals from said transmitter, after passage through a predetermined area of said tire wall, and to provide corresponding ultrasonic electrical signals,

electrical pulsing circuits connected to repetitively electrically activate said ultrasonic acoustic transmitter and to cause the generation of corresponding repetitive bursts or pulses of said ultrasonic acoustic signals,

gated receiver circuits connected to provide electrical measurement signals representing the relative strength of ultrasonic acoustic signals received by said receiver during repetitive gated time intervals which intervals are synchronized to include only the initial portions of each received burst of said ultrasonic acoustic signals, and

display means connected to receive said electrical measurement signals and to provide humanly sensible output indications representing the condition of said tire wall.



4,266,429

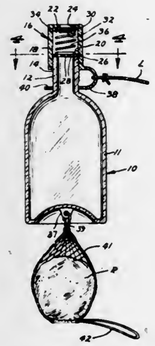
SELECTABLE DEPTH WATER RETRIEVER

Thomas E. Brovold, 7721 Chanhassen Rd. #142, Chanhassen, Minn. 55317

Filed Sep. 17, 1979, Ser. No. 76,197

Int. Cl.³ G01N *1/12*

U.S. Cl. 73—425.4 R **9 Claims**



1. A selectable depth water retriever comprising:

(a) a container having

(b) an opening,

(c) a cover,

(d) means mounting said cover on said container and over said opening,

(e) said cover having an opening formed therein,

(f) a sealing member associated with said cover opening,

(g) a resilient member,

(h) means positioning said resilient member between said sealing member and said opening of said container normally urging said sealing member upon said opening of said cover,

(i) means for weighting said container, and

(j) means for attaching a retrieving device to said container for lowering and raising the container in the water.

4,266,430

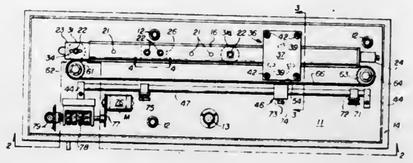
PRECISION PRESSURE-RESPONSIVE FLUID GAUGE

Gene Glassey, San Diego, Calif., assignor to Fluid Data Systems, Inc., San Diego, Calif.

Filed Dec. 6, 1979, Ser. No. 100,937

Int. Cl.³ G01L *9/14*

U.S. Cl. 73—701 **13 Claims**



1. In a pressure-responsive gauge of the type having a base, a balance beam, a fulcrum pivotally supporting said beam relative to said base, pressure-responsive means interposed between said base and said beam arranged to tilt said beam, a poise slideable along said beam to counter-balance the force of said pressure-responsive means, drive means for moving said poise, said drive means including a flexible member extending parallel to said beam and a servo-motor arranged to move said flexible member, an armature attached to one end of said beam, a differential transformer excited by said armature, an electric circuit including said transformer and said servo-motor functioning to move said poise to null said transformer and a readout driven by said servo-motor, the improvement comprising temperature responsive means to compensate for temperature variations in a vertical sense comprising a first spacer between said pressure-responsive means and said base of a different material than said pressure-responsive means, said first spacer and said pressure-responsive means having dimensions and coefficients of expansion such that they expand to the same extent as said fulcrum, a clamp adjustably clamping said transformer vertically relative to said base, a second spacer between said beam and said armature, and a third spacer between said base and said clamp, the materials of said clamp, armature and spacers being such that the position of the midpoint of said armature relative to the null point of said transformer remains fixed despite temperture variations.

4,266,431

GYROSCOPIC APPARATUS

Alan P. Liebing, West Linton, Scotland, assignor to Ferranti Limited, Cheadle, England

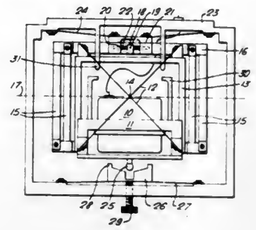
Filed Dec. 4, 1979, Ser. No. 100,106

Claims priority, application United Kingdom, Dec. 6, 1978, 47332/78

Int. Cl.³ G01C *19/16, 19/26*

U.S. Cl. 74—5.1 **11 Claims**

1. Gyroscopic apparatus which includes a gyroscopic device having two mutually orthogonal sensitive axes, a two-axis gimbal system supporting the gyroscopic device for movement about two orthogonal horizontal axes by means of a pair of cross-spring pivots of zero stiffness, subsidiary suspension means arranged to support the gimbal system about two axes nominally parallel to and vertically above the said two horizontal axes, and damping means operable to damp movements



of the gimbal system about the two axes of the subsidiary suspension means.

4,266,432

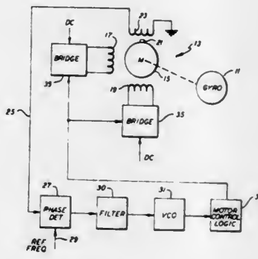
GYRO MOTOR CONTROL

George F. Schroeder, Wayne, and Walter J. Krupick, Succasunna, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Apr. 24, 1978, Ser. No. 899,352

Int. Cl.³ G01C *19/10, 19/28*

U.S. Cl. 74—5.7 **4 Claims**



1. In a precision gyroscope, an improved drive system for the gyro wheel comprising:

(a) an induction motor having first and second stator windings and a rotor, said rotor mechanically coupled to the gyro wheel;

(b) a magnet on said rotor and sensing coil means on said stator to provide sensing means with a pulse train output having a frequency proportional to the rotational speed of said rotor with the pulses of said pulse train having a phase related to the phase of said motor within a given cycle of rotation;

(c) means to supply a reference frequency;

(d) a phase detector having as inputs the detected phase of said rotor and said reference frequency and providing an output representing the phase error therebetween;

(e) a voltage controlled oscillator having said phase error coupled thereto as an input and developing an output related thereto; and

(f) motor control means coupled to said voltage controlled oscillator for developing two-phase signals for energizing said first and second windings comprising:

(i) first and second bridges, each bridge comprised of four solid state switches in a bridge configuration, a respective first or second winding coupled across one diagonal of said bridge and a DC voltage across the other diagonal of said bridge; and

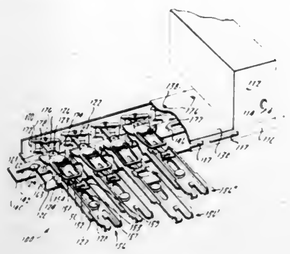
(ii) means for developing from said voltage controlled oscillator output two signals shifted 90° in phase and at the desired operating frequency for driving the switches of said bridges.

4,266,433

LOW PROFILE PUSHBUTTON RADIO TUNER

Robert M. McDonough, Hatfield, Pa., assignor to Ford Aerospace & Communications Corp., Detroit, Mich.

Filed Nov. 15, 1978, Ser. No. 960,884
Int. Cl.³ H03J 5/12
U.S. Cl. 74—10.33 **10 Claims**



1. In a pushbutton radio tuner comprising:
means for tuning selected radio frequencies;
a chassis defining a front, back, top and bottom for said tuner;
A shuttle bar connected to said tuning means for longitudinal movement to positions corresponding to said selected radio frequencies;
a plurality of pushbutton assemblies mounted for sliding motion, through the front of said chassis, transverse to the movement of said shuttle bar;
tuning cams having cam surfaces oriented transverse to both said sliding motion and said movement of said shuttle bar;
means for pivotally mounting said tuning cams on respectively corresponding pushbutton assemblies;
means on said pushbutton assemblies for locking said tuning cams in adjusted angular positions about their respective mounting means;
means defining cam followers, associated with said pushbutton assemblies, having surfaces with tangents that lie in planes parallel to said tuning cam surfaces, and being supported by said chassis for rotational following movement about individual predetermined axes in response to engagement by said angularly locked cams and for translating said rotational following movement to said shuttle bar to effect its longitudinal movement;
an improvement comprising:
means in said chassis for accurately positioning only said engaged cam follower means for rotation about its predetermined axis, while simultaneously providing minimal friction bearing retention of others of said plurality of cam follower means.

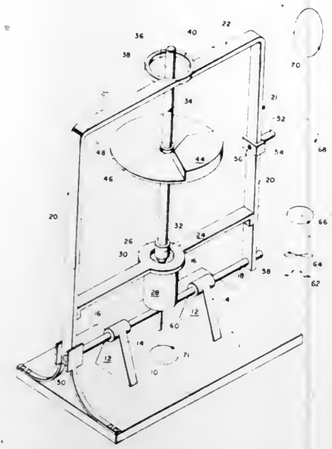
4,266,434

ROTATING OSCILLATORY MOTION POWER TAKE-OFF

David L. Burns, 4607 Griffin St., Moss Point, Miss. 39563

Filed Nov. 30, 1978, Ser. No. 964,966
Int. Cl.³ B06B 1/16; B65G 27/20
U.S. Cl. 74—61 **10 Claims**

1. Power take-off apparatus, comprising:
a frame having an opening therethrough,
means supporting said frame for oscillatory and axial movement relative to an axis,
a shaft rotatably mounted on said frame and having a free end extending through said opening in spaced relation to at least a portion of the surrounding frame surface defining said openings,
a weight mounted in off-center relation of said shaft,
means for rotating said shaft and said weight thereon to cause the free end of said shaft to move along the frame surface defining said opening to effect oscillation and axial movement of said frame relative to said axis, and



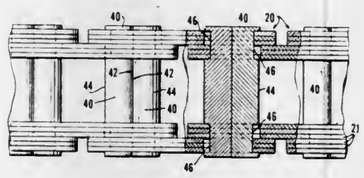
means mounted on said frame to enable power to be taken off said frame at different points thereon which generate different power output motions.

4,266,435

SEGMENTAL ROLLER DRIVE CHAIN

Wilfrid H. Bendall, 48-18 43rd St., Woodside, N.Y. 11377

Continuation-in-part of Ser. No. 947,483, Oct. 2, 1978, abandoned. This application Jun. 15, 1979, Ser. No. 48,716
Int. Cl.³ F16G 13/02
U.S. Cl. 474—227 **5 Claims**



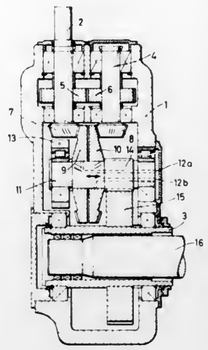
1. A segmental roller drive chain having loosely assembled, apertured link members spaced transversely apart with overlapping end portions and registering apertures, interconnected by coacting pairs of segmental rocker-bearing members extending through the apertures, each of said link members comprising a plurality of comparatively thin, laterally flexible laminas in loose lateral contact with each other, each of said rocker-bearing members having coacting arcuate bearing portions and arcuate portions external thereto for engaging drive sprocket teeth, said portions external thereto being notched to engage and retain the link members transversely apart thereon, each of said laminas having aperture edge portions in loose bearing contact with the notched portions, the apertures of said link members comprising an assembly clearance for free manual insertion or removal of the bearing members for selective substitution or replacement with members having coacting arcuate bearing contact portions of different radii.

4,266,436

TORQUE DIVISION GEARING

Rudi Reppert, Bochum, Fed. Rep. of Germany, assignor to WGW Westdeutsche Getriebe- und Kupplungswerke GmbH, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 40,729
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2826022
Int. Cl.³ F16H 35/06, 1/14
U.S. Cl. 74—395 **7 Claims**



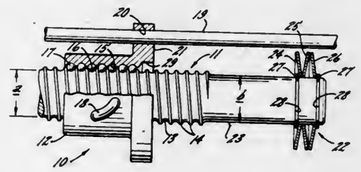
7. A torque division gear comprising: an input shaft having a first gear arranged thereon and also having a first bevel gear; a gear shaft parallel to the input shaft having a second gear driven via the first gear and also having a second bevel gear; an axially freely displaceable shaft having mounting means for allowing free displacement in response to operational forces during operation of the gearing; third and fourth bevel gears on the displaceable shaft respectively mating with the first and second bevel gears, said freely displaceable shaft also having a third gear; an output shaft having a fourth gear arranged thereon driven by the third gear such that axial displacements of the displaceable shaft are isolated from the output shaft; and means for controllably adjusting the third and fourth bevel gears on the displaceable shaft to allow angle position adjustment of the third and fourth bevel gears externally of the entire torque division gearing.

4,266,437

BALL SCREW AND NUT ASSEMBLY

Bruno Obergfell, Wolfschlugen, Fed. Rep. of Germany, assignor to Warner Electric Brake & Clutch Company, South Beloit, Ill.

Filed May 4, 1979, Ser. No. 35,818
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1979, 2903630
Int. Cl.³ F16H 29/20
U.S. Cl. 74—424.8 R **5 Claims**



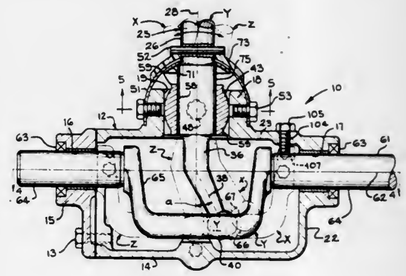
1. A ball screw assembly having, in combination, an elongated shaft with a first portion formed with a helical groove having a predetermined root diameter, a nut telescoped on said shaft and normally disposed along said first portion, said nut having an internal helical groove opposing the groove in said shaft whereby the two grooves form a helical channel, an endless train of balls of predetermined axial length disposed in said channel and coupling said nut and said shaft whereby the nut traverses axially relative to the shaft upon relative turning of the nut and the shaft, and stop means acting between said shaft and said nut and operable to limit the movement of the nut at a predetermined position along the shaft, said shaft having a cylindrical portion extending beyond said first portion and being of a diameter substantially equal to said root diameter whereby said balls roll on the surface of said cylindrical portion when said nut is telescoped over the cylindrical portion, said cylindrical portion being at least equal to the axial length of said train and being located relative to said first portion to be telescoped by said nut when the nut is in said predetermined position, the diameter of said cylindrical portion being slightly larger than said root diameter whereby at least portions of the assembly of said shaft and said nut and said balls are elastically deformed when the balls roll onto said cylindrical portion.

4,266,438

TRANSMISSION SHIFT CONTROL

Leo R. Kessmar, Northwood, Ohio, assignor to Dana Corporation, Toledo, Ohio

Filed Jul. 16, 1979, Ser. No. 58,068
Int. Cl.³ G05G 9/18
U.S. Cl. 74—473 R **14 Claims**



1. A shift mechanism for the gears of a transmission comprising:
a pivotally mounted bushing assembly, said bushing assembly defining an aperture;
means for selectively engaging one of a plurality of gears in a transmission positioned in adjacent, spaced apart relationship to said bushing assembly; and
a shift lever rotatably positioned in said aperture, said shift lever being free to pivot with said bushing assembly, one end of said shift lever adapted for drivingly engaging said means for selectively engaging one of a plurality of gears in a transmission, whereby rotating said shift lever selects said gear in said transmission and pivoting said shift lever engages said selected gear in said transmission.

4,266,439

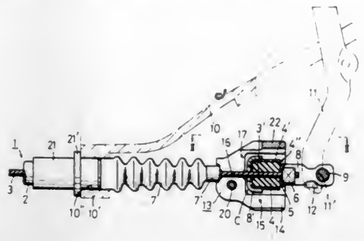
VIBRATION DAMPING DEVICE FOR A MECHANICAL CLUTCH RELEASE SYSTEM

Shinjiro Hayashi; Kiyoshi Taniyama; Kenichi Kikuchi, all of Toyota, and Teruo Akashi, Okazaki, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Sep. 25, 1978, Ser. No. 945,694
Claims priority, application Japan, Feb. 2, 1978, 53-11859[U]
Int. Cl.³ F16C 1/10; F16D 23/00
U.S. Cl. 74—501 R **3 Claims**

1. In combination with a mechanical clutch release system having an inner cable and a clevis connecting said inner cable to a clutch release fork, a vibration damping device comprising a damper weight mounted to said inner cable in the vicinity of

said clevis, said damper weight having a generally cylindrical hollow portion near said release fork to coaxially and spacedly encircle said clevis and said inner cable, said damper weight having a substantially solid portion longitudinally adjacent to said cylindrical hollow portion and having an axial bore for holding said inner cable therein, a first slit provided along the



entire length of said damper weight and through a wall portion of said hollow portion and communicating with said axial bore to permit movement of said inner cable into and out of said axial bore and said hollow portion, and a bolt extending normal to said first slit for securely holding said inner cable in said axial bore.

4,266,440

STEERING UNIT

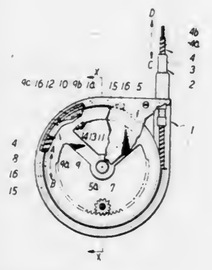
Mathew Berens, Battle Creek, Mich., assignor to Nippon Cable System Inc., Takarazuka, Japan

Filed Apr. 27, 1979, Ser. No. 34,144

Claims priority, application Japan, Nov. 30, 1978, 53/165736[U]

Int. Cl.³ F16C *1/10*

U.S. Cl. 74—501 R **5 Claims**



1. A steering unit comprising:

a housing:

a disc rotatably mounted in said housing, said disc having a grooved outer peripheral surface;

a push-pull control cable, said push-pull control cable being further comprised of an inner cable, wherein said inner cable has a first end secured to said disc, wherein the improvement comprises a concave portion formed in said outer periphery surface of said disc, said concave portion extending into said outer peripheral surface of said disc to a greater degree than said groove in said peripheral surface to a point where said first end of said inner cable is connected to said disc by means of an end fitting extending between said first end of said inner cable and said concave portion of said disc, said end fitting having a curved portion extending from said groove into said concave portion wherein a head portion of said end fitting is secured to said concave portion of said disc.

4,266,441

POSITIONING DEVICE WITH A PIVOTABLE POSITIONING MEMBER

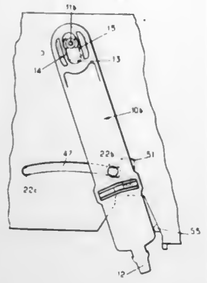
Yves A. H. Stordeur, Paris, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Oct. 18, 1978, Ser. No. 952,333

Claims priority, application France, Oct. 20, 1977, 77 31611

Int. Cl.³ G05G *1/04*

U.S. Cl. 74—523 **19 Claims**



1. A positioning device comprising a pivotable positioning member having a guide lug extending parallel to and spaced from its pivot axis, and a support member cooperable with said positioning member and having a guideway for said guide lug, said guide lug having means for maintaining said positioning member on said support member in a direction parallel to the pivot axis by co-operation with the portion of said support member defining said guideway, said guideway having an enlarged end for introducing said guide lug into said guideway, and abutment means for preventing said guide lug from re-entering into the enlarged end of said guideway after said positioning member is mounted on said support member and further comprising a strip integrally formed with the rest of said positioning member and spaced therefrom along its longitudinal sides by slits, said strip having a protruding portion extending parallel to the pivot axis of said positioning member, said strip being elastically urged through the end of the protruding portion against one side of said support member when said positioning member is mounted thereon.

4,266,442

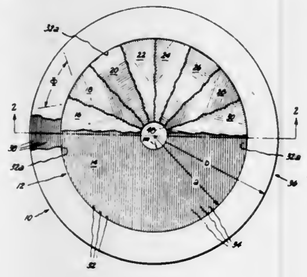
FLYWHEEL INCLUDING A CROSS-PLY COMPOSITE CORE AND A RELATIVELY THICK COMPOSITE RIM

Edward S. Zorzi, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 25, 1979, Ser. No. 33,189

Int. Cl.³ G05G *1/00, 3/00;* F16F *15/30;* F16C *15/00*

U.S. Cl. 74—572 **14 Claims**



1. In a circumferentially reinforced cross-ply composite flywheel comprising

a cross-ply composite central portion comprising a plurality of fiber-containing layers, the fibers of each layer being parallel to each other and extending in radial and chordal directions and being disposed in a matrix of binder material, the fibers of each successive layer being oriented at a single, predetermined angle between approximately 70° and approximately 110° to the fibers of the preceding adjacent layer such that at least four fiber-containing layers are disposed between any two layers in which the fibers of both such layers extend substantially parallel to each other, and

means for radially outward transfer of centrifugal loading from the radially outermost chordal fibers of each layer of said central cross-ply composite portion, said load transfer means being an outer rim portion contiguous with said cross-ply composite central portion and of an axial thickness at least as great as that of said central portion, said outer rim portion comprising a multiplicity of circumferentially-extending fibers disposed in a matrix of binder material, the density-to-stiffness ratio of said rim portion being substantially less in value than the density-to-stiffness ratio of said cross-ply composite central portion,

the improvement comprising:

(1) β is equal to or less than 0.92, where β is the ratio of the radius of said cross-ply composite central portion to the outer radius of said rim portion, where both radii are expressed in like units, and

(2) said rim and central portions are secured together by an interference fit δ of at least 0.001 inch per inch of said outer radius of said rim portion, where δ is the ratio δ/b where b is said outer radius and $\delta = u_C + u_R$, where u_C is the circumferentially average radial distance said central portion moves in expansion when said rim portion is removed therefrom with the flywheel at rest and said central portion is at a temperature of 70° F., and u_R is the circumferentially average radial distance which the inner circumference of said rim portion moves in contraction when said central portion is removed therefrom with the flywheel at rest and said rim portion is at said temperature, at least one of u_C and u_R being other than zero, with δ, b, u_C and u_R expressed in like units.

4,266,444

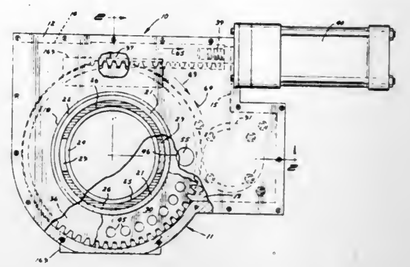
HIGH-LOW SPEED ROTARY DRIVE MECHANISM

Ronald B. Anderson, Plymouth; Walter W. Svendsen, New Brighton; Gary H. Beckley, Roseville, and Clifford Caneer, Jr., Anoka, all of Minn., assignors to Longyear Company, Minneapolis, Minn.

Filed Jun. 14, 1979, Ser. No. 48,490

Int. Cl.³ F16H *37/06;* E21B *3/00*

U.S. Cl. 74—661 **19 Claims**



1. Apparatus for use in drivingly rotating a driven member, comprising a frame, first annular means rotatably mounted on the frame for surrounding at least a part of the driven member, said first annular means having a first annular ring gear portion, a motor mounted on the frame and having a driven rotary motor shaft, means mounted on the motor shaft to drivingly rotate the ring gear portion, a ring gear mounted on the first annular means for rotation relative thereto, an elongated rack reciprocally mounted on the frame in driving engagement with the ring gear, piston cylinder means mounted on the frame for reciprocating the rack, and means mounted by the ring gear for rotation therewith for transmitting a rotary driving force in one angular direction from the ring gear to the gear portion when the ring gear is drivingly rotated in said one angular direction and permit said ring gear portion to be drivenly rotated relative the ring gear in said one angular direction and means on the annular means for drivingly rotating said driven member when the ring gear portion is drivenly rotated in said one angular direction.

4,266,443

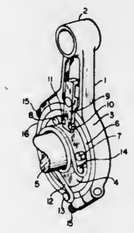
ARTICULATING GUIDE SPRING

Edward M. McWhorter, 6931 Greenbrook Cir., Citrus Heights, Calif. 95610

Filed Jul. 6, 1978, Ser. No. 922,490

Int. Cl.³ G05G *1/00*

U.S. Cl. 74—579 E **2 Claims**



1. In connecting rods of the character described, an upper connecting rod pivotally attached to a lower connecting rod at a pivoting joint, a spring fixedly attached to the said upper connecting rod and to the said lower connecting rod at points above and below the said pivoting point respctively, said spring being under strain in a manner which tends to keep the said upper connecting rod and the said lower connecting rod in the untoggled condition relative to the said pivoting joint.

4,266,445

LOCKING DIFFERENTIAL

Edward J. Goscenski, Jr., Battle Creek, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 22, 1979, Ser. No. 22,664

Int. Cl.³ F16H *1/44*

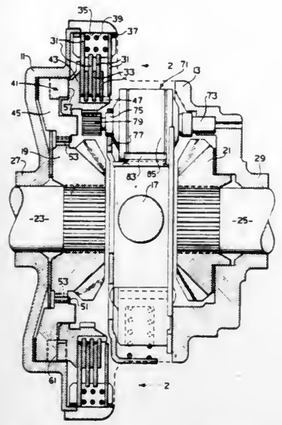
U.S. Cl. 74—711 **13 Claims**

1. In a differential gear mechanism of the type including a gear case defining a gear chamber, differential gear means disposed in said gear chamber, said differential gear means including at least one input gear and first and second output gears, lockup means for locking up said differential gear means to retard differentiating action, actuating means for actuating said lockup means, said lockup means including clutch means operable between an engaged condition, effective to retard relative rotation between said gear case and said output gears, and a disengaged condition, said lockup means further including cam means operatively associated with said first output gear, said cam means including a pair of cam members, one of said cam members being movable relative to the other cam member to effect said engaged condition of said clutch means, said cam members including a main cam member, said actuating means including retarding means operable to engage said lockup means and retard rotation of said main cam member, the improvement comprising:

(a) said cam means extending radially outwardly from said first output gear;

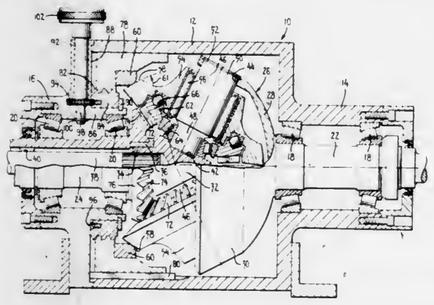
(b) said main cam member defining an inner peripheral re-

tarding surface disposed radially outwardly of said first output gear; and



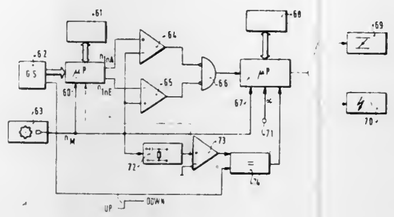
(c) said retarding means being operable to engage said retarding surface radially outwardly of said first output gear.

4,266,446
HIGH TORQUE INFINITELY VARIABLE TRACTION DRIVE TRANSMISSION
Joseph E. Fritsch, Oak Park, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.
Filed Apr. 5, 1979, Ser. No. 27,197
Int. Cl.³ F16H *15/50*
U.S. Cl. 74—796 **23 Claims**



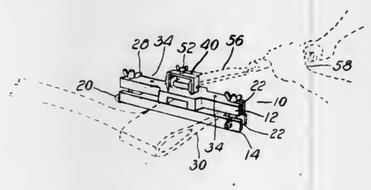
1. A high torque infinitely variable traction drive comprising:
a transmission housing;
coaxial input and output shafts having end portions extending within said housing;
an input carrier rotatable with the input shaft;
a plurality of pins, opposite end portions of the pins being carried by the input carrier;
a plurality of planetary members carried by the plurality of pins, each of the planetary members having a traction surface;
a plurality of gears driveable by the plurality of planetary members;
gearing rotatable with the output shaft in driven relationship with the plurality of gears;
a traction ring disposed within the housing and coaxial with the input shaft and engaged by the traction surface of the planetary members, the diameter of the traction surface being approximately the same as the internal diameter of the traction ring; and
means to axially shift the traction ring.

4,266,447
APPARATUS AND METHOD FOR IMPROVING THE JOLT CONTROL IN A MOTOR VEHICLE DRIVE SYSTEM
Gerhard Heess, Stuttgart; Manfred Schwab, Gerlingen, and Walter Stroh, Cleebronn, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Oct. 30, 1979, Ser. No. 89,465
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1978, 2848624
Int. Cl.³ B60K *41/08*
U.S. Cl. 74—858 **14 Claims**



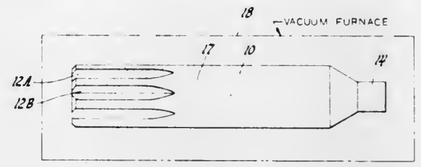
10. In a drive system having an internal combustion engine and transmission means operative in a plurality of operator selectable gear ratios, apparatus for decreasing jolt during gear shift operations, comprising
means for sensing the speed of said internal combustion engine and furnishing an initial speed signal corresponding thereto;
means for furnishing an initiating speed signal and an end speed signal in response to said initial speed signal, said initiating and end speed signals respectively signifying a desired engine speed for initiating and ending jolt control;
and means for decreasing the torque of said internal combustion engine from the time said speed of said engine corresponds to said initiating speed and until the time said speed of said engine corresponds to said end speed.

4,266,448
AXE SHARPENING DEVICE
James Alderman, P.O. Box 324, Kellogg, Id. 83837
Filed Nov. 27, 1978, Ser. No. 963,727
Int. Cl.³ B21K *11/10*
U.S. Cl. 76—82 **1 Claim**



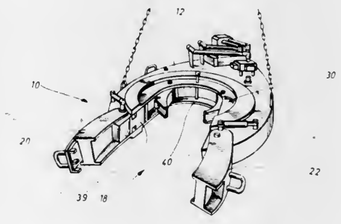
1. An axe head sharpening device comprising:
a clamp composed of an upper and a lower plate adapted to receive said head therebetween;
resilient strips on said plates adapted to contact and grip said head;
tightening means for securing said plates on said head;
a guide for a file;
said guide being mounted on said upper plate for substantially universal movement about said plate;
wherein said plates have slots at one end thereof;
said tightening means consisting of eye-bolts at each extremity of said plates;
one of said eye-bolts having its eye pivoted in said slot of said lower plate whereby said eye-bolt is able to pivot into and out of said slots to allow entry of said axe head between said plates; and
wherein the other of said eye-bolts has its eye bent perpendicular to and below said lower plate to serve as means for attaching the device to a belt for storage.

4,266,449
METHOD FOR MAKING A CUTTING TOOL
Robert A. Bielby, 30328 Fink, Farmington, Mich. 48024
Continuation-in-part of Ser. No. 895,296, Apr. 11, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 87,251
Int. Cl.³ B21K *5/04*
U.S. Cl. 76—101 A **10 Claims**



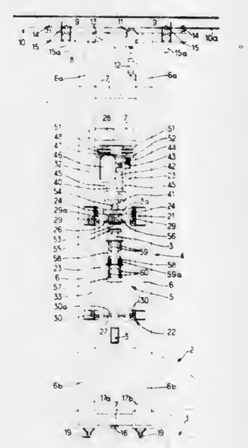
1. A method for making a cutting tool comprising the steps of:
forming a metal cutting tool blank;
depositing on the surface of said blank in a vapor deposition chamber a high hardness coating of a first thickness;
heat treating the coated blank in a vacuum furnace; and
removing metal and a portion of said high hardness coating from said blank to form a cutting edge bordering a portion of said blank in which the high hardness coating of said first thickness remains thereon.

4,266,450
POWER TONG ASSEMBLY
Garth M. Farr, Kingwood, Tex., and Terence D. McCoy, Edmonton, Canada, assignors to Farr Oil Tool, Inc., Houston, Tex.
Filed Jan. 26, 1979, Ser. No. 6,904
Int. Cl.³ B25B *13/50*
U.S. Cl. 81—57.33 **7 Claims**



1. In a power tong of the type having upper and lower cage plates for carrying the pipe-engaging jaws of the tong, the cage plates being mounted for rotation whereby at least one of the cage plates opposes an opposing tong body plate to define a bearing surface therebetween, the IMPROVEMENT comprising:
a continuous arcuate groove in said at least one cage plate, said arcuate groove opening toward the opposing body plate and defining inner and outer arcuate walls and a base wall;
a plurality of guide roller assemblies associated with the arcuate groove and being mounted by the opposing body plate, each said guide roller assembly comprising a guide roller for residing within the groove and a substantially vertical shaft secured to the opposing body plate for rotatably mounting its respective guide roller, whereby the guide rollers guide the rotation of said at least one cage plate by engagement with said groove inner and outer arcuate walls; and
a plurality of weight relief roller assemblies associated with said at least one cage plate and being mounted by the opposing body plate, each said weight relief roller assembly comprising a weight relief roller for residing within the groove and a substantially horizontal shaft mounted by the opposing body plate for rotatably mounting its respective weight relief roller, whereby the weight relief rollers relieve at least a portion of the force between said at least one cage plate and its opposing body plate by riding on the groove base wall.

4,266,451
AUTOMATIC DEVICE FOR SCREWING AND HANDLING BOLTS
Georges Boudet, Tours, and Jean C. Desmoulins, Conflans Ste Honorine, both of France, assignors to SKF Compagnie d'Applications Mecaniques, France
Filed Jan. 23, 1979, Ser. No. 5,753
Int. Cl.² B25B *13/50*
U.S. Cl. 81—57.35 **11 Claims**



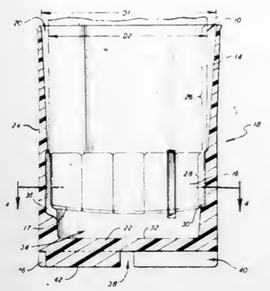
1. Apparatus for automatic screwing and handling of bolts comprising:
a horizontally mounted guide rail;
a main chassis suspended from said guide rail and including first drive means for moving said main chassis horizontally along said guide rail;
a secondary chassis movably mounted on said main chassis and including second drive means for moving said secondary chassis horizontally relative to said main chassis and at substantially a right angle with respect to the direction of movement of said main chassis along said guide rail; and
a screwing mechanism movably mounted on said secondary chassis and including a first gripping device for gripping a bolt, third drive means for moving said first gripping device vertically relative to said main chassis, and means for rotating said first gripping device about its vertical axis.

4,266,452

OIL FILTER WRENCH

Robert M. Crist, R.D. 4, Oswego, N.Y. 13126

Filed Jan. 14, 1980, Ser. No. 111,608
Int. Cl.[3] B25B *13/06*
U.S. Cl. 81—121 R 8 Claims



1. A special purpose tool for installation and removal of cannister oil filters of the type having an external configuration which is cylindrical for a first portion of its length and polygonal for a second portion, said cylindrical portion having a predetermined diameter, and said first and second cannister portions having predetermined lengths, said tool comprising:

(a) a peripherally contiguous side wall having an internal cross section which is circular for a first portion of its length extending from an open end to a second portion having an internal cross section of polygonal configuration substantially matching the external configuration of said cannister second portion;

(b) said wall first portion tapering from an inside diameter at said open end which is larger than said predetermined diameter to an inside diameter at the juncture of said wall first and second portions which is substantially equal to said predetermined diameter;

(c) the length of said first and second wall portions being not greater than that of said first and second cannister portions, respectively;

(d) an inwardly extending portion at the end of said wall second portion opposite the juncture thereof with said wall first portion, said inwardly extending portion limiting the extent to which said cannister second portion may be inserted into said wall second portion; and

(e) secondary wall means defining a reservoir on the side of said wall second portion opposite said inwardly extending portion and communicating with the interior of said wall first portion, whereby when said tool is held with said open end up, any oil received in said wall first portion through said open end drains into and is captured by said reservoir.

4,266,453

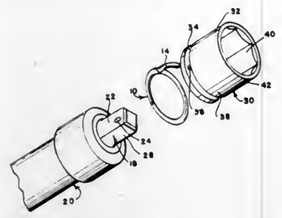
SOCKET RETAINING RING

D. Gray Farley, 5803 Holmby Ct., Cypress, Calif. 90638

Filed Apr. 16, 1979, Ser. No. 30,214
Int. Cl.[3] B25B *13/00*
U.S. Cl. 81—177 G 8 Claims

1. A retainer ring to retain power driven sockets to a plug end of a shaft by a pinned interconnection wherein said socket has a receiving hole for said plug end, said plug end and hole have mated and cooperative flat surfaces for rotational interconnection, said plug end has a radial bore and said socket has two opposite radial bores to align with the radial bore of said plug and to receive a retaining pin for their axial interconnection with a peripheral groove for O-ring pin retainers which comprises:

a one-piece, molded elastomeric O-ring of a diameter to seat in the peripheral groove of said socket and an integrally molded elastomeric diametric pin means dependent from the inside and extending across the majority of the span of



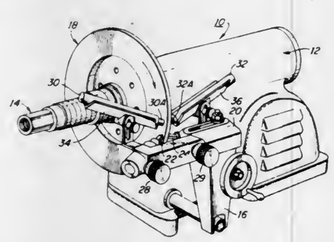
said O-ring and received in said radial bore of said plug and both said aligned bores of said socket.

4,266,454

METHOD AND APPARATUS FOR DAMPENING VIBRATIONS DURING TURNING OF A ROTOR

Wallace F. Mitchell, Mettawa, and Arthur Kamin, Lake Villa, both of Ill., assignors to Ammco Tools, Inc., North Chicago, Ill.

Filed Sep. 21, 1978, Ser. No. 944,410
Int. Cl.[3] B23B *1/00*
U.S. Cl. 82—1 C 11 Claims



4. A method of dampening vibrations in a rotating disc, comprising

positioning a track adjacent one face of said disc with said track inclined downwardly toward said disc, and

disposing a dampener member for free sliding movement along said track,

whereby vibrational forces developed in said disc are dampened by said dampener member.

5. The method according to claim 4

wherein the method is carried out while said disc is being machined by a tool bit, comprising

causing said dampener member to abut said disc in proximity to said tool bit.

4,266,455

LONG-SIZED WIRE TRANSFER APPARATUS

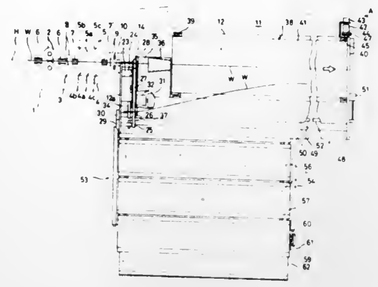
Hitoshi Ago, Kawanishi, Japan, assignor to Shin Meiwa Industry Co., Ltd., Hyogo, Japan

Filed Jan. 31, 1980, Ser. No. 117,101
Claims priority, application Japan, Feb. 8, 1979, 54-14016
Int. Cl.[3] B21F *11/00, 23/00*
U.S. Cl. 83—84 21 Claims

1. A long-sized wire tranfer apparatus, comprising:

a wire clamping transfer conveyor for clamping the vicinity of the terminal end of a cut wire length as cut into a predetermined length and withdrawn in the length direction thereof and for transferring said cut wire length in the direction at the right angle with respect to the wire withdrawing line and substantially in a lateral direction,

a wire drift conveyor arranged to extend along said wire withdrawing line with a predetermined width in the cut wire length withdrawing direction of said wire clamping transfer conveyor with the terminal end of a transfer path of said wire clamping transfer conveyor left, and having a transferring surface which is substantially horizontal and moves in said cut wire length withdrawing direction, and



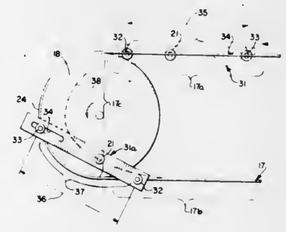
wire collecting means disposed at the downstream side of said terminal end of said transfer path of said wire clamping transfer conveyor and adjacent said wire drift conveyor.

4,266,456

DRIVE MECHANISM FOR THE RECIPROCATING MEAT SUPPORTING CARRIAGE OF A MEAT SLICING MACHINE

Johannes M. Oostvogels, Delft, Netherlands, assignor to Maatschappij van Berkel's Patent N.V., Leidschendam, Netherlands

Filed Dec. 10, 1979, Ser. No. 101,881
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855601
Int. Cl.[3] B26D *4/30*
U.S. Cl. 83—731 10 Claims



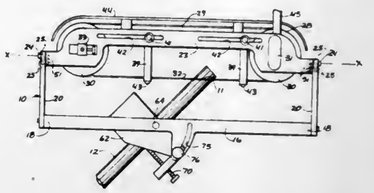
1. In a meat slicing machine including a power driven slicing knife, a reciprocably mounted carriage for supporting meat to be sliced, a driven bar connected to said carriage having a drive slot extending perpendicular to the movement of said carriage, and means engaging said drive slot for reciprocably driving said carriage relative said knife through cutting and return strokes, the improvement in said reciprocable drive means which includes an endless belt trained over longitudinally spaced apart pulleys defining upper and lower horizontal belt runs between the pulleys, means driving at least one of said pulleys, a drive member connected to said belt and having a driving lug mounted intermediate the ends thereof and in substantial alignment with said belt during movement along the horizontal belt runs, said lug slidably engaging said drive slot, and means connecting the ends of said drive member to said belt such that while the connected ends of the drive member traverse a pulley the path of the lug between the horizontal runs is substantially longer than each path of the connected ends of the drive member thereby decreasing the acceleration of the lug and carriage at the ends of the cutting and return strokes.

4,266,457

COPE CUTTER

Robert A. Balch, 2616 SW. Stanley Ct., Portland, Oreg. 97219, and Charles E. Kerr, Hillsboro, Oreg., assignors to Robert A. Balch, Portland, Oreg.

Filed Nov. 13, 1979, Ser. No. 93,843
Int. Cl.[3] B23D *53/04*
U.S. Cl. 83—745 11 Claims



1. A cutter for forming an arcuate cope on a workpiece, comprising:

an elongated support frame;

brackets located at opposite ends of the support frame and extending to one side thereof;

a saw frame mounted to the brackets for pivotal movement about a first axis on the one side of the support frame;

a band saw on the saw frame having a saw blade with its cutting flight arranged parallel to the first axis; and

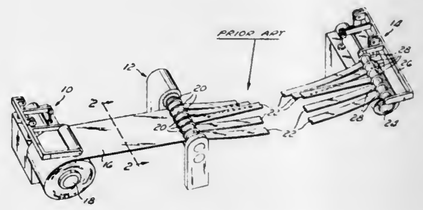
clamp means pivotally mounted to the support frame intermediate the brackets about a second axis perpendicular to the first axis, for centering a workpiece in a plane parallel to the first axis, with the workpiece projecting to the one side of the support frame and physically intersecting the pivotal path of the band saw cutting flight about said first axis.

4,266,458

SLITTING CUTTER FOR PARTIALLY SLITTING SHEET METAL WEB

John W. Rogers, 25550 Chagrin Blvd., Cleveland, Ohio 44122

Continuation-in-part of Ser. No. 878,208, Feb. 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 819,450, Jul. 27, 1977, abandoned, which is a division of Ser. No. 713,599, Aug. 12, 1976, Pat. No. 4,170,691, which is a continuation-in-part of Ser. No. 648,533, Jan. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 612,275, Sep. 11, 1975, abandoned. This application Jun. 6, 1979, Ser. No. 45,910
Int. Cl.[3] B23D *19/04*
U.S. Cl. 83—864 22 Claims



1. In slitting apparatus having cooperating pairs of rotary slitting cutters defined by generally circular cutter bodies adapted to be rotatively driven, the outer periphery of each of said bodies defining mutually cooperating slitting edges engaging the opposite faces of an elongated web of sheet metal to

impose a shearing action on the web material which progresses therethrough to an extent sufficient to effect severance of the residual portion of said material by fracture thereof, the improvement comprising at least one of said rotary cutters in each of said pairs containing a relief in its cutting edge, the radial depth of said pairs containing a relief in its cutting edge, the radial depth of said relief being less than the thickness of the sheet metal web to be cut, and the edges defining the relief about its complete periphery being operative to shear the metal web thereby cooperating with the circular periphery of th cutter to form an uninterrupted slitting edge capable of penetrating the web continuously throughout the full rotation of the cutter but effective in the region of the web operated on by the relief to terminate the shearing action short of the extent required to fracture said residual web portion whereby the adjacent facing edges of the slit web material are interconnected by said residual web portion.

4,266,459

ASYNCHRONOUS SLAPPING MUSICAL INSTRUMENT

Daniel W. Seregely, 2432 22nd St., Santa Monica, Calif. 90405

Filed Aug. 3, 1979, Ser. No. 63,424
Int. Cl.³ G10D *13/06*
U.S. Cl. 84—402 **1 Claim**



1. A musical instrument for producing asynchronous slapping sounds comprising:

(a) a rigid slat member;

(b) a pair of first resiliently flexible slat members disposed one on each side of said rigid slat member close adjacent thereto and connected to said rigid slat member on one end to form a handle portion for gripping;

(c) a pair of second resiliently flexible slat members substantially identical to said first flexible slat member disposed one on each side of said first flexible slat members away from said first slat members and close adjacaent thereto and connected to said first flexible slat members on the ends thereof connected to said rigid slat member to form said handle portion; and

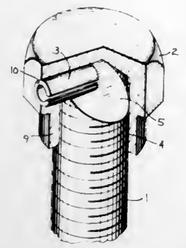
(d) a pair of weights attached to respective ones of said second flexible slat members adjacent the ends thereof opposite said handle portion whereby said first and second flexible slat members flex unequally in response to equal swinging forces imparted to said handle to thereafter unflex and to strike said rigid slat member at times delayed from one another sufficient to create an audibly distinguishable asynchronous slapping sound.

4,266,460

MULTIPLE PIECE BOLT-TYPE FASTENER

Jerome R. Klimowicz, 3827 W. LeGrande Blvd. 103 N., Mequon, Wis. 53092

Filed Jun. 11, 1979, Ser. No. 47,268
Int. Cl.¹ F16B *23/00, 35/00*
U.S. Cl. 85—9 R **11 Claims**



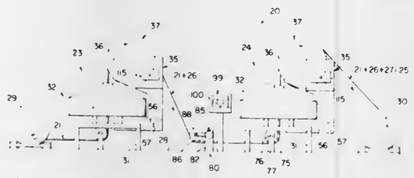
1. A bolt-type fastening unit, comprising a threaded shank having an offset end surface defining a substantially inclined end of the shank, a drive head threaded onto said shank, said head having at least one lateral opening through the side wall spaced from the opening of said head, said opening extending across and outwardly of said offset end surface, and an interlocking means fixedly extending through said opening into overlying engagement with said offset end surface to interlock the head to the shank and transmit the turning force applied to the head to the offset end surface of the shank.

4,266,461

TANDEM BRAIDING SYSTEM AND COMPONENTS THEREOF

Thomas J. Molitors, Akron, Ohio, assignor to Karg Corporation, Tallmadge, Ohio

Filed Jul. 5, 1979, Ser. No. 54,925
Int. Cl.³ D04C *3/12*
U.S. Cl. 87—29 **7 Claims**



4. A system for the control of tandem braiding machines to cover a flexible core element with layers of braided reinforcing strands during successive passes through the braiding mechanisms of the machines, each machine having a powered rotating braiding mechanism and a powered revolving capstan drum for moving said core element coaxially through the braiding mechanism, comprising:

powering said braiding mechanism and said capstan drum of each machine from a single variable speed drive motor;

proportionally controlling the power output from each said drive motor to determine a specific braid angle for each layer of reinforcing strands;

establishing the parameters of a chorded festoon extending laterally between first and second machines and the extent of a vertically oriented zone of operational tolerance for lateral movement of said core element with a first layer of reinforcing strands thereon from said first machine toward said second machine;

moving said core element to pass through said braiding mechanism of the first machine and to pass through said braiding mechanism of the second machine by concurrent operation of the drive motor of each machine;

continuously monitoring the position of said moving core element at any point within the parameters of said chorded festoon;

detecting any position of said moving core element which is changing within said zone of operational tolerance; and, thereafter,

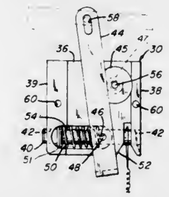
regulating the speed of said power output of the drive motor for one machine while maintaining a constant speed for the power output of the drive motor of the other machine to return said moving core element from a detected changed position to a preselected position within said zone of operational tolerance.

4,266,462

AIRBORNE STORES ARMING TRIGGER UNIT

William R. Carter, and Larry G. Ellis, both of Jamestown, N. Dak., assignors to Western Gear Corporation, Jamestown, N. Dak.

Filed Jan. 22, 1979, Ser. No. 5,476
Int. Cl.³ F41F *5/02*
U.S. Cl. 89—1.5 D **10 Claims**



1. An airborne stores arming trigger unit of the type adapted to be carried by the structure of a military aircraft and operable to selectively carry a connecting means which maintains the final arming means of a bomb inoperative until withdrawn therefrom, comprising: a body member; actuatable trigger means carried by said body member for selectively retaining such connecting means; first selectively actuatable release means cooperable with said trigger means; second selectively actuatable release means carried by said body member and selectively cooperable with said first release means, said second release meansbeing selectively actuatable independently of said first release means; said first and second release means being cooperable such that upon actuation of only said first release means, said trigger means releases the retention thereof of such connecting means and that upon actuation of both of said first and second release means, said trigger means remains unactuated and maintains the support thereof of said connecting means.

4,266,463

FIRE CONTROL DEVICE

Malte Saltin, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Sweden

Filed Dec. 29, 1978, Ser. No. 974,591
Claims priority, application Sweden, Jan. 18, 1978, 7800577
Int. Cl.³ F41G *3/14*
U.S. Cl. 89—41 AA **10 Claims**

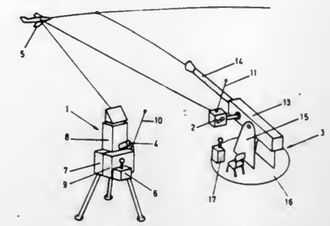
1. A fire control assembly for aiming of at least one weapon such that a projectile fired along a line-of fire of said weapon intercepts a target moving relative to said at least one weapon, and comprising:

first means spaced from said at least one weapon and having a tracking means for tracking said moving target and also ranging means for determining the distance between said moving target and said first means;

control means responsive to said tracking means and said ranging means for generating at least one command signal representative of the line-of-sight of said tracking means to the target and also of the distance between said target and said first means;

a sighting device mounted for joint movement with said at least one weapon and having a sighting means for tracking said moving target in a field-of-view of said sighting device;

said first means and said sighting device being positioned sufficiently close to one another so as to substantially eliminate the parallax effect therebetween;



said sighting device further including a sighting assembly providing an adjustable line-of-sight within the field-of-view of said sighting device; and

means for adjusting the line-of-sight of said sighting device in response to said command signal;

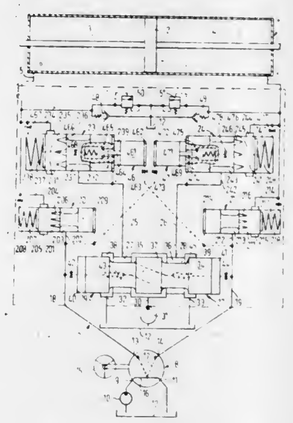
whereby said signal generated by said control means varies the line-of-sight of said sighting device such that the aiming of said weapon to cause said line-of-sight of said sighting device to impinge upon the target causes the weapon's line-of-fire to intercept the projected position of the moving target.

4,266,464

HYDRAULIC CONTROL APPARATUS FOR SERVO-MOTOR PARTICULARLY FOR VEHICLE STEERING

Johannes V. Baatrup, Sonderborg; Thorkild Christensen, Nordborg; Tage Christiansen, Nordborg, and Svend E. Thomsen, Nordborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Filed Jun. 5, 1978, Ser. No. 912,209
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1977, 2728004
Int. Cl.³ F15B *13/042*
U.S. Cl. 91—29 **6 Claims**



1. Hydraulic steering apparatus comprising a servomotor, control circuit means including a quantity setting device and

two parallel arranged one way control valves, said one way control valves having inlet connections connected to said setting device and outlet connections connected to opposite sides of said servomotor, said control valves being operable to open or close in dependence upon the presence or absence of fluid pressure at said inlets thereof, a power circuit having a pressure regulating device and two parallel arranged main valves, said pressure regulating device having an inlet connection connectable to a power source and dual outlet connections, said main valves having inlets connected to said dual outlet connections and outlets connected to opposite sides of said servomotor, said main valves each having piston means with valve closing and opening chambers at opposite ends thereof connected respectively to said outlets and inlets thereof, throttle means between said main valve outlets and said closing chambers thereof, valve closing springs in said closing chambers, dual resetting means for biasing said main valves in opening directions, said resetting means each including piston means with a third pressure chamber on one side thereof and one of said valve opening chambers on the other side thereof, conduit means and associated throttle means connecting each said third chamber to operating pressure in said control circuit means from the opposite side of said apparatus, switching valve and throttle means in the piston means of each said main valves between said opening and closing chambers thereof, said resetting means being each responsive to the opposite side operating pressure for opening each of said switching valves when the associated said main valve thereof is in the return flow branch of said apparatus.

4,266,465

PERCUSSION MECHANISM

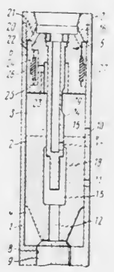
Viktor A. Gaun, ulitsa Gogolya, 21a, kv. 14; Anatoly V. Belousov, prospekt K. Marxa, 55, kv. 56; Vadim D. Petukhov, ulitsa Kropotkina, 127, kv. 493; Gennady I. Suxov, ulitsa Sovetskaya, 47, kv. 22; Nikolai A. Belyaev, ulitsa Petukhova, 114, kv. 11; Vitaly K. Alyabiev, ulitsa Udarnaya, 29, kv. 105, and Klimenty E. Rassomakhin, ulitsa B. Bogatkova, 163/8, kv. 100, all of Novosibirsk, U.S.S.R.

Division of Ser. No. 811,836, Jun. 30, 1977, Pat. No. 4,194,435. This application Jul. 2, 1979, Ser. No. 54,307

Claims priority, application U.S.S.R., Jul. 7, 1976, 2391708

Int. Cl.[3] F01L *21/02*

U.S. Cl. 91—234 **6 Claims**



1. A percussion mechanism particularly suitable for a hand-operated percussion tool actuated by a pressurized fluid supplied from a source of pressurized fluid, comprising a housing (**81**) with an internal cylindrical space and exhaust ports (**87**,**88**);

a fluid actuated piston (**84**), having a head (**91**), a tail (**92**) and a blind bore (**93**) and being positioned for axial reciprocation in said space of said housing and dividing said space into a working stroke chamber (**85**) of a variable volume and an idle stroke chamber (**86**) of a variable volume, and each of said chambers communicating with one of said exhaust ports;

a fluid distributing means (**82**) having a central bore (**97**) and being cooperatively associated with pressure responsive surfaces (**103**) of a resilient valve element for defining inlet passages (**104**) for the admission of fluid to the working stroke chamber (**85**) of the mechanism;

a closure (**83**) having inlet means for said housing (**81**) defining with said fluid distributing means (**82**) a supply space (**92**) for receiving said pressurized fluid from a said source;

the tail of said fluid actuated piston being received in said central bore of said fluid distributing means, and passages (**94**, **99**), respectively, located in said tail and said fluid distributing means for directing said pressurized fluid from said supply space to said blind bore (**93**);

said fluid distributing means having radial bores (**102**) and passageways (**100**), said passageways (**100**) connecting said working stroke chamber (**85**) with said central bore (**97**), and the passageways (**100**) and the radial bores (**102**) connecting the working stroke chamber (**85**) to the inlet passages (**104**);

a work performing member (**90**) accommodated in said housing (**81**) to receive impacts from said piston (**84**) reciprocated by the action of the fluid;

said pressure responsive surfaces (**103**) of said resilient valve element being disposed about said fluid distributing means (**82**); valve seats provided in a surface of said fluid distributing means, their number equalling to the number of radial bores (**102**) of said fluid distributing means;

said resilient valve element (**103**) being stretched tight about the surface of said fluid distributing means (**82**) in opposition to said radial bores (**102**) and encircling said fluid distributing means for a portion of its periphery, the internal surfaces of said resilient valve element (**103**) with the valve seats defining said inlet passages (**104**) for controlling fluid flow about said fluid distributing means (**82**), whereby said piston is repeatedly up and down in said housing by the action of said fluid flowing into and out of said chambers and said exhaust ports via said inlet means and said radial bores.

4,266,466

HYDRAULIC VALVE DEVICE

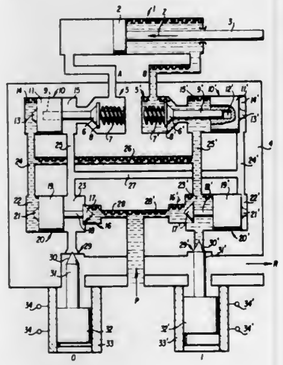
Horst Ziems, Harsewinkel, Fed. Rep. of Germany, assignor to The Claas OGH, Harsewinkel, Fed. Rep. of Germany

Filed Nov. 30, 1977, Ser. No. 855,865

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1976, 2654366

Int. Cl.[3] F15B *13/042*

U.S. Cl. 91—420 **13 Claims**



1. A hydraulic valve control device and servomotor system comprising:

a first fluid passageway assembly having a first end portion in joint fluid communication with a source of pressurized fluid and an exhaust passageway of a fluid reservoir or the like;

said first fluid passageway assembly having a second end portion in fluid communication with one of two chambers formed end to end within a servomotor housing, said chambers being separated from one another by a piston slidably mounted within said housing;

a second fluid passageway also having a first end portion in joint fluid communication with a source of pressurized fluid and an exhaust passageway of said fluid reservoir or the like;

said second fluid passageway assembly also having a second end portion in fluid communication with a remaining one of said two chambers formed within said servomotor housing;

said first fluid passageway assembly further including an intermediate portion forming a fluid passageway between said first and second end portions of said first fluid passageway assembly, respectively, with said intermediate portion also in fluid communication with a first end portion of each of a first and second separate fluid chambers;

said second fluid passageway assembly further including an intermediate portion forming a fluid passageway between said first and second end portions of said second fluid passageway assembly, respectively, with said intermediate portion also in fluid communication with a first end portion of each of a third and fourth separate fluid chambers;

a first conduit assembly providing a fluid-tight passageway between said intermediate portion of said second fluid passageway assembly and a second end portion of each of said first and second fluid chambers, respectively, and a second conduit assembly providing a fluid-tight passageway between said intermediate portion of said first fluid passageway assembly and a second end portion of each of said third and fourth fluid chambers, with each of said first, second, third and fourth chambers including a separate slidable piston member providing a fluid-tight seal between said first and second end portions respectively,

said piston member in each of said first and third chambers controlling a normally open input valve means, said piston member in each of said second and fourth chambers controlling a normally closed back pressure valve means,

separate normally open exhaust valve means positioned adjacent each fluid passageway assembly for selectively blocking a portion of a respective fluid passageway joining an exhaust passageway to prevent pressurized fluid from flowing directly into said exhaust passageway;

whereupon selective actuation of one of said separate exhaust valve means results in blockage of the flow of fluid from one fluid passageway assembly into an attached exhaust passageway, causing pressurized fluid to flow through said one fluid passageway assembly and into a chamber of said servomotor, said pressurized fluid also flowing into the end portions of both said fluid chambers joining said remaining fluid passageway assembly to moveably actuate the slidable pistons located therein, with one of said slidable pistons biasing an attached normally open input valve means into contact with said first end portion to block the flow of pressurized fluid into said remaining fluid passageway assembly and the further slidable piston engaging and moveably biasing a normally closed back pressure valve means out of contact with a second end portion of said remaining fluid passageway assembly to allow fluid to flow from a remaining chamber of said servomotor, through said remaining fluid passageway assembly and into a remaining attached exhaust passageway.

4,266,467

DIFFERENTIAL PRESSURE LIMITING VALVE

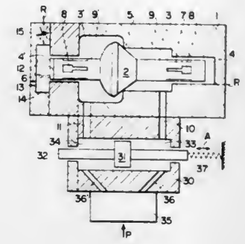
Guenter Keller, Modautal; Andreas Pohl, Pfungstadt, and Gerhard Hintz, Ober-Ramstadt, all of Fed. Rep. of Germany, assignors to Carl Schenck AG, Darmstadt, Fed. Rep. of Germany

Filed Oct. 16, 1978, Ser. No. 951,721

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1977, 2748107

Int. Cl.[3] F15B *13/042*

U.S. Cl. 91—437 **11 Claims**



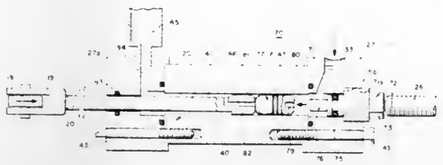
1. A hydraulic circuit arrangement for limiting a differential pressure, comprising cylinder means and a double acting piston means operatively arranged in said cylinder means forming two cylinder chambers one on each side of said piston means, first source means for effecting a differential pressure across said double acting piston means, a casing means, cavity means in said valve casing means, valve plug means in said cavity means, first and second pressure media port means in said valve casing means and communicating with said cavity means and said two cylinder chambers for subjecting said valve plug means to a first pressure on one side thereof and to a second pressure on the opposite side to thereby establish said differential pressure, bearing bore means arranged in axial alignment in said valve casing means, valve seat means located in said valve casing means intermediate said bearing bore means, said pressure media port means being located on opposite sides of said valve seat means for admitting pressure media into said cavity means which establish said differential pressure across said valve seat means, said valve plug means being operatively arranged in said valve casing means for cooperation with said valve seat means, said valve plug means comprising a valve closure body having substantially the same effective surface areas on both sides of said valve seat means and two bearing shafts extending from two opposite sides of said valve closure body, said two bearing shafts having a common longitudinal axis, said bearing shafts being axially slidable in said bearing bore means, substantially without being exposed to the effect of said differential pressure, one of said bearing shafts (**3'**) being arranged opposite of said valve seat means (**5**) and having axially outwardly facing control surface means (**12**), said arrangement further comprising second source means including adjustable fluid control pressure applying means (**13**) operatively arranged to fluid bias said one control surface means (**12**) of said one bearing shaft (**3'**) toward the valve seat means, whereby said valve closure body (**2**) is exposable to said differential pressure through said pressure media port means and to said control pressure through said control pressure applying means and through said one bearing shaft for limiting the build-up of a differential pressure in one flow direction relative to said valve seat means and for permitting the build-up of a differential pressure in the opposite flow direction.

4,266,468

CONTROL CYLINDER WITH REMOVABLE PISTON

Paul G. Biggs, 10200 De Soto #306, Chatsworth, Calif. 91311

Filed Apr. 26, 1979, Ser. No. 33,360
Int. Cl.³ F01B *7/00, 31/10;* **F16J** *1/10*
U.S. Cl. 92—63 **1 Claim**



1. A control cylinder having an axial bore extending therethrough,

a high-pressure head detachably coupled to the front end of said cylinder and defining an inlet port for admitting high-pressure fluid into the front end of said cylinder bore,

a low-pressure head detachably coupled to the rear end of said cylinder,

a shaft having an enlarged front end, slidably mounted in said cylinder bore, and a rear end sealingly extending outwardly through the center of said low-pressure head,

a free-floating power piston having front and rear faces and being slidably and sealingly mounted in said cylinder bore between said enlarged front end of said shaft and said high-pressure head, said enlarged front end being detached from the rear face of said power piston,

a movable force-transmitting control member coupled to the rear end of said shaft for exerting an axial force against said shaft,

said high-pressure head having a threaded center hole,

a plug unit threadedly coupled to said center hole,

said power piston being removable from said cylinder bore through said threaded hole,

said enlarged front end defining an axial channel in fluid communication with said cylinder bore, and

said cylinder bore being coupled to a source of lubricating fluid.

4,266,469

METHOD FOR MAKING SACKS PROVIDED WITH CROSS-BOTTOMS

Richard Feldkämper, Lengerich of Westphalia, Fed. Rep. of Germany, assignor to Windmoller & Holscher, Lengerich, Fed. Rep. of Germany

Filed Mar. 14, 1979, Ser. No. 20,465
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1978, 2811857
Int. Cl.³ B31B *1/62, 1/84*
U.S. Cl. 493—219 **8 Claims**

1. A method of making sacks provided with cross-bottoms comprising:

folding over side portions of a web of material so that margins of the side portions overlap and the web forms a flattened tubular web;

interconnecting the overlapping margins with a longitudinal seam;

severing individual tube sections from the tubular web;

forming a base for an individual tube section by inwardly folding opposed portions of the bottom of the tube section to define triangular-shaped corner folds having parallel bases spaced from each other with corresponding ends of the parallel bases defining side flaps, folding inwardly the side flaps so that a portion of one side flap overlaps a portion of the other, and interconnecting the overlapping portions of the side flaps to each other; and

applying a label folded along a fold line to a central portion of the web of material prior to the folding of the side portions thereof, the label after formation of the base of an individual tube section defining an internal lock, securing



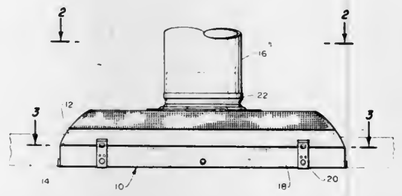
the label to the central portion of the web of material prior to folding over of the side portions and securing the label to the side portions after folding thereof, the label having a length sufficient to cover the space between the parallel bases of the corner folds and being applied to the web of material in a position to at least partially close the space after formation of the base of the individual tube section.

4,266,470

UNIVERSAL AIR DIFFUSER

Clifford A. Schroeder, Westlake; Ralph L. Fogg, Chatsworth; Harry J. Farason, West Covina, and Robert E. Voorhees, Van Nuys, all of Calif., assignors to C. A. Schroeder Inc., San Fernando, Calif.

Filed Oct. 24, 1979, Ser. No. 87,916
Int. Cl.³ F24F *7/00*
U.S. Cl. 98—40 R **8 Claims**



1. A method of forming an air diffusing apparatus for connection to an air delivery system comprising:

forming a plenum of densely compacted, somewhat porous fiberglass material having one side open;

covering a substantial portion of the exterior surface of the closed side of said plenum with a thin layer of non-porous material;

securely bonding said non-porous material to said exterior surface with an adhesive;

cutting a hole through the closed side of said plenum and said non-porous material to match the duct size of said air delivery system;

inserting a duct connector into said hole;

securing said duct connector to the non-porous covering of said plenum with an adhesive tape;

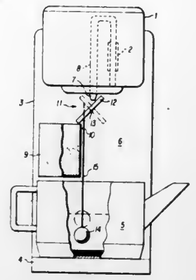
whereby said duct connector will remain secured to said plenum.

4,266,471

TEA MAKER

Lars O. Rosengren, Fagelstigen 5, Huskvarna, Sweden (56100)

Filed Aug. 29, 1978, Ser. No. 937,772
Claims priority, application Sweden, Sep. 5, 1977, 7709925
Int. Cl.³ A47J *31/04*
U.S. Cl. 99—305 **6 Claims**



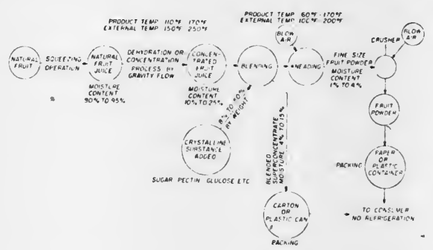
1. Apparatus for preparing beverages comprising a housing, a water container in said housing, said water container including water heating means and a water discharge conduit, a strainer below said water container for holding a supply of beverage solids, a compartment below said strainer for a beverage collecting vessel, a movable water diverting means for directing water from said water discharge conduit either into said strainer or into a vessel positioned in said compartment, said diverting means being movable between a first position for directing the water from said conduit into said strainer and a second position for directing the water from said conduit into said vessel and control means for moving said diverting means from said first to said second position, said control means including means responsive to the level of water in said vessel for moving said diverting means from said first to said second position.

4,266,472

FRUIT PREPARATION

Lucio Reale, 1827 - 46th St., SE., Calgary, Alberta, Canada (T2B 2J9)

Division of Ser. No. 52,231, Jun. 26, 1979. This application Feb. 8, 1980, Ser. No. 119,868
Int. Cl.³ A23L *2/08, 2/16*
U.S. Cl. 99—483 **14 Claims**



1. In an apparatus for producing a fruit preparation from fruit juice the improvement comprising:

(a) a concentrator comprising a first vessel;

a pivotable mount at about the center of said first vessel;

means to raise and lower an end of the first vessel to reciprocate the first vessel about the pivotable mount;

means to heat the first vessel;

a closable outlet at each end of the vessel;

(b) extraction means for vapour produced from the fruit juice heated in said first vessel;

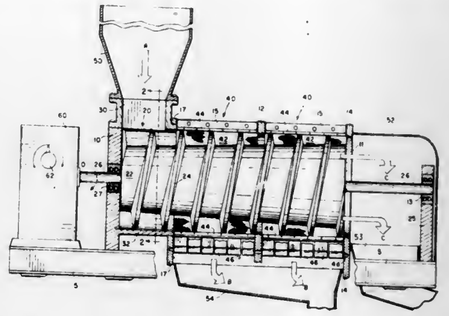
blender means to blend the material produced on the concentrator with an added material.

4,266,473

SCREW PRESS WITH CONTINUOUS SLOPE FEED SCREW

Arthur J. Hunt, and Arthur J. Hunt, Jr., both of 332 N. Halifax Dr., Ormond Beach, Fla. 32704

Filed Aug. 23, 1979, Ser. No. 69,110
Int. Cl.³ B30B *9/16*
U.S. Cl. 100—117 **10 Claims**



1. In a screw press for extracting liquids from wet or slippery materials, said press having an inlet end, an outlet end, a cylindrical cage having filter screen walls, and a base, the improvement comprising:

a rotatable feed screw having a body with a sloping frusto-conical shape, and a screw thread disposed helically around the surface of said body, the outside diameter of said screw thread having a ratio to the pitch of said frusto-conical shape not exceeding two-to-one, said feed screw disposed concentrically in said cylindrical cage and said screw thread having an outside diameter essentially equal to the inside diameter of said cage, the slope of said body selected to provide a gradual reduction in volume of the flights of said screw thread from the inlet end to the outlet end of said screw press to gently and progressively squeeze said materials against said filter screen walls as said materials are fed from said inlet end to said outlet end of said press by rotation of said feed screw;

adjustable drive means attached to said feed screw for rotating said feed screw at a rate which will produce sufficient centrifugal force on the liquids in said materials to increase the amount of extracted liquids from said materials over the amount extracted by such squeezing of said materials.

4,266,474

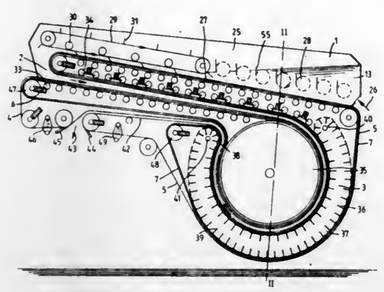
CHAMBER TYPE FILTER PRESS FOR DE-WATERING SLUDGES AND SIMILAR SUBSTANCES

Albert Bähr, Am Stockfeld 69, D-6680 Neunkirchen-Kohlhof, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,597
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844697
Int. Cl.³ B30B *9/24;* **B01D** *33/04*
U.S. Cl. 100—118 **72 Claims**

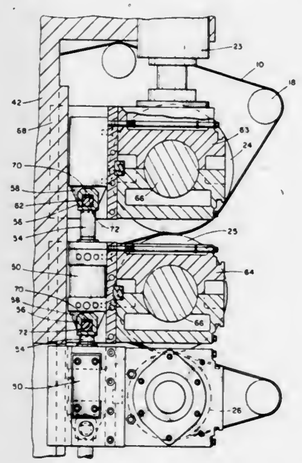
1. A chamber-type filter press for de-watering a water containing substance comprising: a plurality of sequentially disposed fully enclosed filter chambers formed as a continuously advancing belt which are charged and discharged with said substance, said filter chambers being closed on their top and bottom sides by filter bands supported on revolving carrier belts and on their lateral sides with sealing means and at their front and rear, as viewed in the direction of advancement, by

the substance to be de-watered; input means for feeding said substance between said filter bands and sealing means to form said filter chambers; and means for applying a high pressure to said filter chambers to de-water said substance comprising a plurality of pressure applying members which co-advance so as to revolve with and apply pressure to said filter chambers, and a plurality of pressure producers associated with said



pressure applying members which co-advance so as to revolve with said filter chambers, each said co-advancing pressure producer originating a pressure and transmitting it to a said pressure applying member, said pressure producers, over at least a portion of the advancement of the filter chambers, causing application of a high pressure to substances contained therein which pressure increases in the direction of filter chamber advancement.

4,266,475
POSITIONING MECHANISM FOR CALENDER ROLLS
David E. Lamon, and Paul J. Klemmer, both of Appleton, Wis., assignors to Appleton Machine Company, Appleton, Wis.
Filed Nov. 26, 1979, Ser. No. 97,347
Int. Cl.³ B30B *3/04, 15/16*
U.S. Cl. 100—168 **7 Claims**



1. A mechanism for vertically positioning a stack of calender rolls relative to a support frame, each roll being mounted to the frame for movement in the vertical direction comprising:

(a) means for lifting and lowering the top roll of said stack,

(b) means for lifting and lowering the bottom roll of said stack,

(c) means for interconnecting the remaining rolls of said stack, one to the other and to said top roll for movement with the latter, said interconnecting means including:

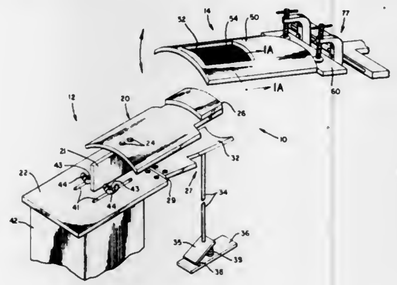
(i) piston and cylinder assemblies associated with each of said remaining rolls,

(ii) a lost motion connecting means for interconnecting said assemblies one to the other and to said top roll,

(d) means for controlling operation of said assemblies to permit or prevent movement of the pistons relative to the cylinders,

whereby when the pistons are permitted to move the remaining rolls may be sequentially lowered and automatically positioned in contact with each other and said top and bottom rolls, and when the pistons are prevented from moving, the rolls may be rapidly separated, one from the other, by a distance determined by the lost motion connecting means by lowering said bottom roll.

4,266,476
CAP PRINTING APPARATUS
Ferris A. Maloof, Box 778, McCaysville, Ga. 30555
Filed Apr. 16, 1979, Ser. No. 30,635
Int. Cl.³ B41F *17/00*
U.S. Cl. 101—35 **6 Claims**



1. Apparatus for silk screen printing on curved flexible panels of baseball caps and like objects, said apparatus comprising;

a curved printing platform for supporting a panel of a cap thereon, said platform defining a predetermined curvature;

cap shaping means associated with said platform for causing a flexible panel of a cap supported by said platform to take a curvature conforming to said predetermined curvature of said platform;

a flexible silk screening printing screen;

means for transferring ink through said printing screen to a panel supported on said printing platform;

means for maintaining said printing platform and said printing screen stationary relative to one another in a print position during the transfer of ink through said printing screen to a panel on said printing platform; and

screen shaping means for causing said silk screening printing screen to take a curved configuration defining a curvature which cooperates with said predetermined curvature of said platform to enhance the transfer of ink to the panel, whereby the printing screen and the panel which is to be printed are formed into cooperating curved configurations by which the transfer of ink to the panel can be effected.

4,266,477
MATERIAL ORIENTATION APPARATUS AND METHOD
Michael Ackley, 1273 N. Church St., Moorestown, N.J. 08057
Filed Oct. 24, 1978, Ser. No. 954,243
Int. Cl.³ B41F *17/36*
U.S. Cl. 101—40 **36 Claims**

1. In an apparatus for capsules which have one end larger than the other, which capsule is to be rectified for delivery to a conveyor means for further processing and which apparatus includes a hopper adapted to contain a plurality of the capsules in random orientation, the combination which comprises:

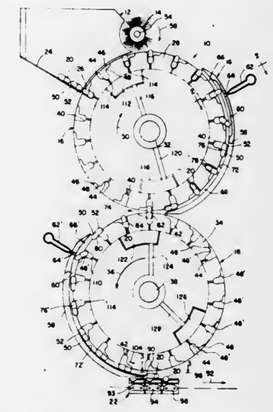
feed drums means in rotary arrangement relative to the hopper to receive capsules from the hopper;

said feed drum means comprising a plurality of peripherally spaced first pockets each adapted to receive one of said capsules therewithin;

said first pockets comprising a radially extending cavity and an intercommunicating longitudinally extending cavity;

first means which cooperates with said drum for selectively reorienting some of the capsules which are radially aligned in said pockets to a longitudinally aligned position within the longitudinally extending portion of the pockets;

transfer drum in substantial tangential rotary association with the feed drum means to receive the longitudinally and radially aligned capsules from the feed drum means;



said transfer drum means comprising a plurality of peripherally spaced second pockets adapted to be rotated into registry with the first pockets to effect capsule transfer therebetween;

said second pockets comprising a longitudinally extended cavity for receiving the capsules in longitudinal orientation and a radially extended cavity for receiving the capsule in radial orientation said transfer drum means further comprising second means which cooperates with said drum for reorienting the capsules which are radially aligned in said pockets to a longitudinally aligned position within the longitudinally extending portion of the pockets;

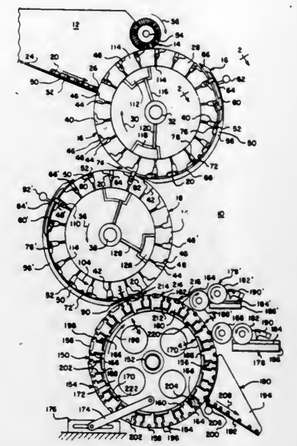
said first and second reorientation means comprising means for retaining all of said capsules in a plane perpendicular to the rotational axes of said feed and transfer drum means;

whereby all of the capsules are oriented from a random orientation to a longitudinally oriented position for further processing.

4,266,478
MATERIAL ORIENTATION AND PRINTING APPARATUS AND METHOD
E. Michael Ackley, 1273 N. Church St., Moorestown, N.J. 08057
Continuation-in-part of Ser. No. 954,243, Oct. 24, 1978. This application Aug. 9, 1979, Ser. No. 65,337
Int. Cl.³ B65G *47/24;* **B41F** *17/36*
U.S. Cl. 101—40 **42 Claims**

1. An apparatus for receiving in a longitudinal orientation a plurality of materials having a body portion and a cap portion, the cap portion being larger than the body portion, from a transfer drum means for further processing, the materials having been delivered by the transfer drum means in a rectified condition, which apparatus comprises

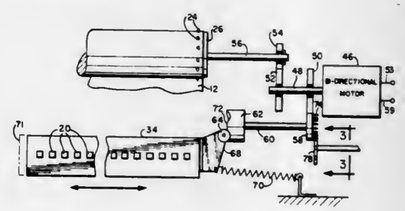
pocket carrier drum means in rotary arrangement relative to the transfer drum means, to receive the materials from the transfer drum means, the pocket carrier drum means having a plurality of cavities peripherally spaced along its circumference, which cavities contain a plurality of carrier means journalled for rotation within the cavities,



which carrier means include longitudinally aligned pockets for retaining in position the plurality of materials received from the transfer drum means,

means for rotating the carrier means relative to the pocket carrier drum means so that the materials are rotated from the longitudinal position in which they are received by the pocket carrier drum means to a position transverse to the direction of their motion.

4,266,479
MULTI-FUNCTION MECHANICAL PRINTER DRIVE MEANS
Frank A. Mahoney, Wyncote, Pa., assignor to Sperry Corporation, New York, N.Y.
Continuation of Ser. No. 859,787, Dec. 12, 1977, abandoned. This application Aug. 8, 1979, Ser. No. 64,833
Int. Cl.³ B41J *9/12*
U.S. Cl. 101—93.09 **2 Claims**



1. In a high speed printer including a band having raised characters thereon, means for moving a print receiving medium, means for moving an inking medium, and means for moving as assembly having print hammers thereon, an improvement for selectively actuating one or more of said means for moving comprising:

(a) a bi-directional printed circuit motor for selectively driving a drive shaft in a first or second direction,

(b) first coupling means including a first one-way clutch connected to said drive shaft and having a first output shaft connected to actuate said means for moving said

print receiving medium in response to movement of said first one way clutch each time a full line of print is printed on said print receiving medium,

(c) second coupling means including a second one way clutch connected to said drive shaft for actuating said means for moving said inking ribbon in response to movement of said drive shaft in a second direction after a selected number of lines have been printed on said print receiving medium,

(d) said second coupling means including a wheel disposed to be driven by said second one way clutch having a plurality of spaced pins close to its circumference and a sprocket wheel connected to actuate said inking ribbon with projecting portions extending between said spaced pins,

(e) third coupling means for actuating said means for moving said assembly to periodically shift said assembly having print hammers thereon one character of print in response to movement of said drive shaft in said second direction,

(f) a roller on said assembly,

(g) said third coupling means including a second output shaft having a lobe cam connected to said wheel of said second coupling means with said lobe cam engaging said roller on said assembly to shift said assembly having print hammers thereon each time one half a line is printed on said print receiving medium;

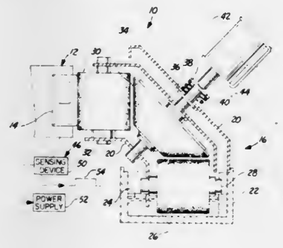
(h) said third coupling means further including an arm connected to a biasing means to shift said assembly in a first direction when said roller is in a first position with respect to said lobe cam and to shift said assembly in a second opposite direction in response to said biasing means when said roller is in a second position with respect to said lobe cam.

4,266,480

APPARATUS FOR CONTROLLING INKING MEANS

John L. Lorenzo, Southbury, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 20, 1979, Ser. No. 59,347
Int. Cl.³ B41F *31/12, 31/38;* **B41L** *27/40*
U.S. Cl. 101—351 **8 Claims**



1. In a machine having printing cycles and including inking means, apparatus for controlling operation of said inking means comprising:

a. latching means including a manually operable switch;

b. pulse generating means operatively coupled to said latching means for enablement thereby in response to momentary operation of said switch to commence generating pulses;

c. means for counting a predetermined number of said pulses;

d. means for providing an inking enabling signal for a predetermined time interval during at least one of said printing cycles;

e. switching means connected to said pulse generating means and said inking enabling signal means and said counting means for gating said pulses to said counting means during the time interval of said inking enabling signal; and

f. means connected to said pulse generating means for operating said inking means during the time interval said predetermined number of said pulses are being counted.

4,266,481

IMAGE-BEARING LITHOGRAPHIC PLATES WITH DESENSITIZING COATING

Walter L. Garrett, Freeland, and Ralph G. Czerepinski, Midland, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 888,889, Mar. 22, 1978, Pat. No. 4,200,688, which is a division of Ser. No. 763,262, Jan. 27, 1977, Pat. No. 4,186,250, which is a continuation-in-part of Ser. No. 586,455, Jun. 12, 1975, abandoned, which is a continuation-in-part of Ser. No. 565,915, Apr. 7, 1975, abandoned. This application Jun. 29, 1979, Ser. No. 53,634
Int. Cl.³ B41N *1/00, 3/00;* **G03F** *7/02*
U.S. Cl. 101—456 **10 Claims**

1. An image-bearing lithographic printing plate having in the form of a thin coating deposited from solution on the non-image areas of the plate a desensitizing material comprising an active polymer component selected from the group consisting of

(a) a polyacrylamide-based polymer wherein from about 5 to about 70 percent of the carbonyl sites are carboxyl groups and the balance of said sites are amide moieties;

(b) a physical blend comprised of from about 95 to about 30 weight percent polyacrylamide and from about 5 to about 70 percent polyacrylic acid or an alkali metal or ammonium salt thereof;

(c) a physical blend comprised of polyacrylamide, or polyacrylic acid or an alkali metal or ammonium salt thereof, and at least one polyacrylamide-based polymer as described in (a), said polymers being employed in proportions such that of the total carbonyl sites present in the blend, from about 5 to about 70 percent are carboxyl groups and the balance are amide moieties;

(d) a mixture of any two or more of the foregoing (a)-(c); the weight average molecular weight of each of said polyacrylamide-based polymer, polyacrylamide, and polyacrylic acid or salt thereof being in the range of from about 10,000 to about 500,000; and

(e) a co-mixture of one or more of the foregoing (a)-(d) with up to 30 weight percent hydroxypropyl methylcellulose based on the total weight of the co-mixture, said hydroxypropyl methylcellulose being of a type which produces a 2 weight percent solution having a viscosity of from about 1 to about 100 cP when measured according to ASTM Method D 2363-72.

4,266,482

VEHICLE CONVEYOR SYSTEM HAVING DOUBLE CHAIN DRIVE AND SELECTABLE DOLLY

Ivan J. Barber, Toronto, Canada, assignor to The Allen Group, Inc., Melville, N.Y.

Filed Mar. 3, 1978, Ser. No. 883,027
Claims priority, application Canada, Feb. 9, 1978, 296552
Int. Cl.³ B61B *13/12, 10/04*
U.S. Cl. 104—172 B **7 Claims**

1. A conveyor system for transporting a vehicle along a path of travel, comprising:

(a) support means having an upper track for supporting a wheel of said vehicle, a lower track beneath said upper track, and a return portion beneath said lower track;

(b) a pair of parallel laterally spaced endless chains having upper and lower flights, and means mounting said chains with said upper flights, and means mounting said chains with said upper flights adjacent said lower track and with said lower flights adjacent said return portion;

(c) drive means for driving said chains in unison with the upper flights thereof moving downstream along said direction of travel;

(d) a plurality of dollies mounted in spaced relation along said chains, each dolly comprising, with reference to a dolly positioned on said upper flight;

(i) a front roller assembly comprising a pair of laterally spaced first rollers arranged to roll on said lower track, and axle means extending laterally between said first rollers;

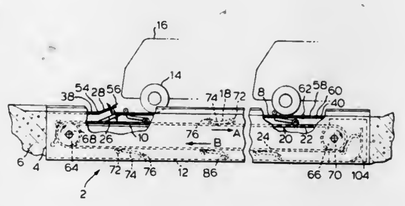
(ii) means mounting said front roller assembly between said chains and with said front roller assembly connected to said chains for movement therewith, with said axle means extending laterally between said chains;

(iii) an arm connected substantially at the center of said axle means and extending longitudinally upstream from said axle means;

(iv) a rear roller assembly mounted at the rear end of said arm and adapted to roll both on said upper track and said lower track, said rear roller assembly including second rollers generally longitudinally aligned with said first rollers;

(e) a ramp having upstream and downstream ends, and means mounting said ramp for movement between a first normal position in which said ramp forms a portion of said lower track and a second position in which the downstream end of said ramp is raised for said ramp to form a path from said lower track to said upper track in a downstream direction;

(f) said upper track having a slot therein above said ramp to



accommodate said raised ramp and to permit said rear roller assembly to move up said ramp onto said upper track;

(g) power means for moving said ramp between said first and second positions;

(h) control means for said power means, said control means comprising:

(i) first normally off switch means mounted downstream of said ramp and responsive to contact by a said vehicle for assuming an on condition;

(ii) second normally off switch means located at said lower track and responsive to movement of a front roller to a position immediately downstream of said ramp for assuming an on condition;

(iii) and means connecting said first and second switch means in series with said power means for operation of said power means when said first and second switch means are both on to raise said downstream end of said ramp for a period of time sufficient to shunt said rear roller assembly to said upper track;

(i) a lid member normally closing said slot, and means connecting said lid member with said power means for said lid member to move upwardly coincident with upward movement of said ramp to expose said slot; and,

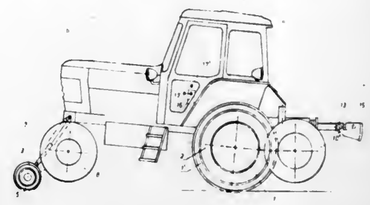
(j) and means mounted at said upper track and spaced substantially downstream along said conveyor for directing a rear roller assembly on said upper track back to said lower track.

4,266,483

CONVERTIBLE RAIL-HIGHWAY CAR MOVING VEHICLE

Tapio M. Rannanmaki, Espoo, Finland, assignor to Vaino Tapio Saalasti, Helsinki, Finland

Filed Aug. 13, 1979, Ser. No. 65,964
Claims priority, application Finland, Jan. 26, 1979, 790254
Int. Cl.³ B61D *15/00;* **B61F** *9/00, 13/00;* **B62D** *61/12*
U.S. Cl. 105—26 R **7 Claims**



1. A rail-highway car moving vehicle comprising a tractor having a front end including steerable members and a rear end with a rear axle, a pair of vertically fixed rubber tired wheels connected to said steerable members of said tractor, at least one pair of flanged vertically shiftable wheels fixed to said front end of said tractor, means for raising and lowering said at least one pair front wheels from and to a lowest most position with their respective lowest circumferential point lower than the lowestmost point of the circumferences of said at least one pair of rubber tired wheels, at least one further pair of flanged wheels connected to said rear axle and driven thereby, said at least one further pair of flanged wheels being vertically fixed, at least one further pair of rubber tired wheels connected to said rear end of said tractor, said at least one pair of rubber tired wheels being vertically movable, means for raising and lowering said at least one further pair of rubber tired wheels from and to a lowestmost position with their respective lowestmost circumferential point lower than the lowestmost point of the circumferences of said at least one further pair flanged wheels, and means for supplying power to said at least one further pair of rubber tired wheels when they are in their lowestmost position, whereby while driving on rails, the front end of the tractor is raised and the rear end is lowered, while in terrain driving the front end is lowered and the rear end is raised.

4,266,484

RACK-RAIL ASSEMBLY FOR A MINING MACHINE

Peter Jochums, Essen; Klaus Stratmann, Bochum; Egon Henkel, Essen, and Heinrich Wildfürster, Gelsenkirchen-Buer, all of Fed. Rep. of Germany, assignors to Hauhinco Maschinenfabrik G. Hausherr, Jochums & Co. KG, Essen, Fed. Rep. of Germany

Filed Feb. 8, 1979, Ser. No. 10,534
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1978, 2805799
Int. Cl.³ B61C *11/00;* **E01B** *5/04*
U.S. Cl. 105—29 R **11 Claims**

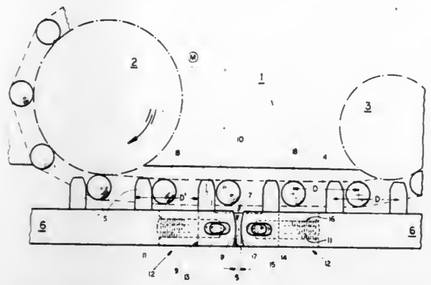
1. A rack-rail assembly comprising:

a pair of elongated and relatively long rail sections longitudinally generally aligned with each other and having respective ends juxtaposed at a joint location;

a relatively short link at said joint location, said link having a pair of end parts and each of said ends having an end part longitudinally overlapping and forming an end-part pair with the respective end part of said link, one of said end parts of each of said end-part pairs being formed with a laterally projecting pin and the other end part of each of said end-part pairs being formed with a recess loosely receiving the respective pin, said pins and recesses to-

gether constituting said means, said sections and link being at least limitedly relatively pivotal about said pins;

means connecting each of said ends to said link at said location for only limited relative longitudinal displacement between said ends and said link; and



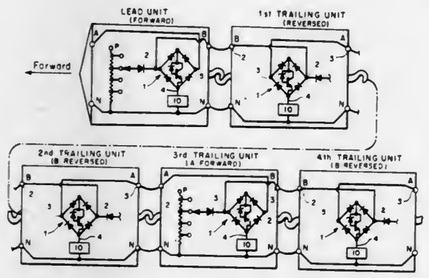
a row of longitudinally substantially equispaced teeth including section teeth on said sections and at least two link teeth on said link.

4,266,485

CONTROL SYSTEM FOR ECONOMIC OPERATION OF MULTIPLE LOCOMOTIVE TRAINS

Frank D. Bruner, and Joseph Kuzela, Jr., both of Omaha, Nebr., assignors to Vapor Corporation, Chicago, Ill.

Filed Aug. 3, 1978, Ser. No. 930,463
Int. Cl.³ H02P *1/58*
U.S. Cl. 105—61 **28 Claims**



1. Apparatus for operating a multiple locomotive consist having lead and trailing locomotive units, in spaced relationship, at economic power levels, comprising:

means pre-determining discreet power operating levels contained in the lead unit, and generating a plurality of predetermined voltage levels corresponding to an integral number of trailing locomotives;

means establishing electrical communication between lead and trailing units for propagating said generated voltages;

means contained in each locomotive, responding to said voltage levels, and transmitting said voltage diminished by at least one level;

means actuated by said responding means for selectively varying the power levels in predetermined trailing units, from one said level to another;

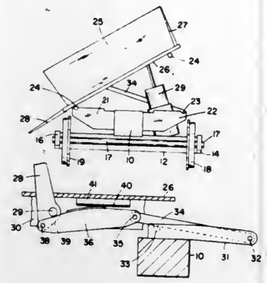
whereby the total consist power controlled from the lead unit, comprises a combination of pre-determined levels of trailing unit power, and the individual setting of the lead unit, providing efficient operating power levels for each locomotive.

4,266,486

RAIL CAR DOOR LINKAGE

Douglas A. Puariea, St. Paul, Minn., assignor to The Maxson Corporation, St. Paul, Minn.

Filed Aug. 30, 1979, Ser. No. 71,036
Int. Cl.³ B61D *9/00*
U.S. Cl. 105—276 **9 Claims**



1. A door linkage for a side dump railway car comprising in combination:

a main frame carried on wheeled trucks and having pivot support means on each side thereon;

a tilting bed resting on said pivot support means, said bed having a car body thereon and at least one side door pivoted at the side thereof;

a sliding means having first and second ends and adapted to bear against and slide along the underside of said tilting bed at a location on said tilting bed that moves upward during tilting of said tilting bed;

an extension portion on the bottom of said side door below the point at which the side door pivots on the tilting bed pivotally connected to said sliding means at the first end of said sliding means by a first pivotal connection;

a linkage arm having first and second ends;

linkage support means extending out from said main frame on the side of the car opposite from said side door, said linkage support means pivotally connected at its outboard end to the first end of said linkage arm by a second pivotal connection; and

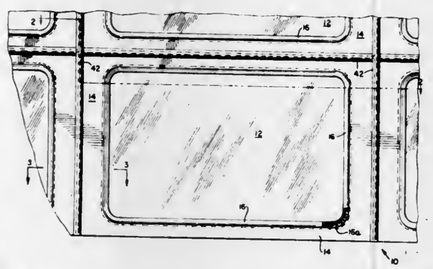
third pivotal connection means between the second end of said sliding means and the second end of said linkage arm.

4,266,487

RAILWAY PASSENGER CAR WINDOW FRAMING CONSTRUCTION

Walter J. Marulic, Gary, and Jack E. Gutrigde, Dyer, both of Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Oct. 10, 1978, Ser. No. 949,822
Int. Cl.³ B61D *17/00, 25/00, 49/00*
U.S. Cl. 105—397 **16 Claims**



1. A railway passenger car with side wall construction comprising:

a wall structure with a window opening therein,

a resilient sealing strip member extending about the periphery of said window opening,

window means being positionable within and removably connected with said sealing strip member,

detachable clamp locking means for maintaining locking and alignment of said window means with said sealing strip member and interconnected with said resilient strip member, and

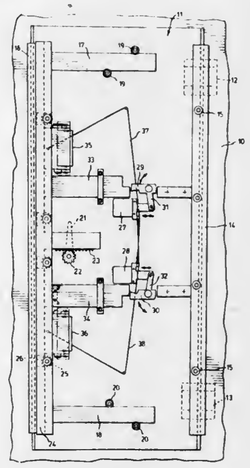
a window frame member defining the window and being removably attached to said wall structure and said clamp locking means.

4,266,488

RELOCKING DEVICE FOR SAFES AND THE LIKE

Michael H. Markham, Rexdale, Canada, assignor to Chubb Industries Ltd., Brampton, Canada

Continuation-in-part of Ser. No. 974,354, Dec. 29, 1978, abandoned. This application Mar. 26, 1980, Ser. No. 134,055
Int. Cl.³ E05G *1/04*
U.S. Cl. 109—59 R **10 Claims**



1. In a safe or like security closure:

an elongated bolt mounted for reciprocation in a direction transverse to its length between a forward locking position and a rearward unlocking position,

bolt-operating means therefor,

locking means operable to lock the bolt in its forward position, and

relocking means for said bolt, the relocking means comprising:

a bolt-engaging member mounted on said closure rearwardly of the bolt, the member being pivotally connected to the closure by at least one unidirectional hinge for unidirectional pivotal movement from a first position in which it is disengaged from the bolt to a second position in which it is engageable with the bolt to prevent retraction of the bolt to the rearward unlocking position, said unidirectional hinge including means permitting pivotal movement of the bolt-engaging member in one direction only,

means biassing the bolt-engaging member towards said second position,

a control element connected to the bolt-engaging member, said control element normally being held in retaining condition for retaining the bolt-engaging member against said biassing means in said first position, and

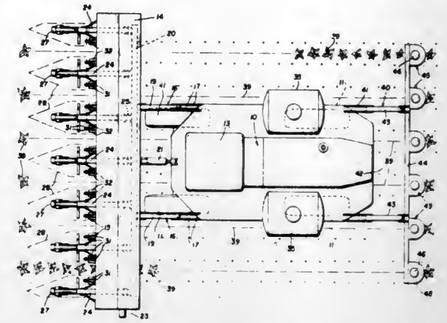
means responsive to forcible attack on the closure for releasing the bolt-engaging member.

4,266,489

DOUBLE CROP PLANTER, SPRAYER AND TOPPER

Emmett W. Parramore, Rte. 1, Coolidge, Ga. 31738

Filed Jan. 29, 1980, Ser. No. 116,493
Int. Cl.³ A01C *19/00, 5/08*
U.S. Cl. 111—1 **13 Claims**



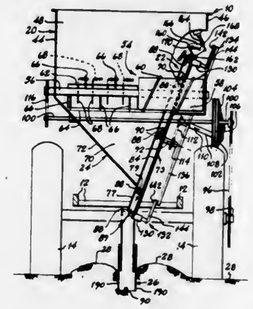
1. A planting machine comprising a high ground clearance vehicle, power implement hitches on the forward and rear ends of such vehicle, a planter apparatus carried by the power implement hitch at the forward end of the vehicle, said planter apparatus comprising plural side-by-side planter assemblies, pivoted support arms independently suspending the planter assemblies from the forward power hitch, a seed box common to the planter assemblies on the forward power hitch, and gage wheels on the lower ends of said support arms, standing row crop topper units carried by said rear power hitch in laterally spaced relationship, and a row crop sprayer means on said vehicle including a spray boom common to the planter assemblies and plural depending spray nozzles rearwardly of the planter assemblies at an elevation thereabove and well forwardly of the topper units.

4,266,490

SUGAR CANE PLANTER

Rolf Haines, Bundaberg, and Robert M. Reid, North Bundaberg, both of Australia, assignors to Massey-Ferguson Services N.V., Curacao, Netherlands Antilles

Filed Jun. 1, 1976, Ser. No. 691,653
Claims priority, application United Kingdom, Jun. 12, 1975, 25290/75
Int. Cl.³ A01C *7/20*
U.S. Cl. 111—3 **4 Claims**



1. A sugar cane billet planter including a frame, a pick-up hopper mounted on the frame, a support plate rotatably journaled on the frame with a portion of one face of the support plate forming at least part of one wall of the pick-up hopper, cane carrier elements pivotally attached to said one face of the

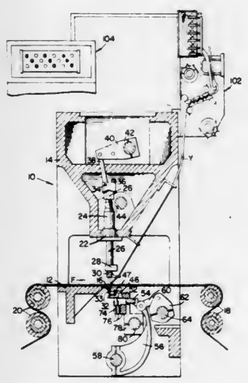
support plate, a control member rotatably journaled on the frame adjacent to the support plate, a control link connected to each cane carrier element and to the control member to control the position of the cane carrier element, drive means to rotate the support plate and thereby move each cane carrier element through the pick-up hopper where each carrier engages cane billets and carries some of the billets out of the pick-up hopper and cane carrier element unloading means mounted on the frame for removing cane billets from each cane carrier element after the cane carrier element has transported cane billets out of the pick-up hopper.

4,266,491

TUFTING MACHINES AND KNIFE BLOCKS THEREFOR

Richard J. Prichard, Hixson, Tenn., assignor to Spencer Wright Industries, Inc., Chattanooga, Tenn.

Filed Feb. 15, 1980, Ser. No. 121,805
Int. Cl.³ D05C *15/00*
U.S. Cl. 112—79 R **4 Claims**



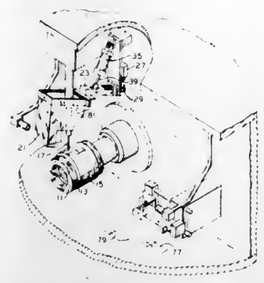
1. In a tufting machine having a frame including a laterally extending bed and a head positioned above the bed, a first needle reciprocable into cooperation with a first hook positioned in the bed to form loops thereon, a second needle reciprocable into cooperation with a second hook positioned in the bed spaced laterally adjacent to and elevationally above the first hook to form loops of yarn thereon, and an oscillatory knife block for carrying a first knife adapted to cooperatively engage said first hook to sever loops thereon and a second knife adapted to cooperatively engage said second hook to sever loops thereon, said knife block comprising an elongated body member having a pair if longitudinally extending spaced flanges connected together by a substantially centrally disposed web, a first channel defined on one side of said web for receiving said first knife, a second channel defined on the other side of said web for receiving said second knife, said channels being laterally spaced an amount less than the lateral spacing between said first and second hooks, the flanges on said one side of said web being stepped elevationally relatively to the flanges on the other side of said web by a distance substantially equal to the elevational spacing between said first and second hooks, and means for securing said knives in said channels with substantially equal lengths of said knives extending therefrom in a direction toward said hooks.

4,266,492

LACING MACHINE NEEDLE GUARD

Edward F. Bienz, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Feb. 28, 1979, Ser. No. 16,090
Int. Cl.³ D05B *83/00*
U.S. Cl. 112—121.2 **5 Claims**



1. An apparatus for tying cord about end turn portions of coils projecting beyond at least one side surface of a magnetic core carrying side turn portions of the coils and having at least one lacing needle executing at least reciprocatory motion toward and away from the coil end turn portions for tying cord about those coil end portions, a safety device for selectively discouraging operator intervention between the coil end turn portions and the lacing needle comprising: a sleeve-like guard movable between a retracted position and an operational position obstructing access to a region between the needle and the end turn portions; guard position determining means for hindering needle reciprocatory motion when the guard is determined to be in other than the operational position; an arm pivotally attached to the cord tying apparatus with said sleeve-like guard supported thereon near a free end thereof; power actuable means for pivoting said arm to move said guard between the retracted and the operational positions; and an operator actuable variable speed control means for controlling at least the speed of the at least one lacing needle reciprocatory motion between a full stop and a normal operating speed, the power actuable means being responsive to the speed control means to pivot the guard from the retracted position to the operational position when the speed control means is moved from a full stop position and to pivot the guard from the operational position to the retracted position when the speed control means is moved to the full stop position.

4,266,493

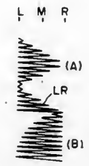
ELECTRONIC PATTERN STITCHING SEWING MACHINE

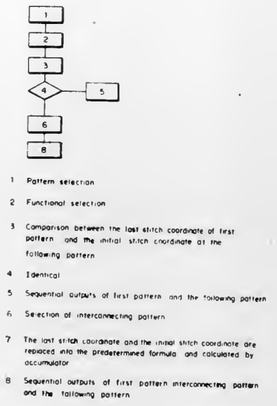
Susumu Hanyu, and Yoshinobu Tonomura, both of Hachioji, Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Jul. 6, 1979, Ser. No. 55,307
Claims priority, application Japan, Jul. 7, 1978, 53-81997
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E **4 Claims**

1. A sewing machine memorizing by manipulation of pattern selecting switches a number of patterns including different patterns to be stitched in series, comprising means for producing directing signals to stitch the selected number of patterns in series; means for detecting the directing signals; means for identifying, in response to the directing signals, the last needle position coordinate of a precedingly stitched pattern and the initial needle position coordinate of the following pattern to be stitched; means for designating one of a plurality of previously memorized patterns to interconnect the precedingly stitched pattern and the following pattern in dependence upon the last and the initial needle position coordinates, respectively, of said

precedingly stitched pattern and said following pattern; and means for interposing the designated interconnecting pattern





between the precedingly stitched pattern and the following pattern.

4,266,494

ANTI-HALOING THROAT PLATE

Stanley J. Ketterer, Jamesburg, N.J., assignor to The Singer Company, Stamford, Conn.

Continuation-in-part of Ser. No. 849,826, Nov. 9, 1977, abandoned. This application Sep. 11, 1978, Ser. No. 940,935
Int. Cl.³ D05B *57/08, 73/12*
U.S. Cl. 112—184 **3 Claims**



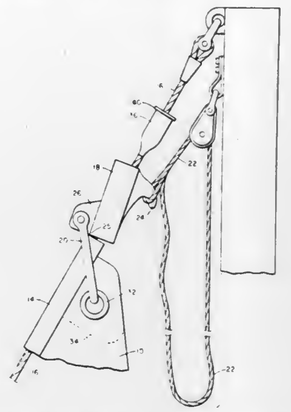
1. In a sewing machine having a reciprocatory thread carrying needle and a loop taker located in the bed of said sewing machine for grapsing and expanding a loop of thread forming a work limb and a take-up limb as said needle penetrates the material being sewn, an anti-haloing device comprising a throat plate having an aperture formed therein through which said needle traverses, means on said throat plate for separating and for positively restraining said work limb from said take-up limb of a loop of thread comprising a block having a thread slot formed therein and affixed to the underside of said throat plate in close proximity of said needle aperture and in such a position that when said loop taker grasps and expands a loop of thread the work limb thereof will pass into said slot, said slot having substantially parallel walls spaced apart only slightly greater than the maximum diameter of thread which may be accommodated by said thread carrying needle so as to frictionally retain said work limb of thread therein.

4,266,495

APPARATUS FOR SUPPORTING A SAIL

Ralph S. Hood, 2543 Lucille Dr., Fort Lauderdale, Fla. 33905

Filed Sep. 13, 1979, Ser. No. 75,511
Int. Cl.³ B63H *9/04*
U.S. Cl. 114—106 **8 Claims**



1. Apparatus for supporting and furling a fore-and-aft sail comprising; a mast:

a vertically slidable and rotatable sail furling member supported at least in part by said mast;

means for slidably connecting the luff of said sail to said rotatable sail furling member;

means for supporting the weight of said sail on said rotatable sail furling member mounted for longitudinal sliding motion thereon,

means for latching said slidable weight supporting means to the top of said rotatable sail furling member, and

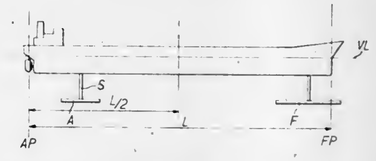
means responsive to substantially vertical upward sliding motion of said rotatable sail furling member for unlatching said slidable weight supporting means member from the top of said rotatable member.

4,266,496

STABILIZER MEANS FOR A SURFACE VESSEL

Ove Carlsen, Stabekk, Norway, assignor to A/S Blehr & Tenvig, Oslo, Norway

Continuation of Ser. No. 877,643, Feb. 14, 1978, abandoned. This application Feb. 15, 1980, Ser. No. 121,958
Claims priority, application Norway, Feb. 23, 1977, 770610; Nov. 1, 1977, 773739
Int. Cl.³ B63B *39/06*
U.S. Cl. 114—126 **9 Claims**



1. A self-propelled surface ship adapted for work in off-

shore locations, and having two perpendiculars, one fore and one aft; the perpendiculars being separated by a distance L, and having a midpoint therebetween; the ship also having stabilizing apparatus comprising:

(a) a forward stabilizer body having a horizontal surface area in the range of from 13% to 20% of the ship's waterplane area, with its center of gravity located forward of the midpoint a distance of at least 0.22 L when in an operative position;

(b) an aft stabilizer body having a horizontal surface area of from 7% to 15% of the ship's waterplane area, with its center of gravity located aft of the midpoint a distance of at least 0.14 L when in an operative position; and

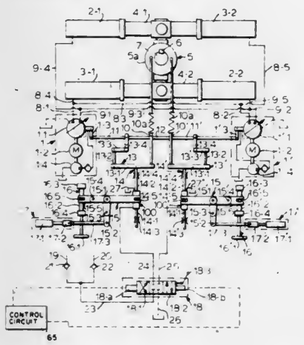
(c) means for raising and retracting said stabilizer bodies to respective transport positions so that they lie snugly against the ship's bottom and will not interfere with its movement, and for returning said stabilizer bodies to their respective operative positions.

4,266,497

MARINE STEERING ARRANGEMENT

Kashiku Toda; Moriji Honda, both of Nagasaki, and Haruhiko Mishina, Isahaya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 12, 1978, Ser. No. 950,621
Claims priority, application Japan, Oct. 29, 1977, 52/129858
Int. Cl.³ B63H *25/00*
U.S. Cl. 114—144 R **4 Claims**



1. A marine steering construction comprising:

two parallel interconnection means operatively connected to a hydraulic steering machine, one of said parallel interconnection means being a spare interconnection means, and said two parallel interconnection means including respective first and second variable discharge pump units for being operatively connected to the hydraulic steering machine for actuating the hydraulic steering machine;

first and second power units operatively connected respectively to said first and second variable discharge pump units for causing said first and second variable discharge pump units to operate, said two parallel interconnection means including control force transmission systems and said control force transmission systems respectively connected to said first and second variable discharge pump units;

said control force transmission systems having respective mechanical control means connected thereto and said respective mechanical control means respectively mechanically connected to said first and second power units and to said first and second variable discharge pump units for transmitting a control force from said power units to respective variable discharge pump units;

hydraulic coupling/decoupling devices included in respective ones of said parallel interconnection means, said hydraulic coupling/decoupling devices located for connecting a respective mechanical control means to a respective control force transmission system, said hydraulic coupling/decoupling devices being operative for switching said control force transmission systems from a first state wherein said control force can be transmitted from said power units and control means to said variable discharge pump units for actuating said pump units, to a second state wherein said control force cannot be transmitted;

mechanical feedback means connected between said parallel interconnection means and to the hydraulic steering machine for transmitting a feedback from the steering machine which corresponds to an amount of steering done, to respective ones of said first and second variable discharge pump units and first and second power units; and

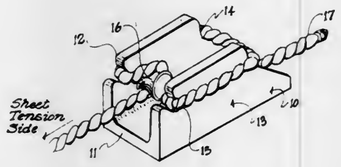
a rod connecting said parallel interconnection means to each other for relating and synchronizing the operation of said control means, said rod having absorbing means disposed therein for absorbing excessive forces generated as a result of defective operating conditions.

4,266,498

ROPE SECURING DEVICE

James R. Clark, 36 Elsmere Blvd., Wilmington, Del. 19805

Filed Jun. 9, 1978, Ser. No. 914,239
Int. Cl.³ B63B *21/04*
U.S. Cl. 114—218 **1 Claim**



1. A rope securing device comprising:

(a) a flat support (or base),

(b) two parallel substantially upright side members extending from said support;

(i) the two ends of each side member at one end of the support being substantially identically inclined with respect to the support in a direction gradually toward the other end of the support with the degree of inclination changing to provide a convex appearance of the ends,

(ii) the other two ends of each side member each having a substantially identical wedge-shaped cavity (recess) inclined toward said support; and

(c) a support bar protruding from the inside wall of one side member and extending toward the inside wall of the other side member, said support bar constructed and arranged to guide a rope looped around said bar and wherein the support bar is a lug extending from the inside wall of one side member toward the other side member, the sides of said lug being concave and said lug extending not over one half the distance between the two side members.

4,266,499

OFFSHORE COLUMN WITH MOORING HAWSER SYSTEM

William A. Tam, Greenville, Pa., assignor to Chicago Bridge & Iron Company, Plainfield, Ill.

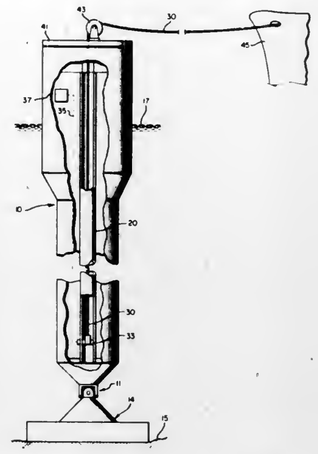
Filed Aug. 27, 1979, Ser. No. 70,095
Int. Cl.³ B63B *21/00*
U.S. Cl. 114—230 **8 Claims**

1. In an apparatus for mooring a vessel offshore comprising an elongated buoyant column and means for pivotally connecting the lower end of the column to a base anchored to a sea floor, the improvement comprising:

a hawser-receiving tube in the column;

a hawser guide means located in the column top portion;

a hawser having a first end located down in the tube and extending upwardly in the tube through the hawser guide means and terminating outwardly from the column in a second end to be connected to a vessel; and



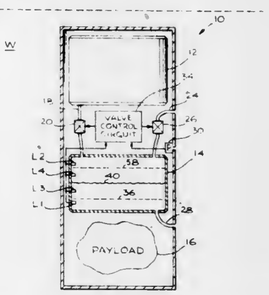
a remotely operable connector at the first end of the hawser for releasably but stationarily securing the hawser end to the tube so that traction applied by a vessel moored on the hawser second end is fully resisted.

4,266,500

HOVER CONTROL SYSTEM FOR A SUBMERSIBLE BUOY

Joseph A. Jurca, Tarzana, Calif., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Sep. 24, 1979, Ser. No. 78,256
Int. Cl.³ B63G *8/22*
U.S. Cl. 114—333 **9 Claims**



4. A buoyancy control system for a buoy to be submersed in a surrounding liquid comprising:

a first chamber for containing a pressurized fluid;

a second chamber having an opening formed in its bottom to permit liquid to flow between said second chamber and said surrounding liquid;

controllable interconnection means for interconnecting said first chamber and said second chamber;

controllable pressure relief means for opening an upper portion of said second chamber to said surrounding liquid; and

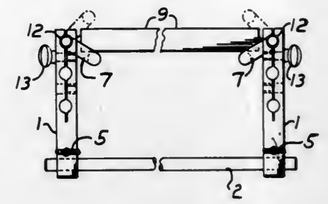
depth adjustment means responsive to liquid pressure external to said buoy and to liquid levels within said second chamber for controlling said interconnection means and said pressure relief means.

4,266,501

CAKE TRIMMING AND ICING LEVELLING AND SMOOTHING MEANS

Mary R. Knupp, 6100 Laurent 616-B, Parma, Ohio 44129, and John Tymkewicz, Cleveland, Ohio, assignors to Mary R. Knupp, Parma, Ohio

Filed Dec. 11, 1979, Ser. No. 102,856
Int. Cl.³ B05C *17/00*
U.S. Cl. 118—15 **6 Claims**



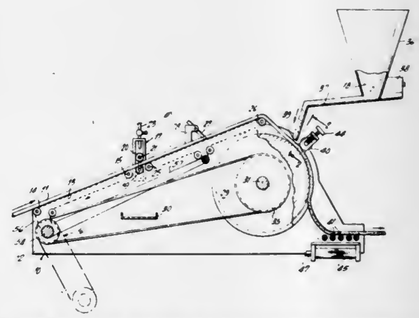
1. Means for trimming, icing levelling, and smoothing of cakes, comprising a framework within which a cake to be treated is positioned, said framework including upright corner posts rectangularly spaced in pairs, each pair being connected to a frame rod at spaced intervals thereon to constitute a frame end, which ends are arranged in spaced relation and generally parallel, a pair of substantially parallel support instrumentalities connecting the corner posts at about right angles with respect to the frame rods aforesaid, said support instrumentalities including means for adjusting the same vertically, said instrumentalities being arranged to support a screed-like member thereon for movement along the support instrumentalities for trimming, icing levelling and smoothing a cake positioned as stated.

4,266,502

SEED APPLYING APPARATUS FOR FOOD PRODUCTS

George Monaco, Little Neck, N.Y., assignor to Stella D'oro Biscuit Co. Inc., Bronx, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,290
Int. Cl.³ B05C *1/08, 5/02, 19/00*
U.S. Cl. 118—16 **16 Claims**



1. A seed applying apparatus for food products comprising:

a. Spaced upstanding rigid side plates;

b. Spaced elongated rollers transversely carried by the side plates and journaled therein;

c. At least one conveyor belt carried by the spaced rollers in

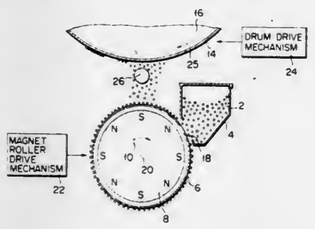
driven engagement therewith to receive the food products to be seeded;
d. A loading end and a discharge end on said conveyor belt;
e. Wetting means disposed in the path of the food products to apply a liquid to the said food products;
f. An annularly grooved drum carried by the side plates to receive the wetted food products;
g. A source of seeds disposed above the surface of the drum;
h. A seed dispensing chute on the seed source;
i. A dispensing end on the said chute positioned adjacent the drum in the area where the food products first contact the grooved surface of the drum;
j. Roller means adjacent the dispensing end to urge the seeds into firm contact with the food products;
k. Means beneath the drum between the side plates to recover excess seeds from the drum;
l. Means spaced from the discharge end of the conveyor belt to urge the seeded food products away from the said apparatus, and
m. Drive means operatively coupled to the elongated rollers and the grooved drum to continuously move the food products through the apparatus.

4,266,503

APPARATUS FOR FORMING A CLOUD OF TONER PARTICLES

Tsutomu Uehara, Yokosuka; Toshihiko Oguchi, Kawasaki; Tsutomu Kubo, Yokohama; Yukio Suzuki, Ayase; Toshiharu Nakagawa, Yokohama, and Ichiyoshi Saito, Tokyo, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 18, 1979, Ser. No. 40,141
Claims priority, application Japan, May 25, 1978, 53/62513
Int. Cl.³ G03G *13/09, 15/09*
U.S. Cl. 118—657 **14 Claims**



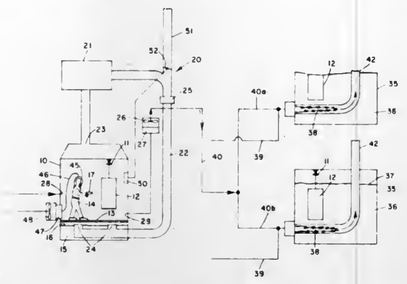
1. An apparatus for forming a cloud of toner particles comprising:
means for supplying magnetic toner particles;
a tubular sleeve made of non-magnetic material the surface of which is supplied with magnetic toner particles from said supplying means;
a rotatable magnet roller with a predetermined number of magnet poles disposed within said tubular sleeve;
drive means for rotating said rotatable magnet roller in one direction, said magnet roller forming, on being rotated, an alternating magnetic field on the surface of said tubular sleeve, thereby carrying said magnetic toner particles around the surface of said tubular sleeve; and
a magnetic member located adjacent said rotatable magnet roller and being disposed in the alternating magnetic field to form a cloud of particles from said of the carried toner paticles.

4,266,504

PAINT SPRAYING ASSEMBLY

Keith G. Roesner, Kewanee, Ill., assignor to Deere & Company, Moline, Ill.

Filed Aug. 10, 1979, Ser. No. 65,446
Int. Cl.³ B05C *15/00*
U.S. Cl. 118—663 **4 Claims**



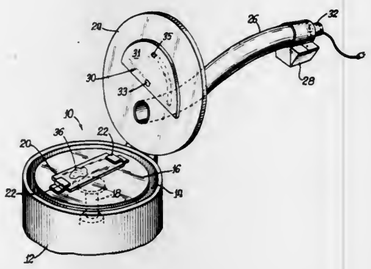
1. A painting assembly comprising: a spraying booth; a pre-spraying washer having a washing container with a washing liquid therein; means for conveying articles through said container and booth; a re-circulating fan and duct work having an inlet to and an outlet from the booth for re-circulating air through the booth; a source of clean air in communication with said booth; a gas fired burner associated with said washer for heating liquid in said container, said burner having a gas source and an outside exhaust; a blower having an inlet to said re-circulating air for drawing clean make-up air from said clean air source into said booth as partial replacement for the re-circulating air, said blower having a connection into the gas source for said burner whereby said burner will burn off the solvent contained in the air drawn from the re-circulating air by said blower prior to passage into the exhaust.

4,266,505

APPARATUS FOR THE PREPARATION OF BLOOD SAMPLES FOR AUTOMATED ANALYSIS

James W. Bacus, Hinsdale, Ill., assignor to Rush-Presbyterian-St. Luke Medical Center, Chicago, Ill.

Division of Ser. No. 862,735, Dec. 21, 1977, Pat. No. 4,209,548, which is a continuation of Ser. No. 737,532, Nov. 1, 1976, abandoned. This application Jun. 25, 1979, Ser. No. 51,896
Int. Cl.³ B44D *1/02*
U.S. Cl. 118—699 **2 Claims**



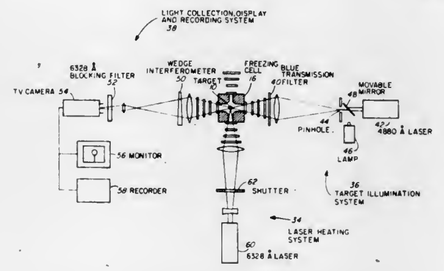
1. In an apparatus for preparing a blood specimen in a monolayer of red blood cells on a slide suitable for automated analysis comprising housing means defining a spinning chamber, rotatable platen means disposed substantially horizontally within said chamber and adapted to receive slide means having deposited thereon a blood sample containing red blood cells, drive means adapted to rotate said platen means and to throw excess blood cells from said platen, means controlling the period of actuation of said drive means to dispose said red blood cells in substantially a monolayer on said slide and to stop rotation of said platen means after less than 2.5 seconds of rotation, means for generating a vaporous fixing agent at a location remote from said rotatable platen means, conduit means for introducing a vaporous fixing agent without wetting said cells to said red blood cells on said platen following their dispersal into substantially a monolayer on said slide to fix said cells in about fifteen minutes.

4,266,506

APPARATUS FOR PRODUCING CRYOGENIC INERTIALLY DRIVEN FUSION TARGETS

John R. Miller, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 25, 1978, Ser. No. 872,284
Int. Cl.³ B05D *7/00;* **G21C** *3/20*
U.S. Cl. 118—725 **10 Claims**



1. A device for forming a substantially uniform layer of a cryogenic material on the inner surface of a microballoon sphere comprising:
an isothermal freezing cell containing said microballoon;
cryogenic He contained within said isothermal freezing cell at approximately 4° K. at a pressure sufficient to rapidly freeze said cryogenic material in a uniform layer;
means for locally heating said microballoon sphere to vaporize said cryogenic material within said microballoon sphere;
means for rapidly eliminating said means for local heating to cause said cryogenic material to condense and freeze at a rate sufficient to form a substantially uniform layer on said inner surface of said microballoon sphere.

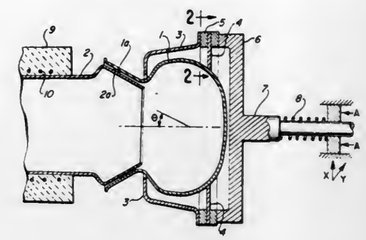
4,266,507

CAP-MOUNTING MECHANISM FOR APPARATUS FOR THERMAL TREATMENT OF SEMICONDUCTORS

Ryozo Satoh, Yamato, Japan, assignor to Tel-Thermco Engineering Co., Ltd., Yokohama, Japan

Filed Mar. 4, 1980, Ser. No. 127,009
Claims priority, application Japan, Mar. 8, 1979, 54-29726[U]
Int. Cl.³ C23C *13/08*
U.S. Cl. 118—733 **7 Claims**

1. In an apparatus for thermal treatment of semiconductors, of a type comprising
(a) a tube, which has a longitudinal axis, and which is formed with a sealing surface near an open end of the tube,
(b) a cap, which is formed with a sealing surface near an open end of the cap, and which fits onto the tube so as to effect a hermetic seal between the cap and the tube when the sealing surfaces are fitted to each other, and
(c) a framework, which has a longitudinal axis, which carries the cap, which is movable along the longitudinal axis of the framework so as to carry the cap forwardly toward the tube, and which is movable in mutually perpendicular directions at right angles to the longitudinal axis of the framework,
an improvement wherein the cap has a substantially spherical portion and a flared portion, on which the sealing surface of the cap is formed, and wherein the apparatus comprises
(d) an annular retainer, which is integral to the framework,
(e) a plurality of elongated members, each of which has a proximal end attached to the annular retainer, each of which extends radially inwardly from the annular retainer, and each of which has a distal end,
(f) a plurality of leaf springs, each of which has proximal end attached to the annular retainer, each of which extends radially inwardly from the annular retainer, and each of which has a distal end, the distal ends of the leaf springs being separated longitudinally from and rearwardly of the distal ends of the elongated members and wherein the



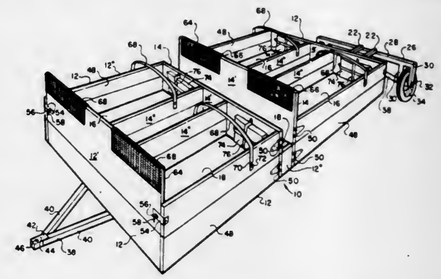
substantially spherical portion of the cap is confined by the distal ends of the elongated members and by the distal ends of the leaf springs except for the flared portion, which extends forwardly, past the distal ends of the elongated members, and toward the tube, so as to permit limited inclination of the cap with respect to the longitudinal axis of the framework, whereby the leaf springs impart elastic forces effecting self-alignment of the cap and the tube when the cap is pressed onto the tube, despite angular deviation between the longitudinal axis of the tube and the longitudinal axis of the framework, and
(g) means associated with said framework to hold said cap in sealed engagement with said tube.

4,266,508

APPARATUS FOR SIMULTANEOUSLY EXERCISING A PLURALITY OF HORSES

Robert A. McNulty, P.O. Box 87, Vernon, N.Y. 13476

Filed Nov. 13, 1979, Ser. No. 94,042
Int. Cl.³ A01K *15/02*
U.S. Cl. 119—29 **8 Claims**



1. An apparatus for simultaneously exercising a plurality of horses or like animals comprising a main frame including a plurality of upright side walls, and a plurality of upright partition walls, together defining a plurality of stalls for confining in each said stall a horse or like animal for exercising, said main frame and each said stall having a leading end and a trailing end, a plurality of gates formed in said side walls, at least one said gate being formed at each said stall to permit entery into and exit from each said stall of a horse or like animal, rein

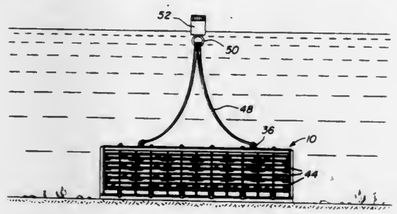
means associated with said leading end of each said stall and fastenable with the head of a horse or like animal for guiding the horse or like animal during exercise thereof, attachment means affixed to said leading end of said main frame for connection of said main frame with a self-powered vehicle, and a plurality of rotatable wheels affixed to the trailing end of said main frame, whereby a plurality of horses may be placed one in each said stall, fastened to the rein means thereof and simultaneously exercised by connecting said attachment means with a self-powered vehicle and operating said vehicle to pull said frame therebehind causing said horses to jog safely within their respective stalls in the direction of movement of said self-powered vehicle.

4,266,509

METHOD AND APPARATUS FOR OFFSHORE DEPURATING HABITAT FOR SHELLFISH

Edgar R. Gollott, 1308-½ Lee St., and Thomas A. Gollott, 1390 E. Bayview Ave., both of Biloxi, Miss. 39530

Filed Oct. 17, 1979, Ser. No. 85,473
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—2 **6 Claims**



1. An enclosure for depurating shellfish and protecting the shellfish against natural predators as well as theft, said enclosure including an open framework defining a plurality of laterally spaced apart sets of vertically spaced elongated horizontal cavities open at one set of corresponding ends only, at least one open tray slidably removably received in each of said cavities through the open end thereof, the upper portions of corresponding adjacent cavities of adjacent sets of cavities being horizontally communicated, said trays including foraminated bottom, side and end walls, said enclosure defining means preventing movement of said trays between corresponding laterally spaced cavities, outwardly of the remote sides of the endmost cavities and means releasably locking said trays against endwise removal from the open ends of said cavities, said cavities being vertically spaced apart approximately 2 inches more than the depth of said trays, thereby providing approximately 2 inches vertical spacing between adjacent vertically spaced trays the depth of said trays being greater than said vertical spacing.

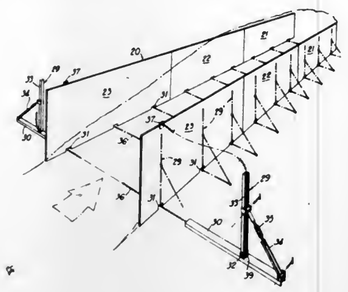
4,266,510

PORTABLE SILO

Robert A. Rowan, and Leroy Mathis, both of P.O. Box 68, Enigma, Ga. 31749

Filed Jan. 11, 1980, Ser. No. 111,360
Int. Cl.³ A01K *5/00*
U.S. Cl. 119—51 R **8 Claims**

4. In a portable silage bunker, at least a pair of bunker side wall sections adapted to contain silage between them when they are held in upright opposing relationship, and at least one pair of bracing assemblies for said side wall sections comprising a pair of base members in spaced end-to-end relationship with one base member engaging beneath one bunker side wall section transversely thereof, upright members rising from said base members between the ends thereof and engaging the outer faces of the bunker side wall sections to stabilize them, and a flexible tie interconnecting the bracing assemblies and having an adjustable connection with the top of each bunker side wall section, said tie extending transversely between said side wall



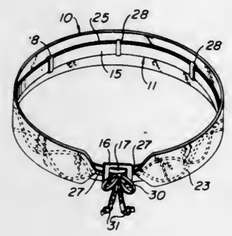
sections at their bottoms, and the bracing assemblies having guide passage means for said tie.

4,266,511

ORNAMENTAL AND PROTECTIVE COLLAR FOR AN ANIMAL COLLAR

Helen S. Muench, 130 Windsor Ave., Westmont, N.J. 08108

Filed Nov. 1, 1979, Ser. No. 90,337
Int. Cl.³ A01K *27/00*
U.S. Cl. 119—106 **5 Claims**



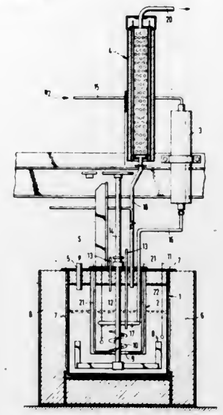
1. In combination, a dog collar comprising an elongate flexible collar element, and a buckle on one end of said collar element for adjustable connection to the other end of said collar element; and a protective and ornamental cover for said dog collar comprising an elongate strip of decorative flexible fabric for extension along the outer side of said collar element, said strip being wider than said collar element to obscure the latter and protect persons from excessive contact with said collar element, loops spaced along the inner side of said strip laterally medially thereof for slidably receiving spaced regions of said collar element, end ties extending from respective ends of said strip for retaining engagement with a said buckle, said ties being adapted for connection together and to said buckle for positively locating said strip in position relative to said collar element, and a lining tape secured along the inner side of and coextensive with said strip laterally medially thereof for wear resistant engagement with said collar element, said ties being defined by end extensions of said tape extending beyond opposite ends of said strip for extension through said buckle.

4,266,512

APPARATUS FOR THE VAPORIZATION OF ELEMENTAL SULFUR BY MEANS OF CARRIER GAS

Pekka T. Setala; Simo A. I. Makipirtti, both of Nakkila, and Heimo J. Heino, Pori, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

Continuation-in-part of Ser. No. 973,433, Dec. 26, 1978. This application Jun. 26, 1979, Ser. No. 52,188
Int. Cl.³ F22B *37/00*
U.S. Cl. 122—5.5 R **5 Claims**



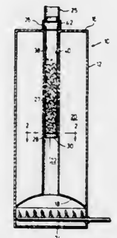
1. An apparatus for the vaporization of elemental sulfur by means of a carrier gas, comprising: a thermally insulated first vessel for the melting of elemental sulfur, provided with heating means, a stirrer and an inlet pipe for elemental sulfur; and at least one second vessel inside the first vessel and communicating with said first vessel, said second vessel being provided with heating means, a stirrer, means for feeding carrier gas and an outlet pipe for sulfur vapors, for vaporizing the molten elemental sulfur flowing from the first vessel by means of carrier gas.

4,266,513

FLUE HEAT EXCHANGER

Orland O. Schaus, Agincourt, Canada, assignor to Canadian Gas Research Institute, Don Mills, Canada

Filed Aug. 20, 1979, Ser. No. 68,132
Claims priority, application Canada, Sep. 1, 1978, 310568
Int. Cl.³ F22B *7/00*
U.S. Cl. 122—155 A **13 Claims**



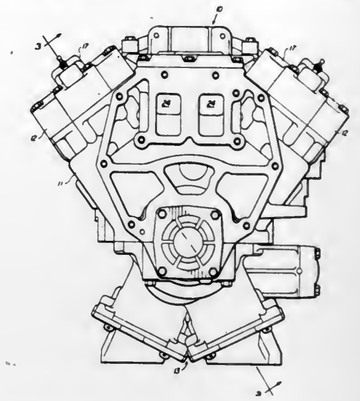
1. A heat exchanger for use in a flue comprising, in combination, a plurality of tubular metallic refractory sections having an average length to diameter ratio within the range of 0.5:1 to 2:1 randomly packed within said flue to fill at least a portion of said flue to form a gas-permeable packing whereby heating gases flowing through said flue are distributed evently across the flue diameter for the length of the flue packed with said sections.

4,266,514

INTAKE MANIFOLD SYSTEM FOR A TWO-CYCLE V-ENGINE

Alfred E. Tyner, Fond du Lac, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Aug. 6, 1979, Ser. No. 64,121
Int. Cl.³ F02B *25/28*
U.S. Cl. 123—55 R **10 Claims**



1. A multiple cylinder two-cycle outboard motor engine comprising:

(A) a cylinder block having a plurality of cylinders arranged in two banks forming a V;

(B) a plurality of pistons, one mounted in each of said cylinders;

(C) a crankcase member defining, with said cylinder block, a crankcase;

(D) a crankshaft means supported in said crankcase by said cylinder block and said crankcase member for rotation about a vertical axis, said crankshaft means connecting said pistons for reciprocation in said cylinders and dividing said crankcase into crank chambers, one for each of said cylinders, subject to compression and expansion with the reciprocation of said pistons; and

(E) a plurality of inlet passages, one for each of said crank chambers, for admitting an air-fuel mixture to said crank chambers, said inlet passages being arranged in two vertical banks forming a V.

4,266,515

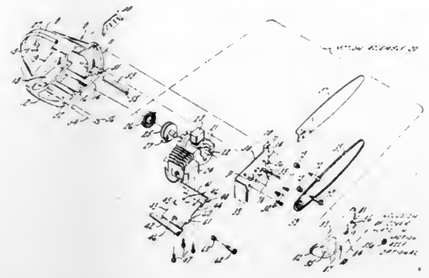
ENGINE POWER PACK ASSEMBLY HAVING ANTI-VIBRATION FEATURES

Kenneth L. Bross, Bourbonnais, Ill., assignor to Roper Corporation, Kankakee, Ill.

Division of Ser. No. 946,070, Sep. 27, 1978. This application Nov. 1, 1979, Ser. No. 90,288
Int. Cl.³ F02B *71/00*; F02P *3/00*; B60K *5/10*
U.S. Cl. 123—198 E **1 Claim**

1. An engine power pack assembly comprising, in combination, a housing in the form of a shell fully open one of its lateral sides and having integral front, back, top, bottom and side walls forming the other sides to define a central chamber; a motion assembly including a small single cylinder gasoline engine and an implement; a mounting plate secured to the engine, said mounting plate having substantially parallel front and rear edges; the shell having edge receiving means adjacent the front and back walls of the shell spaced for matingly receiving the front and rear edges of the plate, the edge receiving means being in the form of interposed inserts of soft resilient material formed to hold the mounting plate resiliently captive in a direction at right angles thereto as well as in the forward and back direction, the central chamber being conformingly sized to receive the engine so that the engine and its mounting

plate may be slid into seated position in the chamber in the manner of a drawer for floating support above the bottom wall of the shell; means for securing the implement to the engine for



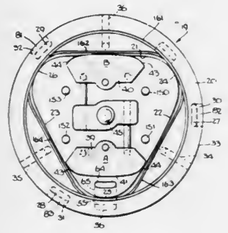
support thereon and for transmitting power from the engine to the implement to complete the motion assembly; and means for holding the assembly in its seated position.

4,266,516

INTERNAL COMBUSTION ROTARY ENGINE

Robert Hakner, 2050 21st Dr., Brooklyn, N.Y. 11214

Filed Mar. 19, 1979, Ser. No. 21,832
Int. Cl.³ F02B *53/00*
U.S. Cl. 123—241 **19 Claims**



1. In a rotary internal combustion engine having:

an annular housing with oppositely disposed end surfaces and at least two inner walls forming a housing cavity within the housing, the inner walls being equiangularly disposed about the longitudinal axis of the annular housing with the inner walls adjacent one another intersecting in rounded corner portions;

a drive shaft disposed within the housing cavity with the axis of the shaft extending along the longitudinal axis of the annular housing;

at least one rotary sliding piston disposed within the housing cavity and having a face portion adjacent an inner wall of the housing, the face portion having a leading edge and a trailing edge and having two oppositely disposed side portions extending from the face portion, the face portion being of a predetermined length in relation to the inner walls of the annular housing to enable the leading edge and the trailing edge of the piston to maintain sliding contact with adjacent inner walls, the piston having a width substantially the same as the width of the annular housing in the direction of the longitudinal axis thereof,

means disposed at each of the opposite ends of the housing adjacent the end surface thereof and extending across the housing cavity adjacent each side portion of a piston for closing the housing cavity between the face portion of the piston and the inner walls of the annular housing, the piston being adapted to be driven with a rotary and sliding motion with respect to the inner walls of the housing by the expansion of pressured products of combustion between the face portion of the piston and an inner wall of the housing;

means disposed within the annular housing for connecting the piston to the drive shaft;

means disposed within the annular housing for guiding each piston in the rotary and sliding motion thereof to rotate with respect to the central axis of the housing and to slide with respect to the inner walls of the housing, the guiding means positioning the end portions of the face portion of the piston adjacent intersecting inner walls of the housing when the face portion of the piston is adjacent the corner therebetween to form alternately an intake chamber and an expansion chamber, the guiding means positioning the face portion of the piston to be substantially contiguous with an inner wall of the housing and the end portions of the face portion to be adjacent the corner portions of the inner wall to which the face portion is contiguous to compress alternately a charge between the face portion of the piston and the inner wall and to discharge alternately exhaust products from between the face portion and the inner wall;

the improvement comprising:

at least one of the means disposed adjacent an end surface of the housing for closing the housing cavity between the face portion of a piston and the inner walls of the annular housing including:

(a) a valving assembly having at least one rotatable inner valving ring adapted to rotate about the longitudinal axis of the annular housing, the inner valving ring having

(i) a surface portion exposed to the housing cavity adjacent a side portion of a piston and the inner wall of the housing,

(ii) at least one intake-exhaust duct for one of the pistons disposed in the inner valving ring and having a housing cavity orifice on the surface portion and an intake-exhaust orifice at the end of the intake-exhaust orifice, the number of intake-exhaust ducts in all inner valving rings corresponding to the number of pistons or a multiple thereof, the housing cavity orifice being disposed at a predetermined radius with respect to the center of the inner valving ring to enable the housing cavity orifice to be in communication with the housing cavity when the housing cavity orifice is rotated to adjacent a rounded corner of the annular housing and to enable the housing cavity orifice to be covered by the side portion of a piston when the housing cavity orifice is rotated to between rounded corners of the annular housing,

the intake-exhaust orifice being rotated to one location when the housing cavity orifice is in communication with an intake chamber formed in the housing cavity for delivery of an intake charge thereto and being rotated to another location when the housing cavity orifice is in communication with an expansion chamber formed in the housing cavity for delivery of an exhaust charge therefrom, and

(iii) means disposed adjacent the rotary path of travel of the intake-exhaust orifice for closing the intake-exhaust orifice through a portion of the rotary path of travel thereof and for opening the intake-exhaust orifice when rotated to the one and another locations thereof; and

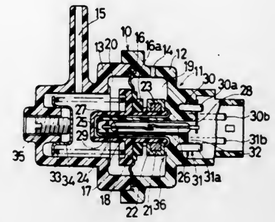
(b) means coupled to the drive shaft for rotating the inner valving ring in synchronism with the rotation of the piston.

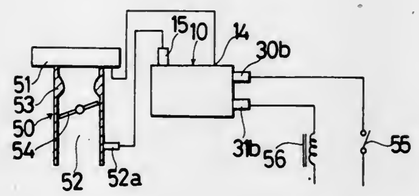
4,266,517

DIFFERENTIAL PRESSURE SWITCH DEVICE RESPONSIVE TO DIFFERENTIAL PRESSURE AND TEMPERATURE CHANGE

Naoji Sakakibara, 21, Shiokaki, Takara-Machi Chiryu city, Aichi pref., and Nobuyuki Hashimoto, 30-18, Kamisaka, Nakata-cho, Toyota-city, Aichi Pref., both of Japan

Continuation of Ser. No. 854,381, Nov. 23, 1977, abandoned.
This application Jun. 21, 1979, Ser. No. 50,865
Claims priority, application Japan, Nov. 24, 1976, 51-141609
Int. Cl.³ H01H *35/34*
U.S. Cl. 123—333 **8 Claims**





1. A differential pressure switch device operable in response to both differential pressure and changes in temperature of an internal combustion engine to control exhaust emissions therefrom which comprises, in combination:

a single housing;

an annular flexible diaphragm rigidly secured about its periphery in said housing to divide said housing into a first chamber and a second chamber;

means for admitting fluid pressures into said chambers for moving said diaphragm in response to differential pressure between said chambers;

a movable cylindrical member secured axially in the center of said diaphragm for movement therewith;

a permanent annular magnet mounted on the outer wall of said cylindrical member for movement therewith;

a thermo ferrite connected with said magnet for operative cooperation therewith in response to said temperature changes of said engine, said thermo ferrite being positioned adjacent said magnet;

biasing means engaging said cylindrical member for biasing said cylindrical member, said magnet, and said thermo ferrite into a rest position when the differential pressure between said first and second chambers is below a predetermined value;

a reed switch assembly disposed within said cylindrical member, said reed switch being actuated upon movement of said magnet in a predetermined position as well as being actuated by said thermo ferrite when surrounding temperature reaches a predetermined degree; and

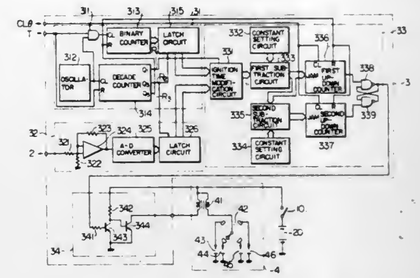
means connected to said housing for controlling flow of fuel to said engine in response to actuation of said reed switch assembly.

4,266,518

METHOD OF CONTROLLING IGNITION TIMING FOR INTERNAL COMBUSTION ENGINES AND APPARATUS FOR CARRYING OUT THE SAME

Minoru Nishida; Tadashi Hattori, both of Okazaki, and Hiroaki Yamaguchi, Anjo; all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Oct. 6, 1978, Ser. No. 949,255
Claims priority, application Japan, Nov. 18, 1977, 52-139092; Feb. 1, 1978, 53-10197
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—416 **6 Claims**



1. In a method for controlling the timing of the ignition spark in a combustion engine having a rotatable output shaft, said ignition spark timing being revised in each rotation cycle of said output shaft, the improvement comprising the steps of:

storing a first ignition spark timing actually supplied to said internal combustion engine in a preceding rotation cycle of said output shaft;

anticipating a second ignition spark timing in response to sensed operating conditions of said combustion engine in each current rotation cycle of said output shaft;

correcting said second ignition spark timing in accordance with said first ignition spark timing to provide a third ignition spark timing which is closer than said second timing to said first timing; and

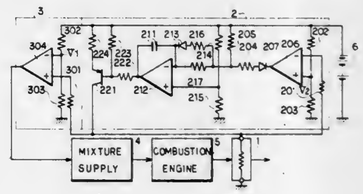
supplying said combustion engine with the ignition spark in the current rotation cycle of said output shaft when said output shaft rotates to a position corresponding to said third timing of ignition spark.

4,266,519

SYSTEM FOR CONTROLLING AN OXYGEN CONCENTRATION IN EXHAUST GASES

Hideaki Norimatsu, and Koichi Furuta, both of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. 30, 1978, Ser. No. 964,962
Claims priority, application Japan, Feb. 17, 1978, 53/17771
Int. Cl.³ F02D *35/00*
U.S. Cl. 123—440 **7 Claims**



1. A system for controlling an oxygen concentration in exhaust gases emitted from a combustion engine comprising:

means for sensing a presence and absence of oxygen in exhaust gases emitted from a combustion engine to produce

an output signal having magnitudes respectively indicative of said presence and absence of oxygen;

means for comparing said magnitudes of said output signal of said sensing means with a predetermined magnitude indicative of a reference concentration between said presence and absence of oxygen;

means for controlling said oxygen concentration in said exhaust gases toward said reference concentration in response to an output signal of said comparing means; and

means for controlling either one of said magnitudes of said output signal of said sensing means toward another predetermined magnitude in response to said output signal of said sensing means;

wherein said sensing means includes an oxygen responsive titanium dioxide, and wherein said latter controlling means includes:

comparison means for comparing said magnitudes of said output signal of said sensing means with said another predetermined magnitude;

integration means for integrating an output signal of said comparison means; and

biasing means for biasing said sensing means by an electric current in response to an output signal of said integration means.

4,266,520

FUEL-AIR MIXTURE ARRANGEMENT WITH AN AIR-COMPRESSING SUPER-CHARGER FOR A COMBUSTION ENGINE

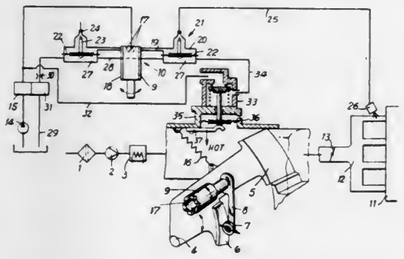
Hans-Jurgen Muller, Gelsenkirchen, Fed. Rep. of Germany, assignor to Pierburg GmbH & Co. Kg, Neuss, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,700

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830709

Int. Cl.³ F02D *3/02, 23/02*

U.S. Cl. 123—454 **2 Claims**



1. A fuel-air mixture arrangement for a combustion engine, comprising: an intake pipe with continuous injection; an air-compressing supercharger; an air quantity meter located in said intake pipe said air quantity meter comprising a ram flap, a throttle flap arranged behind said ram flap; a fuel metering unit actuated by said air quantity meter, fuel metering proceeding at constant pressure drop in the fuel, said constant pressure drop being variable depending on predetermined parameters; a control pressure valve for providing control-pressure circulation for the fuel; an auxiliary valve having a pressure drop varied by means of said control pressure valve for controlling variables being applied to said control pressure valve; said fuel metering unit having metering cross sections, said auxiliary valve keeping a set constant pressure drop at said metering cross sections constant, said air quantity meter being located downstream of said air-compressing supercharger; a diaphragm unit; said control pressure valve being fed supercharger air pressure prevailing upstream of said throttle flap by said diaphragm unit.

4,266,521

METHOD OF FUEL INJECTION CONTROL DURING STARTING

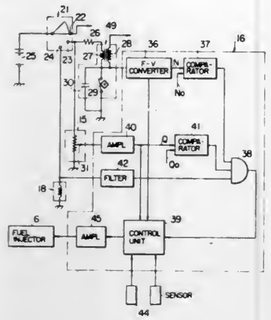
Jiro Nakano, and Hideo Miyagi, both of Okazaki, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Apr. 19, 1979, Ser. No. 31,478

Claims priority, application Japan, Oct. 6, 1978, 53-122513

Int. Cl.³ F02B *3/00*

U.S. Cl. 123—491 **5 Claims**



1. In a method for controlling the opening and closing of a fuel injector mounted in the air intake system of an internal combustion engine wherein the flow rate of fuel supplied by the injector is controlled by an electronic control unit in accordance with engine operating conditions, the improvement which comprises the steps of:

detecting during an engine starting period whether the r.p.m. of the engine is greater than a preset level,

detecting during said engine starting period whether the flow rate of intake air to said engine is greater than a preset level,

operating said control unit such that it fixes the flow rate of fuel supplied by said injector at a predetermined level during said starting period when both the detected engine r.p.m. and flow rate of intake air are below their respective preset levels, and

operating said control unit such that it varies the flow rate of fuel supplied by said injector in accordance with engine operating conditions during said starting period when at least one of said detected engine r.p.m. and flow rate of intake air is greater than a respective preset level.

4,266,522

FUEL INJECTION SYSTEMS

Malcolm Williams, Solihull; Albert R. Tingey, Whitacre Heath; John P. Southgate, Braunton Nr. Barnstable, and Steven J. Russell, Coventry, all of England, assignors to Lucas Industries Limited, Birmingham, England

Continuation of Ser. No. 847,625, Nov. 1, 1977, abandoned. This application Apr. 16, 1979, Ser. No. 30,683

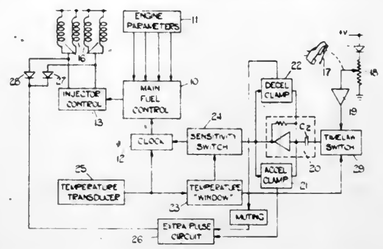
Claims priority, application United Kingdom, Nov. 4, 1976, 45860/76

Int. Cl.³ F02D *5/02*

U.S. Cl. 123—492 **6 Claims**

1. An electronic fuel injection control for an internal combustion engine having an engine throttle, the control comprising a main fuel control circuit for applying to at least one fuel injection valve pulses of duration determined by at least one engine operating parameter controlling said main fuel control circuit, an auxiliary pulse source sensitive to opening movement of the engine throttle for applying at least one additional pulse to said fuel injection valve when the throttle is opening, and muting means sensitive to closing movement of the throttle and arranged to prevent the auxiliary pulse source from producing a pulse for a predetermined time following closing

movement of the throttle, said auxiliary pulse source comprising means sensitive to the rate of change of the position of the throttle so as to produce a pulse whenever the rate of change



exceeds a predetermined positive value, said muting means being connected to said rate of change sensitive means so as to be brought into operation when the rate of change is less than a predetermined negative value.

4,266,523

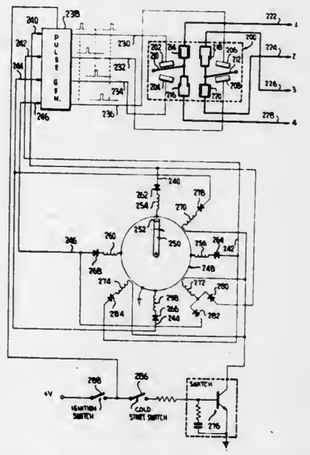
ELECTROMAGNETICALLY ACTUATED PUMPS

Willem Brinkman, Velp, Netherlands, assignor to Holec N.V., Hengelo, Netherlands

Division of Ser. No. 560,771, Mar. 21, 1975, Pat. No. 4,022,174, which is a continuation-in-part of Ser. No. 452,549, Mar. 19, 1974, Pat. No. 3,994,272, which is a continuation-in-part of Ser. No. 452,619, Mar. 19, 1974, Pat. No. 3,943,892. This application Oct. 22, 1979, Ser. No. 87,147

Int. Cl.³ F02M *69/02*

U.S. Cl. 123—499 **5 Claims**



1. In an injection system for an internal combustion engine having a plurality of cylinders, a plurality of electromagnetically activated injector pumps each cylinder being supplied by one of said pumps, pulse generator means having a plurality of output conductors each pump being associated with one of said output conductors and said pulse generating means having an equal plurality of input conductors, energizing means connected to said input conductors for activating said pumps through said output conductors in a predetermined sequence and at a frequency related to the rotational speed of said engine; and supplemental means activating said pumps through said output conductors for selectively reordering said sequence and doubling said frequency.

4,266,524

DEVICE FOR REGULATING THE AMOUNT OF EXHAUST GASES RECYCLED TO A DIESEL ENGINE

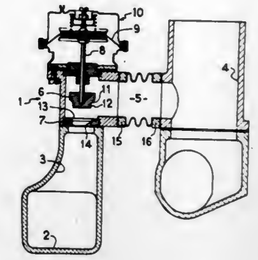
Jean Perez, Rueil Malmaison, and Jean-Claude Carnus, Paris, both of France, assignors to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

Filed Oct. 11, 1979, Ser. No. 83,601

Claims priority, application France, Nov. 24, 1978, 78 33196

Int. Cl.³ F02B *33/00*

U.S. Cl. 123—568 **4 Claims**



1. In a device for regulating the amount of exhaust gases recycled to an internal combustion engine having an exhaust pipe and an induction pipe, comprising means defining a passage interconnecting the exhaust pipe and the induction pipe, and valve means inserted in said passage, said valve means comprising a valve body, a seat defining within the valve body an aperture for the exhaust gases and a valve member within the valve body and cooperative with the seat for regulating the flow of the exhaust gases through the aperture; the improvement comprising in combination the feature that a first part of said passage extending from the valve means to the exhaust pipe is larger in section than said aperture and a second part of said passage extending from the valve means to the induction pipe is larger in section than said aperture, and the feature that a part of said passage extending from the valve body to the induction pipe comprises a bellows, whereby said passage and said valve means are heated by the exhaust gases and consequential deformations due to large differences in temperature between the valve means and the induction pipe are accomodated by said bellows.

4,266,525

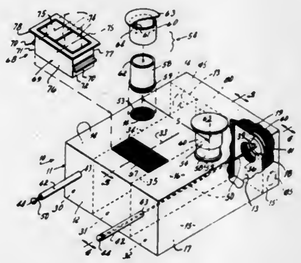
PREFABRICATED FIREPLACE FOUNDATION

John R. Hall, 6962 Paddison Rd., Cincinnati, Ohio 45230, assignor to J. R. Hall and R. J. Hall, both of New Richmond, Ohio

Filed May 25, 1979, Ser. No. 42,323

Int. Cl.³ F24B *7/00*

U.S. Cl. 126—121 **8 Claims**



1. A prefabricated fireplace foundation for installation in a room, said foundation comprising

a foundation box of structurally rigid construction, said

foundation box comprising a ceiling wall, side walls, and a floor wall, said ceiling wall being adapted to receive and support a fireplace floor thereon, and said foundation box's side walls being sized so that said ceiling wall is positionable above said room's floor when said foundation is installed,

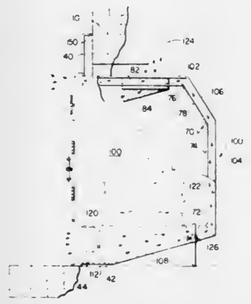
at least one intake air chamber defined by said foundation box, said chamber being at least partially defined by said ceiling wall and said floor wall, said intake air chamber including an inlet port for introducing outside air into said intake air chamber and an outlet port for exhausting that atmospheric air from said intake air chamber,

an exhaust air stack connected with said outlet port, said exhaust air stack extending upwardly from said ceiling wall to locate an exhaust air port above said fireplace floor when said floor is constructed on said foundation box,

a valve connected with said inlet port for opening and closing said intake air chamber to outside air, and

a manually operable handle connected with said valve, said handle being positioned between phantom planes that include said box's ceiling wall and floor wall respectively, and said handle being positioned substantially beyond the front one of said side walls in both valve open and valve closed positions, the distance of said handle from said front one of said side walls being such as to position said handle adjacent to and beneath the front edge of a fireplace hearth when said foundation is installed, a fireplace floor positioned thereon, and a hearth extended outwardly from said fireplace floor, thereby permitting access to said handle by a user adjacent the front edge of said hearth between said hearth and said room's floor.

4,266,526
FIREPLACE HEATER
Gregory Tolotti, 35 N. Edison, #20, Reno, Nev. 89502
Filed May 16, 1979, Ser. No. 39,554
Int. Cl.³ F24B *7/00*
U.S. Cl. 126—123 **13 Claims**



1. A fireplace heater for room heating comprising:

(a) an inner frame including a front frame member and a firebox secured thereto, said firebox having top, side, back, and bottom walls defining the fire chamber;

(b) an outer frame comprising top, side, back, and bottom walls spaced respectively from the top, back, side and bottom walls of said inner frame to define bottom, top, side and back channels through which room air to be heated can pass, said outer frame also being secured to said front frame member and fitting within the fireplace opening;

(c) means for closing the front of said firebox including glass door means for gaining access to said fire chamber;

(d) first air inlet means in said front frame above said door means for admitting combustion air to said fire chamber,

(e) flow director means mounted on said front frame behind and communicating with said first air inlet means, said flow director means being formed with downwardly and outwardly tapered side walls whereby the enlarged bottom portion of said flow director means serves to direct incoming room air downwardly across substantially the entire inside surface of said glass door means for maintaining the same clean,

(f) second air inlet means formed in said frame below said door means and communicating with the channels between the bottom and side walls of said firebox and the adjacent spaced walls of said outer frame whereby room air to be heated is directed to said channels, and thereafter to said back and top channels,

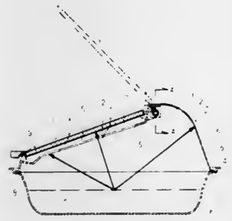
(g) damper means for adjustably controlling the admission of room air through said first air inlet means and said flow director for combustion purposes;

(h) air outlet means above said first air inlet means for returning heated air to said room,

(i) fan means associated with one of said second air inlet means and said outlet means for forcibly directing room air to be heated through said channels, and

(j) side panels positioned at the sides of said heater for covering the adjacent walls of said fireplace.

4,266,527
DEVICE FOR PREVENTING OIL SPLASHING AND FIRE OCCURRENCE IN FRYING PAN
Kyosuke Kato, 58-22, Gejohcho, Kasugai City, Aichi Prefecture, Japan (486)
Filed May 23, 1978, Ser. No. 908,669
Claims priority, application Japan, Jun. 3, 1977, 52-66062
Int. Cl.³ F24C *15/20*
U.S. Cl. 126—299 C **3 Claims**



1. A lid device for preventing oil splashing and the occurrence of a fire in an upwardly concave frying pan, that has an upper perimeter edge portion, said lid device having

(a) generally upwardly convex cover portion that terminates in a lower perimeter edge portion which lies in a plane and that is adapted to engage the upper perimeter edge portion of a frying pan;

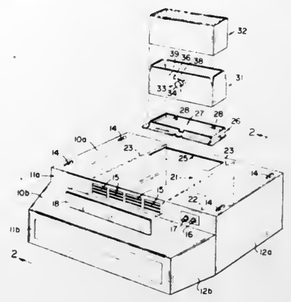
(b) an opening in an inclined portion of said upwardly convex cover portion which is large enough for the introduction of food to be cooked, said opening being in a plane which is inclined with respect to a plane passing through the lower perimeter edge portion of said cover portion;

(c) a transparent plate that is at least as great in area as the area of said opening, said transparent plate having an outer perimeter;

(d) a hinge means connecting said transparent plate to said cover portion so that said transparent plate can be moved from a closed position overlying said opening to an open position allowing access through said opening, and

(e) a circumferential passageway formed between the outer perimeter of said transparent plate and the inner perimeter of said opening when said transparent plate is in its closed position with respect to said cover portion, said passageway serving as an outlet for gases and vapors generated in a frying pan.

4,266,528
DUCTED/DUCTLESS RANGE HOOD
David A. Barnhart, Madiera; Ronald L. Britt, Middletown; John E. Kroger, Centerville, and David A. Walters, Middletown, all of Ohio, assignors to The Celotex Corporation, Tampa, Fla.
Filed Dec. 13, 1978, Ser. No. 969,023
Int. Cl.³ F24C *15/20*
U.S. Cl. 126—299 D **22 Claims**



1. A range hood for an enclosure comprising:

(a) a hood including an inner compartment, said compartment having an air inlet aperture and first and second air outlet apertures;

(b) a blower means disposed within said hood and adapted to draw air from said enclosure through said air inlet aperture into said inner compartment and to discharge the air from said inner compartment through said outlet apertures;

(c) a damper member mounted for movement between a first position blocking said first outlet aperture and a second position not blocking said first outlet aperture, said damper member being normally biased to said first, blocking position;

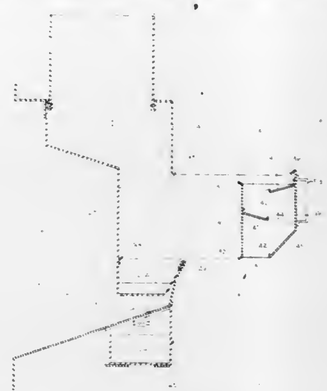
(d) a means for selectively locking or unlocking said damper member in said first position; and

(e) a means independent of said damper member for selectively opening or closing said second outlet aperture,

such that, when said second outlet aperture is open and said damper member is locked in said first position, the air drawn into said inner compartment by said blower means is discharged therefrom through said second outlet aperture and, when said second outlet aperture is closed and said damper member is not locked in said first position, the air drawn into said inner compartment by said blower means moves said damper member to said second position and is discharged out of said first outlet aperture.

4,266,529
KITCHEN VENTILATOR WITH REMOVABLE GREASE EXTRACTOR
Edson C. Gaylord, Wilsonville, Oreg., assignor to Gaylord Industries, Inc., Wilsonville, Oreg.
Filed Sep. 12, 1979, Ser. No. 74,889
Int. Cl.³ F24C *15/20*
U.S. Cl. 126—299 D **1 Claim**

1. In a kitchen ventilator having a removable grease extractor, said ventilator having a vertical back wall, a front wall and a pair of opposite side walls, a grease trough extending parallel with said back wall, and an upstanding edge on the front side of said trough at a distance below a lower end of said front wall; said grease extractor comprising a front panel having a down turned lip on its upper edge arranged to hang on an upturned lip on said lower end of said front wall of the ventilator, so that said front panel forms a downward extension of said lower end of said front wall, a pair of handles on the front side of said front panel, the lower end of said front panel being inclined rearward and downward substantially into said trough behind said upstanding edge on the trough to form an inlet throat opening for the ventilator between said trough and said front panel, a vertical rear panel on said grease extractor having a down turned lip on its lower edge supported on an upturned lip on said back wall of the ventilator, vertical end plates connected to said front and rear panels to form an updraft passageway between said panels for a flow of air from said inlet throat opening, and baffle plates projecting into said passageway from said front and rear panels arranged to change the direction of the whole flow of air through said passageway without dividing the flow, said grease extractor with said baffle plates being removable by said handles by lifting said down turned lips on said front and rear panels of the extractor off said upturned lips on said front and back walls of the ventilator, said baffle plates comprising a baffle plate projecting

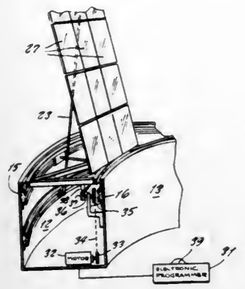


rearward and downward from an upper portion of said front panel, and a baffle plate on said rear panel projecting forward and downward below said first baffle plate and above said inclined lower end of said front panel, and upstanding flanges on the lower edges of said baffle plates and the lower edge of said front panel forming grease gutters extending along said lower edges, said flanges terminating at a short distance from said end plates to provide drain openings at the ends of said gutters adjacent said end plates, all the grease extracting baffles in the ventilator and all of the wall surfaces defining said updraft passageway through said baffles being contained in said removable grease extractor for removal as a unit for cleaning, and all of the baffle surfaces and updraft passageway surfaces being exposed at the opposite ends of the grease extractor when the grease extractor is removed for cleaning.

4,266,530
SUN RAY TRACKER
Robert W. Steadman, 1601 Sandhill Rd. Sp. 242, Las Vegas, Nev. 89104
Filed Sep. 27, 1979, Ser. No. 79,478
Int. Cl.³ F24J *3/02*; **F16H** *25/12*
U.S. Cl. 126—424 **1 Claim**

1. A sun ray tracker, comprising in combination: a stationary base, a reflector assembly carried upon said carriage, a solar energy collector at the center of said base, an electronic programmer controlling a motor to turn said carriage, and hinges about which individual reflectors of said reflector assembly can pivot, said base including circular horizontal tracks on

which said carriage moves and a circular, axial cam track, said reflector assembly being controllably tilted as said reflector



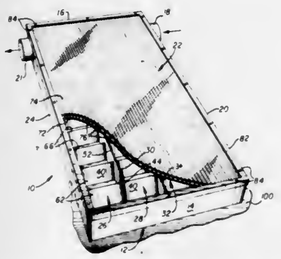
assembly moves with said carriage by a rod linking said reflector assembly to a wheel riding in said axial can track.

4,266,531

ROOFTOP SOLAR ENERGY COLLECTOR PANEL

Bruce O. Behrendt; Ignacio L. Cisneros; Ronald B. Stephenson, and Donald R. Stephenson, all of Odessa, Tex., assignors to Solar Southwest, Odessa, Tex.

Filed Nov. 13, 1978, Ser. No. 960,303
Int. Cl.³ F24J 3/02
U.S. Cl. 126—449 **4 Claims**



1. A solar energy collector panel for collecting thermal energy radiating from the sun and transferring the collected energy into air passing therethrough comprising:

an outwardly opening housing having an insulated bottom wall, opposed sidewalls, and opposed endwalls; said sidewalls and said endwalls having a free edge which defines the periphery of the opening into said housing; an air inlet and an air outlet formed into said housing through which air can flow; a closure member attached to the free edge of said sidewalls and endwalls which forms a thermal barrier through which solar energy can travel into the interior of said housing while thermal energy is restricted from traveling away from said housing;

a plurality of parallel, adjacently arranged tunnels through which air can flow, each tunnel having an air inlet and an air outlet, means connecting the outlet of one tunnel to the inlet of an adjacent tunnel, said tunnels being separated from one another by an impervious bulkhead or side wall which extends from said bottom wall into contacting relationship with said closure member;

each tunnel having a multiplicity of adjacent heat transfer members extending from inlet to outlet which absorb solar energy and dissipate thermal energy to any air flowing thereacross, each said heat transfer members comprise adjacent, sloped flat imperforate surfaces which are joined to form an apex at the top thereof and which downwardly slope into contact with the bottom wall, said apex being arranged laterally respective to the flow of air through the tunnel; the apex forming walls of said heat transfer members extend from one sidewall of the tunnel to the opposed sidewall of the tunnel and in contact with each sidewall forming said tunnels;

said apex of said heat transfer member abuts each sidewall of the tunnel and is spaced from said closure member, thereby leaving a flow passageway above said apex through which air can flow through the tunnel in heat contact relationship with the upper surface of the heat transfer members; and,

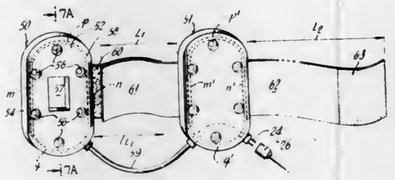
means providing said sidewalls of said tunnel and said heat transfer members with a surface which absorbs solar energy.

4,266,532

MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY A SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT

John P. Ryaby, Essex Falls, and Arthur A. Pilla, Wyckoff, both of N.J., assignors to Electro-Biology, Inc., Fairfield, N.J.

Continuation-in-part of Ser. No. 742,706, Nov. 17, 1976, Pat. No. 4,105,017, which is a continuation-in-part of Ser. No. 633,408, Nov. 19, 1975, abandoned. This application Mar. 17, 1978, Ser. No. 887,485
Int. Cl.³ A61N 1/40
U.S. Cl. 128—1.5 **31 Claims**



1. An electromagnetic body-treatment device for surgically non-invasive modification of the growth, repair and maintenance behavior of living tissues and cells by a specific and selective change in electrical environment, comprising two multi-turn electrical coils and body-adapting retaining means adapted to mount said coils in spaced relation on opposite sides of an afflicted body region to be treated, said coils when thus mounted having turns about a flux-development axis through the afflicted body region and being connected in flux-aiding relation, said turns being radially spaced from said axis to an extent establishing an effective local diameter which substantially equals or exceeds the effective axial spacing between said coils, and means for electrically exciting said coils with a succession of low-voltage unidirectional asymmetrical pulses.

4,266,533

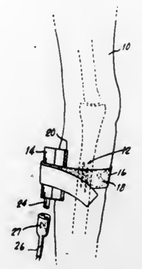
MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY A SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT

John P. Ryaby, Essex Fells, and Arthur A. Pilla, Wyckoff, both of N.J., assignors to Electro-Biology, Inc., Fairfield, N.J.

Division of Ser. No. 887,485, Mar. 17, 1978, which is a continuation-in-part of Ser. No. 742,706, Nov. 17, 1976, Pat. No. 4,105,017, which is a continuation-in-part of Ser. No. 633,408, Nov. 19, 1975, abandoned. This application Apr. 9, 1979, Ser. No. 28,456
Int. Cl.³ A61N 1/40
U.S. Cl. 128—1.5 **13 Claims**

1. An electromagnetic body-treatment device for surgically non-invasive modification of the growth, repair and maintenance behavior of living tissues and cells by a specific and selective change in electrical environment, comprising two multi-turn electrical coils of generally circular configuration

and body-adapting retaining means adapted to mount said coils in spaced relation on opposite sides of an afflicted body region to be treated, said coils when thus mounted having turns about a flux-development axis through the afflicted body region and being connected in flux-aiding relation, said turns being radi-



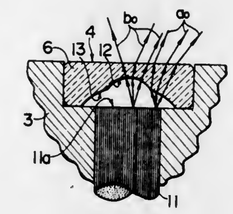
ally spaced from said axis to an extent establishing an effective local diameter which substantially equals or exceeds the effective axial spacing between said coils, and means for electrically exciting said coils with a succession of low-voltage unidirectional asymmetrical pulses.

4,266,534

ILLUMINATION UNIT FOR ENDOSCOPE

Mototugu Ogawa, Chofu, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 944,324, Sep. 21, 1978, abandoned. This application May 14, 1979, Ser. No. 38,577
Claims priority, application Japan, Oct. 8, 1977, 52/135697
Int. Cl.³ A61B 1/06
U.S. Cl. 128—6 **14 Claims**



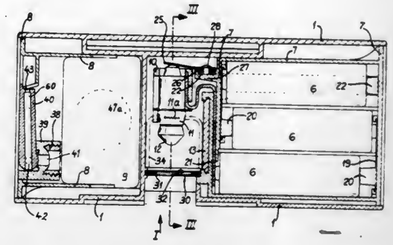
1. An illumination unit for an endoscope comprising a light guide member disposed within a flexible tube of an endoscope for transmitting illumination light that is introduced into the light guide member to an illuminating window provided in the endoscope, a cover glass disposed forwardly of a light exiting end face of the light guide member and located within the illumination window formed at the distal end of the endoscope for directing the illuminating light into a coeloma as the light exits the end face of said light guide member, said cover glass having an entry and an exit surface, at least one of said surfaces having a plurality of substantially concentrically disposed concave lens portions having different radii of curvature to refract the light emitted from the exit surface of the cover glass to a greater degree toward theouter concentric portion thereof than toward the central portion of the cover glass to spread the light illumination over a larger field of view.

4,266,535

DIAGNOSTIC LAMP

Michel A. Moret, Chene-Bourg, Switzerland, assignor to Les Produits Associes BPA SA, Chene-Bourg, Switzerland

Filed Apr. 12, 1979, Ser. No. 29,541
Claims priority, application Switzerland, Apr. 14, 1978, 4020/78
Int. Cl.³ A61B 1/24, 1/06
U.S. Cl. 128—23 **9 Claims**



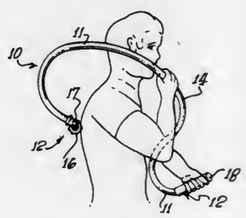
1. A portable diagnostic lamp for fluorescent excitation of a fluorescible material applied to the teeth, which fluorescible material is stimulated essentially by blue light, the lamp comprising: a casing; a small battery-powered incandescent bulb; a filter device adapted to the fluorescent substance and comprising a dichroic filter and a blue color filter whereby the device transmits at least a substantial portion of the spectral range of the incandescent bulb necessary for stimulating the fluorescible material and absorbs at least a substantial portion of the spectral range of the fluorescent light, said filter device defining a rectangular outlet window; a mirror attached to the casing and foldable along a pivot axis, which mirror enables a user to observe the illuminated teeth, the longer sides of the outlet window being parallel to the pivot axis of the mirror; a filament within said incandescent bulb, said filament being arranged at least approximately parallel to the pivot axis of the mirror; and a lens which is located in the path of rays emitted by the incandescent bulb and which provides a diverging emergent beam of rays.

4,266,536

MASSAGING DEVICE FOR BACKS

Robert Casares, 15040 Leffingwell, Apt. 53, La Mirada, Calif. 90638

Filed Dec. 26, 1979, Ser. No. 106,442
Int. Cl.³ A61H 15/00
U.S. Cl. 128—57 **5 Claims**



1. A massager useful for massaging the user's back vertically along the user's spine, said massager comprising:

a curved shaft having a first end and a second end, said first end having a first handle portion positioned adjacent thereto, said shaft having a first curved portion forming a fulcrum for resting against the user's front side, said shaft extending to a second curved portion in the reverse direction with respect to the first curved portion having a

radius of curvature between about 8 and 32 inches and being sufficiently long so that the shaft may pass over the user's shoulder and reach the upper and lower part of the user's spine and extending sufficiently so that the second end of the shaft is positioned about normal to the back while the first end may be held by the user with the user's elbows in a lowered position, such shaft having a second handle portion located intermediate said first and second ends; and

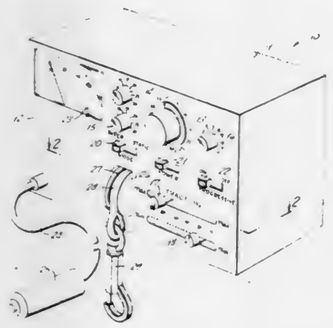
a roller means affixed at the second end of the shaft whereby the user may hold the handle portions of said shaft and readily manipulate said roller means along his spine while keeping his elbows in a downward position and using his front side as a rest for the fulcrum.

4,266,537

PORTABLE PROGRESSIVE AND INTERMITTENT TRACTION MACHINE

Pete J. Bonin, Jr., San Juan Capistrano; Marion E. Evans, Orange, and Pete J. Bonin, Sr., Newport Beach, all of Calif., assignors to IMC International Management Consultants, Inc., New York, N.Y.

Filed Jul. 18, 1977, Ser. No. 816,818
Int. Cl.[2] A61H *1/02*
U.S. Cl. 128—75 **14 Claims**



1. A traction machine for applying a force to a patient comprising:

a cord adapted to receive a traction harness at one end thereof;

power means coupled to said cord for applying a force thereto;

means for sensing the level of said force in said cord;

first manual means for setting a maximum force level;

first drive means responsive to said first manual means and said sensing means for activating said power means in a force increase direction until said force reaches said set maximum force level;

second manual means for selectively setting a level of progressive increase of force level in said cord;

third manual means for selectively setting a time at each progressive force level; and

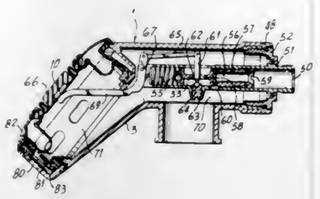
means responsive to said second and third manual means for intermittently deactivating said power means after each set progressive increase in said force level for the time set by said third manual means, said power means maintaining said force on said cord during said time set by said third manual means, said power means being operative, at the end of said time set by said third manual means, to increase said force level in said cord, whereby said force is applied continuously and progressively until said force reaches said set maximum force level.

4,266,538

PRESSURE REGULATOR

Heinz Ruchti, Lenzburg, Switzerland, assignor to General Diving Corporation, Santa Fe Springs, Calif.

Filed May 8, 1979, Ser. No. 33,731
Int. Cl.[3] A62B *7/04*
U.S. Cl. 128—204.26 **3 Claims**



1. An improved underwater diving regulator comprising:

(a) a first stage regulator receiving breathable gas from a supply tank,

(b) a flexible conduit connected on one end to said first stage regulator,

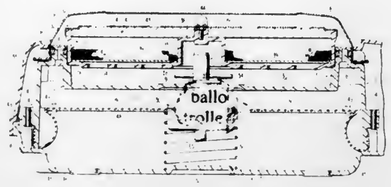
(c) a second stage regulator having a mouthpiece and being connected to the other end of said flexible conduit providing said breathable gas to a diver via said mouthpiece in response to inhalation demand and further comprising a second stage housing including an inlet chamber to which said flexible conduit is connected and an outlet chamber communicating, with said mouthpiece, diaphragm means in said outlet chamber and responsive to the pressure therein for sensing said inhalation demand, said second stage housing comprising an internal cylindrical valve housing, said cylindrical valve housing having a threaded orifice in its peripheral side-wall and an adjustment screw threadingly engaged in said threaded orifice and an aspirator opening through the wall of said cylindrical valve housing communicating with said outlet chamber, a lever pivotally connected with respect to said second stage valve housing and having one end of said lever in contact with said diaphragm means for sensing its movement, a rod having one end connected to the other end of said lever for transmitting said movements of the diaphragm, a pin having one end connected to the other end of said rod said cylindrical valve housing having an elongated side-wall opening directly opposite said adjustment screw, a piston member slidingly received within said cylindrical valve housing and having a piston plunger at one end and a piston closing head at the other end, a hollow cylinder screwed inside of said cylindrical valve housing and having a valve seat at its inner end against which said piston closing head is seatable said piston member having a transverse opening intermediate its ends adjacent said elongated side-wall opening and said adjustment screw, compression spring means yieldingly constraining said closing head end of said piston member in seating engagement with the valve seat of said hollow cylinder, said pin extending through said elongated side-wall opening in said cylindrical valve housing, through said transverse opening in said piston member and hinged at its other end to the inner tip of said adjustment screw for amplifying the force transmitted from said rod to said piston member.

4,266,539

CARBON DIOXIDE SCRUBBER AND GAS REGENERATOR UNIT FOR A CLOSED CIRCUIT REBREATHING APPARATUS

Frederick A. Parker, Broomall, and Mark P. Grady, Norristown, both of Pa., assignors to Rexnord Inc., Milwaukee, Wis.

Filed May 15, 1979, Ser. No. 39,235
Int. Cl.[3] A62B *7/10, 7/04*
U.S. Cl. 128—204.26 **19 Claims**



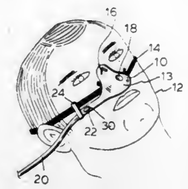
1. In a closed circuit rebreathing apparatus having breathing exhale and inhale circuit means and gas conditioning means connected between said exhale and inhale circuit means, the improvement wherein said gas conditioning means comprises a hollow frame member having an open bottom end defined by the lower edge of an annular outer peripheral wall extending upwardly to an upper pan section extending transversely across the span of said outer annular peripheral wall, a flexible diaphragm extending transversely of and sealingly secured around its periphery to said frame outer peripheral wall adjacent said frame open end, the space enclosed within said outer peripheral wall, said upper pan section and said flexible diaphragm defining a variable volume gas chamber, said upper pan section comprising a dish shaped portion having an imperforate central portion extending transversely of and concentrically within an annular wall section extending upwardly from the outer periphery of said central portion to an annular shoulder joining said frame outer annular peripheral wall and the annular wall of said pan dish shaped portion, said frame annular shoulder having a plurality of passages spaced along its circumference connecting the span above said upper pan to said variable gas volume chamber, a carbon dioxide removal canister supported in said pan dish shaped portion, said carbon dioxide removal canister having perforated upper and lower surfaces and configured to sealingly fit within said dish shaped portion with the lower surface of an installed canister in a spaced relation to said pan central portion in defining a lower gas conditioning chamber between said pan dish shaped portion and said canister lower surface, a top cover releasably affixed to said frame and extending across the span of said frame outer peripheral wall in spaced relation to the top surface of said carbon dioxide removal canister, the spaces enclosed between said top cover and said canister top surface defining an upper gas conditioning chamber connecting to said variable volume gas chamber by said frame shoulder passages, means supplying predetermined amounts of make-up oxygen to the gases passing through said gas conditioning means, means connecting to said exhale circuit means for forming an exhale passage extending through said frame outer peripheral wall, said variable volume gas chamber and said pan dish shaped portion annular wall into said lower gas conditioning chamber, and means connecting to said inhale circuit means for forming an inhale passage extending through said frame outer peripheral wall into said variable volume gas chamber.

4,266,540

NASAL OXYGEN THERAPY MASK

Donald Panzik, 47 Ballantine Rd., Rochester, N.Y. 14623, and David Smith, P.O. Box 197, Avoca, N.Y. 14809

Filed Oct. 13, 1978, Ser. No. 951,744
Int. Cl.[3] A61M *15/00*
U.S. Cl. 128—207.13 **4 Claims**



1. Apparatus for administering a select mixture of gases to a patient for therapeutic treatment, comprising:

a mask shell generally adapted to fit over and cover a patient's nose while leaving the mouth free to perform oral functions, said mask shell having an opening therein for exhalation of gases by said patient; and

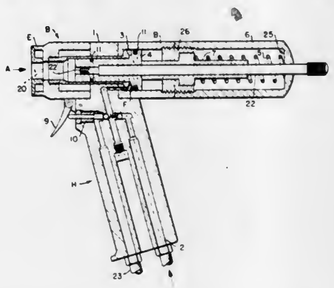
a mixing valve connected to said mask shell, said mixing valve with said masked shell being formed as a one-piece structure, said mixing valve further comprising means for providing a stream of a therapeutic gas therethrough and into said mask shell, and a fixed aperature of predetermined size in a side of said mixing valve in communication with said stream to permit a predetermined volume of ambient air to be entrained into said mixing valve for mixing with said therapeutic gas, wherein dimensions of said aperature are selected to provide a fixed percentage of ambient air in a mixture of ambient air and said therapeutic gas whereby said apparatus can be prescribed by a physician to provide a precise therapeutic gas/air mixture to a patient.

4,266,541

PRESSURE HYPODERMIC INJECTOR FOR INTERMITTENT VACCINATION

Sergio Landau, Rio de Janeiro, Brazil, assignor to Halen-Elliot do Brazil Industria e Comercio Equipamentos de Precisao Ltda., Rio de Janeiro, Brazil

Filed Sep. 17, 1979, Ser. No. 76,456
Claims priority, application Brazil, Apr. 26, 1979, 780153
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—207.23 **5 Claims**



1. In a hydraulic pressure actuated hypodermic injector for intermittent vaccination the combination comprising, a first part in the general shape of a postol including a hand grip and a barrel, a hydraulic assembly for storage of energy housed within said first part, a pressure chamber within said hydraulic assembly, valve means controlling hydraulic pressure within

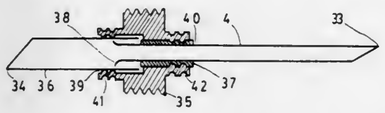
the pressure chamber, a second part comprising a vaccine suction and injection assembly, means on each of said parts whereby they may be quickly connected and disconnected one from the other without entrance of air into either of the two assemblies particularly into the ducts and places where vaccine is circulated and stored.

4,266,542
EVA FORMULATION HAVING IMPROVED PROPERTIES
Lawrence F. Becker, Chicago; Leonard F. Czuba, Lombard, and Dean G. Laurin, Lake Zurich, all of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Dec. 14, 1978, Ser. No. 969,637
Int. Cl.[2] A61M *5/14*; C08L *23/08, 31/04*
U.S. Cl. 128—214 R **14 Claims**

1. A thermoplastic composition which consists essentially of:
(a) from 75 to 90 percent by weight of a first poly(ethylene-vinyl acetate) copolymer which contains from 22 to 30 percent by weight of vinyl acetate units, said first copolymer exhibiting a melt index of 0.5 to 10; and
(b) from 10 to 25 percent by weight of a second poly(ethylene-vinyl acetate) copolymer which contains from 25 to 40 percent by weight of vinyl acetate units, said second copolymer exhibiting a melt index of 20 to 1000.

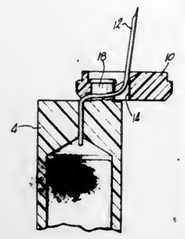
8. A set for administering medical fluid to a patient which comprises a length of flexible tubing, means for communication of said tubing at one end with a source of medical liquid, and means for communication of said tubing at its other end with the patient, said tubing comprising a thermoplastic composition which consists essentially of:
(a) from 75 to 90 percent by weight of a first poly(ethylene-vinyl acetate) copolymer which contains from 22 to 30 percent by weight of vinyl acetate units, said first copolymer exhibiting a melt index of 0.5 to 10; and
(b) from 10 to 25 percent by weight of a second poly(ethylene-vinyl acetate) copolymer which contains from 25 to 40 percent by weight of vinyl acetate units, said second copolymer exhibiting a melt index of 20 to 1000.

4,266,543
HYPODERMIC NEEDLE PROTECTION MEANS
Alvin S. Blum, 2350 Del Mar Pl., Fort Lauderdale, Fla. 33301
Filed Feb. 22, 1979, Ser. No. 13,911
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—218 N **10 Claims**



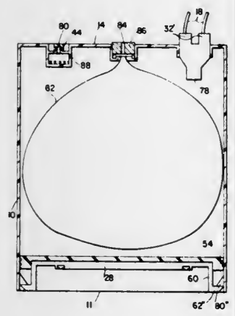
1. A hypodermic needle for syringes, infusion devices, and the like comprising: a hypodermic needle shaft having a distal pointed end for puncturing skin, medicament vial enclosures, and the like; needle support means at a proximal region of said shaft arranged to support the needle at the end of said syringe for use, said shaft being held within said support means by said fastening means arranged firstly to hold said needle under forces against said point necessary for ordinary usage and arranged secondly to yield slidably under some greater force against said point, causing said shaft to slide within said support means until said point is surrounded, protected and held in place by said support means.

4,266,544
HYPODERMIC SYRINGE
Stephen C. Wardlaw, 128 Sunset Hill Dr., Branford, Conn. 06405
Filed Nov. 9, 1979, Ser. No. 93,134
The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—218 N **8 Claims**



1. An improved disposable syringe adapted to be used but once, said syringe comprising:
(a) a hollow tubular portion for containing a medicament dose, and a hypodermic needle secured to one end of said tubular portion and projecting therefrom;
(b) means in said hollow tubular portion for pumping a dose of medicament therefrom through said needle; and
(c) retracting means movably mounted on said housing, said retracting means being operable to engage said needle and bend the latter to pull said needle from its projecting position to a safe position wherein said needle is covered over by a portion of said syringe.

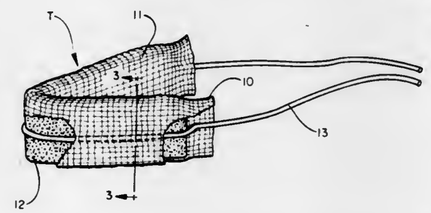
4,266,545
PORTABLE SUCTION DEVICE FOR COLLECTING FLUIDS FROM A CLOSED WOUND
James P. Moss, 250 E. Liberty St., Louisville, Ky. 40202
Filed Apr. 6, 1979, Ser. No. 27,835
Int. Cl.[3] A61M *1/00*
U.S. Cl. 128—278 **5 Claims**



1. A closed wound suction device for collection of fluids from the area of tissue behind a closed wound comprising:
a rigid container having an end wall and a peripheral side wall connected thereto, said rigid container having an opening in at least a portion of the end opposite the end wall between the peripheral enclosing side wall;
movable piston closure means including a rigid wall for the opening of said container, said closure means being slidably movable in said container from a position in the interior of said container in a direction away from the end wall towards the opening;

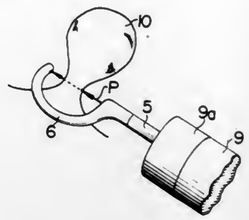
sealing means for providing an air tight seal between said closure means and said rigid container;
a resilient lubricated balloon means located inside of said rigid container between said closure means and said closed end and normally occupying a small volume in an uninflated state, the interior of said balloon means being in fluid communication with the atmosphere;
a variable volume pressure collection chamber for receiving the collected body fluids located between the outer surface of said balloon means and the interior surfaces of said container and said closure means;
means for moving said closure means from a retracted, inoperative position within the interior of said container to an extended operative position adjacent the open end of said container whereby a negative pressure is created in said pressure collection chamber, the negative pressure in said pressure collection chamber being reduced as a result of the inflation of said balloon means in said pressure chamber such that a controlled vacuum is obtained in said pressure collection chamber;
means to retain said closure means in the extended operative position; and
port means in said rigid container in fluid communication with said pressure collection chamber and connectable in fluid communication with the closed wound whereby body fluids are drained from the closed wound to said pressure chamber, the negative pressure in said pressure chamber being maintained in said pressure chamber despite the introduction of fluid therein due to the shrinking volume of said balloon means as said balloon means is resiliently urged towards the uninflated position as the fluids enter said pressure chamber.

4,266,546
WRAPPED FOLDED TAMPONS
David R. Roland, Winneconne, and Edward G. Wollangk, Oshkosh, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Feb. 25, 1980, Ser. No. 124,620
Int. Cl.[3] A61F *13/20*
U.S. Cl. 128—285 **9 Claims**



1. A tampon comprising a foldable absorbent material having a long axis and a short axis;
a fluid pervious outer wrap disposed around the absorbent core with the long axis oriented edges of the wrap being overlapped and sealed;
a withdrawal string attached to the outer wrap at the overlapped edges;
the tampon being folded across the short side with the withdrawal string and the overlapping wrap disposed on the outer surface of the tampon.

4,266,547
LASER KNIFE
Osamu Komiya, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Apr. 10, 1978, Ser. No. 904,468
Claims priority, application Japan, May 16, 1977, 52/56634; May 16, 1977, 52/56636
Int. Cl.[3] A61B *17/36*
U.S. Cl. 128—303.1 **36 Claims**

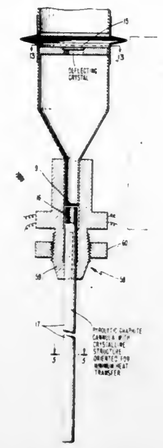


1. A laser knife comprising a tubular member having a first end and a second end, said second end of said tubular member being adapted to be inserted into the forceps channel of an endoscope which is to be inserted into a physical body, so that said first end of said tubular member can remain outside of said physical body upon insertion of said endoscope into said physical body, first laser radiation transmission means having a first end and a second end and being continuous therebetween, a laser oscillator for supplying laser radiation to said first laser radiation transmission member, said laser oscillator being capable of emitting a beam with power sufficient to cauterize human tissue, said first laser radiation transmission means being disposed within said tubular member for conveying laser radiation uninterruptedly between said first end of said first laser radiation transmission means and said second end of said first laser radiation transmission means, said second end of said first laser radiation transmission means being disposed at said second end of said tubular member and said first end of said first laser radiation transmission means being disposed at said first end of said tubular member, and second laser radiation transmission means having a first end and a second end and being continuous therebetween, said second laser radiation transmission means being disposed within said tubular member for conveying laser radiation uninterruptedly between said first end of said second laser radiation transmission means and said second end of said second laser radiation transmission means, said second end of said second laser radiation transmission means being disposed at said second end of said tubular member and said first end of said second laser radiation transmission means being disposed at said first end of said tubular member, said second end of said first laser radiation transmission means being disposed in optical alignment with said second end of said second laser radiation transmission means so that laser radiation can be transmitted therebetween.

4,266,548
APPARATUS FOR AND METHOD OF UTILIZING ENERGY TO EXCISE PATHOLOGICAL TISSUE
S. K. Davi, 4620 N. Park Ave., Apt. 1408 West, Chevy Chase, Md. 20015
Filed Dec. 18, 1978, Ser. No. 970,132
Int. Cl.[3] A61B *17/00*; A61N *5/01*
U.S. Cl. 128—303.1 **20 Claims**

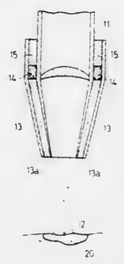
1. An instrument for excising pathological tissue from a living animal organism comprising means for emitting a beam of coherent optical radiation, collimating means responsive to the beam for reducing the beam cross sectional area, a pyrolytic graphite cannula having an optically transparent interior responsive to the reduced diameter beam, said cannula coupling the reduced diameter beam onto the tissue so the tissue is irradiated by the beam, said reduced diameter beam having

sufficient energy to vaporize the irradiated tissue, the graphite of the cannula having a crystalline structure orieinted whereby



heating of the cannula interior by radiation from the beam is not substantially transferred by conduction to the exterior of the cannula.

4,266,549
LASER SCALPEL
Hiroaki Kimura, 57-69, Yamaquchi, Tokowzawa-shi, Saitama-ken, Japan
Filed Apr. 18, 1979, Ser. No. 31,209
Claims priority, application Japan, Oct. 12, 1978, 53-124589
Int. Cl.³ A61B *6/08;* **A61N** *5/06*
U.S. Cl. 128—303.1 **5 Claims**



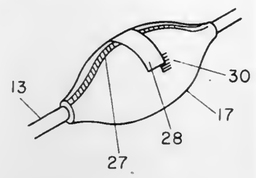
1. In a laser scalpel comprising a laser beam generator capable of generating energy sufficient to vaporize human tissue, a laser beam manipulator having a laser beam entrance end and a laser beam emitting end, a mixing filter, said laser beam generator and said mixing filter being arranged such that the laser beam from said generator is directed through said mixing filter and into said entrance end, a beam shutter positioned such that it may interrupt said laser beam when desired, a guide light source arranged such that the light from said source is directed through said mixing filter into said entrance end whereby during use of said scalpel said guide light is irradiated onto approximately the focal point of the laser beam emitted from said manipulator emitting end, the improvement which comprises:

said guide light emits substantially only light having wavelengths between about 3,950 to 4,200 Å,

a radiation detector fitted upon said laser beam emitting end of said manipulator capable of capturing radiation emitted from a surface located approximately at said focal point of said laser beam, said detector being responsive only to light within a wavelength range different from the wavelength of said guide light, and

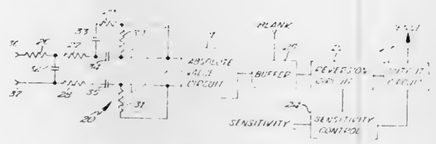
means to convert radiation captured by said detector into an electric signal.

4,266,550
PRESSURE INDICATORS FOR INFLATABLE CUFF-TYPE CATHETERS
James D. Bruner, 6054 S. Krameria, Englewood, Colo. 80110
Division of Ser. No. 758,309, Jan. 10, 1977, Pat. No. 4,185,638, which is a division of Ser. No. 591,601, Jun. 30, 1975, Pat. No. 4,016,885. This application Sep. 7, 1979, Ser. No. 73,944
Int. Cl.³ A61M *16/00, 25/00*
U.S. Cl. 128—349 B **3 Claims**



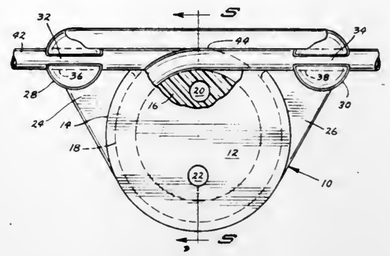
1. An inflatable cuff-type chatheter for insertion into a body passage comprising in combination a flexible tube having distal and proximal ends, at least one gas inflatable cuff encircling the flexible tube near the distal end and having opposite ends sealed thereto; a branched tube connected at an inner end to the interior of the cuff; and an inflation means and a pressure indicator means connected in series to the cuff through the outer end of the branch tube for access outside the body passage, the indicator means comprising an expandable chamber having a substantially "V"-shaped longitudinal depression therein, a top section bridging the "V"-shaped depression at about the circumference of the chamber and secured to the chamber on one side of the "V"-shaped depression; the chamber having indicia on the circumferal surface beneath the non-adhered portion of the top section, wherein the chamber is adapted upon expansion to progressively expose the indicia from beneath the top section to indicate the gas pressure within the inflatable cuff.

4,266,551
SENSE AMPLIFIER FOR DEMAND CARDIAC PACEMAKER
Marc T. Stein, Tempe, Ariz., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Nov. 6, 1978, Ser. No. 957,825
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PG **7 Claims**



1. In a cardiac pacemaker of the type having means for sensing heart activity and detecting means responsive to the sensing means for providing a response on detecting the presence of signals representative of natural heart activity within the signals sensed by said sensing means, the improvement which comprises means responsive to said detecting means response for speeding the response of said detecting means to said signals representative of natural heart activity.

4,266,552
LEAD ANCHORING BOBBIN
Robert G. Dutcher, Minneapolis, and Edward G. O'Neill, St. Paul, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Nov. 13, 1979, Ser. No. 93,342
Int. Cl.³ A61N *1/00*
U.S. Cl. 128—419 P **6 Claims**



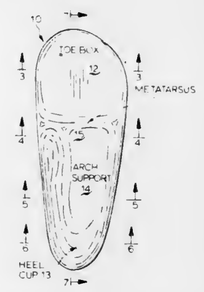
1. Lead anchoring bobbin for use with an implantable lead having proximal and distal ends for attaching to human tissue comprising:

a. anchoring means having two diametrically opposed partial circumferential discs and a partial truncated disc of a smaller diameter than said two discs, said smaller partial circumferential disc positioned and secured between said two partial circumferential discs, whereby said implantable lead is anchored within a groove formed between said two partial circumferential discs;

b. at least one retaining means adjacent to said anchoring means for frictionally retaining said implantable lead adjacent to said anchoring means having at least one wing extending outwardly from one of said two partial circumferential discs, said wing including a button having a hole and a slit to said hole whereby said hole retains said lead within said button; and

c. at least one suturing means for suturing said anchoring means retaining said loop to said human tissue whereby said anchoring means provides for anchoring of said implantable lead to tissue.

4,266,553
FOOTGEAR EMBODYING PODIATRIC SOLE
Joseph V. Faiella, 9 Northern Blvd., Greenvale, N.Y. 11548
Filed Oct. 22, 1979, Ser. No. 87,253
Int. Cl.³ A61F *5/14*
U.S. Cl. 128—585 **1 Claim**

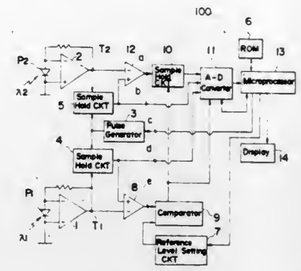


1. Footgear embodying a podiatric sole forming an integral part of the inside of the footgear and extending from the heel to the toe through the metatarsus, the said sole comprising:

a forefoot wedge across the sole behind the metatarsus heads, which wedge may vary between 0.5° and 6° with respect to the plane across the bottom of the footgear in the toe area;

whereby the wedge inverts the forefoot the required number of degrees to eliminate abnormal motion and maintain the foot in a near normal position.

4,266,554
DIGITAL OXIMETER
Kenji Hamaguri, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Jun. 19, 1979, Ser. No. 50,097
Claims priority, application Japan, Jun. 22, 1978, 53-76084
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—633 **5 Claims**



1. A digital oximeter for noninvasively measuring oxygen saturation of the arterial blood comprising:

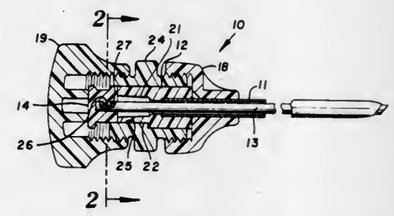
means for measuring light intensity after contact with living tissue to produce at least first and second time-spaced signals representative of the intensity of measured light at a first wavelength and first and second time-spaced signals representative of the intensity of measured light at a second wavelength;

means for correspondingly storing each of said first signals;

means for practicing subtractions between said first and second time-spaced signals of a first wavelength, and between said first and second time-spaced signals of a second wavelength to correspondingly produce at least first and second subtraction outputs, respectively; and

means for processing at least said first signals from the storing means and said first and second subtraction outputs from the subtraction practicing means to indicate the oxygen saturation.

4,266,555
BIOPSY NEEDLE WITH STYLET AND CANNULA ORIENTATION
Khosrow Jamshidi, 610 Winston Ct., St. Paul, Minn. 55118
Filed Nov. 9, 1979, Ser. No. 92,685
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—753 **3 Claims**



1. An elongated hollow biopsy needle assembly with open distal and proximal ends, and with the distal end defining a

cutting edge, said assembly including a cannula, an elongated stylet removably received within the bore of said cannula, a finger gripping means, and coupling means for orienting said stylet within said cannula and for releasably securing said cannula to said finger gripping means.

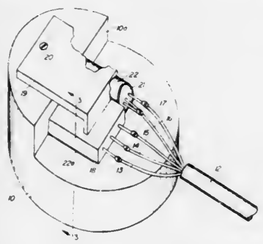
(a) said cannula being of uniform hollow, cylindrical configuration throughout the major portion of its length and having an external distal end surface tapered generally uniformly, uninterrupted, toward the tip of the distal end, and an internal end surface defining an inner biopsy tissue receiving and retaining bore immediately adjacent the distal end and with the distal end of said cannula terminating along a plane disposed at a certain acute angle relative to the axis of said cannula;

(b) a generally cylindrical hub having a bore extending axially therethrough and securing the proximal end of said cannula to the inner diameter thereof, and with the bore of said hub forming an extension of the hollow cannula, a conical syringe receiving counterbore formed within the proximal end of said hub, and a radially disposed asymmetrical orientation surface formed along an end of said hub;

(c) said elongated stylet being positioned within said cannula and corresponding generally in length and shape to the bore formed in said cannula, and having a distal end terminating along a plane disposed at said certain acute angle relative to the axis thereof, said stylet further having a cap secured to the proximal end thereof with said cap having a radially disposed asymmetrical orientation surface formed along the outer surface thereof, and with said stylet having a groove formed along the proximal end thereof and with said cap having a tongue extending radially inwardly and arranged to mate with said groove for orienting said stylet relative to said cap;

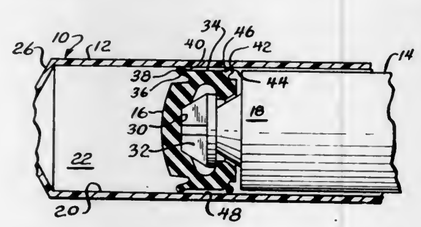
(d) said finger gripping means including a generally centrally disposed coupling means with an inner surface having a radially extending asymmetrical surface mating with the radially disposed asymmetrical orientation surfaces of each of said cylindrical hub and said stylet for orienting said cannula relative to said stylet cap to present a closed symmetrical end surface.

4,266,556
ELECTRICALLY HEATED SWEAT COLLECTION DEVICE AND METHOD
Wayne K. Barlow, and Wallace A. Gibbons, both of Logan, Utah, assignors to Wescor, Inc., Logan, Utah
Filed Oct. 26, 1978, Ser. No. 955,093
Int. Cl.³ A61B *19/00*
U.S. Cl. 128—760 **8 Claims**



1. For use in combination with equipment for inducing sweat from humans, a sweat collection device, comprising a thermally conductive cup having a flat bottom; an electric heating element attached to the cup bottom flatwise exteriorly of the cup; electrical means for energizing the heating element; a temperature sensor positioned on the flat bottom of the cup and arranged to monitor the temperature of the cup; a thermally conductive pad positioned between the heating element and the flat bottom of the cup; mechanical means clamping the heating element against said pad; and means electrically connected between the temperature sensor and the means for energizing the heating element so that the temperature of the cup is maintained at a constant preset temperature.

4,266,557
LOW FRICTION SYRINGE
Jack D. Merry, Sleepy Hollow, Ill., assignor to The Kendall Company, Boston, Mass.
Continuation of Ser. No. 869,729, Jan. 16, 1978, abandoned. This application Jun. 29, 1979, Ser. No. 53,492
Int. Cl.³ A61B *5/14*
U.S. Cl. 128—763 **3 Claims**



1. A low friction syringe, comprising:

a barrel having an inner surface defining a chamber;

a plunger having a distal end received in the barrel chamber; and

a plug of elastic material received in said chamber and having a body portion secured to said distal end of the plunger, said plug having a first annular flange extending forwardly from said body portion, said first flange having an enlarged outer annular lip lightly contacting the inner surface of said barrel, and an annular hinge portion adjacent said body portion of reduced thickness relative the thickness of said lip, said plug having a second annular flange extending rerwardly from the body portion, said second flange having an enlarged outer annular lip lightly contacting the inner surface of said barrel, and an annular hinge portion adjacent said body portion of reduced thickness relative the thickness of the second flange lip, said first and second flanges defining an annular cavity intermediate the body portion and the barrel, said first flange flexing against the inner surface of the barrel responsive to a slightly greater pressure in the chamber relative the cavity during forward movement of the plunger in the barrel, and said first flange flexing about its hinge away from the inner surface of the barrel responsive to a slightly less pressure in the chamber relative the cavity and said second flange flexing against the inner surface of the barrel responsive to a slightly less pressure in the communicating chamber and cavity relative the pressure rearward the plug during rearward movement of the plunger in the barrel, said plug having a width between inner ends of said hinge portions of the first and second flanges substantially greater than the thickness of the first and second flanges, such that said plug flexes substantially only in said flange portions and the second flange contacts the barrel during said forward and rearward movements of the plunger in the barrel.

4,266,558
METHOD OF COLLECTING AND DISPENSING A BLOOD SAMPLE
David S. Akhavi, Los Angeles, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Apr. 2, 1979, Ser. No. 25,979
Int. Cl.³ A61B *5/14*
U.S. Cl. 128—766 **18 Claims**



1. A method of collecting an arterial blood sample comprising the steps of:

(a) puncturing an artery with a needle attached to an inlet of a reservoir containing a gas, which reservoir has an outlet;

(b) forcing at least a portion of the gas out of the outlet with arterial blood pressure while maintaining a collected arterial blood sample confined within the reservoir; and

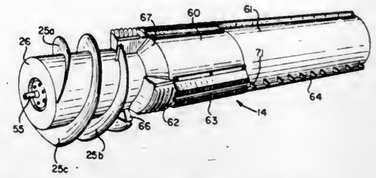
(c) closing the reservoir at a location between the reservoir's inlet and outlet to segment the collected blood sample.

4,266,559
BLOOD SAMPLER
David S. Akhavi, Los Angeles, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Apr. 2, 1979, Ser. No. 25,980
Int. Cl.³ A61B *5/14*
U.S. Cl. 128—766 **33 Claims**



1. An arterial blood sampler comprising: a needle; a blood reservoir with an inlet connected to the needle and having a gas therein, which reservoir has an outlet of sufficient size for passage of at least a portion of such gas through the outlet in response to arterial blood pressure; valve means on the outlet preventing the escape of arterial blood from the reservoir; and segmenting means for closing the reservoir between the reservoir's inlet and outlet to segment a collected blood sample.

4,266,560
ROTOR FOR AN AXIAL FLOW COMBINE
Thomas E. Powell, and Shiro T. Ito, both of Brantford, Canada, assignors to White Motor Corporation of Canada, Limited, Brantford, Canada
Filed Mar. 8, 1979, Ser. No. 18,679
Claims priority, application Canada, Jan. 12, 1979, 319583
Int. Cl.³ A01F *12/18*
U.S. Cl. 130—27 T **5 Claims**



1. An axial flow combine rotor adapted to be mounted coaxially in a generally cylindrical rotor casing including a concave in the lower portion thereof, said rotor comprising:

a generally cylindrical core tube;

flighting helically disposed about said core tube at an inlet end for moving crop materials at low crop pressures axially along said inlet end between the core tube and the rotor casing;

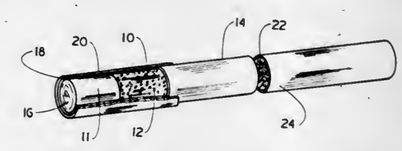
a generally cylindrical threshing portion of larger diametric dimension than said core tube;

threshing rasp bars affixed to said threshing portion of the rotor at circumferentially spaced locations thereabout to project from the surface of said threshing portions, said rasp bars adapted for threshing the crop materials against the concave of the rotor casing;

a plurality of threshing elements rising from said core tube adjacent a threshing area of said rotor casing, said threshing elements defining a diameter approximate to that of the rasp bars said threshing elements adapted to thresh coarse crop materials such as ears of corn or to comb finer cereal grains into a mat prior to threshing by the rasp bars; and

a frusto-conical portion disposed between said core tube and said threshing portion, wherein at least a portion of said threshing elements is disposed on said frusto-conical portion.

4,266,561
TOBACCO SMOKE FILTERING COMPOSITIONS
Elmer F. Litzinger, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed Apr. 10, 1978, Ser. No. 895,220
Int. Cl.³ B01D *53/14, 59/28*; A24D *3/14, 3/16*
U.S. Cl. 131—341 **15 Claims**



1. In a filter structure, a composition, which comprises: alumina impregnated with polyethyleneimine, acetic acid and zinc acetate wherein the proportion of polyethyleneimine is from about 2 to 9 percent by weight of alumina, the proportion of zinc acetate is from about 0.5 to 5 percent by weight of alumina and the proportion of acetic acid being sufficient to give a final pH of from 6.0 to 7.6.

4,266,562

PROCESS FOR PUFFING TOBACCO

Henry B. Merritt, Richmond, Va., and George F. Kite, Indianapolis, Ind., assignors to Philip Morris Incorporated, New York, N.Y.

Filed May 17, 1979, Ser. No. 39,754
Int. Cl.³ A24B *3/18*
U.S. Cl. 131—293 **3 Claims**

1. The process of expanding tobacco which comprises the steps of:

(a) contacting tobacco having at least 6 percent by weight moisture with a source of ammonia and carbon dioxide to introduce into the tobacco preferably from about 3 percent to about 6 percent by weight of water-soluble ammonia and from about 3 percent to about 8 percent of carbon dioxide, based on the weight of the tobacco,

(b) heating the resulting tobacco in an open vessel at temperatures of from about 80° C. to about 120° C. and substantially atmospheric pressure for a period of from about 5 to 60 minutes to produce a tobacco product having an OV of about 6% or less, and

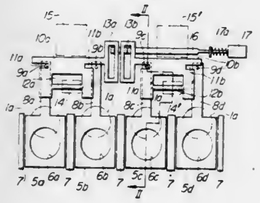
(c) thereafter expanding the tobacco product with dry steam at a temperature of from about 100° C. to about 150° C. or a water vapor-containing gas at a temperature of from about 80° C. to about 150° C. and above the dew point of the gas for a time sufficient to expand the tobacco.

4,266,563

COIN DISPENSER DEVICE

Niitaka Fujita, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd, Osaka, Japan

Filed Mar. 7, 1980, Ser. No. 128,115
Claims priority, application Japan, Mar. 9, 1979, 54-28091
Int. Cl.³ G07D *9/04*
U.S. Cl. 133—4 A **2 Claims**



1. A coin dispenser device comprising:

i. at least a pair of coin storing cylinders;

ii. at least a pair of slide plates disposed in opposition to said coin storing cylinders, and longitudinally movable so as to dispense coins from said coin storing cylinders;

iii. at least one change-over plate disposed in opposition to said pair of slide plates, and longitudinally and laterally movable;

iv. at least one driving solenoid arranged to longitudinally move said change-over plate;

v. means for laterally moving said change-over plate so as to selectively engage the latter with one of said slide plates, thereby said one of slide plates is longitudinally moved to dispense coins from said coin storing cylinders.

4,266,564

COIN RELEASE ASSEMBLY

C. David Coburn, Muskogee, and Rex M. Maloy, Broken Arrow, both of Okla., assignors to Orin W. Coburn, Muskogee, Okla.

Filed Oct. 1, 1979, Ser. No. 80,681
Int. Cl.³ G07D *1/00*
U.S. Cl. 133—5 R **20 Claims**

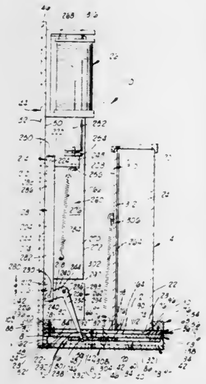
1. A coin release assembly for selectively removing a coin element therefrom, the assembly comprising:

a base plate having an opening extending therethrough and a recessed portion for slidably receiving the coin ejecting assembly;

a coin tube having a first end, an opposed second end, and a coin passageway extending therethrough for receiving coin elements, the opposed second end of the coin tube having mounted to the base plate such that the coin passageway of the coin tube is offset with respect to the opening in the base plate and a portion of the base plate being disposed for supporting the coin elements within the coin passageway of the coin tube;

a coin ejecting assembly operably disposed in the base plate, the coin ejecting assembly engaging a lowermost coin element in the coin passageway of the coin tube such that upon activation of the coin ejecting assembly the coin ejecting assembly is moved from a first position wherein the coin ejecting assembly operably engages the lowermost coin element supported in the coin passageway to a second position wherein the coin element engaged by the coin ejecting assembly is removed from the coin passageway of the coin tube and aligned with the opening in the base plate such that the coin element exits the base plate via the opening therein, the coin ejecting assembly comprising:

a body member having a first end and an opposed second end portion and being operably disposed in the recessed portion of the base plate, the body member having an



upper side, an opposed lower side and an opening extending therethrough, the opening having a diameter sufficient to allow a coin element to pass therethrough when the body member is in the second position;

at least one coin engaging member positioned on the upper side of the body member for operably engaging the lowermost coin element; and

means connected to the body member for moving the body member from the first position to the second position and for moving the body member from the second position to the first position, the coin engaging member engaging the lowermost coin element and moving the lowermost coin element from the coin tube to a position for allowing the coin element to be discharged through the opening in the base plate when the body member moves from the first to the second position; and

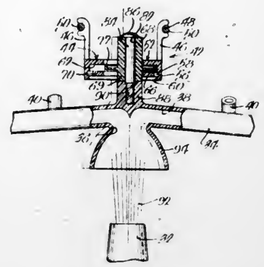
a first biasing means operably connected to the body member for biasing the body member in an upward direction in the recessed portion of the base plate generally toward the coin elements in the coin tube to insure engaging contact between coin engaging member and the coin element when the body member is moved from the first to the second position, the coin elements in the coin tube biasing the body member in a downward direction in the recessed portion of the base plate when the body member is moved from the second to the first position to effectively reduce the weight of the coin elements on the body member thereby reducing the force required to move the body member from the first to the second position.

4,266,565

DISHWASHER SPRAY ARM MOUNTING

Vincent P. Gurubatham, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 12, 1979, Ser. No. 84,636
Int. Cl.³ B08B *3/02*
U.S. Cl. 134—144 **13 Claims**



6. An improved spray arm and mounting for a dishwasher having a washing chamber, nozzle means located in the lower portion of said chamber for directing a jet of fluid toward said spray arm, and distributing means within said arm for distributing fluid directed to said arm, the improvement resulting in a spray arm which will continuously align itself with respect to said fluid jet, said improvement comprising:

a stationary spray arm mount attached to an upper portion of said chamber;

a bearing slidably juxtaposed to said mount;

retaining means associated with said mount for loosely retaining said bearing in said juxtaposed relationship to said mount; and

a spray arm attached to said bearing including a receiving means for receiving said fluid jet for passage to said distributing means through a central opening in an upper portion of said receiving means, said receiving means transforming energy contained in said fluid jet into a correcting alignment force to slide said bearing relative to said mount whenever said jet does not coincide with said central opening in said receiving means.

4,266,566

SPRING ASSEMBLY FOR FLOATING SEAT RING

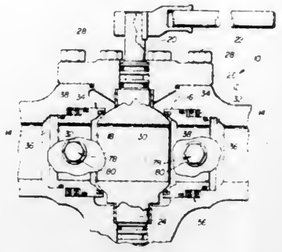
Gary W. Kacal, Rosenberg, and Charles C. Partridge, Houston, both of Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 960,499, Nov. 13, 1978. This application Jul. 26, 1979, Ser. No. 60,951
Int. Cl.³ F16K *43/00*
U.S. Cl. 137—316 **6 Claims**

4. A top entry ball valve including a valve body having inlet and outlet flow passages communicating with a valve chamber, a ball mounted in said valve chamber for rotation between open and closed positions relative to the flow passages, an upper cover plate removably secured to the valve body and permitting removal of the ball from the valve body when the cover plate is removed, an annular shoulder at the juncture of each flow passage with the valve chamber;

a seat ring mounted about each flow passage and having an annular rear face in opposed spaced relation to the associated shoulder to provide a spring pocket therebetween;

an annular spring assembly in the spring pocket between said rear face and said shoulder adapted to urge the seat ring toward the ball, said spring assembly including at least a pair of undulated annular wave springs about the seat ring each wave spring having a plurality of rear and front nodes, the rear nodes on the rearmost wave spring being in contact with said shoulder and the front nodes on the foremost wave spring being in contact with said rear face, said pair of contiguous wave springs being staggered with the front nodes of one wave spring of said pair in opposed



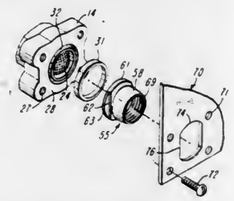
contact relation to the rear nodes of the other wave spring of said pair, means to maintain each pair of wave springs in such staggered position, means to urge the seat ring to a retracted position in which the wave springs are compressed, and means to hold the seat ring in the retracted position.

4,266,567

FLUID CONTROL VALVE AND SUPPORT ASSEMBLY

James F. Pease, 5805 Folkestone Dr., Dayton, Ohio 45459

Continuation-in-part of Ser. No. 818,433, Jul. 25, 1977, Pat. No. 4,149,554. This application Apr. 2, 1979, Ser. No. 25,869
Int. Cl.³ F16K *51/00*
U.S. Cl. 137—343 **9 Claims**



1. In a valve and support assembly including a valve body of molded plastics material, said valve body having an inlet portion defining an inlet and an outlet portion defining an outlet, means supported by said valve body for controlling the flow of fluid from said inlet to said outlet, said inlet portion including a plurality of parallel spaced holes disposed generally around said inlet, a metal fitting including a threaded tubular portion extending from an outwardly projecting integral flange disposed adjacent said inlet portion of said valve body, a circular resilient ring forming a fluid-tight seal between said flange and said inlet portion, a sheet metal support bracket having an aperture aligned with said tubular portion of said fitting and a plurality of holes aligned with said holes within said inlet portion of said valve body, and a plurality of threaded fasteners extending within said holes for securing said bracket to said valve body with said flange disposed therebetween, the improvement wherein said fitting comprises a drawn sheet metal fitting, said aperture within said bracket including a part-cylindrical surface portion having a diameter greater than the inner diameter of said resilient ring, said flange having an outermost cylindrical surface portion with a diameter substantially the same as the diameter of said part-cylindrical surface portion of said bracket, said flange having an overall thickness substantially the same as the thickness of said bracket, mating surface means on said flange and including said flange outermost cylin-

drical surface portion, said mating surface means cooperating with said aperature to prevent rotation of said fitting, and said flange outermost cylindrical surface portion cooperating with said part-cylindrical surface portion of said aperature.

4,266,568

VACUUM BREAKER-PRESSURE RELEASE DEVICE

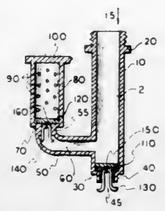
John R. Kuykendall, 122 C.C. Santos St., B.F. Homes, Paranaque, Metro Manila, Philippines

Filed Feb. 7, 1980, Ser. No. 120,077

Claims priority, application Philippines, June 26, 1979, UM-5720

Int. Cl.³ F16K *17/194*

U.S. Cl. 137—493.8 **6 Claims**



1. A valve for use with an air vent pipe of a storage tank which contains fluids in the liquid phase and in the low pressure vapor phase, the valve opening the pipe when the tank is being filled and emptied while keeping the pipe closed otherwise to permit the liquid fluid in the tank to be drawn off and replenished and prevent the vaporous fluid from escaping, comprising a housing with an interior and an exterior, the housing being securable to the pipe in a manner that the pipe communicates with the interior of the housing; an intake check valve arranged in the housing and operatively communicating with the interior and the exterior thereof, the intake check valve operating in a manner that air is permitted to enter the interior of the housing through the intake check valve while being prevented from leaving the interior of the housing through the intake check valve; and an exhaust check valve arranged in the housing and operatively communicating with the interior and the exterior thereof, the exhaust check valve operating in a manner that gas which exceeds a predetermined threshold pressure is permitted to leave the interior of the housing through the exhaust check valve, while gas of a pressure less than the predetermined threshold pressure is prevented from leaving the interior of the housing through the exhaust check valve and air is prevented from entering the interior of the housing through the exhaust check valve, said housing being a J-shaped one piece member having a first tubular portion bounding a first bore having an axis, a second tubular portion bounding a second bore having an axis which is parallel to the axis of said first bore, and a connecting tubular member bounding a third bore which extends between and communicates said first and second bores with one another, said first tubular member forming in said first bore a connecting opening which communicates with an air vent pipe of a storage tank and an air inlet opening through which air can enter said housing and which is coaxial with said connecting opening, said second tubular member forming in said second bore a gas outlet opening through which gas exceeding threshold pressure can leave said housing and which is formed by a plurality of perforations in a wall of said second tubular member.

4,266,569

CHECK VALVE

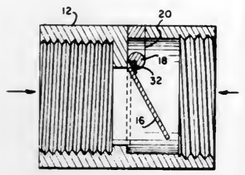
Harold L. Wilson, Antonia, Mo. 63052

Filed Apr. 25, 1979, Ser. No. 33,049

Int. Cl.³ F16K *15/03*

U.S. Cl. 137—527.8 **7 Claims**

1. A tubular check valve comprising a tubular housing, a pivotable valve member, a shaft supporting said valve member for pivotable movement from an open position to a closed position against a valve seat formed of an inwardly extending circular wall member on said housing, said shaft being supported at opposite ends upon openings formed in the wall of



said valve housing, the valve member being hingedly connected to said support shaft, said support shaft being seated in a chord-like opening across said housing and a cover member seated on top of said support shaft to close said opening.

4,266,570

ANGLE VALVE

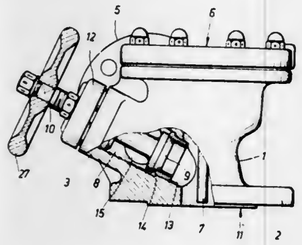
Manfred Sieglitz, Bremen, Fed. Rep. of Germany, assignor to Gustav F. Gerdts KG, Bremen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 935,287, Aug. 21, 1978. This application Dec. 21, 1978, Ser. No. 971,983

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1977, 2738294; Sep. 21, 1977, 2742414

Int. Cl.³ F16K *31/145*; **B65D** *47/20*

U.S. Cl. 137—613 **10 Claims**



1. An angle valve mountable on the exterior of a container having a container valve disposed therein, comprising:

a unitary housing including a container-side connecting member having a front face and a channel formed therein opening onto said front face for communication with said container and a loading-side connecting member, which has a channel formed therethrough and which is capable of communication with a loading line, said valve housing further including an intermediate connecting member mounted on said container-side connecting member and extending radially therefrom, said intermediate connecting member having a free end on which is mounted a support for supporting a valve spindle and a receiving chamber formed therein which establishes communication between said channels of said loading-side and said container-side connecting members, with said channel of said loading-side connecting member disposed to terminate and discharge directly into said receiving chamber and with said loading-side connecting member disposed tangentially relative to said container-side connecting member and extending radially outwardly from said intermediate connecting member between said support and said container-side connecting member, said loading-side connecting member having an axis which is disposed at a fixed angle to said front face and also having an inner end coupled to said intermediate member and an outer end ascending away from said front face;

a valve seat mounted within said receiving chamber;

a stroke-adjustable valve head mounted within said receiving chamber and disposed for cooperative engagement with said valve seat, said valve head being disposed laterally adjacent to said container-side connecting member so as to leave said channel of said container-side connecting member unobstructed for the receipt therein of an actuating plunger;

an actuating plunger which is disposed in and extends through said channel of said container-side connecting member for coupling with the container valve disposed in the container;

a pneumatically operable actuating member supported on said housing and coupled to said actuating plunger; and

a manually-adjustable valve spindle at least partially mounted in said receiving chamber and having an inner end coupled to said valve head and an outer free end supported by said support, said valve spindle being mounted with its axis substantially parallel to the axis of said intermediate member and at an angle to said front face of said container-side connecting member such that its outer free end does not extend substantially above said actuating member and said loading-side connecting member, said spindle being adjustable to control communication between said container-side connecting channel and said receiving chamber.

4,266,571

FUEL METERING VALVE

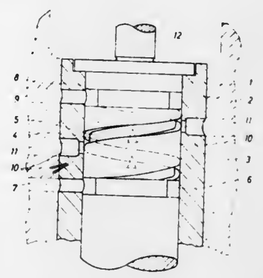
Armin Baüder, Neckarsulm, Fed. Rep. of Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,544

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 2810177

Int. Cl.³ F16K *21/02*

U.S. Cl. 137—625.48 **5 Claims**



1. A fuel metering valve for fuel injection apparatus for a mixture compressing, spark-ignition internal combustion engine with continuous fuel injection comprising an induction manifold and a plurality of fuel injection nozzles, the valve having a control cylinder with ports equal in number to the number of nozzles and in communication therewith, a control piston arranged to be rotatable in said control cylinder and having a control edge cooperating with said ports for metering an amount of fuel in accordance with the amount of air flowing through said induction manifold, said piston having a continuous spiral groove in uncontrolled connection with a feed passage, one flank of said groove acting as a control edge common to all ports and forming a variable throttle cross-section together with said ports, said ports having a generally triangular cross-section and being staggered along the length of said cylinder relative to each other in conformity with the pitch of said spiral groove in the piston.

4,266,572

ELECTROHYDRAULIC DIRECTIONAL CONTROL VALVE SYSTEM

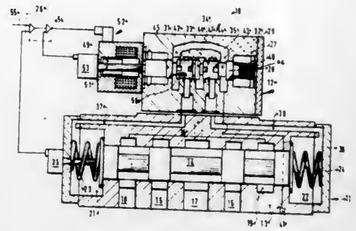
Eckard Schuttenberg, Stuttgart; Manfred Hauser; Winfried Hommen, both of Schwieberdingen, and Klaus Sopha, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,544

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840831

Int. Cl.³ F15B *13/043*

U.S. Cl. 137—625.63 **5 Claims**



1. An electrohydraulic directional control valve system comprising, a preliminary directional control valve and a main directional control valve, said main control valve having a first housing provided with an intake port, a return port and at least two load ports; a first control spool movable in said first housing from a central neutral position into a respective one of two lateral working positions; a pressure chamber arranged at each end of said first spool; first spring means arranged in each pressure chamber to urge said first spool into said neutral position; control channels connecting, respectively, said pressure chambers to said preliminary control valve, said preliminary control valve having a second housing provided with control chambers; a second control spool movable in said second housing from a central neutral position into one of two lateral working positions in which pressure fluid is admitted through one of said control chambers into one of said pressure chambers and the other pressure chamber is released through said return port; second spring means arranged at one end of said second spool for urging the same into an additional position in which said control chambers and thus said pressure chambers are interconnected; and a proportionally operating solenoid acting on the other end of said second spool to counteract said second spring means.

4,266,573

ANESTHESIA MACHINE HAVING PROPORTION LIMITING CONTROL SYSTEM

Robert E. Braatz, Sun Prairie, Wis., assignor to Airco, Inc., Montvale, N.J.

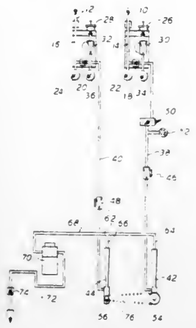
Filed Oct. 19, 1979, Ser. No. 86,961

Int. Cl.³ A61M *17/00*

U.S. Cl. 137—630.18 **7 Claims**

1. An anesthesia machine for providing a mixture of oxygen and a second gas of selected proportions, said anesthesia machine having first and second rotatable valves, said first rotatable valve controlling the flow of oxygen and said second rotatable valve controlling the flow of the second gas, each of said rotatable valves being independently rotatable with respect to said other rotatable valve within a predetermined limit to vary the mixture of oxygen and the second gas, the improvement comprising interconnection means comprising a positive connection between said first and second rotatable valves such that rotation of said second rotatable valve toward its open

direction is limited to a predetermined flow whereupon further opening also causes said first rotatable valve to open to prevent



the percentage of oxygen by volume in the mixture provided by said machine to be below a predetermined percentage.

4,266,574

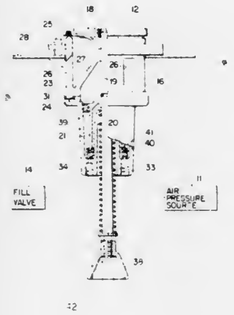
VENT VALVE

Basil B. Tilling, Mission Viejo, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Apr. 19, 1979, Ser. No. 31,666

Int. Cl.³ F16K *31/12*

U.S. Cl. 137—630.19 **9 Claims**



1. A valve assembly comprising a housing having first and second separable housing portions, an annular valve seat disposed on said first housing portion, a valve member movable toward and away from said valve seat, a stem carrying said valve member, spring means carried by said stem, said spring means acting between said second housing portion and said stem and resiliently biasing said second housing portion toward said first housing portion and resiliently biasing said valve member against said valve seat, a piston disposed on said stem, said piston including an end wall and a generally cylindrical wall extending axially from said end wall and terminating at a free end, said second housing portion including generally concentric radially inner and radially outer generally cylindrical walls, said cylindrical wall of said piston and said cylindrical walls of said second housing portion cooperatively defining an expansible chamber, said cylindrical wall of said piston being telescopically received between said cylindrical walls of said second housing portion, and a substantial portion of the axial extent of said spring means being disposed within said inner cylindrical wall of said second housing portion.

4,266,575

DIRECTIONAL VALVE

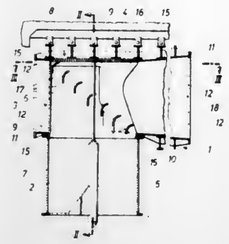
Norbert Lukesch, Linz, Austria, assignor to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Apr. 23, 1979, Ser. No. 32,534

Claims priority, application Austria, Jun. 5, 1978, 4051/78

Int. Cl.³ F16K *11/02;* **F17D** *3/00*

U.S. Cl. 137—872 **6 Claims**



1. A directional valve for selectively directing the flow of a liquid from only through a pressure pipeline and from a discharge pipeline into the pressure pipeline extending substantially perpendicularly thereto, which comprises

(a) a valve housing connecting the pressure pipeline to the discharge pipeline, the housing including

(1) a tubular body mounted in the pressure pipeline and having a central portion comprised of two end walls and two side walls interconnecting the end walls, the central portion being of substantially rectangular cross section and the end walls extending in the general direction of the pressure pipeline, and

(2) a cylindrical body extending substantially perpendicularly to one of the end walls and having one end connected to the one end wall and an opposite end for connection to the discharge pipeline, the cylindrical body having a diameter corresponding to the length of the one end wall between the two side walls of the central portion, and

(b) a motor-operable valve member axially slidably mounted for movement between the cylindrical body and the central portion, the valve member including

(1) a partially cylindrical shell coaxial with the cylindrical body and being delimited substantially by a plane passing through the axis of the cylindrical body and shell perpendicularly to the side walls of the central portion,

(2) an end wall at an end of the shell facing the central portion and substantially parallel to the end wall of the central portion opposite the one end wall thereof,

(3) a ring having a diameter corresponding to that of the cylindrical body at the other end of the shell, and

(4) the length of the shell between the end wall thereof and the ring being substantially equal to the distance between the end walls of the central portion and the shell contacting the side walls in said plane when the valve member is moved into the central portion, the valve member providing for communication between the pressure pipeline and the discharge pipeline in an axial position wherein the ring is substantially flush with the one end wall of the central portion, interrupting the communication between the pressure and discharge pipelines in an axial position wherein the end wall of the shell is substantially flush with the one end wall of the central portion and allowing communication only through the pressure pipeline.

4,266,576

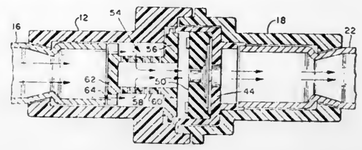
FLOW CONTROL DEVICE IN A PROTECTIVE HOUSING

Jay H. Bradford, South Elgin, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Continuation of Ser. No. 855,848, Nov. 30, 1977, abandoned. This application Dec. 13, 1978, Ser. No. 969,649

Int. Cl.³ F15D *1/02*

U.S. Cl. 138—40 **3 Claims**



1. A flow control device adapted for connection between an inlet and outlet fluid conduit comprising:

(a) an inlet housing section defining a first fluid passage therethrough, said first fluid passage sized to receive said inlet fluid conduit therein;

(b) an outlet housing section defining a second fluid passage therethrough, said second fluid passage sized to receive said outlet fluid conduit therein, said outlet and said inlet housing sections cooperating to define a fluid chamber intermediate the ends thereof;

(c) an annular retainer member received in said cavity and having a centrally located first orifice therein, said first orifice having an internal diameter less than the internal diameter of said inlet fluid conduit to prevent said inlet fluid conduit from passing therethrough;

(d) a cup-shaped member received in said cavity and disposed adjacent and coaxially aligned with said retainer member, said cup-shaped member having an open end portion and a closed end portion, said closed end portion having a centrally located fluid flow orifice therethrough, said cup-shaped member including a tubular portion extending axially from said closed end portion, said tubular section having an outer wall surface portion in registration with an adjacent internal surface portion of said cavity for limiting movement with respect thereto, said tubular section having a transverse internal dimension less than the external diameter of said outlet fluid conduit for preventing said outlet conduit from passing therethrough, said retainer member and said cup-shaped member further defining a fluid cavity; and

(e) a resilient flow control member disposed in said fluid chamber, said flow control member having an annular configuration with an orifice therethrough, said control member flexing under pressure variations to maintain a constant flow under a wide range of fluid pressures, said retainer member and said cup-shaped member isolating and protecting said control member from impingement by said inlet and outlet fluid conduit as inserted into said inlet and outlet housing sections, said tubular section further preventing said outlet fluid conduit from interferring with the flow of fluid through said fluid flow orifice in said cup-shaped member.

4,266,577

COLLARED FUEL INJECTION PIPE FOR ENGINES

Masayoshi Usui, Numazu, Japan, assignor to Usui Kokusai Sangyo Kabushiki Kaisha, Shizuoka, Japan

Filed Jul. 25, 1979, Ser. No. 60,730

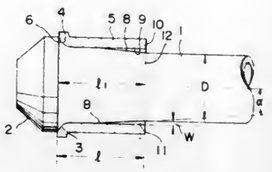
Int. Cl.³ F16L *9/00*

U.S. Cl. 138—109 **2 Claims**

1. A collared pipe for channeling fluid, injected under pressure, which resists breakage due to vibration comprising:

a longitudinally extending injection tube, with one end thereof including a head portion, and with the juncture between said head portion and the remainder of the tube defining a neck, with the outside surface of said tube being tapered in diameter from said neck to a point intermediate the length of said tube; and

a collar of generally tubular configuration disposed about said injection tube extending from said neck towards the opposed end of said tube, said collar being press fit to said tube adjacent said neck and having a constant inner diameter, with the tapered outer surface of said injection tube



diverging from the inner surface of said collar to define a gap, whereby a circumferential contact boundary, corresponding to the outer surface of said tube where said gap is initially defined, functions as a fulcrum of vibration, and wherein said circumferential contact boundary shifts as a function of the vibration such that repeated localized stresses are minimized thereby inhibiting breakage of said tube.

4,266,578

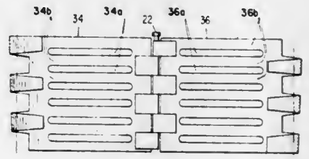
DRILL PIPE PROTECTOR

Jack W. Swain, Bedford; Clarence T. Thomerson, and Tom C. Waldrop, both of Corsicana, all of Tex., assignors to Regal Tool & Rubber Co., Inc., Corsicana, Tex.

Continuation-in-part of Ser. No. 679,727, Apr. 23, 1976, abandoned, and a continuation-in-part of Ser. No. 354,255, Apr. 25, 1973, abandoned. This application Mar. 23, 1979, Ser. No. 23,169

Int. Cl.³ F16L *57/00;* **E21B** *17/10*

U.S. Cl. 138—110 **9 Claims**



1. A protector for a drill pipe, which protector comprises:

(a) a pair of unitary semi cylindrical tension bearing metallic skeleton members, each skeleton member having an axially directed hinge joint and each skeleton member of said pair having a wedge receiving lock structure at a longitudinal joint diametrically opposite said hinge joint, each skeleton member of said pair having a semi cylindrical inner periphery and an axial length equal to at least about the diameter of the drill pipe to be protected and each skeleton member of said pair having a plurality of uninterrupted elongated circumferentially extending parallel openings forming therebetween an array of a plurality of ribs with circumferentially aligned ends, the ends of said openings are adjacent to said hinge joint and said lock structure and the ends of said openings are aligned parallel to said hinge joint and said lock structure, each of said ribs having an unsupported span between the ends thereof;

(b) a thin uniform continuous resilient inner layer bonded to each of said members and forming smooth continuous semi cylindrical inner walls of resilient material for gripping the exterior of said drill pipe;

(c) a thick resilient outer layer bonded to each of said members and to said inner layers; and

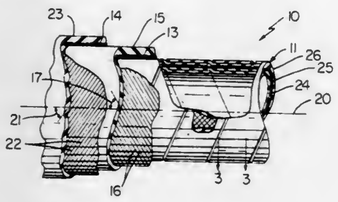
(d) a wedge of a few degrees taper for releasably applying a force through said wedge lock to apply a high compressional force to said inner layer at zones beneath said ribs whereby said protector is contracted around and grips said drill pipe to resist displacement of said protector on said drill pipe.

4,266,579

HOSE AND METHOD OF MAKING SAME

Richard Deiss, Graham, Tex., assignor to Dayco Corporation, Dayton, Ohio

Filed Aug. 6, 1979, Ser. No. 64,231
Int. Cl.³ F16L *11/08*
U.S. Cl. 138—127 **14 Claims**



1. In a flexible wire-reinforced polymeric hose comprising a tubular core and at least two concentric wire plies comprising a first and a second wire ply having a polymeric layer disposed therebetween; each ply consisting of a plurality of individual wires wound in parallel side-by-side helical convolutions; one of said wire plies being wound on said core at a particular angle relative to a longitudinal axis through said hose and the next adjacent wire ply being wound at an opposite angle of a magnitude equal to said particular angle; the improvement in said core comprising a first polymeric tube, a tubular fabric layer disposed against said first tube and defined by a helically wound knitted fabric ribbon, and a second polymeric tube disposed against said tubular fabric layer and defined by a helically wound polymeric tape, said first and second polymeric tubes cooperating with said tubular fabric layer to define said tubular core and hose having improved flexibility yet being capable of withstanding high fluid pressures within said hose, and preventing said wires from cutting through said hose.

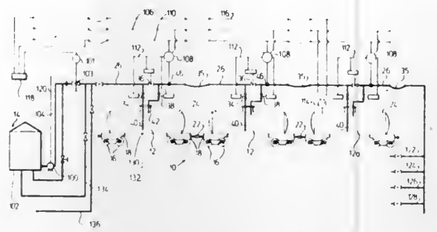
4,266,580

LOADING AND UNLOADING SYSTEM FOR TANK CAR TRAINS

Frank O. Dixon, 9 Thurgate Crescent, Thornhill, Ontario, L3T 4G4, Canada

Filed Aug. 7, 1979, Ser. No. 64,614
Claims priority, application United Kingdom, Aug. 10, 1978, 32860/78
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—35 **10 Claims**

1. A tank car for transporting a liquid comprising: a wheeled vehicle supporting a liquid storage tank, a first pipe extending vertically within the tank with an open end terminating in proximity to the bottom of the tank, a second pipe extending vertically into the tank with an open end terminating near the top of the tank, a liquid conduit in proximity to the top of the tank in communication with the said first and second pipes, and valve means for closing the first and second pipes and opening the conduit for isolating the tank from the conduit and for opening the first and second pipes and closing the conduit



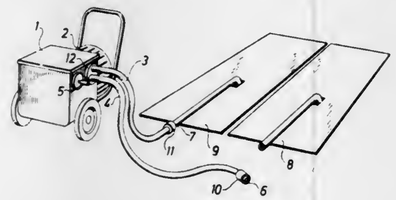
between the first and second pipes for loading liquid into or unloading liquid from the tank.

4,266,581

VACUUM TREATMENT UNIT

Harald S. Wenander, Nacka, Sweden, assignor to Tremix AB, Skarholmen, Sweden

Filed Sep. 19, 1979, Ser. No. 77,069
Claims priority, application Sweden, Sep. 25, 1978, 7810040
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—65 **6 Claims**



1. A vacuum treatment unit for removing excess water from newly poured concrete, comprising; a vacuum pump connectable to at least two suction mats or the like via separate suction pipes, said suction pipes being readily disconnectably connected to the suction mats, said pies being connected to the vacuum pump via a selectively settable valve means, said valve means being constructed such that at least one pipe is always in communication with the suction side of the pump.

4,266,582

TANK FILLING LIMITER

Andre Sergent, Paris, France, assignor to Petit & Cie, France

Filed Sep. 20, 1979, Ser. No. 77,457
Claims priority, application France, Sep. 28, 1978, 78 27802
Int. Cl.³ B65B *3/26*
U.S. Cl. 141—198 **5 Claims**

1. A limiter for the filling of a tank with liquid, mounted in said tank, comprising:

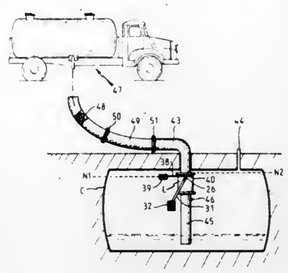
a hydraulic valve provided with a monitoring obturator means having a control flap and a control axle connected to a first pivoting arm having a first float included in an arm-control assembly;

a second pivoting arm having a second float and a peg cooperating with a cam disposed at the end of said first arm opposite said first float;

a fixed member on said control axle comprising a stop and pawl arrangement with a perpendicular flat spring urging a finger disposed on said pawl and pivoting onto said second arm, said finger being in escaping relationship with respect to said flat spring;

said hydraulic valve comprising a body provided with an inlet flange and an outlet flange, a cylinder and a movable

piston provided with an inner cavity and bearing on a seating disposed at the vicinity of said outlet flange;



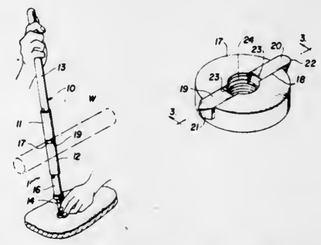
and means for placing said inner cavity and the downstream side of said obturator means in communication with said tank.

4,266,583

SPINDLE TURNING TOOL

Chester E. Kirk, 3537 NW. Mink Pl., Corvallis, Oreg. 97330, and Owen E. Raab, 11825 Glendale Way South, Seattle, Wash. 98168

Filed Nov. 15, 1979, Ser. No. 94,544
Int. Cl.³ B23B *27/00*
U.S. Cl. 142—56 **3 Claims**



1. For use in a wood lathe cutting tool of the rockable bar type having clamping body members adapted to hold between them a cutting bit unit in a use position, a disc body provided in one end face with a diametrical groove, a pair of radially extending profiled cutting bits fixed in said groove with their profiled cutting tips projecting radially of the periphery of the disc body, and the disc body having a central threaded through opening adapted to receive therethrough an internal securing rod of said lathe cutting tool and also adapted for engagement with a threaded bolt, said bolt forming a temporary handle for the disc body during sharpening of the profiled cutting bits.

4,266,584

EDGER SAW COMBINING CHIPPER WITH CIRCULAR SAW BLADE

Joseph J. Lomnicki, Portland, Oreg., assignor to Mainland Industries, Inc., Lake Oswego, Oreg.

Filed Jun. 27, 1979, Ser. No. 52,599
Int. Cl.³ B27C *9/00*
U.S. Cl. 144—39 **11 Claims**

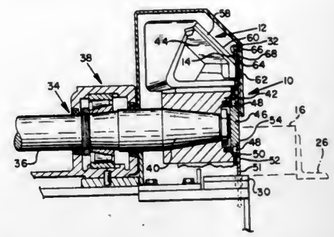
1. Apparatus for forming a flat surface on a workpiece, comprising:

(a) a rotatable mandrel;

(b) a unitary saw plate mounted for rotation with said mandrel, said saw plate having a generally circular periphery, a near side and a workpiece side;

(c) a plurality of saw tooth means arranged about said periphery of said saw plate for cutting away portions of said workpiece to form said flat surface perpendicular to the axis of rotation of said mandrel, said saw tooth means defining a kerf;

(d) means for defining a plurality of apertures extending through said saw plate; and



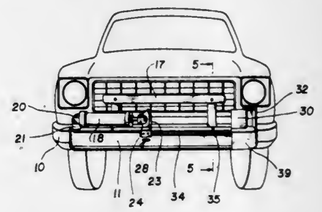
(e) a plurality of chipper knives mounted for rotation with said mandrel, each of said plurality of chipper knives having a cutting edge extending within a respective one of said apertures and terminating short of said workpiece side of said saw plate.

4,266,585

VEHICLE MOUNTED LOG SPLITTER

Ronald W. Denzer, P.O. Box 845, Conrad, Mont. 59425

Filed Nov. 27, 1979, Ser. No. 97,702
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—193 A **8 Claims**



1. A log splitter comprising a base member including mounting bracket means for attaching the base member to a support, a power cylinder attached to the base member and including a ram head plate having guided engagement along the base member, a log splitting wedge fixed on the base member in opposing relationship to the ram head plate, a guard for the log splitting wedge pivotally mounted on the base member for swinging movement toward and away from one side of the wedge, and driving means for the guard connected with the ram head plate.

4,266,586

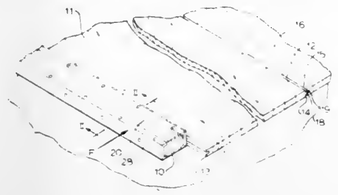
PLYWOOD DRIVING TOOL

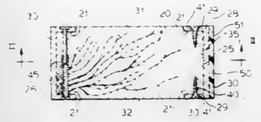
Harold B. Brown, 2951 Village Dr., Marietta, Ga. 30062

Filed Jun. 18, 1979, Ser. No. 49,600
Int. Cl.³ B66F *13/00*
U.S. Cl. 145—1 B **4 Claims**

1. A device for driving tongue and groove wood flooring members into seated position by application of hammer blows comprising a substantially rectangular cross-section wood core having a length which is a large multiple of the width thereof, each longitudinal corner thereof being stepped providing reduced ledges running longitudinally at all corners of the core, two U-shaped cross-section rigid metal channel members each having parallel spaced apart legs interconnected by a bight section, the legs being spaced apart by a distance substantially equal to the distance between spaced bottom surfaces of the stepped corners, the legs having a length substantially equal to the depth of the stepped corners, each of the channel members

being carried by the wood core with the legs of each channel member being received in the stepped corners at one side of the core with the legs substantially filling the stepped corner, an inside face of the bight being in contact with the side face of the core, the legs lying substantially flush with the top and bottom faces of the core, fastening means securing the channel

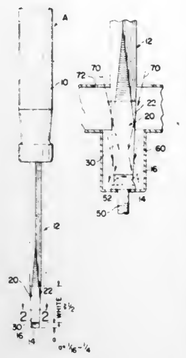


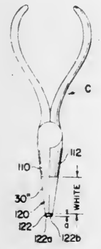


members to the core, an outside face of the bight of at least one member coated with a resilient antimar coating bonded thereto, the core being compressible under application of normal forces encountered in driving flooring members into seated engagement, the channel members being effective to prevent warpage of the core.

4,266,587
MANUAL TOOL
Ray E. Wood, 2303 E. 5th St., Anderson, Ind. 46012
Continuation of Ser. No. 918,781, Jun. 26, 1978, abandoned, which is a continuation of Ser. No. 783,947, Apr. 1, 1977, abandoned. This application Aug. 1, 1979, Ser. No. 62,699
Int. Cl.³ B25B *15/00*
U.S. Cl. 81—1 R **4 Claims**

1. An improvement in a manual tool having an end, a work engaging tip at said end, a handle spaced from said end and an elongated terminal portion having a peripheral surface extending from said work engaging tip, said improvement comprising: a layer of predominately white, light-reflective material on said peripheral surface and adjacent to, but spaced a selective





distance from, said tip whereby ambient light from a source spaced from said tool is reflected from said layer.

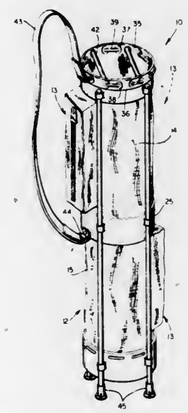
4,266,588
FLEXIBLE HANDLE FOR PERCUSSIVE TOOL WITH IMPROVED VERTEBRA MEMBER
Vincent J. Tudisco, Westwood, N.J., assignor to White Development Corporation, Bennington, Vt.
Filed Jun. 9, 1980, Ser. No. 157,540
Int. Cl.³ B25G *1/00*
U.S. Cl. 145—61 D **6 Claims**

1. A hand impact tool comprising:
a. an impact-tool head portion having first and second ends;
b. a handle;
c. an elongated shaft having one end fixedly connected to said handle and its other end fixedly connected to said impact-tool head portion intermediate the ends thereof, said shaft being resiliently deflectable from the rectilinear axis of its rest position; and
d. a multiplicity of substantially incompressible vertebra members assembled into a column, said vertebra members each having a passage extending therethrough forming an elongated passage through said column, said shaft extending through said elongated passage, deflection of said shaft requiring relative pivoting of said vertebra members, a multiplicity of consecutive vertebra members of said column being substantially identically configured with abutment surfaces at the top and bottom margins thereof extending generally transversely of said rectilinear axis of said shaft, one abutment surface of each vertebra member of said multiplicity of substantially identically configured consecutive vertebra members providing a concave recess, and the other abutment surface providing a convex boss complementarily configured to slidably seat in said concave recess, said recess and boss cooperating for limited pivoting of said convex boss relative to said recess in one direction from said rest position of said shaft about a pivotal axis extending perpendicularly to said axis of said elongated passage, said abutment surfaces having cooperating portions substantially preventing pivoting from said rest position in the other direction, said passage being of greater transverse dimension than said shaft along at least



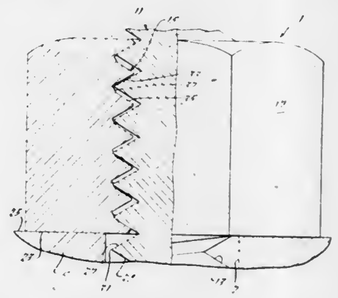
a portion of its axial length so as to permit said limited pivoting of said vertebra member about said pivotal axis in said one direction concurrently with deflection of said shaft, whereby deflection of said shaft when one end of said head portion strikes a workpiece is permitted but deflection of said shaft in the other direction past said rest position is substantially prevented.

4,266,589
LIGHTWEIGHT GOLF BAG
Clifford E. Cochran, 3107 Habersham Hills, Cumming, Ga. 30130
Filed Nov. 19, 1979, Ser. No. 95,354
Int. Cl.³ A63B *55/04*
U.S. Cl. 150—1.5 B **3 Claims**



2. A lightweight carrier for golf clubs or the like, comprising:
a plurality of elongated structural members extending substantially the length of the carrier;
first and second frame members connected to said elongated members adjacent the top ends and the bottom ends thereof, in position to maintain said elongated members in fixed spaced apart relation so as to define a spatial volume between the elongated members;
liner means disposed within said spatial volume and removably retained therein by securement to at least one of said frame members, thereby to define a receptacle for storing elongated articles such as golf clubs;
said elongated members being disposed to define a substantially cylindrical spatial volume;
said first frame member comprising cylindrical band defining an opening for said spatial volume;
said liner means comprising a flexible liner which fits through said cylindrical band to be received within said volume;
cooperating means on said cylindrical band and on the contiguous end of said flexible liner to detachably secure the flexible liner within the volume, said cooperative means comprising:
a plurality of openings formed in said cylindrical band;
two sets of plural openings formed in said flexible liner;
each set corresponding in alignment with said openings in said cylindrical band and one such set being spaced a distance above the other set so that the open upper end of said flexible liner is folded over and along the outside of said cylindrical band with the two sets of openings coaxially aligned with each other and with said plurality of openings in said cylindrical band; and
means disposed in said aligned openings to maintain said upper end of said flexible liner on said cylindrical band.

4,266,590
PREVAILING TORQUE NUT
Arthur J. McKewan, Rochester, Mich., assignor to Microdot Inc., Darien, Conn.
Filed Apr. 9, 1979, Ser. No. 28,328
Int. Cl.³ F16B *39/02*
U.S. Cl. 411—307 **6 Claims**



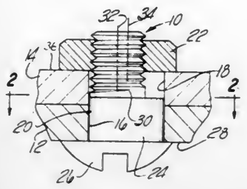
1. A threaded assembly comprising a first part having external helical threads of substantially uniform pitch and substantially V-shape including top and bottom flanks intersecting in thread crests, and a second part having internal helical threads of modified substantially V-shape and substantially uniform pitch sized to receive the external threads, said internal threads having top and bottom flanks and being of the wedge ramp type and having wedge ramps located at the roots of the threads extending between adjacent top and bottom flanks, the pitch of said internal threads being slightly less than the pitch of the external threads.

4,266,591

LOCKING CONNECTOR

Erwin F'Geppert, Novi, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 18, 1979, Ser. No. 50,001
Int. Cl.³ F16B *39/28*
U.S. Cl. 411—167 **1 Claim**



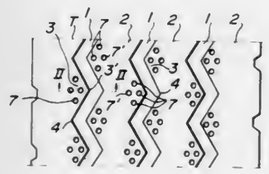
1. In combination, a locking connector joining two members together, said members having aligned circular openings of the same diameter therethrough; said connector including a large diameter circular shaft having the same dimension as the aforementioned circular openings, said circular shaft having an axis **34** coincident with the axis of the circular openings, said shaft extending entirely through one of the members to be joined, and partially through the other member so as to align said two members together; a head extending from one end of the shaft, said head having an axis **32**, offset and parallel to axis **34**, said head being of sufficient size to overlap the adjacent member's surface area surrounding the adjacent circular opening; a relatively small diameter threaded stem extending from the other end of the shaft, said stem being oriented on an axis **32**, which is offset and parallel to the aforementioned shaft axis **34**; and a nut **22** threaded on the stem, said nut overlapping the adjacent member's surface area surrounding the associated circular opening, the offsetting of axis **32** of the threaded stem from axis **34** of the large diameter circular shaft providing an unoccupied space **18** within said other member, the resulting uneven distribution of reaction forces causing a slight tilt of the nut thread surfaces relative to the thread surfaces of the stem thereby eliminating thread parallelism of said nut and said threaded stem, said nut and head cooperatively clamping the two members therebetween.

4,266,592

PNEUMATIC TIRE FOR A HEAVY DUTY VEHICLE

Hiroyoshi Takigawa, Kodaira; Iwao Arimura, Hamura; Makoto Tanaka, Kodaira, and Shinichiro Ohkuni, Tokyo, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Aug. 3, 1979, Ser. No. 63,883
Claims priority, application Japan, Aug. 4, 1978, 53-94490
Int. Cl.³ B60C *11/00*
U.S. Cl. 152—209 D **18 Claims**



1. In a pneumatic tire for a heavy duty vehicle including a tread surface divided along circumferential directions by at least two zigzag tread grooves having sides extending into said tread surface to form a plurality of circumferential zigzag ribs having corners and a central zone, the improvement comprising:

stress releasing apertures

(a) formed at least in zones of said circumferential ribs which are within distances approximately 30% of widths of the circumferential ribs from the sides thereof;

(b) said apertures formed in extending corners of the ribs being more than those formed in retracting corners adjacent thereto;

(c) said apertures formed in the extending corners of the ribs being greater in number than those in said central zone of the ribs; and

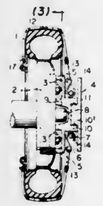
(d) depths of said apertures being 0.3-1.0 of depths of the tread grooves.

4,266,593

SLIP-PREVENTION DEVICE FOR VEHICLE TIRES

Michio Hayashi, Housing Corporation's Apartment House 50-718, 6-ban, Akabanedai 1-chome, Kita-ku, Tokyo, Japan

Filed May 10, 1979, Ser. No. 37,835
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—218 **8 Claims**



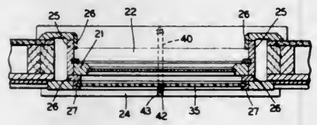
1. A slip prevention device comprising a support body provided with a plurality of bolt holes, said support body being adapted to be attached to the wheel of a vehicle, said support body defining an annular groove, elastic ring means disposed in said annular groove and a slip prevention mat for covering the surface of a vehicle tire, said slip prevention mat comprising a net-like structure having a rhombic lattice, said net-like structure being made of a rope provided with a cover layer, first connecting means connected to one side of said net-like structure for securing the net-like structure together at a position on the inside of the tire and second connecting means connected to the other side of said net-like structure, said second connecting means being connected to the elastic ring groove disposed in the annular ring of the support body at a position on the outside of the tire.

4,266,594

SAFETY STORM WINDOW

Robert D. Gunn, 1471 Akins Rd., Broadview Heights, Ohio 44141

Filed Oct. 9, 1979, Ser. No. 82,968
Int. Cl.³ A47H *23/00*
U.S. Cl. 160—354 **10 Claims**



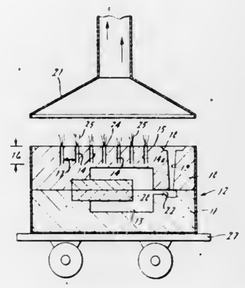
1. A removable storm pane for use in a rectangular window opening closed by a sash, the storm pane consisting of panels of impervious stiff sheet material disposed with edges adjoining, and with the panels hinging between two positions, one position having the plane of one panel at a small angle to the plane of another panel with an overall dimension transverse to both panels small enough to permit insertion in and removal from a window opening, and the other position having the panels in a single plane with their overall dimensions being those required to provide a second closure in the window opening.

4,266,595

USE OF MOLD VENTING PRACTICES IN GREEN SAND MOLDING FOR ODOR REDUCTION

Conrad G. Perkey, Dearborn Heights, and John L. Bell, Detroiz, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 6, 1979, Ser. No. 64,204
Int. Cl.³ B22C *9/02;* **B22D** *45/00*
U.S. Cl. 164—41 **7 Claims**



1. A method of reducing odors resulting from a molding operation, comprising:

(a) preparing a sand mixture containing 1-2% by weight of volatile combustable organic material,

(b) compacting the sand mixture to define a mold and mold cavity, shaping the compacted sand to define a series of vent channels in said mold leading from the mold exterior to the mold interior but spaced a distance of 1-2 inches from the mold cavity, each of said vent channels being spaced from one another a distance no greater than 10 inches, and said mold cavity having a pouring basin and sprue associated therewith leading from the upper surface of said mold to said mold cavity, at least one of said vent channels being located a distance from said pouring basin no greater than 2.5 inches, and

(c) introducing molten ferrous metal to said pouring basin effective to fill said mold cavity, said molten metal heating volatile ingredients in said sand mixture to generate gases, said gases exiting through said vent channels and being auto-ignited by the temperature of the molten metal in said pouring basin, said ignited gases being consumed and combusted so as to reduce the odorous character of the exhaust gases by at least 50%.

4,266,596

METHOD OF PRODUCING A UNIDIRECTIONAL FIBER-REINFORCED COMPOSITE MATERIAL

Keisuke Ban, Fujimi, and Takeo Arai, Higashimatsuyama, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1978, Ser. No. 961,385
Claims priority, application Japan, Nov. 29, 1977, 52/143029
Int. Cl.³ B22D *18/02, 19/14*
U.S. Cl. 164—97 **7 Claims**

1. A method of producing a unidirectional fiber-reinforced composite material including the steps of: covering bundles of an inorganic fiber having unidirectionally high elasticity and high strength, with a covering material which is capable of being molten and diffused into a matrix metal, to thereby form a fiber body having a defined shape, volume and fiber density; placing the resulting fiber body within a mold; pouring a molten matrix metal into said mold; and squeeze casting said molten matrix metal along with the fiber body to form the unidirectionally fiber-reinforced composite material while causing said covering material to melt and diffuse under heat of said molten matrix metal into the latter.

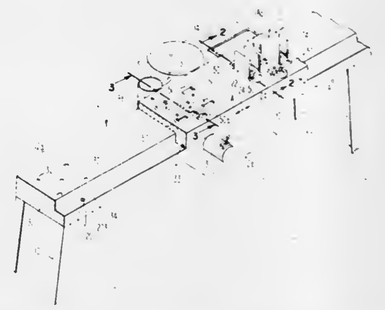


4,266,597

CAST-ON METHOD AND APPARATUS FOR CASTING PARTS ONTO THE LUGS OF LEAD-ACID BATTERY PLATES STACKS

William J. Eberle, Reading, Pa., assignor to General Battery Corporation, Reading, Pa.

Continuation of Ser. No. 910,944, May 30, 1978, Pat. No. 4,180,120, which is a continuation-in-part of Ser. No. 880,017, Feb. 21, 1978, and a continuation-in-part of Ser. No. 752,644, Dec. 20, 1976, said Ser. No. 880,017, is a division of Ser. No. 659,572, Feb. 19, 1976, Pat. No. 4,085,792, which is a continuation-in-part of Ser. No. 618,772, Oct. 2, 1975, Pat. No. 3,980,126, which is a continuation-in-part of Ser. No. 432,545, Jan. 11, 1974, Pat. No. 3,954,216, which is a continuation-in-part of Ser. No. 395,528, Sep. 10, 1973, Pat. No. 3,861,575, which is a division of Ser. No. 184,338, Sep. 28, 1971, abandoned. This application Jun. 11, 1979, Ser. No. 47,001
The portion of the term of this patent subsequent to Dec. 25, 1995, has been disclaimed.
Int. Cl.³ B22D *19/00, 25/04*
U.S. Cl. 164—109 **5 Claims**



1. A method of casting lead parts onto the protruding positive and negative lug rows of a lead-acid battery stack comprising the steps of:

(a) providing a base surface having at least one molten lead supply orifice disposed in said surface;

(b) providing a mold carriage means which can be moved along said base surface;

(c) fitting at least one mold into a well defined on said mold carriage means to define at least a mold cavity on said mold carriage means;

(d) positioning said battery stack so at least a portion of one

of the rows of said stack protrudes into at least a portion of said at least one mold cavity; and

(e) moving said mold carriage means at least between a position wherein said mold cavity is aligned over said at least one orifice to receive molten lead introduced therefrom, and at least one other position wherein portions of said mold carriage means seals said orifice with respect to the atmosphere.

4,266,598

METHOD AND APPARATUS FOR STORING HEAT ENERGY

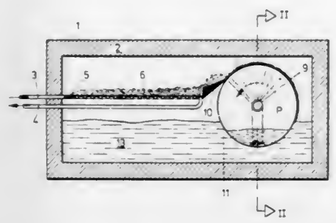
Werner H. Mutti, Rigistrasse 16, CH-5033 Buchs, Switzerland

Filed Jun. 13, 1979, Ser. No. 48,101

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2826058

Int. Cl.³ F28D *21/00*

U.S. Cl. 165—1 **8 Claims**



1. A method for storing of heat, in which fusion heat is supplied to melt a solidified heat storage medium, and heat is removed as desired by flowing a heat-absorbing carrier liquid in the desired amount through a first heat transfer mechanism which is dipped into the melted storage medium and thereby permitting the storage medium to solidify on the walls of the first heat transfer mechanism, wherein the improvement comprises:

supplying the fusion heat by heat transfer from a primary, heat-emitting carrier liquid to the solidified storage medium;

using as said first heat transfer mechanism a conventional rotating crystallization drum and partially immersing the circumferential wall of said rotating drum into the melted storage medium; and

rotating the drum, and thereby transporting the storage medium which has solidified on the walls of the drum into heat transfer relation with said primary, heat-emitting carrier liquid.

4,266,599

METHOD AND APPARATUS FOR CONTROLLING COMFORT CONDITIONS INCLUDING SETBACK

James F. Saunders, Onalaska, and Robert E. Krocker, Stoddard, both of Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Nov. 17, 1978, Ser. No. 961,815

Int. Cl.³ F25B *13/00, 29/00*

U.S. Cl. 165—2 **26 Claims**

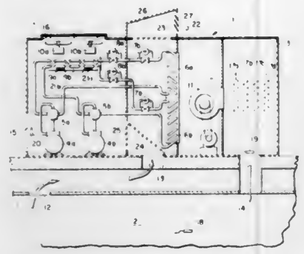
1. A method of operating a system for controlling the comfort condition within a conditioned zone, said system including selectively operable preferred and back-up conditioning means, each having a conditioning capacity associated therewith, for varying the comfort condition within said conditioned zone, said preferred conditioning means exhibiting more favorable energy consumption characteristics than said back-up conditioning means; said method comprising the steps of

a. effecting operation of said preferred conditioning means alone when its capacity is adequate in order to maintain the comfort condition within said conditioned zone at a normal level during operation in a normal mode;

b. effecting operation of both said preferred and back-up conditioning means when the capacity of said preferred conditioning means alone is inadequate in order to maintain the comfort condition within said conditioned zone at said normal level during operation in said normal mode;

c. permitting the comfort condition within said conditioned zone to degrade toward an economy level during a setback period of predetermined duration for operation in an economy mode;

d. effecting operation of said preferred conditioning means alone when its capacity is adequate in order to maintain the comfort condition within said conditioned zone at said economy level during operation in said economy mode;



e. effecting operation of both said preferred and back-up conditioning means when the capacity of said preferred conditioning means is inadequate in order to maintain the comfort condition within said conditioned zone at said economy level during operation in said economy mode; and

f. determining at the start of said setback period and during its term whether the capacity of said preferred conditioning means alone is adequate to restore the comfort condition within said conditioned zone to said normal level and initiating operation of said preferred conditioning means alone at a point in time during said setback period when its capacity is adequate to restore the comfort condition within said conditioned zone to said normal level by the end of said setback period.

4,266,600

HEAT EXCHANGER WITH DOUBLE WALLED TUBES

George Bieberbach, Tampa, Fla., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 810,691, Jun. 28, 1977, abandoned. This application May 3, 1979, Ser. No. 35,870

Int. Cl.³ F28P *7/00*

U.S. Cl. 165—76 **3 Claims**

1. A heat exchanger shell comprising:

a first shell portion having an outwardly extending flange on one end thereof;

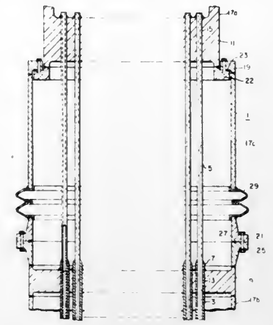
a second shell portion having an outwardly extending flange on one end thereof;

an intermediate shell portion disposed between said first and second shell portion;

said intermediate shell portion having an inwardly extending flange on one end thereof and an outwardly extending flange on the other end thereof;

said intermediate shell portion having an internal surface which is slightly larger than the outer periphery of said flange on said first shell portion; and

said flanges on said intermediate shell portion mating with said flanges on said first and second shell portion and



being so disposed with respect thereto so that the intermediate shell portion can slide over the first shell portion.

4,266,601

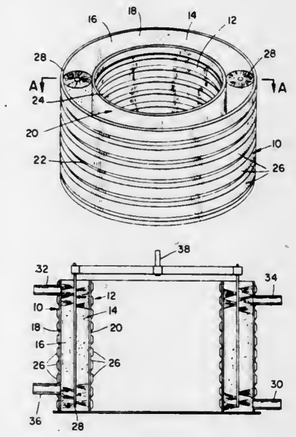
HEAT EXCHANGER FOR CONTAMINATED WATER

Jack L. Jenkins, Hawthorne, Nev., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 13, 1979, Ser. No. 74,844

Int. Cl.³ F28F *17/00;* **F22B** *37/48*

U.S. Cl. 165—94 **7 Claims**



1. A heat exchanger comprising:

(a) a large cylindrical tank open at the top to ambient pressure, said tank having a base and a first hollow region concentric about the longitudinal axis of said tank, a first annular structure concentric about said first hollow region, a second hollow region concentric about said first annular structure and a second annular structure concentric about said second hollow region, said second hollow region having an inner wall formed by the outer surface of said first annular structure and an outer wall formed by the inner surface of said second annular structure;

(b) means for introducing a contaminated liquid medium to be cooled into said second hollow region;

(c) means for removing said liquid medium from said second hollow region;

(d) means for injecting a cooling medium under selectively variable pressure into said first and said second annular structures such that a selectively variable cooling rate of said inner and said outer walls of said second hollow region is obtained;

(e) means for extracting said cooling medium from said first and said second annular structures;

(f) means for brushing continuously said inner and said outer walls of said second hollow region; and

(g) means for filtering said cooled contaminated liquid medium.

4,266,602

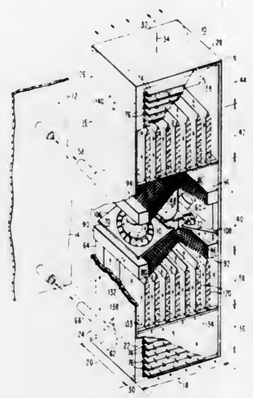
HEAT EXCHANGER FOR COOLING ELECTRICAL POWER APPARATUS

Dale White, Muncie; David L. Ayers, West Lafayette, both of Ind., and Allan E. Hribar, Churchill Borough, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 21, 1980, Ser. No. 122,937

Int. Cl.³ F28F *9/22*

U.S. Cl. 165—124 **25 Claims**



1. A fluid-to-air heat exchanger for cooling electrical power apparatus, comprising:

a vertically elongated housing having side wall, top and bottom portions, and air openings near the top and bottom portions,

a fluid-to-air tube core in said housing, said tube core having inlet and outlet means adapted for fluid flow communication with the electrical apparatus to be cooled, said tube core being vertically divided into upper and lower portions having a predetermined spacing therebetween,

air moving means in said housing, in the spacing between the upper and lower portions of the tube core and operative for moving air vertically in a predetermined direction through the lower and upper portions of said tube core, with the air entering and exiting predetermined openings in said housing, and

sound dissipative muffler means in said housing, above the upper portion of said tube core and below the lower portion of said tube core, for dissipating sound energy associated with the air being vertically moved through the housing.

4,266,603

HEAT EXCHANGERS AND METHOD

Willy Germann, Wurenlos, Switzerland, assignor to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed Jan. 19, 1979, Ser. No. 4,869

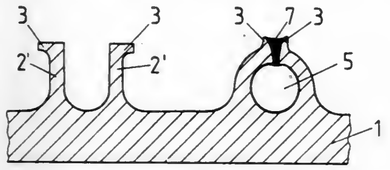
Claims priority, application Switzerland, Jan. 25, 1978, 785/78

Int. Cl.³ F28F *1/22*

U.S. Cl. 165—171 **1 Claim**

1. A heat exchanger comprising a base having opposite

surfaces, a pair of walls extending outwardly from one of said base surfaces, said walls being joined by a seam extending



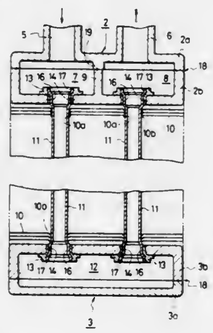
longitudinally of said walls and cooperating with said walls to form an enclosed passage for fluid, said walls including flanges along said seam.

4,266,604

HEAT EXCHANGER WITH FLUID TANKS MADE OF SYNTHETIC RESIN

Seiji Sumikawa; Hiroshi Niizuma; Hiromichi Tonegawa; Tsuneo Torizuka; Yoichiro Furuya, and Norio Takashima, all of Konan, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,750
Claims priority, application Japan, Aug. 23, 1978, 53-102481
Int. Cl.³ F28F *9/02*
U.S. Cl. 165—176 **9 Claims**



1. A heat exchanger comprising:

two inner tank elements each made of synthetic resin, arranged in opposed and spaced relation, each inner tank element having substantially flat opposite end wall surfaces and formed with a plurality of openings;

a first and a second outer tank element each made of synthetic resin, each outer tank element being united with an associated one of said inner tank elements to define thermal fluid spaces in cooperation therewith, the first outer tank element having an inlet and an outlet for thermal fluid;

partition means dividing the thermal fluid space defined by the first outer tank element and the associated inner tank element into an inlet chamber and an outlet chamber, said partition means comprising two partition walls formed integrally on opposed end walls of said first outer tank element and said associated inner tank element, the partition walls having opposed marginal ends thereof united together in an abutting manner;

gasket means having tubular bodies fitted in the respective openings of said inner tank elements;

a plurality of tubes extending between the inner tank elements, each tube having opposite end portions extending through associated ones of the tubular bodies of the gasket means, said opposite end portions each having at least one portion expanded to urge the respective tubular body against the inner peripheral surface of the corresponding opening in the associated inner tank element so as to have a diameter larger than the remaining portion of the tube to clamp the tubular body between the tube and the inner tank element; and

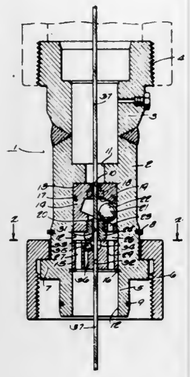
a plurality of fins secured on said tubes, the inner tank elements and associated ones of the outer tank elements thereby having corresponding opposed peripheral edges thereof united together in an abutting manner.

4,266,605

WIRELINE SAFETY CHECK VALVE

Russel G. LaBorde, 4055 N. Stowell Ave., Shorewood, Wis. 53211, and Emmett F. Brieger, Bonito Rte., Nogal, N. Mex. 88341

Filed Apr. 28, 1980, Ser. No. 144,644
Int. Cl.³ E21B *34/04, 43/00*
U.S. Cl. 166—97 **4 Claims**



1. A wire line safety check valve for a well, said check valve comprising a valve body having a stepped axial bore therethrough, a valve insert fitted in said stepped bore in abutment with a shoulder thereof, said valve insert having a stepped axial bore therethrough, a first valve seat secured in the upper end of the bore in said valve insert and having a wire line passage, a ball, an inclined bore in said valve insert from one side thereof fitted with said ball normally biased by its weight to fall away from said valve seat and toward said valve body, a guideline insert with a wireline passage secured in the lower end of the axial bore in said valve insert, and a longitudinal bore in said valve insert that is open at its bottom end for unrestricted communication with the well casing and open at is upper end to the inclined bore at an area behind the ball, a wireline extends through the wireline passages of the check valve and normally restricts the passage of fluid therethrough;

whereby upon loss or removal of said wireline, fluid under pressure in said well surges upward and forces said ball to abut said valve seat and close the opening thereof.

4,266,606

HYDRAULIC CIRCUIT FOR BOREHOLE TELEMETRY APPARATUS

Frederick A. Stone, Durham, Conn., assignor to Teleco Oilfield Services Inc., Middletown, Conn.

Filed Aug. 27, 1979, Ser. No. 70,092
Int. Cl.³ E21B *47/00*
U.S. Cl. 166—113 **7 Claims**

1. A hydraulic circuit for borehole telemetry apparatus, including:

pump means for delivering pressurized hydraulic fluid to a first conduit;

filter means positioned in said first conduit from said pump means to receive hydraulic fluid from said pump means;

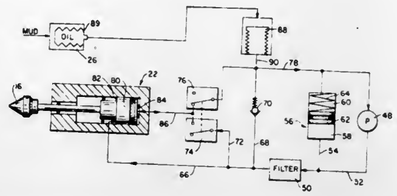
return conduit means for returning hydraulic fluid to the inlet to said pump means;

second conduit means for delivering hydraulic fluid from said filter means to valve actuator means to actuate said valve actuator means in a first direction;

regulating and relief valve means connected to said second conduit means downstream of said filter means and between said second conduit means and said return conduit means;

third conduit means connected to said second conduit means downstream of the connection to said regulating and relief valve means;

solenoid valve means connected to said third conduit means and to said return conduit means;



fourth conduit means between said solenoid valve means and said valve actuator means;

said solenoid valve means in a first position thereof delivering pressurized hydraulic fluid to said valve actuator via said third and fourth conduit means to actuate said valve actuator means in a second direction, and said solenoid valve means in a second position thereof connecting said fourth conduit means to said return conduit means to return hydraulic fluid to the inlet of said pump; and

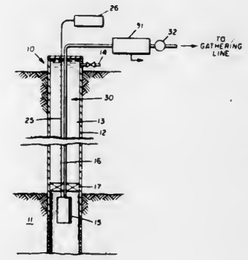
pressure compensation means connected to said return conduit means to vary the pressure of hydraulic fluid in said return conduit means as a function of changes in pressure of an environment to which said pressure compensating means is exposed.

4,266,607

METHOD FOR PROTECTING A CARBON DIOXIDE PRODUCTION WELL FROM CORROSION

Louis N. Halstead, Houston, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 7, 1980, Ser. No. 137,701
Int. Cl.³ E21B *43/00*
U.S. Cl. 166—244 C **6 Claims**



6. In a method for producing carbon dioxide from a carbon dioxide production well having a pump means suspended on a production tubing in said well to boost the pressure of the produced carbon dioxide to a value sufficient to produce carbon dioxide at the surface above its critical pressure, the improvement comprising:

setting a packer means just above said pump means to isolate said pump means from the annulus formed between the wellbore and said production tubing above said packer means; and

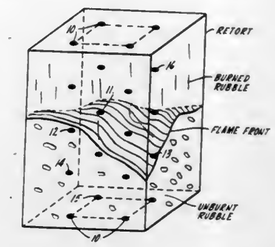
filling said annulus above said packer means with a corrosion inhibitor liquid.

4,266,608

METHOD FOR DETECTING UNDERGROUND CONDITIONS

John D. McCollum, Naperville, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 925,178, Jul. 17, 1978. This application Aug. 3, 1979, Ser. No. 63,426
Int. Cl.³ E21B *43/243, 47/00, 47/12*
U.S. Cl. 166—250 **5 Claims**



1. In the in situ retorting of a subterranean carbonaceous stratum, a method for detecting non-uniform packing characteristics of rubblized material comprising

(a) providing one or more radio transmitters within a retort, each of said transmitters being capable of sensing and transmitting information concerning one or more properties of its surroundings, and

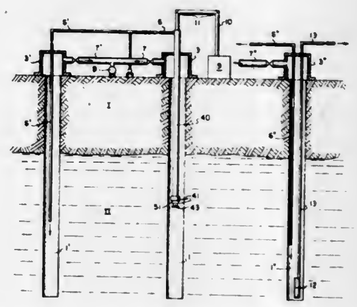
(b) monitoring said transmissions as an indication of the density distribution of the rubble in said retort.

4,266,609

METHOD OF EXTRACTING LIQUID AND GASEOUS FUEL FROM OIL SHALE AND TAR SAND

Josef Rom, Haifa, Israel; Israel Alterman, 7 Habrosh St., Savion, Israel (56915), and Josef Shwartz, Haifa, Israel, assignors to Technion Research & Development Foundation Ltd., Haifa and Isreal Alterman, Savion, both of, Israel

Filed Jun. 15, 1979, Ser. No. 48,733
Claims priority, application Israel, Nov. 30, 1978, 56088
Int. Cl.³ E21B *43/24, 43/247, 47/06, 36/04*
U.S. Cl. 166—251 **14 Claims**



10. A method of extracting kerogen from tar sand comprising the following steps in combination,

drilling at least one borehole from above, through the overlying soil and rock, into and through the tar sand layer,

stabilizing the borehole walls to prevent collapse thereof,

closing the top of said borehole by means of a tight cover provided with first duct means connected to gas or air pumping means and with means adapted to permit a laser beam to be introduced into said borehole, and with second duct means connected to at least one gas and/or liquid storage vessel,

guiding said laser beam through said first duct means into said borehole and irradiating the walls of said borehole along at least part of its entire length in the tar sand layer and causing the combustible matter in the tar sand to be ignited,

introducing air or oxygen under pressure into said borehole through said first duct means in a quantity sufficient to maintain the combustion and to cool the laser beam equipment, and

receiving and collecting combustion gases and evaporated kerogen in said gas storage vessel through said second duct means in said tight cover.

12. Apparatus for extracting kerogen from oil shale or tar sand located beneath an overlying layer of soil and rock, comprising

tight cover means at the mouth of a borehole extending through the overlying soil and rock, into and through the oil shale or tar sand layer, said tight cover means being provided with first duct means and with second duct means; said first duct means comprising an air inlet tube slidingly and sealingly fastened in said tight cover means over the mouth of the borehole, said tube being movable along a central longitudinal axis of the borehole in an upwardly and downwardly direction, said tube being provided with a mirror assembly firmly attached at its bottom end thereof, said mirror being capable of deflecting a laser beam sideways, said tube being further provided with means for introducing into its upper end the laser beam and for guiding the laser beam to said mirror assembly;

means to supply oxygen or air under pressure to said tube to simultaneously effect cooling of said mirror assembly and air or oxygen under pressure to support combustion in the borehole; and

means to remove kerogen from the borehole through said second duct means in said tight cover means, comprising at least one gas and/or liquid storage vessel downstream from said second dust means.

4,266,610

SULFONATE-COSURFACTANT MIXTURES FOR USE IN HARD BRINES DURING OIL RECOVERY OPERATIONS

John J. Meister, Gainesville, Fla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 28, 1978, Ser. No. 964,399
Int. Cl.[3] E21B *43/22*
U.S. Cl. 166—273 **35 Claims**

1. A petroleum sulfonate-cosurfactant system mixture containing also as a protective agent a copolymer of an alkyl vinyl ether and maleic anhydride, the alkyl containing 1-4 carbon atoms, in an amount sufficient to render the mixture stabilized in the presence of a hard brine, the brine containing 250-100,000 ppm electrolyte, the components of the system being present in ranges in amounts by weight percent as follows:

protective agent, 0.01-15 having a specific viscosity of about 0.1-0.5, as determined on a solution of 1 gram of the copolymer in 100 mL of methyl ethyl ketone at 25° C.; the petroleum sulfonate, 0.01-15; cosurfactant, 1-7: the ratio of cosurfactant to surfactant being 0.25:1-1.5:1; and the ratio of protective agent to surfactant being 1:10-50:1; the cosurfactant being selected from the group consisting of C_3-C_6 aliphatic alcohols, ketones, aldehydes, esters, phenolic compounds, and amines.

11. A process for the tertiary recovery of oil from an oil-bearing formation which comprises injecting into such formation a mixture according to claim **1** and then injecting thickened water and an aqueous drive into said formation.

4,266,611

OIL RECOVERY METHOD EMPLOYING ALTERNATE SLUGS OF SURFACTANT AND FRESH WATER SOLUTION OF POLYMER

Issam S. Bousaid, and Benny K-C Ho, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Aug. 30, 1979, Ser. No. 71,218
Int. Cl.[3] E21B *43/22*
U.S. Cl. 166—273 **27 Claims**

1. A method of recovering petroleum from a subterranean, petroleun-containing, permeable formation penetrated by at least one injection well and by at least one production well, said formation containing water having a salinity in excess of about 20,000 parts per million total dissolved solis, comprising injecting into the formation a predetermined volume of an aqueous, saline surfactant fluid, said surfactant being slightly soluble in a fluid having a salinity of from 50 to 100 percent of the salinity of the water present in the formation, and reducing interfacial tension between the petroleum and water to a value less than 100 millidynes/centimeter, said surfactant fluid being injected at the injection well and displacing petroleum in the formation toward the production well from which it is recovered to the surface of the earth, wherein the improvement comprises:

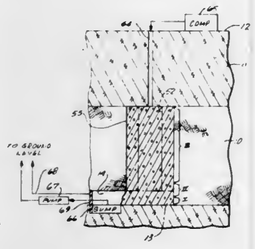
injecting from 2 to 15 discrete slugs of the surfactant fluid into the formation and separating successive slugs of surfactant fluid from one another by injecting sequentially therewith, separate isolation slugs consisting of fresh water polymer solutions having salinity less than 10,000 parts per million total dissolved solids, and containing a predetermined amount of a hydrophilic polymer.

4,266,612

IN SITU RECOVERY OF SHALE OIL

Gordon B. French, Rifle, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Division of Ser. No. 603,704, Aug. 11, 1975, Pat. No. 4,043,595, and a continuation-in-part of Ser. No. 505,276, Sep. 12, 1974, abandoned, Ser. No. 505,363, Sep. 12, 1974, abandoned, and Ser. No. 505,457, Sep. 12, 1974, abandoned. This application Mar. 22, 1977, Ser. No. 780,083
Int. Cl.[3] E21B *43/247*; E21C *41/10*
U.S. Cl. 166—299 **4 Claims**



1. A method of preparing a subterranean mineral deposit for in-situ extraction of mineral values therefrom comprising the steps of:

selecting a portion of said deposit for processing;

providing an outlet in communication with an area defining a base of said selected portion of said deposit;

providing an inlet communicating with said selected portion at a point spaced from said outlet so that said portion lies substantially between said inlet and said outlet;

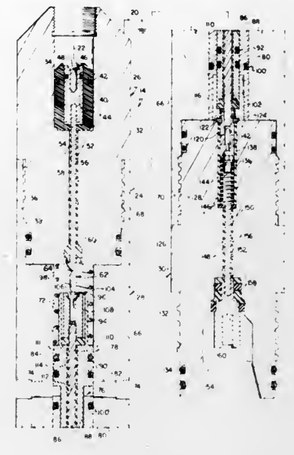
breaking said portion of said deposit into rubble defining a permeable zone extending between said inlet and said outlet and increasing in permeability from said inlet to said outlet so that the process of extraction may be initiated at the inlet and the extracted minerals transported through high permeability area to the outlet.

4,266,613

ARMING DEVICE AND METHOD

Gene T. Boop, Benbrook, Tex., assignor to SIE, Inc., Ft. Worth, Tex.

Filed Jun. 6, 1979, Ser. No. 46,110
Int. Cl.[3] E21B *43/185*; H01H *35/38*
U.S. Cl. 166—299 **17 Claims**



1. A device, runnable into a well bore on a two path wireline providing a hot path and a ground path, for arming and disarming an explosive well tool having a hot lead and a ground, comprising

a housing having a passage opening through a side thereof;

first and second means on the housing for electrical connection respectively to the tool ground and the tool hot lead upon assembly of the tool to the device;

third and fourth means on the housing for electrical connection respectively to the wireline ground path and the wireline hot path upon assembly of the device to the wire line;

means providing a first electrical path through the housing between the first and third means; and

means for arming and disarming the tool including

means providing a normally open second electrical path, separate from the first path, between the second and fourth means including means responsive to a first predetermined pressure in the passage for completing the second electrical path; and

means short circuiting the first and second means in the open configuration of the second electrical path including means responsive to a second predetermined pressure in the passage for breaking the short circuit.

12. A method of handling an explosive well tool of the type having a hot lead and a ground with a wireline having a ground path and a hot path with an arming sub having a conductive hot connection and a conductive ground connection, comprising

disarming the well tool including connecting the arming sub ground connection between the tool ground and the wireline ground path, connecting the tool hot lead to the arming sub hot connection, connecting the arming sub hot connection to the wireline ground path and electrically isolating the wireline hot path;

running the tool into a well bore; and then

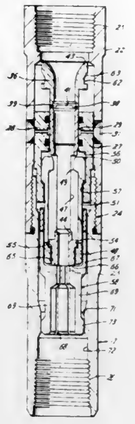
arming the tool including connecting the wireline hot path to the arming sub hot connection and disconnecting the arming sub hot connection from the wireline ground path.

4,266,614

VALVE

John V. Fredd, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Jul. 12, 1979, Ser. No. 56,886
Int. Cl.[3] E21B *34/14*
U.S. Cl. 166—332 **15 Claims**



1. A valve comprising

a tubular body,

a side port in said body,

a pair of circumferential seals in the wall of said body straddling said port,

a valve member controlling flow through said port including a tubular funnel and a tubular liner arranged in end to end abutment and movable axially to pass said abutment across one of said seals,

means maintaining said funnel and liner in coaxial alignment,

means holding said funnel and liner with no more than slight spacing therebetween while the juncture between said funnel and liner passes over one of said seals as the valve moves between open and closed position and permitting said funnel and liner to move apart in response to the valve member moving to open position.

4,266,615

SELF-PROPELLED BALLAST CLEANING MACHINE

Josef Theurer, Vienna, and Friedrich Oellerer, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed Jan. 7, 1980, Ser. No. 110,136
Claims priority, application Austria, Jan. 22, 1979, 454/79
Int. Cl.[3] E01B *27/06*
U.S. Cl. 171—16 **9 Claims**



1. A self-propelled machine for cleaning ballast supporting a railroad track and comprising

(a) a machine frame comprised of two frame parts having abutting ends,

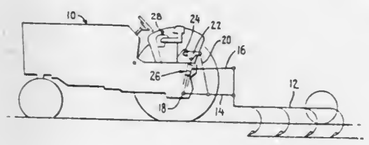
(b) a pivotal connection between the abutting ends of the frame parts and arranged to enable pivotal movement of the frame parts in vertical and horizontal directions,
(c) a drive means interconnecting the abutting frame part ends and operable to effectuate the pivotal movement in at least one of said directions,
(d) three track-bound undercarriages supporting the machine frame on the track,
(1) one of the undercarriages being arranged at the pivotal connection and being vertically adjustable with the two frame parts,
(e) means mounted on the machine frame for receiving the ballast, cleaning the received ballast and redistributing the cleaned ballast, said means including
(1) a ballast excavation chain comprising a horizontal course immersible in the ballast below the track,
(2) a ballast screening mechanism for cleaning the ballast and arranged to receive ballast from the ballast excavation chain, and
(3) respective conveyor means for redistributing the cleaned ballast and for removing waste, the conveyor means being arranged to receive the cleaned ballast and the waste, respectively, from the ballast sceening mechanism, and
(f) a device for raising the track arranged in the range of the horizontal course of the ballast excavation chain.

4,266,616

DRAFT SENSING APPARATUS WHEREIN EFFECT OF VERTICAL DEFLECTION REDUCED TO INSIGNIFICANT LEVELS COMPARED TO HORIZONTAL DEFLECTION

Otto Mueller, Jr., Detroit, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

Filed Jun. 29, 1979, Ser. No. 53,620
Int. Cl.³ A01B *63/112*
U.S. Cl. 172—7 **13 Claims**



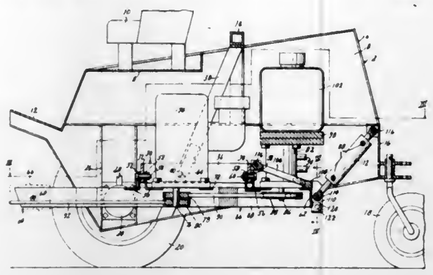
1. A tractor draft sensing apparatus of the type having an elongated bendable transversely extending generally horizontal shaft mounted in spaced apart fulcrum supports in a tractor housing and draft members connected to the shaft at points spaced from the fulcrum supports whereupon forces in the draft members cause the shaft to bend, the draft sensing apparatus being responsive to bending of the shaft and being characterized by
a first support, a portion of which is disposed to one side of the shaft;
a second support mounted on said portion of the first support for movement relative thereto, the second support having a generally horizontal surface maintained in sliding contact with a surface of the sensing shaft adjacent a portion of the sending shaft whose movement is to be sensed; and
sensing means carried by the second support and operatively interconnected with said portion of the sensing shaft to detect movement of the sensing shaft relative to said second support in a horizontal plane, the parts being so arranged and constructed that the effect of vertical deflection of the sensing member will be reduced to insignificant levels as compared to horizontal deflection.

4,266,617

TRACTOR WITH FULL-FLOATING TOOL BAR

David L. Mullet, Hesston; Raymond J. Rilling, Moundridge, and Elmer D. Voth, Newton, all of Kans., assignors to Excel Industries, Inc., Hesston, Kans.

Filed Feb. 23, 1979, Ser. No. 14,291
Int. Cl.³ A01B *59/048, 63/108;* **B60K** *9/00*
U.S. Cl. 172—76 **3 Claims**



1. A tractor operable to carry and operate a useful implement, and comprising:
a. a frame,
b. front and rear ground-engaging wheels carried by and supporting said frame, at least certain of said wheels being power-driven whereby to propel said tractor,
c. a generally horizontal tool bar extending longitudinally in said frame, and pivoted to said frame intermediate its ends on a horizontal transverse axis disposed intermediate the front and rear wheels of said frame, and also for pivotal movement about an axis longitudinal thereto and at right angles to its horizontal transverse axis, whereby said tool bar is universaliy pivotable relative to said frame,
d. means connecting said implement detachably to the forward end of said tool bar, the universal pivotability of said tool bar permitting said implement to follow accurately unevenness of the ground contour both longitudinally and laterally of the line of travel of the tractor, said implement being of sufficient weight to overbalance the forward end of said tool bar downwardly and being provided with its own ground-engaging wheels,
e. a hold-down member carried by said tractor frame and normally spaced above the rearward end of said tool bar whereby to permit free universal tilting of said tool bar,
f. power means carried by said frame and operable to lower and press said hold-down member downwardly against the rearward end of said tool bar, whereby to pivot said tool bar to elevate said implement above the ground, said hold-down member engaging said tool bar at both sides of its longitudinal pivotal axis whereby to level it on said axis,
g. a prime mover mounted on said tool bar, and
h. drive means operably interconnecting said prime mover to said implement.

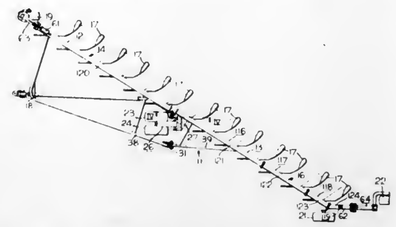
4,266,618

ARTICULATED PLOW WITH CENTRAL SUPPORT PROVIDING COUNTER MOMENT FOR REAR SECTION

Keith A. Wheeler, and Dawson W. Hastings, both of La Porte, Ind., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sep. 4, 1979, Ser. No. 72,422
Int. Cl.³ A01B *15/14*
U.S. Cl. 172—314 **8 Claims**

5. An articulated plow having end-to-end front and rear sections each having a diagonal main frame with plow bottoms connected thereto at predetermined intervals, an articulation joint connecting the adjacent ends of the frames on a horizontal transverse articulation axis, front and rear ground engaging wheels connected, respectively, in supporting relation to the front end of said front section and to the rear end of the rear section, characterized by
a central ground engaging wheel rotatably mounted on the front end of said rear section by means fixing said central ground engaging wheel to move with said rear section



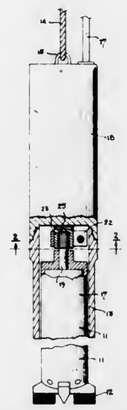
about said articulation axis about said articulation axis, said central ground engaging wheel engaging the ground a predetermined distance forwardly of said transverse articulation axis whereby the rear plow section is subjected to a counter moment.

4,266,619

DOWN HOLE CYCLOIDAL DRILL DRIVE

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Continuation-in-part of Ser. No. 64,046, Aug. 6, 1979, and a continuation-in-part of Ser. No. 63,840, Aug. 6, 1979. This application Sep. 17, 1979, Ser. No. 76,194
Int. Cl.³ E21B *7/24*
U.S. Cl. 175—55 **6 Claims**



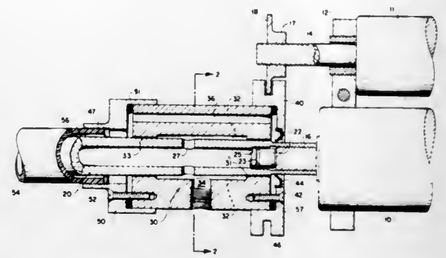
1. A drive system for cycloidally driving a drill around the side walls of a bore hole to effect rotation of a cutting bit comprising:
a drill stem, said bit being mounted on the down hole end of said stem, said stem having its diameter slightly less than that of said bore hole,
an eccentric mass rotor,
means for rotatably supporting said rotor within said drill stem at a down hole position therealong spaced from the opposite ends of said stem and in an upper region of said stem, and
means for rotatably driving said rotor, thereby generating a rotating force vector in a plane generally transverse of the bore hole, said force vector acting on said upper region of said system so as to cause said upper region of said system formed by the stem and drill bit to precess with a conical motion around the side wall of the bore hole in forceful driving engagement thereagainst, with said bit rotating as a pivot at the apex of said conical motion in pinned down engagement against the bottom of said bore hole.

4,266,620

HIGH PRESSURE FLUID APPARATUS

John E. Wolgamott, 2055 Ingalls, Edgewater, Colo. 80214, and Gerald P. Zink, 0259 County Rd. 216, Durango, Colo. 81301

Filed Feb. 11, 1980, Ser. No. 120,709
Int. Cl.³ E21B *21/02*
U.S. Cl. 175—215 **29 Claims**



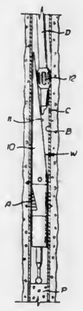
1. An apparatus for transferring fluid from a stationary source into an elongated tube at a relatively high pressure, said elongated tube adapted to be rotated by a rotary power source, said apparatus comprising:
means for directing substantially all of said fluid from said stationary source into said tube at a location intermediate the length of said tube and at a relatively high pressure when said fluid directing means is in a first position and for directing substantially all of said fluid from said stationary source to a low pressure region juxtaposed to said tube when said fluid directing means is in a second position; and
means for selectively and variably positioning said fluid directing means at and between said first and said second position, said positioning means being connected to fluid directing means.

4,266,621

WELL CASING WINDOW MILL

Kenneth A. Brock, Lafayette, La., assignor to Christensen, Inc., Salt Lake City, Utah

Continuation of Ser. No. 808,806, Jun. 22, 1977, abandoned. This application Aug. 14, 1978, Ser. No. 933,469
Int. Cl.³ E21B *10/46*
U.S. Cl. 175—329 **40 Claims**



1. A rotary mill for elongating windows in a well casing off a casing whipstock comprising: a body connectible at one end to a rotary drill pipe string and having a substantially flat face

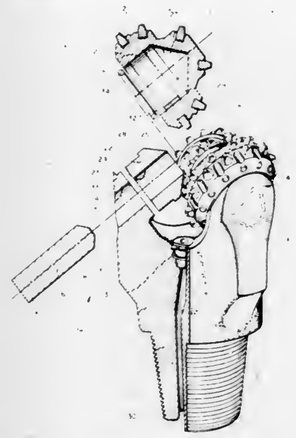
at its other end, an axially extended gauge surface engageable with said whipstock to force said body laterally, cutting means on said body and extending from the periphery of said face across the center of said face for elongating a window in the casing responsive to rotation of the mill, said body having a portion thereon projecting outwardly from said body and providing surface means merging with said face for engaging a fixed structure to produce a force acting laterally on said body to move said face off center with respect to the edge of the casing.

4,266,622

ROTARY ROCK BIT AND METHOD OF MAKING SAME

Edward Vezirian, Fountain Valley, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Jan. 15, 1979, Ser. No. 3,246
Int. Cl.[3] E21B *10/20*
U.S. Cl. 175—366 **4 Claims**



1. A rotary rock bit comprising:

a one piece bit body having an external annular gage surface and a central axis, said bit body having an upper pin portion which is adapted to be connected to the lower end of a drill column, said bit body further having at least two legs extending downwardly from the rest of the bit body substantially parallel to said central axis along the gage surface, said legs forming an open area therebetween, below the rest of the bit body;

each leg further having a bore extending therethrough;

a cone type cutter corresponding to each leg, each cutter having an interior cavity, each cutter being positioned within said open area such that the cavity of each cutter is aligned with the bore of a respective leg;

a separate journal pin mounted within the bore of each leg, each journal pin further having a portion extending into the cavity of the registering cone cutter; and

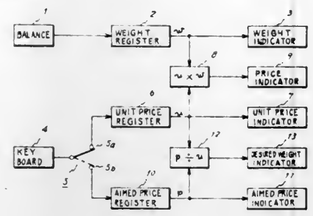
means for retaining each cutter on the respective leg, said retaining means comprising a thrust element having a central bore, each thrust element being located within the cavity of each cone cutter and retained therein, the portion of each journal pin extending into the cavity of a respective cone cutter extending into the bore of the thrust member and being secured thereto, each thrust member further having an annular shoulder formed thereon, said retaining means further comprising an annular member engaging the shoulder of each thrust member within the cavity of each cone cutter, each annular member being secured to the respective cone cutter, by means of a high energy beam weld which fuses the mating surfaces of the annular member and the cone cutter.

4,266,623

PRICE CALCULATING BALANCE WITH AIMED PRICE INPUT

Shozo Kawanishi, Kobe, and Masami Yamanaka, Miki, both of Japan, assignors to Yamato Scale Company, Limited, Hyogo, Japan

Filed Jan. 7, 1980, Ser. No. 110,342
Int. Cl.[3] G01G *23/22*
U.S. Cl. 177—25 **2 Claims**



1. A price calculating balance, comprising means for measuring weight and encoding and storing the measured value, means for presetting and storing unit price, a multiplier for multiplying the contents of said unit price storing means and weight storing means and price indicating means for indicating the result of said multiplication, said balance further comprising means for presetting and storing an aimed price, a divider for dividing the content of said aimed price storing means by the content of said unit price storing means, and desired weight indicating means for indicating the result of said division.

4,266,624

WEIGHING APPARATUS

Benny N. Dillon, Worthington, and William C. Susor, Westerville, both of Ohio, assignors to Masstron Scale, Inc., Columbus, Ohio

Filed Jul. 13, 1979, Ser. No. 57,491
Int. Cl.[3] G01G *21/22, 19/02*
U.S. Cl. 177—253 **18 Claims**



1. A weighing apparatus adapted to be disposed on a support surface, said weighing apparatus comprising a longitudinally extending platform, said platform including a pair of parallel box support sections which are disposed along longitudinally extending edge portions of said platform and extend throughout the length of said platform, each of said box support sections including a pair of spaced apart longitudinally extending sidewalls, a bottom wall extending between said sidewalls, and a top wall interconnecting said sidewalls and extending parallel to said bottom wall, each of said box support sections having an opening in its bottom wall adjacent to an end of the box support section, a plurality of beams extending between said box support sections, each of said beams having a longitudinal central axis which extends transversely to the longitudinal central axes of said box support sections, and plate means for spanning the space between said box support sections and said beams, and a plurality of load responsive units each of which is

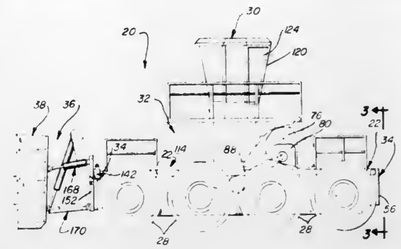
mounted in one of said box support sections and extends through an opening in the bottom wall of said one box support section to transmit a load to the support surface.

4,266,625

TRACTION VEHICLE

Fay T. Garner, and Jerauld D. Joubert, both of Longmont, Colo., assignors to Melroe Multi-Wheel, Longmont, Colo.

Filed Jan. 16, 1978, Ser. No. 869,697
Int. Cl.[2] B62D *11/04*; E02F *3/76*
U.S. Cl. 180—6.48 **7 Claims**



1. A traction vehicle comprising:

(a) a modular frame structure comprising the following elements permanently and rigidly fixed to one another to define a structurally rigid unified frame module for said traction vehicle:

(i) a pair of drive assembly housings, each of said drive assembly housings being generally of boxlike construction, said pair of housings extending longitudinally of said frame module and defining opposite transverse sides thereof;

(ii) at least one upper frame plate member transversely connected between said drive assembly housings at upper positions thereon;

(iii) at least one lower frame plate member transversely connected between said drive assembly housings at positions thereon lower than said upper frame plate member;

(iv) a plurality of reinforcing members connected between said drive assembly housings and at least one of said frame plate members, said reinforcing members extending substantially transversely inward from said drive assembly housings at positions intermediate the longitudinal ends of said frame module;

(v) a pair of frame end members, each end member extending substantially transversely of said frame module at longitudinal ends thereof, each end member being attached to the pair of drive assembly housings and to at least one frame plate member;

(vi) a plurality of wall members connected to and extending transversely inwardly from said drive assembly housings, each of said wall members being positioned at longitudinal locations intermediate longitudinal ends of said frame module, each of said wall members further connecting to and extending upwardly with respect to at least one frame plate member; and

(vii) at least one container integrally formed within said frame module intermediate said pair of drive assembly housings and intermediate the longitudinal ends of said frame module, said one container being defined in part by at least one drive assembly housing and by at least one plate member and by at least one wall member;

(b) at least two separate power train assemblies, one of said power train assemblies being operatively associated with each drive assembly housing, each of said power train assemblies supplying reversible motive traction power to one lateral side of said vehicle, each power train assembly comprising:

(i) at least two driving wheel members;

(ii) one axle shaft operatively connected for rotating each wheel member, each axle shaft extending transversely through an associated drive assembly housing and positioning the connected driving wheel member laterally outwardly spaced from said drive assembly housing;

(iii) means interconnecting all of said axle shafts within one drive assembly housing for transmitting rotating power simultaneously to all of said axle shafts within the drive assembly housing;

(iv) motive power supply means associated with said interconnecting transmitting means for supplying motive power to rotate said axle shafts;

(c) tower structure operatively connected to extend above said frame module;

(d) an operator's cab positioned on said tower structure above said frame module, said cab including sidewall structure comprising a plurality of upward extending sidewall panels operatively connected together, each of the sidewall panels generally slopes outwardly and upwardly at approximately the same angle with respect to a vertical reference; and

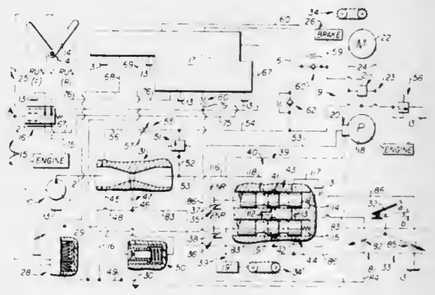
(e) a pair of main support bars extending upward from the support tower structure within said cab, each of said support bars extending generally upwardly along the outwardly sloping sidewall panels and transversely across said cab at an upward position therein, said support bars being essentially parallel to one another and extending generally transversely of said frame module within said cab, said pair of main support bars affording structural rollover protection for said cab.

4,266,626

STEERING SYSTEM WITH INTERLOCK VALVES

Lucien B. Shuler, Bettendorf, Iowa, assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00415, § 371 Date Jun. 13, 1979, § 102(e) Date Jun. 13, 1979, PCT Pub. No. WO80/02824, PCT Pub. Date Dec. 24, 1980.
This PCT application filed Jun. 13, 1979, Ser. No. 89,119
Int. Cl.[3] B62D *11/04*
U.S. Cl. 180—6.48 **10 Claims**



1. In a vehicle having a first drive (**34**), a second drive (**34'**), fluid actuating means (**19,19'**) for selectively varying the speed and directions of movement of said first (**34**) and second (**34'**) drives, control means (**15**) for controlling said fluid actuating means (**19,19'**), and first (**35**) and second (**36**) steering means each being movable to a first (F), second (N), and third (R) position of operation for selectively controlling said fluid actuating means (**19,19'**), independently of actuation of said control means (**15**), to steer said vehicle, the improvement comprising interlock means (**40**) for stopping said first and second drives and said vehicle in response to movement of both said first (**35**)

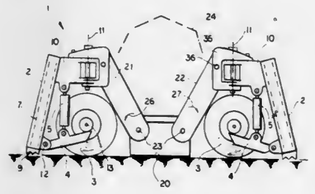
and second (**36**) steering means to preselected ones of said positions of operation, said interlock means (**40**) including first (**43**) and second (**44**) valve means for actuation in response to movement of said first (**35**) and second (**36**) steering means, respectively, to stop said first and second drives (**34,34'**) and said vehicle when both of said first (**35**) and second (**36**) steering means are moved to their second (N) or third (R) positions or when one of said first (**35**) and second (**36**) steering means is moved to its second position (N) and the other one thereof is moved to its third position (R).

4,266,627

TRAVELING ASSEMBLY AND WHEEL SUSPENSION FOR A ROLLING AND STEPPING VEHICLE

Ernst Lauber, Thun, Switzerland, assignor to Willy Habegger, Thun, Switzerland

Filed Feb. 23, 1979, Ser. No. 14,687
Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807517
Int. Cl.³ B62D *57/02*
U.S. Cl. 180—8 B **10 Claims**



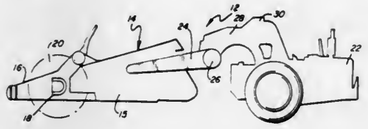
1. A wheel assembly, especially for a rolling and stepping machine, comprising:
a wheel leg;
a support ram telescopingly received in said leg and extensible therefrom to support said machine upon the ground;
means for extending said ram from said leg;
a lever articulated at one end to a lower portion of said leg;
a wheel journaled on an opposite end of said lever; and
actuating means connected to said lever for swinging said wheel between a position wherein said wheel is drawn away from the ground and a position wherein said wheel supports said leg on the ground.

4,266,628

DIFFERENTIAL CASE AND PUSH-FRAME ASSEMBLY

George A. Fisher, and Gary E. Mason, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 822,843, Aug. 8, 1977, Pat. No. 4,183,551.
This application Aug. 24, 1979, Ser. No. 69,449
Int. Cl.³ B60K *1/00*
U.S. Cl. 180—54 F **3 Claims**



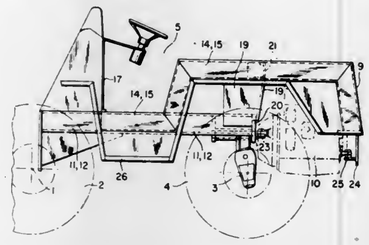
1. A push frame assembly for a scraper bowl comprising: a tubular structural member, a pair of spaced apart side walls, each side wall having an aperture therethrough, said tubular member structurally spanning the distance between said spaced apart said walls, the opposite end portions of said tubular member extending through said apertures and being structurally connected directly to said side walls, a spreader tube connected directly to upwardly projecting portions of said spaced apart side walls, a rear plate connected directly to portions of the side walls remote from said spreader tube, said tubular member having a rearwardly facing engine drive line receiving opening there-through, bracket means including two brackets connected to the front of said tubular member to which two ejector cylinders are adapted to be connected, and engine support mounts secured to the top surface of said tubular member for supporting an engine.

4,266,629

MOTOR VEHICLE WITH AXLE PIVOT STEERING

Karl Friedrich, Sipplingen, Fed. Rep. of Germany, assignor to Kramer-Werke GmbH, Uberlingen, Fed. Rep. of Germany

Filed Apr. 9, 1979, Ser. No. 28,437
Int. Cl.³ B62D *25/08*
U.S. Cl. 180—252 **6 Claims**



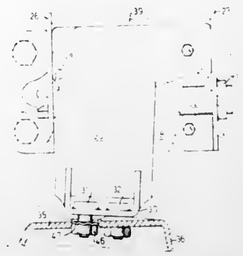
1. Motor vehicle with axle pivot steering comprising a rigid frame having a front end and a rear end with a longitudinal direction extending in the front end-rear end direction and a transverse direction extending across the longitudinal direction, at least two vehicle axles supported on and extending in the transverse direction of said frame with at least one of said axles comprising a steering axle having swivelling wheels thereon, an engine mounted on said frame, a vehicle body including a driver's seat mounted on said frame, said frame including first beams extending in the longitudinal direction of said frame and second beams extending in the transverse direction of said frame, and said vehicle body having an access to the driver's seat over said first beams, wherein the improvement comprises that said frame includes at least two frame portions each extending in the longitudinal direction and comprising a first frame portion and a second frame portion, said first and second frame portions each comprising said second beams and different ones of said first beams, said first beams of said first frame portion having an upper height lower than the upper height of said swivelling wheels and defining the lower height limit of the access in said vehicle body to the driver's seat, and said first beams of said second frame portion each having a arched section extending upwardly over the upper height of said swivelling wheels and forming an arch-like portion for said swivelling wheels so that said swivelling wheels can be swivelled without contacting said first beams of said second frame portion, said first beams of said first and second frame portions extend in generally parallel spaced relation with said first beams of said first frame portion located closer together than said first beams of said second frame portion and said first beams of said first frame portion arranged symmetrically between said first beams of said second frame portion, and said second beams of said first frame portion are rigidly connected to said first beams thereof and said second beams of said second frame portion are rigidly connected to said first beams thereof and wherein said steering axle is supported on said first beams of said first frame portion and is spaced below said first beams of said second frame portion.

4,266,630

POWER UNIT SUSPENSION IN MOTOR VEHICLES

Dan L. Nilsson, Sjuntorp, and Joel L. Danielsson, Trollhattän, both of Sweden, assignors to Saab-Scania Aktiebolag, Sodertalje, Sweden

Filed Apr. 3, 1979, Ser. No. 26,796
Claims priority, application Sweden, Apr. 11, 1978, 7804032
Int. Cl.³ B60K *5/00*
U.S. Cl. 180—291 **12 Claims**



1. An arrangement for suspending a power unit in a forward engine compartment of a vehicle, for controlling during a collision the rearward movement of the power unit in the engine compartment caused by excessive forces in the lengthwise direction of the vehicle, comprising a forward resilient mounting and two rear resilient mountings one on either side of the power unit connecting the power unit to structural portions of the vehicle body, at least one of said rear resilient mountings, including first and second members and a resilient body separating said first and second members, said first member being attached to the power unit, said second member being attached to structural portions of the vehicle body, characterized by the combination that said rear mountings allow the first member a limited rearward movement, in a direction generally opposite to the normal direction of travel of the vehicle, relative to the second member while absorbing deformation work in the rear mounting, said rearward movement being limited by fixed means, and that the attachment of the rear mounting to one of the group consisting of the power unit and the structural portions of the vehicle body includes means for allowing a controlled outer deformation on the application of a force exceeding a predetermined level, so that the power unit can be given a total displacement in the engine compartment to the point of contact with a cowl panel at the rear of the engine compartment before the connection formed between the power unit and the structural portions of the vehicle body by means of the rear mounting is destroyed.

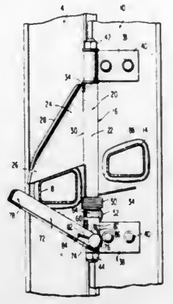
4,266,631

EXTENSION LADDERS WITH ROTARY HOOK LOCKS

Clayton E. Larson, Brooklyn, N.Y., and Edward H. Lemp, Bellows Falls, Vt., assignors to White Metal Rolling & Stamping Corp., Brooklyn, N.Y.

Filed Mar. 26, 1980, Ser. No. 133,983
Int. Cl.³ E06C *7/06*
U.S. Cl. 182—211 **7 Claims**

1. In an extension ladder having a bed section formed of a pair of parallel side rails and a plurality of equally spaced apart step members fixed transversely upon the side rails and a fly section formed of first and second parallel side rails and a plurality of transverse step members fixed upon the side rails spaced apart equivalent to the spacing of the step members of said bed section, the improvement which comprises:
a pair of rotary automatic hook locks each comprising
a rotatable hook unit having an elongated tubular portion with a contoured hook portion extending laterally therefrom, said hook portion having a triangular shaped outboard end,
a longitudinal shaft fixed spaced apart from and parallel to a side rail of the ladder by a pair of brackets fastened to that side rail,
said hook unit being rotatably positioned on said shaft between said brackets for rotation between a hooking position and a passing position,
first spring means biasing said hook unit toward said hooking position,
a stop member comprising a body portion and a transverse



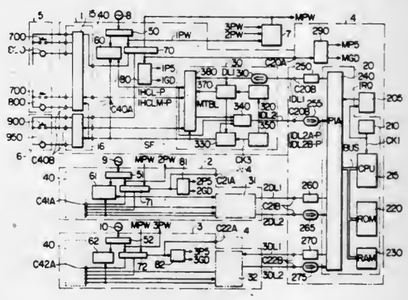
leg portion positioned on said shaft between one end of said hook unit and one of said brackets for rotation with said hook unit,
an elongated toggle pivoted at one end upon said leg portion of said stop member, said
toggle being long enough so the free-end thereof can swing into contact with said hook portion outboard end, and
second spring means biasing said toggle into said outboard end contacting position.

4,266,632

ELEVATOR SYSTEM

Kanji Yoneda; Takeo Yuminaka, and Masao Nakazato, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 4,878
Claims priority, application Japan, Jan. 20, 1978, 53/4261
Int. Cl.³ B66B *1/18*
U.S. Cl. 187—29 R **17 Claims**



1. An elevator system comprising:
a structure having a plurality of floors,
a plurality of elevator cars mounted in parallel for movement relative to the floors,
at least two hall-call registration means to register calls for service from the floors,
a plurality of elevator car operation control means each of which is respectively provided in each of said elevator cars, for operatively controlling the elevator cars in accordance with signals for service of the elevator cars,
system control means to deliver the signals for service of the elevator cars to the elevator car operation control means

for systematically controlling the elevator car operation control means,

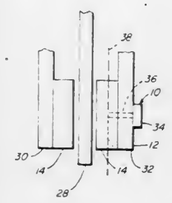
at least two interface means for respectively connecting the hall-call registration means and at least two of the elevator car operation control means to deliver calls for service of the elevator cars received from the hall-call registration means to the elevator car operation control means, and duplicated hall-call registration systems each of which connects, in turn, one of hall-call registration means, one of interface means, one of elevator car operation control means and the system control means.

4,266,633

BRAKE WEAR WARNING SYSTEM

William A. Barabino, North Reading, and Edward J. Cook, South Hamilton, both of Mass., assignors to Safety Research & Engineering Corporation, N. Reading, Mass.

Filed Mar. 8, 1979, Ser. No. 18,449
Int. Cl.³ F16D *66/02*
U.S. Cl. 188—1 A **5 Claims**



1. A brake wear warning system for use on a wheeled vehicle equipped with brakes in which the brakes include at least one rotatable brake member and at least one relatively fixed element mounted for limited movement to and away from said member, said element provided with a lining adapted to frictionally engage said member upon actuation of said element, comprising

(a) an acoustical signal generator mounted to said element and adapted to produce an acoustical signal when a flow of ambient air passes therethrough,

(b) ambient air flow control means connected to said generator and to said lining,

(c) said means adapted to open said generator to the flow of ambient air when said lining has worn to a predetermined thickness, said flow of air produced by the motion of said vehicle,

(d) detector means mounted to said vehicle for sensing an acoustical signal from said generator and producing an electrical signal therefrom,

(e) electrical signal processing means connected to said detector means, and,

(f) alarm means connected to said processing means for alerting the operator of said vehicle.

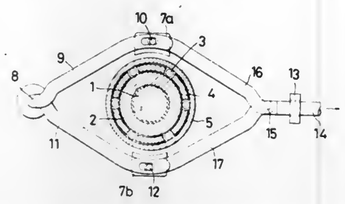
4,266,634

BRAKING DEVICE

Tadashi Hishida, Sakai, Japan, assignor to V.I.V. Engineering Co., Ltd., Japan

Filed Jul. 13, 1979, Ser. No. 57,374
Int. Cl.³ F16D *51/22*
U.S. Cl. 188—75 **5 Claims**

1. A braking device comprising a circular rotor coaxially fixed to the shaft of a rotary machine, a brake drum made of a material capable of elastic deformation and mounted on said circular rotor, balls or rollers interposed between said brake drum and said circular rotor, spacers arranged between said balls or rollers for holding said rollers at regular intervals, said balls or rollers adapted for rotation around the axis of said rotor as long as said brake drum maintains circularity and adapted to be locked between said brake drum and said circular rotor when said brake drum is caused to deviate from



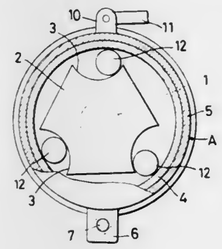
circularity, and a means for causing said brake drum to deviate from circularity.

4,266,635

BRAKING DEVICE

Masahiko Kondo, Osaka, Japan, assignor to V.I.V. Engineering Co., Ltd., Japan

Filed Jun. 29, 1979, Ser. No. 53,208
Int. Cl.³ F16D *51/00*
U.S. Cl. 188—82.84 **5 Claims**



1. A braking device comprising a rotor coaxially affixed to a shaft of a rotary machine, said rotor having a plurality of concavities about the outer periphery thereof, each of said concavities having an axis of symmetry perpendicular to the axis of rotation of said shaft, a brake drum enclosing said rotor, said drum having a concentric and an eccentric position with respect to said rotor, a roller bearing means interposed between the internal surface of said brake drum and each of said concavities in the rotor and adapted for planetary motion around the axis of said rotor when said brake drum is in the concentric position with respect to said rotor and adapted to be locked between said rotor and said brake drum when said brake drum is moved to the eccentric position with respect to said rotor, and means for moving said brake drum to and from said concentric and eccentric positions.

4,266,636

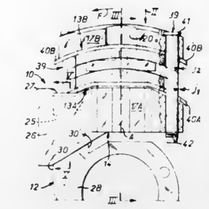
CROWN-TYPE CALIPER BRAKE

Micher Bacher, Garges-les-Gonesse, France, assignor to Société Anonyme Francaise du Ferodo, France

Filed Feb. 1, 1979, Ser. No. 8,698
Claims priority, application France, Feb. 3, 1978, 78 03070
Int. Cl.³ F16D *53/00*
U.S. Cl. 188—76 **21 Claims**

1. A crown-type caliper brake comprising a single fixed support therefor, a rotatable generally cylindrical braking member, two brake pads disposed respectively inside and outside said cylindrical braking member, and a generally C-shaped caliper member mounted for radial movement with respect to said cylindrical braking member and radially straddling said brake pads and said braking member; said caliper member including a first limb, a second limb and an intermediate portion interconnecting said limbs; said first limb having

force-applying means cooperable with a first of said brake pads and said second limb being cooperable with a second of said brake pads so that in response to said force-applying means and transmission of a corresponding force by said caliper member said brake pads are both applied against said braking member along a generally radial gripping axis passing through central areas of said brake pads; wherein the improvement comprises said fixed support having a single leg member extending gener-



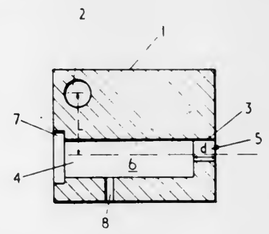
ally parallel to the gripping axis, said caliper member having a lobe located completely to one side of said force-applying means, a guideway of closed contour extending substantially through said lobe for slidable mounting said caliper member on said leg member, said leg member having two sides lying in planes parallel to and both being spaced to said one side of an axial plane containing the gripping axis and said two sides being in sliding contact with corresponding portions of said guideway.

4,266,637

NON-RETURN DEVICE

Norman L. C. Parfitt, Ashby-de-la-Zouch, England, assignor to Coal Industry (Patents) Limited, London, England

Continuation of Ser. No. 873,718, Jan. 30, 1978, abandoned. This application Oct. 19, 1979, Ser. No. 86,306
Claims priority, application United Kingdom, Jan. 28, 1977, 03631/77
Int. Cl.³ F16D *65/54*
U.S. Cl. 188—196 P **6 Claims**



1. A non-return device consisting essentially of:
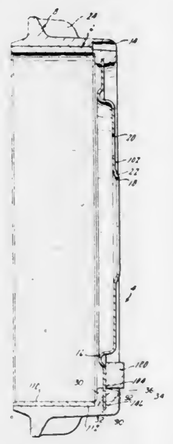
a housing having a bore therein, said bore having a constant cross-sectional area smooth-walled first section, a constant cross-sectional area smooth-walled second section adjacent said first section and a step discontinuity defining a boundary between said first and second adjacent sections, said second section having a cross-sectional area larger than that of said first section and said first section having pointed rod engaging edges at the terminating ends thereof, said housing being mounted on a pivot which is above and perpendicular to said bore and is asymmetrically disposed with respect to the length of said bore, and a smooth rod passing through said first and second bore sections and having a cross-sectional shape the same as but a cross-sectional area marginally smaller than that of said first bore section, said rod engaging with and jamming against said rod engaging edges of said first bore section upon relative movement between said rod and housing in one direction, caused solely by the action of gravity rotating the housing about the pivot, and moving freely in said bore upon relative movement between said rod and housing in an opposite direction caused by said housing rotating about said pivot against the action of gravity such that relative longitudinal movement between said rod and said housing only occurs when said housing is pivoted against the action of gravity in said opposite direction.

4,266,638

COMPOSITE BRAKE DRUM

Larry D. Petersen, Garden City, and Stanley C. Squires, Bloomfield Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 858,913, Dec. 8, 1977, abandoned. This application Jun. 18, 1979, Ser. No. 49,687
Int. Cl.³ F16D *65/10*
U.S. Cl. 188—218 R **8 Claims**



1. A compact composite brake drum for mounting to the wheel and axle shaft of a motor vehicle which comprises:

a cast iron braking ring comprising a rough outer surface and a smooth inner braking surface;

a substantially biplanar stamped steel drum back comprising:

(1) a midsection with a center hole and spaced wheel mounting holes in a first plane;

(2) a periphery with a first axially facing surface facing said ring and a second axially facing surface facing away from said ring, and with a plurality of holes and voids spaced about its outermost edge in a second plane;

(3) an annular convolute integrating said first and second planes and extending in part in a direction parallel to the axis of rotation of said drum from said first plane and toward said braking surface;

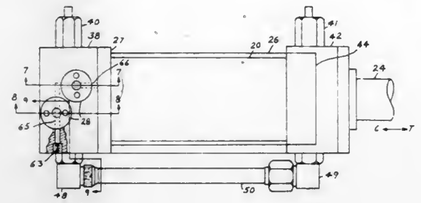
a diecast barrel of light metal of specific gravity lower than said cast iron braking ring or said stamped steel drum back, said light metal filling said peripheral holes and voids of said drum back, and bonding with said rough outer surface of said braking ring to provide a unitary brake drum and said die cast barrel having a radially extending portion axially interposed between said drum back and said braking ring to provide an axially facing bond between said first axially facing surface of said drum back and said radially extending and interposed portion.

4,266,639

QUICK RESPONSE HYDRAULIC SHOCK SUPPRESSOR FOR PIPING SYSTEMS

Arthur P. Schloth, Coventry, R.I., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 10, 1979, Ser. No. 37,782
Int. Cl.³ F16F *9/18*
U.S. Cl. 188—311 **35 Claims**



1. A hydraulic shock suppressor for controlling the rate of movement of a supported system relative to a supporting structure, comprising:

a hydraulic cylinder;

a piston disposed for relative movement within said cylinder defining a fluid chamber, one of said cylinder and piston being adapted to be connected to the supported system and the other being adapted to be connected to the supporting structure;

a port formed in said fluid chamber; and

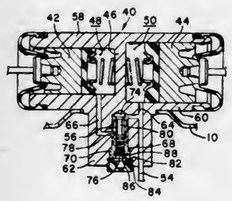
control valve means for controlling the rate of hydraulic fluid flow through said port in response to the pressure of hydraulic fluid in said chamber and the resultant pressure drop across said control valve means created by force applied to said piston and cylinder tending to cause their relative movement; wherein said control valve means includes means for passing fluid through said port at a rate that varies directly with the applied force and resultant pressure drop across said control valve means for forces up to a first level and means responsive to the pressure drop across said control valve means for maintaining the fluid flow rate through said port substantially constant within predetermined limits for applied forces up to a substantially higher second level, whereby the supported system may move slowly with little restriction when forces below the first predetermined level are applied but is restricted to a rate of movement within a predetermined range when higher forces are applied up to said second predetermined level.

4,266,640

WHEEL CYLINDER

Ji Y. Woo, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 20, 1979, Ser. No. 58,973
Int. Cl.³ B60T *8/12*
U.S. Cl. 188—363 **6 Claims**



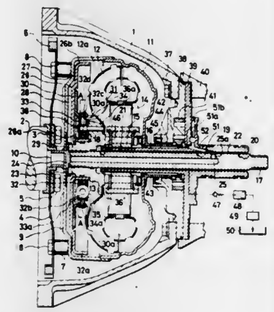
1. In a wheel cylinder having a housing forming a pair of chambers separated from each other by a common wall, a pair of pistons movably disposed within respective chambers and opposing respective brake shoes, said housing including passage means for communicating fluid pressure to said pair of chambers, characterized by pressure responsive valve means disposed within said housing passage means, said pressure responsive valve means being movable in response to fluid pressure within said passage means to close a portion of said passage means so as to substantially maintain one of said chambers at a predetermined pressure level while said other chamber is increasing in fluid above said predetermined pressure level during actuation of said wheel cylinder.

4,266,641

LOOK-UP TORQUE CONVERTER WITH COMPACT ARRANGEMENT OF DAMPER

Yoshio Sunohara, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 23, 1979, Ser. No. 23,373
Claims priority, application Japan, Apr. 4, 1978, 53-38850
Int. Cl.³ F16D *3/66, 45/02, 33/00*
U.S. Cl. 192—3.28 **5 Claims**



1. In a lock-up torque converter:

a torque converter assembly including an output shaft, a hub receiving said output shaft to provide a driving connection, a turbine runner with an outer shell drivingly connected to said hub;

a generally annular clutch piston slideably mounted on said hub;

a damper operatively connected between said clutch piston and said hub to provide a driving connection, said damper including a portion secured to said hub;

said damper including a sleeve and a flange radially extending from said sleeve;

said damper also including a plate assembly including a pair of plates disposed on opposite sides of said flange and spaced therefrom;

said flange and said plates having a plurality of openings;

said damper including a spring disposed in each of said openings;

said flange having a plurality of second openings;

said damper including a plurality of torque transmitting fasteners providing a driving connection between said plates, one of said fasteners extending through each of said second openings of said flange to act as a limit stop between said flange and said plates; and

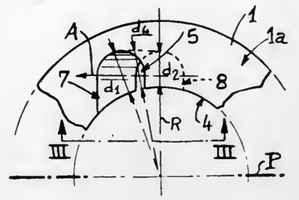
each of said fasteners having a portion extending into said hub to provide a driving connection between said plate assembly and said hub.

4,266,642

FREE WHEELS

Alfred B. Mazzorana, Venissieux, France, assignor to Societe de Paris et du Rhone, Lyons, France

PCT No. PCT/FR78/00012, § 371 Date Mar. 15, 1979, § 102(e) Date Mar. 15, 1979, PCT Pub. No. WO/00052, PCT Pub. Date Feb. 8, 1979.
This PCT application filed Mar. 15, 1979, Ser. No. 23,197
Claims priority, application France, Jul. 20, 1977, 77 22836
Int. Cl.³ F16D *15/00*
U.S. Cl. 192—45 **2 Claims**



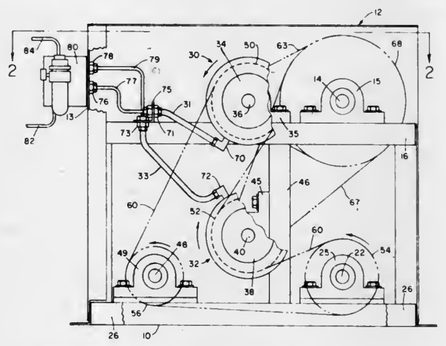
1. An improved unidirectional drive device of the type including a shaft having an axis, a cage having a central bore receiving the shaft with close clearance, and multiple balls riding on the surface of the shaft and operative to wedge and couple the shaft and cage in one direction of relative rotation and to free the coupling in the other direction, the improvement wherein the cage includes for each ball a groove extending substantially lengthwise through the cage and having a semicylindrical wall portion opening into the central bore along straight wall portions, the semicyindrical wall portion having a geometric axis intersecting at one end of the cage a radial drawn through the shaft axis at a point spaced by less than the radius of a ball from the shaft surface, and the geometric axis of the semicylindrical wall portion lying parallel to a plane which includes the axis of the shaft and is disposed normal to said radial; and the geometric axes of all of the grooves being skewed in the same direction out of parallel relationship with the shaft and disposed so that each geometric axis is closer to the shaft surface at said one end than at the other end of the cage.

4,266,643

REVERSING TRANSMISSION

John H. Stradling, Jeffersonville, and Paul R. Albrecht, Lansdale, both of Pa., assignors to J. H. Stradling, Inc., Bridgeport, Pa.

Filed Mar. 20, 1979, Ser. No. 22,471
Int. Cl.³ F16D *11/06*
U.S. Cl. 192—51 **4 Claims**



1. A reversing transmission comprising:

a rotating transmission input member,

an output shaft mounted for rotation in either direction about its axis,

a first clutch means actuatable between an engaged and disengaged position and including a rotatable input drive member,

a second clutch means actuatable between an engaged and a disengaged position and including a rotatable input drive member,

drive means operatively connected between said transmission input member and said input drive members of said first and second clutch means for rotating the same,

first driven means responsive to the actuation of said first clutch means into said engaged position thereof for causing said output shaft to rotate in one direction about its axis,

second driven means responsive to the actuation of said second clutch means into said engaged position thereof for causing said output shaft to rotate in the other direction about its axis,

and pneumatic control means continuously and repeatedly responsive to a first operating condition for causing actuation of said first clutch means into its engaged position and said second clutch means into its disengaged position and continuously and repeatedly responsive to a second operating condition for causing actuation of said second clutch means into its engaged position and said first clutch means into its disengaged position,

said first and second clutch means including pneumatic clutches adapted to be actuated from a disengaged position thereof to an engaged position thereof by the application of air under pressure thereto,

said control means including a control valve for controlling the flow of air to said first and second pneumatic clutches for controlling operation thereof,

said control means including a pressure regulated air supply for supplying air at a desired pressure to said control valve,

said control valve comprising a two-position double air bleed pilot valve,

said control means including a first pneumatically operated limit valve for sensing said first operating condition and a second pneumatically operated limit valve for sensing said second operating condition,

said limit valves being pneumatically connected to said pilot valve for controlling the operation thereof,

said limit valves including contact members actuatable between flow and no flow positions in response to the occurrence of said first and second operating conditions,

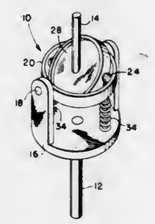
and means for positioning said limit valves at various locations along a path of travel to vary the location at which said first and second operating conditions are sensed.

4,266,644

TORQUE LIMITING AND SHOCK ABSORBING COUPLING

Michael Linsay, 4048 Charlton Rd., South Euclid, Ohio 44121

Filed Dec. 26, 1978, Ser. No. 972,679
Int. Cl.³ F16D *7/00, 3/00*
U.S. Cl. 192—56 R **16 Claims**



1. A rotary coupling comprising drive and driven members, coupling means interconnecting said members, said coupling means including a pair of gimbal rings secured to one of said members and pivotable on axes at right angles to each other,

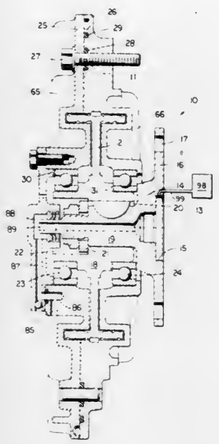
said gimbal rings being arranged to oscillate about their respective pivot axes to permit independent rotation of said members, means secured to the other of said members having a surface inclined to the plane normal to the rotational axis of said other of said members and in confronting sliding engagement with one of said gimbal rings for maintaining said one of said gimbal rings at the same inclination as said inclined surface, and means normally for restraining such oscillation of said gimbal rings for transmitting torque from said drive member to said driven member except that at an overload torque, said gimbal rings are caused to oscillate thus limiting the torque transmitted from said drive member to said driven member.

4,266,645

FLUID SHEAR COUPLING

James W. Crooks, Carmel, Ind., assignor to Wallace-Murray Corporation, Indianapolis, Ind.

Filed May 30, 1978, Ser. No. 910,293
Int. Cl.³ F16D *43/25, 35/00*
U.S. Cl. 192—58 B **24 Claims**



1. A fluid shear coupling which comrpises:
a housing defining a reservoir chamber;
a coupling disc received within said housing, said coupling disc including a disc-shaped body portion and a first flange extending axially from the body portion, the first flange having inside and outside working surfaces, said housing including working portions adjacent each of the working surfaces of the first flange and defining therewith a working chamber, the inside and outside working surfaces of said first flange defining helical grooves, said coupling disc further defining a plurality of apertures adjacent the body portion and communicating between the inside and outside working surfaces of the first flange;
means for mounting said housing and said coupling disc to be rotatable about a common axis; and
pump means for moving a working fluid from the reservoir chamber to the working chamber.

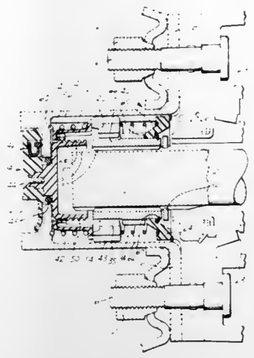
4,266,646

WHEEL STUD MOUNTED LOCKING CLUTCH

Thomas M. Telford, Gladstone, Oreg., assignor to Warn Industries, Inc., Seattle, Wash.

Filed Nov. 6, 1978, Ser. No. 957,736
Int. Cl.³ F16D *1/06;* **B60B** *27/00*
U.S. Cl. 192—67 R **9 Claims**

1. In combination with a conventional downsize wheel and a conventional wheel hub of the type not extending through the pilot hole opening of the wheel when the wheel is bolted thereto, a clutch mechanism locking and unlocking the vehicle wheel to the vehicle axle including a manually operable means for doing same, the improvement wherein said clutch mechanism comprises an outer body extending outwardly through said pilot hole opening, said outer body further having an annular flange at the inward end thereon disposed between said vehicle wheel hub and said vehicle wheel, said flange



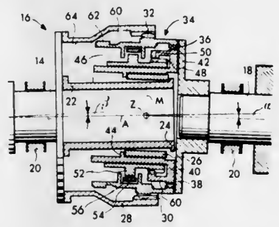
having a plurality of wheel stud openings therein matching the plurality of stud openings in said vehicle wheel, said outer body being securable to said vehicle wheel by the same studs and stud nuts used to secure said vehicle wheel to said vehicle wheel hub such that when the clutch mechanism is locked, the clutch mechanism transfers the vehicle axle torque directly to the vehicle wheel.

4,266,647

AUTOMATICALLY ENGAGEABLE JAW CLUTCH OR THE LIKE

Otto Staedeli, Menzingen, Switzerland, assignor to Maag Gear-Wheel & Machine Co. Ltd., Zürich, Switzerland

Filed Feb. 12, 1979, Ser. No. 11,776
Claims priority, application Switzerland, Feb. 23, 1978, 1961/78
Int. Cl.³ F16D *11/00, 23/02*
U.S. Cl. 192—67 A **7 Claims**



1. An automatically engageable jaw clutch comprising:
a toothed drive hub;
a toothed power take-off hub;
a clutch star axially displaceable with respect to the power take-off hub;
a first gear tooth system provided at the clutch star for continuously connecting for conjoint rotation the clutch star with the drive hub;
a second gear tooth system provided for said clutch star which can be brought into engagement with the teeth of the power take-off hub by axial displacement of the clutch star;
a screw socket;

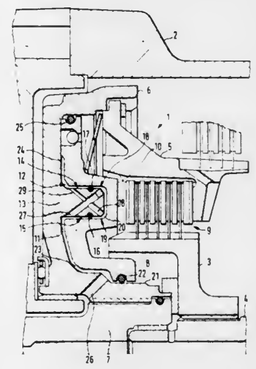
a pair of coarse-pitch thread means for connecting the screw socket with the power take-off hub;
said screw socket having radial play in relation to the clutch star;
a pawl blocking device composed of pawls and a pawl gear-tooth system;
said screw socket being rotatably entrainable by said clutch star in its direction of rotation through the action of said pawl blocking device;
the thus engaged screw socket carrying out a thread-in movement which entrains the clutch star in axial direction;
a bearing body rigidly connected with the drive hub;
said power take-off hub being mounted with radial play to be rotatable and inclinable at said bearing body;
said radial play being less than the radial play between the screw socket and the clutch star;
said clutch star being provided at an axial spacing from its first gear tooth system with a guide surface which is essentially concentric with respect to the axis of rotation of said clutch star;
one of said two hubs being provided with a guide surface; and
said guide surface of the clutch star, in the disengaged state of the jaw clutch, being centered at said guide surface of said one hub and in the engaged state being spaced from said guide surface of said one hub.

4,266,648

HYDRAULICALLY ACTUATED FRICTION CLUTCH, ESPECIALLY LAMELLAE CLUTCH AUTOMATIC TRANSMISSIONS OF MOTOR VEHICLES

Harry Martin, Neuried, Fed. Rep. of Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 30, 1978, Ser. No. 891,627
Claims priority, application Fed. Rep. of Germany, Apr. 1, 1977, 2714500
Int. Cl.³ F16D *25/06*
U.S. Cl. 192—85 AA **10 Claims**



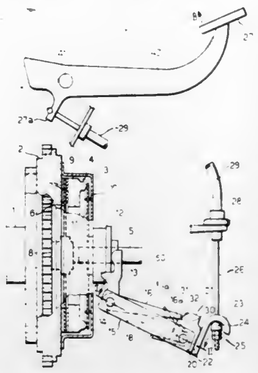
1. A hydraulically activated friction clutch, comprising a cylinder-piston unit with a cylinder having a bottom whose interior space is subdivided into first and second chamber means by means of a ring-like extension provided at the cylinder bottom, and a piston formed with an annular channel means into which said ring-like extension projects, seal means being provided for sealing between said annular channel means and said ring-like extension to form a third chamber means in said annular channel means, and bore means being provided in said ring-like extension for providing hydraulic fluid communication between said first, second and third chamber means.

4,266,649

AUTOMATIC PLAY COMPENSATION DEVICE FOR MOTOR VEHICLE CLUTCHES

Gianluigi Falzoni, Turin, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Apr. 4, 1979, Ser. No. 26,963
Claims priority, application Italy, Apr. 12, 1978, 67808 A/78
Int. Cl.³ F16D *13/75*
U.S. Cl. 192—111 A **4 Claims**



1. Automatic play compensating device for a motor vehicle clutch including:
a clutch control lever which effects a working stroke upon the application of a clutch-disengaging force thereto;
means for transmitting said force;
a fork operable by said control lever through said means, and
a clutch release sleeve engaged by said fork;
wherein said play compensating device comprises in combination:
a coupling lever attached at one end to said fork;
means supporting said coupling lever for pivotal movement about a pivot axis at said one end;
an arm rotatable about said axis relative to said coupling lever;
fixed stop means for limiting the rotation of said arm between successive working strokes of said clutch control lever;
a locking element operably connected to said clutch control lever;
pivot means for pivotally connecting said locking element on the other end of said coupling lever in adjustable engagement with said arm during a working stroke of said clutch control lever;
said locking element being disposable in different angular positions relative to said coupling lever dependent upon the displacement of said coupling lever which corresponds to clutch wear; and
resilient means adapted to urge said arm into engagement with said locking element.

4,266,650

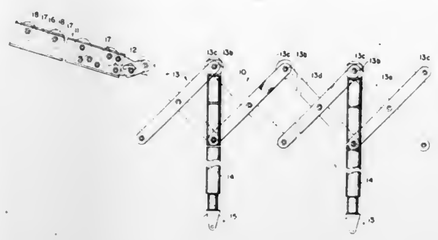
COUPLING HINGE FOR TWO CONVEYORS

Ravin J. Patel, Parma, and John Petro, Cleveland, both of Ohio, assignors to Bliss & Laughlin Industries Incorporated, Oak Brook, Ill.

Filed Nov. 26, 1979, Ser. No. 97,416
Int. Cl.³ B65G *13/00*
U.S. Cl. 193—35 TE **2 Claims**

1. A plurality of novel hinge structures to connect two longitudinally extending conveyors for movement between a first position with said conveyors generally substantially in line and a second position with one of said conveyors folded parallel to and on top of the other conveyor, each of said hinge

structures comprising a flat coupling hinge leaf generally triangular in shape and having acute apexes respectively one at each end of a longer upper edge and one obtuse apex at approximately the center of the lower edge about midway between said two acute apexes, each of said hinge structures also including a control link approximately one-half the length of said longer upper edge of said hinge leaf, said two longitudinally extending conveyors including respectively a basic conveyor and an extension conveyor, each of said hinge leaves having pivotal openings for connection of said acute apexes respectively to said basic and extension conveyors, each of said hinge leaves having a control pivotal opening for connection of said



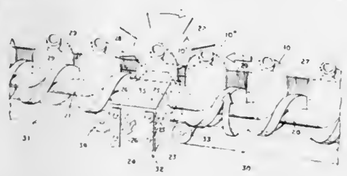
obtuse apex to one end of said control link, said control link having a pivotal connection at one end with said hinge leaf at said control pivotal opening and having at its other end a pivotal opening for connection to said extension conveyor, and there being a control slot opening through the central portion of said hinge leaf receiving one end of said control link, said slot having a transmission passageway generally tangential to said pivotal opening for connection to said basic conveyor and said slot having two fork-like passageways communicating with the same side of said transmission passageway and extending generally away from said pivotal opening for connection to said basic conveyor.

4,266,651

TRANSPORT DEVICE

Holger Ström, Lysekil, Sweden, assignor to Platmanufaktur Aktiebolaget, Malmo, Sweden

Filed Nov. 7, 1978, Ser. No. 958,425
Claims priority, application Sweden, Nov. 16, 1977, 7712932
Int. Cl.³ B65G *47/00*
U.S. Cl. 198—345 **12 Claims**



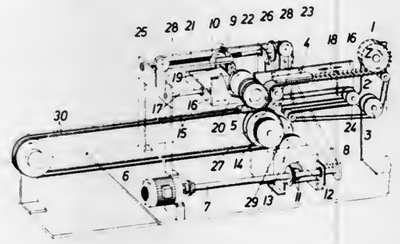
1. Apparatus for moving containers, such as bottles, to and from a position in which each container is fixed at least during a predetermined interval of time, said apparatus comprising a feed screw and a discharge screw separated from each other to define a station therebetween at which each container is periodically halted, a stop cooperating with said feed screw and discharge screw for guiding each container respectively into and from said station, rotatable sprocket means at said station having adjacent teeth between which the containers are successively received from the feed screw and fed to the discharge screw, said sprocket means being freely rotatable and undergoing movement under the action of contact of the successive containers fed by the feed screw with the teeth of said sprocket means, each container being fed by said feed screw towards said station to engage one of the teeth of the sprocket means and cause the sprocket means to rotate freely as the container is transported to said station between the feed screw and the discharge screw, the previous container at said station being concurrently advanced by the rotation of the sprocket means to said discharge screw and means for engaging the container at said station to press the container against the sprocket means to halt the container and thereby the sprocket means until the next successive container contacts a tooth of the sprocket means and rotates the sprocket means anew.

4,266,652

APPARATUS FOR CONVEYING ARTICLES

Hubert Bald, Gevelsberg, Fed. Rep. of Germany, assignor to Maschinenfabrik Alfred Schmermund GmbH & Co., Gevelsberg, Fed. Rep. of Germany

Filed Nov. 9, 1979, Ser. No. 92,879
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1978, 2848773
Int. Cl.³ B65G *1/04*
U.S. Cl. 198—347 **5 Claims**



1. An apparatus for conveying articles and for temporarily storing said articles between a machine for continuously feeding said articles to said apparatus and a removal device for periodically removing said articles from said apparatus, said apparatus comprising:

(a) feeder means to receive and accumulate articles coming from said machine,

(b) transfer conveyor means to receive accumulated articles from said feeder means,

(c) grooved belt means to receive articles from said transfer conveyor means,

(d) common regulable drive means to rotate said transfer conveyor means and to drive said grooved belt means, and

(e) gear means disposed between said common drive means and said grooved belt means and operable to have a periodically changing gear ratio to oscillate said transfer conveyor means along said grooved belt means and to drive said grooved belt means at a varying conveying speed, whereby in operation—at a given instant—said oscillation of said transfer conveyor means has a speed equal to any difference between said speed of said grooved belt means and the peripheral speed of said transfer conveyor means.

4,266,653

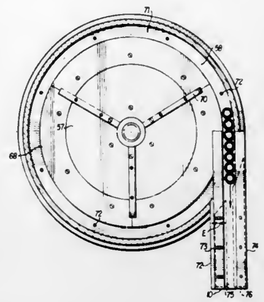
STOPPERING MACHINE

Vernon F. Mergl, Timonium, Md., assignor to National Instrument Company, Inc., Baltimore, Md.

Filed Jun. 1, 1978, Ser. No. 911,312
Int. Cl.³ B65G *47/24, 29/02*
U.S. Cl. 198—392 **9 Claims**

1. In a stoppering machine for applying stoppers having a relatively wide flanged top portion and a relatively narrow bottom portion to the openings in containers such as bottles wherein means are provided for holding a supply of said stoppers and for selectively arranging and feeding the stoppers to a stopper inserting means where the stoppers are inserted into the openings of containers, the improvement comprising an

inclined rotatable member which contacts said supply of stoppers, said rotatable member having supporting means thereon for supporting stoppers during rotation of said member such that stoppers are raised to where those stoppers not properly arranged in said supporting means for feeding to the stopper inserting means fall from said supporting means under the effect of gravity, said supporting means including an annular recess in said inclined rotatable member for supporting stoppers, and wherein cover means are provided over a substantial portion of said annular recess, said cover means extending radially inwardly to completely cover said annular recess and



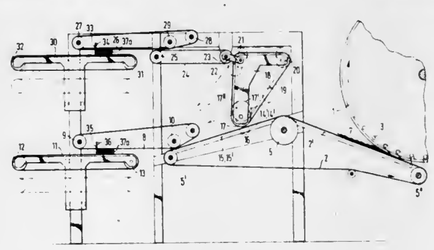
being positioned above said annular recess a predetermined distance such that stoppers which are wider than they are long can only enter said annular recess right side up or upside down, a portion of said annular recess at the top of the inclined rotatable member not being covered by said cover means and said annular recess being shaped such that stoppers supported in said annular recess with their top sides down remain in said annular recess as they are raised with the rotation of said inclined rotatable member while stoppers positioned otherwise in said annular recess fall from said annular recess at the uncovered top portion of the inclined rotatable member under the effect of gravity.

4,266,654

METHOD AND APPARATUS FOR SEPARATING GROUPS OF WORKPIECES BEING CONVEYED IN SUPERPOSED OVERLAPPING FORMATION

Fritz Achelpohl; Richard Feldkäper, and Friedrich Blom, all of Lengerich, Fed. Rep. of Germany, assignors to Windmoller & Holscher, Lengerich, Fed. Rep. of Germany

Filed Jun. 29, 1979, Ser. No. 53,333
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2832660
Int. Cl.³ B65G *47/26*
U.S. Cl. 198—425 **16 Claims**



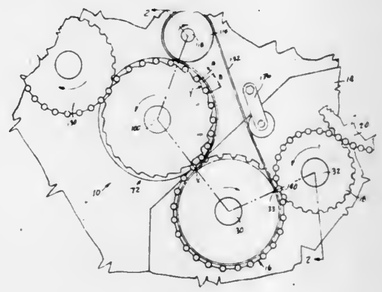
1. A method of separating groups of workpieces from workpieces being conveyed in a first direction in superposed overlapping formation by a first belt conveyor, wherein the first workpieces of the following group are held on the first belt conveyor and the last workpieces of the preceding group are held on a second belt conveyor adjoining the first and are pulled apart by the belt conveyors by at least one length of overlap of the workpieces, characterised in that, for the purpose of deflecting the workpieces into a second conveying direction differing from the first conveying direction, the first workpiece of the group to be deflected is suction attracted by the second belt conveyor at its exposed leading edge while the last workpiece of the preceding group is suction attracted on the first belt conveyor at its trailing edge which projects beyond the second from the last workpiece, and that, for the purpose of returning the overlapping flow to the first conveying direction, at least the first workpiece of the following group is suction attracted by the first belt conveyor at its trailing edge, that the second belt conveyor suction attracts only the workpieces belonging to the group being deflected and the second belt conveyor is moved along with the first belt conveyor at least at the same conveying speed as same while being lifted thereoff, until the last workpiece of the group being deflected has been pulled out from the following group.

4,266,655

APPARATUS FOR PHASING AND TRANSFERRING ROD-SHAPED ARTICLES

Leslie E. Payne, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Dec. 18, 1978, Ser. No. 970,424
Int. Cl.³ B65G *37/00, 29/00*
U.S. Cl. 198—461 **6 Claims**



1. Apparatus for phasing and transferring rod-shaped articles between independently drive first and second non-synchronous conveying drums, comprising:

(a) transfer drum means for receiving the articles from the first conveying drum, said transfer drum being synchronized with the first conveying drum and operating at speeds variable from zero to a specified maximum;

(b) phasing drum means contiguous to said transfer drum, said phasing drum being synchronized with the second conveying drum and rotating at a constant peripheral speed which is greater than the maximum speed of said transfer drum;

(c) seat means located on said phasing drum, having areas in which to capture and retain the rod-shaped articles; and

(d) means for capturing and transferring the rod-shaped articles, said transfer means including driven belt means moveably mounted adjacent to said transfer and phasing drum for moving the articles off of said transfer drum, capturing the articles on said phasing drum, and urging the articles into said seats.

4,266,656

ENDLESS CHAIN FOR INSTALLATIONS TREATING CONTINUOUSLY MOVING ARTICLES

Jacques R. Richard, Cachan, France, assignor to Manufacture de Machines du Haut-Rhin S.A., Mulhouse-Cedex, France

Filed Sep. 29, 1978, Ser. No. 947,264
Claims priority, application France, Sep. 30, 1977, 77 29500
Int. Cl.³ B65G *17/18*
U.S. Cl. 198—655 **5 Claims**



1. In an installation wherein an endless chain formed of a plurality of article-transporting links is continuously driven in succession in a horizontal plane partially about a plurality of drums at which operations are performed on the articles, the improvement which comprises means for pivotally connecting successive links comprising pivot pins having axes parallel to each other, whereby the chain can bend horizontally in a plane perpendicular to the axes of the pivot pins, each link having two cavities therein which are laterally outwardly open, said cavities being mirror images of each other, each cavity receiving an article to be operated upon, said two cavities having such shape that articles can be introduced thereinto and removed therefrom laterally only in a direction perpendicular to the axes of the pivot pins of each link which join it to the adjoining links, a first, fixed horizontal guide supporting the chain along which the chain slides, a pair of spaced parallel second guides spanning the space between successive drums for guiding the chain laterally, each of the second guides cooperating with the cavities in the links which are laterally open toward it to prevent the introduction of articles laterally into and the withdrawal of articles laterally from the cavities except at locations where the respective second guides are interrupted, and means including a driven sprocket for driving the chain, the links forming the chain bearing formations thereon which mesh with the sprocket.

4,266,657

CHAIN BRACKET WITH STRENGTHENED CHAIN SUPPORTS

Charles C. Frost; Gerald W. Gurney, both of Ada, and Frederick R. Sytsma, Grand Rapids, all of Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.

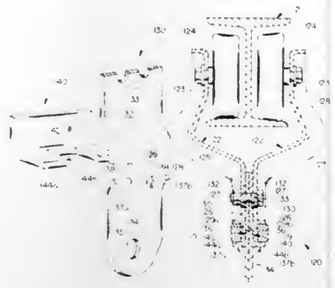
Continuation-in-part of Ser. No. 872,245, Jan. 25, 1978, Pat. No. 4,210,238. This application Jan. 17, 1979, Ser. No. 3,963
Int. Cl.³ B65G *17/30, 17/20*
U.S. Cl. 198—687 **11 Claims**

1. In a chain bracket assembly for attachment to a chain for use in overhead conveyors comprising a chain bracket, engaging means for engagement with a link of a conveyor chain to move said bracket assembly with said conveyor chain, and a bracket attachment engaged with said chain bracket, the improvement comprising:

said engaging means including at least one chain pad on one of said chain bracket and bracket attachment extending generally transverse and across and outwardly of said chain bracket;

the other of said chain bracket and bracket attachment including reinforcment means extending into abutment with said chain pad for supporting said chain pad and preventing its movement under load;

said chain bracket including a recess for receiving at least a first portion of said bracket attachment and retaining said bracket attachment to said chain bracket, and at least one aperture through said bracket;
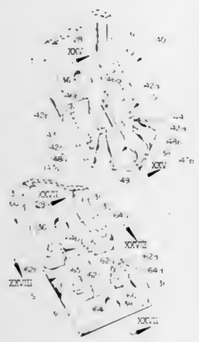


said bracket attachment including a second portion formed in one piece therewith, extending through said aperture, and forming at least one of said chain pad and said reinforcing means.

4,266,658

CHAIN BRACKET WITH STRENGTHENED CHAIN SUPPORTS

Charles C. Frost, Ada, and Siegfried K. Weis, Byron Center, both of Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.

Continuation-in-part of Ser. No. 872,244, Jan. 25, 1978, Pat. No. 4,220,243. This application Jan. 17, 1979, Ser. No. 3,964
Int. Cl.³ B65G *17/30, 17/20*
U.S. Cl. 198—687 **16 Claims**



1. In the combination of a bracket for attachment to a chain and engaging means for engagement with a link of a conveyor chain to move said bracket with said conveyor chain, the improvement comprising:

said bracket being stamped in one piece from sheet metal and having side edges and an end edge;

said engaging means including at least one chain pad having a chain link engaging surface extending in a direction across said bracket for engaging a chain link to secure the link to said bracket;

reinforcing means for supporting said chain pad opposite said chain link engaging surface of said chain pad for resisting bending of said chain pad when under load;

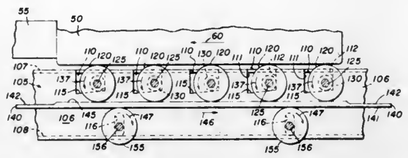
said reinforcing means including a reinforcing flange connected to and extending from said end edge of said bracket into abutment with said chain pad.

4,266,659

ACCUMULATING ROLLER CONVEYOR

Louis H. Meyer, Prospect, and Ellsworth H. Collins, Louisville, both of Ky., assignors to Interlake, Inc., Oak Brook, Ill.

Filed Apr. 16, 1979, Ser. No. 30,160
Int. Cl.³ B65G *13/06*
U.S. Cl. 198—781 **30 Claims**



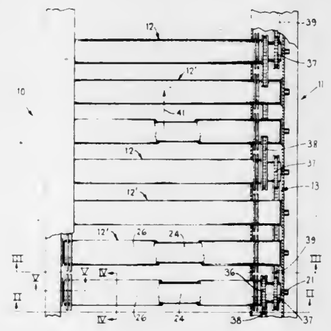
1. An accumulating roller conveyor for conveying articles comprising a frame, a plurality of conveyor rollers, means rotatably supporting each conveyor roller on said frame with the axis of each conveyor roller extending transversely of said frame and movable upwardly and rearwardly with respect to the direction of travel of the articles conveyed thereby, each of said conveyor rollers normally being positioned downwardly and forwardly with respect to said frame, means for frictionally engaging said conveyor rollers for driving said conveyor rollers to convey articles supported thereon, when the movement of an article along said conveyor rollers is stopped the contacted conveyor rollers move upwardly and rearwardly substantially to reduce the frictional engagement between said driving means and said conveyor rollers contacting the stopped article, and one-way clutch mechanism holding out of contact with said driving means the conveyor rollers in contact with a stopped article in the upward and rearward positions thereof so long as the contacted article is stopped by preventing said rotatable support means from rotating relative to said stopped conveyor rollers, forward movement of the stopped article permitting the contacting conveyor rollers to return to the downward and forward conveying positions thereof in full frictional engagement with said driving means.

4,266,660

ACCUMULATING-TYPE POWERED ROLLER CONVEYOR

Donald G. Herman, Indianapolis, Ind., assignor to Smock Material Handling Company, Inc., Indianapolis, Ind.

Filed Aug. 2, 1979, Ser. No. 63,045
Int. Cl.³ B65G *13/06*
U.S. Cl. 198—781 **7 Claims**



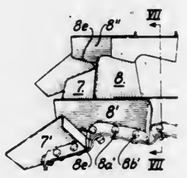
1. In a powered roller conveyor for both transporting and accumulating heavy articles, said conveyor including a frame, a plurality of roller units supported on said frame for defining a transport path for said articles, said roller unit including an elongated metal support shaft and a single axially elongated sleevelike metal conveyor ring freely rotatably supported on said shaft in surrounding relationship thereto, said conveyor ring having an inside diameter which is slightly greater than the outer diameter of said shaft so that said ring is eccentrically supported on said shaft, said ring having an inner annular surface which is normally in rolling engagement with the outer annular surface of said shaft and is frictionally driven by and slidable upon said shaft, and drive means drivingly interconnected to the shafts associated with at least some of said roller units for rotatably driving said shafts to thereby effect frictional rotational driving of the respective conveyor rings, comprising the improvement wherein the inner annular surface of said ring and the outer annular surface of said shaft are coated with manganese/nickel phosphate which integrally bonds to the metal of the shaft and conveyor ring to substantially reduce the frictional driving force imposed on the conveyor ring, whereby stoppage of an article on said conveyor causes stoppage of the conveyor ring as permitted by slippage between the ring and its respective shaft while resulting in minimum drive force being transmitted to the stopped article, wherein the inner and outer surfaces, as coated with said manganese/nickel phosphate, are also provided with a coating of a flowable lubricant, wherein the drive means continuously and positively rotatably drives the shafts of the driven roller units in a nonslip manner through drive connection mechanisms which are free of clutches or other drive-disrupting devices, and wherein said drive means is drivingly connected to only selected roller units which are disposed at preselected and uniformly spaced intervals along the conveyor, each said pair of adjacent driven roller units being spaced apart by at least one intermediate roller unit which is not driven, said intermediate and driven roller units both being of substantially identical construction and employing a said conveyor ring eccentrically surrounding a said support shaft.

4,266,661

CONVEYOR BELT ARRANGEMENT HAVING AN ENDLESS PATH

Curt E. Andersson, Björkhagen, Toltorp, 641 00 Katrineholm, Sweden

Filed Sep. 12, 1979, Ser. No. 74,781
Claims priority, application Sweden, Sep. 15, 1978, 7809708
Int. Cl.³ B65G *17/10*
U.S. Cl. 198—822 **9 Claims**



1. A conveyor belt arrangement having a plurality of link members whose mutually opposite end parts are pivotally connected to the respective end parts of mutually adjacent link members, said link members together forming an endless path normally guided by a drive wheel and a guide wheel; said conveyor belt arrangement comprising:

first wheel means for driving said endless path, and second wheel means for guiding said endless path, at least one of said first and second wheel means having a plurality of support surfaces, said support surfaces being separated from each other by a first distance;

first and second mechanical holding means for pivotally connecting and holding mutually adjacent link members of said conveyor arrangement; and

first and second link members, said first and second link members forming at least a portion of said endless path, and each of said first and second link members including:

a first end part having a convex outer surface, said convex

outer surface having a part-cylindrical configuration, said part-cylindrical configuration having a longitudinal axis forming a first pivot axis of said link member;

a second end part having a concave internal surface, said concave internal surface having a part-cylindrical configuration, said part-cylindrical configuration having a longitudinal axis forming a second pivot axis of said link member;

a first side region including a first side portion of said first end part and including a first side portion of said second end part; and

a second side region including a second side portion of said first end part and including a second side portion of said second end part;

wherein said convex outer surface and said concave internal surface are separated from each other by said first distance; and

wherein said first and second side regions include first, second, third and fourth receiving means for accommodating at least one of said first and second mechanical holding means, said first side portion of said first end part including said first receiving means; said second side portion of said first end part including said second receiving means; said first side portion of said second end part including said third receiving means; and said second side portion of said second end part including said fourth receiving means;

wherein said first and second link members are arranged with respect to each other such that the convex outer surface of said second link member is disposed beneath said concave internal surface of said first link member;

wherein said first mechanical holding means for pivotally connecting and holding mutually adjacent link members is accommodated by said first receiving means of said second link member and by said third receiving means of said first link member; and further wherein said second mechanical holding means for pivotally connecting and holding mutually adjacent link members is accommodated by said second receiving means of said second link member and by said fourth receiving means of said first link member; and

wherein said plurality of support surfaces included on said at least one of said first and second wheel means cooperates with the region of the part-cylindrical configuration of the first end part of said second link member located between said first and said second receiving means.

4,266,662

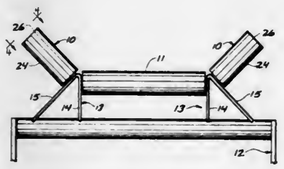
TROUGH ROLLER ASSEMBLY

Rod B. Reid, 2616 Sky Dr., Missoula, Mont. 59801

Filed Mar. 2, 1979, Ser. No. 16,901

Int. Cl.³ B65G *39/12*

U.S. Cl. 198—829 **12 Claims**



1. A roller assembly, comprising:

a supporting bracket;

a cantilevered support having an inner end fixed to said bracket and having an outer end spaced therefrom, said support having a stationary cylindrical outside surface generated about a central axis;

a radial shoulder on said support projecting beyond the outside surface thereof;

a tubular cylindrical roller coaxially mounted about said support and having coaxial inner and outer surfaces, the inner surface of said roller being in slidable engagement with the outside surface of said support;

a transverse cap in axial abutment with the outer end of said support and enclosing one end of the roller;

said roller inner surface being open at the remaining end of the roller and having an inside diameter complementary to the diameter of the cylindrical outside surface of said support;

and an internal annular groove formed about the inner surface of said roller, said groove having a diameter greater than said inside diameter and being axially located along the length of the roller at a position corresponding to the axial location of the shoulder on said support, the depth and width of the groove being such that said shoulder is freely received within the groove;

said shoulder and the cylindrical outside surface of said support being discontinued along a first plane forming an acute angle with respect to said central axis.

4,266,663

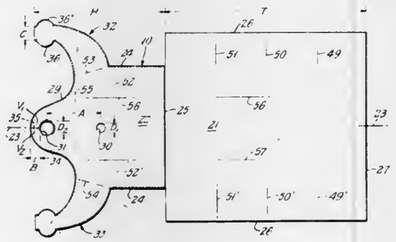
SURGICAL DRAPE FOR AN OPERATING MICROSCOPE

James L. Geraci, Cincinnati, Ohio, assignor to Carl Zeiss, Inc., New York, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,178

Int. Cl.³ B65D *85/38, 65/04, 65/28;* **G02B** *27/00*

U.S. Cl. 206—223 **24 Claims**



1. A disposable surgical drape for an operating microscope (a) having a binocular microscope head unit with two barrel-mounted viewing oculars and a barrel-mounted objective lens and (b) support structure including an elongate horizontal arm for cantilevered positioning of said head unit, said drape comprising connected upper and lower continuous panels of thin pliant elastomeric plastic sheet material, said panels having registering generally rectangular configuration at a head-unit adaptable region and being connected to each other along both lateral limiting edges of said configuration, such connection extending from front to rear limiting edges of said configuration and along said front limiting edge but to the exclusion of said rear limiting edge, said upper panel further including an elongate generally rectangular arm-adaptable region continuously and integrally formed with the rear limiting edge of said configuration and extending rearwardly of the rear limiting edge of said lower panel, said lower panel having a central circular aperture sized for interference with the rim diameter of the objective barrel, said configuration further comprising an ocular-adapting region characterized by registering apertures in both panels near but in offset relation to one of said connected limiting edges, said panels being further connected to each other at the perimeter of said registering apertures, and said panels being perforated along an alignment from said registering apertures to a near region of said one connected limiting edge, for ready simultaneous local separation of both panels at the perforation alignment, whereby upon severance at the perforation alignment, two spaced and now-openble tubular formations are immediately presented for direct sepa-

rately protective manipulated assembly over the two binocular-viewing ocular barrels of the microscope.

4,266,664

PACKAGING FOR SAFETY RAZORS

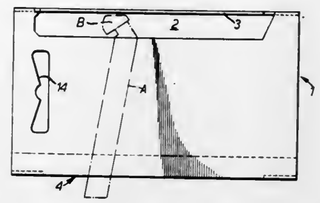
Roy P. Dixon, 96 Clarence Ave., New Malden, Surrey, England, and John F. Kelly, 6 Thurnby Ct., Wellesley Rd., Twickenham, Middlesex, England

Filed Dec. 17, 1979, Ser. No. 104,678

Claims priority, application United Kingdom, Dec. 19, 1978, 49148/78

Int. Cl.³ A45D *27/29*

U.S. Cl. 206—349 **6 Claims**



1. A package for a plurality of razors each having an elongate handle and a transversely extending shaving head at the upper end thereof, the package being formed from card which is cut, shaped and secured to form an envelope enclosing at least the major portion of the lengths of the razor handles, the opposite sides of the envelopes each being formed with an elongate slot, the two said slots being in registry with each other to permit the shaving heads of the razors to project from each side of the envelope, and a pair of flaps integral with the remainder of the package overlying the projecting heads to each side of the envelope.

4,266,665

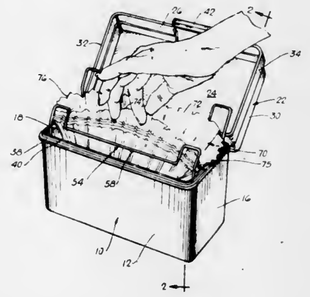
DISPENSER FOR CUP-SHAPED FILTERS

John R. Nelson, Palatine, Ill., assignor to Research, Development & Marketing, Inc., Palatine, Ill.

Filed Nov. 13, 1979, Ser. No. 93,185

Int. Cl.³ B65D *85/62, 83/04*

U.S. Cl. 206—445 **4 Claims**



1. A device for storing and facilitating retrieval of stacked paper cups such as filters used in coffeemakers comprising, in combination:

a container having a lower portion with a bottom, and walls extending from the bottom to form an open top, and a cover which mates with the lower portion, the cover having a perimitral portion mounted in hinged relationship on a confronting portion of the lower portion and forming with the lower portion a substantially closed container,

a platform having a cross section smaller than the bottom of the container,

yieldable resilient means mounted on the lower portion of the container and the platform for mounting the platform in spaced apart relationship with the base of the container,

and a basket adapted to hold a stack of cups mounted on the platform, said basket having a post extending away from the platform adjacent to the perimitral portion of the cover, said post extending from the platform a distance greater than the distance between the platform and the top of the lower portion of the container and less than the distance between the bottom of the lower portion of the container and the cover.

4,266,666

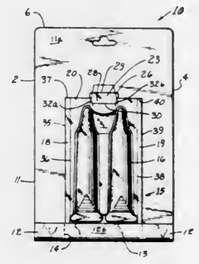
BLISTER PACKAGE

Morris W. Kuchenbecker, Neenah, Wis., assignor to American Can Company, Greenwich, Conn.

Filed Dec. 21, 1979, Ser. No. 105,898

Int. Cl.³ B65D *83/00, 85/14, 75/58*

U.S. Cl. 206—461 **12 Claims**



1. A recloseable hinged blister card package, comprising:

(a) a paperboard card having a front surface and a back surface; top and side edges, and means for securing blister tab means to keep the package in closed position;

(b) a plastic blister having a raised product holding portion having top, bottom and side edges, and a peripheral flange at the sides and bottom of said product holding portion, said peripheral flange being secured to the front surface of the card;

(c) opening tab means on said plastic blister cooperating with said means on the card for securing the tab means to keep the package in closed position and for reclosing the package after opening;

(d) cut score lines in the front surface of said card and extending partially through the thickness of said card along the inner and outer edges of the side and bottom portions of said peripheral flange;

(e) a bottom panel fold over extension formed integral with said paperboard card and having spaced lines of weakness extending vertically from the bottom edge of said card to the top end of said extension, said extension being folded upwardly and secured to the underlying paperboard in areas outside said lines of weakness and being secured only to the blister flange bottom portion in areas inside the lines of weakness,

whereby said blister may be lifted by said opening tab means with confined ply separation of the paperboard card at the portions thereof that are secured to said peripheral flange without breaking the bond between said blister flange and the front surface of the paperboard card and whereby said blister can be swung open about a hinge line defined by the bottom edge of the card without breaking the bond between the peripheral flange and the fold over extension.

4,266,667

PACKAGE OF MECHANICAL PENCIL REFILL LEADS

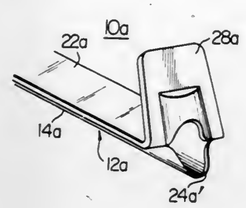
Kazumi Ishigaki, Hirakata, Japan, assignor to Sakura Color Products Corporation, Osaka, Japan

Filed Sep. 19, 1979, Ser. No. 77,121

Claims priority, application Japan, Oct. 23, 1978, 53-146242[U]; Dec. 28, 1978, 53-179765[U]; Dec. 29, 1978, 53-180666[U]; Dec. 29, 1978, 53-180667[U]; Feb. 24, 1979, 54-23219[U]

Int. Cl.³ B65D *83/02, 85/20*

U.S. Cl. 206—469 6 Claims



1. A package of mechanical pencil refill leads, comprising a container formed of a plastically deformable first sheet material having an elongated recess therein and a substantially flat marginal flange integral with said recess and extending outwardly therefrom, mechanical pencil refill leads disposed in said recess, and a substantially flat closure member of a second sheet material extending over said recess to close said recess, said second sheet material being secured to said marginal flange, wherein said first sheet material includes a slit formed in said recess adjacent to one end thereof to facilitate easy opening of said package, said slit having at least a portion of its length extending obliquely with respect to the longitudinal axis of said recess.

4,266,668

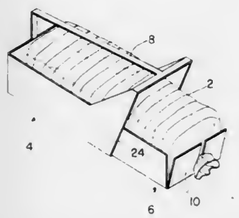
TELESCOPING SLICED BREAD DISPENSER

Yong K. Paek, 9014 Fort Craig Dr., Burke, Va. 22015

Filed Jun. 27, 1979, Ser. No. 52,602

Int. Cl.³ B65D *1/34, 6/04*

U.S. Cl. 206—557 16 Claims



1. A telescoping dispensing tray for holding the end of a twisted plastic wrapper comprising:

(a) a first tray portion having a bottom, two sides, an end connected to said two sides and bottom and an open end;

(b) a handle connected to said first tray portion;

(c) a second tray portion having a second tray bottom, two second tray sides connected to said second tray bottom and a second tray end hinged to said second tray bottom;

(d) said hinged second tray end having means for securing and sealing said end of a twisted plastic wrapper comprising a perforation located in said hinged second tray end and a slot connecting said perforations and an edge of said hinged second tray end; and

(e) said first tray portion having means for guiding said second tray portion into telescoping relationship.

4,266,669

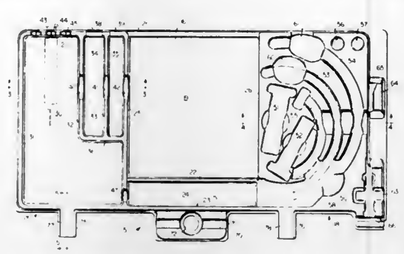
ANESTHESIOLOGISTS INSTRUMENT TRAY

Robert L. Watson, 14312 Piccadilly Rd., Silver Spring, Md. 20906

Filed Nov. 28, 1979, Ser. No. 98,172

Int. Cl.³ B65D *1/36, 85/00;* A61B *15/00*

U.S. Cl. 206—564 6 Claims



1. An apparatus for operating room use by an anesthesiologist during surgical procedures comprising

an elongated generally rectangular tray having a long dimension approximating the width of an operating table, said tray being placeable on and at the head end of an operating table;

wall means extending transversely of said long dimension and forming a part of said tray for dividing said tray into three major portions including

a central portion for receiving the head of a patient placed on the operating table, and

first and second end portions,

at least one of said end portions having

a plurality of interior wall means for separating said end portion into a plurality of upwardly opening recesses and compartments having predetermined shapes for receiving specified instruments.

4,266,670

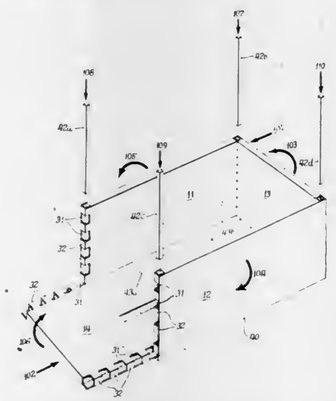
COLLAPSIBLE REINFORCED CONTAINER

Laurie G. Mykleby, Palos Park, Ill., assignor to First National Packaging Co., Inc., Palos Park, Ill.

Filed Jul. 20, 1979, Ser. No. 59,239

Int. Cl.³ B65D *5/36, 19/06, 6/34*

U.S. Cl. 206—600 9 Claims



1. A collapsible, reinforced, four sided container attached to a rigid base comprising: a first and second side wall comprising a first pair of opposed reinforced rectangular side walls having an inner and outer face with reinforcing therebetween, each of said side walls being hingedly connected to a bottom flap along the bottom of said reinforced side wall, the bottom flap connected to said first side wall having an additional fold score parallel to and spaced from said hinge connection and the bottom flap connected to said second side wall having a fold score parallel to and spaced from said hinge connection; a third and fourth side wall comprising a second pair of opposed reinforced rectangular side walls having an inner and outer face with reinforcing therebetween, each of said side walls being hingedly connected to a separate bottom flap, each of said separate bottom flaps having a fold score parallel to and spaced from said hinge connection of each of said third and fourth side walls, the spacing of said fold scores providing overlaying of the sides to collapse the side walls flatly; each of said first pair of reinforced side walls having fastening means along each edge adjacent and at right angle to said hinge connection and each of said second pair of reinforced side walls having a mating fastening means along each edge adjacent and at a right angle to said hinge connection, said fastening means and mating means engageable with each other when the reinforced side walls are perpendicular to said bottom flaps; and the bottom flaps of said first pair of opposed side walls attached to a rigid base inwardly from the sides enclosed by said second pair of side walls, the bottom flap of said second pair of side walls slidable between the bottom flaps of the first opposed sides and the rigid base.

4,266,671

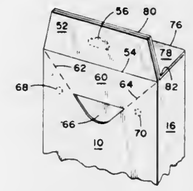
CARTON HANGER-OPENER

Harry I. Roccaforte, Western Springs, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Aug. 8, 1979, Ser. No. 64,881

Int. Cl.³ B65D *5/54*

U.S. Cl. 206—626 2 Claims



1. In a carton of rectangular cross-section having first and second side wall panels, first and second end wall panels and top and bottom closure panels, an improved top closure panel comprising:

a. a hang tab extending upwardly from the top of one of said side wall panels, said tab being integrally formed with and hingedly attached to the top edge of said one of said side wall panels,

b. a top cover panel integrally formed with and hingedly attached to the top edge of the other one of said side wall panels and extending across the top of said carton,

c. a tear strip integrally formed in, removably attached along all its sides but one to, and hingedly attached along said one side thereof to said top edge of said one of said side wall panels for opening the top of said carton to remove the contents thereof, said tear strip, when detached from said carton along said removably attached sides, being folded under said tab about said hinged attachment whereby said tab may be folded downwardly and tucked in said open carton top to reclose said carton,

d. said carton further including means for removably attaching said hang tab to said one side wall panel of said carton when said hang tab is folded downwardly about said hinged attachment,

e. said means for removably attaching said hang tab to said one side wall panel of said carton including:

i. at least one integrally formed, detachable panel in said one side wall panel of said carton, and

ii. glue applied to said detachable panel whereby said hang tab adheres to said detachable panel until such time as force is applied to said hang tab thereby removing said detachable panel from said one carton side wall panel with said hang tab and allowing said hang tab to be moved from a position adjacent said one side wall panel to a vertical position.

4,266,672

CATALYTIC CRACKING WITH SEPIOLITE

Robert A. Van Nordstrand, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Sep. 26, 1979, Ser. No. 78,853

Int. Cl.³ C10G *11/02, 11/05*

U.S. Cl. 208—120 8 Claims

1. A process for cracking a hydrocarbon feed in the adsence of added molecular hydrogen, which comprises:

contacting said feed, at catalytic cracking conditions, with a catalyst composition comprising shaped catalytic bodies including (1) dispersed rods of fibrous form sepiolite, and (2) at least one porous refractory inorganic oxide gel, said gel bonding said sepiolite rods together in a rigid substantially random mutual orientation in said catalytic bodies.

4,266,673

APPARATUS FOR CLASSIFYING DUST MATERIALS

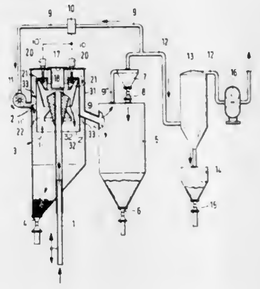
Goetz Haidlen, Dietzenbach, and Edmund Groepl, Muehlheim, both of Fed. Rep. of Germany, assignors to Wibau Maschinenfabrik Hartmann AG, Gruendau-Rothenbergen, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,356

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846551; Feb. 17, 1979, 2906206

Int. Cl.³ B07B *7/04*

U.S. Cl. 209—139 R 11 Claims



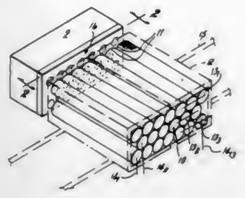
1. An apparatus for separating the particles of powdery materials from one another in a conveying system operating under reduced pressure, comprising first collector housing means (**3**), partitioning wall means (**33**) operatively secured in said first collector housing means (**1**) for forming upper and lower chambers (**31, 32**) in said first collector housing means, classifier means (**2**) operatively supported on and extending through said partitioning wall means (**33**), suction pipe means (**1**) extending axially into said classifier means (**2**) for maintaining said reduced pressure, suction fan means (**11**) operatively connected with its pressure port to said first collector housing means (**1**) for producing a separator air stream, ring means (**19**) adjustably arranged in said classifier means (**2**) for forming a ring gap (**21**) of adjustable cross-sectional area, second classifier means (**7**), connecting pipe means (**9, 9', 9''**) operatively connecting said upper chamber (**31**) through said second classifier means (**7**) to the suction port of said suction fan means (**11**), further suction means (**16**) operatively connected to said connecting pipe means, and second collector housing means (**5**) operatively connected to said connecting pipe means (**9, 9'**) between the first and second classifier means.

4,266,674

OPTOELECTRONIC DEVICE FOR AUTOMATICALLY INSPECTING A GROUP OF CIGARETTES OR THE LIKE

Richard P. Bell; Karl F. Rill, both of Cincinnati, and John C. Butler, Centerville, all of Ohio, assignors to Richard Equipment Company, Inc., Cincinnati, Ohio

Filed Feb. 7, 1979, Ser. No. 10,062
Int. Cl.³ B07C *5/342*
U.S. Cl. 209—536 **21 Claims**



1. An optoelectronic apparatus for detecting when a cigarette is missing from a preformed group of cigarettes and when a cigarette in said group is improperly filled, said group normally having a predetermined number of cigarettes arranged in columns and rows, said group being conveyed to a position proximate said apparatus, said apparatus comprising:

a plurality of photodetectors equal in number to said predetermined number, said photodetectors being arranged in columns and rows corresponding to said columns and rows of cigarettes in said group such that there is a one-to-one correspondence between a photodetector and each cigarette in said group;

each said photodetector including a light-emitting source for illuminating the end portion of a cigarette registered with said photodetector when power is applied thereto and a photoelectric transducer for producing a signal in response to light reflected from the end portion of said registered cigarette;

sequence circuitry for modulating power to said light-emitting sources at a high frequency such that light emanating from each said light-emitting source alternately increases and decreases in intensity;

AC-coupling circuitry for passing only the high frequency components of each said photoelectric transducer signal; and

comparison circuitry responsive to said high frequency components of each said photoelectric transducer signal and to a preselected threshold signal for producing a reject signal when said high frequency components of at least one said photoelectric transducer signal are less than said preselected threshold signal;

whereby the effects of varying ambient light on the accuracy with which missing and improperly filled cigarettes are detected is minimized.

4,266,675

OPTICAL WOOD-BARK SEGREGATOR

Robert D. Barwise, Bovey, Minn.; John A. Sturos, Laurium, and Douglas B. Brumm, Calumet, both of Mich., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

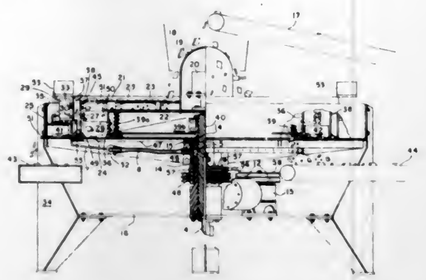
Filed Jan. 4, 1980, Ser. No. 109,590
Int. Cl.³ B07C *5/342*
U.S. Cl. 209—540 **13 Claims**

1. A process of separating wood fiber chips from wood-bark fiber chips and bark fiber chips comprising:

a. orienting a mixture of wood chips comprising wood fiber chips, wood-bark fiber chips, and bark fiber chips in a detecting zone between a light source and a light-detecting means;

b. transmitting a beam of light from said light source through the thickness of said wood chips and detecting said beam of light with said light-detecting means;

c. passing said wood chips through a separating zone where said separating zone and said detecting zone constitute a straight path for said wood chips to travel;



d. separating said wood fiber chips from said wood-bark fiber chips and said bark fiber chips by causing said wood-bark fiber chips and said bark fiber chips to deviate from said straight path in response to the relative amount of light transmitted through said wood chips, the amount of light transmitted through said wood fiber chips being the greatest.

4,266,676

APPARATUS FOR SEPARATION OF MATERIAL OF HETEROGENEOUS CHARACTER

Konrad Ruckstuhl, Littleton; Serafin L. Silvano, and Kurt W. Beier, both of Aurora, all of Colo., assignors to SPM Group, Inc., Englewood, Colo.

Filed May 10, 1979, Ser. No. 37,729
Int. Cl.³ B07B *13/05*
U.S. Cl. 209—672 **22 Claims**



1. A separator comprising:

a series of spaced parallel shaft means mounted for rotation in essentially the same plane;

means for rotating said shaft means in the same angular direction;

a series of similar non-circular discs mounted on each shaft means in spaced relation, with the discs on one shaft means being interspaced between the discs of adjacent shaft means;

means adjacent the end discs on said shafts for restraining lateral movement of a bed of heterogeneous material containing components of different specific gravities and sizes;

said discs having a plurality of first convex surfaces in equally spaced, radial positions and having a greater extension from said shaft means than second surfaces interspaced between said first surfaces;

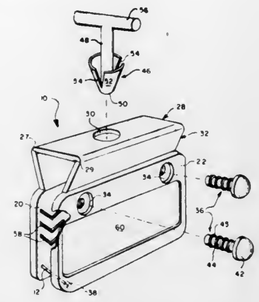
said discs on one shaft means being mounted in a different angular relation to said shaft means than said discs on adjacent shaft means, whereby rotation of said shaft means will rotate said discs and cause an upward movement of the first surface of said discs in the same angular direction to engage said components of said material and propel said components upwardly and move said bed forwardly in the direction of rotation of said discs above the axis of said shaft means and will produce openings as the position of said second surface of said discs moves opposite the adjacent shaft means, whereby smaller and heavier components tend to be moved downwardly in said bed and fall through said openings, said openings between such second surfaces and an opposite shaft means determining the maximum size of components of said material which will fall through said separator.

4,266,677

SAMPLES CLAMP

Paul D. Dewsnap, New York, N.Y., assignor to Donaldson Display Company, Inc., South Hackensack, N.J.

Filed Jan. 19, 1979, Ser. No. 4,894
Int. Cl.³ A47F *7/16*
U.S. Cl. 211—45 **11 Claims**



1. A tamper-proof samples clamp comprising:

a holder section foldable about itself into at least one pair of substantially parallel spaced clamp elements having at least one set of apertures which are in alignment when said clamp elements are disposed in parallel relationship;

at least one metal pin element integrally carried by one of said clamp elements and

a recess formed in the wall of the other clamp element opposite said pin element, having sufficient stiffness to permit penetration through the entirety of the material of samples positioned between the clamp elements and

a length sufficient to enter the opposing recess such that each pin element will be supported within its corresponding recess and be cooperable therewith, for securing such samples in place;

self-locking fastening means dimensioned and configures for insertion through each set of said aligned apertures to thereby draw and lock said clamp elements into clamping engagement with the samples therebetween; and

hanger means for supporting said holder section and the samples carried by the samples clamp.

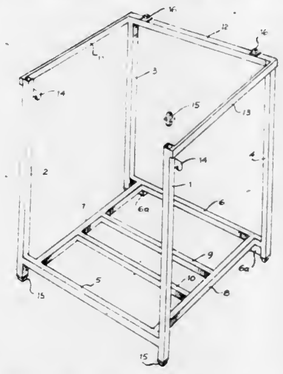
4,266,678

NESTING UNITS

Geoffrey J. Daly, East Killara, Australia, assignor to Brambles Holdings Limited

Continuation of Ser. No. 884,876, Mar. 9, 1978, abandoned. This application Sep. 5, 1979, Ser. No. 72,858
Claims priority, application Australia, Mar. 21, 1977, PC9493
Int. Cl.³ A47B *47/00;* **B65D** *19/38*
U.S. Cl. 211—194 **2 Claims**

1. A racking unit adapted for stacking engagement with an identical racking unit or with a particular non-identical racking unit, said racking unit comprising a substantially rectangular plane base, a first pair of posts, and a second pair of posts having respective mutually confronting faces, the arrangement and positioning of said posts permitting the vertical interengagement of said racking unit with another racking unit, said first pair of posts being attached one each of adjacent extreme corners of said base, said first pair of posts extending in a direction substantially perpendicular to the plane defined by said base, said second pair of posts being attached one each to the other two adjacent extreme corners of said base, said second pair of posts extending in a direction substantially parallel to said first pair of posts, the separation between said second pair of posts being substantially equal to the separation between said first pair of posts, first, second, and third connecting members each extending parallel to a side of said base, said first pair of posts being connected one each to a respective one each of said second pair of posts by means of said first and second connecting members and said second pair of posts being connected together by means of said third connecting member extending directly between the confronting faces of said second pair of posts, two lug members one each attached to respective posts of said first pair of posts, said lug members each including a first portion which has two ends and is secured at one end to a respective post of said first pair of posts and extends towards that post of said second pair of posts to which said post of said first pair of posts is connected by one of said first and second connecting members so that the other end of the lug member is spaced from that post of said first pair of



posts to which said one end is secured, and a second portion which is secured to said other end of said first portion and extends towards said base, and spigot means fitted to the bottom of each post of said first and second sets of posts, said lug members being positioned to engage with their said second portions the open tops of the first pair of posts of another identical racking unit during the vertical nesting interengagement of said racking unit with said another racking unit, when said racking units are stored and said spigot means being adapted to engage the ends of corresponding posts of another identical racking unit when said racking unit and said identical racking unit are in a stacked configuration, and a pair of upwardly extending dowel means located on said third connecting member so as to engage the bottoms of the posts of a particular non-identical racking unit having a first pair of posts with separation identical to the separation between the first pair of posts of said racking unit and a second pair of posts with separation less than the separation between the second pair of posts of said racking unit, when said racking unit and said particular non-identical racking unit are stacked.

4,266,679

CONVERTIBLE BOOM MACHINE HAVING MODULAR BOTTOM PORTION

Dieter C. Juergens, Bark River, Mich., assignor to Harnischfeger Corporation, West Milwaukee, Wis.

Filed Apr. 9, 1979, Ser. No. 28,221
Int. Cl.³ B62D *55/04*
U.S. Cl. 212—181 **10 Claims**

1. A machine, such as a crane, that has a lower supporting portion and an upper portion that is supported by said lower portion and is rotatable relative thereto about a vertical axis, said upper portion comprising a boom that normally projects

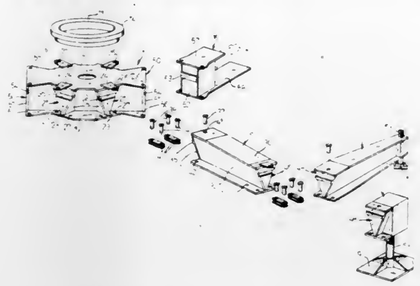
upwardly and mechanism for lifting a load supported by said boom, said machine being characterized by:

said lower portion comprising a hub-like member that is concentric to said axis and has substantial vertical depth, said hub-like member having

(1) a slewing ring on its top, concentric to said axis and upon which said upper portion is rotatably mounted,

(2) means at its sides defining four leg module holders,

(a) each arranged to provide for detachable connection to the hub-like member at vertically spaced locations of one of four elongated leg modules which project radially in relation to said axis,



(b) said leg module holders being further arranged

(1) at equal distance from said axis and

(2) at substantially uniformly spaced intervals around the hub-like member; and

(3) said hub-like member having other means at a pair of opposite sides thereof that define two body module holders,

(a) each arranged to provide for detachable connection to the hub-like member of a wheeled transporter module, and

(b) each of said body module holders being located laterally intermediate a pair of leg module holders.

4,266,680

FLOATING CRANE WITH LOAD RESLINGING DEVICE

Nikolai D. Velikoselsky, prospekt Gagarina, 15, kv. 29; Anatoly I. Smirnov, ulitsa Marshala Birjuzova, 17, kv. 40; Nikolai Y. Perets, ulitsa Menshikova, 17, kv. 25, all of Sevastopol; Sergei S. Vinogradov, prospekt Kutuzovsky, 26, kv. 246, Moscow; Viktor I. Podbeltsev, ulitsa B.Morskaya, 38, kv. 4, and Pavel E. Lakhno, ulitsa Prutovtsev, 13, both of Sevastopol, all of U.S.S.R.

Filed Mar. 12, 1979, Ser. No. 19,661

Claims priority, application U.S.S.R., Mar. 16, 1978, 2592272; Nov. 22, 1978, 2688352

Int. Cl.[3] B66C *23/52*

U.S. Cl. 212—193 **5 Claims**



1. In floating crane apparatus including a floating base on which are mounted a load boom; a load-handling device suspended from said load boom; means for luffing said boom; means for lifting the load suspended from said load-handling device; the improvement comprising a device for reslinging a suspended load, including: a catch mounted on said floating base so as to project overboard of said floating base in the course of load reslinging procedure; an elongate tie member; a load-handling device provided on one of the ends of said tie member; and means provided on the other end of said tie member for successively linking said tie member to said load-handling device of said load boom and to said catch in the course of a load reslinging procedure.

4,266,681

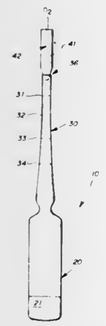
MULTIPLE BREAKPOINT RESEALABLE AMPOULE

Alan D. Fredericks, College Station, Tex., assignor to Oceanography International Corporation, College Station, Tex.

Filed Feb. 28, 1977, Ser. No. 772,983

Int. Cl.[3] B65D *1/02*

U.S. Cl. 215—32 **2 Claims**



1. A reaction carrier and reagent container for use in analytical chemistry capable of being broken and resealed numerous times comprising:

a glass vial having an elongated neeck, said neck being in open communication with said vial and being of relatively small circumference relative to said vial said neck having a plurality of breakpoints and a plurality of heat sealpoints located thereon for successive breaking and sealing of the ampoule.

4,266,682

STOPPING DEVICE FOR A THREADED NECK CONTAINER

Francois Speitel, Connerre, and Robert Speitel, Parigne L'Eveque, both of France, assignors to Teleplastics Industries S.A., Parigne L'Eveque, France

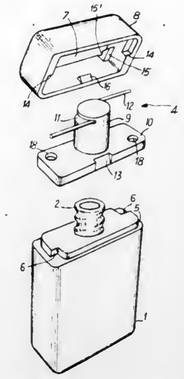
Filed Mar. 13, 1979, Ser. No. 20,020

Claims priority, application France, Mar. 17, 1978, 78 07880; Jan. 23, 1979, 79 01600

Int. Cl.[3] B65D *41/04*

U.S. Cl. 215—331 **8 Claims**

1. A stopping element of the capsule type consisting of an element including a cylindrical cap threaded inside for being screwed onto the corresponding threading of a flask neck and of an outer embellisher nesting on the surface of the flask surrounding the neck, the element including the threaded cap being slidably engaged in axial displacement in a corresponding seating of the embellisher with means resiliently biasing said element within the seating of the embellisher and means



liable to transmit a torque between said embellisher and said element.

4,266,683

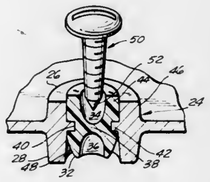
OUTDOOR JUNCTION BOX

Martin S. Sellinger, Livingston, N.J., assignor to Keene Corporation, New York, N.Y.

Continuation of Ser. No. 942,930, Sep. 18, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 120,684

Int. Cl.[3] H02G *3/08*

U.S. Cl. 220—3.2 **1 Claim**



1. An electrical junction box comprising:

a generally rectangular housing formed of interconnected walls, at least one of said walls having surfaces defining a mounting opening extending therethrough;

said one wall including a lug surrounding said mounting opening, said lug having a first elongated sleeve portion extending into the box interior, a second elongated sleeve portion extending away from the box interior, and an inwardly flange interposed between said portion, said lug first and second sleeve portions including passageways extending therethrough communication with said openings; and,

an elastomeric grommet positioned in and closing said opening; said grommet comprising an elongated member having a first section in sealing engagement with said lug first sleeve portion, a second section extending into said lug second sleeve portion chamferred so as not to engage said lug second sleeve portion along the length thereof, and a web section interconnecting said first and second sections and integral therewith;

said web being defined by counterbores extending into said grommet first and second sections terminating short of each other; and

a groove extending about said grommet web section, said lug flange being tightly seated within said web groove.

4,266,684

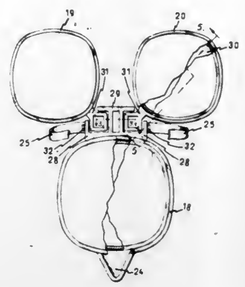
JUG WITH SUGAR BOWL, COFFEE POT AND CUPS

Yamil A. Maccise, Ciudad Satelite, Mexico City, Mexico

Filed Mar. 8, 1979, Ser. No. 18,554

Int. Cl.[3] B65D *21/02*

U.S. Cl. 220—23.83 **3 Claims**



1. In combination, a jug and a set of additional containers comprising cups, a sugar bowl and a coffee container, the jug having vertical parallel longitudinal rails located on the exterior thereof, and a vertical crossbar of "T"-shaped cross-section, positioned between said rails and defining with said rails a pair of vertical slots which provide access to respective recesses, each container of said set having a handle which has a neck portion and a head portion, said head portion being configured for captive retention in one of said recesses with said neck portion located in the slot which provides access to said one recess, and each container of said set having a top opening and having an annular recess at its lower end arranged to fit into and close the top opening of another container of the set.

4,266,685

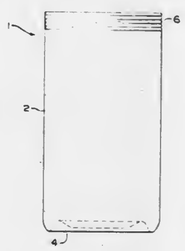
CAN BODY AND METHOD FOR MAKING SAME

Harry W. Lee, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Nov. 30, 1979, Ser. No. 99,099

Int. Cl.[3] B65D *6/38*

U.S. Cl. 220—74 **14 Claims**



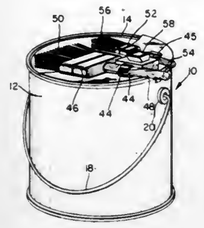
1. In a metallic can body having a cylindrical sidewall, an opening at an end thereof and a flange region adjacent said opening, the improvement wherein said flange region comprises a plurality of corrugations, said corrugations extending to said opening, said corrugations being generally parallel to one another and said corrugations being generally perpendicular to the axis of said can body, said corrugations acting to increase the effective thickness of the metal in said flange region so as to increase the stiffness thereof and decrease deflection and wrinkling during necking thereof.

4,266,686

PAINT CAN ATTACHMENT FOR HOLDING BRUSHES

Joseph F. Carter, 567 Tremont St., Rehoboth, Mass. 02967

Filed Jul. 2, 1979, Ser. No. 54,164
Int. Cl.³ B65D *25/20, 43/08;* B65B *39/00*
U.S. Cl. 220—90 1 Claim



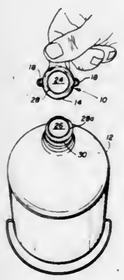
1. An attachment for a paint can for supporting one or more brushes thereon, wherein said paint can includes a container body having an open top defined by an annular lip, comprising a tray that is mounted on said annular lip at the upper end of said container body, said tray having an overall configuration that occupies less than the entire space of said open top to provide for access to the interior of said container body, means for removably securing said tray to said annular lip, and a brush holder member secured to said tray adjacent to the outer edge thereof, said brush holder member including clip means for receiving the handle of at least one brush therein, the bristle portion of said brush being received on said tray when the brush is located by said clip means in the nonuse position thereof, and said tray having a conformation that provides that any excess paint deposited thereon from said brush will drain back into the interior of said container, said brush holder member having oppositely inclined side walls to which said clip means is joined, said inclined side walls defining an angle with the horizontal axis of said brush holder member for locating a brush secured to the clip means in an angular relationship relative to said horizontal axis, wherein a pair of brushes may be secured in said clip means in adjacent relation without interference with each other.

4,266,687

SEALING COVER AND METHOD FOR RESEALING AN INTRAVENOUS CONTAINER

Robert Cummings, Richardson, Tex., assignor to U.S. Clinical Products, Inc., Richardson, Tex.

Filed Feb. 29, 1980, Ser. No. 125,988
Int. Cl.³ B65D *51/20, 39/00, 41/00*
U.S. Cl. 220—257 26 Claims



1. A sealing cover for providing a sterile cover to reseal the rubber membrane and surrounding metal rim of the top of an intravenous solution container, comprising:

a disk sized to substantially cover the area of the rubber membrane of the container top;

an annular ring surrounding said disk, said ring having a layer of adhesive material for adhering to the metal rim of the container cap as well as a layer of self-destructing material to leave a portion of said self destructing material adhering to the metal rim upon removal of the sealing cover; and

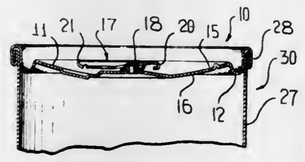
an upper layer of material adhering to said annular ring forming an upper surface of the cover, said upper layer being formed from a material substantially impermeable to moisture and bacteria, whereby the sterility of the rubber membrane is retained by placing the sealing cover on the container top with the disk centered over the rubber membrane and the annular ring adhesively engaging the metal rim.

4,266,688

EASY ACCESS TAB FOR VACUUM PACKED PRODUCTS

Jeremy T. Reid, Oakville, Canada, assignor to The Continental Group, Inc., New York, N.Y.

Filed Dec. 14, 1979, Ser. No. 103,871
Int. Cl.³ B65D *41/32*
U.S. Cl. 220—273 7 Claims



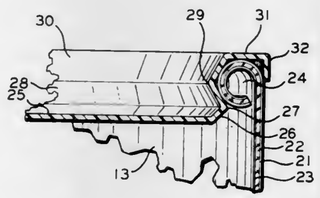
1. In an easy opening container panel, scoring defining a displaceable panel portion, an integral upstanding rivet disposed adjacent said scoring for mounting a tab in a position to exert an opening force on said displaceable panel portion; said panel being domed in the area of said rivet to displace said rivet upwardly out of the general plane of said panel, the resultant dome including a full height dome part remote from said scoring and said dome gradually sloping back to the original plane of said panel in the area of said scoring.

4,266,689

CLOSURE FOR TOP INSIDE ROLL CONTAINER

Lance A. Asher, Camden Point, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 1, 1979, Ser. No. 80,605
Int. Cl.³ B65D *39/00*
U.S. Cl. 220—307 15 Claims



1. A closure comprising:

a central discoidal portion;

a first section flaring upward and outward relative to and continuous along the extent of said central discoidal portion;

a second section flaring upward and inward continuous with said first section and forming an outside ridge and an inside groove along the line of continuity with said first section;

a third section flaring upward and outward continuous with said second section and forming an inside ridge and an outside groove along the line of continuity with said second section;

a closure rim having a downward turned skirt directed outward relative to said central discoidal portion and continuous with said third section; and

a skirt directed downward continuous with said rim.

4,266,690

WELDING ELECTRODE DISPENSER

Gordon W. Holmes, Mississauga, and William Marykuca, Stoney Creek, both of Canada, assignors to Red-D-Arc International Inc., Hamilton, Canada

Filed Feb. 26, 1979, Ser. No. 14,958
Claims priority, application United Kingdom, May 31, 1978, 25018/78
Int. Cl.³ B65G *61/00*
U.S. Cl. 221—254 18 Claims



1. A portable dispenser device for rigid elongate rod-like articles, preferably welding electrodes, comprising:

an elongate casing having a first upper internal unobstructed tubular cavity for receiving a plurality of said articles therein to be dispensed one at a time therefrom and a second lower internal elongate coaxially-arranged tubular cavity;

top end closure means having means defining an axial opening therein communicating with said first cavity and dimensioned to permit the passage of one only of said articles from said first cavity at one time, said top closure means normally being mounted at the upper end of said casing enclosing the upper end of said first cavity but being selectively removable therefrom to permit the placing of a plurality of of said articles in said first cavity at one time;

said top closure means including guide means for guiding an article to be dispensed to said axial opening for passage therethrough and releasable friction grip means associated with said opening to frictionally grip a stationary partially ejected article to prevent said article from returning to said first cavity;

cavity separator means mounted inside said casing in spaced relationship with respect to said top closure means to define the lower extremity of said first cavity and to separate said first cavity from said second cavity, said cavity separator means having an axial opening therein;

said cavity separator means being slidably mounted in said second cavity for reciprocal movement from engagement with stop means located within said second cavity towards said top closure means;

axially reciprocal pusher rod means axially located in said second cavity for extension through the latter opening for engagement with the lower end of one of said articles for ejection of the same through said top closure opening upon axial movement of said pusher rod means through the separator means opening towards said top closure means;

manual actuator means external of said casing and operably connected to said pusher rod means for actuation of said axial reciprocation for ejection of an article from said first cavity;

lower end cap means mounted to said casing at the opposite end thereof from said top end closure means and defining the lower extremity of said second cavity;

cam means located in said second cavity and constructed to effect movement of said cavity separator means towards said top closure means; and

cam actuator means operably connected to said manual actuator means;

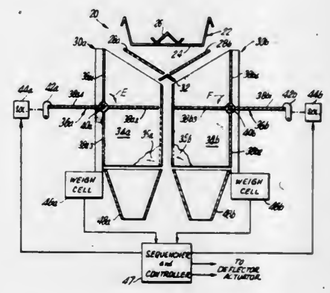
said cam means being pivotally mounted in said cavity and including a front cam member capable of engaging said cavity separator means upon pivotal movement of said cam means in one direction to effect said cavity separator means movement towards said top closure means and cam follower means capable of engaging said cam actuator means for pivotal movement in either direction.

4,266,691

CONTINUOUS AUTOMATIC FEEDING APPARATUS

Casimir S. Wolwowicz, Randolph, N.J., assignor to Gero Industries, Inc., Hillside, N.J.

Filed Jul. 11, 1978, Ser. No. 923,533
Int. Cl.² G01G *13/00*
U.S. Cl. 222—77 9 Claims



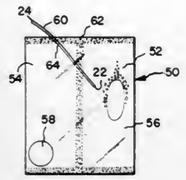
9. In combination material supplying means including feeder means having a discharge area and spoon means extending beyond said feeder discharge area, first and second adjacent hoppers each disposed beneath a portion of said feeder means and a portion of said spoon means, first and second deflectors means respectively disposed between said first and second hoppers and said material supplying means for selectively deflecting material supplied by said material supplying means to the other of said hoppers and means for selectively disposing each said deflector means in a first position and a third position for full communication and full isolation between said material supplying means and said hopper associated with said deflector means, and a second, intermediate position permitting communication between said spoon means and said associated hopper.

4,266,692

SEALED CONTAINER HAVING A DEFORMABLE ELONGATE MEMBER IN THE SEAL AREA

James A. Clark, Honeoye Falls, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Aug. 7, 1978, Ser. No. 931,639
Int. Cl.³ B65D *33/36, 81/32*
U.S. Cl. 222—94 **8 Claims**



1. A sealed container for enclosing matter therein,
said container including adjacent portions sealed together at a seal area to close said container; and
a deformable elastic elongate member having respective portions extending from outside said container through said seal area between said adjacent portions and into said container, said elongate member in its undeformed condition having a substantially uniform cross section in the portions thereof which extend through said seal area and into said container, said elongate member in said seal area and in said container having a cross sectional shape of greater width than thickness and with tapered edges and thereby being configured to facilitate sealing said container as sealing pressure is exerted against said seal area adjacent portions, said elongate member being deformed by said sealing pressure in said seal area to a smaller cross-sectional area than the cross-sectional area of the undeformed member whereby when said sealing pressure is released said elongate member, due to its elasticity, tries to return to its undeformed condition of larger cross-sectional area thereby exerting a positive sealing force against the adjacent portions of the container where said elongate member through said seal area of said container, said portion of said elongate member extending outside said container providing a portion which may be pulled to exert a longitudinal force on said elongate member, thereby stretching said elongate member longitudinally and reducing its cross-sectional area in the seal area to facilitate easy withdrawal of said member without rupturing the seal area and thereby leaving an opening into said container which substantially approximates the cross sectional configuration of the deformed elongate member through which the matter in the container may be expelled.

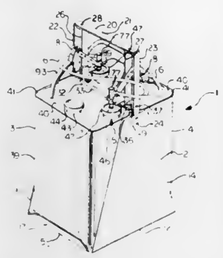
4,266,693

PORTABLE FUEL AND OIL DISPENSER

N. Leonard Pfeiffer, 5313 Newton, Shawnee Mission, Kans. 66202

Filed Jun. 11, 1979, Ser. No. 47,131
Int. Cl.³ B67D *5/52*
U.S. Cl. 222—135 **9 Claims**

2. A pump assembly for a fluid dispenser container comprising:
(a) a pump body extending into an interior of a container and having an internal passage including an end with a pump piston receiving chamber;
(b) a pump rod having an internal passage movably mounted for longitudinal reciprocation therein and having a piston portion mounted to a lower end thereof with an inlet port adjacent said piston portion communicating with the passage in said pump rod for entry of fluid into said pump rod;
(c) said piston portion including at least one passage therethrough for drawing fluid from said container into said piston chamber and having closure means operable to open and close said passage in response to pressure differentials thereacross whereby an upstroke of said pump rod and piston portion causes transfer of fluid;
(d) said pump body having a head portion disposed from said chamber including guide means and a seal surrounding said pump rod, said head portion having a port extending generally transversely therethrough and spaced beyond said seal and communicating with the interior of said container and the internal passage of said pump body for permitting any possible fluid leaking past said seal to drain into said container; and
(e) a pump discharge valve operably connected to the internal passage of said pump rod for selectively closing said internal passage.



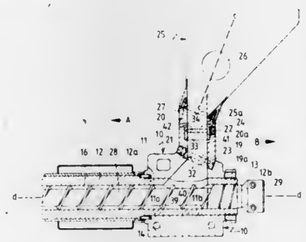
6. A portable dispenser apparatus for selectively dispensing different fluids and comprising:
(a) a carrier having a handle means medially positioned thereon;
(b) first and second containers mounted on said carrier with said handle means generally upstanding therebetween;
(c) a pump means connected to each of said containers and respectively having a pump actuation handle pivotally mounted to said handle means for support thereof;
(d) a delivery conduit leading from said pump means for use in routing fluids to an article to be serviced; and
(e) storage means positioned generally between said containers for receipt of said delivery conduit when not in use.

4,266,694

CONVERTIBLE HOPPER MOUNTING FOR INJECTION MOLDING MACHINE

Karl Hehl, Arthur-Hehl-Strasse 32, 7298 Lossberg 1, Fed. Rep. of Germany

Filed Aug. 6, 1979, Ser. No. 64,252
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1978, 2834203
Int. Cl.³ B29B *5/02;* **B67C** *9/00*
U.S. Cl. 222—167 **13 Claims**



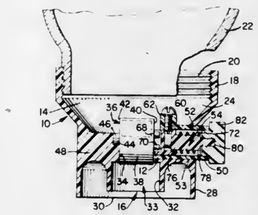
1. A mounting structure for the raw material hopper of an injection unit which plastifies and injects the raw material into the injection molding die of an injection molding machine, the mounting structure forming an adjustable flow channel connection between the hopper and the plastification cylinder of the injection unit, making it possible to obtain a substantially vertical orientation of the hopper in relation to a selectively horizontally or vertically oriented plastification cylinder, the hopper mounting structure comprising in combination:
a hopper base at the bottom end of the hopper;
a mounting hub associated with a rearward portion of the plastification cylinder of the injection unit, the mounting hub having an opening in the form of a first flow channel portion which leads to the inside of the plastification cylinder; and
a short tubular connecting sleeve attached on its two axial ends to the hopper base and to the mounting hub, respectively, so that the bore of the connecting sleeve forms a second flow channel portion which leads from the first flow channel portion to the bottom of the hopper; and wherein
the connecting sleeve includes, associated with one of its attached axial ends, means for rotationally adjusting the hopper relative to the plastification cylinder about an adjustment axis which is inclined, by an acute angle of substantially no more than 45°, to the axis of the bore of the connecting sleeve, and which is also inclined, by an acute angle of substantially no more than 45°, rearwardly away from a radial plane through the plastification cylinder; and
the rotational adjustment means has two favored adjustment positions, 180° apart, in which the two acute angles form a common center plane, whereby in one of the two adjustment positions, intended for a horizontally oriented plastification cylinder, the resultant general flow direction through the flow channel connection is substantially perpendicular to the axis of the plastification cylinder, and, in the other adjustment position, intended for a vertically oriented plastification cylinder, the resultant general flow direction through the flow channel connection is inclined outwardly, away from the axis of the plastification cylinder, by an acute angle of substantially no more than 45°.

4,266,695

SUGAR DISPENSER

Armando Ruperez, Edificio 7, Local 7-C, Calle El Recreo, Sabana Grande, Caracas, Venezuela

Filed Nov. 6, 1979, Ser. No. 92,258
Int. Cl.³ B67D *5/06*
U.S. Cl. 222—185 **13 Claims**



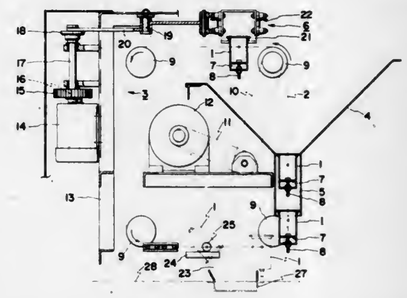
1. A manually operable dispenser adapted to be threadedly secured to the open mouth of a bulk container and operable to serve predetermined quantities of a material such as sugar, the dispenser serving to support the container in an inverted position and comprising:
a dispenser housing having an internally threaded upper portion adapted to engage the mouth portion of a container and having a lower portion defining a dispensing chute and a support base;
a divider wall in said housing and cooperating with said support portion of said housing to define a filling chamber;
a dispensing aperture in said divider wall to provide communication between said filling chamber and said dispensing chute;
transfer means comprising a hollow drum, the interior of which forms a receptacle of predetermined size for receiving a predetermined quantity of material from said filling chamber;
means for mounting said hollow drum for axial rotation in said dispensing aperture so that said hollow drum blocks the passage of material from said filling chamber to said dispensing chute, the axis of said drum being parallel to but located above said divider wall so that a limited portion of the circumference of said drum extends downwardly through said divider wall;
means for manually and selectively rotating said hollow drum to move said drum in a first direction to carry said receptacle out of said filling chamber, through said dispensing aperture to said dispensing chute whereby a predetermined quantity of material may be deposited in said dispensing chute for delivery out of the container; and
biasing means for rotating said transfer means in a second direction to normally maintain said receptacle in communication with said filling chamber.

4,266,696

CONVEYOR DEVICE FOR SUPPLYING BULK FOODS IN A MEASURED MANNER

Hatsuo Sakurazawa, 15-banchi, Shinozuka, Fujioka-shi, Gunma-ken, Japan

Filed Jan. 26, 1978, Ser. No. 872,472
Claims priority, application Japan, Aug. 8, 1977, 52-94879
Int. Cl.³ B65G *47/40*
U.S. Cl. 222—197 **4 Claims**



1. A conveyor device for supplying bulk foods in a measured manner characterized in that a plurality of measuring containers each having a flange on a peripheral surface thereof are pivotally supported on endless conveyor strips at predetermined distances between each other and in a manner such that said measuring containers have their open ends normally directed upwardly to thereby comprise an endless conveyor, a hopper, a guide cylinder extending from a lower part of said hopper, said conveyor passing upwardly through said guide cylinder from the bottom part of said hopper through an upper part thereof;
said containers being spaced such that, and said endless conveyor ascending in a manner such that at least one measuring container is always within said guide cylinder with its said flange maintaining sliding sealing contact with the inner surface of said guide cylinder;
an oscillating device disposed adjacent the track of said endless conveyor, said oscillating device being so constructed as to oscillate each said measuring container while it is still within the outer edge of said hopper after having scooped bulk material in order to cause excess quantities of said bulk material to fall into said hopper;
and means provided at an exhausting station for discharging

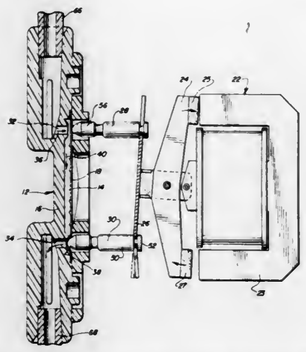
the material on said endless conveyor comprising means for inverting said measuring containers.

4,266,697

CONTROLLED VOLUME LIQUID METER DEFINING IMPROVED PLUNGER MEANS

Nicholas Zissimopoulos, Schaumberg, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Mar. 12, 1979, Ser. No. 19,391
Int. Cl.³ A61M 5/14
U.S. Cl. 222—450 **6 Claims**



1. In a controller for a controlled volume liquid meter defining aperture means for receiving a cassette which includes a variable volume liquid metering chamber having a flexible membrane wall, an inlet port adjacent one end of said chamber, an outlet port adjacent the other end of said chamber, the inlet and outlet ports defining paths of liquid flow therethrough which are transverse to the direction of liquid flow in said chamber, said controller defining a pair of plunger members, and means for alternatingly pressing the plunger members against said membrane wall to alternatingly open and close said inlet and outlet ports, the improvement comprising, in combination:

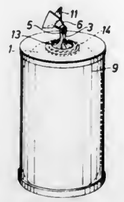
said plunger members being carried by a leaf spring member which is deflectable in the direction of the axis of said plunger members, said plunger members also possessing means permitting variation of the length of each plunger member between a maximum and a minimum length, and spring means urging said plunger members to occupy their maximum lengths, whereby the force with which said plunger members press against the membrane wall is limited to a value governed by said spring means, each plunger member comprising a sleeve open at one end and closed at another end, and a plunger head carried in the bore of said sleeve and slidably movable therein, a forward portion of said plunger head projecting outwardly from the bore of said sleeve, and spring means between said plunger head and the closed end of said sleeve for biasing said plunger head into an axially outward position with respect to said sleeve, said plunger head further defining a first flange positioned adjacent its rear end, said sleeve defining a second flange extending radially inwardly from its open mouth, whereby said second flange prevents removal of said plunger head from the sleeve by engagement with the first flange.

4,266,698

OPENING ARRANGEMENT FOR PACKING CONTAINERS OF THIN PLASTIC FILM TOGETHER WITH A PACKING CONTAINER PROVIDED WITH THE OPENING ARRANGEMENT

Anders R. Rausing, Lausanne, Switzerland, assignor to Tetra Pak Developpement SA, Lausanne, Switzerland

Filed Sep. 13, 1979, Ser. No. 75,217
Claims priority, application Switzerland, Sep. 18, 1978, 9736/78
Int. Cl.³ B65D 33/36, 75/66, 77/32
U.S. Cl. 222—528 **8 Claims**



1. A packing container comprising:

an outer casing including a first and a second end portion, said casing having an opening in said first end portion;

a package body disposed within said outer casing, said body having a thin flexible wall;

means for holding a portion of the wall in a folded position to form a fold therein;

a cutting thread disposed within said fold;

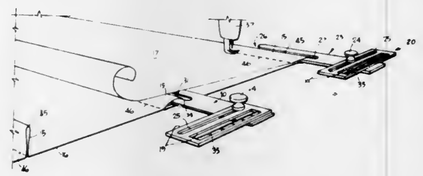
closure means on said opening, said cutting thread being secured to said closure means, whereby when said closure means is pulled from said opening, said cutting thread cuts through said portion of the wall to provide an opening therein.

4,266,699

PLEAT FORMING MEANS AND METHOD

Harley G. F. Ladd, 34 Main South Rd., O'Halloran Hill, State of South Australia, Australia

Filed May 10, 1979, Ser. No. 37,773
Int. Cl.³ A41H 43/00
U.S. Cl. 223—34 **10 Claims**



1. Means for forming a plurality of pleats to be sewn and equally spaced across one edge of a material workpiece, said means including a jig which comprises:

a support having a pair of finger guiding surfaces;

locating means carried by a platen of a sewing machine cooperable with the support to locate the support with respect to the sewing machine needle,

a loop forming finger having an edge which, in use, is a loop forming edge;

a spacing finger bifurcated by a slot defined by slot edges extending inwardly from an extended end thereof, an edge of said slot, in use, being a datum engaging surface;

guide engaging surfaces on the respective fingers engaging said support finger guiding surfaces for movement of each finger with respect to the support and also with respect to the other finger while retaining the loop forming edge parallel to the datum engaging surface;

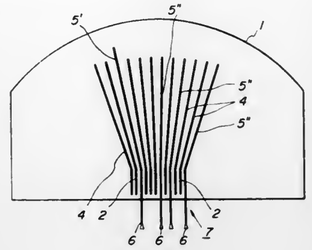
and locking means between each of the fingers and the support operable to lock each respective finger in any one of a plurality of positions on the support.

4,266,700

FREELY ADJUSTABLE PIN-TUCKING DEVICE FOR USE IN A PIN TUCKING MACHINE

Shinichi Wakasono, Mugi, Japan, assignor to Vari-O-Matic Machine Corporation, Japan

Filed Sep. 20, 1979, Ser. No. 77,349
Int. Cl.³ A41H 43/00
U.S. Cl. 223—34 **2 Claims**



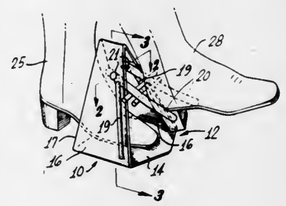
1. A freely adjustable pin-tucking device for use in a pin-tucking machine comprising a guide board made of metal, plastic, wood, or the like plate shaped material, the guide board is provided with a plurality of even spaced grooves having at rear end even spaced parallel portion extending to radially spaced grooves and deep inserting grooves at middle thereof, and at least one separate set of guide members corresponding to the number of the inserting grooves, the guide members having tucking guides at the rear end and having inserting limbs of different bent angles to match with the radial form of the grooves, the guide members further provided with an inserting leg to be inserted with said inserting grooves to fix the guide members on the guide board in detachable and replaceable manner.

4,266,701

BOOT PULL

James H. Burgess, 72-945 Tamarisk, Palm Desert, Calif. 92260

Filed Aug. 30, 1979, Ser. No. 71,308
Int. Cl.³ A47J 51/02
U.S. Cl. 223—116 **7 Claims**



1. A boot pull comprising:

a pair of outwardly divergent boot gripping members adapted to receive the heel portion of a boot between them;

a pair of side pieces that converge toward a point above said gripping members; and

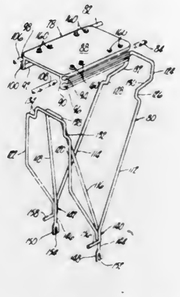
means for pivotally attaching said gripping members to said side pieces and for causing movement of said gripping members toward each other as they pivot upwardly, whereby a boot can be removed from the wearer's foot by inserting it between said gripping members and pulling upwardly causing said gripping members to move inwardly to firmly hold said boot against continued upward movement.

4,266,702

PANNIER MOUNTING ARRANGEMENT FOR CYCLES

W. Shaun Jackson, 809 Sycamore, Ann Arbor, Mich. 48104, and Leslie E. Bohm, 29560 Rutherland North, Southfield, Mich. 48076

Division of Ser. No. 768,467, Feb. 14, 1977, Pat. No. 4,174,795.
This application Feb. 1, 1979, Ser. No. 8,801
Int. Cl.³ B62J 9/00
U.S. Cl. 224—31 **10 Claims**



1. In combination, a cycle carrier rack and an arrangement for mounting a luggage item on the cycle carrier rack, comprising:

a horizontally extending load support adapted to extend over the rear wheel of a cycle;

bracket means including a plurality of strut members fixedly secured to both sides of said load support and extending downwardly, said bracket means also including means adapted to fixedly secure the lower ends of said strut members to a cycle;

at least one front extension member mounted to said load support for slidable adjustment forwardly of said load support by relative movement therebetween;

attachment means carried by an outer end of said at least one front extension member adapted to secure said outer end to a cycle, whereby said load support may be mounted to cycles having structure of differing configurations to which said front extension member is adapted to be secured;

an elongate element;

at least a first channel section adapted to slidably receive and support said elongate element;

means adapted for mounting one of said elongate element or said first channel section on a luggage item and extending along said luggage item;

means adapted for securing the other of said elongate element or said first channel section on said load support in a longitudinal direction substantially parallel to the length of said cycle, whereby said luggage item may be mounted to or removed from said load support by fore or aft sliding movement of said elongate element into said first channel section to support said luggage item on said load support; and

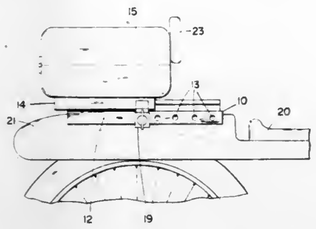
releasable holding means for preventing fore and aft sliding movement between said first channel section and said elongate element.

4,266,703

SLIDE MOUNT FOR MOTORCYCLE LUGGAGE BOX

Reuben Litz, 543-19th Ave. North, South St. Paul, Minn. 55075

Filed Jan. 28, 1980, Ser. No. 115,744
Int. Cl.³ B62J *7/04*
U.S. Cl. 224—32 A **4 Claims**



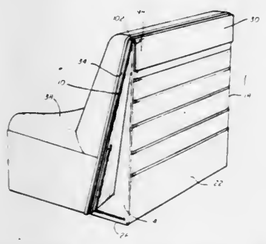
1. An adjustable mount for carrying a luggage box on a motorcycle, comprising:
   a. a first rigid plate (**10**) fixedly mounted to the top of a motorcycle frame rearward of the driver's seat (**20**) having an elongated groove (**11**) extending rearward from just behind the driver's seat;
   b. a second rigid plate (**14**) fixedly attached to the underside of a luggage box (**15**) having an elongated tongued rail (**16**) for slidingly engaging said groove in the first plate;
   c. means (**19, 13**) for releasably locking said first and second plates together when the rail is engaged in the groove;
   d. whereby a luggage box can be selectively positioned rearward near or away from the driver's seat.

4,266,704

SHAPED STORAGE BAG

Otto W. Swanson, 605 Belmont St., Belmont, Mass. 02178

Continuation of Ser. No. 749,015, Dec. 9, 1976, abandoned, which is a continuation of Ser. No. 628,334, Nov. 3, 1975, abandoned. This application Aug. 4, 1978, Ser. No. 931,180
Int. Cl.³ B60R *7/00*
U.S. Cl. 224—42.46 A **7 Claims**



1. A shaped storage bag, to be mounted on the back of a vehicle seat having a non-vertical, overhanging surface, having an inside and an outside and comprising
   a rear panel, a front panel, a bottom panel, first and second side panels, a top flap, mounting means, stiffening means, and releasable locking means;
   said mounting means fastening said rear panel to said overhanging surface;
   said rear panel, said front panel, said first and second side panels, and said bottom panel being interconnected with one another at their adjacent edges, but with the upper edge of said front panel and the top edges of said side and rear panels being free of one another;
   said first and second side panels being flexible so that said upper edge of said front panel may be moved into contiguity with said top edge of said rear panel to bring said storage bag into its closed configuration or may be moved away from said top edge, in a substantially horizontal direction, to bring said storage bag into its open configuration,
   said front panel lying, when said storage bag is in said closed configuration, in a substantially vertical plane and extending down to its interconnection with said bottom panel substantially directly below said top edge of said rear panel;
   said storage bag having, when in said open configuration an upper opening defined by said top edges of said first and second side panels and said rear panel and the upper edge of said front panel;
   said stiffening means comprising a rigid front rod;
   said front rod being interconnected with said rear panel and said front panel to maintain said upper edge of said front panel in close vertical contiguity with said top edge of said rear panel when said bag is in its closed orientation;
   said top flap being flexibly interconnected at its rear to said rear panel adjacent its top edge so that it can be swung down over the upper edge of said front panel when said bag is in its closed configuration and can be displaced back behind said top edge of said rear panel to allow said bag to be brought to its open configuration;
   said releasable locking means being interconnected with said rear panel to releasably maintain said upper edge of said front panel in horizontal contiguity with said top edge of said rear panel when said bag is in its closed configuration,
   said first side panel having an extraction opening, allowing extraction of the contents of said storage bag, located at least in part adjacent the bottom edge of said first side panel;
   and said first side panel having closure means for opening and closing said extraction opening,
   securing means for removably securing a flexible liner bag in said storage bag;
   said securing means comprising a rigid back rod, at least one second clamp, and at least one clip;
   said second clamp being interconnected with said rear panel;
   said liner bag being folded over said back rod and being yieldably maintained by said second clamp;
   said back rod being inside said storage bag and with said liner bag, adjacent and substantially parallel to said top edge of said rear panel;
   said liner bag being folded over said front rod where it interconnects with said front panel so as to bring the opening of said liner bag in substantial coincidence with the opening of said storage bag defined by said upper edge of said front panel, said top edge of said rear panel and said top extremities of said first and second side means;
   at least one of said clips being removably clamped over said front rod where it interconnects with said front panel with the liner bag folded thereover in order to secure said liner bag thereto.

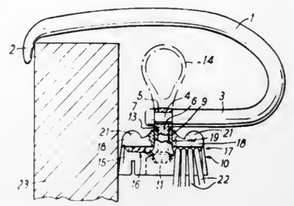
4,266,705

CARRIER FOR GARMENT HANGERS

Raymond R. Wheeler, 39, Nixon St., Hamilton, New Zealand

Continuation of Ser. No. 912,685, Jun. 6, 1978, abandoned. This application May 12, 1980, Ser. No. 148,883
Int. Cl.³ B65D *71/00*
U.S. Cl. 294—163 **11 Claims**

1. A carrier for garment hangers comprising:
   (i) a saddle member which includes
      (a) a recessed bearing surface adapted to receive a plurality of garment hanger hooks in side by side relationship
      (b) recessed locking portions at end points on said saddle member
   (ii) locking means carried by said saddle member and movable about an axis substantially perpendicular to said saddle member into a first position in which the locking means is aligned with the bearing surface and is engaged into the recessed locking portions, and into a second displaced position in which the locking means is disengaged from the recessed locking portions permitting free engagement and disengagement of a hanger hook on and from the bearing surface,



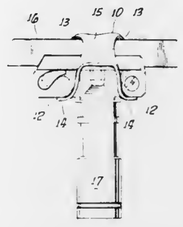
   (iii) a handle, and
   (iv) means coupling the handle to the saddle member.

4,266,706

BELT SUPPORT FOR CAMERAS

Arthur Gould, 1690 W. 6 St., Reno, Nev. 89503

Filed Jun. 5, 1980, Ser. No. 156,535
Int. Cl.³ A45F *5/02*
U.S. Cl. 224—253 **6 Claims**



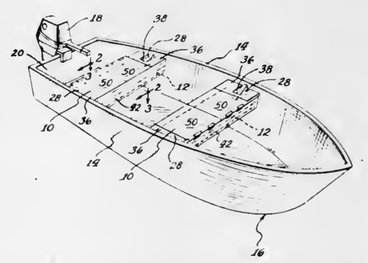
1. A holder for supporting a camera of the type having laterally extended body portions on a belt when worn by a user, said holder comprising a strip-like member of elastic material provided with a pair of slots dimensioned to receive a belt therethrough with each of said slots also being adapted to simultaneously receive a corresponding one of the extended body portions of a camera whereby a camera can be firmly gripped and supported on a user's belt.

4,266,707

BOAT SEAT TACKLE BOX

Dale W. Rossman, 223 Ninth St., LaSalle, Ill. 61301

Filed Sep. 24, 1979, Ser. No. 78,642
Int. Cl.³ B60N *1/10;* **B63B** *29/00*
U.S. Cl. 224—275 **9 Claims**



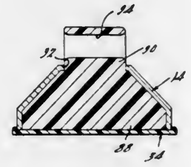
1. A tackle box adapted for mounting in a working position on a boat seat of the type extending between opposite sides of said boat; said tackle box including
   a bottom wall adapted to rest on an upper surface of said seat and including a pair of depending ribs along forward and aft edges thereof disposed adjacent respective fore and aft side edges of said seat to key said box on said seat against substantial fore and aft relative movement with respect thereto,
   a peripheral side wall extending upwardly of said bottom wall forming a tackle holding compartment,
   a top wall for said compartment mounted for pivotal movement with respect to said sidewall between an open position for providing access to the interior of said compartment and a closed position over said compartment providing a seating surface for said boat, and
   lateral stop means engageable with opposite sides of said boat for preventing substantial relative movement between said tackle box and said seat in a direction laterally of said boat.

4,266,708

VEHICLE ARTICLE CARRIER

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

Continuation of Ser. No. 725,500, Sep. 22, 1976, Pat. No. 4,156,497. This application May 24, 1979, Ser. No. 41,919
Int. Cl.³ B60R *9/00*
U.S. Cl. 224—326 **15 Claims**



1. Article securing means for a motor vehicle comprising a plurality of elongated slats adapted to be secured to a surface of said motor vehicle in spaced relationship, each of said slats including spaced sidewalls and an integral upper wall extending between and interconnecting the uppermost portions of said sidewalls, said upper wall having an opening provided therein intermediate the ends of said slats,
   a fastening element having a body portion disposed interiorly within at least one of said slats and including tie down means extending outwardly through said opening,
   said tie down means being adapted to cooperate with a tie down device so as to enable articles to be secured to said motor vehicle.

4,266,709

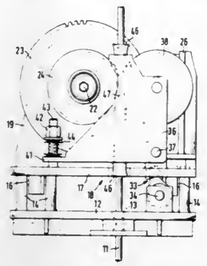
ADVANCE DRIVE MEANS FOR A PIPE SNAKE

Burkhard Krüger, Cologne, Fed. Rep. of Germany, assignor to Myers-Europe Pumpen GmbH, Essen, Fed. Rep. of Germany

Filed Jun. 8, 1979, Ser. No. 46,683
Claims priority, application Fed. Rep. of Germany, Jun. 8, 1978, 2825228
Int. Cl.³ B65H *17/22, 51/10*
U.S. Cl. 226—181 **10 Claims**

1. An advance drive means for a pipe snake, comprising a roller set of at least two rollers adapted to roll off the pipe snake opposite each other and being reversible such that they selectively advance or retract the pipe snake, characterized in

that an additional drive means is associated with the pipe snake to impart to the pipe snake periodic longitudinal movements at



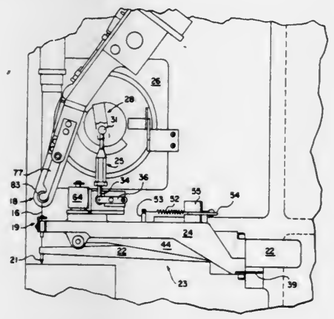
least in that direction which is opposed to the advance or retraction produced by the roll-off motion of the rollers.

4,266,710

WIRE BONDING APPARATUS

Glenn B. Bilane, Huntington Valley; Lawrence M. Rubin, Coatesville; Albert Soffa, Wynnewood, and Dan Vilenski, Hatboro, all of Pa., assignors to Kulicke and Soffa Industries Inc., Pa.

Filed Nov. 22, 1978, Ser. No. 962,916
Int. Cl.³ B23K *20/00*
U.S. Cl. 228—4.5 **46 Claims**



1. A processor controlled vertical drive apparatus for a bonding machine comprising:

a support frame,

a bonding head mounted on said support frame for vertical movement relative thereto,

a Z drive motor mounted on said support frame for positioning said bonding head,

said bonding head comprising a bonding tool lifter arm coupled to said Z drive motor,

first sensor means on said bonding tool lifter arm,

said bonding head comprising a bonding tool holder operable by and also operable relative to said bonding tool lifter arm,

second sensor means on said bonding tool holder,

a bonding tool mounted in said bonding tool holder for performing a bonding operation on a workpiece, and

means for detecting when said sensors are together or apart, thereby indicating when said bonding tool has first engaged said workpiece.

23. A processor controlled linear drive mechanism for converting rotary motion to predetermined linear motion comprising:

a support frame,

a drive motor mounted on said support frame,

rotary position indicating means connected to said drive motor,

eccentric drive means connected to said drive motor,

a driven follower member connected to said eccentric drive means,

said driven follower member being guided for movement in a linear motion path,

processor control means having a memory for storing digital data indicative of different increments of rotational movement of said drive motor,

said different increments of rotational movement being indicative of predetermined linear movements of said driven follower member,

said rotary position indicating means providing an output position signal coupled to said processor, and

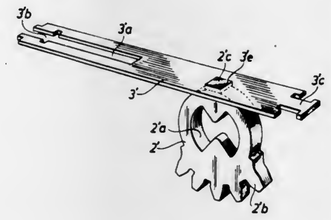
arithmetic means in said processor for comparing said output position signal with one of said digital data indications of a predetermined increment of rotational movement of said drive motor and for producing a forcing function signal coupled to said drive motor indicative of the difference between a desired predetermined linear position and the actual linear position of said driven follower member, whereby said drive motor forcing function signal is varied to position said drive motor at variable rates of change.

4,266,711

METHOD OF MANUFACTURING A LOCK CYLINDER FOLLOWER

Erik R. Tranberg, Eskilstuna, and Bo G. Widen, Torshälla, both of Sweden, assignors to GKN-Stenman AB, Eskilstuna, Sweden

Division of Ser. No. 844,445, Mar. 7, 1978, Pat. No. 4,185,481.
This application Jul. 27, 1979, Ser. No. 61,560
Claims priority, application Sweden, Mar. 8, 1977, 7702602
Int. Cl.³ B23K *31/00*
U.S. Cl. 228—135 **4 Claims**



1. A method of manufacturing a lock follower, comprising:

(a) punch stamping a generally circular central member having a toothed segment projecting outwardly from an arc portion thereof and a non-circular aperture from a blank of sheet-metal material,

(b) forming a cylindrical bearing member having a partial circumferential slot between its ends of sufficient width to accommodate the thickness of the central member, the axial length of the bearing member being greater than the thickness of the central member,

(c) inserting the central member through the slot and into circumferential engagement with the bearing member with the toothed segment projecting outwardly through the slot, and

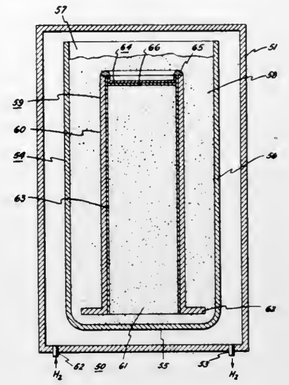
(d) securing the central and bearing members together.

4,266,712

METHOD OF MAKING A SULFUR ELECTRODE CONTAINER

Dong-Sil Park; Manfred W. Breiter, both of Schenectady, and Randall N. King, Johnstown, all of N.Y., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Division of Ser. No. 898,485, Apr. 20, 1978, Pat. No. 4,234,668.
This application Mar. 31, 1980, Ser. No. 135,216
Int. Cl.³ H01M *2/02*
U.S. Cl. 228—175 **3 Claims**



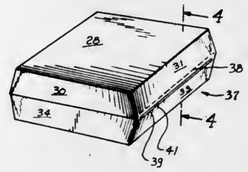
1. A method of forming a composite sulfur electrode container which comprises providing an outer metallic casing portion readily corroded by liquid sulfur and polysulfides, the outer metallic casing portion having opposite open ends, providing a metallic foil portion substantially corrosion resistant to liquid sulfur and polysulfides, forming the foil portion into a cylindrical shape, positioning the foil portion within the outer casing portion with the outer surface of the foil portion in substantially contiguous relation with the inner surface of the outer casing portion, providing a heated vapor containing chromium from a chromium source to the interior of the outer metallic casing portion with foil portion therein thereby bonding the foil portion to the inner surface of the outer metallic casing portion, diffusing chromium into the foil portion, bonding a chromium layer portion containing at least 60 weight percent chromium to the opposite surface of the foil portion, providing a metallic end cap within and adjacent one open end of the container, and providing the end cap with at least its inner surface substantially corrosion resistant to liquid sulfur and polysulfides.

4,266,713

UNITARY DOUBLE CAVITY CARTON

Raymond V. Maroszek, Neenah, Wis., assignor to American Can Company, Greenwich, Conn.

Filed Oct. 26, 1979, Ser. No. 88,637
Int. Cl.³ B65D *5/26, 5/66*
U.S. Cl. 229—33 **25 Claims**



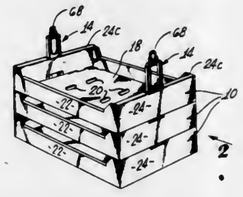
1. In a double cavity paperboard carton formed of a single cut and scored blank having a bottom cavity portion and a top cavity portion wherein each of the bottom and top cavities comprise hingedly connected front, side and rear walls adhered through suitable glue tabs, and the top and bottom cavities are hingedly connected through a center hinge line connecting their respective rear walls, the improvement which comprises provision of a fold area on said carton rear wall adjacent said center hinge line within which folding is controlled without buckling or outward bowing, said area being selected from the group consisting of (1) a hinge ridge defined by a member selected from (a) at least one line of weakness adjacent and parallel to said center hinge on either side thereof; and (b) an offset cut score or knife cut at the center of said center hinge; and (2) a hinge channel defined by at least one line of weakness on each side of said center hinge.

4,266,714

BOXES WITH COLUMN-FORMING INSERTS

Walton B. Crane, Sherman Oaks, Calif., assignor to Industrial Designs & Services, Encino, Calif.

Continuation of Ser. No. 6,666, Jan. 26, 1979, abandoned. This application Jul. 1, 1980, Ser. No. 165,135
Int. Cl.³ B65D *5/22, 25/22*
U.S. Cl. 229—34 HW **30 Claims**



1. A box for produce and the like comprising:

a folded paperboard container having a floor, sidewalls and end walls; and

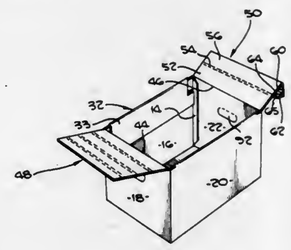
column-forming means secured to each of said end walls and extending at least the full height of said end walls of said container and including interlocking means at its upper and lower ends for lockingly engaging similar column-forming means of other boxes when a plurality of the boxes are arranged in a vertical stack for defining continuous columns extending completely through all the boxes in the stack, said column-forming means including means for vertically supporting said container.

4,266,715

CARTON

Earl G. Garrison, Fullerton, Calif., assignor to Thacker Container Company, Santa Fe Springs, Calif.

Filed Jul. 2, 1979, Ser. No. 54,202
Int. Cl.³ B65D *5/06, 85/30*
U.S. Cl. 229—37 E **8 Claims**



1. A carton of sheet material comprising a pair of opposed rectangular front and rear side walls and a pair of opposed

rectangular left and right end walls and sealing tab means extending from an edge of one of said walls and adapted to be attached to the distant edge of another of said walls, said walls and tab being formed from a single blank of sheet material joined to one another along edges formed by scored fold lines, characterized in that:

said pair of end walls has foldably attached to end wall edges perpendicular to said fold line edges a pair of end flaps, each flap comprising a plurality of rectangular flap sections alternating with and foldably connected to relatively thin rectangular connector strips defined by scored fold lines, the flap sections including a major flap section foldably attached to an end wall edge and at least two minor flap sections substantially narrower in a direction perpendicular to said end wall edge than the major flap section,

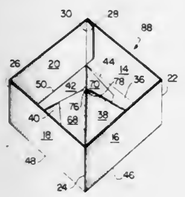
the flap sections of each flap being foldable into parallel relation to form a transverse beam extending between said side walls, said beam having an upwardly directed ledge formed by one of said connector strips for supporting a load, and each major flap section being in juxtaposed relation with the inner face of its end wall.

4,266,716

CARTON WITH PYRAMID-SHAPED BOTTOM AND BLANK FOR FORMING SAME

John J. Austin, LeGrange, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Jan. 24, 1980, Ser. No. 115,021
Int. Cl.³ B65D *5/10, 5/36*
U.S. Cl. 229—39 R **10 Claims**



1. A carton comprising:

first, second, third and fourth side wall panels hingedly coupled to adjacent side edges thereof along fold lines, said side wall panels having top and bottom edges; and

a collapsible, pyramid-forming bottom structure hingedly coupled to said bottom edges along fold lines, said structure comprising,

first, second, third and fourth bottom panels hingedly attached along fold lines to said first, second, third and fourth side wall panels, respectively, each of said bottom panels being generally triangular and having bases attached to one of said side wall panels, and two side edges,

means for hingedly coupling said first and second bottom panels and said third and fourth bottom panels, respectively, along respective adjacent side edges thereof, and

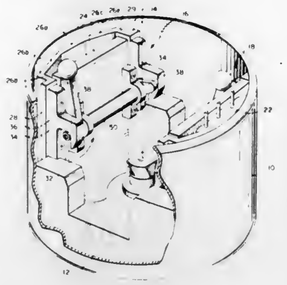
first and second locking tabs extending from said second and fourth bottom panels, respectively, said tabs having abutment edges for abutting each other to retain the carton in an assembled configuration against a bias of the carton towards a collapsed configuration.

4,266,717

PLATEN, HOLDER AND LATCH ASSEMBLY FOR SECURING PLATENS IN PLACE WITHIN A CENTRIFUGE DEVICE

C. Michael Jennings, Reston, Va.; Albert Kitchenham, Laurel, and Rene Lamadrid, Bethesda, both of Md., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation-in-part of Ser. No. 29,742, Apr. 13, 1979, Pat. No. 4,195,766. This application Dec. 12, 1979, Ser. No. 102,747
Int. Cl.³ B04B *7/12*
U.S. Cl. 233—26 **19 Claims**



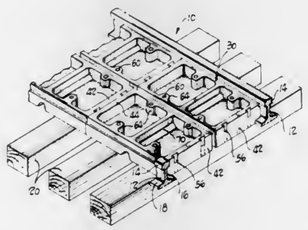
1. In a centrifuge of the type wherein a receptacle is received and held between first and second platens which are held in generally upright respective inner and outer parallel planes spaced radially outwardly from a vertical axis of rotation of the device with the first platen being situated in the inner plane and the second platen being fixed in the outer plane, the improvement comprising a platen holder and latch assembly including a holder having a fixed outer wall and a movable inner wall pivotally mounted to the bottom of said fixed outer wall, a first platen positioned in said holder against said inner wall and movable therewith, a second platen positioned within said holder against said outer wall, said platens being removable, replaceable platens which are slidably insertable into said holder from the top thereof, and a latch mechanism associated with said inner and outer walls of said holder and having means providing a toggle locking between said inner and outer walls.

4,266,718

MODULARIZED RAILWAY CROSSING GRADE AND MODULES THEREFOR

Robert L. Sivon, Perry, Ohio, assignor to True Temper Corporation, Cleveland, Ohio

Filed Jul. 27, 1978, Ser. No. 928,540
Int. Cl.³ E01C *9/04*
U.S. Cl. 238—9 **12 Claims**



1. A module for cooperative installation with a plurality of similar modules proximate a set of railway tracks and borne upon support members therefor to yield a modularized railway crossing grade assembly, said module comprising:

(a) a hollow form having exterior side walls, end walls, and a bottom wall;

(b) anchoring means for securing said hollow form to rail supports for a set of railway tracks;

(c) keyway means formed in a first of said end walls;

(d) key means formed in the second, opposing end wall, said key and keyway means being of complementary geometrical configuration whereby successive forms may be positively interlocked; and

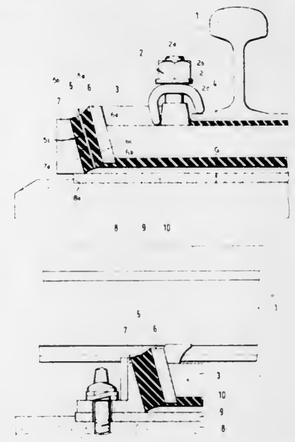
(e) a cover plate secured to said module.

4,266,719

TRACK MOUNTING ASSEMBLY AND SOUND-DAMPING SYSTEM THEREFORE

Hermann Ortwein, Cologne, and Hans Braitsch, Bergisch Gladbach, both of Fed. Rep. of Germany, assignors to Clouth Gummiwerke Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 52,974
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828713; Jul. 27, 1978, 2832989
Int. Cl.³ E01B *9/38, 19/00*
U.S. Cl. 238—283 **6 Claims**



1. A sound-damping mounting for a rail upon a rigid body, comprising:

a frame supported on said body and elongated in a direction transverse to said rail while lying below said rail, said frame being composed of rigid material and having elements forming a continuous periphery around an opening, at least some of said elements extending generally transverse to said rail, said elements having flanks including an angle with the vertical between 5° and 85° and inclined upwardly and outwardly;

a rigid member underlying said rail and having at least a portion received in said opening and of a shape geometrically similar to that of said opening with flanks parallel to the corresponding flanks of said opening but spaced therefrom;

at least one rubber-metal plural-layer sound-damping member disposed between the spaced apart flanks of said rigid member and said frame while bridging the space between them and having its layers inclined at said angle, said rubber-metal sound-damping member extending at least along the elements generally transverse to said rail; and

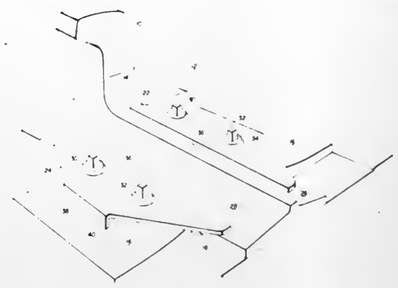
means for securing said rail to said rigid member.

4,266,720

RAIL FASTENER

John L. Harmsen, Vienna, Va., assignor to Stedef S.A., Saint-Cloud, France

Filed Dec. 20, 1979, Ser. No. 105,856
Int. Cl.³ E01B *9/30*
U.S. Cl. 238—349 **16 Claims**



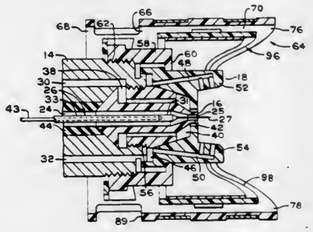
1. A rail fastening clip for securing a rail to a rail tie having the capacity to dampen and distribute load and vibrations along the contact surface between the rail and clip and through the area of the clip comprising a generally trapezoidal shaped springsteel clip having a long edge for engaging the foot of the rail, said long edge having an arched sinusoidal configuration which when installed by flattening the sinusoidal configuration against the foot of a rail subsequently dampens high frequency vibrations by engaging said foot of said rail with the ends and center of said long edge and dampens low frequency vibrations by engaging said foot of said rail with said ends, said trapezoidal shaped springsteel clip having a short edge, said short edge curved to terminate in a support foot disposed at an angle of about 90° to said trapezoidal shaped clip.

4,266,721

SPRAY APPLICATION OF COATING COMPOSITIONS UTILIZING INDUCTION AND CORONA CHARGING MEANS

James E. Sickles, Glenshaw, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 17, 1979, Ser. No. 75,933
Int. Cl.³ B05B *5/02*
U.S. Cl. 239—3 **4 Claims**



1. A method of applying a sprayable liquid coating composition to a workpiece, said composition having an electrical conductivity between about 0.005 and about 0.06 μmho/cm, said method comprising spraying said composition by employing a spray gun having:

(a) a gas nozzle and a fluid nozzle, each of said nozzles being in cooperative spatial relationship with each other to cause a fluid stream of said composition issuing from said fluid nozzle to be atomized and sprayed as fluid particles by gas issuing from said gas nozzle,

(b) electrically grounded means for increasing surface area

from which fluid particles can be formed, said means being disposed within said fluid stream and having at least one sharp edge, and

(c) induction charging electrode means disposed adjacent said gas and fluid nozzles and having a rear edge located rearward of a plane which is perpendicular to the axis of liquid flow and which passes through the discharge point of said fluid nozzle;

said method further comprising supplying sufficient voltage to said induction charging electrode means to produce a corona discharge at said sharp edge of said surface area increasing means, said method producing corona charging and induction charging of sprayed fluid particles.

4,266,722

FLUID DEFLECTING ASSEMBLY

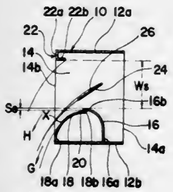
Motoyuki Nawa; Yutaka Takahashi, both of Nara, and Norio Sugawara, Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Aug. 4, 1978, Ser. No. 931,282

Claims priority, application Japan, Aug. 10, 1977, 52-95904; Oct. 24, 1977, 52-128037; Oct. 24, 1977, 52-128041

Int. Cl.³ B05B *1/04*

U.S. Cl. 239—590.5 **1 Claim**



1. A fluid deflecting assembly which comprises:

a fluid duct having supply and exit openings defined at respective ends of said fluid duct and through which a fluid medium flows from the supply opening towards the exit opening;

means defined at a position adjacent the exit opening for directing a portion of the fluid medium flowing through the fluid duct to flow inwardly of said fluid duct;

a guide wall structure having an outwardly diverging wall area adjacent the exit opening, said outwardly diverging wall area diverging outwards in a direction downstream with respect to the direction of the flow of the fluid medium, said guide wall structure further having a separating region and having an inlet guide wall area positioned adjacent the supply opening in opposed relation to the outwardly diverging wall area, said separating region being at the junction between the inlet wall area and the outwardly diverging wall area; and

a pivotally supported deflecting blade for deflecting the flow of the fluid medium flowing through the fluid duct, said deflecting blade being positioned within the fluid duct for controlling the stream of fluid medium to cause the latter to adhere to the outwardly diverging wall area of the guide wall structure depending upon the position of the deflecting blade.

4,266,723

NOZZLE FOR INJECTION MOLDING MACHINES

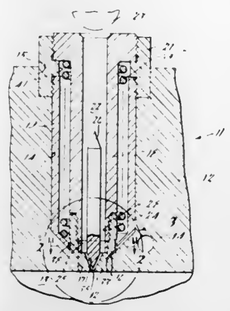
Jesus M. Osuna-Diaz, Rochester, Mich., assignor to Incoe Corporation, Troy, Mich.

Filed Nov. 2, 1979, Ser. No. 90,522

Int. Cl.³ B05B *13/00*

U.S. Cl. 239—132 **16 Claims**

1. An injection molding machine nozzle mountable in a mold die, comprising an elongated body having a central material passage therethrough, a cap removably mounted at the forward end of said body, the forward end of said cap being tapered forwardly, a heater surrounding and in heat exchange relation with said body and the rearward portion of said cap, a torpedo member fixedly mounted in said cap, said torpedo member being in heat exchange relation with said body and coactive therewith to maintain material in said central passage in a liquid, flowable condition, said torpedo member having tapered forward and rearward end portions and a radially outwardly extending mounting portion at the forward end thereof fitting snugly in and in heat exchange relation with and supported by said cap, said torpedo being disposed substantially entirely in and spaced radially inwardly from the wall of said material passage with the tapered forward end thereof extending downwardly into the forward end of said cap, whereby said material passage diverges around said torpedo and converges between said tapered forward torpedo portion and said cap, material passageway means in the mounting portion of said torpedo member, a bore in said mold die having a tapered forward end, and mounting means positioning said nozzle in said bore with said tapered forward cap portion in spaced relation with the tapered portion of said mold die bore.



4,266,724

MOBILE SPRAYING APPARATUS WITH AN AXIAL PIPE-CARRIER DRUM

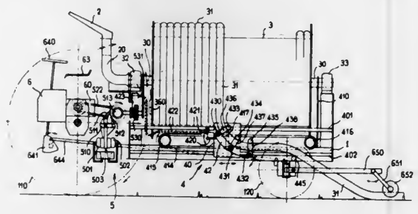
Hugo R. DiPalma, "Cavalle", Duras, France (47120), and Francis C. Aubarede, Duras, France, assignors to Hugo R. DiPalma, Duras, France

Filed Jun. 7, 1979, Ser. No. 46,312

Claims priority, application France, Jun. 7, 1978, 78 17028

Int. Cl.³ B05B *3/18*

U.S. Cl. 239—195 **16 Claims**



1. In a vehicular spraying apparatus having a wheeled vehicle chassis displaceable along a given direction and a spray-producing element carried by the vehicle chassis, the element communicating through an elongated flexible pipe to a source of water, the pipe being dispensed from the vehicle chassis and taken up on the chassis in response to movement of the chassis relative to the source, the improvement comprising:

a reel carried by the chassis and being mounted for rotation thereon to dispense and take up the pipe, the axis of rotation of the reel being disposed substantially along the direction of motion of the chassis, the reel and vehicle moving together along the same path during dispensing and taking up of the pipe;

reeling guide means carried by the chassis for controlling the winding movement of the pipe from and onto the reel, the reeling guide means including a carriage which engages the pipe and is displaceable relative to the chassis in a direction substantially parallel to the axis of rotation of the reel in response to the rotary motion of the reel in order to vary the location on the reel at which the pipe winds from and onto said reel so that the pipe is disposed on the reel in regular layers;

means for sensing the pulling force on the pipe;

means for driving the apparatus and the reel in order to adjust the length of the pipe which is unwound between the source and the apparatus when said apparatus is moving, said driving means being responsive to said sensing means to vary the driving rate of the reel with respect to that of the apparatus; and,

pipe-guide means for defining a curved path along which the pipe moves when being dispensed from the reel, the path passing from a direction substantially perpendicular to the axis of the reel at the location where the pipe leaves the reel to a direction which is substantially parallel to the direction of motion of the apparatus as the pipe is dispensed from the apparatus.

4,266,726

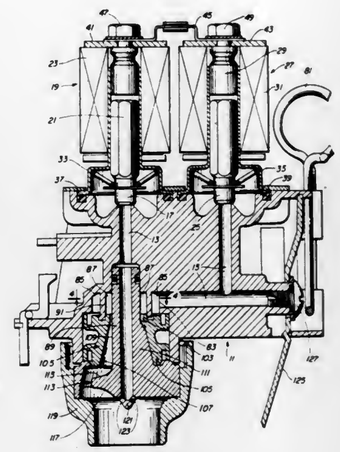
FLOW VALVE ARRANGEMENT FOR BEVERAGE DISPENSER

Wade R. Brown, St. Charles, Ill., and Werner Mannhardt, Detroit, Mich., assignors to Alco Foodservice Equipment Company, Miami, Fla.

Filed Apr. 11, 1979, Ser. No. 29,140

Int. Cl.³ B67D *5/56*

U.S. Cl. 239—406 **7 Claims**



1. A valve arrangement for apparatus having relatively fast flow of a diluent to be mixed with a syrup for dispensing a mixed beverage comprising:

a body member;

a diluent passage formed in said body member for receiving and conveying pressurized diluent;

a diluent valve to selectively block or permit diluent flow through said diluent passage;

a syrup passage formed in said body member for receiving and conveying syrup;

a syrup valve to selectively block or permit syrup flow through said syrup passage;

a syrup tube to receive syrup from said syrup passage and convey the syrup to a location for mixing with the diluent;

depressurizing means located at the end of said diluent passage to lower the pressure of diluent that flows from said diluent passage, said diluent passage and said diluent valve being designed to minimize the pressure drop prior to said depressurizing means;

a diffuser element adapted to fit over said syrup tube, said diffuser element having a frusto-conical interior cavity;

a diffuser opening formed between said diffuser element and said syrup tube to convey diluent from said depressurizing means to the smaller end of said frusto-conical cavity; and

a protruding shoulder formed on said syrup tube beyond the large end of said frusto-conical cavity, the upper portion of said shoulder being shaped to impede diluent flow sufficiently to fill with diluent the space between the surface of said diffuser element forming said frusto-conical cavity and the outer surface of said syrup tube, the lower portion of said shoulder being shaped to decrease the velocity of the diluent to a desired value.

4,266,725

EXHAUST SECTION OF A REACTION ENGINE

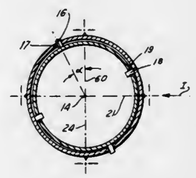
Ludwig Schweikl, Moosburg; Christian Greune, Füstenfeldbruck, and Paul Lottes, Puchheim, all of Fed. Rep. of Germany, assignors to Motoren-und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 83,069

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1978, 2845149

Int. Cl.³ B64C *15/00*

U.S. Cl. 239—265.19 **14 Claims**



1. An exhaust section of a reaction engine comprising:

(a) a fixed pipe,

(b) a nozzle pipe carried by the fixed pipe,

(c) two diametrically opposed pins projecting from each pipe, each pin being angularly spaced 90° from the pins of the other pipe,

(d) two diametrically opposed slots in each pipe, each pin being located in a slot in the pipe other than the pipe which carries that pin, and

(e) a plurality of actuating elements each extending between and pivoted to the exteriors of both pipes, the actuating elements being adjustable longitudinally to pivot the nozzle pipe with respect to the fixed pipe so as to alter the relative axial positions of the two pipes.

4,266,727

DOUBLE-NEEDLE INJECTION-VALVE

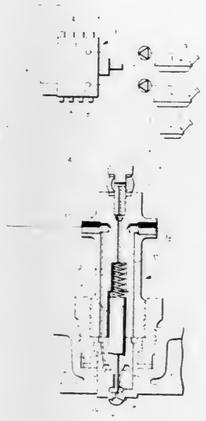
Robert Happel, Waiblingen, and Hans J. Haepp, Stuttgart, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Dec. 19, 1978, Ser. No. 971,001

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2758057

Int. Cl.³ F02M *61/04*

U.S. Cl. 239—409 **13 Claims**



1. An injection valve for high-pressure injection of liquid fuel into a working chamber means of an internal combustion engine, the injection valve comprising a pair of axially spaced pressure chamber means for accommodating a quantity of liquid fuel, means for communicating said pressure chamber means with each other, and means for controlling the communication between the spaced pressure chamber means and between the injection valve and the working chamber means including first and second valve seat means, a valve needle means having a pair of valve sealing means adapted to cooperate with the respective valve seat means, and means for normally biasing said valve needle means in a closing direction such that the sealing means are forced into engagement with the respective valve seating means, the valve needle means being adapted to be displaced in an opening direction opposite a flow direction effective in an injection process by hydraulic pressure of the liquid fuel to be injected such that the pressure chamber means are in communication with each other, characterized in that separate line means are provided for connecting the injection valve with two separate sources of liquid fuel, separate means are provided for communicating each of the pressure chamber means with only one of the connecting line means, the valve needle means includes two valve needles disposed concentrically one within the other, each of the pressure chamber means having diameter which is larger than a diameter of the respective valve seat means and respectively surrounding the two valve needles, and in that pressure means are provided for causing the two valve needles to open and close simultaneously, such pressure means comprising the opening pressures experienced in the spaced pressure chamber means.

4,266,728

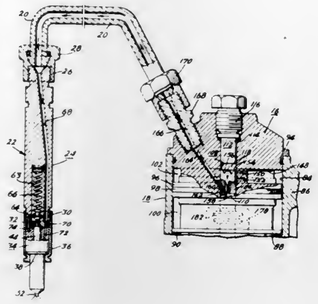
LEAKLESS FUEL INJECTION NOZZLE AND HOLDER ASSEMBLY

James R. Voss, Wilbraham, and Richard E. Vanderpoel, Granby, both of Mass., assignors to Ambac Industries, Incorporated, Springfield, Mass.

Filed Dec. 22, 1978, Ser. No. 972,517

Int. Cl.³ F02M *47/02*

U.S. Cl. 239—533.8 **9 Claims**



1. In a leakless fuel injection nozzle and holder assembly comprising a nozzle having a bore therein, a valve slidably disposed within said nozzle bore and actuatable by high pressure fuel introduced into a chamber defined by said bore and said valve for movement of said valve from a closed to an open position, a fixed volume spring chamber without leak-off ports in said holder, valve stop means between said nozzle bore and said spring chamber for limiting the opening movement of said valve, a compression spring in said spring chamber, and means extending through said stop means connecting said spring with said valve to bias said valve toward a closed position, said spring chamber being closed to fluid entry except for leakage fuel passing thereinto from between said valve and nozzle bore, said spring chamber being subject to a sealing closure preventing entry of leakage fuel thereinto when said valve is in the open position by engagement of said valve with said valve stop means, the improvement comprising means for preventing the sealing closure of said spring chamber when said valve is in the open position, said means comprising passage means continuously connecting the end of said nozzle bore adjacent said stop means with said spring chamber whereby leakage fuel may pass through said passage means into said spring chamber from said nozzle bore when said valve is in the open position against said stop means.

4,266,729

INJECTION VALVE FOR FUEL INJECTION SYSTEMS

Günther Kulke, Esslingen, and Waldemar Hans, Bamberg, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

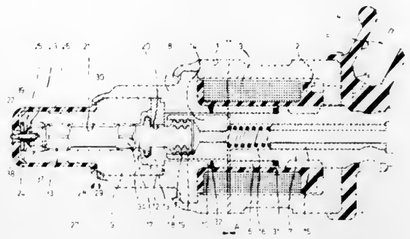
Filed Oct. 11, 1979, Ser. No. 83,698

Claims priority, application Fed. Rep. of Germany, Jan. 4, 1979, 2900176

Int. Cl.³ B05B *1/32*

U.S. Cl. 239—533.12 **6 Claims**

1. An injection valve for fuel injection systems in internal combustion engines including a nozzle body having a valve seat, means defining an ejection opening in said valve seat, a nozzle needle arranged to cooperate with said means defining said opening in said valve seat, said nozzle needle further including a corrosion-resistant needle tip which projects through said ejection opening, further wherein said needle tip and said nozzle needle are formed of different materials and



embodied as independent parts firmly connected with one another.

4,266,730

SPRAY DEVICE

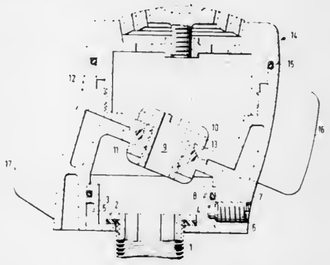
Klaus Grohe, Schiltach, Fed. Rep. of Germany, assignor to Hans Grohe GmbH & Co. KG, Schiltach, Fed. Rep. of Germany

Filed May 3, 1979, Ser. No. 35,565

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819623

Int. Cl.³ B05B *1/18, 15/08*

U.S. Cl. 239—587 **22 Claims**



1. A spray device having an attachment member for connecting the device to a stationary water supply and a spray head for discharging the water, comprising:

at least two wedge-shaped connecting members, each having at least one wedge surface, the wedge-shaped connecting members being rotatably connected to one another along a plane, to the wedge surfaces of adjacent connecting members;

one of the wedge-shaped members being rotatably connected to the attachment member;

another of the wedge-shaped members having the spray head mounted thereon; and,

the attachment member and the wedge-shaped members providing communicating water passages between the stationary water supply and the spray head, whereby the spray head may be tiltably adjusted toward and away from the attachment member.

4,266,731

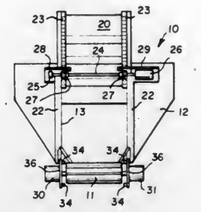
DUMP SPREADER

Charles S. Musso, Jr., Bath, N.Y., assignor to Air-Flo Manufacturing Co., Inc., Prattsburg, N.Y.

Continuation-in-part of Ser. No. 36,771, May 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 966,202, Dec. 4, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 83,688

Int. Cl.³ A01C *19/00*; E01C *19/20*

U.S. Cl. 239—676 **3 Claims**



1. A dump spreader truck body having hopper-shaped side walls sloping downward to a wide bottom conveyor that can drive at different speeds and extends beyond a rear end of said body, said dump spreader comprising:

a. a single rear door for both dumping and spreading material from said body;

b. a fixed rear wall connected between said side walls at said rear end of said body and extending vertically to provide support for said rear door;

c. said fixed rear wall having an opening approximately the width of said conveyor and extending vertically from said conveyor upward to about one-half to three-quarters of the height of said rear wall;

d. said door being large enough to close said opening and being mounted for vertical movement on said rear wall over said opening;

e. a hydraulic drive powerful enough for moving said door vertically against the resistance of material loaded in said body or lying on said conveyor under said door after partially dumping material from said body; and

f. said hydraulic drive being operable for setting said door at variable low heights above said conveyor for metering the flow of said material from said body during spreading and for raising said door above the top of said fixed rear wall for fully opening said opening for dumping material quickly.

4,266,732

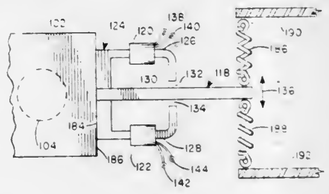
VARIABLE REACTANCE ALIGNMENT DETECTOR AND CONTROL

David M. Sage, and George E. Sage, both of 22002 Fall City Rd., Redmond, Wash. 98052

Continuation of Ser. No. 893,345, Apr. 4, 1978, abandoned. This application May 19, 1980, Ser. No. 151,166

Int. Cl.³ B05B *3/00*; H01F *21/06*; G08C *25/00*

U.S. Cl. 239—720 **10 Claims**



1. In a mobile irrigation apparatus of the type having an elongated fluid distribution means including a plurality of

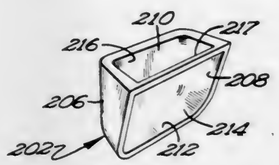
articulating sections, a drive means associated with one of said sections for propelling said one of said sections and an alignment control means associated with the drive means for maintaining a substantially, aligned relationship between the propelled section and an adjacent section, said alignment control means including a drive control means responsive to an input signal from said alignment control means indicative of the angular relationship between the propelled section and the adjacent section to maintain a predetermined angular relationship the improvement wherein the alignment control means comprises a variable inductance comprising at least one inductive coil, a core forming a closed loop flux path for the coil having only one air gap within the flux path, the core having a base element, a first lateral element connected to the base element, a second lateral element connected to the base element, said coil being mounted on one of said lateral elements, the second lateral element spaced from the first lateral element and having an end portion placed in close proximity to the first lateral element to define the air gap and the second lateral element having an intermediate portion between its end and its connection to the base element which is spaced more distantly from the first lateral element than its end portion, one of either of said lateral elements being deflectable with respect to each other in response to angular variation between said propelled and adjacent sections to vary the size of the air gap and hence vary the inductance, said alignment control means being mechaically linked to said respective propelled and adjacent sections.

4,266,733

REPLACEABLE LINER FOR THE DISCHARGE ASSEMBLY OF A ROTARY GRINDING MILL OR THE LIKE

William J. Butler, 732 Old Howard Millroad, Duluth, Minn. 55804

Division of Ser. No. 886,092, Mar. 13, 1978, Pat. No. 4,172,560. This application Aug. 13, 1979, Ser. No. 66,253
The portion of the term of this patent subsequent to Oct. 30, 1996, has been disclaimed.
Int. Cl.³ B02C *17/18*
U.S. Cl. 241—171 **20 Claims**



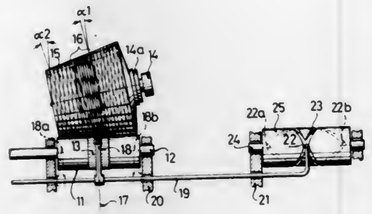
1. In a discharge assembly adapted to be mounted inside the discharge end of a rotary grinding mill or the like comprising tiers of discharge castings extending circumferentially of the grinding mill or the like, with the discharge castings including outer, intermediate, and inner discharge castings, with the outer casting including a grate provided with passages and the inner discharge castings forming a discharge cone, the improvement comprising a replaceable liner for insertion into the discharge castings comprising, in combination: an inner most box member for installation in the discharge castings forming the discharge cone, with the inner most box member including a first closed side having an inside surface and an outside surface, a second closed side having an inside surface and an outside surface, a first open end, a second open end, a closed top having an inside surface and an outside surface, and a closed bottom having an inside surface and an outside surface, with the inner most box member further including a discharge outlet having an open bottom and a closed top, with the discharge outlet being formed by the closed top of the inner most box member extending beyond the first open end of the inner most box member and terminating in a curved portion which follows and protects the castings forming the discharge cone.

4,266,734

WINDING DEVICE

Hans Raasch, Mönchengladbach, Fed. Rep. of Germany, assignor to W. Schlafhorst & Co., Mönchengladbach, Fed. Rep. of Germany

Filed Jul. 18, 1977, Ser. No. 816,689
Claims priority, application Fed. Rep. of Germany, Jul. 16, 1976, 2632014
Int. Cl.² B65H *54/46, 54/28*
U.S. Cl. 242—18 DD **5 Claims**



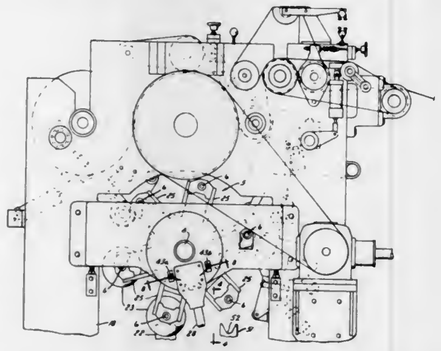
1. In a winding device for a conical cross-wound coil wherein the coil is driven by peripheral friction applied to a predetermined part of the length thereof constituting a friction zone by a drive roller extending along the entire length in the coil, and the thread that is to be wound on the coil is fed thereto by a thread guiding member, means for traversing the yarn across the coil so as to produce a cross-wound coil, means for reducing the angle at which the wound threads cross on the cross-wound coil in the friction zone with respect to the thread crossing angle outside the friction zone.

4,266,735

MANDREL SUPPORTS FOR AUTOMATIC WEB REWINDER

Dale D. Leanna, Little Suamico, and Allen R. Jorgensen, Abrams, both of Wis., assignors to Magna-Graphics Corporation, Oconto Falls, Wis.

Filed Feb. 8, 1980, Ser. No. 119,962
Int. Cl.³ B65H *19/20, 75/34*
U.S. Cl. 242—56 A **10 Claims**



1. An automatic web rewinding machine comprising a turret rotatable about an axis, a core supporting mandrel having at one of its ends a rotatable connection with the turret that provides for cantilevered support of the mandrel in laterally spaced parallel relation to said axis, an indexing mechanism that imparts indexing rotation to the turret whereby the mandrel is carried to each in turn of a succession of fixed stations, at each of which the mandrel dwells for a time, one of said stations being a loading station whereat a tubular core is loaded onto the mandrel and another being an unloading station at which a wound core is removed from the mandrel and from which the mandrel moves to the loading station, and a chuck arm constrained to rotate with the turret but movable relative thereto between a closed position in which the chuck arm supportingly engages the other end of the mandrel and an open position in which the chuck arm is disengaged from the mandrel to permit cores to be moved axially onto and off of the mandrel, said web rewinding machine being characterized by:

A. chuck arm actuating means rotatable with the turret, said chuck arm actuating means being responsive to a closing input to cause the chuck arm to assume its closed position and being responsive to an opening input to cause the chuck arm to assume its open position;

B. unloading station input means comprising

(1) a position sensor responsive to position of the turret and

(2) a first input element at a location on the machine that is fixed in relation to said stations, said input element being operatively associated with said position sensor and being located and arranged to deliver an opening input to said chuck arm actuating means when the mandrel is established at the unloading station;

C. a core detector arranged to produce an output when a core is properly loaded onto a mandrel at the loading station; and

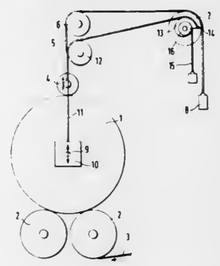
D. a second input element operatively associated with said core detector and located in spaced relation to said first input element, said second input element being arranged to deliver a closing input to the chuck arm actuating means in response to an output from said core detector issued when the mandrel is at the loading station.

4,266,736

METHOD AND APPARATUS FOR THE MODULATED RAISING OF THE CARRIAGES OF A WIND-UP ROLL IN THE CENTERLESS WINDING OF WEBS

Herbert Schonmeier, Dusseldorf, Fed. Rep. of Germany, assignor to Jagenberg Werke AG, Dusseldorf, Fed. Rep. of Germany

Filed Dec. 6, 1979, Ser. No. 100,777
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853548
Int. Cl.³ B65H *17/08*
U.S. Cl. 242—66 **5 Claims**



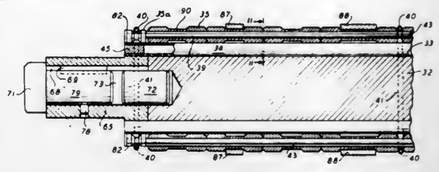
1. In a method for the centerless winding of webs of the type wherein a pressure cylinder lies on a wind-up roll having stub shafts inserted in its core and mounted on movable carriages and the vertical displacement of the carriage is modulated, the improvement wherein the modulation of the movement of the carriages comprises coupling the vertical movement of the carriages with the upward movement of the pressure cylinder such that the carriages follow that movement to a degree corresponding to the momentary degree to which the wind-up roll has been wound.

4,266,737

AIR DIFFERENTIAL MANDREL AND METHOD OF DIFFERENTIALLY WINDING AND REWINDING TAPES

Elvin A. Mastriani, Roseland, N.J., assignor to Arrow Converting Equipment, Inc., Fairfield, N.J.

Filed Nov. 5, 1979, Ser. No. 91,504
Int. Cl.³ B65H *75/24, 19/04*
U.S. Cl. 242—72 B **36 Claims**



1. A differentiai mandrel for rewinding tapes, from a source, onto a mandrel, on rotation of said mandrel, comprising:

(a) an elongated mandrel body member,

(b) a slotted portion formed therein and opening circumferentially outwardly thereof,

(c) said slotted portion extending axially along a substantial portion of the mandrel body, and having a closed inner end;

(d) flexible, elastic elongated tubular pressure medium means disposed on the inner end of said slotted portion of the mandrel,

(e) tape winding spools contiguously disposed on said mandrel relative to said pressure means and in contact therewith,

(f) said tape winding spools having axially disposed openings therein,

(g) elongated alignment means positioned in said spool openings and aligning said spools in line in a row along the longitudinal axis of the mandrel,

(h) said alignment means having a cross sectional dimension substantially smaller than that of the tape winding spools whereby the latter vertically freely float on the alignment means,

(i) said alignment means aligning said spools for registration with said pressure means in said mandrel slotted portion of the mandrel,

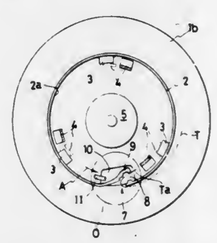
whereby tapes may be wound onto said spools, under constant tension, on rotation of the mandrel, notwithstanding caliper variations in the tapes.

4,266,738

TAPE REEL

Akira Nakagawa, Tokyo, Japan, assignor to Nifco Inc., Yokohama, Japan

Filed Nov. 14, 1979, Ser. No. 94,006
Claims priority, application Japan, Nov. 22, 1978, 53/159951[U]
Int. Cl.³ B65H *75/28*
U.S. Cl. 242—74.1 **4 Claims**



1. In a tape reel of the rotational assemblage type including two flanges, and a generally hollow hub supporting said

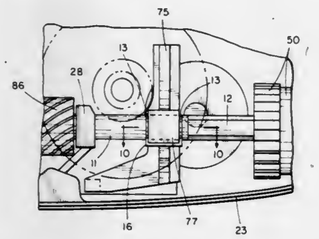
flanges in spaced relation, at least one of said two flanges being formed separately from said hub, said at least one flange and said hub each having cooperative engaging means such that assembly of said at least one flange to one end of said reel hub and rotation of said at least one flange relative to said hub establishes tight engagement between the cooperative engaging means, a generally radially disposed slot communicating between the external circumferential surface of said reel hub and its interior, said slot adapted to permit insertion of the inner end of the tape to be wound on the hub, at least one resilient wall blocking radial access to the interior of said hub through said slot and forming a tortuous circumferentially disposed path to the interior of said hub, protuberance means depending from said at least one flange such that as a consequence of the rotational assembly of the flange relative to the hub said protuberance means in cooperation with said at least one resilient wall closes up said circumferentially disposed path and captures said inner end of the tape inserted therein.

4,266,739

CLIP FOR FISHING REEL

Roy E. Stiner, Tulsa, Okla., assignor to Brunswick Corporation, Skokie, Ill.

Continuation of Ser. No. 932,464, Aug. 10, 1978, abandoned. This application Feb. 5, 1980, Ser. No. 118,749
Int. Cl.³ A01K *89/01*
U.S. Cl. 242—84.21 R **2 Claims**



1. A retaining clip for attachment to a shaft having spaced undercut grooves, the clip comprising:

(a) a pair of C-shaped washers, each washer having a pair of resilient bifurcated spring legs and a central base support located near the interior center of the C-shape and supports at the interior terminuses of the legs of the C-shape, each leg being biasably positioned with respect to the base support, the terminus of each leg extending circumferentially more than that 90° from the central support; and,

(c) a resilient tie bar connecting the washers near the central base supports and at the exterior thereof, the resilient tie bar permits the individual positioning of each C-shaped washer into the undercut groove with the terminuses and the base support in substantial contact with the grooves.

4,266,740

STRAP WINDING DEVICE

Gary A. Ramos, and Michael E. Dell'Ara, both of Willets, Calif., assignors to Gerald T. Colwell, Willets, Calif., a part interest

Filed Mar. 10, 1980, Ser. No. 128,935
Int. Cl.³ B65H *17/46, 17/52*
U.S. Cl. 242—86.52 **6 Claims**

1. A device for coiling elongated flexible belts comprising:

a frame member;

a reel rotatably mounted on said frame member; and extending laterally from one side thereof;

a crank for rotating said reel extending from the other side of said frame member;

a pair of parallel guide (members) rollers extending laterally from said one side and forming between them a guide slot aligned with and parallel to the axis of said reel;

said guide slot being narrower than the width of a belt to be wound on said reel to prevent twisting thereof, and



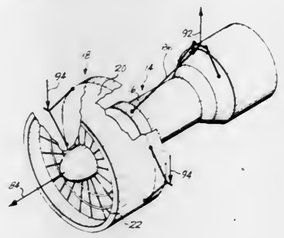
a member pivotally mounted on the outboard end of one of said rollers and conditioned to be pivoted for selectively clearing and blocking the space between said rollers.

4,266,741

MOUNTING APPARATUS FOR FAN JET ENGINE HAVING MIXED FLOW NOZZLE INSTALLATION

Patrick Murphy, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 22, 1978, Ser. No. 908,080
Int. Cl.² B64D *27/00, 27/12*
U.S. Cl. 244—54 **8 Claims**



1. In a jet engine having a core engine section and a fan section, said core engine section having a core housing with a front portion, a rear portion and a longitudinal center axis, said fan section having a fan case at the front end of the core housing, said fan case being rigidly connected to the engine core housing and positioned radially outward therefrom,

a mounting apparatus for said engine, said apparatus comprising:

a. a main support structure positioned radially outwardly of the core housing and having a rear end proximate the rear end of the engine core housing and a forward end proximate said fan case and having two forward side mounting portions on opposite sides of said fan case,

b. a main thrust link having a rear end connecting to the rear end of the support structure at a first upper location spaced radially from said longitudinal center axis a greater radial distance, and a forward end connecting to the forward end of the core housing at a second location at a lesser radial distance from the longitudinal center axis of the engine core housing, in a manner that said main thrust link counteracts thrust loads developed by the engine by exerting a force having both a horizontal force component and a vertical force component,

c. a rear support device connecting between the rear portion of the support structure and the rear portion of the engine core housing at a third location spaced rearwardly a substantial distance from the second connecting location of the front end of the thrust link, said rear support device being arranged to resist both vertical and lateral loads,

d. two sets of tangent links, said sets being positioned on opposite sides of said fan case, each set comprising:

1. an upper link having a first end connected to a related one of said forward side mounting portions, with the upper link extending upwardly from its first end to a second end of the upper link, which second end is connected to said fan case at a related upper side portion of the fan case, said upper link having its first and second ends in a line generally tangentially aligned with said fan case so as to transmit substantially tangential loads into said fan case,

2. a lower link having a first end connected to said related one of said forward side mounting portions, with the lower link extending downwardly from its first end to a second end of the lower link, which second end is connected to said fan case at a related lower side portion of the fan case, said lower link having its first and second ends in a line generally tangentially aligned with said fan case so as to transmit substantially tangential loads into said fan case,

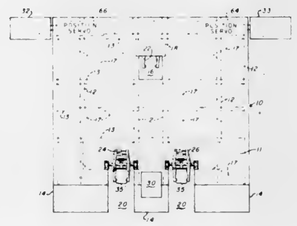
whereby with said engine operating to develop a substantial thrust generally along the longitudinal axis, and with this thrust being resisted by the thrust link in a manner to create a first force couple on said engine, said rear support device and said sets of tangent links create an opposite force couple, with the rear support device exerting its force on said rear engine portion, and with said sets of tangent links exerting their forces in a symmetrical pattern about the circumference of the fan case.

4,266,742

RAM WING AIRCRAFT LAUNCH PLATFORM SYSTEM

David J. Perez, Xenia, and Kenneth P. Schwartz, Fairborn, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 17, 1979, Ser. No. 85,662
Int. Cl.³ B64F *1/04*
U.S. Cl. 244—63 **4 Claims**



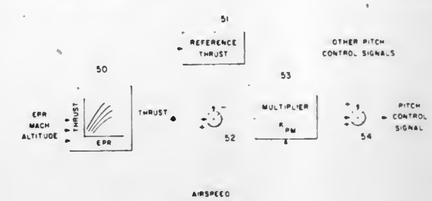
1. A platform launch system for aircraft having conventional wheel landing gear, comprising: a ram wing having a plurality of openings to permit the aircraft nose landing gear wheel and the aircraft main landing gear wheels to extend through the ram wing to contact the runway surface; means, supported on said ram wing, for securing the nose landing gear wheel to the ram wing; means, supported on said ram wing for securing the main landing gear wheels to the ram wing; means for releasing the nose landing gear wheel and the main landing gear wheels from the ram wing.

4,266,743

PITCH ATTITUDE STABILIZATION SYSTEM UTILIZING ENGINE PRESSURE RATIO FEEDBACK SIGNALS

Wendell W. Kelley, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 28, 1979, Ser. No. 15,995
Int. Cl.³ G05D *1/08*
U.S. Cl. 244—182 **4 Claims**



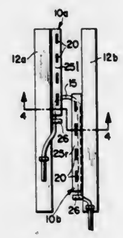
1. In an aircraft pitch control system in which several signals are summed by a summing means to form a pitch control signal that is used to control the aircraft about its pitch axis, means for including with said pitch control signal a pitch stabilization signal that will counteract the anticipated pitching moment caused by changes in the engine pressure ratio consisting of means for generating an engine pressure ratio signal, means for establishing a reference engine pressure ratio signal, means receiving said engine pressure ratio signal and said reference engine pressure ratio signal for producing a signal proportional to the difference of the two signals, means for multiplying said difference signal by a predetermined constant to produce said pitch stabilization signal and means for applying said pitch stabilization signal to said summing means.

4,266,744

CABLE AND HOSE GUIDE

Lawrence J. Bergman, Minster, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio

Filed Apr. 16, 1979, Ser. No. 30,393
Int. Cl.³ B66B *9/20*
U.S. Cl. 248—49 **6 Claims**



1. A cable and hose guide for guiding a cable or hose between two members which are longitudinally movable with respect to each other, comprising:

(a) means mounted on each member forming an extended channel having an opening defined by opposing side walls joined by a rear wall, and

(b) means forming a series of alternating staggered intrusions on said side walls spaced longitudinally of each other along said channels and extending into said opening such that said intrusions, side walls, and rear wall define pockets sized to receive a portion of the cable or hose, said pockets having cross sectional areas greater than that of the cable or hose so that the cable or hose can be retained within said pockets between said intrusions and said rear

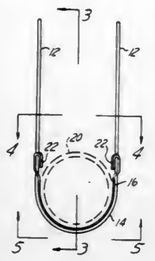
wall and can be fed into and fed out of said extended channels by being deflected around each of said longitudinally spaced intrusions in a serpentine manner.

4,266,745

PIPE HANGER

Harold D. Jones, 724 Hickorywood Dr., Flushing, Mich. 48433

Filed Nov. 23, 1979, Ser. No. 96,908
Int. Cl.³ E21F *17/02*
U.S. Cl. 248—58 **4 Claims**



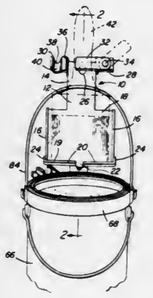
1. A pipe hanger for a relatively large size pipe, comprising:
a bendable wire portion having a pair of pointed end portions for anchoring it into a structural element;
an arcuate bend portion;
a bendable strap having a plurality of spaced perforations over a substantial portion of its length;
said strap having at least two of said perforations registered about said wire; and
a pair of crimped end portions of said strap for holding it against slippage and in place on said wire portion.

4,266,746

PAINT BRUSH, PAD AND ROLLER HOLDER AND CAN CARRIER

William C. Klaiber, 601 York Rd., Fayetteville, N.C. 28303

Filed Jun. 6, 1979, Ser. No. 45,930
Int. Cl.³ B44D *3/12*; **B65D** *25/00*
U.S. Cl. 248—113 **4 Claims**



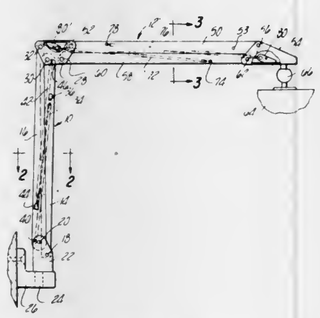
1. A wide elongated upstanding inclined support including front and rear sides and a lower elongated, transverse shelf projecting outwardly from and extending transversely from the front side of the support toward which the lower end of the support is inclined, said shelf including longitudinally spaced opposite end portions defining a drainage slot therebetween, said shelf opposite end portions being upwardly and outwardly inclined from said support, and mounting means carried by the lower end of said support below the shelf adapting the support for alternately mounting said support on the upper rim portion of a paint can, roller tray or paint box peripheral wall, the upper portion of said support defining a transversely narrowed upper end portion including opposite side tab portions projecting outwardly from the front side of said support, said tab portions being spaced apart a distance for receiving the upper portion of a paint brush handle therebetween, one of said tab portions including a pivoted latching lever supported therefrom and swingable in a plane generally paralleling said inclined support, said latching lever being swingable to a position bridging the spacing between said tab portions and for releasably retaining said paint brush handle between said tab portions, the other of said tab portions being reversely bent to define a channel extending longitudinally of the support and opening laterally outwardly of the front side of said support, said channel being adapted to receive the handle portion of a paint roller therein having the roller portion thereof supported from the forward portion of said shelf, said mounting means including a rearwardly and downwardly inclined mounting bracket portion carried by the lower end of said support, said mounting bracket portion terminating rearwardly in a forwardly bowed portion in turn terminating forwardly in a downwardly directed portion including a lower rearwardly directed flange spaced below said bowed portion, said downwardly directed portion defining a transverse rearwardly opening channel between said bowed portion and said rearwardly directed flange for receiving therein a clamp band clamped about the upper end of a paint can, said mounting means also including an elongated angulated latch flange pivotally supported at one end to the forward side of said rearwardly and downwardly inclined portion above said forwardly bowed portion and swingable into and out of position with the other end portion of said latch flange closely paralleling the front side of said downwardly directed portion and with said latch flange bridging across said forwardly bowed portion for clampingly engaging the upper reinforcing bead of one wall of a paint tray.

4,266,747

EQUIPOISED ARTICULATED SUPPORT ARM

James J. Souder, Jr., Ann Arbor; Edward D. Scarborough, Jr., Inkster, and Merlin D. Fox, Ann Arbor, all of Mich., assignors to Positioning Devices, Incorporated, Cincinnati, Ohio

Filed Jul. 26, 1979, Ser. No. 61,135
Int. Cl.³ E04G *3/00*
U.S. Cl. 248—280.1 **16 Claims**



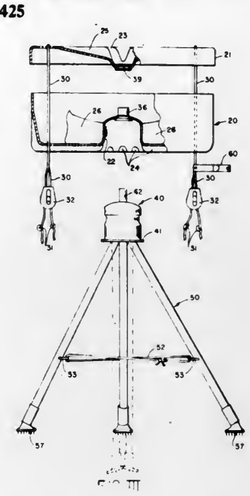
1. In an equipoising mechanism for supporting an object at an infinite number of positions, said mechanism having a lower arm pivoted at its lower end to a base bracket and at its upper end to a floating backet, and an upper arm comprised of a pair of parallel links pivoted at one end to the floating bracket and at their other ends to a supporting bracket for the object, wherein the improvement comprises:
spring means coupled at one end to one of the links of the upper arm between the pivot points of that link;
connector means for attaching the other end of the spring to a point on said floating bracket; and
means on said floating bracket for altering the effective position of said spring attachment point relative to said bracket as said upper arm is moved wherein the mechanical advantage of the spring is adjusted to symmetrically equipoise the object at an infinite numbeer of positions.

4,266,748

PORTABLE SWIVEL HUNTER'S STOOL

Thomas P. Dalton, 6010 Kew Park, Manitou Beach, Mich. 49253

Filed Jun. 25, 1979, Ser. No. 52,026
Int. Cl.³ A47C *3/18*
U.S. Cl. 248—425 **38 Claims**



1. A horizontally swivable support comprising:
(A) a horizontally rotatable platform means having:
(1) a central bell-shaped socket having an apex and a rim; and
(2) separate smaller and larger diameter concentric axially spaced inside circular bearings attached inside said apex and said rim of said socket, respectively, said smaller bearing providing both vertical and horizontal bearing surfaces and said larger bearing providing a horizontal angular bearing surface; and
(B) pedestal means having:
(1) a bell-shaped plug having an apex and a rim removably seatable inside said socket and having separate outside vertically cylindrical and horizontal bearing surfaces at said plug apex and a horizontal angular bearing surface at said plug rim, respectively, for contacting said bearings, and
(2) leg means attached to inside of and projecting below said bell-shaped plug for supporting said platform so that it is completely rotatable with respect to said pedestal means.

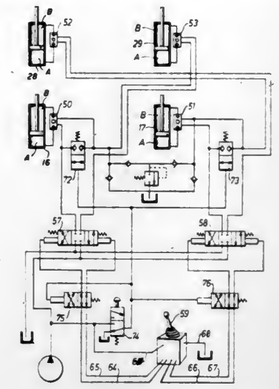
4,266,749

DRILL BOOM ARRANGEMENT

Axel L. Lundström, Hägersten, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Apr. 10, 1979, Ser. No. 28,712
Claims priority, application Sweden, Apr. 11, 1978, 7804053
Int. Cl.³ F16M *13/00*
U.S. Cl. 248—652 **10 Claims**

1. A drill boom arrangement comprising a boom support (**13**), a boom (**10**) pivotally mounted at one end of said boom support, a feed beam (**40**) for a rock drill (**41**) pivotably mounted on the distal end of the boom, a first hydraulic cylinder (**17**) for pivoting the boom relative to the boom support, a second hydraulic cylinder (**28**) for pivoting the feed beam relative to the boom, a hydraulic circuit coupling said first and second cylinders in series, said circuit including a direction valve (**58**) connected to supply and to drain and operable to actuate said first and second cylinders to swing the boom and the feed beam simultaneously in opposite directions, and valve means (**51**) to lock said first cylinder in its position when not actuated through said direction valve, characterized by a valve (**73**) for short-circuiting said first cylinder (**17**) to permit operation of said second cylinder (**28**) by means of said direction valve (**58**) while said first cylinder remains in its position.

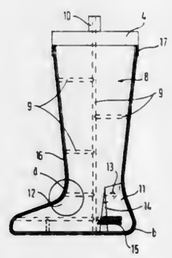


4,266,750

DEVICE FOR MANUFACTURING BOOTS AND THE LIKE OF ELASTOMERIC MATERIAL

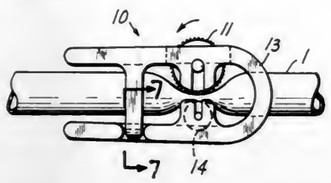
Achille Gallizia, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Sep. 18, 1979, Ser. No. 76,756
Claims priority, application Italy, Sep. 21, 1978, 27908 A/78
Int. Cl.³ B29C *1/12*; **B29D** *3/02*
U.S. Cl. 249—65 **5 Claims**



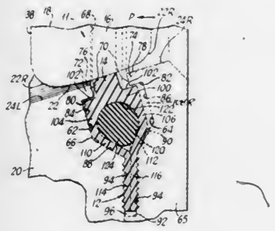
1. An apparatus for molding a boot or the like from an elastomeric composition and simultaneously lining the boot with a fabric on the inner boot surface, said apparatus comprising a mold formed by first and second shells each of which has a cavity shaped as the external form of one-half of the upper part of a boot, a third shell having an open cavity shaped as the sole of the boot and disposed at the bottom end of the first and second shells, and a rigid two-part core member having a shape corresponding to the shape of the interior of the boot, said two parts of the core member being pivotally movable with respect to each other, one of said two parts corresponding to the heel of the boot, and having a pivot near its upper edge, a spring biasing the said two parts apart from each other from a position below said pivot, said parts being spaced apart by a space which is widest near said spring.

4,266,751
STRIPPER CLAMP
David S. Akhavi, Los Angeles, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Apr. 2, 1979, Ser. No. 26,117
Int. Cl.³ F16L *55/14*
U.S. Cl. 251—6 **3 Claims**



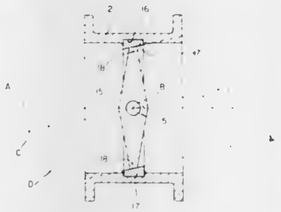
1. A stripper clamp mounted on a blood collection tube, wherein the clamp comprises: a generally U-shaped body having a pair of opposed arms; one arm having a first transverse roller mounted thereon and being confined within the space between the opposed arms; the opposite arm having a second transverse roller which protrudes through an opening in such second arm, and which second roller is adapted to be rolled by an operator's hand to move the clamp along the tube; said U-shaped body having an arm connecting portion located rearwardly of the rollers; locking means for securing the opposed arms together at a location forwardly of the rollers, said locking means including a pair of spring biased legs straddling the blood collection tube; and snap fit retaining means on the body for receiving the straddling spring biased legs and thereby clamping the opposed rollers about the blood collection tube.

4,266,752
SEAL STRUCTURE
Stephen A. Johnson, Fountain Valley, Calif., assignor to MCC Flowseal, a unit of Mark Controls Corporation, Huntington Beach, Calif.
Filed Mar. 30, 1979, Ser. No. 25,498
Int. Cl.³ F16K *25/00*
U.S. Cl. 251—173 **14 Claims**



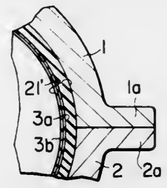
1. A seal structure for providing fluid sealing between juxtaposed first and second members;
the first member having an annular peripheral sealing surface;
the second member having an annular surface surrounding and normally slightly spaced from the first member;
one of said members having an annular interior cavity of predetermined axial width with a radial slot defined by spaced apart radial end walls opening to its surface and which is narrower than the cavity;
the cavity including oppositely and axially extending underside shoulders adjacent the slot, parallel spaced interior side walls extending radially from the distal ends of the shoulders, radially extending and convergent interior side walls continuing from said respective first side walls, and a narrow anchoring groove extending from the ends of the convergent side walls;
an annular fluid seal ring of relatively rigid, flexible material, mounted in said cavity having a main body portion with parallel exterior side walls adjacent to but normally spaced from the cavity interior side walls and convergent exterior walls barely abutting the interior convergent walls of the cavity, the ring having an extension from the convergent walls into and sealed to the anchoring groove, the ring also having a tongue radially projecting through and movable in said slot and terminating in a seat engageable by the other of said members, external shoulders extending axially from the sides of the tongue to the ring side walls and having outside diameters normally somewhat smaller than those of the underside shoulders, the interior of the main body portion of the ring having an annular opening of generally circular cross-section;
and a normally substantially tension-free elastomeric core of generally circular cross-section in said opening;
the dimensions of the cavity and seal structures being such that (1) when the seat is not engaged with the sealing surface, the two sets of shoulders abut with substantial force, the convergent walls of the ring and cavity abut or are in close proximity and the parallel sidewalls are spaced apart a short distance; (2) when the seat and sealing surface are engaged in the absence of fluid pressure the seal ring is radially compressed and the tongue is radially moved, the sets of shoulders separated, the convergent surfaces are forcibly abutted, and the main body portion and the elastomeric core are axially deformed and the resulting radial compression effects sealing between the first and second members, and thereafter, (3) when fluid pressure is applied, it has access past the shoulders to the upstream side space between the cavity and ring, the downstream side of the seal ring is brought into contact with the downstream side of the cavity along substantially its entire length, and the ring and elastomeric core are axially compressed to increase the sealing effect of the seat on the sealing surface.

4,266,753
BUTTERFLY VALVE
Yoshitsugu Okada, Hirakata, Japan, assignor to Kubota, Ltd., Osaka, Japan
Continuation of Ser. No. 732,846, Oct. 18, 1976, abandoned. This application Jul. 20, 1978, Ser. No. 926,345
Claims priority, application Japan, Oct. 18, 1975, 50-125515; Oct. 18, 1975, 50-125516; Oct. 16, 1976, 51/124141
Int. Cl.² F16K *1/22*
U.S. Cl. 251—305 **8 Claims**



1. A butterfly valve comprising:
a valve housing having a cylindrical fluid passage therethrough;
a disc shaped valve body having a hard annular rim of elliptical cross-sectional shape thereon extending in the plane of the valve body rotatable about an axis perpendicular to and intersecting the longitudinal axis of said fluid passage;
drive means to turn and lock said valve-body;
a hard annular vavle seat mounted in said housing;
said seat having an inner annular surface of elliptical cross-sectional shape extending in a plane perpendicular to the longitudinal axis of said cylindrical fluid passage corresponding to the periphery surface of an imaginary cylinder having an axis lying at an angle to the longitudinal axis of fluid passage in the direction of rotation of said valve body, said peripheral surface defining a cross-section in said imaginary cylinder of elliptical shape, the axis of said cylinder intersecting the longitudinal axis of said fluid passage at the same point as the axis of rotation of said valve body, said rim on said valve body having inclined peripheral surface which in the closed position of the valve corresponds to and seals with the inner annular elliptical cross-sectional surface of said seat.

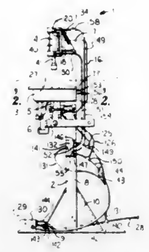
4,266,754
BUTTERFLY VALVE ASSEMBLY
Youichi Ninomiya; Hirotoshi Ogawa; Tomoyuki Ueda, and Masataka Machida, all of Nobeoka, Japan, assignors to Asahi Yukizai Kogyo Co., Ltd., Nobeoka, Japan
Continuation of Ser. No. 868,292, Jan. 10, 1978, abandoned. This application Dec. 12, 1979, Ser. No. 102,919
Claims priority, application Japan, Apr. 1, 1977, 52-36077; Apr. 19, 1977, 52-44121
Int. Cl.³ F16K *1/226*
U.S. Cl. 251—306 **5 Claims**



1. A butterfly valve assembly comprising a stationary valve body having an axial fluid flow passage therethrough, a turnable valve member having a valve stem fixed thereto adapted for full opening, partial opening and full closing of said flow passage, and a valve seat ring having an inner protecting resin layer comprising a first layer of polyvinylidene difluoride and a second layer of polyethylene tetrafluoride covering said first layer, and an outer back-up layer of elastomer, said back-up layer having a channel shaped cross-section defining chords fitted onto said valve body and said back-up layer including ring groove means on the radially outward surface thereof for permitting resilient structural deformation of said back-up layer, wherein said valve seat ring includes holes therein with said valve stem passing therethrough and said ring groove means are interrupted by said holes in said valve seat ring.

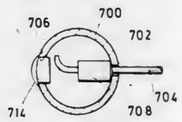
4,266,755
FASTENER EXTRACTING APPARATUS
Jeffrey C. Detrick, P.O. Box 3155, Shawnee, Kans. 66203
Filed Jul. 16, 1979, Ser. No. 57,729
Int. Cl.³ B66F *15/00*
U.S. Cl. 254—18 **9 Claims**

1. An apparatus for extracting a fastener at least partially imbedded in a workpiece comprising:
(a) a support member;
(b) a workpiece support table supported by said support member and having opposite surfaces;
(c) a movable head and actuating means therefor mounted to said support member and in proximity to one surface of said support table and having reciprocatory movement toward and away from a fastener in a workpiece on said support table, said movable head actuating means having structure providing a pushing force of sufficient power to dislodge and push a portion of said fastener outwardly of said workpiece;
(d) a puller structure and actuating means therefor connected to said support member and in proximity to the other surface of said support table and having movement toward and away from said support table; and
(e) opposing arms pivotally mounted to said puller structure



and forming jaw members with actuating means operable to move said arms toward and away from each other and seize said portion of said fastener therebetween and pull said fastener from said workpiece when said puller structure moves away from said support table.

4,266,756
TENSIONING OF METAL WIRES
Nigel I. Anderson, Morgenzicht, Sloane St., Witkoppen, Transvaal, South Africa
Division of Ser. No. 760,141, Jan. 6, 1977, Pat. No. 4,129,927. This application Jun. 21, 1978, Ser. No. 917,673
Claims priority, application South Africa, Jan. 22, 1976, 76/0364
Int. Cl.³ F16G *11/00*
U.S. Cl. 256—47 **6 Claims**



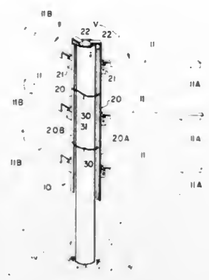
1. A fence structure comprising a post and a length of wire secured under tension to the post by a device including a body, a first passage formed in the body and through which the wire passes, a single second passage intersecting the first passage and containing a single locking member that is a body of revolution about an axis and is capable of rolling about such axis along the second passage, said locking member having a cross-sectional shape substantially similar to a cross-sectional shape of said second passage, and said locking member and said second passage each having a larger cross-sectional size relative to a cross-sectional size of said first passage whereby said locking member cannot enter any part of said first passage except a part included in said zone of intersection, a spring biasing the locking member towards the zone of intersection, and means securing the spring in the body, the angle of intersection of the first and second passages being less than 15° and the body having an end bearing on the post, the locking member being locked between the wire and the surface of the second passage, and said second passage terminating at said zone of intersection in a stop surface of said body inclined at an angle greater than 15° to the surface of said first passage on which the wire bears when locked in position so that the locking member, when engaging the stop surface, obturates only a part of said first passage and permits slip to be generated in said wire without said wire breaking when said wire is under extreme tension.

4,266,757

CORNER FENCE POST CLIP

Robert E. Kirkwood, 2251 Loma Vista Dr., Sacramento, Calif. 95825

Filed Jul. 16, 1979, Ser. No. 57,913
Int. Cl.³ E04H *17/14*
U.S. Cl. 256—65 **9 Claims**



1. A detachable attachment to a vertical fence post to which a horizontal fence member may be detachably mounted comprising

an open channel bar, a first end of which is formed with a shaped section for fastening to the top of a fence post, such that the bar will extend in a vertical direction downwards along said post with the channel facing the post in the fastened position, and at least one fastening means located on said bar to which an end of a horizontal fence member may be detachably attached,

said fastening means of a shape and located on said bar so that a horizontal fence member when attached by said fastening means will extend in a first horizontal direction from said bar,

in which the said first end of the bar is formed with a hook-shaped section in the form of a detent of a shape to detachably latch about the top and into the interior chamber of a hollow fence post or into the interior of a fence post formed with a hollow interior chamber that is open to the top of said fence post, so as to suspend the bar from the top of said post when said detent is latched about the said post top,

said detent located to extend from the bar in a second horizontal direction opposed to the first horizontal direction that a said attached horizontal fence member extends.

4,266,758

SUPPORT FOR A METALLURGICAL VESSEL

Günter Schmitz, Duisburg, Fed. Rep. of Germany, assignor to Mannesmann Demag AG, Duisburg, Fed. Rep. of Germany

Filed Feb. 4, 1980, Ser. No. 118,491
Claims priority, application Fed. Rep. of Germany, Feb. 12, 1979, 2905283
Int. Cl.³ C21C *5/42, 5/50*
U.S. Cl. 266—244 **5 Claims**

1. A support for a metallurgical vessel, comprising

(a) annular support means spaced from the surface of said vessel;

(b) claw means disposed on said vessel and connected to said annular support means;

(c) a plurality of pliable expansible and compressible first tie rod structures positioned in said annular support means;

(d) said first tie rod structures being positioned parallel to and perpendicular to the longitudinal axis of said vessel;

(e) each said first tie rod structure being placed under an initial stress; the improvement characterized by

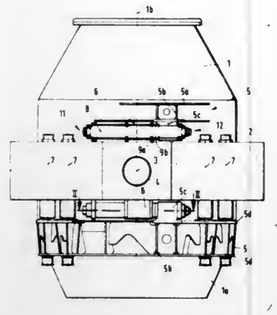
(f) each said first tie rod structure extending between a claw means and an annular support means;

(g) a second tie rod structure superimposed on each one of said first tie rod structures;

(h) a clamp head for each said first tie rod structure;

(i) a clamp head for each said second tie rod structure;

(j) said clamp head for said second tie rod structure is supported on its respective first tie rod structure; and



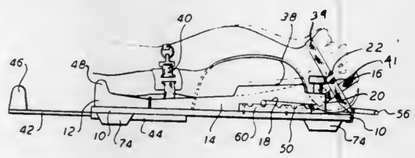
(k) a plurality of tie rods extending adjacent to each other in each respective first and second tie rod structure.

4,266,759

CARDIAC PATIENT SUPPORT

Arno J. Liebman, 1819 Shore Dr., Apt. 218, South Pasadena, Fla. 33707

Filed Oct. 22, 1979, Ser. No. 87,051
Int. Cl.³ A61H *31/00*
U.S. Cl. 269—323 **5 Claims**



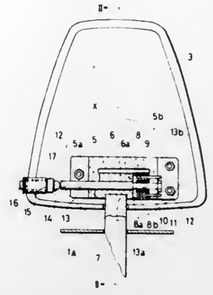
1. In a cardiac patient support for adjusting the position of a patient's head relatively to his torso; the combination comprising a flat, rigid, horizontal base; a substantially flat, rigid, torso support, said support being capable of directly supporting a patient's torso with the patient's head extending clear of the upper end of said support; a transversely extending hinge connecting the lower end of said support to said base toward the latter's lower end; and elevating means for raising and lowering the upper end of said support relatively to an underlying portion of said base; an improvement in said elevating means comprising similar screw knob assemblies bourn rotatably in opposite end corners of said support, each of said screw knob assemblies comprising a vertically threaded, manually rotatable knob restrained against material axial movement relatively to said support, a screw stud threaded to the threaded portion of said knob and having turn-preventive means at its lower end to oppose turning of said stud; and a holding member fixed upon said base and coacting with said turn-preventive means to oppose turning of said stud when said support is in lowered position, whereby turning of said knob on the non-turning screw stud raises or lowers said support; said turn-preventive means being vertically, slidably disengageable from said holding member to permit raising of the upper end of said support independently of operation of said screw knob assemblies.

4,266,760

DEVICE FOR CONTROLLING TILTING OF HEADREST OF TREATMENT TABLE

Takahiro Matsui, Uji, and Yoshio Saito, Kyoto, both of Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

Filed Feb. 14, 1980, Ser. No. 121,500
Claims priority, application Japan, Feb. 14, 1979, 54-18386[U]
Int. Cl.³ A47C *1/10*
U.S. Cl. 269—323 **4 Claims**



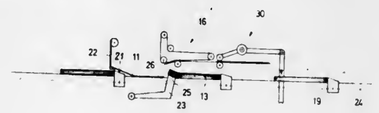
1. In a treatment table designed to tilt a headrest back and forth upwardly of a backrest and to freely stop said headrest by means of a device for controlling tilting of said headrest, said device comprises a rotary bearing connected to a support of said headrest and equipped on one side end face with radial trapezoidal pawl teeth, a support shaft rotatably carrying said bearing and allowed to axially move, a ratchet wheel having on a side end face another pawl teeth capable of meshing with said pawl teeth and carried by said support shaft and prevented from rotating circumferentially but allowed to axially move, a spring means for normally elastically biasing said ratchet wheel in one direction and bringing said pawl teeth and said another pawl teeth into meshing engagement with each other, and a slide shaft in the direction of the shaft acting against the action of said spring means and to bring said pawl teeth and said another pawl teeth out of meshing engagement with each other, whereby the headrest can be securely locked at any tilt angle and said headrest is preventing from tilting back or forth upwardly when said headrest is locked at said tilt angle.

4,266,761

APPARATUS FOR PLACING TERMINAL SHEETS OR THE LIKE ON TO LAYERS OF SHEETS

Hermann Buck, Huelben, Fed. Rep. of Germany, assignor to Bielomatick Leuze GmbH & Co., Fed. Rep. of Germany

Filed Dec. 29, 1978, Ser. No. 974,289
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1978, 2800846
Int. Cl.³ B65H *39/055, 39/075*
U.S. Cl. 270—58 **7 Claims**



1. An apparatus for placing an end sheet or the like under a stack of sheets, comprising:

a conveying means for transporting said stack of sheets along a conveying direction in a substantially horizontal plane;

means for feeding said end sheet to said conveying means, said feeding means being displaced from and disposed above said conveying plane and operable to feed said end sheet in said conveying direction;

means for placing and holding said end sheet at a stationary predetermined position at least partially on said conveying means; and,

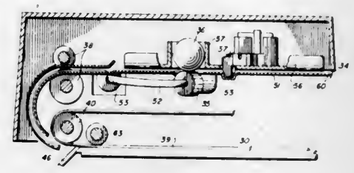
means for lifting said moving stack of sheets during transport of said stack of sheets by said conveying means, said lifting means being located adjacent and upstream of said predetermined position, whereby at least a leading portion of said stack is lifted and held above said conveying means until said stack is juxtaposed above said end sheet.

4,266,762

SHEET ALIGNMENT AND FEEDING APPARATUS

William E. Kramer, Fairport, and Frank P. Malinowski, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 29, 1979, Ser. No. 70,599
Int. Cl.³ B65H *9/16, 9/04*
U.S. Cl. 271—225 **8 Claims**



1. Document copying apparatus comprising:

a document exposure platen for viewing a document to be copied;

a sheet feed table defining a plane for supporting a sheet to be fed in a sheet feeding direction;

a side registration edge substantially parallel to the sheet feeding direction;

a sheet feed roll rotatably mounted in said feed table such that its top surface is in the supporting plane for feeding a sheet,

a cooperating pinch device in contact with the top of said feed roll, said feed roll being canted at an angle to the side registration edge to simultaneously drive a sheet against the side registration edge and in a forward sheet feeding direction, said feed roll having a coefficient of friction of from about 0.15 to about 0.30,

sheet take away and transport means adjacent the output end of said sheet feed table and into which said sheet feed roll feeds a sheet,

arcuate sheet direction reversing means adjacent said sheet take away and transport means to receive a sheet therefrom, said direction reversing means having an exit portion adjacent said document exposure platen, and

means to transport a sheet from the exit portion of said direction reversing means onto said document exposure platen.

4,266,763

RECREATIONAL BASKETBALL APPARATUS WITH MOVING BACKBOARDS

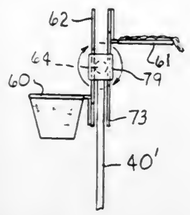
Andrew P. Collins, 3926 Dover Rd., Durham, N.C. 27705

Division of Ser. No. 829,987, Sep. 1, 1977, Pat. No. 4,202,543.
This application Feb. 11, 1980, Ser. No. 120,611
Int. Cl.³ A63J *3/00*; A63B *63/06, 63/08*
U.S. Cl. 272—3 **3 Claims**

1. A commercial basketball recreational facility comprising:

(a) an array of basketball courts grouped in spaced-apart sets on a common land area, each set of courts having a plural number of courts and each court having a goal-backboard support means and appropriate fencing shared with adjacent courts on either side thereof; and

(b) a set of elevated unique goal-backboard structures for the array of courts with one such unique structure being supported in each court on each said support means at an elevation appropriate to the game of basketball and including among the set of said unique goal-backboard structures at least one such unique goal-backboard structure having a pair of parallel vertical backboards arranged back-to-back with outwardly extending goals mounted thereon in parallel horizontal planes at different elevations and with means to rotate said back-to-back backboard around an axis located between the backboards comprising said back-to-back backboard structure.



4,266,764

RECREATIONAL BASKETBALL APPARATUS WITH MOVING GOAL

Andrew P. Collins, 3926 Dover Rd., Durham, N.C. 27705

Division of Ser. No. 829,987, Sep. 1, 1977, Pat. No. 4,202,543. This application Feb. 11, 1980, Ser. No. 120,613

Int. Cl.³ A63J *3/00;* **A63B** *63/06*

U.S. Cl. 272—3 **1 Claim**



1. A commercial basketball recreational facility comprising:

(a) an array of basketball courts grouped in spaced-apart sets on a common land area, each set of courts having a plural number of courts and each court having a goal-backboard support means and appropriate fencing shared with adjacent courts on either side thereof; and

(b) a set of elevated unique goal-backboard structures for the array of courts with one such unique structure being supported in each court on each said support means at an elevation appropriate to the game of basketball and including among the set of said unique goal-backboard structures at least one such unique goal-backboard structure having a vertical backboard with a conventional basketball goal mounted on a shaft member rotatable with respect to the backboard about a horizontal axis perpendicular to the plane of the backboard and means to rotate said shaft so as to present said goal in a periodically recurring normal horizontal basketball goal position for passage of the ball therethrough.

4,266,765

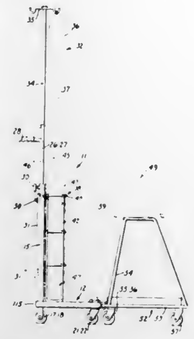
APPARATUS FOR AIDING PATIENTS TO AMBULATE

Narciso Sandoval, and Jean L. Curten, both of 1175 Blaine St., No. 87, Riverside, Calif. 92507

Filed Apr. 4, 1979, Ser. No. 27,030

Int. Cl.³ A61H *3/04*

U.S. Cl. 272—70.3 **3 Claims**



1. Apparatus for aiding an infirm patient to ambulate while being connected to at least one body servicing device, comprising

a platform,

a pair of laterally spaced tubular posts extending vertically through said platform adjacent the rear of said platform and fixedly secured to said platform,

the lower ends of said posts being bifurcated,

a first pair of wheels rotatably mounted in said bifurcated ends of said posts for supporting the rear of said platform,

a second pair of laterally spaced supporting wheels,

castering means rotatably mounting said second pair of wheels to said platform adjacent the front of said platform for swiveling about vertical axes,

handle members telescopically mounted on the upper ends of said posts,

said handle members extending rearwardly to be grasped by said patient to steady said patient in walking condition and to enable said patient to maneuver said platform,

means for locking said handle members in different vertically adjusted positions relative to said posts,

a vertically extending panel extending between said posts, said panel being spaced above said platform, and

means on said panel for maintaining said body servicing device in upright position below said panel with the bottom of said device resting on said platform.

4,266,766

EXERCISE DEVICE

Michael P. Calderone, 23768 Wilmont, East Detroit, Mich. 48021

Filed Jul. 30, 1979, Ser. No. 61,639

Int. Cl.³ A63B *23/00*

U.S. Cl. 272—117 **16 Claims**

12. An exercise device for selectively developing the muscles of the user's arms, wrists and shoulders comprising:

a base;

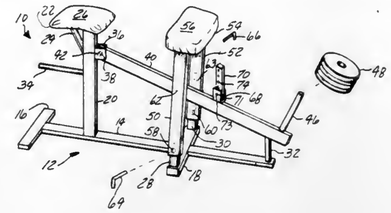
a seat supported above the base;

a forearm pad disposed forward of the seat and supported above the base;

a pivoted lever pivoted at a rearward end to a seat support, a forward end extending past the forearm pad a distance;

means for attaching selected weights at the forward end of the pivoted lever;

lifting means adapted to be grasped by the hands of the user; and



means for pivotally attaching the lifting means to the pivoted lever forward of the forearm pad.

4,266,767

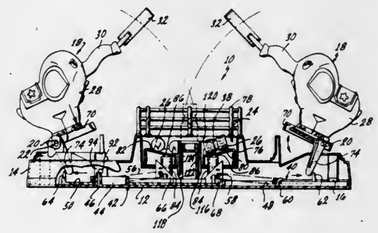
COMPETITIVE CAPTURE GAME

Gorden W. Spring, Anaheim, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Filed Jul. 30, 1979, Ser. No. 61,811

Int. Cl.³ A63F *9/00*

U.S. Cl. 273—1 R **12 Claims**



1. A toy which comprises:

a support base;

at least one object capable of freely moving on said support base;

an object positioning means located on said support base and capable of positioning and holding said object in a capturable position;

at least two object capture means movably mounted on said support base so as each to be independently capable of capturing said object and removing said object from said object positioning means;

each of said object capture means capable of interfering with the capturing of said object by said other object capture means.

4,266,768

BREAKAWAY SAFETY BASE

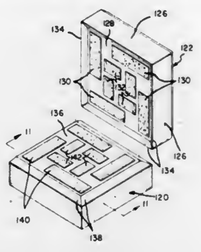
Roger E. Hall, 100 Lakeview Homes, Elizabethtown, Pa. 17022

Continuation-in-part of Ser. No. 758,638, Jan. 12, 1977, abandoned. This application Mar. 8, 1979, Ser. No. 18,844

Int. Cl.³ A63B *71/00*

U.S. Cl. 273—25 **9 Claims**

1. A breakaway safety base assembly comprising a lower ground support and an upper base member, said ground support having an upper mounting surface and a lower surface, means depending from the lower surface of the support for securing the support at a desired ground surface location on a playing field; the base member having a top, a lower surface adapted to set flush against the upper mounting surface, and joining sides between the top and the lower surface of the base member such that said base member is adapted to extend above the ground surface for engagement by a player whereby the safety base may be subjected to a lateral loading force said lower surface of the base member being adapted to be positioned upon the upper mounting surface of the support when the safety base is in the playing position on the ground support; a plurality of cooperating and complementary pairs of breakaway locking elements arranged throughout the upper mounting surface of the ground support and the lower surface of the base member to lock the base to the ground support with a shear resistant breakaway connection, each pair of breakaway locking elements having a plurality of exposed oppositely facing resilient and laterally deformable members, the deformable members of each pair of breakaway locking elements including cooperating engagement surfaces, first means for connecting one element of each pair to the lower surface of the base member with the deformable members facing outwardly on the lower surface of the base member and second means for connecting the other element of each pair to the upper mounting surface of the ground support with the deformable members facing outwardly of the upper mounting surface; said cooperating deformable locking elements of each pair being disposed to contact each other when the base member is positioned on the ground support in the playing position, the resil-



ient deformable members of said one locking element extending past the deformable element of said other locking element with the cooperating engagement surfaces of said members interlocking to form a plurality of laterally deformable shear resistant breakaway physical connections, said breakaway physical connections being disposed for sequentially releasably locking the base member to the ground support, and being adapted to sever due to shear forces only at the point of an applied lateral loading force sufficient to compress the base member at the point of applied force while the remainder of said connections hold the base member to the ground support and to sequentially sever across the base in response to only a lateral loading force at least equal to the the total shear breakaway force of individual pairs of locking elements whereby low non-injury potential lateral forces applied to the base member are insufficient to break the connection, while higher injury-potential lateral forces subject the connections to sufficient shear loading to deform the members and sequentially break the connections thereby breaking the base member away from the ground support in a lateral direction only.

4,266,769

TOY RACING CAR AND CIRCUIT

Shigeru Saitoh, Tokyo, Japan, assignor to Masudaya Toy Company Limited, Tokyo, Japan

Filed Sep. 18, 1978, Ser. No. 943,165

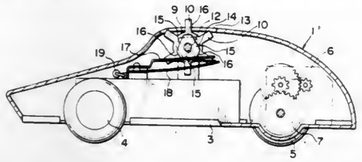
Claims priority, application Japan, Feb. 15, 1978, 53/17027[U]

Int. Cl.³ A63H *18/16*

U.S. Cl. 273—86 B **25 Claims**

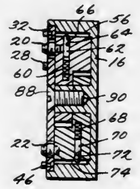
1. A toy racing assembly, comprising a toy racing car having driving means for driving said car, said driving means including an electric motor having an electric circuit; speed shifting means for shifting the speed of said car; and a toy racing track arranged for guiding said car during running and having at least at one location of said track an engaging formation operative for actuating said speed shifting means, said speed shifting means including a resistance and actuating means operative for electrically connecting said resistance with and electrically

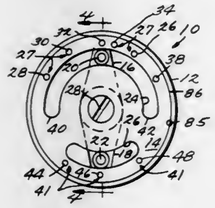
disconnecting said resistance from said electric circuit of said electric motor in dependence upon the position of said car relative to said engaging formation when said actuating means



engages said formation upon said car passing said formation whereby the speed of said car is shifted to a lower magnitude and to a higher magnitude, respectively.

4,266,770
BLACKJACK 21 COMPUTER
Charles A. Yeager, P.O. Box 181, Orangevale, Calif. 95662
Filed Jun. 8, 1979, Ser. No. 46,759
Int. Cl.³ A63F *1/18*
U.S. Cl. 273—148 R **9 Claims**





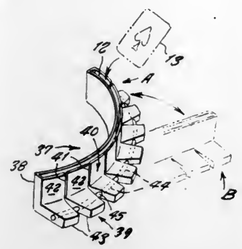
1. A hand held counter for making two counts of cards during a game of Blackjack, comprising:

a cylindrical frame closed at one end, open at the opposite end, and having a longitudinal axis and a circularly arcuate vertical inner side surface;

an axle fixed to said frame along said axis; a horizontal face plate disposed on said frame at said open end having first and second circularly arched slots at least partially surrounding said axis and corresponding first and second nonoverlapping scales circularly arched about said axis, said scales including tactilely identifiables indicia in the form of protrusions from the horizontal plane of said face plate adjacent said first and second slots corresponding to positive and negative counts; and

means for tactilely adjusting and identifying said two counts, including first and second horizontal indicator arms rotatably mounted to said axle beneath said plate and first and second positioning pins respectively mounted to said first and second indicator arms and respectively vertically extending into said first and second slots, said protrusions being disposed in horizontally spaced physical relation to all of said pins respectively radially outside said first and second slots so that said two counts may be tactilely identified by the spacial relation to said pins and said protrusions.

4,266,771
FLEXIBLE PLAYING CARD DISPLAY RACK
Peter Carbone, c/o George Spector 3615 Woolworth Bldg., 233 Broadway, Jackson Heights, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007
Filed Jun. 15, 1979, Ser. No. 48,749
Int. Cl.³ A63F *1/00*
U.S. Cl. 273—150 **3 Claims**

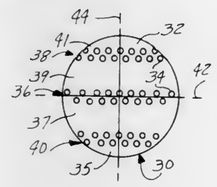


1. A playing card display rack, comprising in combination, a narrow box in which playing cards can be displayed in spread out position, and a base for holding said box upright, and said rack being made of a material for selective flexing thereof, wherein said rack includes means for retaining said rack in arcuate flexed positions.

4,266,772
SOLID GOLF BALL
Frank S. Martin, Cranston; Terence Melvin, Kingstown, and Joseph K. Pieroni, Providence, all of R.I., assignors to Uniroyal, Inc., New York, N.Y.
Filed Aug. 28, 1972, Ser. No. 284,303
The portion of the term of this patent subsequent to Apr. 4, 1995, has been disclaimed.
Int. Cl.³ A63B *37/00*; C08L *9/00*
U.S. Cl. 273—218 **10 Claims**

1. An integral unitary solid golf ball which approximates performance characteristics of a standard wound golf ball, and retains said characteristics after extended play, made of a composition comprising, by weight, 100 parts of a resilient cis-polybutadiene elastomer having at least 50% of cis-1,4 structure and 10 to 60 parts of preformed zinc oxide-methacrylic acid reaction product in proportions of approximately 1 to 1.5 moles of zinc oxide per mole of methacrylic acid, the said composition being cured with a free-radical generating curing agent, the said preformed zinc oxide-methacrylic acid reaction product being in finely powdered form such as to pass a 200 mesh sieve.

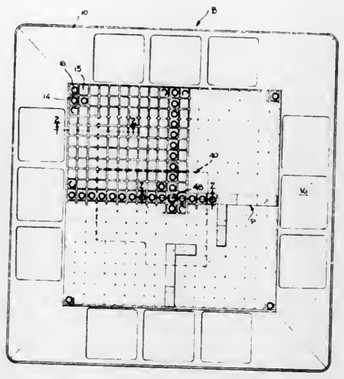
4,266,773
GOLF BALL
William H. Treadwell, 140 Dunham Dr., Battle Creek, Mich. 49015
Filed Sep. 27, 1979, Ser. No. 80,126
Int. Cl.³ A63B *37/14*
U.S. Cl. 273—232 **7 Claims**



1. A golf ball in the form of a spherical body having an outer surface, said golf ball comprising:

a plurality of parallel rough bands and a plurality of parallel alternating smooth bands disposed on said surface, said rough bands being formed to completely trip the boundary layer of air flow around said rough bands so as to cancel the forces generated by said smooth bands when said golf ball rotates about predetermined axes of rotation to thereby control the path of said golf ball during its flight.

4,266,774
COMPETITIVE GAME APPARATUS
Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356
Filed Mar. 12, 1979, Ser. No. 10,924
Int. Cl.³ A63F *3/00*; G04B *5/20*
U.S. Cl. 273—275 **4 Claims**



1. A game apparatus in which each of a plurality of players attempt to extend a single layer horizontal chain of game pieces while blocking such chain extensions of the other players during alternate "turns" defined by a timer, said game apparatus comprising:

(a) a flat game board comprising a playing surface having a plurality of unit-sized squares forming a grid of longitudinal and transverse rows, with each of said unit-sized squares including a downwardly tapered recess, with the longitudinal distance between adjacent recesses being the same as the transverse distance between adjacent recesses;

(b) at least two sets of different sized playing pieces for each of the players of the game, each set having a standard length constituting multiples of said unit-sized squares, the top surface area of the individual units of each of said pieces generally comprising a shape essentially conforming to the size of each of said unit-sized squares on said game board, each unit length of said pieces defined by linear groove-like indicia extending perpendicular to the longitudinal edges of said piece, each unit of said pieces having a downwwardly tapered plug conforming to the shape of said recesses for allowing said pieces to slide down quickly and easily to detachably secure said playing pieces in selected areas on said playing surface enabling a player to quickly secure a piece to said board while reaching over previously positioned pieces without dislodging such other pieces that have already been secured to said board, with each playing piece having a low vertical profile with the vertical thickness of the playing piece which rests on top of the playing board surface less than each of the longitudinal and transverse dimensions of said unit-square of the playing board;

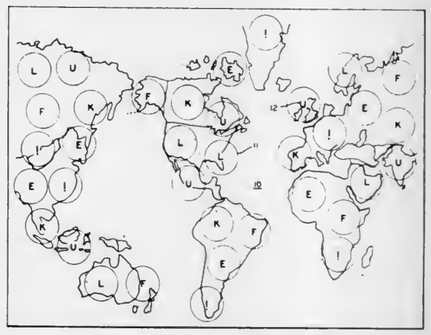
(c) a different player identification on each of said sets of said playing pieces, so that each player's pieces are visually distinguishable;

(d) said playing pieces and said game board playing surface being shaped, arranged and proportioned so that said pieces may be positioned on said board only perpendicular or parallel to said longitudinal and transverse rows in said board and so that two pieces of the same or different unit lengths which are placed on adjacent spaces in a selected path form a visually continuous chain;

(e) said playing pieces and said game board telescoping by said plug entering said recess to enable said game apparatus to be low in height for conveniently playing as well as storing said game apparatus; and

(f) a timer mounted on said game board beneath the surface of said board said timer comprising: a spring wind-up motor including a spring; a rotatable drive shaft connected to said spring, said shaft winding said spring when rotated in one direction, said shaft rotated in the other direction by the unwinding of said spring; an arm one end of which is perpendicularly connected to said shaft such that said shaft is rotated by raising and lowering said arm, said arm being movable from an upper position to a lower position, said arm rotating said shaft to wind said spring when said arm is moved from an upper position to a lower position, said shaft rotated by said spring to raise said arm from a lower position to an upper position when said spring moves from a wound state to an unwound state; a pin extending through the surface of a portion of said game board and abutting said arm, said pin being operable to push said arm to its lower position and thereby wind said spring and start the running of said timer to start a new time period for a player when said pin is pushed by a player, said timer establishing a limited time interval for each player to rapidly select a playing piece of suitable length for quick positioning of said playing piece, with said pin constituting manually resetting means in the form of a push button for resetting the timer at the end of each player's turn without disrupting the pieces on the board with each player attempting to continue the extension of his or her playing pieces and to block the extension of the opposing player(s) by placing his or her playing pieces at selected locations before the end of said limited time interval.

4,266,775
GAME INVOLVING THE DEALING IN COMMODITIES
Raveendra V. Chitnis, and Hema R. Chitnis, both of 2424 Courtly Dr., Fostoria, Ohio 44830
Filed Nov. 21, 1979, Ser. No. 96,506
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—278 **6 Claims**



1. A game involving the acquiring and selling of commodities comprising:

(a) a game board having a plurality of regions for commodities;

(b) sets of game pieces to be placed randomly on said regions, each set directed to and coded for a specific commodity and selected pieces bearing numbers on their inner faces;

(c) a commodity die having indicia on the respective faces

for each set of commodities, whereby a roll determines a particular commodity to be bought or sold by a player;

(d) a plurality of different commodity units corresponding to said game pieces each unit displaying the face price of that commodity, such units being purchased at such face price by players successively in response to a roll of the command die which then indicates the commodity unit to be purchased and the game piece selected by the player determining from the number displayed, the number of units he must buy;

(e) a market price determining device movable for establishing the market price of each unit, said device comprising a rotatable wheel having a row of face price displaying commodity labels adapted upon rotation to line up with stationary row of numbers, the market price being calculated by multiplying the face price of a commodity by a number adjacent thereto;

(f) a quantity die having 1 to 6 units marked respectively on its faces;

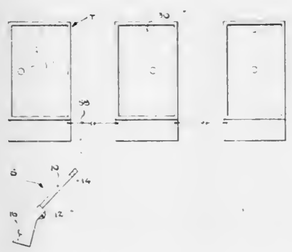
(g) a command die having indicia on its face to require buying/selling or impose a penalty or to provide financial benefit, the commodity die, the quantity die and the command die being thrown together by the players successively.

4,266,776

MULTI TARGET-SHOOTER GAME APPARATUS

Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356

Filed Feb. 12, 1979, Ser. No. 11,065
Int. Cl.³ F41J *5/02*
U.S. Cl. 273—310 **13 Claims**



1. A multiple-target shooter game apparatus comprising:

(a) a light beam shooter device disposed at a shooter position and freely moveable by a player to permit said shooter device to be aimed at individual ones of stationary prepositionable multiple targets by traversing through a wide scanning area of at least 90° up to approximately 180°; to enable the player to selectively direct the light beam in a plurality of different directions from said shooter position;

(b) a plurality of separate self-contained frames constituting said multiple targets each including self-standing means for supporting said frame in a stationary upright position facing toward said shooter position to enable the positioning of each of said frames in various different pre-positioned locations selected by the player and spaced apart one from another through a wide scanning area of at least 90° thereby allowing a player to arrange said frames into a plurality of distinctly different arrays wherein each of said frames may be spaced a different distance from said shooting position and from each other in virtually any combination of vertically displaced positions throughout a horizontal scanning area of at least 90° up to 180°;

(c) a target positioned on a front surface of each of said separate frames said target including a light sensitive photoelectric cell for being engaged by the light beam from said shooter device;

(d) electronic control means operably connected to each of said targets for activating for a short space of time and then deactivating different ones of said photoelectric cells in a random sequential order not known in advance by the player, and including sensing means for requiring the player to shoot said light beam shooter device accurately at the activated target in order to score;

(e) separate indicator means on each of said targets and coupled to said control means for indicating that the photoelectric cell of the associated target is activated so that the player must visually scan all of said frames and the individual indicating means associated therewith throughout a wide scanning area of at least 90° to determine which of said targets is activated before quickly turning in the proper direction and aiming said shooting device at the randomly activated target in order to engage said photoelectric cell associated with the activated target with the light beam before said target is deactivated; and

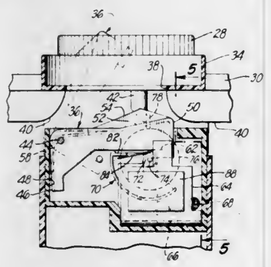
(f) electrical connector wires means operationally connecting said photoelectric cells and said indicator means with said electronic control means, said wires means designed and arranged for permitting said separate frames to be prepositioned by the player in physically disparate locations including positions wherein the respective front surfaces of some of said frames are at least partially facing each other while at the same time all of said frames are facing said shooter position.

4,266,777

TARGET APPARATUS FOR EJECTING ARTICLES

Masaki Ikeda, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Division of Ser. No. 875,675, Feb. 6, 1978, Pat. No. 4,212,412.
This application Jul. 19, 1979, Ser. No. 58,808
Claims priority, application Japan, Feb. 22, 1977, 52-20680
Int. Cl.³ F41J *5/02*
U.S. Cl. 273—310 **5 Claims**



1. A target game having a target apparatus, said target apparatus including holding means capable of holding at least one article, ejection means for ejecting an article held by said holding means, target means for controlling the operation of said ejection means so that when said target means is actuated said ejection means is operated so as to cause ejection of an article held by said holding means, and actuation means for causing actuation of said target means in which the improvement comprises:

said apparatus including a base,

said holding means comprising a turntable rotatably mounted on said base, said turntable including a plurality of separate article holders located around its periphery,

motive means for rotating said turntable connected to said turntable,

said turntable being located relative to said ejection means so that said ejection means is capable of ejecting an article from an adjacent one of said article holders and so that successive of said article holders are located adjacent to said ejection means as a result of rotation of said turntable,

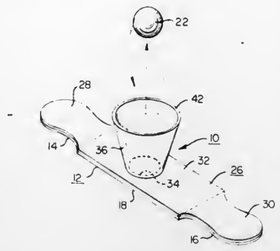
said apparatus including cooperating mechanical escapement means on said turntable and said base responsive to operation of said ejection means to release the turntable for rotation by said motive means and stop said rotation when the next successive article holder is located adjacent to said ejection means.

4,266,778

BALL PROJECTING AND CATCHING APPARATUS

William A. Sine, 332 Upland Ave., Clarksburg, W. Va. 26301

Filed Sep. 20, 1979, Ser. No. 77,316
Int. Cl.³ A63B *65/12*
U.S. Cl. 273—324 **6 Claims**



1. For a player to engage in games with a ball, apparatus comprising:

a lower non-elastic flexible strap having left and right ends and an intermediate portion having substantially in the center thereof an opening of diameter smaller than the diameter of the ball;

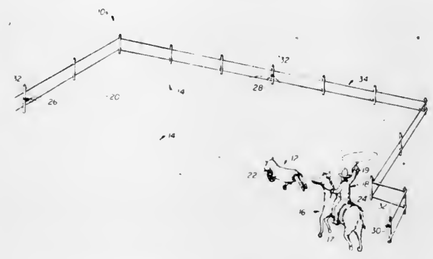
an upper non-elastic flexible strap having left and right ends and an intermediate portion, the broad surfaces of said strap being congruent with the broad surfaces of the lower strap, said upper strap having an opening of diameter larger than the diameter of the ball, said opening being axially aligned with the opening in the lower strap, the ends of the upper strap being superposed upon the corresponding ends of the lower strap so that the player upon holding said left ends near said right ends produces a separation between the intermediate portions of the straps, whereupon the ball in descending flight may be allowed to pass through the opening in the upper strap and be caught on the opening in the lower strap, and subsequently, by pulling said left ends away from said right ends, the ball will be relaunched through the opening in the upper strap and into the air.

4,266,779

ANIMATED ROPING TRAINING APPARATUS

Jackie L. English, 940 Matley La., #7, Reno, Nev. 89502

Filed Jun. 7, 1979, Ser. No. 46,273
Int. Cl.³ A63K *3/00*; A63B *69/00*; A63H *11/10*
U.S. Cl. 273—359 **9 Claims**



1. Roping practice apparatus that simulates an animal running on a generally horizontal surface for use by a person mounted on a pursuing horse, the apparatus comprising:

target means for simulating said animal including a frame, head and body elements mounted on said frame, said head and body elements being shaped and configured to simulate the head and upper back portions of an animal, and ground-engaging means mounted to said frame for supporting said target means on said surface; and

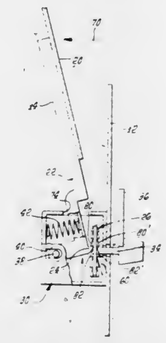
means for propelling said target in a direction generally away from the pursuing horse including means for interconnecting said target and said horse, said interconnecting means including at least three upright members located in spaced-apart relation to one another and generally circumscribing said horizontal surface and a reeving system comprising at least three pulley elements through which is passed a flexible cable, said cable interconnecting said target means and said horse, each of said pulley elements being attached to a corresponding one of said upright members.

4,266,780

TARGET WITH HIT COUNTER

Kenneth L. McQuary, Lawndale, Calif., assignor to Placo Products Company, Torrance, Calif.

Filed Nov. 13, 1979, Ser. No. 93,907
Int. Cl.³ F41J *5/00*
U.S. Cl. 273—387 **7 Claims**



5. A target with a rotating shaft output for driving a hit counter and comprising:

a housing;

a ratchet wheel having a shaft rotatably mounted in said housing, with said ratchet wheel shaft mounted for translation in said housing along the axis of rotation of said shaft;

a target member pivotally mounted in said housing for movement between first and second positions, said member having a pawl for engaging said ratchet wheel for advancing said wheel in a forward direction, with said target member mounted in said housing for translation in the direction of said shaft axis of rotation;

means for preventing reverse rotation of said ratchet wheel; and

bias means for biasing said target member toward said first position, with said bias means also biasing said target member pawl into engagement with said ratchet wheel and said ratchet wheel into engagement with said means for preventing reverse rotation.

4,266,781

RESILIENT ROTATABLE TOY

Walter L. Blue, 212 Turquoise Cir., Prescott, Ariz. 86301

Filed Oct. 29, 1979, Ser. No. 89,147
Int. Cl.³ A63B *65/00*
U.S. Cl. 273—420 **1 Claim**

1. A toy adapted

for use within a confined area, and

to be thrown toward and rotatably rebounded from a surface and retrieved in mid-air for the development of hand-eye coordination and manual dexterity,

said toy being readily disassembled and assembled free of adhesives and other permanent affixing means, and comprising,

(a) a tuft of fabric strands,

(b) a substantially rigid elongate shaft having a first end and a distal end, said distal end having an aperture for receiving said fabric strands,



(c) a resilient generally spherical ball having a bore adapted to frictionally receive said first end of said shaft, the ratio of the diameter of said ball to the length of said shaft being between 1:1.5 and 1:3, and,

(d) means for detachably, fixedly securing said fabric strands in place on said shaft after a portion of each strand is passed through said structure,

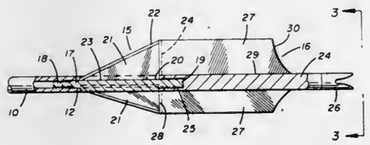
said fabric strands slowing and stabalizing the rotation of said toy and being readily removed from said shaft for repair and replacement.

4,266,782

HUNTING ARROW

Michael J. Patterson, 2279 Sodom-Hutchings Rd., Vienna, Ohio 44473

Filed Apr. 3, 1980, Ser. No. 136,887
Int. Cl.³ F41B 5/02
U.S. Cl. 273—423 **6 Claims**



1. A hunting arrow comprising a shaft, a tip on one end of said shaft and a circumferentially spaced fletch inwardly of the other end of said shaft, a notch in said other end of said shaft, said fletch comprising several angular shaped thin steel members, each having a razor sharpened leading edge, said leading edge disposed at an angle from said shaft and several flexible, thin, generally rectangular secondary members, each in axial alignment with said thin steel members and in abutment therewith.

4,266,783

CONTROL MECHANISMS FOR PICK-UP ARMS OF RECORD PLAYERS

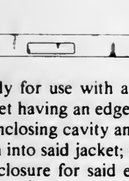
Udo Milutzki, Walldorf; Harry Gaus, Kronberg; Dietwald Schotte, Eschborn, and Klaus Ramspeck, Frankfurt, all of Fed. Rep. of Germany, assignors to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany

Filed Mar. 14, 1978, Ser. No. 886,455
Claims priority, application Fed. Rep. of Germany, Mar. 19, 1977, 2712186
Int. Cl.³ G11B 3/08
U.S. Cl. 369—41 **6 Claims**

1. In apparatus for controlling the movements of the tone arm of a record player relative to a turntable, the record player having base means on which the turntable and tone arm are supported, said apparatus including means for controlling the position of the pick-up supporting end of the tone arm in response to command signals, improved command signal generating means comprising:

a rotatable control disc, said disc being mounted on the base means of the record player, said disc being provided with a recess in an exposed peripheral edge portion thereof;

first command signal generating means mounted on said disc, said first command signal generating means including touch sensitive means positioned in said recess for producing an electrical output signal upon insertion of the finger of a user in said disc peripheral recess;



means for coupling signals provided by said first command signal generating means to the position control means associated with the tone arm;

second command signal generating means coupled to said disc, said second command signal generating means being operable in response to rotation of said disc under control of the user's finger in said disc peripheral recess to generate a second command signal; and

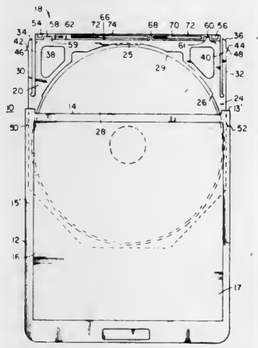
means for coupling signals provided by said second command signal generating means to the position control means associated with the tone arm.

4,266,784

VIDEO DISC CADDY HAVING DISC ENTRAPMENT

Leslie A. Torrington, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,254
Int. Cl.³ G11B 5/82, 25/04; B65D 85/30
U.S. Cl. 369—77 **1 Claim**



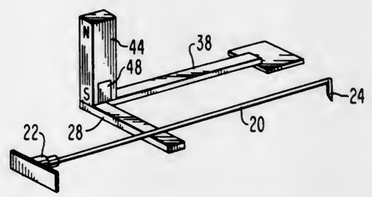
1. A disc record caddy for use with a record player; said caddy comprising a jacket having an edge opening in communication with a record enclosing cavity and a record retaining spine subject to insertion into said jacket; said spine defining a first portion forming a closure for said edge opening, and a further portion having a perimetrical wall defining an opening in which the enclosed record is received to form a record/spine assembly; said player having an input slot through which an occupied caddy is inserted along a path to load said enclosed record therein; said player including a record extracting mechanism for removing said retaining spine from said jacket during jacket withdrawal subsequent to an occupied caddy arrival at a fully inserted position in said player, thereby retaining said record/spine assembly in said player resting on a record supporting platform; said record receiving opening in said spine being larger than said record for allowing free passage of said record therethrough to permit transfer of said retained record from said platform to a record turntable for playback, and from said turntable to said platform to redefine said record/spine assembly for record retrieval; an empty jacket being inserted into said player along said path for retrieving said retained record/spine assembly into said jacket for record removal; a portion of said perimetrical wall, disposed between said enclosed record and said closure portion of said spine, defining a recess, which is located such that a peripheral portion of said enclosed record is urged into said recess by said empty jacket, as said empty jacket is inserted into said player for record retrieval, to confine said record to said record receiving opening in said spine during such insertion to assure proper record retrieval.

4,266,785

STYLUS LIFTING/LOWERING ACTUATOR WITH IMPROVED ELECTROMAGNETIC MOTOR

Thomas W. Burrus, Cedar Rapids, Iowa, assignor to RCA Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,359
Int. Cl.³ G11B 3/10
U.S. Cl. 369—216 **8 Claims**



1. In a playback system for recovering prerecorded information from a record, said record being rotatably supported on a turntable, said system including: a support member; and a stylus arm having a pickup stylus mounted at one end of said arm, said arm being pivotally secured at the other end to said support member; the apparatus comprising:

a leaf spring normally lying in a plane substantially parallel to said turntable, one end of said leaf spring being fixedly secured;

a stylus arm rest attached to the leaf spring in the vicinity of the other end of said leaf spring and adapted to receive said stylus arm;

a permanent magnet mounted on said leaf spring and extending along a line generally perpendicular to said turntable;

an assembly comprising a coil wound around a core, said core defining a central volume forming an air gap, said assembly having a pair of terminals connected to said coil; said assembly being mounted relative to said leaf spring and said permanent magnet such that said permanent magnet normally occupies a portion of said air gap whereby said permanent magnet is normally substantially within said central volume; and

energizing means connected to said pair of terminals for selectively causing current to flow through said coil to selectively establish a magnetic field in said air gap;

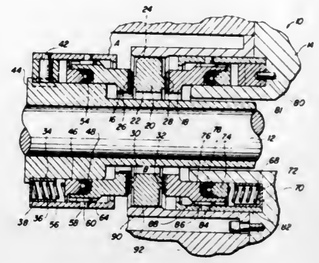
the orientation of said permanent magnet relative to said air gap being such that said permanent magnet is repelled away from said air gap under the influence of said energizing means in a direction to permit stylus/record contact.

4,266,786

MECHANICAL SEAL ASSEMBLY

Winfred J. Wiese, Whittier, Calif., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Aug. 13, 1979, Ser. No. 66,279
Int. Cl.³ F16J 15/38
U.S. Cl. 277—40 **8 Claims**



1. In a mechanical seal assembly adapted to be associated with a rotatable shaft and a housing and between a first and second zone each containing a different fluid comprising:

a first seal ring having a seal face;

a second seal ring having a seal face;

means connecting said first and second seal rings to said shaft and housing, respectively, permitting limited axial movement of said first and second seal rings; the improvement which comprises:

a central seal ring positioned between said first and second seal rings and having a pair of seal faces, one of which engages said first seal face and the other of which engages said second seal face;

said central seal ring being free of connection with said shaft and said housing and encircling said shaft,

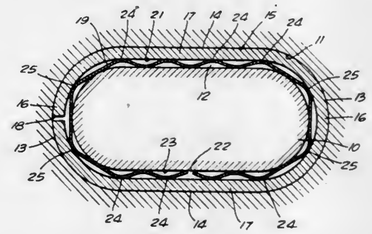
said housing centering said central ring and forming a bearing therefor.

4,266,787

PISTON RING

Takeo Fukui, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 28, 1980, Ser. No. 115,958
Claims priority, application Japan, Feb. 2, 1979, 54-11529[U]
Int. Cl.³ F16J 15/9
U.S. Cl. 277—160 **4 Claims**



1. For use in an internal combustion engine having an oblong piston mounted to reciprocate within an oblong cylinder, the piston and cylinder having spaced curved end portions joined by side portions, and the piston having a peripheral groove, the improvement comprising: a split piston ring adapted to be received in the peripheral groove and having curved end sections adjoined by side sections, said sections having an outer surface for sliding contact with the cylinder, said piston ring being oblong and having a gap at the center of one of its curved end sections, a corrugated spring adapted to be re-

ceived in the peripheral groove and having corrugations contacting the side sections and curved end sections of said piston ring, said corrugations being closer together near said side sections than near said curved end sections.

4,266,788

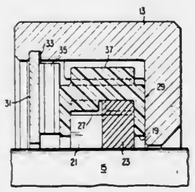
CIRCUMFERENTIAL SHAFT SEAL

Lawrence P. Ludwig, Fairview Park, Ohio, assignor to The United States of America as represented by the Administrator, National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 672,219, Mar. 21, 1976, Pat. No. 4,212,477. This application Dec. 7, 1979, Ser. No. 102,004

Int. Cl.³ F16J *15/32*

U.S. Cl. 277—193 **4 Claims**



1. In a circumferential seal for sealing a shaft rotatably journaled in a housing having at least one slot therein extending substantially parallel to said shaft, the improvement comprising

an elastomeric band spaced from the shaft and adapted to encircle the shaft, said band having at least one lug projecting from the outer surface thereof extending into said slot in said housing to prevent rotation of said elastomeric band relative to said housing and at least another lug projecting from the inner surface of said band facing said shaft,

a pair of sealing rings in substantial juxtaposition mounted in the space between the elastomeric band and the shaft, each of said sealing rings having an inner diameter dimensioned so that the sealing rings slidably and sealingly engage the shaft;

each of said rings consisting essentially of a plurality of segments in simultaneous engagement with both said elastomeric band and said shaft, the junctions between segments in one of said sealing rings being displaced relative to the junctions between segments in the other of said sealing rings, said other lug on the inner surface of said elastomeric band extending into the space between two adjacent segments to prevent rotation of the sealing ring segments relative to said elastomeric band,

each of said segments having an outer peripheral surface in engagement with said elastomeric band and an inner peripheral surface in engagement with said shaft so that said elastomeric band maintains said sealing ring in engagement with said shaft

a locking ring adapted to be mounted in the housing and to encircle the shaft in spaced relationship to said elastomeric band and said sealing rings; and

first resilient means disposed in the space between the locking ring and the elastomeric band for sealably pressing the elastomeric band into sealing engagement with the housing.

4,266,789

MACHINE TOOL CHUCK

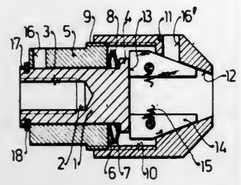
Günter Wahl, Leinfelden-Echterdingen; Gerhard Kuhlmann, Stuttgart, and Ernst Kränzler, Leinfelden-Echterdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 17, 1978, Ser. No. 934,482

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1977, 2740202

Int. Cl.³ B23B *31/04*

U.S. Cl. 279—60 **15 Claims**



1. A tool chuck for use with a power tool to clamp tool bits, having rotary driving means and which, additionally, place axially reciprocating forces on the chuck, comprising:

a mandrel core (**1, 101, 201, 301, 401, 501**) for attachment to the rotary driving means of the power tool;

a hollow collar (**11, 111, 211, 311, 411, 511**) partially coaxially surrounding said core, said collar having an interior at least partially conical surface and an enlarged portion surrounding the mandrel core;

at least two chuck jaws (**14, 114, 214, 314, 414, 514**) disposed in relatively movable configuration at least partially within the hollow interior of said collar being confined radially by said conical surface thereof and longitudinally supported by said mandrel core;

means (**5, 105, 205, 305, 405, 505**) longitudinally slidable with respect to the mandrel core coupling the mandrel core and the hollow collar; and

a compressible elastic member (**8, 108, 208, 308, 408, 508**) bearing against the core and said slidable means tending to move the collar toward the core, and being compressed upon tightening movement of the collar, and hence of the jaws therein against a tool bit;

said core, slidable means, elastic member, collar, and jaws, together with the tool bit clamped in the jaw forming a clamping connection chain, to permit tightening of the jaws, upon relative longitudinal movement of the hollow collar and longitudinal slidable movement of the slidable means against the force of the compressible elastic member, and additionally introduce the force of the compressible elastic member in the tightening force exerted by the jaws and thus hold the jaws securely even under impact conditions from the mandrel core to the jaws.

4,266,790

VEHICLE HEIGHT ADJUSTING APPARATUS

Tamio Uemura, and Yoshiki Kodama, both of Kawasaki, Japan, assignors to Tokico Ltd., Kanagawa, Japan

Filed Apr. 3, 1979, Ser. No. 27,014

Claims priority, application Japan, Apr. 20, 1978, 53-46822

Int. Cl.³ B60G *21/06*

U.S. Cl. 280—6.1 **7 Claims**

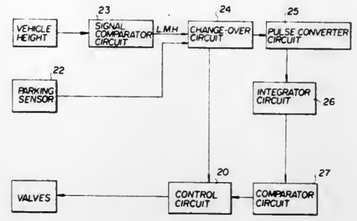
1. A vehicle height adjusting apparatus for a vehicle, comprising:

sensor means for detecting a vehicle height level by measuring the distance between the body and axles of said vehicle and for providing an output signal corresponding to said measured height level;

a signal comparator circuit for receiving and comparing said output signal from said sensor means and for classifying said output signal into one of a plurality of vehicle reference height zones;

a pulse converter circuit for converting said classified signal into a pulse signal corresponding to one of said height zones;

an integrator circuit for integrating said pulse signal for each respective zone during a given time period;



a determination circuit for receiving said integrating signal for each zone from said integrator circuit and for comparating the number of pulses for each zone and provide an output signal indicative of said vehicle height level;

and a fluid circuit for controlling the inflow and outflow of fluid into and out of a suspension device in dependance upon said output signal from said determination circuit, whereby said vehicle height level is adjusted to be in a predetermined vehicle reference height zone.

4,266,791

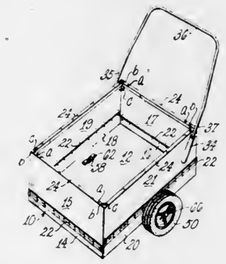
COLLAPSIBLE AND CARRYABLE CART

June L. Myers, P.O. Box 22086, Los Angeles, Calif. 90022

Filed Sep. 28, 1979, Ser. No. 79,827

Int. Cl.³ B62B *11/00*

U.S. Cl. 280—37 **6 Claims**



1. A collapsible and hand-carryable cart assembly comprising in combination:

a generally rectangular, open-top, shallow container formed by a flat bottom wall and by short, upstanding, side and end walls fixed thereto and to each other, each of said walls having inner and outer faces, the container having handle means for manually carrying and storing the container when closed and held in generally vertical position with the outer face of one of said short walls disposed generally parallel to and adjacent the ground, the outer face of said bottom wall when upward-facing and dependently supported at a selected height being utilizable as a planar work surface

rectangular, upright disposable panel walls each hingedly secured to an upper edge of a respective side or end wall plus position-reinforcing pin means adapted for bracing interconnection of adjacent pairs of said hinged panel walls when jointly disposed upright so as to form a container extension continuous upward from said shallow container, said panel walls being disposed alternately to be hingedly infolded so as to spacedly overlie the inner face of said bottom wall, and having latch means for selectively retaining them in such infolded closed position,

the outer face of each of an opposing pair of panel walls having a thrust-insertion socket with lock means, adapted to receive and selectively retain an attachment arm of an operating handle,

a separable, generally U-shaped manual operating handle having a pair of attachment arms adapted for insertion/retention in the respective sockets and thus to brace said opposing pair of panel walls in upright position,

an elongated axle support member, storable within said shallow container and having a length approximating the width of said bottom wall, said member having an axle fixedly extending from each end thereof and having means for selective transverse attachment to the outer face of said bottom wall with said axles projecting outward therefrom,

and a pair of wheels adapted to be functionally mounted on the respective axles and alternately individually to be stored within said shallow container when detached.

4,266,792

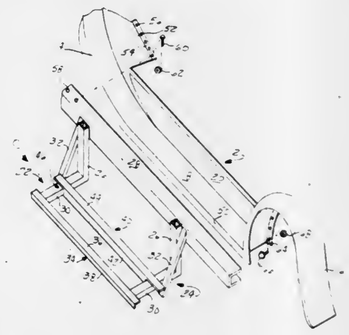
VEHICLE FENDER AND RUNNING BOARD SUPPORT

Earl Sanders, Battle Creek, and Daniel Sanders, Lansing, both of Mich., assignors to The Model A and Model T Car Reproduction Corporation, Battle Creek, Mich.

Filed Sep. 28, 1979, Ser. No. 79,999

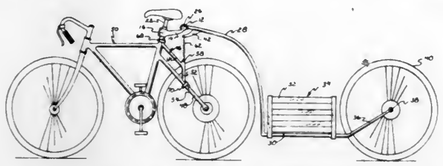
Int. Cl.³ B62D *25/16*

U.S. Cl. 280—153 R **1 Claim**



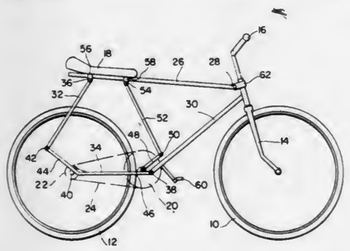
1. In a vehicle of the type having a frame including a longitudinal frame member and a fiberglass body mounted on the frame and including a body sub-assembly comprising a pair of longitudinally spaced fenders joined by an integral running board and having a scuff plate extending between the fenders to cover the vertical distance between the frame and the running board which is located below the frame level, the improvement of a running board support concealed by said scuff plate and disposed between said fenders, comprising a pair of longitudinally spaced brackets having vertical legs secured at their upper ends to said frame to depend therefrom and horizontal legs located at the lower portions of said vertical legs to project outwardly relative to the frame, a diagonal brace reinforcing each horizontal leg and lying within the confines of said scuff plate when the body is mounted on the frame, and longitudinal supports secured to said horizontal legs to directly underlie and to directly support the running board when the body is mounted on said frame.

4,266,793
BICYCLE HITCH DEVICE
Larry A. Pryor, 8458 S. 800 West, Wanatah, Ind. 43690
Filed Nov. 5, 1979, Ser. No. 91,266
Int. Cl.³ B60D *1/06;* **B62K** *27/00*
U.S. Cl. 280—204 **9 Claims**



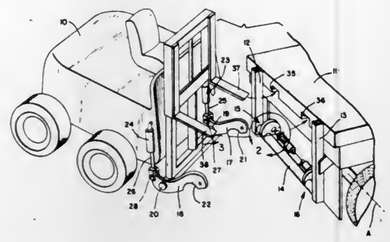
1. A hitch for a bicycle-trailer combination wherein the trailer is provided with a draw bar and cup member fixed to the distal end of said draw bar, the improvement comprising:
an arm member having a ball member fixed to the distal end of said arm member;
means formed at the other end of said arm member to connect to a frame component of the bicycle;
a bracket member connected to a second frame component of the bicycle;
the cup member fixed to the distal end of said draw bar mounted on said ball member;
a lever member depending from said draw bar, the end thereof extending below said ball member; and
a spring member connecting said bracket member and said end of said lever member, said spring member, said end of said lever member and said ball member being in vertical alignment.

4,266,794
TWO-WHEELED VEHICLE
Hans G. Bals, Blümgesgrund 44, Gelnhausen, Fed. Rep. of Germany
Filed Jul. 24, 1978, Ser. No. 927,004
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1977, 2734560
Int. Cl.² B62M *1/20;* **A63B** *69/16*
U.S. Cl. 280—227 **17 Claims**



1. A two-wheeled vehicle similar to a bicycle comprising a frame having an upper frame member and a lower frame member pivotably connected to a front frame member by joints therebetween, and a rear frame member pivotably connected to the lower and upper frame members by joints therebetween, and wherein the upper frame member carries a saddle, the front frame member is provided with a bearing for a steering handle and a front wheel fork, the lower frame member is supported as a rocker on the axle of a rear wheel such that the rear part of the lower frame member extend beyond the axle, and is provided with a bearing for a driving sprocket wheel of a chain drive transmitting torque to the rear wheel, and the rear frame member is a link between the upper and lower frame members, the vehicle further comprising pedals connected to one of the front and the lower frame members, a crank arm fixed to the driving sprocket wheel and a connecting rod connected between the crank arm and the upper frame member.

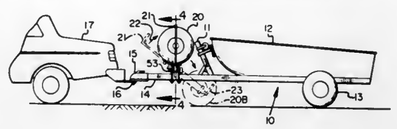
4,266,795
FORKLIFT TOWING STRUCTURE
Donald G. Walker, 330 Grandview Cir., Camarillo, Calif. 93010
Filed Oct. 22, 1979, Ser. No. 86,753
Int. Cl.³ B60D *1/04*
U.S. Cl. 280—402 **4 Claims**



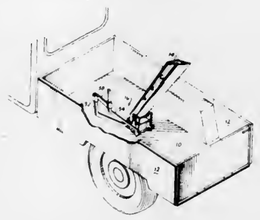
1. A forklift towing structure for use in towing a forklift behind a load hauling flatbed truck with which the forklift vehicle is to be used at a remote site for loading and/or unloading operations, said structure including:
(a) a round bar secured in spaced relationship to the rear of said truck in a horizontal position parallel to the rear axle of the truck, opposite ends of said bar defining left and right engagement means;
(b) left and right movable means mounted intermediate their ends adjacent to left and right front corner portions of said forklift vehicle, in positions to engage said left and right engagement means respectively, said left and right movable means comprising rocking levers pivoted intermediate their ends at said points adjacent to said left and right front corners of said forklift vehicle, the front ends of said levers having underside arcuate cut-outs for engaging over said engagement means and
(c) power means carried by said forklift vehicle coupled to said movable means for lowering the said movable means simultaneously to thereby lift the front end of said forklift together with its front wheels free of the ground; and
(d) locking means including flange members secured to said round bar adjacent to said front ends of said rocking levers, said flange members and locking levers having holes which fall into registration when said underside arcuate cutouts engage said round bar and the front of said forklift vehicle is raised and pins insertable through said registering openings for securing of the movable means to the engagement means,
whereby the left and right front corners of the forklift vehicle are captured to the left and right rear corners of the truck, the forklift vehicle being towed with only its rear wheels on the ground so that the longitudinal fore and aft axis of the forklift vehicle remains in the same vertical plane as the fore and aft longitudinal axis of said truck, thereby facilitating and stabilizing towing of the forklift vehicle.

4,266,796
TRAILER TONGUE WHEEL
Robert L. Riggs, 361 NE. Village Squire, Gresham, Oreg. 97030, and Howard Riggs, Rte. 2, Box 474, Aurora, Oreg. 97002
Filed Oct. 29, 1979, Ser. No. 89,031
Int. Cl.³ B60S *9/16*
U.S. Cl. 280—414 R **10 Claims**

1. In a trailer vehicle having a tongue for towing the vehicle, a spindle housing mounted in transverse horizontal position on said tongue; a strut assembly comprising a strut spindle mounted for rotation in said housing, a tongue supporting strut mounted on one end of said spindle, and a steering spindle rotatable in said strut; a wheel spindle on one end of said steering spindle, and a wheel on said wheel spindle; said strut assembly and strut spindle being rotatable in said housing 180° from a downwardly extending working position to an upwardly extending position with said wheel above and at one side of said tongue, said steering spindle being rotatable 180° in said strut to position said wheel over said tongue in a carrying position; a steering and tongue lifting lever, a transverse socket on said steering spindle to receive said lever for steering said wheel on the ground in said working position, and a second socket in said strut assembly transverse to said strut spindle to receive said lever for swinging said strut to said working position and lifting said tongue.

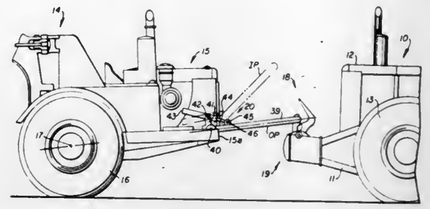


4,266,797
SAFETY HITCH CATCH
Charles D. Rhodes, P.O. Box B, Petersburg, Tex. 79250
Filed Apr. 6, 1979, Ser. No. 27,661
Int. Cl.³ B60D *1/06;* **B62D** *53/06*
U.S. Cl. 280—423 R **9 Claims**



1. In a trailer ball and socket coupler, the socket having
a. a body,
b. a bifurcated plate on the bottom of the body,
c. a jaw bolt extending upward on each side of the bifurcation into the body,
d. said jaw bolts parallel to each other,
e. a ball jaw pivoted to each of the bolts,
f. each of the ball jaws having an outer face and a concave inner face,
g. a bail bolt extending across the body normal to the jaw bolts,
h. a bail pivoted to the body by said bail bolt,
j. a bail spring innerconnecting the body and bail to bias the bail closed, and
k. a catch mounted on the body to lock the bail in a closed position,
m. so that a ball with a stem may be locked into the socket with the ball over the bifurcated plate and the stem within the bifurcation and the jaws snuggly clasping the ball by the concave inner face and the jaws held closed by the closed bail snuggly contacting the outside faces and the bail locked down by the catch;
the improved structure comprising in combination with the
n. a bail handle attached to the bail so that the bail may be operated from a remote position,
o. a catch handle attached to the catch so that the catch may be operated from a remote position,
p. a notch on the catch, and
q. a finger on the bail, so that the bail may be latched up thereby freeing the ball jaws.

4,266,798
PUSH-PULL COUPLING FOR POWER SCRAPERS
Roger M. Smith, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 14, 1979, Ser. No. 11,990
Int. Cl.³ B60D *1/04*
U.S. Cl. 280—481 **6 Claims**



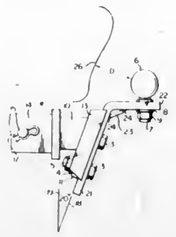
1. In a first, wheel supported, push-pull vehicle (**10**) having a mounting frame (**21**) fixedly secured to the rear thereof, for use with a second, wheel supported vehicle (**14**) having a bail (**39**) pivotally mounted to the front thereof, the improvement comprising:
a first upstanding coupling element (**27**) having upper (**27***a*) and lower (**27***b*) ends, one of said ends including a rearwardly opened, bail engaging hook (**37**);
a second upstanding coupling element (**28**) having upper (**28***a*) and lower (**28***b*) ends, one of said ends of said second element including a forwardly opened, bail engaging hook (**38**);
means for independently pivoting said first and second coupling elements on said mounting frame about a common transverse axis (**31**) between said upper and lower ends;
and resilient means (**36**) supported by said mounting frame for engaging the other of said ends of said first and second coupling elements, whereby one of said coupling elements is engaged by said bail for pushing of said first vehicle by said second vehicle and the other of said coupling elements is engaged by said bail for pulling of said second vehicle by said first vehicle, said resilient means cushioning the thrust of said coupling elements against said mounting frame as they are independently pivoted by respective pushing or pulling engagement with said bail.

4,266,799
ADJUSTABLE TRAILER HITCH DEVICE
Leonard A. Wood, P.O. Box 750, North Bay, Ontario, Canada (P1B 8J8)
Filed Jun. 26, 1979, Ser. No. 52,304
Claims priority, application Canada, May 18, 1979, 327919
Int. Cl.³ B60D *1/06*
U.S. Cl. 280—490 R **12 Claims**

1. An adjustable trailer hitch device for attachment to a towing member of a vehicle comprising:
a first member including an elongated shank attachable to the towing member of the vehicle and a first elongated flat plate united with said shank at one end of said shank, said first plate being disposed obliquely to a longitudinal axis of said shank so as to be inclined with respect to a vertical when said shank is attached to the towing member, said first plate having a plurality of spaced holes therein;
a second member including a second elongated flat plate and a support to which a towing ball can be attached, said support being rigidly united with said second plate at an obtuse angle thereto and said support being disposed in a plane parallel to the longitudinal axis of said shank when

said second plate is secured to said first plate, said second plate having a plurality of spaced holes therein;

said first and second plates and said holes therein being so arranged that said second plate can be positioned against said first plate with holes in said first and second plates



aligned in any of a plurality of positions to provide different heights for said support with respect to said shank; and

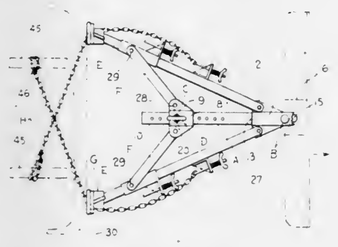
means for securing said second plate to said first plate through the aligned holes in any of the plurality of positions.

4,266,800

TOW BAR APPARATUS

Wallace H. Hawkins, Old Buncombe Rd., Greenville, S.C. 29611

Filed Sep. 18, 1978, Ser. No. 942,945
Int. Cl.³ B60D 1/14
U.S. Cl. 280—491 D **2 Claims**



1. A tow bar apparatus comprising:

an elongated longitudinal central frame member;

means carried adjacent a forward end of said frame member for securement to a towing vehicle;

a pair of diverging towing arms pivotally connected and diverging rearwardly from adjacent said forward end of said central frame member;

connection means carried adjacent rear ends of said diverging arms for being connected to a towed vehicle;

a plurality of longitudinally spaced openings provided in said central frame member;

a mounting element carried for longitudinal sliding movement on said frame member;

a removable member carried by said mounting element for selectively inserting into one of said spaced openings adjustably fixing said mounting element rigidly on said central frame member;

a pair of link members each having an outer end and an inner end;

means pivotally connecting said outer ends of said link members to respective one of said diverging towing arms, and

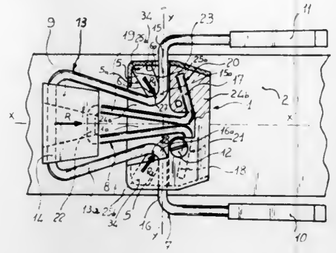
means pivotally connecting said inner ends of said link members to laterally spaced points on said mounting element providing a rigid connection between said central frame and said towing arms.

4,266,801

BRAKING DEVICE FOR SKIS

Georges P. J. Salomon, Annecy, France, assignor to Etablissements Francois Salomon et Fils, Annecy, France

Filed Nov. 3, 1978, Ser. No. 957,271
Claims priority, application France, Nov. 4, 1977, 77 33250
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **7 Claims**



1. A braking device for skis comprising at least one braking member comprising a braking portion and an upper leg portion articulated on the ski for rotation about both a transverse, horizontal axis and a vertical axis at a location between said braking portion and said upper leg portion and movable between an operative braking position in which said braking portion juts out below the inferior plane of said ski and an inoperative skiing position, said braking device being associated with a separate control device maintaining the end of said upper leg portion opposite said articulation location in a longitudinal vertical plane of said ski, said control device being sensitive to the presence of a ski boot to assure the passage of said braking member from said operative to said inoperative position when said ski is put on, by a substantially vertical swinging movement of said braking device to a level above the upper plane of said ski combined with pivotal movement of said braking device in a horizontal plane, resulting in a lateral displacement of said braking portion in the direction of the longitudinal axis of said ski, and comprising

(a) a movable small rod pivoting substantially in the plane of said ski and bearing at one end against a portion integral with said braking member and at its other end bearing against a fixed pivot point fastened to said ski, keeping the area of said portion in contact with said connecting rod at a constant distance from said pivot point, so that pivoting of said connecting rod when said braking member is pivoted in the horizontal plane and drawn into its inoperative position under the action of the control device brings about a variation in the spacing between said braking member and the plane passing through said longitudinal axis of the ski and the perpendicular to the plane thereof.

4,266,802

SKI BRAKE

Josef Svoboda, Schwechat, Austria, assignor to TMC Corporation, Baar/Zug, Switzerland

Filed Feb. 22, 1979, Ser. No. 14,273
Claims priority, application Austria, Feb. 22, 1978, 1297/78
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **12 Claims**

1. A brake for use on a ski, comprising:

a mounting member adapted to be mounted on said ski;

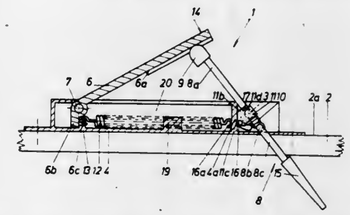
an axle and first support means on said mounting member supporting said axle for rotation and about an axis which extends at a right angle to the longitudinal axis of said ski;

bearing means mounted on said axle and being movable therewith;

at least one brake leg means having a first segment extending generally parallel to the longitudinal axis of said ski, a second segment connected at one end thereof to said first segment and extending generally perpendicularly to said first segment and a third segment connected to the other end of said second segment and extending perpendicularly to said second segment and being longitudinally offset from said first segment, said first segment being received in said bearing means and thereby supported for rotation both about the longitudinal axis of said first segment and said axis of said axle between (1) a braking position wherein said third segment extends along the lateral edges of said ski and beneath the plane of the lower surface of said ski and said first segment extends above the plane of the upper surface of said ski and (2) a retracted position wherein said first and third segments extend above said upper surface of said ski;

a pedal and second support means for pivotally supporting said pedal on said mounting member, said pedal being movable about an axis spaced longitudinally along the length of said ski from said axle and extending parallel to said axis of said axle;

a cam member fixedly secured to said first segment adjacent said end and extending radially outwardly therefrom;



resilient means operatively connected to and extending between said pedal and said brake leg means for urging said pedal to a position inclined at an angle to the upper surface of said ski with the end of said pedal remote from the pivot support therefor overlaying an end of said first segment remote from said connection to said second segment;

guide means on said pedal operatively slidingly engaging said cam member; and

stop means on said mounting member positioned so as to be engaged by said cam member when said pedal and said brake leg means are pivoted about said axis of said axle from said braking position to said retracted position, said stop means, upon engagement thereof by said cam member, effecting a movement of said cam member and, consequently said brake leg means in said bearing means about said longitudinal axis of said first segment thereby resulting in a movement of said third segment inwardly of said lateral edges of said ski.

4,266,803

SKI BRAKE

Alois Himmetsberger, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Aug. 10, 1979, Ser. No. 65,688
Claims priority, application Austria, Aug. 16, 1978, 5935/78
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **4 Claims**

1. A ski brake for use on a ski, comprising:

first axle means adapted to be mounted on said ski, said first axle means having a first axis extending transverse of the longitudinal axis of said ski;

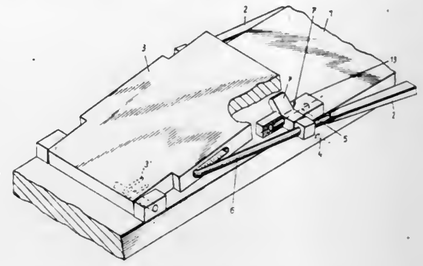
pedal means pivotally secured to said first axle means and movable between a first position upwardly inclined to the upper surface of said ski and a second limit position generally parallel to said upper surface of said ski;

resilient means biasing said pedal means toward said first limit position;

at least one ski brake blade means operatively connected to said pedal means for effecting a movement thereof between a braking position when said pedal means is in said first limit position and a retracted position when said pedal means is in said second limit position and in response to a movement of said pedal means between said first and second limit positions;

second axle means secured to said ski brake blade means and having a second axis extending parallel to said first axis;

third axle means adapted to be mounted on said ski at a location longitudinally spaced from said first axle means, said third axle means having a third axle extending parallel to said longitudinal axis of said ski, said third axle means additionally having a pair of connected lever arms, each



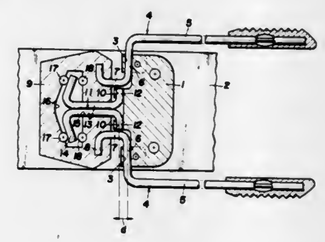
located on opposite sides of said third axis with at least one of said lever arms being positioned in the path of movement of said pedal means, said third axle means further having bearing means on one of said lever arms for rotatably supporting said second axle means for rotation about said second axis so that a movement of said pedal means from said first limit position toward said second limit position will effect an engagement of said pedal means with the other of said lever arms to cause said third axle means and said ski brake blade means to rotate in unison about said third axis.

4,266,804

SKI BRAKING DEVICE

Masahiro Murata, Matsudo, Japan, assignor to Hope Co., Ltd., Tokyo, Japan

Filed Nov. 7, 1979, Ser. No. 92,097
Claims priority, application Japan, Dec. 29, 1978, 53-181675[U]
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **5 Claims**



1. A ski braking device comprising:

a base plate adapted for mounting on a ski plate;

a brake member rotatably supported on said base plate, said base plate having first bearing means for supporting said brake member and said brake member having brake arms located along the side edges of said ski plate wherein said brake arms are capable of extending below the lower surface of said ski plate when said ski brake is in an operative position;

a pedal member connected to said brake member at one end

thereof opposite to said brake arms, said pedal member having a hollow interior;

a metal member slidably extending into said hollow interior, said base plate having second bearing means spaced a predetermined distance from said first bearing means, said metal member comprising a metal rod having a first end portion rotatably supported at said second bearing means and a second free end portion extending into said hollow interior of said pedal member, said second free end portion being bent toward the side edge of said ski plate; and

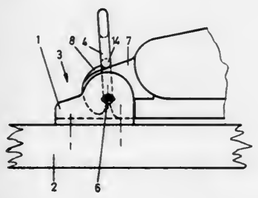
first elastic pressure means and second elastic pressure means located in said hollow interior of said pedal member for having said second free end portion positioned therebetween, said first elastic pressure means biasing said metal member at said second free end portion for having said brake arms move into operative position when the ski binding releases from the ski boot and said second elastic pressure means for biasing said metal member at said second free end portion in a direction opposite to the direction of biasing of said first elastic pressure means for having said metal member absorb an unexpected shock resulting from a force being exerted on said brake arms in a direction opposite to the normal direction of movement of said brake arms when said brake arms are moved into an inoperative position.

4,266,805

BINDING FOR CROSS COUNTRY SKIS

Erwin Weigl, Brunna.Gebirge, Austria, assignor to Polyair Produkt Design Gesellschaft m.b.h., Austria

Filed Aug. 3, 1978, Ser. No. 930,664
Claims priority, application Austria, Aug. 9, 1977, 5810/77
Int. Cl.³ A63C *9/18*
U.S. Cl. 280—615 **16 Claims**



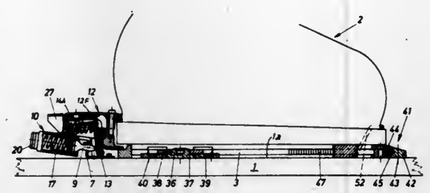
1. In combination, a binding for a cross-country ski and a cross-country ski boot having an extension that protrudes in front of the toe of the boot and is engageable with the binding, said binding comprising a toe iron member which is connected to the ski, comprised of two cheeks, which engage opposite sides of said boot extension; a pin connected to, and captively held in, said toe iron member, said pin extending into the boot extension when the binding is in position for use, said pin also being angled to form a U-shaped member, which has a free limb that is pivotally movable to a position over the extension, said ski boot extension being insertable between the cheeks of said toe iron member from above, said extension having at least one downwardly open groove extending transversely to the longitudinal direction of the boot, and said groove being adapted to receive the pin from below; said limb when in position over the extension forming and a locking means which opposes or prevents movement of the boot extension out of the retained position.

4,266,806

SAFETY SKI BINDING

Erwin Weigl, Brunn am Gebirge, and Karl Stritzl, Vienna, both of Austria, assignors to TMC Corporation, Baar, Switzerland

Division of Ser. No. 880,078, Feb. 22, 1978, Pat. No. 4,165,883.
This application May 23, 1979, Ser. No. 41,824
Claims priority, application Austria, Feb. 23, 1977, 1212/77
The portion of the term of this patent subsequent to Aug. 28, 1996, has been disclaimed.
Int. Cl.³ A63C *9/081*
U.S. Cl. 280—618 **6 Claims**



1. In a safety ski binding having a sole plate and a heel holder and a toe holder mounted on said sole plate and support means for pivotally securing said sole plate to a ski intermediate said toe holder and said heel holder, a holding member mounted on a ski, said heel holder being held in a boot holding position by a locking member supported for movement in a housing against the force of a spring, said locking member being mounted on the rear end portion of said heel holder and operatively engaging said holding member, the improvement comprising wherein said sole plate is formed by a pair of rods which extends coextensively along the longitudinal axis of said ski and mounting means mounted on said ski for supporting said pair of rods for limited upward pivotal movement at the two front free ends thereof, said housing being mounted on and movable with said sole plate adjacent the rear thereof wherein said pair of rods has teeth thereon, along which a carriage is longitudinally guided, said carriage including releasable locking means operatively connected to said teeth to facilitate an adjustment and releasable locking of said carriage relative to said pair of rods, wherein a spring wire is provided on said carriage, which spring wire forms said toe holder of said ski binding and is bent to overlie the toe portion of the sole of said ski boot, said spring wire including means for preventing both a lateral movement thereof relative to said carriage and a pivoting relative to said carriage about a transverse axis which lies substantially at a right angle with respect to the longitudinal axis of said ski, and wherein said spring wire is generally U-shaped and has upwardly inclined and forwardly extending legs relative to said carriage, the free ends of each of said legs adjacent said carriage extending beneath said rods and into a slot in said carriage having a width generally equal to the width of said spring wire, said slot extending in said carriage transversely of the longitudinal axis of said ski to thereby effect a securement thereof to said carriage.

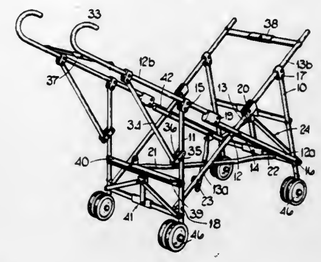
4,266,807

COLLAPSIBLE FRAME STRUCTURE FOR A CHILD'S PUSH CHAIR

Peter G. Griffin, 80 Hembs Crescent, Great Barr, Birmingham, England

Filed Jul. 19, 1979, Ser. No. 59,002
Claims priority, application United Kingdom, Nov. 23, 1977, 48727/77
Int. Cl.³ B62B *7/06*
U.S. Cl. 280—650 **6 Claims**

1. A collapsible frame structure for a child's push chair, the structure comprising, when extended, a pair of side frames in substantially parallel planes, a collapsible X frame in a plane transverse to the planes of the side frames, respective ends of said X frame being pivotally connected to two locations on each of said side frames, means for maintaining said X frame extended, and wheels adjacent the free ends of the X frame, characterised in that each said side frame has first and second elongate members (**10, 11**) which are maintained in spaced relationship by third and fourth (**12, 13**) elongate members which extend between respective opposite corners (**15, 16** and **17, 18**) of a quadrilateral which is defined by two points on each of said first (**10**) and second (**11**) members, said third (**12**) and fourth (**13**) members being pivotally interconnected and also pivotally connected to said points (**15, 16, 17, 18**) on the



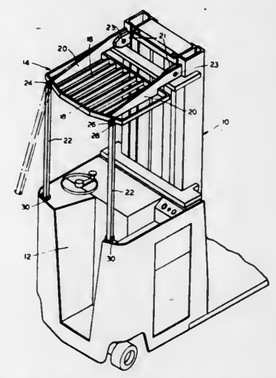
first (**10**) and second (**11**) members, and hinge means (**19**) for allowing said third (**17**) and fourth (**13**) members to be folded intermediate their pivotal interconnection (**14**) and their respective connections with a first two (**17,15**) of the adjacent corners on said quadrilateral, said adjacent corners being defined by points on respective ones (**10, 11**) of said first and second members, respective ends of said X frame (**21**) being pivotally connected to two locations (**22, 23**) on each of said side frames adjacent the other two corners (**16, 18**) of said quadrilateral.

4,266,808

OVERHEAD GUARD FOR LIFT TRUCK

Nyle W. Fassett, Georgetown, Ky., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Oct. 11, 1979, Ser. No. 83,910
Int. Cl.³ B60R *21/02*
U.S. Cl. 280—756 **4 Claims**



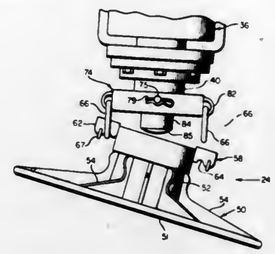
1. In a lift truck of the stand-up rider type having an operator's compartment at the rear of the truck and an operator's overhead guard extending over the compartment, the improvement comprising a pair of transversely spaced overhead guard rear support legs connected pivotably at the upper ends to the overhead portion of the guard and connected at the lower ends to the lift truck for pivotal break-away movement towards the rear of the truck about the upper pivotal connections thereof when the front side of a rear leg is struck with sufficient force, each rear leg having a semi-positive connection to the truck which permits said rearward pivotal movement in said one direction while inhibiting pivotal movement forwardly and to both sides.

4,266,809

OUTRIGGER FLOAT PAD ASSEMBLY

James G. Wuerflein, Winona, Minn., assignor to Burro-Badger Corporation, Winona, Minn.

Filed Dec. 26, 1978, Ser. No. 972,698
Int. Cl.³ B60S *9/02*
U.S. Cl. 280—766 **11 Claims**



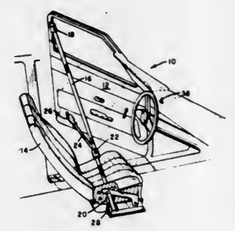
1. For use with an outrigger lift jack having a shaft adapted to be connected to a float pad, an improved mounting for releasably connecting the float pad to said shaft, comprising the combination of said float pad having a base and hub means upstanding from the base, cooperating surfaces formed between the shaft and the hub means and adapted when engaged to transmit the outrigger load from the lift jack shaft to the float pad, coupling means on the shaft, at least two apertured link means each sized to extend between the coupling means and the hub means, means swingably connecting said apertured link means at spaced locations around the center axis of the shaft to one of the coupling or hub means, whereby each respective link means is adapted to swing adjacent the other of the coupling or hub means when the load transmitting surfaces are engaged, and at least two projecting means on the other of the coupling or hub means which each removably projects into an aperture in a corresponding link means to releasably trap said adjacent link means when the load transmitting surfaces are separated incidental to the shaft being retracted for outrigger travel, whereby the link means then suspend the float pad from the shaft.

4,266,810

PASSIVE SEAT BELT SYSTEM WITH GUIDE CLIP

Rudy V. Thomas, and Robert L. Stephenson, both of Sterling Heights, Mich., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jul. 30, 1979, Ser. No. 62,082
Int. Cl.³ B60R *21/10*
U.S. Cl. 280—802 **10 Claims**



1. In a vehicle passive seat belt system including a torso belt having one end attached at an upper location of a door of the vehicle and an opposite end attached to said vehicle on the

inboard side of a seat located adjacent said door, said torso belt being adapted to be positioned about the torso of an occupant in said seat and a lap belt having one end attached at a lower location on said door and an opposite end attached to said vehicle on said inboard side of said seat, said lap belt being adapted to be positioned about the pelvic region of the occupant; said belts being automatically positioned about said occupant, the improvement comprising:

junction means interconnecting said belts and permitting relative movement of said belts, said junction means including:

an integrally formed guide clip having a generally planar section extending over and secured in a fixed manner with respect to one of said torso and lap belts at a location adjacent the inboard side of said seat when said door is closed, and a leg section extending generally normal to said planar section and having a slot formed therein for receipt of said other of said torso and lap belts, whereby said other belt is permitted to move with respect to said guide clip.

4,266,811

PASSIVE VEHICLE PASSENGER RESTRAINT BELT SYSTEM

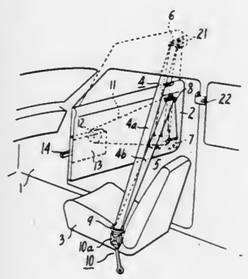
Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Tokyo, Japan

Filed Jan. 10, 1979, Ser. No. 2,245

Claims priority, application Japan, Mar. 9, 1978, 53/029075[U]

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—803 **5 Claims**



1. In a passive vehicle passenger restraint belt system which includes a shoulder belt extending up from an emergency locking retractor affixed on the rear portion of the vehicle door to and freely through an anchor ring mounted on the upper rear portion of the door and extending downwardly and transversely in from the anchor ring to a point of connection at generally the center of the vehicle behind, inboard of and below a passenger-position on the vehicle seat, and a lap belt extending from an emergency locking retractor affixed on the lower rear portion of the door to and freely through a movable transfer guide ring on the door and from the transfer guide ring generally transversely across the vehicle to a point of connection in generally the center of the vehicle behind, inboard of, and below a passenger-position on the seat, the improvement comprising a lap belt transfer wire having a section guided substantially vertically along the rear portion of the door from a lower location adjacent the lap belt retractor to an upper location partway up the door, the transfer guide ring being fastened to said section of the transfer wire, and means for automatically driving the transfer wire to move the transfer guide ring between said lower and upper locations in response to movements of the vehicle door between closed and partly open positions, respectively, said driving means being a mechanical motion amplifier which includes a linkage connected at one end to the vehicle body adjacent the front of the door and having a rack gear at the other end, an input pinion meshing with and driven by the rack gear, at least one amplifier gear pair driven by the input pinion and coupled to and driving an output pulley which is, in turn, connected to and drives the transfer wire, and said driving means being ineffective to move the transfer wire when the door is moved between the partly open and fully open positions.

4,266,812

HEAT REACTIVATIBLE ADHESIVE BOOK BINDING

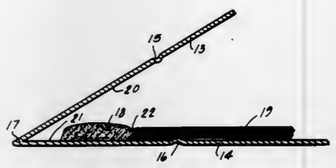
Henry N. Staats, Deerfield, Ill., assignor to General Binding Corporation, Northbrook, Ill.

Division of Ser. No. 729,814, Oct. 5, 1976, abandoned, which is a division of Ser. No. 604,659, Aug. 14, 1975, Pat. No. 3,995,886.

This application Apr. 13, 1978, Ser. No. 896,028

Int. Cl.³ B42D *1/10*

U.S. Cl. 281—29 **6 Claims**



1. A bound book comprising:

(a) a cover having first and second leaves of substantially the same surface area and a center fold joining the two leaves;

(b) a plurality of paper sheets having ends positioned adjacent and parallel to but not in contact with the center fold; and

(c) a melted adhesive longitudinally extending strip adjacent and parallel with the center fold and having first and second substantially parallel surface portions in respective binding contact with inside binding surface portions of the first and second leaves, said center fold being positioned at one side of the strip and at an opposite side a sidewall of the strip being formed by a flowed back portion engaging in alignment said ends of the paper sheets, a curved transition portion being provided between said center fold and each of said first and second leaf binding surface portions, and a width of each of said first and second parallel surface portions being substantially greater than a width of the side wall engaging the ends of the paper sheets.

4,266,813

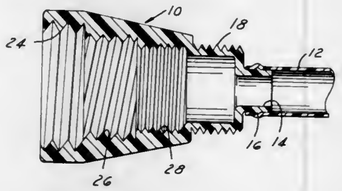
UNIVERSAL COUPLER

Robert D. Oliver, 2512 Doris, Brighton, Mich. 48116

Filed Nov. 6, 1979, Ser. No. 91,723

Int. Cl.³ F16L *55/00*

U.S. Cl. 285—12 **6 Claims**



1. A coupling device comprising a body, a generally conical hole through the body, a plurality of internal threaded portions formed in the hole extending from the large end of the hole and of stepwise sequentially decreasing diameter, snap fit attachment means on the body adjacent the small end of the hole and an external threaded portion on the body adjacent the snap fit attachment means.

4,266,814

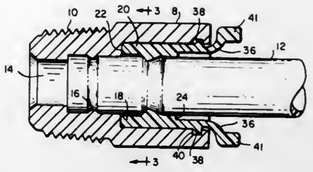
PLASTIC TUBE ADAPTER

Stephen F. Gallagher, Norton, Mass., assignor to VFP Corporation, Hingham, Mass.

Filed Mar. 23, 1979, Ser. No. 23,072

Int. Cl.³ F16L *39/00*

U.S. Cl. 285—319 **3 Claims**



1. A hollow fitting containing compression barbs and separate locking barbs for receiving and locking any tubing, throughout a broad range of hardness, in place within said fitting, the upper portion of said range being characterized by materials which do not flow around said compression barbs and are not readily penetrated by said locking barbs, the lower portion of said range being characterized by materials which do flow around said compression barbs and are readily penetrated by said locking barbs, said fitting comprising:

(a) an elongated hollow tubular member constituting a beam section; said tubular member being defined by circumferentially continuous inner and outer walls;

(b) a plurality of compression barbs and a plurality of locking barbs projecting from the inner wall of said member and disposed around its circumference;

(c) said compression barbs and locking barb being located at substantially the midpoint of the length of said beam section, said compression barbs being so substantially thicker than said locking barbs that said compression barbs are capable of transmitting a strong compression force upon the wall of any of said tubing, within said upper portion of said hardness range, to hold said tubing in place;

(d) said locking barbs being longer than said compression barbs and so substantially thinner than said compression barbs that said locking barbs are capable of flexing in one direction under the longitudinal motion of tubing moving into said member and of flexing in the opposite direction and digging into the surface of any of said tubing, within said lower portion of said hardness range, upon any reverse motion to retain said tubing in place.

4,266,815

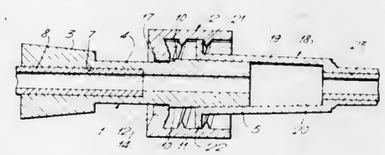
CONNECTORS

David E. Cross, Hythe, England, assignor to Smiths Industries Limited, London, England

Filed Jul. 2, 1979, Ser. No. 54,108

Int. Cl.³ F16 *25/00*

U.S. Cl. 285—330 **6 Claims**



1. A medico-surgical connector assembly comprising a connector portion and a coupling member, said connector portion having a body with a Luer-tapered portion of plastic material and a locking ring having an aperture therethrough that embraces said body, said body and said aperture being shaped to prevent relative rotation of said locking ring on said body, said coupling member being formed with a plastic Luer-tapered portion shaped for fluid tight cooperating Luer engagement with the said Luer-tapered portion of said connector portion, said coupling member being formed with projections on its outer surface that are shaped to engage with means on the inner surface of said locking ring so that said coupling member can be retained in a fluid-tight seal with said connector portion by said ring, and said body being shaped to permit limited axial displacement of said ring along said body sufficient to enable fluid tight engagement of said cooperating Luer-tapered portions without engagement of the means on the inner surface of said ring with the projections on said coupling member.

4,266,816

LOCK REMOTE CONTROL

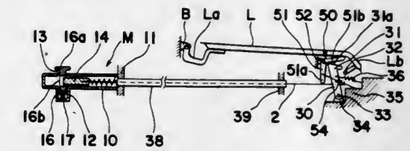
Tadao Mukai, and Teruhika Takatani, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Jul. 20, 1979, Ser. No. 59,178

Claims priority, application Japan, Jul. 20, 1978, 53/100383[U]; Jul. 24, 1978, 53/102258[U]

Int. Cl.³ E05C *3/22*

U.S. Cl. 292—129 **5 Claims**



1. A lock remote control device which comprises, in combination:

a lock assembly comprising a latch element for selectively locking and unlocking a movable structural element supported for movement between first and second positions, said latch element being supported in position for movement between released and latched positions, said movable structural element capable of being moved from the first position towards the second position when the latch element is moved from the latched position towards the released position, and a first biasing means exerting a first predetermined biasing force to urge said latch element to the latched position;

a latch cable having one end secured to the latch element;

a manipulatable unit positioned at a location spaced a distance from the location where the lock assembly is positioned, said manipulatable unit comprising a movable member supported for movement between third and fourth positions, said latch cable extending between said lock assembly and said manipulatable unit and having the other end secured to said movable member, a second biasing means exerting a second predetermined biasing force, larger than the first predetermined biasing force, to urge said movable member to assume the third position, and an actuator means responsive to an external force and operable to block the movement of the movable member from the fourth position towards the third position during the absence of the external pushing force and when the latch element is held in the latched position with the movable structural element held in the first position, and also operable, when the external force is applied thereto, to permit the movable member in the fourth position to move towards the third position by the action of the second biasing means thereby to draw the latch cable in such one direction as to move the latch element from the latched position towards the released position to unlock the movable structural element;

reset means supported for movement between fifth and sixth positions; and

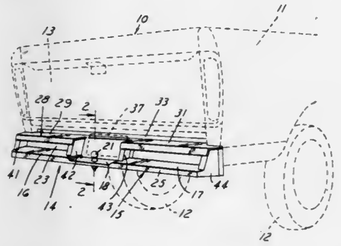
a third biasing means exerting a biasing force, the sum of said first and third predetermined biasing forces being larger than the second predetermined biasing force, said third predetermined biasing force acting on said reset means to urge the latter towards the sixth position, said reset means being so operatively associated with the movable structural element that, when the movable structural element is moved from the first position towards the second position with the latch element held in the released position, said reset means is moved to the sixth position as biased by the third biasing means and, when the movable structural element is moved from the second position back to the first position, said reset means is moved from the sixth position towards the fifth position against the third biasing means, said reset means when moved to the sixth position causing the latch element to move from the released position to the latched position with the movable member drawn to the fourth position through the latch cable against the second biasing means.

4,266,817

REAR STEP BUMPER

James L. Mason, Birmingham, and Steve Varjabedian, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 13, 1978, Ser. No. 968,957
Int. Cl.³ B60R *27/00*
U.S. Cl. 293—117 **3 Claims**



1. A dual-step rear bumper assembly adapted to be mounted on the rear end of a truck frame below the level of a cargo carrying box supported on the latter, comprising:

an elongated lower integrally continuous crossmember the length of which extends the full width of the bumper assembly,

the lower crossmember having a depressed central portion delimiting lower step portions at each end thereof,

the lower crossmember having along its longitudinal edge closest to the rear end of the truck frame an integral upstanding kick plate flange extening substantially the full length of the crossmember and having at its longitudinal edge furthest away from the truck frame a down-turned flange means,

the two flanges coacting to provide longitudinal rigidity to the lower crossmember,

an upper crossmember providing upper step portions paralleling and overlying in fixed spaced vertical relationship the lower step portions on the lower crossmember,

the upper crossmember step portions having a longitudinal space therebetween overlying the central portion of the lower crossmember to provide a visibility opening for a vehicle license plate mounted on the kick plate flange,

the upper crossmember at one longitudinal edge being supported on the upper edge of the lower crossmember kick plate flange,

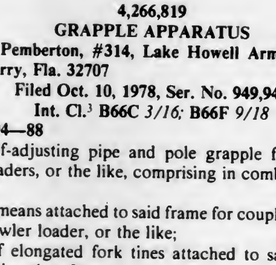
and a plurality of vertical bulkheads between the upper and lower crossmembers for maintaining the two in spaced relationship under vertical load applied to any of the lower or upper step portions.

4,266,818

SAFETY BUMPER FOR TRUCKS

John H. Hightower, Thomasville, N.C., assignor to Tommy Lee Holmes, Thomasville, N.C.

Filed Mar. 8, 1979, Ser. No. 18,851
Int. Cl.³ B60R *19/00*
U.S. Cl. 293—150 **3 Claims**



1. A safety bumper for use on a truck where said bumper extends across the body of the vehicle in confronting relationship with the front tires thereof, said safety bumper comprising:

(a) a shortened main body portion spanning a distance no greater than the distance between the tires of the vehicle and having front and rear surfaces;

(b) a pair of horizontally elongated end extension members having forward and rearward faces and a protruding section;

(c) means for pivotally mounting one of said extension members to each end of said main body portion about a vertical axis, said pivotal mounting means being positioned at the end of said main body portion such that the rearward face of said main body portion overlaps said protruding section of said extension member and said extension member extends substantially across the front of the respective wheel of said vehicle;

(d) bracing means for maintaining said extension member in a first normal position essentially in colinear relationship with said main body portion with said protruding section biased toward the rear surface of said main body portion;

(e) said bracing means including disengagement means acting responsively to severe impact for disengaging said end extension from said first normal position and causing said extension member to assume a second free swinging position still in substantially colinear relationship with said main body portion.

4,266,819

GRAPPLE APPARATUS

W. Bruce Pemberton, #314, Lake Howell Arms Apartments, Casselberry, Fla. 32707

Filed Oct. 10, 1978, Ser. No. 949,945
Int. Cl.³ B66C *3/16;* **B66F** *9/18*
U.S. Cl. 294—88 **10 Claims**

1. A self-adjusting pipe and pole grapple for wheel and crawler loaders, or the like, comprising in combination:

a frame;

coupler means attached to said frame for coupling to a wheel or crawler loader, or the like;

a pair of elongated fork tines attached to said frame and extending therefrom;

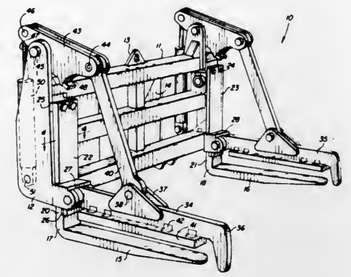
a pair of tracks attached to said frame;

a pair of sliding brackets, one slidably mounted to each of said pair of tracks;

a pair of elongated grapple arms, each arm movably attached at one end portion thereof to one said sliding bracket;

hydraulic actuating means for actuating said pair of elongated grapple arms; and

linkage means movably attached to each said elongated grapple arm between the ends thereof and to said hydraulic actuating means, said linkage means having a first linkage arm movably attached to each said grapple arm and a second linkage arm movably attached to said first



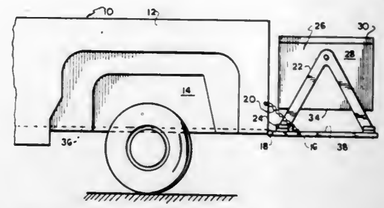
linkage arm and to said frame and also attached to a hydraulic actuating means hydraulic cylinder, whereby actuation of the hydraulic cylinder will drive said second linkage arm pivoting on said frame to drive said first linkage arm and said grapple arm so that said hydraulic actuating means actuates said linkage means and grapple arms to grip pipes, poles, or the like, on said pair of fork tines and said sliding brackets slide on said track to allow said grapple arms to adjust for varying size loads or pipes, poles, or the like.

4,266,821

COMBINED TAIL GATE AND TOOLBOX

Louis M. Gillet, 46 445 Washington St., Palm Desert, Calif. 92260

Filed Jan. 26, 1979, Ser. No. 6,640
Int. Cl.³ B60R *5/04*
U.S. Cl. 296—37.6 **3 Claims**



1. In combination, in a pick-up truck having a pick-up box;

(a) a toolbox dimensioned to fit within the pick-up box;

(b) a tailgate hinged to the pick-up truck to close the pick-up box in one position of the tailgate, and to extend beyond the pick-up box in the open position of the tailgate; and

(c) top-center suspension pivot mounting means pivotally supporting said toolboxsolely on said tailgate in all positions of the toolbox and tailgate so that the tailgate swings the toolbox from a closed-storage position within said pick-up box when the tailgate is closed, to an open-access position when the tailgate is opened;

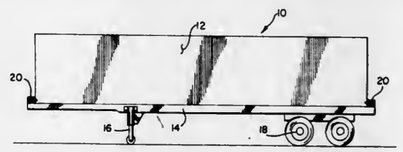
(d) said toolbox having side wall structure and said means including opposed trunnions on said side wall structure and said means also including opposed stanchions rigidly fixed on said tailgate and pivotally connected with said trunnions.

4,266,820

VARIANCE COMPENSATING COUPLER FOR CONTAINER-CARRYING TRAILER CHASSIS

Robert L. Whaley, and James L. Day, both of Cincinnati, Ohio, assignors to Pullman Incorporated, Chicago, Ill.

Filed May 14, 1979, Ser. No. 38,993
Int. Cl.³ B62D *23/00*
U.S. Cl. 296—35.3 **12 Claims**



1. A variance compensating locking coupler for engaging and holding a corner casting of a container resting on a truck chassis, the improvement comprising:

a housing securely attached to the chassis;

manually reciprocable locking means located within said housing and having a first longitudinal axis, said locking means including;

eccentric pin means having a second longitudinal axis spaced a distance from the first longitudinal axis and lockingly engageable with pin engagement means of the corner casting;

handle means extending through one end of said housing;

connecting means operatively joining the eccentric pin means and the handle means for linear and rotational movement within said housing;

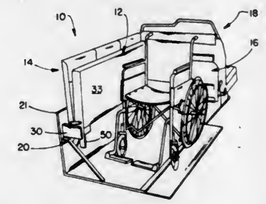
said housing providing bearing means for reciprocating the eccentric pin means between a retracted and extended position and for rotating the eccentric pin for alignment and locking into the associated corner casting.

4,266,822

FOLDABLE TRANSPORTATION SEAT

Chester J. Barecki, Grand Rapids, and Larry A. Wilkerson, Wyoming, both of Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed Nov. 15, 1978, Ser. No. 960,913
Int. Cl.³ B60N *1/12*
U.S. Cl. 296—65 R **21 Claims**



1. A foldable transportation seat for a vehicle adapted for seating a passenger in a conventional manner and for folding vertically to accommodate a wheelchair in the space formerly occupied by the seat, said seat comprising:

a seat support adapted for securement to the interior of a vehicle;

a seat having a bench portion;

seat pivot means carried by said seat support for pivotally mounting said bench portion of said seat for movement between a first, generally horizontal position for normal passenger use and a second, generally vertical position;

a bumper support member extending generally outwardly from said seat support adjacent a side of the seat bench portion;

a bumper carried by said bumper support member; and

bumper positioning means operatively connected to said seat and said bumper for moving said bumper from a first,

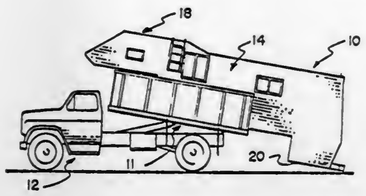
stored position wherein said bumper does not interfere with normal passenger use of said seat to a second, operative position wherein a wheelchair may abut said bumper.

4,266,823

CAMPER UNIT FOR USE WITH A DUMP TRUCK

Lloyd A. Beler, Box 57, Mankota, Saskatchewan, Canada (S0H 2W0)

Filed Sep. 19, 1979, Ser. No. 77,094
Claims priority, application Canada, Oct. 18, 1978, 313707
Int. Cl.³ B60P *3/42*
U.S. Cl. 296—164 **5 Claims**



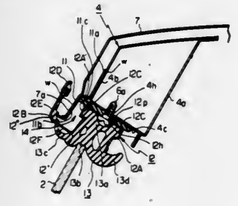
1. A camper unit for detachable engagement upon a dump truck body which includes means to tip said body rearwardly at an angle to the horizontal and to return same to the normal horizontal position; comprising in combination a camper body and frame construction including a major front portion having a planar base and a minor rear portion depending downwardly from the rear side of said front portion, said body and frame being supported on the dump truck body by said planar base, and front support means hingedly secured to the underside of said front portion adjacent the front end thereof whereby said camper unit is supported upon the minor rear portion and upon said front support means when removed from the associated dump truck, said front support means including a frame hinged by the upper end thereof to the underside of said front portion and extending transversely thereacross, to hinge upwardly and reardly to a substantially horizontal stored position between said major portion and said dump truck body and downwardly and forwardly to a ground engaging position, and stop means to limit the downward and forward movement of said frame, said frame automatically hinging downwardly and forwardly by gravity to said stop means when said camper unit is removed from the dump truck body sufficiently for said frame to clear said dump truck body.

4,266,824

WEATHERSTRIP RETAINER UNIT FOR AUTOMOBILES AND ROOF CONSTRUCTION WHICH ACCOMMODATES WELL TO INSTALLATION OF ROOF RACK

Hiroshi Inamoto, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Mar. 20, 1979, Ser. No. 22,349
Claims priority, application Japan, Apr. 6, 1978, 53/44194[U]
Int. Cl.³ B62D *25/06*
U.S. Cl. 296—210 **14 Claims**



1. In a weatherstrip retainer unit for an automobile body which includes a roof with a roof edge, a roof rail of a box-shape including an inner wall member and an outer channel member having ends secured to the inner wall member,

the weatherstrip retainer unit comprising:

a member including a retainer section attachable to the roof rail and for receiving a weatherstrip,

said member including a molding section which, when said retainer section is attached to the roof rail, is disposed outwardly, with respect to the automobile body, of the roof and extends along the roof edge;

a seal strip contactable with the roof rail and fixedly attached to said member;

in which

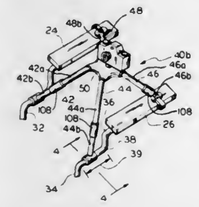
said molding section includes a slotted portion extending outwardly from and merging into said retainer section.

4,266,825

MOUNTS FOR ATTACHMENT OF DEVICES TO WHEELCHAIRS

Robert Le Donne, 447 Oakdale, Chicago, Ill. 60657

Filed Jun. 25, 1979, Ser. No. 51,435
Int. Cl.³ A47C *7/62*
U.S. Cl. 297—194 **9 Claims**



1. A support device for mounting apparatus on a wheelchair comprising a plate member having pivotally attached thereto one end of each of four telescoping legs, means for removably fastening a ball-shaped member to the end of each of said legs opposite said plate, means for removably attaching said legs to said wheelchair containing a socket adapted to receive said ball-shaped member whereby said means can be rotatably and removably mounted on said legs, said means for attaching said legs to said wheelchair comprising a first type which includes a flat pad for resting on a flat surface and strap means connected at a first end to each of said legs with a quick release connector means on a second end of said strap, and a second type which includes an arcuate spring-clip embedded in plastic for snapping over a bar having a generally circular cross section.

4,266,826

IN-SITU RECOVERY OF CONSTITUENTS FROM FRAGMENTED ORE

Gordon B. French, Rifle, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Continuation of Ser. No. 505,276, Sep. 12, 1974, abandoned. This application May 24, 1976, Ser. No. 689,109
Int. Cl.³ E21B *43/247*; E21C *41/10*
U.S. Cl. 299—2 **15 Claims**

1. An in-situ retort in an oil shale deposit comprising:

an elongated recovery zone extending along a vertical axis in the deposit comprising a fragmented permeable mass of particles containing oil shale, the recovery zone having a top, a bottom, and vertical sides extending between the top and bottom, the fragmented mass adjacent to the bottom having a larger void volume than the remainder of the fragmented mass;

a source of a gas capable of releasing shale oil upon exposure to the fragmented mass in the recovery zone;

means for coupling the source to the top of the recovery zone to release the shale oil from the fragmented mass within the recovery zone; and

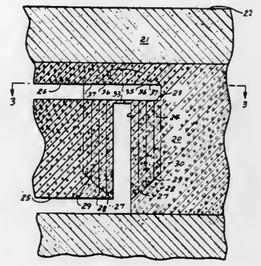
means for removing the released shale oil from the bottom of the recovery zone; and wherein

the bottom of the recovery zone has a surface that converges downwardly from the vertical sides to a point of convergence, and the removing means removes the released shale oil from the point of convergence.

6. A method for forming an in situ oil shale retort containing a fragmented permeable mass of particles containing oil shale in an oil shale deposit comprising the steps of:

establishing communication with a given level of the deposit;

removing oil shale at the given level to form a room having a floor plan corresponding to the horizontal cross section of the retort;



drilling down from the room a plurality of substantially vertical blasting holes corresponding to the depth of the retort below the room, the blasting holes drilled from one area of the room being longer than the blasting holes drilled from the remainder of the room, and the blasting holes drilled from the remainder of the room being at least two different lengths and arranged so that they are gradually shorter moving away from the one area to define an intact bottom boundary that slopes to a low area at the bottom of the blasting holes drilled from the one area of the room;

loading the blasting holes with an explosive charge;

detonating the explosive charge to form the retort containing the fragmented permeable mass and having an intact bottom boundary that slopes to the low area; and

providing means adjacent the low area for recovering shale oil from the retort.

4,266,827

INCOMPRESSIBLE FLUID TYPE ROCK BREAKER

Alwyn H. Cheney, 84 Valley View Dr., Highbury, Australia

Filed Oct. 12, 1979, Ser. No. 84,172
Claims priority, application Australia, Oct. 16, 1978, PD6384
Int. Cl.³ E21C *37/12*
U.S. Cl. 299—20 **12 Claims**

3. A rock breaker for fracturing rock or fracturable material comprising:

(a) a tool insertable in a hole in a rock or fracturable material and arranged to be fed through a supply line with an incompressible liquid to maintain a column of the said liquid in the said hole,

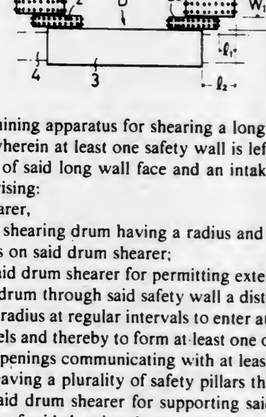
(b) means to supply liquid at a pressure sufficiently high to fracture the rock or fracturable material, and to suddenly apply the said high-pressure liquid to the said column of liquid in the said hole to fracture the said rock, said tool comprising,

(c) a non-rotational hollow stem having at one end portion a thread and means to allow liquid to be fed through the said hollow stem into said hole,

(d) an expansible collet encircling a tapered portion on the said hollow stem at the other end remote from the said thread,

(e) a threaded driving member engaging the said screw thread on the said stem arranged to be moved axially on the said stem when rotated about the said stem,

(f) a sleeve on the said hollow stem to move the said collet to expand the said collet when the said threaded member is moved on the said screw thread,



(g) a resilient expansible sealing member encircling the said stem intermediate the said collet and the said threaded end of the said stem, and

(h) means to expand the diameter of the said sealing member by compressing the said sealing member.

4,266,828

APPARATUS ON DRUM SHEARER FOR CUTTING THROUGH SAFETY WALL IN LONG WALL MINING

Shigeo Nakagima; Ken Takahashi, and Hajime Endo, all of Tokyo, Japan, assignors to Taiheiyo Engineering Inc., Tokyo, Japan

Division of Ser. No. 917,810, Jun. 22, 1978. This application Feb. 23, 1979, Ser. No. 14,766
Int. Cl.³ E21C *27/24*
U.S. Cl. 299—53 **6 Claims**

1. A coal mining apparatus for shearing a long wall face of a coal mine wherein at least one safety wall is left between at least one end of said long wall face and an intake or exhaust tunnel, comprising:

a drum shearer,

at least one shearing drum having a radius and a horizontal drum axis on said drum shearer;

means on said drum shearer for permitting extension of said shearing drum through said safety wall a distance greater than said radius at regular intervals to enter at least one of said tunnels and thereby to form at least one of intake and exhaust openings communicating with at least one of said tunnels leaving a plurality of safety pillars therebetween;

means on said drum shearer for supporting said horizontal drum axis of said shearing drum; and

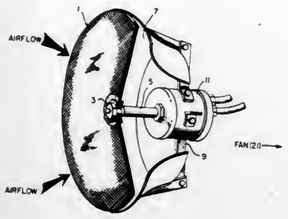
said means for permitting extensions being shearing means at least on said means for supporting.

4,266,829

COMBINED ROTATING BED SCRUBBER AND WATER ELIMINATOR

Edward F. Divers, Pittsburgh, Pa., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Oct. 16, 1979, Ser. No. 85,451
Int. Cl.³ E21C *35/02;* **B01D** *46/18*
U.S. Cl. 299—64 **3 Claims**



1. A combined air scrubber and water droplet eliminator assembly for removing dust particles from ambient air comprising:

a bed mount assembly having an opened housing with an entrance portion and an exit portion for allowing the air to enter and exit therethrough, the diameter of the entrance being larger than its exit;

a rotatable smooth surface fibrous bed made of uniform thickness and a layered mesh wire material, each wire being less than 0.01 of an inch in diameter and offset from the wire of adjacent lamina, said bed being mounted in the entrance portion of the housing and, when in an operative mode, bearing against the housing on all sides and so oriented as to receive a liquid spray and air from an air control means which forces ambient air into its smooth surface; and

a motor assembly for causing the bed to rotate in its mounted position at a speed of at least 1,000 revolutions per minute as air is forced towards it and liquid sprayed on it, the combined effect of the rotation and forced air causing an air seal to form totally around the edges of the bed causing it to bear against the entrance of the housing, whereby as the dust and water drop laden airstream flows into the bed dust particles above a predetermined size and moisture content are stopped by the bed and slung from its edge surface.

4,266,830

AUGER CONSTRUCTION PROVIDING REDUCED NOISE

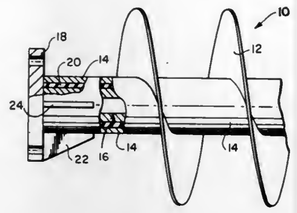
Thomas J. Retka, Lakeville, and Donald W. Schoen, St. Paul, both of Minn., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Jul. 21, 1977, Ser. No. 817,887
Int. Cl.³ E21C *25/10*
U.S. Cl. 299—87 **5 Claims**

1. In an auger for use in mining and like applications and comprising a rotatable helical cutting blade secured to an outer shaft, and a mounting flange for connecting the auger to a drive therefor, the improvement comprising:

an inner shaft disposed within a longitudinal bore in the outer shaft concentric therewith and connected to the mounting flange, said inner and outer shafts being spaced from each other along their longitudinal extents;

a plurality of gussets for connecting the mounting flange to the outer shaft; and



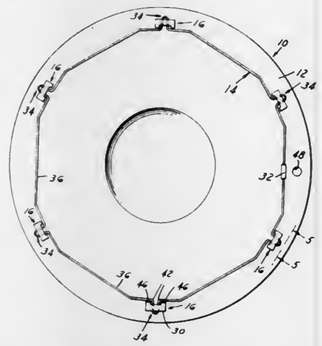
a tubular annulus of a solid noise dampening material located in the space between said shafts and extending substantially the entire length of said inner and outer shafts.

4,266,831

WHEEL COVER

Edwin E. Foster, and Thomas E. Foster, both of Austin, Tex., assignors to Michael Ladney, Jr., Grosse Pointe Shores, Mich.

Filed Jun. 19, 1979, Ser. No. 50,108
Int. Cl.³ B60B *7/00*
U.S. Cl. 301—37 PB **8 Claims**



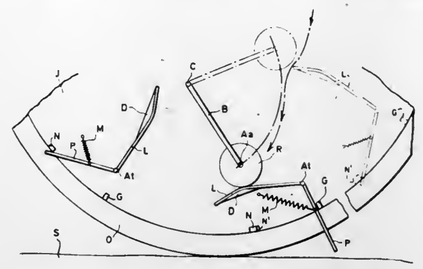
1. In a wheel cover of the type having a circumferentially resilient wire ring mounted on the inner side of the wheel cover body, the wire ring having a plurality of at least three generally equally circumferentially spaced U-shaped projections extending radially outwardly through and beyond radial guideways on the cover for interengaging an annular surface on the vehicle wheel when the cover is applied thereto, the radially outer ends of said projections comprising rounded bight portions, that improvement which comprises means forming a sharp radially outwardly extending biting face at the central portion of the radially outer side of at least two of said rounded bight portions, said biting edge faces being inclined at an acute angle to both a plane perpendicular to the axis of the cover and a central radial plane extending through the bight portion and the axis of the cover, the biting edge face on one of said projections being inclined to said perpendicular plane in a direction opposite to the inclination of the biting edge face on another projection.

4,266,832

VEHICLE WHEEL ANTI-SLIP DEVICE

Antoine Delaunay, Flers, and Guy Ecolasse, Saint-Lo, both of France, assignors to Michel Boyer, Cambremer, France

Filed Mar. 9, 1979, Ser. No. 19,121
Claims priority, application France, Mar. 6, 1978, 78 06596
Int. Cl.³ B60B *15/06, 15/10*
U.S. Cl. 301—48 **8 Claims**



1. A vehicle wheel having an anti-slip device comprising a plurality of independently pivotable blades, a plurality of pivot shafts extending laterally from the wheel and spaced around the wheel, the blades being mounted on the respective pivot shafts, each blade comprising an active portion and a successive control portion between which portions the pivot shaft lies, control means for acting on each control portion to pivot the blade from a rest position to an operating position in which the active portion of the blade projects past the periphery of the wheel before the active portion penetrates the ground during rotation of the wheel, and a plurality of stops each defining the operating position of a respective blade by cooperation with its active portion, the mutual arrangement of the pivot shaft, the active portion, and the stop associated with each blade being such that the part of the active portion which initially penetrates the ground is ahead of the pivot shaft with respect to the direction of motion of the vehicle, the reaction of the ground urging the active portion against the stop and urging the control portion away from the control means, whereby the active portion, the stop, and the pivot shaft alone transmit to the wheel the force of penetration of the active portion into the ground thereby avoiding subjecting the control means to the force of penetration.

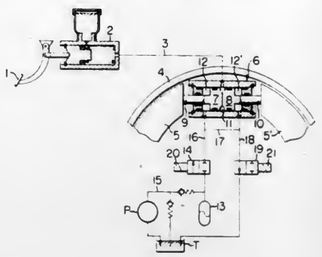
4,266,833

METHOD OF PREVENTING SKID OF WHEELS OF A VEHICLE

Makoto Sato, Kamifukuoka; Taiji Ohmori, and Yoshikazu Tsuchiya, both of Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 5, 1979, Ser. No. 1,214
Claims priority, application Japan, Jan. 18, 1978, 53-3848; Mar. 15, 1978, 53-30192
Int. Cl.³ B60T *8/08*
U.S. Cl. 303—106 **3 Claims**

1. A method of preventing the skidding of a wheel of a vehicle comprising: detecting the peripheral speed of a wheel of a vehicle and picking it up as a wheel-speed signal (Uwi); deriving a wheel-acceleration signal (U̇wi) representative of an acceleration of said wheel from said wheel-speed signal (Uwi); setting a first reference wheel-acceleration signal (V̇w1) representative of a positive acceleration and a second reference wheel-acceleration signal (V̇w2) of a level higher than that of said first reference wheel-acceleration signal, for comparison with said wheel-acceleration signal (U̇wi); comparing during braking, said wheel-acceleration signals (V̇w1, U̇wi, V̇w2); and controlling a braking torque exerted on said wheel such that said brake torque is held constant when the level of said wheel-acceleration signal (U̇wi) is higher than the level of said first reference wheel-acceleration signal (V̇w1) and lower than that of said second reference wheel-acceleration signal (V̇w2), while said braking torque is increased when the level of said wheel-acceleration signal (U̇wi) is higher than that of said second reference wheel-acceleration signal (V̇w2) and setting a reference wheel-speed signal (U_R) representative of a predetermined reference wheel speed for comparison with said wheel-speed signal (Uwi); setting a reference wheel-deceleration signal ($-\dot{V}wo$) representative of a negative acceleration for comparison with said wheel-acceleration signal (U̇wi), comparing during braking, said wheel-speed signal (Uwi) with



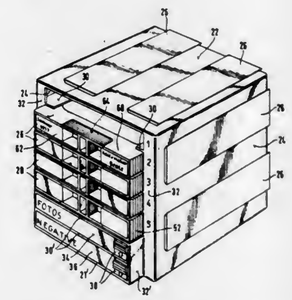
said reference wheel-speed signal (U_R), and also said wheel-acceleration signal (U̇wi) with both of said first reference wheel-acceleration signal (V̇w1) and said reference wheel-deceleration signal ($-\dot{V}wo$), and controlling said braking torque in a manner such that it is increased when the level of said wheel-speed signal (Uwi) is higher than that of said reference wheel-speed signal (U_R) and simultaneously the level of said wheel-acceleration signal (U̇wi) is lower than that of said first reference wheel-acceleration signal (V̇w1) and higher than that of said reference wheel-deceleration signal ($-\dot{V}wo$).

4,266,834

FILING ARRANGEMENT

Peter Ackeret, Küsnacht, Switzerland, assignor to Licinvest AG, Chur, Switzerland

Filed Jan. 12, 1979, Ser. No. 2,959
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 2802459
Int. Cl.³ A47B *81/06;* **F16B** *12/00*
U.S. Cl. 312—8 **12 Claims**



1. A storage device for photographic prints and negatives therefor, comprising

a plurality of photographic print storage cassettes to be arranged in stacked relation to each other and individually supported to slide out of the stack, each of the cassettes entirely enclosing such prints therein and having means providing access into the cassette,

a plurality of sliding drawers arranged beneath and generally parallel to the cassettes, and

shelving element means defining a plurality of first open

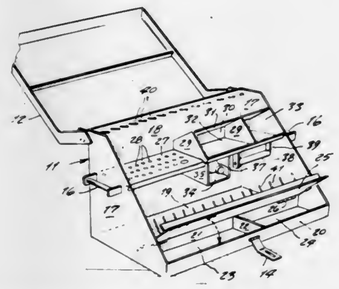
front compartments in superposed relation to each other and removably receiving the print storage cassettes therein in stacked relation to each other, the cassettes being supported on support surfaces beneath the compartments and extending from the sides of the compartments, said shelving element means also having framework means surrounding the drawers and having dividing shelves upon which the drawers are slidably supported, and the shelving element means including top and bottom with attaching means for securing to the top and bottom of similar shelving elements.

4,266,835

COMPACT POSITION LOCK TOOL BOX

LaVern Schmidt, P.O. Box 234, Montezuma, Kans. 60867

Filed Sep. 4, 1979, Ser. No. 72,035
Int. Cl.³ A47B *96/06*
U.S. Cl. 312—244 **5 Claims**



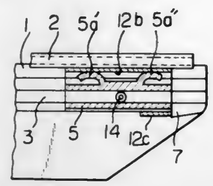
1. A compact position lock tool box, comprising in combination, a case within which a plurality of tool holding compartments are formed; a cover pivotally connected to said case; hinge means pivotally connecting said cover to said case; said case having a pair of triangular shaped side walls, said hinges connecting said cover to said case at first ends of said pair of side walls, a low front wall connecting said side walls, a rear wall also connecting said side walls and spaced from said low front wall, said cover when in the closed position resting upon an edge of each of said pair of side walls; said case further comprising a first compartment means at the bottom thereof in vicinity of said front wall, said first compartment means having a hinged lid, said hinged lid comprising a plurality of first pegs extending perpendicularly upward parallel to said low front wall when said hinged cover is in a closed position, at least some of said plurality of first page abutting against said cover of said case when said cover is in a closed locking position so that said hinged lid is prevented from pivoting to an opened position, said first pegs serving to hold thereby a plurality of tools; a plurality of second pegs extending from the top of said rear wall toward said front wall and each of said plurality of second pegs inclined upwardly away from the bottom of said case and extending to close proximity of said cover when said cover is in its closed locked position, whereby said plurality of second pegs serve to hold tools and the like thereon; whereby when said cover is in its closed locked position, the tools contained within said case are prevented by said cover from falling off or out of their respective tool holding means if said case is accidentally overturned.

4,266,836

AUTOMOTIVE ASH TRAY ASSEMBLY

Fumiyoshi Sato, Sayama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 1, 1979, Ser. No. 35,104
Claims priority, application Japan, May 15, 1978, 53-57879
Int. Cl.³ B60N *3/08;* **A47B** *88/00*
U.S. Cl. 312—246 **3 Claims**



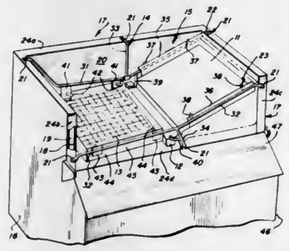
1. An ash tray assembly for motor vehicles comprising:
a stationary cover having a horizontally disposed wall section and a vertically disposed side wall section;
an ash receptacle slidable in relation to said cover and having a vertically disposed side wall section which has an elongated slide projection extending laterally outwardly toward said vertically disposed side wall section of said cover;
a guide track member pivotally carried on said vertically disposed side wall section of said cover and having an axis of pivotal movement transverse to the direction of the sliding movement of said ash receptacle, said guide track member having an elongated guide channel which receives therein said slide projection of said ash receptacle so that said ash receptacle is slidable in relation to said cover;
biasing means born between said cover and said guide track member to urgingly and yieldably hold said guide track member at a position thereof in which said guide channel longitudinally extends substantially parallel to said horizontally disposed wall section of said cover; and
an abutment member in the form of a projection provided to said side wall section of said ash receptacle and releasably engageable with said horizontally disposed wall section of said cover to positively limit the extent of opening of said ash receptacle, the engagement of said abutment member with said horizontally disposed wall section of said cover being released by pivotal movement of said ash receptacle to permit removal of said ash receptacle from said cover.

4,266,837

ICE MAKER MOUNTING

Walter C. Barnard, White Bear Lake, and Kenneth J. Dahlstrom, St. Paul, both of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 17, 1979, Ser. No. 67,537
Int. Cl.³ A47B *81/00;* **F25D** *11/00*
U.S. Cl. 312—351 **17 Claims**



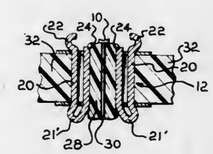
1. In an ice maker having a cabinet defined by an outer rigid shell, an inner liner, and insulation between said shell and liner, said cabinet liner defining a chamber, and ice making apparatus including a plurality of components, the improvement comprising:
support means having supporting portions fixedly secured to said shell and extending exteriorly of said insulation free of connection to the liner, said support means defining mounting means disposed within said chamber, said ice making apparatus components being mounted to said mounting means to be disposed within said chamber in operative association with each other while being supported as a whole on the outer shell.

4,266,838

PIN SOCKET

Leslie Segrott, New Cumberland, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 871,684, Jan. 23, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,551
Int. Cl.³ H01R *9/09*
U.S. Cl. 339—17 C **7 Claims**



1. A circuit board socket comprising:
(a) an eyelet, said eyelet defined by an elongate hollow conductive metal body having a generally cylindrical configuration, the body having open first and second ends,
(b) at least three spaced-apart spring arms extending from said first end of the eyelet, each arm having a reverse bend away from said first end forming an acute angle with the eyelet body, each of said arms having a greater physical length than the eyelet so that each arm protrudes above the eyelet when the eyelet is mounted in a circuit board,
(c) each spring arm portion forming the acute angle with the eyelet body being straight except for inwardly hooked ends located adjacent the second end of the eyelet when mounted in a circuit board to insure mechanical retention of the socket in the circuit board.

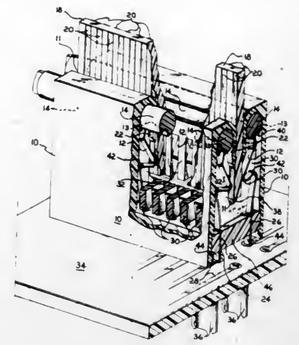
4,266,839

ZERO INSERTION FORCE TOGGLE LINK CONNECTOR

Paul W. Aikens, Mechanicsburg, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 6, 1979, Ser. No. 55,376
Int. Cl.³ H01R *9/09, 13/629*
U.S. Cl. 339—75 MP **6 Claims**

1. A zero insertion force type connector for electrically engaging a printed circuit board, comprising:
(1) a dielectric housing having an elongated slot for receiving a printed circuit board and means for guiding said board into the interior of said housing,
(2) at least one toggle rod parallel to said slot in said housing; and
(3) a plurality of elongated curved uniformly resilient spring metal terminals having first and second ends and an intermediate portion, said first end of each terminal movable in and retained within a groove in said toggle rod, said second end of each terminal extending through a separate channel within said housing and being available for electrical contact with another electrical device, said intermediate portion of each said terminal being engageable and disengageable from electrical contact with said circuit board in the interior of said housing by rotation of said toggle rod and in response to movements of said first end



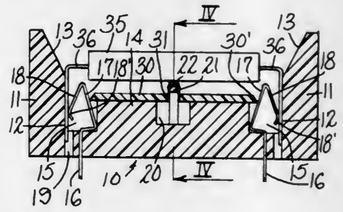
of the terminal over center in the groove of said toggle rod.

4,266,840

CIRCUIT HOLDER

Jack Seidler, 59-40 15th St., Flushing, N.Y. 11357

Filed Oct. 29, 1979, Ser. No. 89,021
Int. Cl.³ H01R *13/639*
U.S. Cl. 339—75 M **5 Claims**



1. A holder for an integrated circuit module comprising a base having spaced parallel channels adapted to receive the terminals of an integrated circuit module, an elongated central platform extending between said channels, arrays of resilient contacts in each channel normally resting out of the path of circuit terminals to be held, a separate arched plate of resilient material having opposite parallel edges resting on said platform and disposed adjacent said arrays of contacts, means for locking the plate in flattened position, the plate being so proportioned that it transition from arched to flattened causes said edges to project into respective channels and thereby push the contacts into terminal engaging position.

4,266,841

HIGH VOLTAGE CABLE TERMINAL

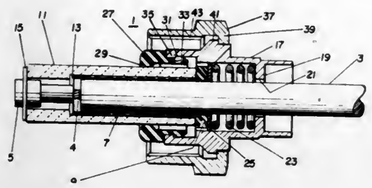
Cy E. Sherwood, Bainbridge, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 25, 1979, Ser. No. 88,430
Int. Cl.³ H01R *13/62;* **H01T** *13/06, 13/20*
U.S. Cl. 339—89 C **9 Claims**

1. An electrical terminal for the end of an insulated high voltage electrical conductor cable comprising:
elongated annular insulating means surrounding and extending along the end of the insulated cable;
an electrical contact affixed to the end of the electrical conductor in the insulated cable;
means for securing the electrical contact to the free end of the elongated annular insulating means;
an elongated annular ferrule slidable on the cable and over

the insulating means, said ferrule having a radial, inwardly directed flange adjacent the end thereof remote from the end of the cable, said flange defining an aperture larger in diameter than the cable but smaller in diameter than the insulating means, such that the ferrule cannot slide off the end of the cable;

a single biasing means between the ferrule flange and the end



of the insulating means remote from the cable end for biasing the insulating means axially away from the flange;

an elongated annular electrically insulating grommet having a flexible internal annular lip which slidably engages the annular insulating means and also having an external portion which engages said ferrule; and

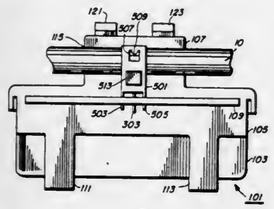
a coupling nut which engages a shoulder on the ferrule for securing the terminal to a mating receptacle.

4,266,842

TRANSMISSION LINE ACTIVE COAXIAL TAP

Robert F. Dillon, Jr., Rancho Palos Verdes; James J. Hall, Encino, and Leon N. Zamfirescu, San Pedro, all of Calif., assignors to Zerox Corporation, Stamford, Conn.

Filed Sep. 17, 1979, Ser. No. 76,059
Int. Cl.³ H01R *4/24*
U.S. Cl. 339—97 P **2 Claims**



1. Coaxial cable connection apparatus wherein the improvement is characterized by:

a metal band member (**501**) in a substantially U-shaped configuration, the radius of curvature of said band member being substantially equal to the radius of curvature of a coaxial cable (**10**) to which said apparatus is to be connected without cutting the cable, said band member having (a) at least two inwardly pointed prongs (**509, 511**) along the curved portion thereof to pierce the cable and contact an outer braided conductor (**12**) of the cable (**10**), (b) a rectangular hole (**513, 515**) in each straight portion of said member, and (c) at least two legs (**503, 505, 507, 508**) extending outwardly from and pointing in the same direction as each straight portion of said member,

an insulating mounting block (**401**), said mounting block being substantially rectangular with two arms (**403, 405**) extending out from opposite sides of said block (**401**), said arms being undercut to allow a locking arrangement when said mounting block is mounted in said band member (**501**) with said armss (**403, 405**) protruding through said holes (**513, 515**) of said band member (**501**), the top surface of said mounting block (**401**) being curved to also be substantially equal to the radius of curvature of said cable, such that when said band member is put around said coaxial cable and said mounting block is mounted to the band member and against said cable, the band member and mounting block completely surround the coaxial cable in a fixed, locked configuration,

an electrical probe (**301**) for installation in a hole (**409**) in said mounting block (**401**), said probe (**301**) having a center conducting metal electrode, one end of which is pointed, a cylindrical, tubular shaped insulator (**307**) surrounding the center electrode (**303**), said insulator being tapered at the end of the insulator adjacent the pointed end of said center electrode, said hole (**409**) and insulator (**307**) having matching screw threads for installation of said probe into the cable via the mounting block (**401**), such that as said probe (**301**) is screwed into the mounting block (**401**) the pointed end of the center electrode (**303**) pierces an outer cover, the braided outer conductor, and an inner insulating portion, respectively, of the cable to a position where the pointed end of said conductor comes into touching and electrical contact with a center conductor of said cable, the other end of said center electrode (**303**) and the extensions (**503, 505, 507, 508**) of said band member (**501**) providing the signal paths to and from said coaxial cable, and

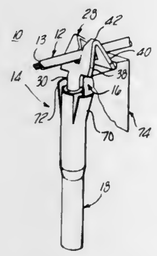
a connector box (**101**) in which is mounted said electrical probe (**301**), said mounting block (**401**) and said band member (**501**), said box (**101**) being in three sections, a bottom section (**103**), a cover or middle section (**105**), and a top section (**107**), said top section being hingedly mounted to said middle section and adapted to receive the cable such that when said top section is closed to the middle section, the entire box (**101**) is securely fixed to said cable, and wherein said cover section is hingedly mounted to said bottom section, said bottom section containing connection apparatus for connecting said cable electrically to a using device, such that when said middle section is closed to the bottom section, the cover is securely closed over said connection apparatus.

4,266,843

INSULATION DISPLACING ELECTRICAL CONTACT AND METHOD OF MAKING SAME

Edward K. Marsh, and Dean R. Nelson, both of Sidney, N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Sep. 24, 1979, Ser. No. 78,418
Int. Cl.³ H01R *11/22, 25/06, 43/04*
U.S. Cl. 339—97 R **19 Claims**



1. An electrical contact adapted for mating with an insulated electrical wire comprising:

an elongated body having an axial passage extending completely therethrough;

a holder including,

an elongated electrical conductor portion having an axial passage, and

a flanged portion connected to the conductor portion in electric circuit relationship, said flanged portion having a slot extending therethrough and having two pairs of opposing stripping surfaces defining said slot for stripping insulation from an electrical wire inserted through said slot at two stripping positions spaced apart a first distance and having two pairs of opposing gripping surfaces further defining said slot for holding the stripped wire in said slot at two holding positions spaced apart a second distance different than the first distance in electric circuit relationship with said flanged portion; and

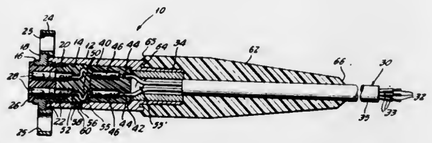
electrical conducting wires axially aligned and axially mounted within the passage of said conductor portion, each of said wires including an end portion that terminates in an acutely angled surface, said conductor portion being axially aligned and axially mounted within the passage of the body so that the body extends beyond the end of the conductor portion opposite the flanged portion and beyond the ends of said wires.

4,266,844

HIGH STRENGTH SUBMERSIBLE ELECTRICAL CABLE AND CONNECTOR ASSEMBLY

Paul Chelminski, Norwalk, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Filed Aug. 20, 1979, Ser. No. 67,768
Int. Cl.³ H01R *3/00, 13/58*
U.S. Cl. 339—218 M **5 Claims**



1. A high strength submersible marine seismic surveying electrical cable and connector assembly adapted to be coupled to solenoid-valve operated high pressure air guns and adapted to be towed through the water behind a ship while connected to an air gun for marine seismic surveying comprising:

a submersible electrical cable having a plurality of insulated high tensile strength electrical conductors extending longitudinally therein generally near the axis thereof and each being individually sheathed in insulation with a layer of insulation surrounding all of the individually insulated conductors;

a submersible connector having a metal sleeve member with a contact retainer formed of dielectric material mounted in one end of said sleeve member holding a plurality of electrical contacts, said connector being adapted to be connected to a solenoid valve on high pressure air gun apparatus for marine seismic surveying;

said metal sleeve member having an internal annular shoulder facing toward said one end in which said contact retainer is mounted;

a non-conductive rigid anchor plug of tough, strong insulation material mounted within said sleeve body and having a plurality of electrical connector elements seated therein;

said non-conductive anchor plug being seated against said internal annular shoulder for resisting movement in a direction away from said one end of said sleeve member;

said non-conductive anchor plug having internal shoulders facing toward said one end of said sleeve member and said connector elements being seated against the respective internal shoulders in said anchor plug for resisting movement in a direction away from said one end of said sleeve member;

the ends of the conductors of said cable extending into said sleeve member through its cable end and being bared and being secured in the respective connector elements in said anchor plug for mechanically and electrically securing said plurality of high tensile strength electrical conductors in said anchor plug for resisting tension stress on said cable in a direction away from said sleeve member and for electrically insulating said conductors from each other and from said metal sleeve;

a plurality of small gauge electrical conductors individually coupled between the respective electrical connector elements and the respective electrical contacts in said retainer;

said sleeve member having a port therein for filling the interior of said sleeve member with potting insulating material;

means for plugging said port watertight after the interior of the sleeve member has been filled with potting material; and

an insulating tapered stiffly flexible jacket surrounding said electrical cable and surrounding the cable end of said sleeve member where said electrical cable enters said sleeve member for providing flexural and torsional stress transition between said cable and said sleeve member of said connector assembly;

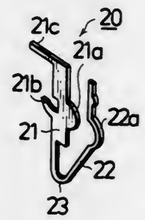
whereby said submersible electrical cable and connector assembly can be connected to a solenoid-valve operated air gun and can be towed through the water for carrying out marine seismic surveying operations.

4,266,845

RESILIENT CONTACT MEMBER OF JACK FOR USE IN CONJUNCTION WITH A PIN-PLUG

Kazuhiro Ishikawa, Tomioka, Japan, assignor to Iizuka Electric Industry Company Limited, Gunma, Japan

Filed Aug. 30, 1979, Ser. No. 71,163
Int. Cl.³ H01R *13/12*
U.S. Cl. 339—258 R **4 Claims**



1. A resilient contact member of an electrical jack for use in conjunction with a pin-plug comprising:

a fixed leg portion for securing the contact member to a housing of the jack;

a movable leg portion extending substantially in parallel with a fixed leg portion and including a semicircularly bent portion projecting in a direction opposite to the fixed leg portion;

a substantially U-shaped portion for coupling one end of the fixed and one end of the movable leg portions with each other; and

a projection extending from the fixed leg portion toward the semicircularly bent portion of the movable leg portion and having such a length that an excessive deformation of the

movable leg portion can be prevented by an engagement of a free end of the projection with the semicircularly bent portion of the movable leg portion; wherein said fixed leg portion, movable leg portion, U-shaped portion and projection are integrally formed by punching a metal plate and said movable leg portion is resiliently bent in a plane of the metal plate.

4,266,846

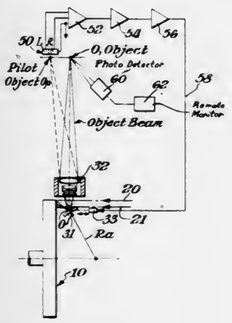
TWO-DIMENSIONAL SCANNERS

Charles S. Ih, Newark, Del., assignor to University of Delaware, Newark, Del.

Continuation-in-part of Ser. No. 757,901, Dec. 28, 1976, abandoned. This application Nov. 17, 1978, Ser. No. 961,652

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—3.71 **6 Claims**



1. Improved apparatus for achieving two-dimensional holographic scanning of an object comprising:

(a) a rotatable disc having a face, said disc being rotatable about an axis perpendicular to said face of said disc, said face having secured thereon a plurality of holograms, each hologram prepared so as to focus to a specific point on an object to be scanned;

(b) means for rotating said disc;

(c) means for illuminating said holograms with light emanating from a light source of coherent radiation, said holograms being so illuminated as they pass through said light during rotation of said disc;

(d) an auxiliary reflector causing light diffracted from said holograms to be reflected to the object to be scanned, thereby achieving means for serial multiplex scanning of said object during rotation of said disc;

wherein the improvement comprises

(e) means for changing the position of said auxiliary reflector in order to change the position of the point of focus of each hologram on the object to be scanned, thereby achieving field multiplexing, whereby, during a first set of revolutions of said disc, a first field of points on said object is scanned, and the position of said auxiliary reflector is then changed, thereby displacing the focus points of said holograms on said object such that, upon a second set of revolutions of said disc, a second field of points on said object is scanned, and so on, thereby providing apparatus for achieving two-dimensional field and serial multiplex scanning of said object.

4,266,847

APPARATUS FOR LINE-SCANNING OF LARGE IMAGE FIELDS

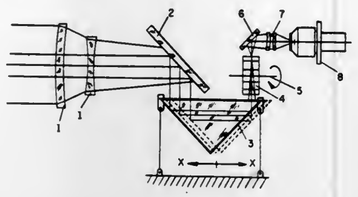
Josef F. Menke, Glücksburg, Fed. Rep. of Germany, assignor to ELEKTRO-OPTIK GmbH & Co. KG, Glücksburg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 968,419, Dec. 11, 1978, abandoned. This application Oct. 23, 1979, Ser. No. 87,339

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1977, 2755094

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—6.6 **6 Claims**



1. In an apparatus for optical line scanning of large image fields comprising in combination a roof mirror for scanning the image field in a first coordinate direction with a conventional optical means for scanning the image field in a second coordinate direction, the improvement comprising:

(a) at least two roof mirrors employed for extending the length of the scanned line;

(b) roof edges of said roof mirrors extending in parallel;

(c) means for oscillating said roof mirrors in a direction perpendicular to the roof edges and in opposite directions to one another in a plane parallel to each respective hypotenuse; and

(d) said roof mirrors mounted on support means having interlinking gear means to execute motion in opposite directions, thereby achieving besides the optical effect a complete weight compensation.

4,266,848

OPTICAL SYSTEM FOR NIGHT-VISION GLASSES

Franz Schlegel, Munich, Fed. Rep. of Germany, assignor to Optische Werke G. Rodenstock, Munich, Fed. Rep. of Germany

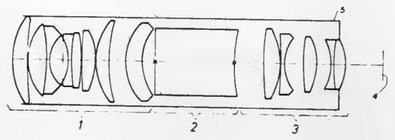
Filed Feb. 23, 1979, Ser. No. 14,438

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2808043

Int. Cl.³ G02B *13/16, 23/12*

U.S. Cl. 350—8 **14 Claims**

1. An optical system for night-vision glasses having a long focal length and a large image angle comprising objective lens means having a structural length less than 1.6 f and an aperture ratio larger than 1.2, said objective lens means having a high distortion with an image angle of about 50°, an image amplifier means for receiving an image from said objective lens means for providing an amplified image output, and viewing optic means for receiving the amplified image output and for compensating for the distortion of said objective lens means to provide a substantially distortion-free image to a viewer.



4,266,849

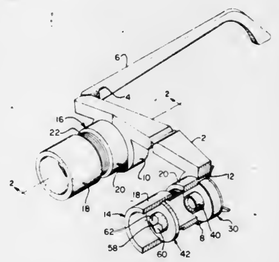
OPTICAL OBJECTIVES

David A. Warner, 100 Memorial Dr., Cambridge, Mass. 01020

Filed Mar. 16, 1977, Ser. No. 778,314

Int. Cl.³ G02B *5/122, 17/08, 23/06*

U.S. Cl. 350—27 **1 Claim**



1. An optical system comprising:

an entrance pupil;

a concave reflector positioned to receive and reflect light transmitted by said entrance pupil;

retro-directive reflector means positioned to receive light reflected by said concave reflector and to form an erect real image at a plane within said system; and

refractive ocular means positioned to receive light reflected by said retro-directive reflector means for viewing the erect image formed at said plane;

said retro-directive reflector means being a corner reflector with a curved concave surface located opposite to its apex and said main mirror having a focus which is located between said curved concave surface and the virtual focus of said corner reflector; and

the apex of said corner reflector being truncated and having an end surface that is adapted to absorb light, with the truncation being limited so that less than about 10% of the light entering the corner reflector is absorbed at said end surface.

4,266,850

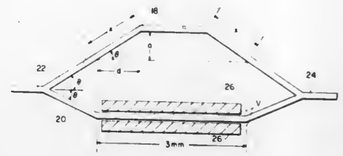
INTEGRATED BIAS FOR WAVEGUIDE AMPLITUDE MODULATOR

William K. Burns, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 116,173

Int. Cl.³ G02B *5/14*; G02F *1/00*

U.S. Cl. 350—96.14 **3 Claims**



1. An interferometric, waveguide, amplitude modulator for conducting optical energy, comprising:

first and second waveguide arms, said arms having a common input and a common output, said first waveguide arm having an increased physical length, Δ, relative to said second waveguide arm, said length Δ being defined by

$$\Delta = \pi/(2Kn),$$

where

$K = 2\pi/\lambda$, said K being the free-space wavevector,

λ is the free-space wavelength of the optical energy, and

n is the index of refraction of a material from which said modulator is made,

said length, Δ, providing an integral phase bias of $\pi/2$ radians to said modulator for producing a linear response to a small (approximately less than 100 volts) applied voltage.

4,266,851

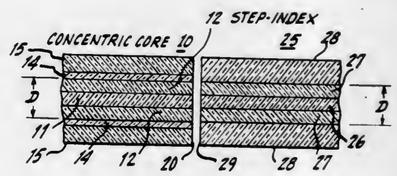
COUPLER FOR A CONCENTRIC CORE OPTICAL FIBER

Glenn C. Salisbury, Roanoke, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 6, 1979, Ser. No. 91,914

Int. Cl.³ G02B *5/14*

U.S. Cl. 350—96.15 **10 Claims**



1. A coupling apparatus for optical fibers, comprising:

a longitudinal core fiber, having a cross section consisting of a series of annular layers, with an inner central layer manifesting an inner light conducting core of a given diameter, surrounded by an annular isolation zone of a given width and fabricated from a borosilicate glass, with said zone surrounded by an outer light conducting annular core concentric with both said inner core and said zone, said fiber having an end face of said cross section,

a step index fiber having an end face containing an annular cross section juxtaposed with said end face of said concentric core fiber, with an inner light conducting central core of relatively the same diameter as said inner core of said concentric fiber, with said central core surrounded by an annular cladding layer relatively congruent with said isolation zone and fabricated from the same type of glass

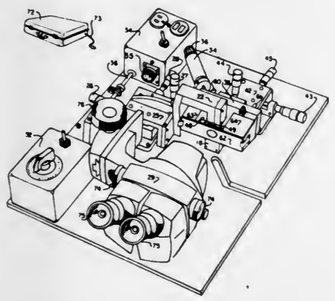
as said isolation zone, said cladding layer surrounded by an annular light conducting substrate layer aligned with and facing said outer annular core, whereby light propagating in said inner core of said concentric core fiber is coupled to said central core of said step index fiber and light propagating in said outer core of said concentric core fiber is propagated in said substrate layer and means coupled to said substrate layer of said step index fiber responsive to light propagating therein and therefore responsive to light propagating in said outer light conducting annular core.

4,266,852

FIBER OPTICS WELDER HAVING MOVABLE ALIGNING MIRROR

Robert W. Higgins, Los Alamos, and Roger E. Robichaud, Jemez Springs, both of N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 9, 1979, Ser. No. 11,018
Int. Cl.³ G02B 5/14; B23K 9/00
U.S. Cl. 350—96.20 **2 Claims**



1. In a system for joining two lengths of a fiber optic waveguide together, apparatus comprising:

a. A base,

b. A first clamping means fixedly attached to said base for holding an end of a first length of a fiber optic waveguide in a vertical orientation,

c. A second clamping means for holding an end of a second length of said fiber movably mounted to said base through a three-axis micropositioner, whereby said fiber ends may be brought into vertical, colinear and abutting alignment,

d. A stereoscopic microscope for viewing said fiber ends, mounted on said base,

e. A pair of electrodes mounted to said base through a three-axis micropositioner whereby said electrode pair may be moved into precise alignment with the junction between said fiber ends for welding said fibers and out of the way during alignment of said fiber ends,

f. A mirror mounted to said base through means permitting said mirror to be moved into and retracted out of a position alongside of the fiber ends and at a 45° angle to the optical axis of said microscope whereby two right orthogonal views of the fiber ends are provided through said microscope while said ends are aligned and the mirror may be moved out of the way during alignment of said electrodes, and

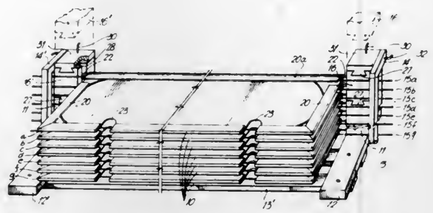
g. Means for establishing an arc between said electrodes for welding said ends together.

4,266,853

DEVICE FOR ORGANIZING OPTICAL FIBERS AND THE LIKE

Terence N. Hutchins, and Francois C. Meunier, both of Kirkland, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Mar. 12, 1979, Ser. No. 19,512
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 **10 Claims**



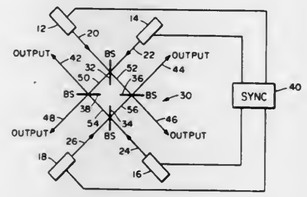
1. A device for organizing optical fibers and the like comprising a plurality of stacked tray-like supports having partially turned-up edges for retaining a looped fiber portion, each tray-like support separately hinged to a carrier and having a width at least equal to twice the minimum bending radius specified for that fiber for accommodating continuous longitudinal slack in the fiber.

4,266,854

SYSTEM FOR INCREASING LASER PULSE RATE

Kenneth Avicola, Richland, Wash., assignor to Jersey Nuclear-Avco Isotopes, Inc., Bellevue, Wash.

Division of Ser. No. 660,650, Feb. 23, 1976, Pat. No. 4,073,572.
This application Jan. 16, 1978, Ser. No. 869,817
Int. Cl.² G02B 27/14
U.S. Cl. 350—171 **12 Claims**



1. A system for increasing laser pulse rate comprising:

means for generating a plurality of input beams of pulsed laser radiation;

means for synchronizing the pulses of laser radiation in each of said plurality of input beams to provide a different time of occurrence for each pulse in each of said plurality of input beams;

an array of plural sets of beam splitter elements each containing a plurality of beam splitter elements;

said plural sets including an input set of plural beam splitter elements, with each input beam splitter element receiving on opposite surfaces the pulsed laser radiation from two of said plurality of input beams;

the splitter elements of said array being positioned to provide a plurality of output beams of pulsed laser radiation having the pulses of the plurality of input beams interleaved, and each output beam sharing the power in each pulse;

said plural sets further including an output set of plural output beam splitter elements with each output beam splitter element receiving on opposite surfaces the radiation from a beam splitter element of one of said plural sets other than the output set, and providing partial transmission and partial reflection of the radiation incident on the opposite surfaces to provide two of said output beams of pulsed laser radiation of said plurality of output beams;

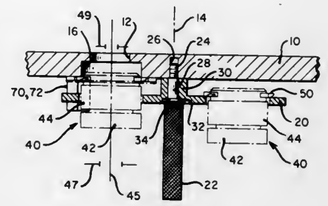
said output beams each having pulses occurring at an augmented rate, and each containing a portion of radiation from each of the plurality of input beams.

4,266,855

QUICK CHANGE LENS SYSTEM

Siegfried H. Mohr, Santa Clara, Calif., assignor to Quantor Corporation, Mountain View, Calif.

Filed Sep. 24, 1979, Ser. No. 78,420
Int. Cl.³ G02B 7/16; G03B 21/14, 27/52
U.S. Cl. 350—254 **12 Claims**



1. A lens mounting system for a microform viewer and/or recorder comprising:

support means having an aperture therethrough,

storage means spaced from said support means and adapted to carry a plurality of lens assemblies, each assembly positionable in alignment with said support means aperture,

mounting means carrying said storage means and connected with said support means for enabling positioning of said storage means to position a selected one of said lens assemblies in alignment with said support means aperture,

means including clamping means engageable by a selected lens assembly for positioning said selected one of said lens assemblies in relation to said support means for enabling focusing of the lens thereof, and

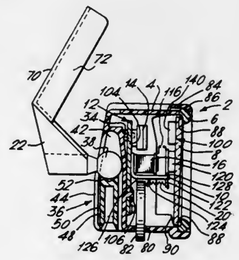
means adjacent said storage means for identifying the selected one of said lens assemblies.

4,266,856

REAR VIEW MIRROR

Basil E. Wainwright, 80 Greenaleigh Rd., Yardley Wood, Birmingham, England

Continuation-in-part of Ser. No. 926,428, Jul. 20, 1978, abandoned. This application Jan. 9, 1979, Ser. No. 2,084
Int. Cl.³ G02B 17/00
U.S. Cl. 350—281 **15 Claims**



1. A rear view mirror for a motor vehicle comprising

(a) a housing including

(1) a back plate portion (4); and

(2) a front frame portion (6) connected with said back plate portion to define a chamber, said housing containing a recess in the inner surface of the lower portion thereof, said recess extending parallel with said front plate portion;

(b) a mirror (8) pivotally mounted within said housing chamber, the lower edge of said mirror being arranged within said housing recess, said mirror being operable to pivot between a normal position wherein said mirror is arranged adjacent and generally parallel to said front frame portion, and an anti-glare position wherein said mirror diverges from said front frame portion in the direction of the upper edge of said mirror; and

(c) means for pivoting said mirror between said normal and anti-glare positions, said pivoting means including

(1) means (20) for biasing said mirror toward its normal position;

(2) a unitary electrical assembly (12) mounted on said back plate portion within said housing, said assembly containing an electrical circuit including

(a) a printed circuit board (104, 161);

(b) a photosensor (14) mounted on said board for sensing light incident on said mirror,

(c) a solenoid coil (16) connected with said photosensor;

(d) means (168, 169) for supplying a voltage across said photosensor, said photosensor producing a voltage output corresponding with said incident light;

(e) reference voltage means (82) connected with said voltage supply;

(f) operational amplifier means (177) for comparing the photosensor output voltage with said reference voltage; and

(g) transistor means (179) responsive to the output of said operational amplifier for controlling the flow of current through said solenoid coil; and

(3) metallic plate means (164) mounted on the rear portion of said mirror, whereby when a sufficient amount of light strikes said photosensor, said solenoid coil generates a magnetic field which attracts said metallic plate means to pivot said mirror to its anti-glare position.

4,266,857

LIQUID OR GAS COOLED FLEXIBLE BEAM-COMPENSATING ADJUSTABLE CYLINDRICAL MIRROR

Hardy C. Svenson, Arlington, Va., assignor to The United States of America as represented by the Secretary of the Treasury, Washington, D.C.

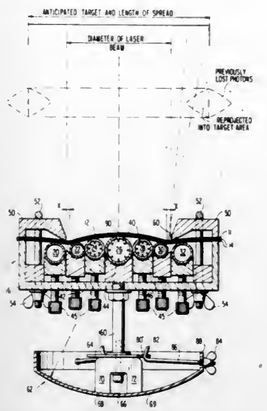
Filed Jan. 30, 1980, Ser. No. 116,731
Int. Cl.³ G02B 5/10
U.S. Cl. 350—295 **16 Claims**

1. A liquid or gas cooled laser mirror, comprising:

(a) a curved reflector element for spreading a beam of coherent laser light, and

(b) coolant conduit means in abutting relationship with said

reflector element for cooling said reflector element and for controlling the curvature of said reflector element,



wherein said coolant conduit means comprises a plurality of individually vertically adjustable conduits.

4,266,858

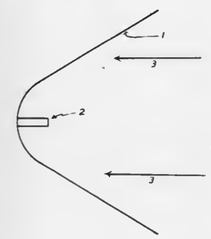
SOLAR CONCENTRATOR OF WIDE-ANGLE CAPABILITY

Beecher J. Holland, 600 Morison Ave., Kingsport, Tenn. 37660

Continuation of Ser. No. 822, Jan. 4, 1979, abandoned. This application Aug. 23, 1979, Ser. No. 68,891

Int. Cl.³ G02B *5/10*

U.S. Cl. 350—296 **1 Claim**



1. A solar radiation concentrator which in sectional view consists of an assembly of (a) a concave reflector of circular section having tangential extensions and (b) a receiving-converting means which extends outward by less than one radius of said circular section from the base within the cavity formed by the reflector and symmetrically along its longitudinal center line, and wherein the receiving-converting means is coincident with the imaginary continuation of the reflector surface at the reflector base.

4,266,859

LIQUID CRYSTAL DISPLAY DEVICE

Seigo Togashi, Kawagoe, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Oct. 13, 1978, Ser. No. 950,986

Claims priority, application Japan, Oct. 14, 1977, 52-123041; Oct. 15, 1977, 52-123779

Int. Cl.³ G02F *1/133*

U.S. Cl. 350—338 **9 Claims**

1. A liquid crystal display device comprising:

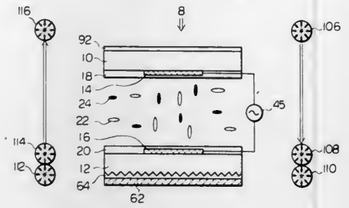
a first substrate having a display area constituted by a first transparent electrode formed on a first surface thereof;

phase retarding means having a display area constituted by a second transparent electrode formed on a first surface thereof;

a layer of nematic dichroic liquid crystal material comprising a mixture of nematic liquid crystal molecules and dichroic molecules inserted between said first substrate and said phase retarding means;

a first alignment layer disposed between said layer of nematic dichroic liquid crystal material and said first transparent electrode together with an area of said first surface of said first substrate outside said first transparent electrode, to cause said nematic liquid crystal molecules and dichroic dye molecules to align in a predetermined direction with respect to a plane of each of said first substrate and said phase retarding means;

a second alignment layer disposed between said second transparent electrode together with an area of said first



surface of said phase retarding means outside said second transparent electrode, to cause said nematic liquid crystal molecules and said dichroic dye molecules to align in said predetermined direction;

light diffusion means formed on a second surface of said phase retarding means external to said layer of nematic liquid crystal molecules and dichroic dye molecules;

light reflection means formed on said light diffusion means for reflecting light diffused from said light diffusion means; and

said phase retarding means retarding the phase of light impinging upon said light reflection means by one quarter of a wavelength at a predetermined wavelength of said light, said light passing through said phase retarding means both before and after being reflected by said light reflection means.

4,266,860

WIDE ANGLE ZOOM LENS SYSTEM HAVING SHORTENED CLOSEUP FOCAL LENGTH

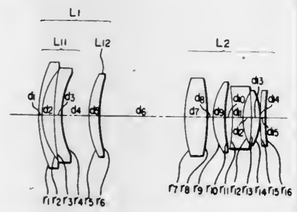
Kiyoshi Hayashi, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,055

Claims priority, application Japan, Sep. 8, 1978, 53-109772

Int. Cl.³ G02B *15/16*

U.S. Cl. 350—426 **9 Claims**



1. A wide angle zoom lens system capable of photographing objects from infinity to a close distance while maintaining an improved image-forming performance, said system comprising:

a first divergent lens group including a divergent forward portion and a convergent rearward portion disposed with a predetermined spacing from said forward portion, the forward and rearward portions being movable relative to each other for focusing; and

a second convergent lens group disposed rearwardly of said first group, said first and second groups being movable relative to each other to effect a magnification change.

4,266,861

EYE FUNDUS CAMERA

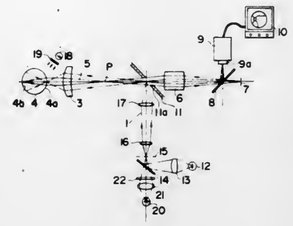
Seiji Sawa, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 9, 1978, Ser. No. 959,079

Claims priority, application Japan, Nov. 15, 1977, 52-137695

Int. Cl.³ A61B *3/10, 3/14;* **G03B** *29/00*

U.S. Cl. 351—7 **13 Claims**



1. An improved eye fundus camera for photographing the fundus of an object eye comprising:

an objective lens capable of optical positioning relative to the object eye and a photographic focal plane;

a wavelength selective filter for reflecting at least a first wavelength of light in a first band of wavelengths and transmitting at least a second wavelength of light in a second band of wavelengths other than the first band, the filter further being provided with a fully transmissive portion and being positioned relative to the eye and objective lens so that it is substantially conjugate to the front of the object eye with respect to the objective lens;

a first light source including at least a first wavelength for directing light toward the fundus of the object eye by way of the reflection on the wavelength selective filter, and

a second light source including at least a second wavelength for directing light towards the front of the object eye, whereby the light of the first light source reflected from the object eye to the wavelength selective filter is transmissible only through the fully transmissive portion thereof, and the light of the second light source reflected from the object eye to the wavelength selective filter is transmissible through any portion thereof.

4,266,862

REFRACTOMETER FOR THE AUTOMATIC OBJECTIVE DETERMINATION OF THE REFRACTIVE CONDITION OF AN EYE

Otto Trötscher, Aalen, and Erwin Wiedmann, Essingen, both of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Filed Nov. 21, 1977, Ser. No. 853,542

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1976, 2654608

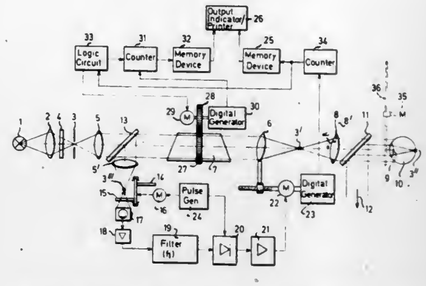
Int. Cl.³ A61B *3/10*

U.S. Cl. 351—14 **16 Claims**

1. Refractometer for the automatic objective determination of the condition of refraction of an eye, in which a test mark is focused by an optical image-producing system on the retina of the eye to be examined and the light reflected from the retina after passing through said image producing system and before reaching the test mark is reflected to a photoelectric receiver provided with a scanning device, characterized by the combination of the following features:

(a) the image-producing system contains a first lens and a second lens between which there is a parallel beam path and which produce a first intermediate image of the test mark, as well as a third lens which, in combination with the eye lens, produces a second intermediate image of the test mark on the retina of the eye;

(b) between the first and second lenses a partially transmitting mirror is arranged and, in the light-path of the latter, a lens corresponding to the first lens of the image producing system in such a manner that the light reflected by the retina produces a third intermediate image of the test mark outside the path of the illumination beam;



(c) at the location of this third intermediate image there is provided a scanning device which, together with a photoelectric receiver arranged behind it, produces a signal which is modulated in accordance with the position of the intermediate image;

(d) behind the photoelectric receiver there is provided an arrangement which converts the modulator signal into a control signal which is proportional to the deviation of the third intermediate image from the theoretical desired position;

(e) one the lenses of the image producing system is displaceable by means of a motor (22) to which the control signal is fed.

4,266,863

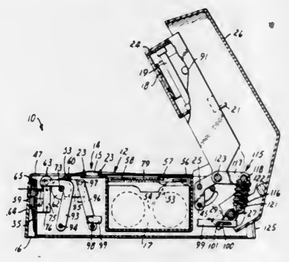
DEVICE FOR FORMING GRAPHICS

Elmont E. Hollingsworth, St. Paul; Wm. M. Shea, May Township, Washington County, and Daniel M. Spitzer, Jr., Hugo, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 17, 1979, Ser. No. 104,575

Int. Cl.³ B41B *13/00;* **G03B** *17/04*

U.S. Cl. 354—5 **9 Claims**



1. In a device useful for forming graphics such as letters, symbols or pictures along a strip of radiation sensitive material, said device comprising:

means for defining an exposure station;

means adapted for positioning a predetermined portion of a said strip at said exposure station; and

means adapted to be actuated at said exposure station for momentarily irradiating the predetermined portion of a said strip at said exposure station in a sharply defined graphic pattern, including:

a template comprising a thin radiation transparent member with a radiation blocking coating having sharply defined open areas corresponding in shape to graphics to be formed to provide radiation transmissive windows through said template, having a viewing opening adjacent each of said windows, and having for each of said windows a positive image of that window within said viewing opening; which image is positioned with a predetermined relationship with respect to that window; said template having locating orifices at a predetermined location with respect to each of said windows;

means for mounting said template to register one of the windows at said exposure station comprising locating members adapted to enter said locating orifices;

means mounting said locating members for movement between an exposure position with the window associated with the locating orifices located at said exposure station, and a preview position with the positive image corresponding to the window associated with the locating orifices positioned at the exposure station at the position in which the window is located when the locating members are in their exposure position;

radiation means for briefly irradiating the portion of the strip at said exposure station through the aligned window, comprising a flash lamp; means mounting said flash lamp for movement between a normal position spaced from said exposure station to afford visible inspection of said template and said radiation sensitive material portion at said exposure station, and an expose position with said lamp closely adjacent the exposure station;

means for operating said flash lamp upon movement of the lamp to its expose position; and

means coupled between said means mounting said lamp for movement and said means for mounting said template for positioning said locating members in said preview position when said lamp is in its normal position, and for positioning said locating member in said exposure position when said lamp is in its expose position; the improvement wherein:

said locating members are two spaced parallel upwardly projecting pins;

said windows and positive images on said template are in a rectangular array; and

said template has a different pair of locating orifices at a predetermined location with respect to each of said windows, with each pair of locating orifices being adapted to receive said locating members to register the associated window at the exposure station on the device.

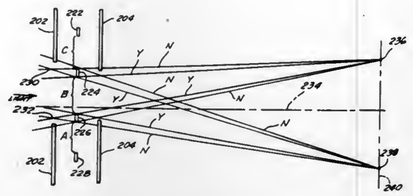
4,266,864

MASK DEVICE FOR PHOTOCOMPOSING MACHINES

Louis M. Moyroud, Delray Beach, Fla.; Grant T. Morgan, Bayshore, and Bernard A. Casanova, Brightwater, both of N.Y., assignors to Bobst, S.A., Lausanne, Switzerland

Filed Nov. 8, 1979, Ser. No. 92,466
Int. Cl.³ G03B *17/06*
U.S. Cl. 354—15 **10 Claims**

1. In or for a photocomposition machine having a character matrix with closely adjacent master characters for projection onto a recording surface, a lamp for selectively illuminating one of said characters for projection, a mask for preventing the projection of graphic matter adjacent a selected one of said characters, said mask comprising a first shield between said lamp and said matrix, and a second shield between said matrix and said recording surface, each of said first and second shields having an aperture aligned with the aperture in the other shield to transmit the image of said selected character, said mask and said matrix being movable with respect to one another in order



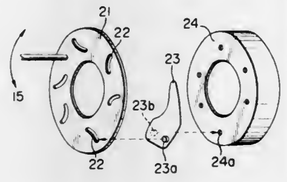
to select one among a plurality of characters on said matrix for projection.

4,266,865

DIAPHRAGM CORRECTING MEANS OF AN OBJECTIVE LENS MOUNTED ON A SINGLE LENS REFLEX CAMERA OF THE TTL FULL APERTURE EXPOSURE MEASUREMENT TYPE

Toru Fukuhara, Isehara, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Jul. 9, 1979, Ser. No. 55,557
Claims priority, application Japan, Jul. 26, 1978, 53-101796
Int. Cl.³ G03B *7/20*
U.S. Cl. 354—46 **8 Claims**



1. In an objective lens removably mountable with respect to a single lens reflex camera housing, said lens having a diaphragm member forming an aperture, and diaphragm driving means displaceable to stop down said diaphragm member in a range over which the area of said aperture is from maximum to minimum, said housing having a metering circuit for measuring the light transmitted through said lens when said aperture is maximum, the improvement comprising:

diaphragm correcting means provided on at least one of said diaphragm driving means and said diaphragm member to impart a correction of the stop down step number corresponding to the difference between a theoretical metering output calculated from the open F-value of said lens and the brightness of an object and the actual metering output of said metering circuit.

4,266,866

DIFFUSION TRANSFER CAMERA PROCESSOR

Dennis Dodge, Amherst, N.H.; Paul Matwey, Henrietta, N.Y.; Thomas M. Madigan, Pittsford, N.Y., and Robert H. Powers, Rochester, N.Y., assignors to Itek Corporation, Lexington, Mass.

Filed Oct. 22, 1979, Ser. No. 86,929
Int. Cl.³ G03B *17/50*
U.S. Cl. 354—84 **15 Claims**

1. In a diffusion transfer camera-processor;

a. projection lens means (**16**) for projecting an image along an optical axis (**42**);

b. an imaging platen (**9**) for exposing a sheet of relatively stiff film to said image produced by said lens means;

c. storage station (**1**) for storing said film;

d. first film transport means (**7, 13, 6** and **29**) for driving said film from said storage station over said imaging platen so that an image may be thereafter projected upon the emulsion side of said film facing said optical axis;

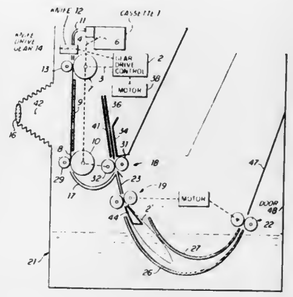
e. knife means (**12**) for cutting said film;

f. second sheet transport means (**31, 32**);

g. means for introducing the leading edge of a relatively flexible receptor sheet into an entrance portion of said second sheet transport means (**34, 36**);

h. first guide means (**17**) for guiding the leading edge of said film from said first sheet transport means through said second sheet transport means, said first guide means being configured to reverse the direction of said film so that its emulsion side faces away from said optical axis after reversal thereof;

i. drive control means (**2**) for driving said second sheet transport means in a first direction to position the trailing edge



of said film adjacent said entrance portion of said second sheet transport means;

j. a processor bath (**21**) having third and fourth sheet transport means (**19, 22**);

k. second guide means (**23**);

l. drive control means for driving said second sheet transport means in a second direction opposite said first direction for causing said film together with said receptor sheet to be driven into the entrance portion of said third sheet transport means via said second guide means; and

m. a lower third and upper fourth guide means (**26, 27**) positioned within said processor bath between said third sheet transport means and said fourth sheet transport means for guiding said relatively flexible receptor sheet along said upper fourth guide means and said relatively stiff film along said lower third guide means and through said processor bath toward said fourth sheet transport means.

4,266,867

HOLD STEADY STRAPS

Christiaan Reeberg, 111-67 145th St., Jamaica, N.Y. 11435

Filed Jan. 4, 1980, Ser. No. 109,655
Int. Cl.³ G03B *17/00;* **A44B** *21/00*
U.S. Cl. 354—293 **2 Claims**

1. A hold steady strap for a camera user while taking a picture at eye level, comprising:

a relatively short longitudinal non-elastic strap member composed entirely of woven fabric material attached at one end to a sliding buckle, slided on an intermediate portion of said strap member so as to form an adjustable loop at the lower end of said strap,

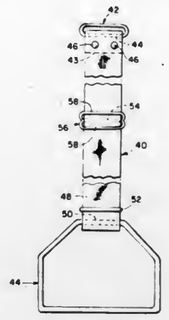
a flat ring attached to the upper end of said strap, fitted with a freely rotatable screw adapted to fit a camera threaded opening,

a hook having a base carried by said loop at the lower end of said strap member, adapted to fit under the user's belt,

a flat ring keeper that is slidable on said adjustable loop for closing said loop on the base of said hook,

an auxiliary relatively long extension non-elastic strap member comprised of woven fabric throughout attached at one end to a sliding buckle, slided on an intermediate portion thereof so as to form an adjustable loop at the lower end of said extension member,

a flat loop attached to the upper end of said auxiliary strap



member, for selective engagement with said hook on the lower end of said relatively short strap member,

a foot stirrup formed of a wire piece bent to provide a shaft which is carried by the lower end of such loop, and

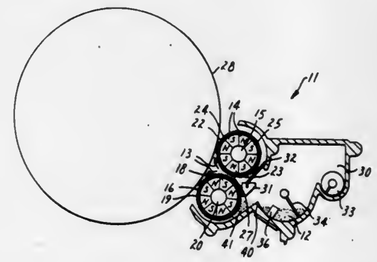
a flat ring keeper slidable on said loop for closing such loop on the shaft of said foot stirrup, whereby the extension strap member can be connected to the relatively short strap member for extending the length of the strap to the user's foot, as desired.

4,266,868

MULTIPLE ROLL DEVELOPING APPARATUS

Larry J. Bresina, St. Paul, and Richard D. Hipp, Rushseba Township, Chisago County, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 16, 1979, Ser. No. 58,075
Int. Cl.³ G03G *15/09*
U.S. Cl. 355—3 DD **6 Claims**



1. An improved developing apparatus for applying one-part toner particles to a photoconductive surface in a copy machine, said apparatus comprising

A. a plurality of magnetic brushes arranged in a parallel spaced relationship so as to form an elongate nip area at their proximate surface, each of said brushes comprises

1. a magnetic shaft having poles arranged in a spaced relationship so as to form a circular array about said shaft,

2. a thin walled annular-shaped sleeve formed of nonmagnetizable material positioned around and proximate said magnetic shaft, and

3. means for mounting said magnetic shaft and said sleeve of said brush for relative rotational movement,

B. means for supplying toner particles to said brushes including means defining a reservior for said toner particles and an adjustably-mounted doctor blade disposed between said reservoir and one of said brushes to control the amount of powder carried by said one of said brushes, and

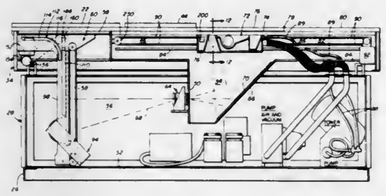
C. drive means affording relative rotation of said magnetic shafts and said sleeves to advance said toner particles from said doctor blade toward said nip area between said brushes so as to divide said toner particles at said nip area and transfer a portion of said toner particles to an adjacent brush and direct said toner particles on said brushes toward said photoconductor.

4,266,869

APPARATUS AND METHOD FOR MAKING LITHOGRAPHIC PRINTING PLATES

Manfred R. Kuehnle, Lexington, Mass.; Richard E. Cox, Nashua, N.H.; George B. Harris, Jr., Winchester, Mass.; Jess Forrest, Bedford, Mass., and Carl D. Hardy, Medfield, Mass., assignors to Coulter Systems Corporation, Ill.

Filed Feb. 9, 1979, Ser. No. 10,497
Int. Cl.³ G03G *15/28*
U.S. Cl. 355—8 **47 Claims**



1. Apparatus for producing a toned image on an electrographic member for the purpose of making said member into a lithographic printing plate or for other use directly from a pattern which comprises:

A. an enclosure having a copyboard and a platen,

B. means for mounting a pattern on the copyboard and for securing an electrophotographic member on the platen with a photoconductive surface exposed,

C. movable means associated with the copyboard for progressively illuminating the pattern on the copyboard with radiant energy portion by portion,

D. means within the enclosure including a fixed optical train for projecting the radiant energy from the pattern to the exposed photoconductive surface,

E. a carriage in the enclosure adapted to move in one direction across the photoconductive surface and having charging means, a slit and toning means arranged in that order, the carriage obstructing the photoconductive surface from said projected radiant energy when it is moving in said one direction but for the slit and

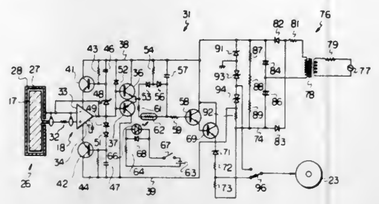
F. means for operating the progressive illuminating means and for moving said carriage in said one direction substantially continuously and in synchronism whereby to image the electrophotographic member with said pattern by charging, exposing and toning transverse areas of said photoconductive surface progressively over its full extent as the carriage moves in said one direction.

4,266,870

ELECTROSTATOGRAPHIC APPARATUS COMPRISING DEVELOPING BIAS MEANS

Tadahiro Eda; Susumu Tatsumi, and Chikara Imai, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Mar. 6, 1979, Ser. No. 17,856
Claims priority, application Japan, Mar. 9, 1978, 53-26934; Jun. 27, 1978, 53-78257; Jun. 30, 1978, 53-79654
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 D **6 Claims**



1. An electrostatographic apparatus including a photoconductive member and image forming means for forming an electrostatic image on the photoconductive member, characterized by comprising:

an electrode disposed closely adjacent to the photoconductive member; and

means for maintaining a capacitance between the electrode and the photoconductive member greater than a capacitance between the electrode and ground;

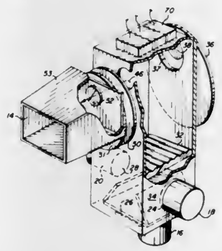
said means comprising an electrically conductive shield having a separate first shield member disposed closely adjacent to and covering a surface of the electrode which faces away from the photoconductive member and a separate second shield member which surrounds a periphery of a surface of the electrode which faces the photoconductive member, and a voltage follower having an input connected to the electrode and an output connected to the shield.

4,266,871

APPARATUS FOR VISUALLY DUPLICATING GEMSTONES

Thomas F. Ritzi, Daytona Beach, Fla., assignor to Gem Instruments Corporation, Santa Monica, Calif.

Filed Jul. 28, 1978, Ser. No. 928,771
Int. Cl.³ G01N *21/00*
U.S. Cl. 356—30 **33 Claims**



1. Apparatus for reproducing the color and intensity of a selected gemstone, comprising:

a housing having a viewing port;

a source of light of variable frequency within said housing;

means for selectively changing the frequency of said light to obtain variations in the color of said light passing through said port;

means for changing the intensity of said light passing through said port, whereby changes in the intensity of colored light exiting said viewing port may be controlled to conform with said selected gemstone; and

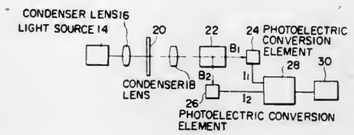
imaging means optically coupled between said light source means and said viewing port for visually duplicating the structural appearance of the selected gemstone.

4,266,872

METHOD OF MEASURING THE AMOUNT OF REDUCTION OF A DOT FILM, AND DEVICE FOR PRACTICING SAME

Yuuji Mitsuhashi, Fujisawa, Japan, assignor to Dai Nippon Insatsu Kabushiki Kaisha, Shinjuku, Japan

Filed Apr. 9, 1979, Ser. No. 28,195
Claims priority, application Japan, Apr. 11, 1978, 53-42270
Int. Cl.³ G01J *3/48*; G01N *21/01, 21/07*
U.S. Cl. 356—51 **13 Claims**



1. A method of measuring the amount of reduction of a dot film, comprising the steps of:

reducing a dot film with reducer;

applying light to reduced portion of the dot film;

extracting two quantities of light in light including a relatively large amount of ultraviolet rays and in light including a relatively large amount of infrared rays from light which passed through said dot film;

calculating differences between said quantities of light; and

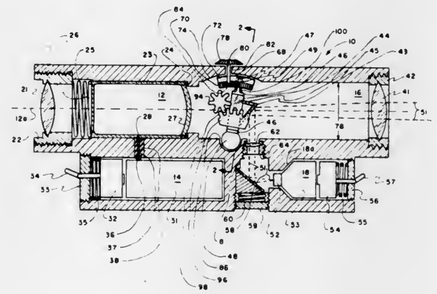
displaying the amount of reduction which calculated from said differences.

4,266,873

COLLINEAR AIMING LIGHT IMAGE VIEWER

John J. Hacskaylo, and Michael Hacskaylo, both of Falls Church, Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 20, 1979, Ser. No. 68,270
Int. Cl.³ G02B *23/10*
U.S. Cl. 356—251 **6 Claims**



1. A collinear aiming light image viewer device enclosed in a common housing, said device comprising:

an image intensifier having an optical axis extending entirely through said common housing;

a high voltage power supply section electrically connected to said image intensifier for providing high voltage bias thereto;

a means for generating a laser aiming light beam out the target scene end of said collinear aiming light image viewer device; and

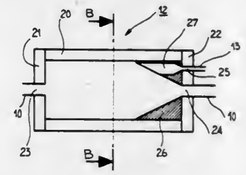
an optics compartment having optical means therein for aligning said laser aiming light beam symmetrically along a portion of said optical axis that extends entirely through said common housing wherein returned reflections of said laser aiming light beam forming a laser beam image is directly viewed with a target image through said image intensifier.

4,266,874

APPARATUS AND METHOD FOR MEASURING THE SIZE OF FIBERS

Gerard Janin, Essey les Nancy, and Jean-Marie Ory, Heillecourt, both of France, assignors to Institut National de la Recherche Agronomique, Paris, France

Filed Nov. 6, 1978, Ser. No. 957,679
Claims priority, application France, Nov. 7, 1977, 77 33441
Int. Cl.³ G01N *15/02, 21/23, 21/05*
U.S. Cl. 356—335 **9 Claims**



1. An apparatus for measuring the size of fibers, comprising:

a main circuit wherein a main flow of a liquid having a fiber sample diluted therein is caused to circulate;

a derivation circuit having a portion of small diameter with respect to the length of the fibers to be measured providing a laminar flow;

said main circuit including a chamber, said derivation circuit extending from said chamber, said chamber including means for creating therein a vortex flow so as to divert randomly a portion of the fibers circulating in said main circuit into said derivation circuit, in a secondary flow; and

optical means for measuring the size of the fibers as they pass in said portion of small diameter of said derivation circuit;

wherein said main circuit includes:

a conduit having open first and second ends terminating at opposite ends of said chamber,

said chamber having a substantially elongated cylindrically shaped portion having a longitudinal axis, said chamber having longitudinally opposed inlet and outlet walls respectively connected to said first and second conduit ends,

said chamber cylindrically shaped portion having a cross-sectional area greater than the cross-sectional areas of said conduit ends,

said conduit ends being substantially aligned with said axis,

said chamber having an outlet end portion with an inner wall coverging downstream for connection to said second conduit end of said main circuit,

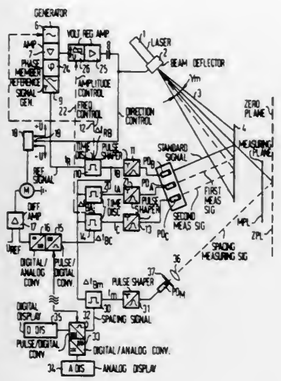
said derivation circuit having an inlet opening into said inner wall of said outlet end portion of said chamber.

4,266,875

METHOD AND DEVICE FOR CONTACT-FREE INTERVAL OR THICKNESS MEASUREMENT BY CONTROL OF THE DIRECTION OF A LIGHT RAY BEAM

Viktor Bodlaj, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Fe.. 5, 1980, Ser. No. 118,778
Claims priority, applica..on Fed. Rep. of Germany, Feb. 20, 1979, 2906494
Int. Cl.[3] G01S 9/62
U.S. Cl. 356—381 6 Claims



1. A method for contact-free interval or thickness measurement, comprising the steps of:

providing a sharply concentrated light ray beam generated by a light source and periodically deflecting it over a measured space by means of a beam deflector;

a measuring plane being positioned in the measuring space and spaced from a reference plane by the interval or thickness to be measured;

providing first, third and fourth light beam detectors positioned to receive reflections of the light beam from a beam divider and a second light beam detector positioned to receive reflections from the measuring and reference planes;

measuring the interval or thickness by use of a time difference between a standard signal from the first detector and at least one spacing measuring signal from the second detector;

controlling deflection frequency of the light beam by use of a time difference between a reference signal derived from a generator controlling deflection frequency and said standard signal;

controlling deflection amplitude of the light beam by use of a time difference between said standard signal and a first measuring signal derived from the third light detector; and

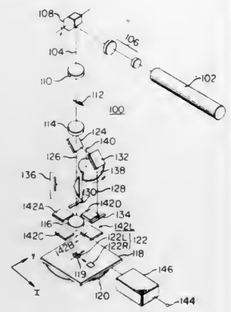
controlling a direction of the light ray beam by use of a time difference between one of said standard and first measuring signals and a second measuring signal derived from the fourth light detector, the direction of the light ray beam being corrected when this time difference deviates from a given reference value.

4,266,876

AUTOMATIC ALIGNMENT APPARATUS

Kiwao Nakazawa, Tokyo, and Akikazu Tanimoto, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Mar. 29, 1978, Ser. No. 891,301
Claims priority, application Japan, Mar. 31, 1977, 52-35415
Int. Cl.[3] G01B 11/00, 11/14; G02B 27/17
U.S. Cl. 356—400 16 Claims



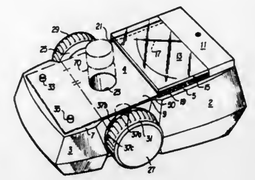
1. An apparatus for determining the positional relationship between two objects, comprising a reference mark on each object, each reference mark having first and second parallel portions and having third and fourth parallel portions, the first, second, third and fourth portions being arranged such that the first and second portions on one object are spaced a predetermined distance from corresponding first and second portions on the other object and the third and fourth portions of one object are spaced a predetermined distance from corresponding third and fourth portions on the other object when the two objects are in a predetermined positional relationship, means for scanning a beam of light past the first and second portions in a first direction, means for thereafter scanning a beam of light past the third and fourth portions in a second direction different from the first direction, means for converting light received from each of the portions during each scan to corresponding electrical signals, and means responsive to the electrical signals for separately determining the relative positions of the two objects in the first and second scan directions, the determining means comprising pulse generating means for producing first, second, third and fourth pulse trains corresponding, respectively, to a first time interval between the electrical signals produced by light received from said first portions, a second time interval between the electrical signals produced by light received from said second portions, a third time interval between the electrical signals produced by light received from said third portions and a fourth time interval between the electrical signals produced by light received from said fourth portions, reversible counter means for counting the first pulse train in one direction and for counting the second pulse train in the opposite direction to determine the difference between the first and second time intervals and for counting the third pulse train in one direction and for counting the fourth pulse train in the opposite direction to determine the difference between the third and fourth time intervals.

4,266,877

PHOTOMETER WITH INTERCHANGEABLE CALIBRATION CARDS

Detlef Bodart, Darmstadt, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 70,077
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1978, 2837443
Int. Cl.[3] G01J 3/50; G01N 21/31
U.S. Cl. 356—414 10 Claims



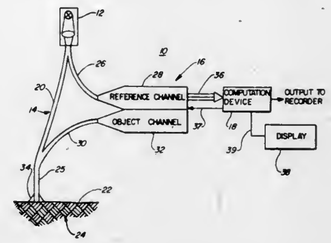
1. A photometer adapted for use with interchangeable calibration cards, comprising a galvanometer having a transparent cover over its indicator needle, said cover being provided with a slot along its edge which faces the center of said photometer, said slot being adapted to permit insertion of one end of one of said calibration cards into said covering, beneath said needle; a zone adjacent said galvanometer and said slot containing an orifice adapted to receive a photometer cell, a first control knob located on a side of said photometer for setting the photometer to its blank value; and a second control knob, for adjusting the wavelength of the photometer, having coded means thereon for corrolating various wavelengths of said photometer, produced by rotating said second control knob to various settings, to data contained on said calibration cards.

4,266,878

APPARATUS FOR MEASUREMENT OF SOIL MOISTURE CONTENT

Siegfried O. Auer, Bowie, Md., assignor to Norlin Industries, Inc., Deerfield, Ill.

Filed Dec. 26, 1978, Ser. No. 972,773
Int. Cl.[3] G01J 3/38; G01N 21/35
U.S. Cl. 356—419 12 Claims



1. Apparatus for monitoring the moisture content of a soil sample comprising:

a light source for radiating light energy at a plurality of selected wavelengths;

light transmission means establishing first and second transmission paths each having first and second ends, the first end of said first path being disposed for receiving light radiated from said light source;

a soil probe insertable in a bore formed in the soil sample, said soil probe including a window for directing light from the second end of said first light transmission path to said soil sample at selected depths within said bore and for directing light reflected from the soil sample to the first end of said second light transmission path;

displacement measuring means secured to said soil probe for providing an indication of the relative position of said window within said bore;

means coupled to the second end of said second light transmission path for determining the reflectance factors of said reflected light at said selected wavelengths; and

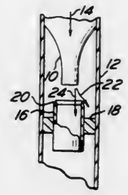
means responsive to said reflectance factors and to said position indications for computing the moisture content of the soil sample as a function of the position of said window within said bore.

4,266,879

FLUID RESONATOR

Richard T. McFall, 2230 Pine St., Philadelphia, Pa. 19103

Filed Jan. 16, 1975, Ser. No. 541,549
Int. Cl.[3] B01F 11/00
U.S. Cl. 366—108 16 Claims



1. Apparatus for producing vibrations in a fluid flow, comprising:

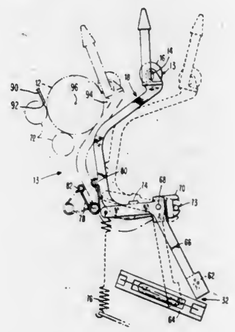
at least one cylindrical member adapted to be mounted in a fluid flow with its longitudinal axis parallel to the direction of fluid flow, and wherein the leading edge of said cylindrical member varies about its circumference in the direction of the fluid flow path, wherein the variation of the leading edge of said cylindrical member provides a sinusoidal shape.

4,266,880

PAPER INSERTION APPARATUS

James C. Buchanan, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 26, 1978, Ser. No. 945,921
Int. Cl.[3] B41J 19/76
U.S. Cl. 400—550 6 Claims



1. Improved semi-automatic paper insertion apparatus for use in a typewriter of the kind having a keyboard including number keys for producing coded signals in response to operator key actuations, a platen that serves in defining a paper feed

path extending past a printing line, an operator manipulable paper hold-down device that has a first position at said paper feed path and a second position withdrawn from said paper feed path, a detector for producing a detection signal indicating the presence of said paper hold-down device in said second position and an indexing device that advances paper along said paper feed path in accordance with an indexing control signal, said paper insertion apparatus comprising:

a storage having stored therein at least one predetermined distance code representing a paper insertion distance,

first control means, activated by said detection signal, for disabling normal processing of keyboard code signals and for accessing in accordance with any one of a preselected set of keyboard code signals a corresponding distance code from said storage;

means, cooperating with said first control means, for storing said accessed distance code at an indexing storage location; and

insertion control means, responsive to a transition•in the state of said detection signal indicating movement of said paper hold-down [bail] *device* from said second position, for accessing said distance code at said indexing storage location and for supplying a corresponding set of control signals to said indexing device, whereby a sheet of paper may be advanced a distance that corresponds to an operator keyboard selection.

4,266,881

PEN WITH RETRACTABLE POINT

Harry E. Rubens, Bay Harbor Islands, Fla., assignor to Institute of Applied Biology Charitable Research Trust, Bay Harbon Islands, Fla.

Filed Oct. 18, 1978, Ser. No. 943,009
Int. Cl.³ B43K *24/02, 27/12*
U.S. Cl. 401—32 **5 Claims**



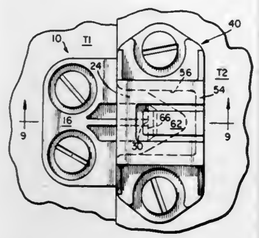
1. A pen for use with an ink cartridge, comprising two pen bodies each having at one end thereof, integrally formed, longitudinally extending, resilient portions, interlockable to each other, for enclosing the cartrige, having an opening in at least one said body at a second end thereof for allowing the point of the cartridge to be projected therethrough in writing position; a seat in at least one said pen body for positioning the cartridge thereon; said pen bodies resiliently interlocked to each other, in not less than two positions, one for moving the cartridge into protract position when the two bodies are moved towards each other manually, and the other position for manually retracting the cartridge when the cartridge when the two bodies are pulled away from each other; the longitudinally extending portions of one body being identical to the longitudinally extending portions of the other body.

4,266,882

TABLE SECTION ALIGNING AND FASTENING DEVICE

Julius B. Wilhelmi, 38 Merrill Rd., Hull, Mass. 02045, and Bert O. Anderson, 18 Maugus Ave., Wellesley, Mass. 02181

Filed Oct. 19, 1978, Ser. No. 952,744
Int. Cl.² F16B *12/00*
U.S. Cl. 403—14 **10 Claims**



1. An aligning and fastening device for interconnecting first and second joinable table sections at respective abutting edges thereof, said device comprising:

A. a male member including

i. a base portion adapted for mounting to the underside of the first table section at its abutting edge,

ii. a nose portion projecting outwardly from one end of said base portion and having a portion including a free end adapted for extending beyond the abutting edge of the first table section when said male member is mounted,

iii. said nose portion having a retaining notch disposed at an intermediate position in said nose portion, said notch being defined by first and second angled surfaces formed in the side of said nose portion between the free end thereof and the base portion; and

B. a female member including

i. a base portion adapted for mounting to the underside of the second table section at its abutting edge,

ii. a channel defining portion defining an alignment channel and an entrance opening adapted to receive said nose portion of said male member when said first and second table sections are abutted together and in alignment, and

iii. a gripping portion comprising an integral finger projecting toward the entrance opening from the end of said female member base portion opposite the entrance opening and having a free end that is resiliently flexible relative to said channel defining portion and that includes a lip normally projecting into the alignment channel, said lip being deflectable out of the alignment channel as said nose portion of said male member is moved into the alignment channel and being resiliently engagable within said retaining notch to hold said nose portion in the alignment channel.

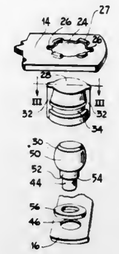
4,266,883

WINDSHIELD WIPER LINKAGE

William C. Riester, Williamsville, and Dionysios D. Papadatos, Kenmore, both of N.Y., assignors to Trico Products Corporation, Buffalo, N.Y.

Filed Apr. 16, 1979, Ser. No. 30,113
Int. Cl.³ F16C *11/00, 11/06*
U.S. Cl. 403—134 **4 Claims**

1. In a transmission linkage assembly for windshield wiper systems including a first linkage member having an aperture including one or more radially extending key slots therethrough, a one piece socket member comprising an internal hollow spherical portion, terminating in an open ended cylindrical portion the socket member being engaged in said aperture, said socket member having one or more external ears positioned to engage said key slots for retaining said socket member against rotation and a second linkage member having a substantially spherical ball terminating in a cylindrical stem affixed thereto and received in said socket member through the



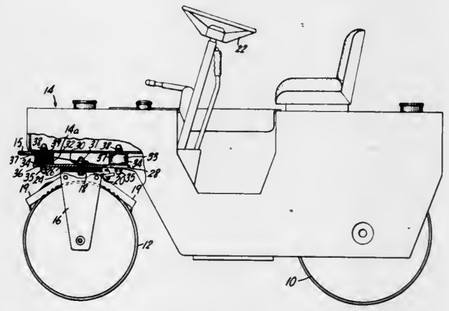
cylindrical end opening characterized in that said socket member is of semi-rigid plastic material having a stress level yieldable without fracturing to the pressure applied during insertion of the ball stem but which will resist yielding to the pressure applied during operation, said socket member includes internal axially extending lubrication distribution and relief slots extending through the edge of the open end and in alignment with said ears and a seal of closed cell, cellular, resilient material is disposed in compression between the periphery of the cylindrical open end of said socket and the surface of said second linkage member circumscribing said cylindrical stem.

4,266,884

RESILIENTLY MOUNTED STEERING YOKE FOR ROAD ROLLER

Eskil Tuneblom, Mount Arlington, N.J., assignor to Dynapac Maskin AB, Solna, Sweden

Filed May 7, 1979, Ser. No. 36,284
Int. Cl.³ E01C *19/26*
U.S. Cl. 404—122 **10 Claims**



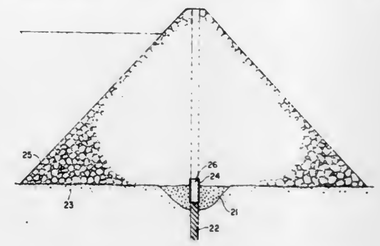
1. In a road roller having a frame, a pair of longitudinally spaced drums, at least one of which is a guide drum, means for supporting the frame on the drums including means for pivotally supporting the frame on the guide drum, and steering means for pivoting the guide drum for steering the road roller, the improvement wherein the guide drum supporting means comprises a vertical pivot means coupled to the guide drum, vertical anti-friction bearing means on the pivot means for permitting the guide drum to pivot horizontally relative to the frame, and flexible support means coupled between the bearing means and the frame and including two longitudinally spaced resilient supports for permitting the tilting of the guide drum relative to the frame around the longitudinal axis and absorbing impact shocks generated by the guide roller when encountering obstacles.

4,266,885

METHOD OF CONSTRUCTING A CONTINUOUS CUT-OFF WALL AND A CORE OF A FILL-TYPE DAM

Kazuaki Naito, Sayama; Takaiki Tetekawa, Kawaguchi; Shigeyuki Sogo, Sayama; Kazuhiko Higaki, Tokyo; Tetu Yasuoka, and Hidetoshi Hosoi, both of Kokubunji, all of Japan, assignors to Ohbayashi-Gumi Ltd., Osaka and Nichireki Chemical Industry Co., Ltd., Tokyo, both of, Japan
Continuation-in-part of Ser. No. 815,457, Jul. 13, 1977, abandoned. This application Oct. 12, 1978, Ser. No. 950,542

Int. Cl.³ E02B *7/04;* E02D *27/00*
U.S. Cl. 405—109 **5 Claims**



1. In a method of constructing a continuous cut-off wall comprising the steps of:

excavating a first wall-shaped pit in the earth;

introducing bentonite slurry into the pit being excavated;

inserting a tremie pipe into said pit;

inserting through said tremie pipe into said wall-shaped pit an impermeable material by replacing said mud water to form a first cut-off wall segment; and

following said first cut-off wall segment thus constructed, constructing a second cut-off wall segment in the same manner as said first cut-off wall segment, said second cut-off wall segment being positioned adjacent to an end of said first cut-off wall segment so as to connect and form a continuous extension of said first cut-off wall segment; and

constructing each subsequent cut-off wall segment in like manner one after another so as to form a continuous cut-off wall in the earth, the improvement wherein said impermeable material comprises at ambient temperature a cement bitumen concrete of a cold-setting property comprising cement 80–250 kg/m³, fine aggregate 600–1000 kg/m³, coarse aggregate 800–1200 kg/m³ and bituminous emulsion 200–400 kg/m³, or a cement bitumen mortar of a cold-setting property comprising cement 200–800 kg/m³, fine aggregate 300–1500 kg/m³ and bituminous emulsion 300–900 kg/m³.

4,266,886

METHOD AND DEVICE FOR CONNECTING A FLOATING INSTALLATION TO AN UNDERWATER INSTALLATION THROUGH AT LEAST ONE FLEXIBLE LINE

Alan Milton, Boulogne sur Seine, France, assignor to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Sep. 8, 1978, Ser. No. 941,097
Claims priority, application France, Sep. 8, 1977, 77 27169
Int. Cl.³ F16L *1/04*
U.S. Cl. 405—169 **18 Claims**

1. A method for connecting a floating surface installation to

an underwater installation through at least one flexible pipe, comprising the steps of:

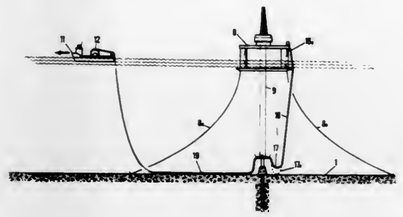
(a) placing onto the water bottom a rigid guide structure of a height smaller than the water depth and comprising at its upper part template support means for supporting said at least one flexible pipe while limiting the curvature thereof;

(b) positioning said floating surface installation above said guide structure;

(c) positioning a barge in the vicinity of said floating surface installation, said barge carrying at least one flow line connected at one end thereof to said at least one flexible pipe by means of a connecting element at one end of said at least one flexible pipe;

(d) passing a handling line, connected to a mouthpiece element at the other end of said at least one flexible pipe, from said barge to said floating surface installation;

(e) lowering said handling line by means of a complementary



element, adapted to engage said template support means of said rigid guide structure, from said floating surface installation to said rigid guide structure and thereafter engaging said complementary element with said template support means in a spaced relationship, thereby providing adequate guiding space between said template support means and said complementary element for the passage of said handling line and said at least one flexible pipe;

(f) exerting from said floating surface installation a pull on said handling line so that said at least one flexible pipe passes through said guiding space of said template support means, forming, by gravity, a loop portion of limited height between said support means and a substantially vertical portion of said at least one flexible pipe suspended from said floating surface installation; and

(g) connecting said at least one flexible pipe to said surface installation and connecting said at least one flow line to said underwater installation.

4,266,887

SELF-ELEVATING FIXED PLATFORM

Paul R. Corder, Baytown, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed Jun. 10, 1977, Ser. No. 805,326
Int. Cl.³ E02B *17/02, 17/08*
U.S. Cl. 405—196 **46 Claims**

1. A mobile, offshore platform assembly comprising

a base member having a fluid-tight compartment,

means for adapting the fluid-tight compartment to store petroleum products,

said base member having sufficient buoyancy when said fluid-tight compartment is filled with a gas to be the prime buoyancy element of said platform assembly,

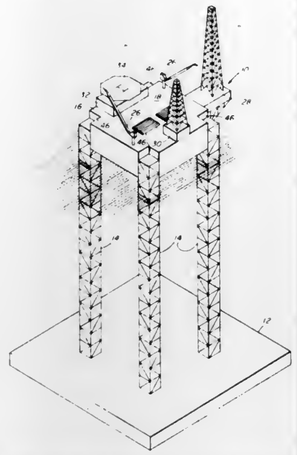
a deck member,

a plurality of open, truss-like, elongated support leg structures, said leg structures being permanently secured to the base member and having a substantially vertical orientation, and said legs being connected to the base member to provide a force resistant to vertical flexing of the base member,

each of the truss-like leg structures intersecting a plane defined by an upper-work surface of the deck member at positions not intersecting the work surface defined by the deck member,

said truss-like leg structures being positioned at the vertices of a polygon,

a plurality of jack elements secured around an outside periphery of the deck member and oriented to engage, substantially at the periphery, respective cooperating elements on said leg structures to vary the spacing between the deck and the base,



a plurality of lateral support means attached to said peripherally located support legs and spaced outward away from the deck to permit the deck to move in a non-interfering relationship with respect to the base member, and to provide a force resistant to lateral movement of the leg structures,

whereby said base can be lowered to engage a submerged water bottom and said deck can be raised above the water surface.

4,266,888

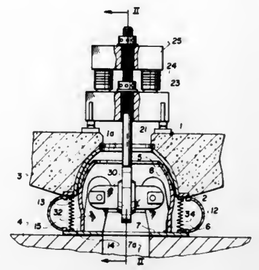
SPHERICAL JOINT FOR CONNECTING A CONCRETE TOWER SUPPORTING A WATER SURFACE FOUNDATION TO A SEA FOUNDATION

Karl Bayer, Stuttgart-Wangen; Heinz G. Butt, Pinneberg, and Jürgen Salewski, Hamburg, all of Fed. Rep. of Germany, assignors to Gutehoffnungshütte Sterkrade AG and Fa. Bilfinger & Berger, both of, Fed. Rep. of Germany

Filed Dec. 14, 1978, Ser. No. 969,689
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1977, 2755592
Int. Cl.³ E02B *17/00*
U.S. Cl. 405—202 **23 Claims**

1. A joint connection between a concrete tower supporting a surface platform in a sea foundation, comprising an outer hemispherical socket shell adapted to be secured to the concrete tower, an inner head having a hemispherical shell portion within said outer hemispherical socket shell and having a lower portion extending downwardly from said shell portion, lubricated slide shoe means disposed between said hemispherical shell portion of said inner head and said outer hemispherical socket shell, a horizontal base plate secured to said lower portion of said inner head and having an opening therethrough defining a line conveying passage, a support gimbal secured to said inner head, a pull rod connected to said support gimbal and extending upwardly therefrom, and prestressing means connected to said pull rod to prestress it in a direction to urge said hemispherical shell portion of said inner head into pivotal interengagement with said outer hemispherical socket shell,

and cover means connected between said base plate and said outer hemispherical socket shell to protect the pivotally inter-



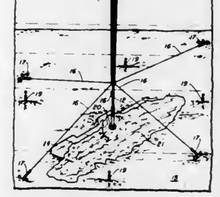
engaged hemispherical shell portion of said inner head and said outer hemispherical socket shell.

4,266,889

SYSTEM FOR PLACING FRESHLY MIXED CONCRETE ON THE SEAFLOOR

Robert D. Rail, Ojai, and Harvey H. Haynes, Camarillo, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 23, 1979, Ser. No. 96,852
Int. Cl.³ E02D *15/06*
U.S. Cl. 405—223 **14 Claims**



1. A system for placing freshly mixed concrete on the seafloor at great depths, comprising:

a. a surface platform means;

b. a pipeline means extending from said surface platform means to the seafloor for transferring concrete mix from said surface platform means to the seafloor;

c. A discharge means at the seafloor end of said pipeline means;

d. said discharge means comprising:

a telescoping slip joint means which accommodates a portion of the seafloor end of said pipeline means and operates as a heave control for allowing vertical movement of the pipeline means therein while decoupling the discharge means from any vertical motion of said pipeline means;

an expansion chamber where velocity of concrete mix flowing through the pipeline means is reduced;

a discharge end, from which flowing concrete mix from said pipeline means is discharged;

a deflector means for directing downward flowing concrete mix to a horizontal flow, and which negates the vertical lift component of discharging concrete mix;

a means positioned about said discharge means for maintaining said discharge end at a desired fixed depth of burial in a mound of discharged concrete;

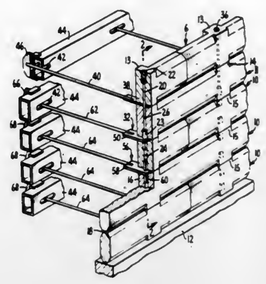
e. said discharge means operable for controlling the placement of concrete mix on the seafloor, and on objects and structures in the vicinity of the seafloor.

4,266,890

RETAINING WALL AND CONNECTOR THEREFOR

William K. Hilfiker, Eureka, Calif., assignor to The Reinforced Earth Company, Washington, D.C.

Filed Dec. 4, 1978, Ser. No. 966,119
Int. Cl.³ E02D *17/00*
U.S. Cl. 405—286 **3 Claims**



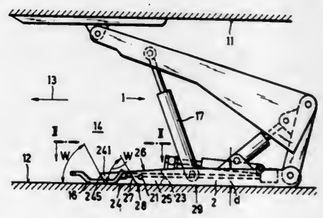
1. A retaining structure comprising: elongate stacked preformed stretchers having stacking pads with opposed slots formed therein, said slots extending in a direction perpendicular to the elongate dimension of the stretchers; connector plates interposed between the stretchers in apposition to the stacking pads thereof, each said plate resting on and being supported by the stretcher therebelow and having fixedly secured thereto and extending thereabove and therebelow retaining pins engaged in the opposed slots of the stacking pads to maintain the stretchers in aligned stacked relationship; at least certain of said plates, having an anchor rod secured thereto and extending therefrom to an embedded anchor beam having a slot extending therethrough; and anchor plates secured to the distal ends of said rods in a disposition perpendicular to the connector plates secured thereto for extension through the slots when aligned therewith, and abutting engagement with the beams when turned to a position where the connector plates are interposed between apposed stacking pads.

4,266,891

SUPPORT ASSEMBLIES FOR MINE WORKINGS

Lubomir Plevak, Lünen, and Jürgen Dodt, Menden, both of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenbutte Westfalia, Lünen, Fed. Rep. of Germany

Filed Dec. 29, 1978, Ser. No. 974,538
Claims priority, application Fed. Rep. of Germany, Jan. 5, 1978, 2800376
Int. Cl.³ E21D *15/44*
U.S. Cl. 405—291 **14 Claims**



1. In or for a support assembly as used in a mineral mining installation; an improved floor skid structure which comprises:

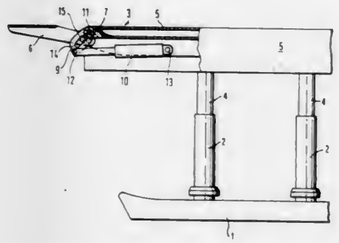
at least one skid provided with upper and lower surfaces, side surfaces and front and rear ends relative to the mineral face of the mine working in which the assembly is used, the lower surface of the skid being engageable with the floor of said working, a plurality of recesses in the front end of the skid, said recesses being spaced-apart laterally of the skid, a separate extension component provided with upper and lower surfaces, side surfaces and projections at one end, separate additional components each provided with upper and lower surfaces, wherein the extension component is locatable at the front end of the skid with its projections received in said recesses and its upper, lower and side surfaces forming continuations of the respective upper, lower and side surfaces of the skid and the additional components are receivable in the recesses when the extension component is not in use with their upper and lower surfaces substantially flush with the respective upper and lower surfaces of the skid to fill the recesses, and wherein means is provided to secure the extension component and the additional components to the skid detachably and optionally.

4,266,892

HYDRAULIC ROOF-SUPPORT FRAME

Alfred Maykemper, Wuppertal, Fed. Rep. of Germany, assignor to Hermann Hemscheidt Maschinenfabrik GmbH & Co., Wuppertal, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 53,833
Int. Cl.³ E21D *17/02*
U.S. Cl. 405—293 **6 Claims**



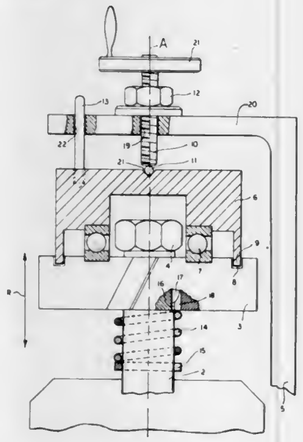
1. An hydraulic roof-support frame comprising:
(a) a base assembly;
(b) a roof-engaging assembly;
(c) extensible and retractable hydraulic props extending between the roof-engaging assembly and the base assembly for raising and lowering the roof-engaging assembly, said roof-engaging assembly comprising a main roof-engaging structure connected to upper ends of the props and an auxiliary roof-engaging structure mounted on the main roof-engaging structure for pivotal movement about a generally horizontal axis between a stowed position in which it lies folded back beneath the main roof-engaging structure and an operative position in which it extends outwardly from the main roof-engaging structure in a position to assist in supporting a roof;
(d) a double acting extensible and retractable hydraulic jack operable unidirectionally to effect pivotal movement of the auxiliary roof-engaging structure from one of its said positions to the other; and
(e) a drive linkage operatively connecting said jack to said auxiliary roof-engaging structure, said drive linkage including a link member pivotally connected at a first end region thereof to the main roof-engaging structure at a point above said generally horizontal axis and pivotally connected at a second and opposite end region thereof to one end of said jack, a second and opposite end of the jack being pivotally connected to the main roof-engaging structure so that movement of the jack pivots the link member about its pivotal connection with the main roof-engaging structure, said pivotal link being drivingly connected with the auxiliary roof-engaging structure by a pin-and-slot mechanism comprising a pin slidable along a slot, one of said pin and said slot being provided on the link member and the other of said pin and said slot being provided on said auxiliary roof-engaging structure, movement of the link member through a first given angle producing pivotal movement of the auxiliary roof-engaging structure through a second and larger angle.

4,266,893

POSITIONER FOR ROTARY TOOL

Johannes Tröger, Radebeul; Gernot Läuter, and Heinrich Spörl, both of Dresden, all of Fed. Rep. of Germany, assignors to Forschungsinstitut für Holztechnologie, Dresden, German Democratic Rep.

Filed Oct. 16, 1978, Ser. No. 951,875
Int. Cl.³ B23C *5/26*
U.S. Cl. 409—206 **6 Claims**



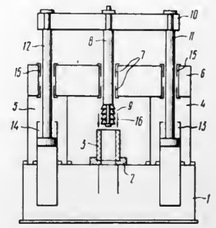
1. In an apparatus having a tool carried on an end of a tool shaft having and rotatable about a shaft axis relative to a support, the improvement comprising:
mounting means including at least one axially extending formation between said shaft and said tool for rotationally coupling said shaft and said tool and for axial displacement of said tool along said shaft;
a compression spring surrounding said shaft and braced axially between said tool and said shaft for rotating with said shaft and tool and for urging said tool axially in one direction along said shaft; and
positioning means between said support and said tool having a threaded spindle extending on said axis toward said shaft and threadedly engaging said support, a force-transmitting element lying on said axis and having one side bearing axially in said one direction on said spindle and another side, and an axial-thrust bearing having one axial end bearing axially in said one direction on said force-transmitting element and another axial end bearing axially in the opposite direction on said tool against the force of said spring.

4,266,894

VERTICAL BROACHING MACHINE FOR INTERNAL BROACHING

Georgy I. Zuzanov, ulitsa Vavilova, 93, kv. 39; Jury P. Ignatov, 4 mikroraion Yaseneva, 170, kv. 278, and Sergei P. Chinenov, 4 Verkhne-Mikhailovsky pereulok, 10, korpus 5, kv. 260, all of Moscow, U.S.S.R.

Filed Sep. 11, 1978, Ser. No. 941,071
Int. Cl.³ B23D *37/10, 41/04*
U.S. Cl. 409—283 **1 Claim**



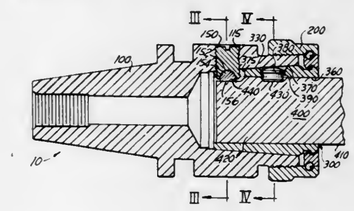
1. A vertical broaching machine for internal broaching, comprising: a base for mounting a blank being machined; a cross-piece supported for movement towards and away from said base; a mandrel having one end fixed to said cross-piece and one end supporting a broach; a spring collet positioned at the bottom of the broach and coaxial therewith, said collet centering a blank with respect to said broach during movement of the cross-piece towards the base; a guide supported by said base and located between said fixed end of said mandrel and said end supporting said broach; said guide having a passage for said mandrel in the course of said internal broaching of said blank; a hydraulic drive connected with said mandrel for imparting movement thereto, said base having uprights extending vertically upward therefrom and said guide being made as a traverse resting against said uprights and having said passage for said mandrel and two additional passages spaced at equal distances from said mandrel passage, said hydraulic drive including hydraulic cylinders having rods guided in said two additional passages of said traverse, each one of said hydraulic cylinders being located partly in the base and partly in one of said uprights, while the ends of said rods are interconnected above the traverse by the cross-piece supporting the mandrel.

4,266,895

HIGH TORQUE CHUCK ASSEMBLY AND COLLET

David L. Lewis, Darien, Ill., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jan. 9, 1979, Ser. No. 2,118
Int. Cl.³ B23C *5/26*; B23B *31/04*
U.S. Cl. 409—232 **6 Claims**



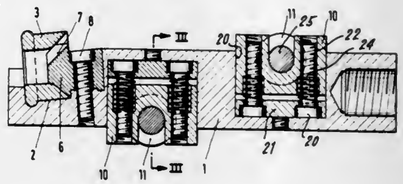
1. A chuck assembly for retaining a tool comprising:
a chuck body having an outer surface, an internal, rearwardly tapering bore and a radial aperture extending through the body between the outer surface and the bore;
a collet mounted within the tapering bore of the chuck body, said collet including a tool receiving bore and means for locking a tool mounted within the bore against axial pull-out therefrom, said collet also including an aperture extending therethrough into the bore and aligned with the radial aperture of the chuck body; and
means for securing the chuck body to a tool mounted within the tool receiving bore of the collet, said securing means including a flat surface pivotally coupled to said chuck body, said securing means mounted to said chuck body and extending through the aligned radial apertures in said chuck body and collet.

4,266,896

DEBURRING TUBES OR PIPES ON THE INSIDE

Friedrich Meier, Remscheid, and Hugo Philipp, Hilden, both of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf and Röchlingburbach Weiterverarbeiting GmbH, Völklingen, both of, Fed. Rep. of Germany

Filed May 7, 1979, Ser. No. 29,449
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1978, 2816895
Int. Cl.³ B23D *1/24*
U.S. Cl. 409—299 **7 Claims**



1. Tool for deburring the interior of a pipe or tube, comprising:
a tool holder of elongated construction;
resilient guide means in the holder for engagement with the wall of the tube or pipe to position the holder therein;
an annular cutter, having an axis and a circular cutting edge on one end, the edge having a diameter which exceeds the axial length of the cutter, there being an obliquely oriented recess in the tool holder, the cutter further having an annular bead at the other end;
means for clamping the cutter in the recess; and
the cutter being mounted in and clamped to said recess at an upwardly inclined slope of said axis, the recess having a contour to match a cylindrical contour of the cutter and of the bead as placed into said portion of the recess, while a radially, oppositely located portion of the bead will engage a deburred wall portion of the pipe or tube in axial alignment with the operational cutting edge.

4,266,897

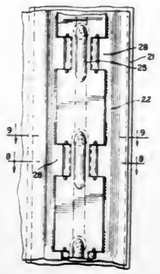
LADING TIE ANCHOR

Finn Jensen, Dolton, Ill., assignor to Illinois Railway Equipment Company, Chicago, Ill.

Filed Mar. 19, 1979, Ser. No. 21,573
Int. Cl.³ B61D *45/00*
U.S. Cl. 410—113 **7 Claims**

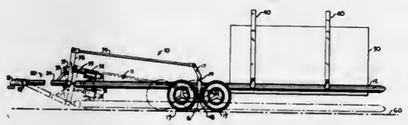
1. Lading tie anchor means for installation in the side lining and doorpost channels of a box car comprising an elongated scoop member for securement in said side lining or channels and including a longitudinally extending concave section adapted to be recessed within said side lining or channels and having tie bar locator formations in said concave section, and a tie bar welded to and within said concave section, said tie bar being formed from a strip of light gauge material of uniform width so as to have repetitive series of formations therealong with each series including a wide section having a width only slightly less than said uniform width and the opposing edges of which are welded to said concave section of said scoop adjacent the side margins thereof, a narrow width section spaced

from said concave section and the opposing free side edges of which are rounded and rigidified on being formed by folding margins of said light gauge metal over on itself, and rigidifying



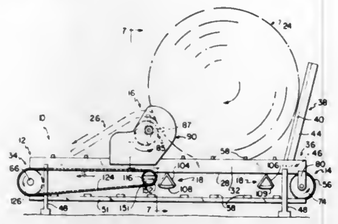
formations located partially in said narrow width sections; at least a portion of said rigidifying formations having tie bar locating-engagement with said tie bar locator formations in said concave section of scoop.

4,266,898
BALE CARRIER
Merlin D. Jacobsen; David O. Jacobsen, both of Dallas, and Claude E. Harrison, Lucas, all of S. Dak., assignors to H & J Sales, Dallas, S. Dak.
Continuation of Ser. No. 725,373, Sep. 22, 1976, abandoned. This application Apr. 23, 1979, Ser. No. 32,631
Int. Cl.³ A01D *87/12;* **B60P** *1/02*
U.S. Cl. 414—24.5 **5 Claims**



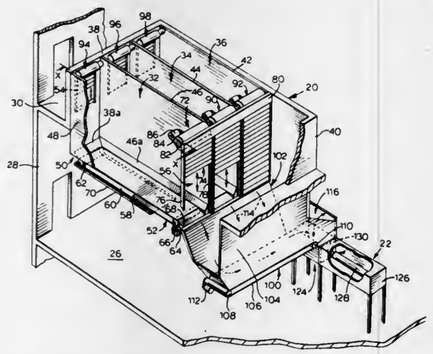
1. A bale carrier apparatus for loading and transporting large cylindrical hay bales, comprising:
a frame means having a front end and a rear end for receiving and supporting a cylindrical bale thereon, said cylindrical bale having a diameter substantially of a predetermined distance, said frame means including:
a pair of spaced apart parallel support arms connected together at the said front end of the frame means and extending to free ends at the rear ends thereof, said support arms being spaced apart at a distance substantially less than said predetermined distance, and an upwardly and outwardly extending U-shaped member rigidly attached at each end thereof to said support arms, said member having an inner unobstructed passageway therethrough, said passageway having a lateral and a vertical distance of substantially more than said predetermined distance for allowing unobstructed passage of said cylindrical bale onto said support arms, said upwardly and outwardly extending U-shaped members further being laterally spaced beyond wheel assemblies pivotally affixed to said support arms; and
a lever arm first actuating means connected to said frame and to said wheel assemblies for selectively raising and lowering said frame relative to said wheel assemblies between a lower position wherein the said support arms are substantially in contact with and parallel to the ground, and an upper position wherein the bales are not in contact with the ground.

4,266,899
ROUND BALE FEEDER
Wayne B. Skeem, 1742 Targhee Dr., Twin Falls, Id. 83301
Filed Apr. 30, 1979, Ser. No. 34,932
Int. Cl.³ A01F *25/20;* **B65H** *75/42*
U.S. Cl. 414—24.6 **19 Claims**



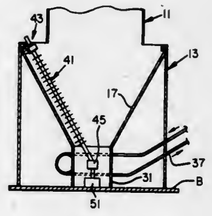
1. An apparatus for feeding a spirally wrapped round bale of fibrous material, the combination comprising:
a substantially flat support having first and second ends and a retaining wall adjacent said second end;
an endless conveyor, coupled to said support, having top and bottom runs, said top run extending across the top of said support and moving from said second end to said first end;
a restriction roller, rotatably mounted on said support between said first and second ends and above said top run, said roller having gripping means extending therefrom for gripping the fibrous material and pulling it over said roller and towards said first end; and
means on said support for rotating said roller and driving said conveyor,
whereby a round bale of fibrous material is positionable between said roller and said retaining wall with the bottom supported on said conveyor top run and with an outer end of the spirally wrapped material engaged by said gripping means so that the fibrous material is unwrapped and fed off said support at said first end when said means for rotating is driven.

4,266,900
MATERIAL HANDLING APPARATUS
Douglas W. Rynyk, Toronto, Canada, assignor to Canada Square Management Ltd., Toronto, Canada
Filed Mar. 5, 1979, Ser. No. 17,309
Claims priority, application Canada, Jul. 4, 1978, 306714
Int. Cl.³ B65G *65/42, 65/58;* **F23G** *3/00*
U.S. Cl. 414—285 **1 Claim**



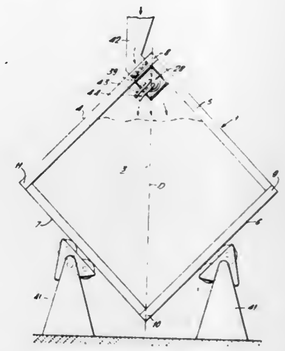
1. Material handling apparatus comprising:
a plurality of temporary storage compartments each having a first end at which material can be loaded into the compartment and a second end opposite said first end from which material can be discharged, each compartment including: a belt conveyor which forms a bottom wall of the compartment and which extends from said first end to said second end of the compartment, said conveyor being operable periodically to move material loaded into the compartment at said first end longitudinally of the compartment in a direction towards said second end for temporary storage; a first end wall having an opening through which material can be introduced into the compartment generally in the direction in which material is moved through the compartment by said conveyor; side walls extending upwardly adjacent respectively opposite sides of said conveyor for laterally constraining material in said compartment; and closure means at said second end of the compartment providing an obstruction to normally prevent discharge of material from said second end of the compartment and allow material fed towards said second end by said belt conveyor to be accumulated for temporary storage behind said closure means, said closure means being adapted to be opened at appropriate times to allow stored material to be discharged from said compartment by operating said belt conveyor, said closure means comprising a pair of transversely spaced upright guides defining therebetween an opening through which material can be discharged from the compartment, a slat-type roll-up door received in said guides, a mandrel which is rotatable about a longitudinal axis and onto and from which the door can be wound, and means for raising and lowering the door by turning said mandrel;
said compartments all being of substantially the same rectangular shape and size and being disposed side-by-side with said first end walls in alignment, said closure means in alignment, and said conveyor means extending parallel to one another; and,
a further belt conveyor extending across said second ends of the compartment in a direction generally normal to said parallel belt conveyors and positioned below said conveyors to receive material discharged from said compartment, said further belt conveyor being operable to deliver said material to a common discharge location laterally of said compartments.

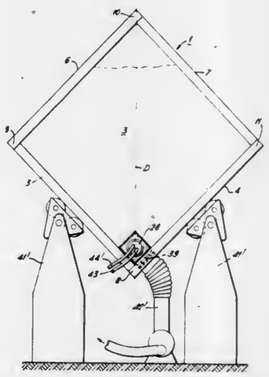
4,266,901
STORAGE BIN HAVING DRIVEN AGITATOR
Henry W. Schuette, Tigard, Oreg., assignor to Wellons, Inc., Sherwood, Oreg.
Filed Nov. 3, 1978, Ser. No. 957,455
Int. Cl.³ B65G *65/48;* **F16H** *27/02*
U.S. Cl. 414—305 **4 Claims**



4. In a structure of the class described:
an agitator, p1 means for driving the agitator in a circular path around a feeding zone,
said means including a circular raceway,
an elongate drive chain in said raceway connected to said agitator,
and reciprocating means engaging said elongate drive chain for advancing the latter around said raceway and thus causing desired movement of said agitator,
a take up mechanism connecting end portions of said chain, said take up mechanism providing simulated chain elements engageable by said reciprocating means.

4,266,902
TRANSPORT CONTAINER
Georg L. K. Forsberg, Nylandsgatan 14, 654 65 Karlstad, Sweden
Filed May 14, 1979, Ser. No. 38,905
Claims priority, application Sweden, May 19, 1978, 7805744
Int. Cl.³ B65G *65/46*
U.S. Cl. 414—332 **7 Claims**





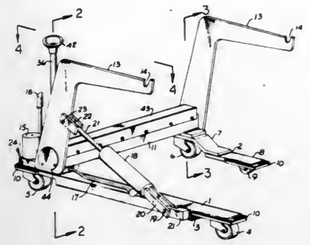
1. A transport container for transportation of bulk products, said container being substantially parallelepipedically formed and having sides, gables and longitudinal corners, tube feeder means for loading and unloading bulk products into and out of said container located in a first longitudinal corner of the container and extending between the container gables, said tube feeder means including a perforated drum and a worm conveyor located within the drum, said container and said tube feeder means cooperating so that when said first longitudinal corner of the container is positioned to be at substantially the vertically highest point of the container the tube feeder means can load said container with bulk product substantially evenly distributed in said container to substantially completely fill same, and when said first longitudinal corner is positioned to be at substantially the vertically lowest point of the container the tube feeder means can substantially evenly and substantially completely unload said container.

4,266,903

LIFTING DOLLIE

Louis M. Surbrook, Seattle, Wash., assignor to Offset Newspaper Equipment Inc., Atlanta, Ga.

Filed Aug. 27, 1979, Ser. No. 70,097
Int. Cl.[3] B66C *23/00*
U.S. Cl. 414—428 **1 Claim**



1. A dollie for lifting and transporting articles comprising:
(a) two side frames spaced apart with each frame having a front and rear end and at least one wheel supporting each end of the frame, in which the wheel supporting the rear end of one side of the frame is a castor wheel, rotatably attached to the frame by a stem to which a co-axial sprocket wheel is fixedly attached with a drive chain extending around the wheel and a corresponding sprocket wheel fixedly attached to a steering shaft rotatably attached to the rear end of the other side frame so that the castor wheel can be steered from a remote location near the other side frame;
(b) a tubular transverse frame interconnecting the rear end of each side frame, with the transverse frame having an open end adjacent to each side frame;
(c) a pivot member with a circular and tubular cross-section extending through the transverse frame with an end extending beyond each of the open ends of the transverse frame, with the stem of the castor wheel extending through slots in the pivot member;
(d) a pair of lifting arms with each arm rigidly attached to an end of the pivot member and the pair of arms extending toward the front ends of the side frames; and
(e) lifting means for raising and lowering the lifting arms.

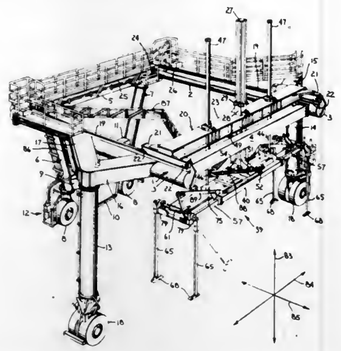
4,266,904

ADJUSTABLE LOAD LIFTING SPREADER FRAME

Quinten K. Fadness, Boring, Oreg., assignor to RayGo, Inc., Minneapolis, Minn.

Filed May 31, 1979, Ser. No. 44,006
Int. Cl.[3] B62D *43/00*
U.S. Cl. 414—460 **12 Claims**

1. In a spreader frame assembly for handling shipping containers and the like, the combination comprising:
a supporting member;
a horizontal spreader frame having load engaging means on its lower side;
a vertically adjustable reaction member swivelly connected to the upper side of said frame at a position medial of the frame ends which is restrained from rotation;
means movably mounting the reaction member on the supporting member;
a rotate cylinder connected between said frame and said reaction member to rotate said frame about a vertically extending axis;
a tilt cylinder connected between said frame and said reaction member to rotate said frame about a horizontal axis;
lifting means connected to said frame at positions on opposite sides of said positioning column for raising and lowering the frame ends thereby causing vertical adjustment of said reaction member; and



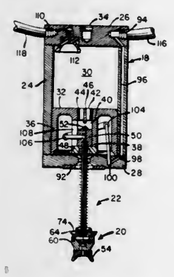
translating operating means connected to said supporting member and reaction member for tilting the reaction member to effect a translation of said frame.

4,266,905

APPARATUS FOR ACQUIRING WORKPIECES FROM A STORAGE BIN OR THE LIKE

John R. Birk, Peace Dale; Robert B. Kelley, Kingston, and Richard P. Tella, Ashaway, all of R.I., assignors to Board of Regents for Education of the State of Rhode Island, Providence, R.I.

Filed Apr. 20, 1979, Ser. No. 32,239
Int. Cl.[3] B65G *47/00*
U.S. Cl. 414—627 **12 Claims**



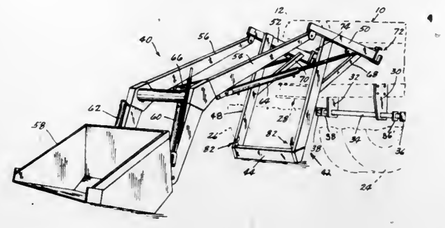
1. Apparatus for acquiring individual workpieces from a supply of randomly oriented workpieces in a storage bin or the like comprising
a movable mounted head assembly and an abutment surface on said head assembly;
gripping means flexibly connected to said head assembly by support means;
operating means associated with said support means and said head assembly for moving said gripping means relative to said head assembly between an extended position spaced from the abutment surface and at which the flexibility of said support means permits said gripping means to movably adjust to a randomly oriented workpiece contacted thereby, and a retracted position in contact with said abutment surface at which both the gripping means and the workpiece gripped thereby are fixed relative to the head assembly,
said gripping means operating to grip a workpiece contacted thereby during movement of said head assembly; and,
sensing means responsive to a contact force exerted by said flexibly connected gripping means on a workpiece for generating a control signal.

4,266,906

MATERIALS HANDLING DEVICE AND THE METHOD OF MOUNTING THE SAME ON A TRACTOR

Joseph W. Langenfeld, and Neal W. Westendorf, both of Onawa, Iowa, assignors to Westendorf Manufacturing Co., Onawa, Iowa

Filed Jun. 28, 1979, Ser. No. 52,904
Int. Cl.[3] E02F *3/70*
U.S. Cl. 414—686 **4 Claims**



1. In combination,
a tractor having rearward and forward ends and opposite sides,
first and second support members extending laterally from opposite sides of said tractor rearwardly of the forward end thereof,
connection means at the forward end of said tractor,
and a materials handling apparatus mounted on said first and second support members and said connection means,
said apparatus comprising a substantially U-shaped sub-frame means having spaced-apart and rearwardly extending side frame members with rearward and forward ends,
a tower member operatively secured to the rearward end of each of said side frame members, a boom member pivotally secured at its rearward end to each of said tower members and extending forwardly therefrom, a materials handling implement at the forward end of said boom members,
a hydraulic cylinder means for pivotally moving said boom members relative to said towers,
each of said towers having a rearwardly presented U-shaped channel provided at the lower end thereof adapted to receive said laterally extending support members therein,
each of said towers having a downwardly extending finger portion at the upper rearward end of said channel which is adapted to pivotally engage one of said first and second laterally extending support members to limit the relative longitudinal movement of the sub-frame means with respect to said tractor and to position said channels relative to said laterally extending support members during power mounting of said apparatus on said tractor.

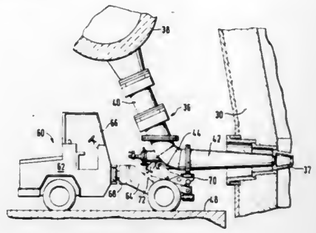
4,266,907

DEVICE FOR HANDLING THE VARIOUS COMPONENTS OF AN INSTALLATION FOR THE INJECTION OF PRE-HEATED AIR INTO A SHAFT FURNACE

Pierre Mailliet, Howald, Luxembourg, assignor to Paul Wurth, S.A., Luxembourg

Filed Jul. 24, 1978, Ser. No. 927,583
Claims priority, application Luxembourg, Jul. 29, 1977, 77878; Jun. 22, 1978, 77865
Int. Cl.[3] F27B *1/10*
U.S. Cl. 414—687 **23 Claims**

1. Apparatus for supporting and positioning components of a system for the injection of gas into a shaft furnace comprising:
elongated lifting arm means;
component handling means for releasable supporting and positioning a component of a gas injection system, said component handling means being mounted on said arm means adjacent a first end thereof and being pivotal with respect to said arm means about a first vertical axis;
lifting arm support means, said arm means being movable with respect to said support means to provide for raising and lowering of said component handling means, said support means further being pivotal about a second vertical axis; and



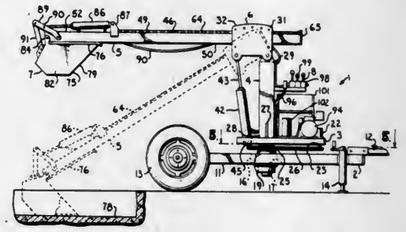
control means for releasably engaging said support means, said control means coupling said support means to said control means adjacent the second end of said arm means, said control means including detachable hinge means which defines said second vertical pivot axis.

4,266,908

EXCAVATING APPARATUS

Donald G. Leiker, 1512 N. 13th St., Garden City, Kans. 67846

Filed Jun. 21, 1979, Ser. No. 50,636
Int. Cl.[3] E02F *3/46*
U.S. Cl. 414—690 **4 Claims**



1. An excavating apparatus comprising:
(a) a mobile chassis for towing by a vehicle and having frame members with wheels rotatably mounted thereto for transport;
(b) a platform positioned in overlying, supported relation to said chassis and having an axial member extending between and connected to said platform and said chassis frame members providing relative horizontal rotation of said platform;
(c) drive means effecting rotation of said platform relative to said chassis including a hydraulic motor driving a first sprocket connected to a second sprocket nonrotatably mounted to said chassis via an endless drive chain member;
(d) an upwardly extending standard mounted to said platform and having a free end spaced from said platform;
(e) a guide means pivotally mounted to said standard free end for up and down swinging movement and having spaced side walls with roller members extending therebetween;
(f) an elongate, rigid boom structure mounted for forward and rearward longitudinal reciprocal movement to said guide means and having respective forward and rearward ends and top and bottom walls, said boom structure extending through said guide means between said side walls

and supported therein by said roller members, said boom structure having a drive chain member connected thereto and generally extending between said forward and rearward ends along said top wall, said guide means having a hydraulic motor mounted to one of said side walls and driving a sprocket in engagement with said drive chain member and operable to longitudinally move said boom structure forwardly and rearwardly through said guide means;

(g) a hydraulic ram extending between and connected to said guide means and said platform for swinging said boom structure upwardly and downwardly;

(h) a bucket member swingably mounted to the forward end of said boom structure and a bucket cover member mounted to the bottom wall of said boom structure adjacent said forward end, said bucket member having a generally planar bottom portion and an open top for scooping material therein whereby said bucket member is rotatable forwardly to excavate and scoop material thereinto and rotatable rearwardly against said cover member to close said bucket member;

(i) a hydraulic ram and a pivotal linkage structure extending between and mounted to said boom structure and said bucket member and operable to swing said bucket member forwardly and rearwardly; and

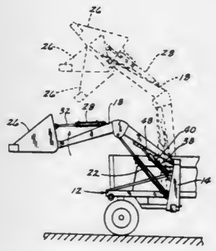
(j) control means and an operator's area upon said platform and rotatable therewith, said control means including valve members for operating said platform, boom structure, and bucket member.

4,266,909

MEANS FOR HYDRAULIC SELF-LEVELING OF A LOADER BUCKET

Joseph W. Langenfeld, Onawa, and Neal W. Westendorf, Smithland, both of Iowa, assignors to Westendorf Manufacturing Co., Onawa, Iowa

Filed Jan. 29, 1979, Ser. No. 7,476
Int. Cl.³ B66F 9/22
U.S. Cl. 414—700 **3 Claims**



1. In combination,

a tractor,

a front-end loader apparatus mounted on said tractor including a pivotal boom means movable between raised and lowered positions and having a materials handling member pivotally mounted at the forward end thereof, said materials handling member adapted to support material therein and being movable from a level positon to either a dump position or a tipped-back position, said loader apparatus including a first hydraulic cylinder means for pivotally moving said boom means with respect to said tractor to raise and lower said materials handling member, said loader apparatus also including a second hydraulic cylinder means for pivotally moving said materials handling member between its dump and tipped-back positions,

and a third hydraulic cylinder means operatively connected to said boom means so that pivotal movement of said boom means causes the cylinder rod thereof to be retracted or extended depending upon the movement of said boom means,

said third hydraulic cylinder means fluidly connected to said second hydraulic cylinder means so that retraction or extension of said third hydraulic cylinder means, as said boom means pivotally moves, causes predetermined retraction or extension of said second hydraulic cylinder to maintain said materials handling member in its level position,

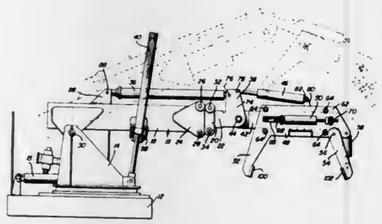
said second hydraulic cylinder means being fluidly connected to said third hydraulic cylinder means so that said boom means may be moved from its upper position to its lower position when said materials handling member is in its tipped-back position and so that said boom means may be moved from its lower position to its upper position when said materials handling member is in its dump position.

4,266,910

PIPE POSITIONER BOOM AND HEAD ASSEMBLY FOR PIPE LAYING FRAME

Kenneth L. Pickard, Tulsa, Okla., assignor to Pickard Equipment, Inc., Rochester, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,215
Int. Cl.³ B25J 3/00
U.S. Cl. 414—735 **8 Claims**



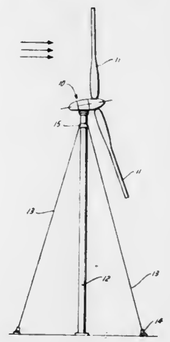
1. A grapple crane including a mount, an elongated boom including an elongated base section and at least one elongated extension section telescopingly supported from said base section for shifting between extended and retracted positions relative to one end of said base section and defining a free end section of said boom, first motor means operatively connected between said base and said extension section for controllably shifting said extension section relative to said base section, means pivotally supporting the other end of said base section from said mount for oscillation relative thereto about a horizontal axis extending transversely of said base section, second motor means operatively connected between said base section and said mount for adjustably angularly positioning said base section relative to said mount, a generally horizontal elongated support arm having one end pivotally supported from the free end of said extension section for oscillation relative thereto about a horizontal axis extending transversely of said arm and extension section, third motor means operatively connected between said extension section and said support arm for limited adjustable angular displacement of said support arm relative to said extension section, an elongated follower guidingly mounted on said support arm for adjustable shifting therealong, fourth motor means operatively connected between said arm and said follower for adjustably shifting the follower along said arm, one end portion of said follower including a first elongated depending jaw supported therefrom facing toward the other end portion of said follower, a second elongated laterally depending jaw pivotally supported at its upper end portion from the other follower end portion for oscillation about an axis extending transversely of said follower and second jaw, and fifth motor means operatively connected between said follower and second jaw operative to adjustably angularly displace said second jaw relative to said follower, the lower end portions of said jaws including article engaging surfaces each facing toward the other jaw, said follower including a pair of opposite side plates between which said support arm is received, upper and lower pairs of longitudinally spaced rollers journaled between said plates and rollingly engaged with the upper and lower surfaces of said support arm, one of said plates including an elongated longitudinally extending slot, said support arm including a laterally outwardly projecting lug slidingly received in said slot, said fourth motor means being operatively connected between the outer end portion of said lug and said follower.

4,266,911

WIND POWER PLANT AND METHOD OF ERECTING IT

Siegfried Helm, Petershausen, and Peter Sprang, Munich, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 4, 1979, Ser. No. 36,272
Claims priority, application Fed. Rep. of Germany, May 30, 1978, 2823525
Int. Cl.³ F03D 11/04
U.S. Cl. 416—9 **11 Claims**



1. A wind power plant comprising

(a) a wind power system including a power house having vanes rotatable by the wind,

(b) a tower carrying said power house, said tower being so constructed that it has a lower natural frequency of vibration between the lower and higher critical frequencies of vibration of said power system, and said tower being so constructed that it has a higher natural frequency of vibration above the higher critical frequency of vibration of said power system, and

(c) guy means supporting said tower.

4,266,912

ROTOR BLADE SUPPORT SETUP FOR ROTARY WING AIRCRAFT

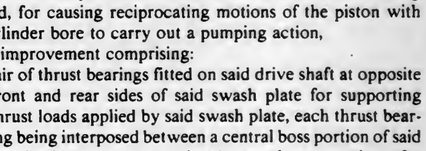
Stephan Roman, 5 Milford Rd., R.D. 2, Downingtown, Pa. 19335

Filed Oct. 6, 1978, Ser. No. 949,277
Int. Cl.³ B64C 27/38
U.S. Cl. 416—141 **6 Claims**

1. A support for an aircraft provided with at least one rotary wing setup, comprising a rotary hub and a plurality of rotary wing assemblies supporting the rotary hub, at least one of which rotary wing assemblies includes both:

(a) a blade having a blade pitch axis which blade can be changed in its angular postion about the blade pitch axis, and

(b) a single and only flexible strap extending between the blade and the rotor hub and furnishing at least most of the supportive effect between them, the flexible strap having a line of shear centers which is at least substantially on the same straight line as the blade pitch axis, the cross section



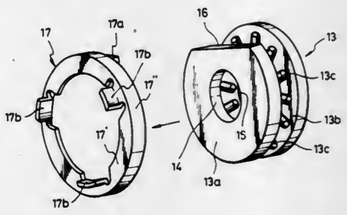
of the flexible strap being asymmetrical relative to a line through its center of gravity and parallel to the axis of rotation of the rotary hub, and the line of shear centers of the flexible strap being spaced from its line of centers of gravity.

4,266,913

SWASH-PLATE TYPE COMPRESSOR

Hiroshi Nomura, Higashimatsuyama, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,391
Claims priority, application Japan, May 22, 1978, 53/68935[U]
Int. Cl.³ F04B 1/14
U.S. Cl. 417—269 **6 Claims**



1. In a swash-plate type compressor of the type having a pair of cylinder blocks combined together in an axial alignment, a drive shaft penetrating said combined cylinder blocks along axes thereof for rotation relative to said cylinder blocks, and a swash plate secured to said drive shaft, said combined cylinder blocks including a plurality of cylinder bores extending through the cylinder blocks axially thereof, each receiving a piston for sliding therein, and a plurality of spaces axially defined between adjacent cylinder bores, wherein said swash plate has an outer fringe thereof disposed in engagement with the piston thereby to rotate in unison with the drive shaft being rotated, for causing reciprocating motions of the piston with the cylinder bore to carry out a pumping action,

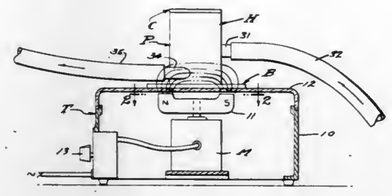
the improvement comprising:

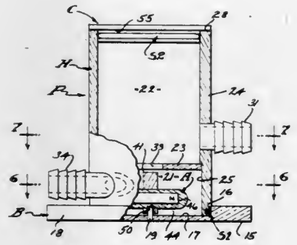
a pair of thrust bearings fitted on said drive shaft at opposite front and rear sides of said swash plate for supporting thrust loads applied by said swash plate, each thrust bearing being interposed between a central boss portion of said swash plate and an associated central seat portion of a corresponding one of said cylinder blocks, said thrust bearings each including a bearing ring disposed in urging contact with said associated central seat portion of the corresponding cylinder block, said bearing ring having as least one engaging cut formed in a periphery thereof; and

a pair of annular retainers each interposed between said bearing ring and said associated central seat portion, said retainers each having one end face thereof formed with at least one first engaging axially directed protuberance for engagement with said engaging cut of said bearing ring, and the other end face of each retainer being formed with at least one second engaging axially directed protuberance

for engagement with an associated end of a corresponding one of said spaces.

4,266,914
MAGNETIC DRIVE LABORATORY PUMP
David G. Dickinson, 1681 Larco Way, Glendale, Calif. 91202
Filed Mar. 12, 1979, Ser. No. 19,456
Int. Cl.³ F04B *17/00, 21/00*
U.S. Cl. 417—63 **22 Claims**

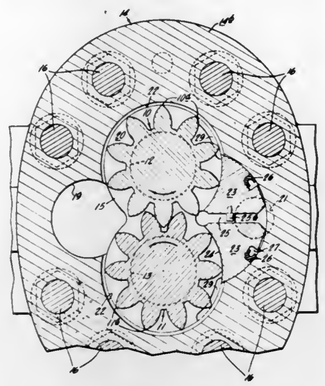




1. A liquid pump for use with a magnetic drive wherein a magnetic field is revolved on a vertical turning axis over a horizontally disposed table, and fabricated principally of non-magnetic members except as defined herein, and including; a planar base for superimposed support upon the drive table and having a pivot to be placed at the turning axis of said magnet field, a right cylinder housing upstanding from the base with its axis concentric with the pivot on the base and having a transverse wall separating the housing interior into an upper primer chamber and a lower impeller chamber and with a central opening in the wall for open communication between said chambers, a cover received by the housing to close the primer chamber, the impeller chamber being closed by the case, and a rotatable impeller supportably balanced upon the pivot and comprised of crossed blade and magnet bar members symmetrically disposed about the rotational axis of the pivot and substantially occupying the transverse cross sectional area of the impeller chamber, said magnet bar being encapsulated in a sheath and carried transversely through the blade with its north-south axis normal to and intersecting a vertical rotational axis of a pivot thereon complementary to and engageable with the first mentioned pivot on the base, there being a liquid inlet into the upper primer chamber and there being a liquid discharge opening from the impeller chamber and extending tangentially away from the direction of impeller rotation.

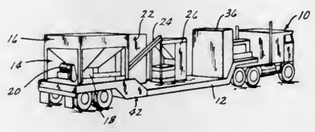
4,266,915
GEAR PUMPS AND MOTORS
James R. McBurnett, and James M. Eley, both of Corinth, Miss., assignors to Tyrone Hydraulics Inc., Corinth, Miss.
Continuation-in-part of Ser. No. 923,094, Jul. 10, 1978, abandoned. This application Apr. 13, 1979, Ser. No. 29,891
Int. Cl.³ F04C *15/00*
U.S. Cl. 418—126 **8 Claims**

1. In a pump or motor of the gear type wherein externally toothed drive and driven intermeshing gear elements are mounted for rotation about parallel axes, a housing forming a chamber within which the gears are mounted, said housing chamber having relieved wall portions at all points radially spaced from the tips of the teeth whereby the teeth are out of sealing relationship with said wall portions, separate passageways connected to said chamber on opposite sides of said gears, a pair of radial sealing members each having an arcuate sealing surface adjacent the gears and conforming to the path of the tips of the teeth, support means for said radial sealing members, said support means being seated in said housing for support thereby, said support means being disposed axially of



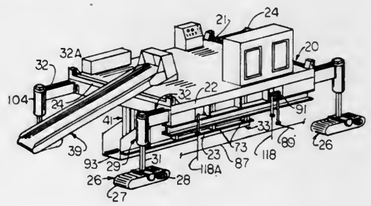
said gears on opposite sides thereof for supporting said sealing members adjacent the said passageways having the higher pressure, for limiting movement of said arcuate surfaces to a position of sealing relationship with the tips of the teeth of said gears, means communicating said higher pressure to the surface of said sealing members opposite to the arcuate sealing surface whereby the sealing members are urged by said higher pressure towards the gear teeth, said support means being positioned to limit the extent of movement of said sealing members to a zero or oil film clearance with the tips of said gear teeth.

4,266,916
MOBILE BLOCK PRODUCTION PLANT
Arnold A. Lubavs, 5331 NW. 57th Ave. "N", Des Moines, Iowa 50131
Filed Feb. 14, 1980, Ser. No. 121,497
Int. Cl.³ B28B *15/00*
U.S. Cl. 425—62 **6 Claims**



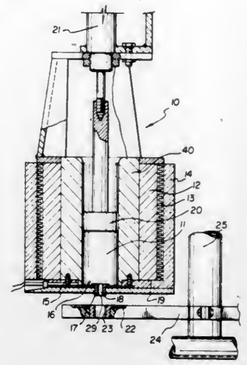
1. A mobile plant for production of concrete blocks, comprising:
- a mobile block production station comprised of a vehicle having a bed, and mounted on said bed, a raw materials mixer, and
- a block making machine, and
- a conveyor extending from said mixer to said block machine to convey readily mixed concrete from said mixer to said block machine, and
- a mobile curing station, independently movable with respect to said block producing station, comprised of a trailer having a bed, and mounted on said bed at least two block curing kilns, each of said kilns being capable of independent function with respect to the other, for steam curing of blocks,
- each of said kilns having an associated extendible canopy which may be extended from said kiln towards said block producing station so that fresh made blocks may be placed therein for curing by steam.

4,266,917
METHOD AND MACHINE FOR SLIP FORMING MEDIAN BARRIER WALLS FOR HIGHWAYS
Harold W. Godbersen, Ida Grove, Iowa, assignor to Gomaco, Inc., Ida Grove, Iowa
Filed Apr. 11, 1979, Ser. No. 29,262
Int. Cl.³ B28B *7/02*
U.S. Cl. 425—64 **6 Claims**



1. In a machine for slip forming a median wall barrier wherein the upper surface of the wall is maintained at a predetermined grade level, the combination comprising:
- (a) a portable frame means,
- (b) means supporting said frame means for moving engagement with a ground surface,
- (c) said frame means including a pair of transversely spaced upright side structures and an upper supporting structure extended between and secured to said side structures adjacent the upper ends thereof,
- (d) a slip form located between said side structures and extended longitudinally of said frame means, said slip form comprising:
  - (1) a top wall member secured in a suspended relation from said supporting structure, and
  - (2) a pair of upright side wall members arranged at opposite sides of said top wall member having upper portions adjacent to and projected upwardly from said top wall member,
- (e) means movably supporting said side wall members on said frame means for up and down movement relative to said top wall member,
- (f) means on said supporting structure for independently moving said side wall members relative to said top wall member,
- (g) coacting means on said supporting structure and upright side structures for adjustably moving the side wall members toward and away from each other to position the upper portions of said side members adjacent opposite sides of said top member; and
- (h) grade conforming connections between said frame supporting means and said frame means to conform said slip form to said predetermined grade level.

4,266,918
APPARATUS FOR ELECTROSTATIC FIBRE SPINNING FROM POLYMERIC FLUIDS
Rockliffe S. Manley, Montreal, Canada, assignor to Pulp and Paper Research Institute of Canada, Pointe, Canada
Filed Sep. 6, 1978, Ser. No. 940,046
Claims priority, application Canada, Mar. 13, 1978, 298816
Int. Cl.³ D01D *5/00*
U.S. Cl. 425—66 **17 Claims**

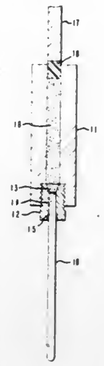


1. Apparatus for producing a continuous filament from a rapidly crystallizable high molecular weight molten polymer comprising:
- (a) a chamber for said polymer;
- (b) heating means associated with said chamber for melting said polymer and for maintaining said polymer in molten condition;
- (c) an electrically conductive material disposed at one end of said chamber, said electrically conductive member including an orifice formed therethrough, said orifice being an open-ended capillary tube unobstructed throughout the diameter thereof;
- (d) controllabel means for applying a preselected controlled pressure to said molten polymer, said controlled pressure being sufficient to form a static flat meniscus of said molten polymer at said orifice, but being insufficient to extrude said molten polymer out of said orifice;
- (e) an apertured plate formed of electrically conductive material disposed at a predetermined distance from said orifice, the aperture in said plate and said orifice being concentrically aligned; and
- (f) means electrically connecting one pole of a DC power supply to said electrically conductive material through which said orifice is formed, and connecting the other pole of said DC power supply to said apertured plate thereby to create an electronic static field between said orifice and said apertured plate, the value of the applied voltage being large enough to overcome said static flat meniscus at said orifice and to form a cone terminating in a molten polymer jet, but being insufficient to generate an electrical discharge between said orifice and said apertured plate.

4,266,919
RAM-EXTRUSION APPARATUS FOR NON-MELT FABRICABLE POLYMERIC RESINS
Gordon B. Dunnington, Wilmington, and Carl H. Manwiller, Christiana, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 9, 1979, Ser. No. 65,068
Int. Cl.³ B29F *3/06, 3/014*
U.S. Cl. 425—102 **4 Claims**

1. In an apparatus for the ram-extrusion of non-melt fabricable polymeric resin comprising an extrusion chamber, a form-

ing die at the end of the extrusion chamber, and a ram for forcing the resin from the extrsion chamber through the forming die, the improvement wherein the ram head in initial contact with the walls of the extrusion chamber and with the



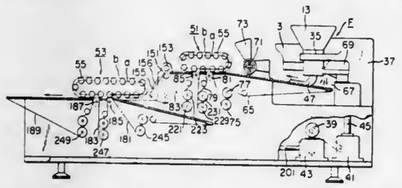
resin is consumable fluoropolymeric material which comprises at least about 10 percent fluoropolymer and wherein the forming die consecutively comprises (a) a compaction zone, (b) a back pressure zone, and (c) a relief zone.

4,266,920

APPARATUS FOR CONTINUOUSLY MANUFACTURING MULTI-LAYERED DOUGH MATERIALS

Torahiko Hayashi; Minoru Kageyama, and Michio Morikawa, all of Utsunomiya, Japan, assignors to Rheon Automatic Machinery Co., Ltd., Tokyo, Japan

Division of Ser. No. 665,326, Mar. 9, 1976, Pat. No. 4,113,819. This application Aug. 30, 1978, Ser. No. 937,967
Claims priority, application Japan, Mar. 10, 1975, 50-293557
Int. Cl.³ A21C *3/00*; A01J *21/00*
U.S. Cl. 425—133.1 **21 Claims**



1. An apparatus for manufacturing food material having a plurality of layers of dough, including

means for forming food material into a strip having at least a layer of dough;

a series of conveyor belts;

means positioned between said dough forming means and said series of conveyors belts for receiving said strip and folding it onto the first conveyor belt of said series to form a pile thereon composed of a plurality of layers of said strip; and

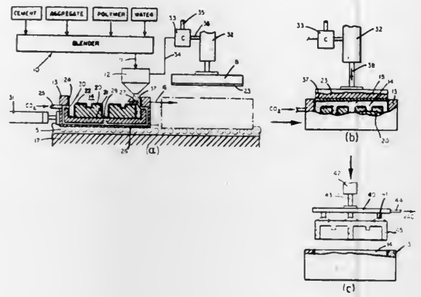
means including a plurality of rollers adapted to move about an endless roller path having a lower straight portion extending over each conveyor belt of said series for reducing the thickness of said pile, said first conveyor belt approaching said lower straight portion at an angle sufficient to increase the portions of said pile engaged initially by said rollers to assure the layers of said pile will remain laminar as said pile is initially engaged by said rollers.

4,266,921

METHOD AND APPARATUS FOR THE MANUFACTURE OF CONCRETE AND LIKE PRODUCTS

John A. Murray, Norristown, Pa., assignor to U.S. Terrazzo Panels, Inc., Conshohocken, Pa.

Division of Ser. No. 688,323, May 20, 1976, Pat. No. 4,117,060, which is a division of Ser. No. 388,558, Aug. 15, 1973, abandoned, which is a continuation-in-part of Ser. No. 336,362, Feb. 27, 1973, abandoned, which is a continuation-in-part of Ser. No. 106,364, Jan. 14, 1971, abandoned. This application Jul. 26, 1978, Ser. No. 928,295
Int. Cl.³ B28B *7/36*
U.S. Cl. 425—158 **4 Claims**



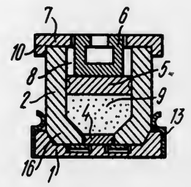
1. Apparatus for forming concrete and like articles that have an advanced state of cure, comprising a mold having a mold cavity therein, said mold being devoid of any heating means and being exposed to the natural ambient temperature and adapted for receiving a blend of unheated concrete-forming or the like starting materials therein, a press member which is devoid of any heating means and exposed to the natural ambient temperature, means for effecting relative movement between the press member and the mold cavity for compacting materials in the mold under a desired force applied by said press member, means for delivering carbon dioxide gas to the interior of the mold cavity, and means for separating said press member from said mold cavity within about one minute after completion of said compaction, wherein said apparatus includes a preselected form disposed in said mold cavity about which the article-forming materials are to be disposed, said form being mounted on a surface thereof, for providing a desired configuration for the article to be formed, wherein said gas delivering means comprise delivery ducts extending through the mold and having ports thereof opening into the cavity thereof, the major surfaces of said mold, said press, and said form which engage said starting materials being constructed of non-heat sink surfaces which are adapted to substantially preserve the heat of reaction of said starting materials and said carbon dioxide gas when said starting materials are compacted, the non-heat sink surfaces of said press and said mold being adapted to form a seal when said starting material is compacted, said apparatus further comprising control means operatively associated with said means for effecting relative movement between said press member and said mold cavity, for actuating said relative movement before said blend of materials exhibits an exothermic temperature rise of about 16° F.

4,266,922

MOLD FOR MANUFACTURING ABRASIVE SEGMENTS

Mikhail N. Birjukov, prospekt Lenina, 35/20, kv. 91; Gennady N. Maslov, ulitsa Pervomaiskaya, 34/19, kv. 25, both of Elektrostal Moskovskoi oblasti; Vladimir P. Smorodinnikov, ulitsa Pobedy, 10, kv. 6, V. Dubrovo Sverdlovskoi oblasti; Anatoly P. Kulikov, ulitsa Vostochnaya, 5, V. Dubrovo Sverdlovskoi oblasti; Ida G. Udilova, ulitsa Pobedy, 10, kv. 2, V. Dubrovo Sverdlovskoi oblasti; Vladimir K. Zuev, ulitsa Sovetskaya, 11/2, kv. 55, Elektrostal Moskovskoi oblasti; Anatoly A. Lukyanov, ulitsa Rogozhskaya, 100b, Noginsk Moskovskoi oblasti; Konstantin S. Tolstopyatov, ulitsa Pervomaiskaya, 30, kv. 24, Elektrostal Moskovskoi oblasti; Alexandr E. Kalinichev, 1 Kommunalny proezd, 15/13, Elektrostal Moskovskoi oblasti, and Ivan Y. Zhabin, ulitsa 8 Marta, 58/a, kv. 6, Elektrostal Moskovskoi oblasti, all of U.S.S.R.

Filed Mar. 31, 1980, Ser. No. 135,323
Int. Cl.³ B28B *7/00*; B29C *1/00, 1/16*
U.S. Cl. 425—182 **4 Claims**



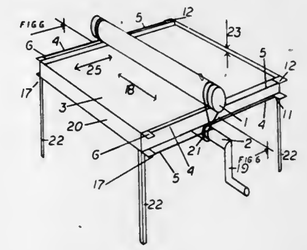
1. A mold for manufacturing abrasive segments, comprising: a base; said base being formed with longitudinal shoulders; resilient members affixed on said longitudinal shoulders; sloping surfaces of said longitudinal shoulders forming an open, upwardly flaring nest; a split die accomodated in the nest of said base with the possibility for vertical movement and having a bottom, two end walls and two side walls; said end walls and side walls being placed around said bottom; the side walls of said die being arranged along said longitudinal shoulders and having sloping surfaces thereof in contact with the sloping surfaces of said longitudinal shoulders; means for fixing the side and end walls of said die in the upright position; means for lifting said die, said means being positioned between said base and said die; means for supporting the bottom of said die in the raised position after having lowered said die, said means being arranged between said base and said die after having raised said die; a plunger for transmitting the pressing force, said plunger being accomodated in said die.

4,266,923

MEANS OF SUPPORT FOR THE ROLLERS OF A PRESS

John J. Curnes, 2127 Irving St., Denver, Colo. 80211

Filed Feb. 21, 1980, Ser. No. 123,220
Int. Cl.³ A21C *3/02*
U.S. Cl. 425—356 **5 Claims**



1. A means of support of rollers for a roller press consisting of a press bed, two rollers and four cables in tension, wherein rotation of a first roller imparts corresponding rotation to a second roller, comprising in combination:

the press bed containing a frame composed of a first side disposed parallel and apart from a second side, and a third side disposed parallel and apart from a fourth side, the combination of sides describing the lateral extremities of the press bed,

a first roller laterally disposed and free to roll atop the first side and the second side,

a second roller laterally disposed and free to roll underneath the first side and the second side,

a first cable affixed atop and adjacent to the intersection of the first side and the third side, then spanning to the bottom of the first roller, then looping around counter clockwise the circumference of the first roller, then spanning to the second roller, then looping clockwise around the circumference of the second roller, then spanning to its extremity where the first cable is affixed at the bottom and adjacent to the intersection of the first side and the fourth side,

a second cable affixed atop and adjacent to the intersection of the first side and the fourth side, then spanning to the bottom of the first roller, then looping around clockwise the circumference of the first roller, then spanning to the second roller, then looping counter clockwise the circumference of the second roller, then spanning to its extremity where the second cable is affixed at the bottom and adjacent to the intersection of the first side and the third side,

a third cable affixed atop and adjacent to the intersection of the second side and the third side, then spanning to the bottom of the first roller, then looping around counter clockwise the circumference of the first roller, then spanning to the second roller, then looping clockwise around the circumference of the second roller, then spanning to its extremity where the third cable is affixed at the bottom and adjacent to the intersection of the second side and the fourth side, and

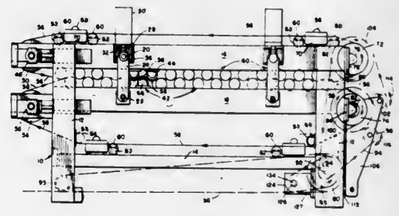
a fourth cable affixed atop and adjacent to the intersection of the second side and the fourth side, then spanning to the bottom of the first roller, then looping around clockwise the circumference of the first roller, then spanning to the second roller, then looping counter clockwise the circumference of the second roller, then spanning to its extremity where the fourth cable is affixed at the bottom and adjacent to the intersection of the second side and the third side.

4,266,924

TRANSMISSION DRIVE WITH CYCLIC SPEED VARIATIONS AND USES THEREOF IN COMPACTION SYSTEMS USING DUAL WIRE-MESH BELTS

Jerry R. Fram, 10627 Rochester Ave., Los Angeles, Calif. 90024

Filed Aug. 9, 1979, Ser. No. 65,189
Int. Cl.³ A01J *21/00*; B32B *3/00, 5/02*
U.S. Cl. 425—372 **6 Claims**



1. In a dual wire-mesh belt compaction system for the wet-out of glass fiber rovings by a sheet molding compound paste carried between films which are sandwiched between two wire-mesh belts horizontally moving in the same direction and

respectively driven by two drum rolls positioned at one end of the compaction system,

an arrangement for imparting a velocity-variable motion to the wire-mesh belt driven by one of said drum rolls, thereby to produce a shearing type of action between said belts, said arrangement comprising:

a first sprocket wheel coaxial with and coupled to one of said drum rolls,

a second sprocket wheel coaxial with and coupled to the other of said drum rolls,

said first sprocket wheel being rotatably driven by an endless transmission chain driven by a drive sprocket wheel,

a pair of idler sprockets, each mounted on an axle,

one segment of said endless chain being partially would around one of said idler sprockets and another segment of said chain being partially wound around the other of said idler sprockets,

a linkage arm in which the axles of said two idler sprockets are rotatably mounted, thereby to fix the spacing between said axles,

said arm being mounted for rocking movement about the axis of said first sprocket wheel, and

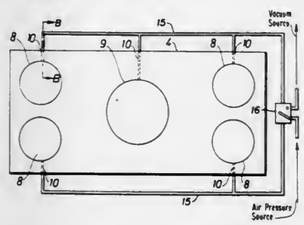
means for imparting to said arm an oscillating, rocking movement in such a way that the length of the portion of said endless chain extending between the exit side of said first idler sprocket wheel and the entrant side of the drive sprocket wheel is lengthened during a half cycle of said oscillating movement while the portion of said endless chain extending between the exit side of said drive sprocket wheel and the entrant side of said first idler sprocket is shortened by a corresponding amount during said half cycle, and vice versa during the other half cycle of said oscillating movement.

4,266,925

APPARATUS FOR SURFACE EMBOSSING MAN-MADE LIGNOCELLULOSIC BOARD

Book, Niles E. E., deceased, late of Motala, Sweden (by Inga Book, administrator), assignor to AB Motala Verkstad, Motala, Sweden

Filed Mar. 16, 1979, Ser. No. 20,830
Int. Cl.³ A01J *21/00*
U.S. Cl. 425—387.1 **10 Claims**



1. In an apparatus for embossing a preformed particle board or the like comprising:

press means including

a first press plate shaped to support a preformed board and a cooperating opposed member,

said press plate and opposed member being adapted to be moved towards and away from one another to close and open said press means, respectively,

the improvement comprising

means to establish suction between a board positioned on said first press plate and an adjacent supporting surface thereof to retain the board in fixed position on said first press plate, wherein said board is stripped away from said opposed member when the press is opened following an embossing operation, and

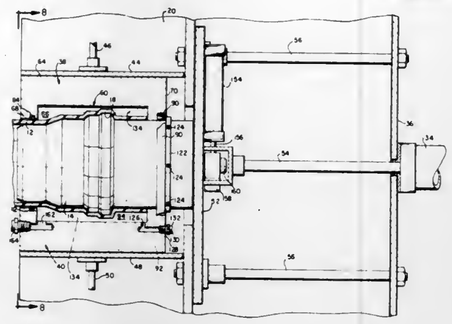
means for releasing said suction and establishing fluid pressure between said board and the adjacent supporting surface of the press plate when the press is opened and the board and opposed member are in nearby closely spaced relation, to free the board from the adjacent supporting surface of the press plate.

4,266,926

PIPE BELLING WITH EXTERNAL FLUID PRESSURE

John H. Gordon, 855 Brandywine Rd., Downingtown, Pa. 19335

Filed Sep. 21, 1979, Ser. No. 77,658
Int. Cl.³ B29D *23/00*
U.S. Cl. 425—387.1 **18 Claims**



1. In a pipe belling machine of the type suitable to impress a bell shape in an end of successive lengths of plastic pipe wherein the end has been softened, the combination of

a frame;

a shaped mandrel mounted on the frame and adapted for reciprocal movement into and out of the softened end of the pipe for forming a bell shape; and

pressure chamber means mounted on the frame and adapted for movement to encompass the softened end of the pipe and the shaped portion of the mandrel,

the pressure chamber means comprising upper and lower sealing means to form a pressure retaining chamber about the softened end of the pipe; and

means to introduce a fluid under pressure into the pressure retaining chamber;

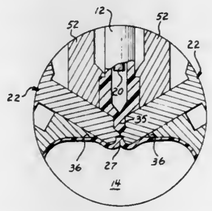
whereby the pressurized fluid presses against the softened end of the pipe and presses the softened end against the mandrel.

4,266,927

APPARATUS FOR MOLDING A PLASTIC ARTICLE

Robert W. Gilbert, Libertyville, and Gunther W. Torau, Buffalo Grove, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation-in-part of Ser. No. 13,783, Feb. 21, 1979, abandoned. This application Jul. 19, 1979, Ser. No. 58,934
Int. Cl.³ B29C *17/07*
U.S. Cl. 425—526 **16 Claims**



1. In a plastic molding apparatus comprising a plurality of mold sections closable to define a mold having an interior cavity of selected shape about a heated plastic parison and means for expanding said parison to conform to the shape of said interior cavity, opening means in said cavity through

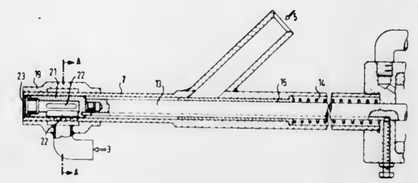
which said parison extends, the improvement comprising means for sealing said parison comprising a pair of sealing members including facing parison engaging surfaces on opposite sides of said parison and movable relative to said mold sections to engage said parison between said facing parison engaging surfaces, each of said parison engaging surfaces comprising a protruding surface portion with an elongated narrow pinch edge for pinching the parison together, and a recessed surface portion therebelow defining a plastic receiving reservoir, said interior cavity of said mold defining a generally planar surface adjacent said opening means through which said parison extends, said sealing members being movable to seal said parison therebetween in the area of said opening means whereby said recesses form a thickened seal portion substantially in the same plane as said planar surface.

4,266,928

FILLING DEVICE FOR INTRODUCING PRE-FOAMED POST-EXPANDABLE THERMOPLASTICS INTO MOLDS FOR THE PRODUCTION OF MOLDINGS

Richard Weidner, Puttelange-aux-Lacs, France, and Ortwin Hahn, Paderborn, Fed. Rep. of Germany, assignors to CIVAG AG Institut für Verpackungsforschung

Filed Nov. 13, 1979, Ser. No. 93,107
Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922312
Int. Cl.³ B29B *5/04*; B29D *27/00*
U.S. Cl. 425—584 **6 Claims**



1. Filling device for introducing pre-foamed, post-expandable thermoplastics into molds for the production of moldings from plastic foams, especially from pre-foamed polystyrene foam, in which device the pre-foamed plastic is introduced in granular form into the mold by reason of a pressure difference existing between the stock container for the plastic granules and the mold and/or the introduction of injected air, the said device comprising a cylindrical piston case with a lateral feed pipe for the plastic granules and a piston, which is movable in the longitudinal direction within the cylindrical piston, case for closing the mold inlet orifice after filling has taken place, characterized by a movable shut-off sleeve, which, by means of a spring, blocks the supply of granules when the piston has passed the feed pipe in the direction towards the mold.

4,266,929

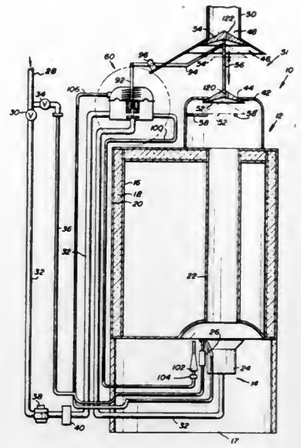
FLUID ACTUATED DAMPER CONTROL APPARATUS

Paul F. Swenson, 25525 Edgecliffe, Euclid, Ohio 44132

Continuation of Ser. No. 933,355, Aug. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 881,733, Feb. 27, 1978, Pat. No. 4,182,483, which is a continuation-in-part of Ser. No. 704,548, Aug. 12, 1976, Pat. No. 4,076,171. This application Oct. 29, 1979, Ser. No. 88,860
Int. Cl.³ F23N *3/00*
U.S. Cl. 431—20 **3 Claims**

1. In a fuel fired heating apparatus including a fluid fuel burner, a vent for discharging the products of combustion produced by said burner, a damper means in said vent, and a fluid motor means operated by pressure of the fluid fuel supplied to the burner for moving said damper means between open and closed positions in coordinated relationship with the firing of said burner, the improvement comprising:

actuating means associated with said fluid motor means to assure movement of said damper means to an open position during periods of abnormally low fuel pressure being supplied to said burner,



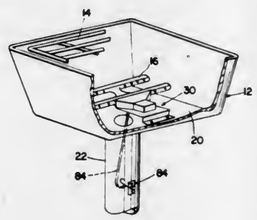
said actuating means including at least one magnet member positioned to provide a damper means opening force additive to the force produced by said fluid motor.

4,266,930

GAS COLLECTOR/SPARK IGNITER FOR GAS BURNERS

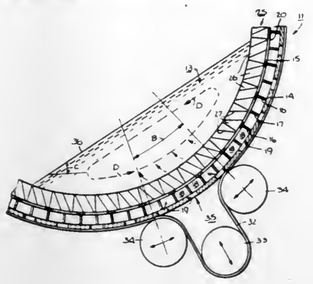
Murray Leonard, Mayfield, and Herbert F. Jugl, Bedford, both of Ohio, assignors to Vernitron Corporation, Bedford, Ohio

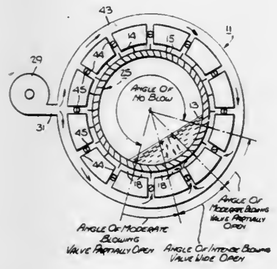
Filed Sep. 11, 1978, Ser. No. 941,281
Int. Cl.³ F23Q *7/06*
U.S. Cl. 431—263 **5 Claims**



1. A spark igniter for gas burners comprising: a gas collector made of metal and having a passage between open front and rear ends, said front end havin a substantially larger opening than said rear end, said passage having a large passage portion from said front end to a transition point intermediate said front and rear ends and having a substantially smaller passage portion from said transition point to said rear end, said gas collector having top and bottom walls, electrode means mounted on said bottom wall and extending upwardly therethrough, said electrode means having an electrode tip positioned within said small passage portion in closely spaced relationship to said top wall and defining a spark gas therewith for providing a spark and igniting a combustible mixture flowing through said smaller passage portion, and lips extending inwardly around at least a portion of said open front end.

4,266,931
APPARATUS AND METHOD OF HEATING PARTICULATE MATERIAL
Holger Struckmann, 104 S. Alward Ave., Basking Ridge, N.J. 07920
Filed Feb. 1, 1979, Ser. No. 8,268
Int. Cl.³ F27B *7/36*
U.S. Cl. 432—105 **17 Claims**

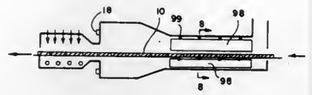




1. A rotary combustion bed
comprising a rotary drum having a longitudinal axis and defining a chamber to receive and cascade a charge of particulate material, said drum including an outer shell, a perforated inner shell and a plurality of spacer plates secured to and between said shells to define air distribution passages therebetween;
a permeable refractory lining disposed about said chamber of said drum to receive a cascading charge of material thereon;
means for passing a flow of combustion air into selected air distribution passages to flow radially upwardly through said lining into a cascading charge of particulate material in said chamber at a circumferential angle over a given angle of blow; and means for adjusting said predetermined angle.

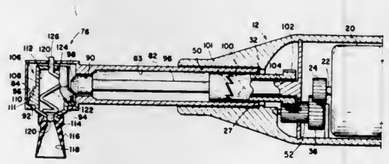
4,266,932
HEATING FURNACE
Yoshiaki Shinohara, Kurashiki, Japan, assignor to Kawasaki Steel Corporation, Kobe, Japan
Continuation-in-part of Ser. No. 927,850, Jul. 25, 1978, Pat. No. 4,229,163. This application Mar. 20, 1979, Ser. No. 22,094
Claims priority, application Japan, Jul. 25, 1977, 52-89680
Int. Cl.³ F27B *7/00*
U.S. Cl. 432—194 **7 Claims**

1. A heating furnace for heating bodies by combustion flame comprising:
furnace tail preheating zones;
heating zones;
conveying means which moves said heating bodies longitudinally in the heating furnace;
furnace walls which cover said conveying means with said heating bodies;
burners which are attached to said furnace so as to heat said heating bodies by fuel combustion flames and which produce a flow of combustion flames in said longitudinal direction; and



heat transfer converters disposed at furnace tail preheating zones and comprising plate-like heat resistant materials disposed parallel to the flow of combustion flames of said burners, wherein said heat transfer converters are heated through convection heat transfer from high temperature and high speed flow of the combustion flame to increase the radiation heat transfer to said heating bodies.

4,266,933
ROTARY DENTAL POLISHING APPARATUS
Fuller Warden, 1231 E. 30th Pl., Tulsa, Okla. 74114, and Eugene W. Lewis, 5415 S. 68 E. Pl., Tulsa, Okla. 74145
Filed Jul. 30, 1979, Ser. No. 61,764
Int. Cl.³ A61C *1/12*
U.S. Cl. 433—82 **18 Claims**

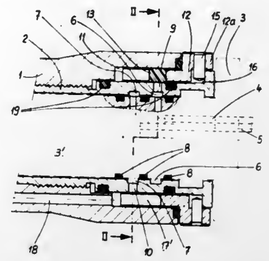


14. A cartridge for the polishing of teeth comprising:
(a) a rotatable cylindrical housing having a cavity therein for containing polishing paste material;
(b) a hollow polishing cup substantially rigidly secured to a first end of the housing for rotation therewith, the hollow portion thereof being in open communication with the housing cavity; and
(c) conveyor means journalled within the cavity, a shaft member having one end thereof rigidly secured to the conveyor means, the other end extending external of the cavity at the second end of the housing.

4,266,934
DENTAL HANDPIECE WITH FLUID DELIVERY CONTROL
Jacques Pernot, Besancon, France, assignor to Micro-Mega, S.A., Besancon, France
Filed Sep. 7, 1979, Ser. No. 73,501
Claims priority, application France, Sep. 11, 1978, 78 26633
Int. Cl.³ A61C *1/00*
U.S. Cl. 433—85 **5 Claims**

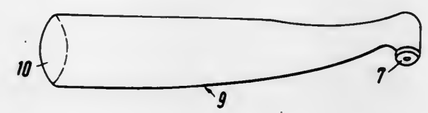
1. A dental handpiece provided with means for controlling the delivery of fluids to the tool, which comprises an air supply conduit and a water supply conduit from the motor and an outlet conduit directed to the head of the handpiece, wherein said water and air supply conduits open each into a circular groove, respectively, formed in the inner periphery of a socket which is an easy fit to the retaining end of the motor, said

socket having two radial ports formed through its wall, said ports being off-set both axially and angularly, and opening on the one hand into said grooves and on the other hand into an annular chamber formed between said socket and the body of the handpiece, said outlet conduit being connected to said chamber, a rotary ring adapted to be easily rotated from outside being mounted in said chamber and provided in its periph-



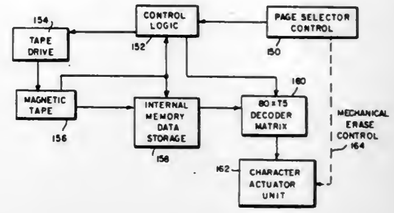
eral wall with a pair of seals off-set axially to the same extent as said ports formed in the socket, said seals being so shaped that in the first limit position of said ring the first seal closes the water supply port while the second seal uncovers the air supply port, in a second limit position said first seal uncovers said water supply port while said other seal closes said air supply port, an intermediate position of said ring causing said seals to free both air and water supply ports.

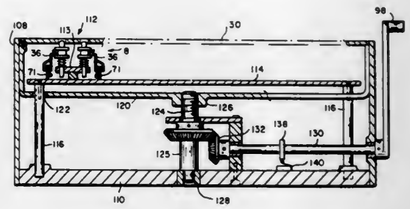
4,266,935
PROTECTIVE SLEEVE FOR THE HANDLE OF A DENTAL INSTRUMENT
Gert Hoppe, Hagenstrasse 20 1/2, D-6840 Lampertheim, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 62,230, Jul. 30, 1979, abandoned. This application Dec. 26, 1979, Ser. No. 105,461
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1978, 2834797
Int. Cl.³ A61C *1/16*
U.S. Cl. 433—116 **3 Claims**



1. A sterilized protective sleeve for the handle of a dental instrument comprising a shank having a tip for carrying a tooth treating tool which, in turn, has a tool shank comprising:
a sleeve consisting of an elastic and pliable tubular casing of synthetic resin and adapted to conform to the shank of said instrument, said tubular casing defining a first opening at one end thereof for receiving said instrument shank and enabling the casing to be pulled thereover and a second opening at an opposite end; and
an annular, disc-shaped protective member integrally attached to said opposite end of said sleeve so that it projects from said second opening, said member being made of a shape-retaining synthetic resin, and having an inner surface defining a through bore configured and dimensioned so as to define a radial clearance sufficient for said tool shank to pass freely and unhindered therethrough.

4,266,936
BRAILLE DISPLAY READER
Leonard Rose, 184 Seapit Rd., East Falmouth, Mass. 02536, and Stanley E. Rose, 9 Broadway, Saugus, Mass. 01906, assignors to Leonard Rose and Stanley Rose, both of Falmouth, Mass.
Filed Nov. 6, 1978, Ser. No. 958,253
Int. Cl.³ G09B *21/02;* **G06K** *9/00*
U.S. Cl. 434—114 **25 Claims**





1. A device for displaying a plurality of braille characters, comprising:
a surface on which the plurality of characters are displayed;
means, cooperative with data storage medium having data stored therein representative of a plurality of braille characters, for reading the data representative of the braille characters from the data storage medium and for periodically producing electrical pulse signals representative thereof:
display means for being thermally activated by said periodically-produced electrical pulse signals to cause a mechanical displacement to provide a tactilely-sensible representation of a plurality of braille characters;
means for maintaining, after said display means is activated by said periodically-produced pulse signals, the tactiley-sensible representation of a plurality of braille characters currently provided thereby without the necessity of electrical power being applied thereto; and
means for applying the electrical pulse signals from the reading means to the display means.

4,266,937
ADJUSTLESS V-BELT AND METHOD OF MANUFACTURE
Hiroshi Takano, Miki, Japan, assignor to Mitsuboshi Belting Ltd., Kobe, Japan
Filed Apr. 20, 1979, Ser. No. 31,799
Claims priority, application Japan, Apr. 26, 1978, 53-50671
Int. Cl.³ F16G *5/16, 1/26;* **B29H** *7/22*
U.S. Cl. 474—205 **20 Claims**

1. A V-belt comprising:
a compressive rubber layer;
an adhesion rubber layer laminated on said compressive rubber layer having a Shore hardness of from 60° to 80°;
a group of cogs protruding from said adhesion rubber layer on the outer surface of said belt having a predetermined pitch and depth defined by;

$$1.5t < p < 3.5t$$

$$0.12d < t < 0.4d$$

where, p is the pitch of said group of cogs, t is the depth of said group of cogs, and d is the thickness of said V-belt;

a longitudinally stretchable cover canvas covering said cogs, and the roots between said cogs, said cover canvas obtained by weaving curled nylon warps subjected to wooly treatment and ordinary nylon wefts;

rope tensile members embedded between said adhesion rubber layer and said group of cogs with a regular pitch line and in cylindrical state such a manner that parts of said tensile members are in contact with said cover canvas, said rope tensile members having a high thermal contraction stress at least 3.5 g/denier, which is the differential between a thermal contraction stress at 100° C. and that at 20° C.;

short fibers embedded in said compressive rubber layer in such a manner that said short fibers are oriented laterally therein and in the ratio of 10 to 30 parts by weight of short fibers to 100 parts of rubber; and

a ply of rubberized canvas bonded, in lamination, to the lower surface of said compressive rubber layer.

18. A method of manufacturing an adjustless V-belt, comprising the steps of:

winding a cover canvas which is longitudinally stretchable around a metal mold having an outer wall with strip-shaped protrusions and grooves are alternately formed in such a manner that said protrusions and grooves extend along the axis of said metal mold defined by;

$$1.5h < w < 3.5h$$

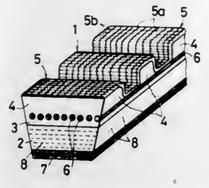
$$0.12d < h < 0.4d$$

where w is the pitch of said protrusions, h is the height of said protrusion, and d is the thickness of said V-belt;

spirally winding a rope tensile member around said cover canvas at a winding tension of 1.5 to 3.5 times the ordinary tension which is 0.2 to 0.6 g/denier, said rope tensile member subjected to thermal elongation treatment and having a high thermal contraction stress of at least 3.5 g/denier which is the differential between a thermal contraction stress at 100° C. and that at 20° C.;

winding an adhesion rubber sheet on said rope tensile member;

winding a compressive rubber sheet in which short fibers are mixed in such a manner that the short fibers are oriented laterally therein, on said adhesion rubber sheet;



winding at least one ply of rubberized canvas onto said compressive rubber sheet, to form a molded belt blank;

placing a cylindrical sleeve over said molded belt blank;

pressurizing and heating said molded belt blank together with said cylindrical sleeve, to permit a part of said adhesion rubber sheet to fill the grooves of said metal mold;

cutting the molded belt blank into a plurality of belt rings; and

turning said belt rings inside out to form said V-belt.

4,266,938

METHOD OF REMOVING PAINT FROM CLOTH

Will A. Ward, 359 W. Bissell, Richmond, Calif. 94801

Filed Mar. 28, 1980, Ser. No. 134,938
Int. Cl.[3] B08B *3/04*
U.S. Cl. 8—137 3 Claims

1. A method of removing a water based paint stain which has dried from a cloth object having at least two sides comprising the steps of:

a. applying water to the stained portion of the cloth object to the point of retention of the water by said cloth at the stain area;

b. applying a mixture of soap and pumice material to both sides of the cloth object at the area of the stain while water is retained thereat;

c. lathering said soap and pumice mixture; and

d. drying said soap and pumice mixture.

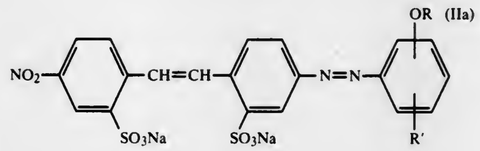
4,266,939

COMPOSITION OF 4-AMINO-4'-NITROSTILBENE-2,2'-DISULPHONIC ACID DIAZO COMPOUNDS AND COLORING PROCESS

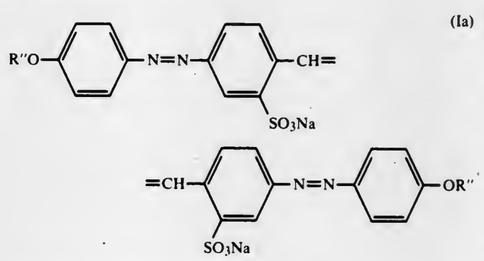
John D. Hildreth, Macclesfield; Anton F. Tschopp, Oldham, and David G. Evans, Rochdale, all of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,522
Claims priority, application United Kingdom, Jun. 7, 1978, 26466/78
Int. Cl.[3] C09B *27/00*; D06P *1/00*
U.S. Cl. 8—437 6 Claims

1. A composition comprising a dyestuff of the formula IIa



in which R is hydrogen or an alkyl group having 1 to 6 carbon atoms and R' is an alkyl group having 1 to 6 carbon atoms, and a dyestuff of the formula Ia



in which R'' is an alkyl group having 1 to 6 carbon atoms.

4,266,940

METHOD FOR DYEING ACRYLONITRILE POLYMER AND COPOLYMER FIBRES

David Blackburn, Leeds, and Malcolm S. Wild, Heckmondwike, both of England, assignors to Yorkshire Chemicals Limited, Leeds, England

Filed Mar. 2, 1979, Ser. No. 16,690
Claims priority, application United Kingdom, Mar. 2, 1978, 8218/78
Int. Cl.[3] D06P *3/70*
U.S. Cl. 8—538 9 Claims

1. A process for the colouration of wet spun acrylic or modacrylic fibres in gel form, said process comprising

dyeing said fibres at 20°-110° C. from a bath in which a cationic dye or dye base is dissolved, wherein said bath contains a highly polar organic solvent in which acrylonitrile polymer and copolymer of said fibers are soluble and in which said dye and dye base are soluble or partly soluble;

removing said fibres after colouration from said bath; and

rinsing said coloured fibres with an aqueous medium without substantially removing said dye from said fibres; wherein said dye has the formula

$$D^+X^-$$

where D represents a cationic dye radical containing a chromophoric group and X represents an anion that renders the dye substantially insoluble in water; and

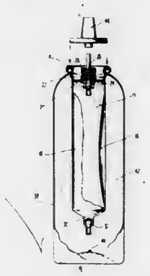
wherein said highly polar organic solvent is selected from the group consisting of dimethylformamide, dimethylacetamide, dimethylsulphoxide, ethylene glycol carbonate and mixtures thereof.

4,266,941

METHOD OF ASSURING THE QUALITY OF THE RESULTS OBTAINED FROM A BLOOD GAS ANALYZER

Kevin J. Sullivan, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Jan. 12, 1979, Ser. No. 3,072
Int. Cl.[3] G01N *33/48*
U.S. Cl. 23—230 B 3 Claims



1. A method of assuring that the results obtained from a blood gas analyzer meet a quality control standard comprising the following steps:

obtaining a plurality of samples of blood to be analyzed;

analyzing the gas content of some of said samples with said analyzer;

providing a quantity of a quality control reagent in a first container having a variable volume and being gas impermeable and having a one way exit valve therein, said first container being surrounded by a second, non-deformable container, said first and said second containers being separated by compressed gas;

inserting a first portion of said quantity into said analyzer;

analyzing the gas content of said first portion with said analyzer;

analyzing the gas content of additional samples;

inserting a second portion of said quantity into said analyzer; and

comparing the results of the analysis of said first and said second portions.

4,266,942

METHOD FOR THE AUTOMATIC ELECTRO-CHEMICAL DETERMINATION OF THE END POINT OF A TITRATION

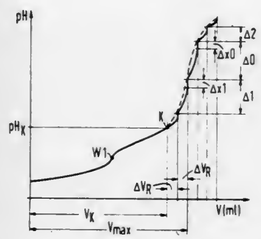
Chris Vandenbossche, Zwijnaarde, and Jacky Vanhumbeeck, Brugge, both of Belgium, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 21, 1980, Ser. No. 113,537

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1979, 2905287

Int. Cl.³ G01N *31/16, 27/44*

U.S. Cl. 23—230 R **7 Claims**



1. An improved method for the automatic, electro-chemical determination of the end point of a titration of the type in which the titrant is added to a bath sample in constant volume units, a measured value is formed after every titrant addition, the difference from the preceding value is formed after every measured value formation, and the three consecutive additions having the greatest caculated differences are utilized in calculating the end point and wherein the titration is interrupted when the greatest difference lies between two lesser differences, the improvement comprising:

continuously adding the titrant to the initial bath sample, up to a selectively predetermined value thereafter adding the titrant in constant volume units in a step-wise manner; and

separating each of said constant volume additions by a resting period of time in order to allow the solution to stabilize prior to obtaining the measured value.

4,266,943

STABILIZERS FOR OIL-WATER MIXTURES

Shih H. Lo, Central, Hong Kong, assignor to Farsan Enterprises Limited, Hong Kong

Filed Nov. 19, 1979, Ser. No. 95,408

Claims priority, application United Kingdom, Nov. 17, 1978, 45082/78

Int. Cl.³ C10L *1/18, 1/30*

U.S. Cl. 44—51 **23 Claims**

1. A stabilising agent for an oil-water mixture comprising the following components:

a combustible emulsifier	6 to 11.5 parts by weight
ferrocene	4 to 9 parts by weight
magnesium (as an oil-soluble magnesium salt)	4.5 to 9.2 parts by weight
anionic surfactant	1.4 to 3 parts by weight
benzoic acid	0 to 12 parts by weight

in an oil-based liquid medium.

4,266,944

FUEL COMPOSITIONS CONTAINING ACYL GLYCINE OXAZOLINES

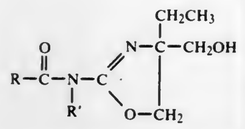
Rodney L. Sung, Fishkill, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,520

Int. Cl.³ C10L *1/18, 1/22*

U.S. Cl. 44—63 **4 Claims**

1. A corrosion-inhibiting and detergent compound of the formula:



in which R represents lauryl, $C_{11}H_{23}$, oleyl or stearyl; and R' is hydrogen or lower alkyl.

4,266,945

MOLYBDENUM-CONTAINING COMPOSITIONS AND LUBRICANTS AND FUELS CONTAINING THEM

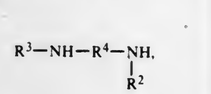
Jack L. Karn, Richmond Heights, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

Filed Nov. 23, 1979, Ser. No. 96,876

Int. Cl.³ A01M *23/00, 23/16*

U.S. Cl. 44—68 **21 Claims**

1. A method for preparing a molybdenum-containing composition substantially free of Group IA and IIA metals which comprises reacting, at a temperature up to about 200° C., a mixture comprising (A) at least one acid of molybdenum, or salt thereof; (B) at least one phenol, or condensation product of said phenol with at least one lower aldehyde; and (C) at least one compound selected from the group consisting of (1) amines having the formula



wherein R^2 is hydrogen or an aliphatic hydrocarbon-based radical, R^3 is an aliphatic hydrocarbon radical free from acetylenic unsaturation and containing at least about 6 carbon atoms, and R^4 is a divalent aliphatic hydrocarbon radical containing about 2–8 carbon atoms; (2) condensation products of said amines with at least one lower aldehyde; and (3) salts of (1) or (2).

4,266,946

GASOLINE CONTAINING EXHAUST EMISSION REDUCING ADDITIVES

Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

Filed Apr. 28, 1980, Ser. No. 144,396

Int. Cl.³ C10L *1/18, 1/30*

U.S. Cl. 44—68 **92 Claims**

1. A lead-free or substantially lead-free hydrocarbon fuel composition for use in a spark ignited internal combustion engine which comprises a major amount of hydrocarbons boiling in the gasoline boiling range, a cyclopentadienyl manganese antiknock compound and an exhaust emission reducing amount of a polyester prepared from the reaction of a compound selected from a dimer acid, a trimer acid or a mixture of a dimer and trimer acid produced by the polymerization or condensation of an unsaturated aliphatic monocarboxylic acid having from 16 to about 22 carbon atoms per molecule and a lower alkyl aliphatic monohydric alcohol.

4,266,947

GASOLINE COMPOSITION CONTAINING ARYL O-AMINOAZIDES

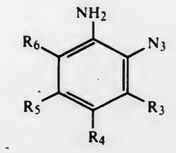
Robert J. Hartle, Gibsonia, and Gary M. Singerman, Monroeville, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 21, 1980, Ser. No. 151,812

Int. Cl.³ C10L *1/22*

U.S. Cl. 44—68 **11 Claims**

1. A gasoline motor fuel composition comprising a major amount of gasoline and a minor amount of an aryl o-aminoazide having the following general formula



wherein each R group is independently selected from hydrogen, alkyl having from one to about four carbon atoms, alkenyl having from two to about four carbon atoms, haloalkyl having from one to about four carbon atoms, aryl having from six to about ten carbon atoms, cycloalkyl having from five to about eight carbon atoms, alkoxy having from one to about four carbon atoms, carbalkoxy having from two to about five carbon atoms, carbaryloxy having from seven to about nine carbon atoms, alkylamino having from one to about four carbon atoms, acyl having from two to about five carbon atoms, hydroxyl, amino, cyano, nitro, halo and halophenyl, or wherein any two adjacent R groups containing a total of four carbon atoms are joined together in a saturated or unsaturated ring.

4,266,948

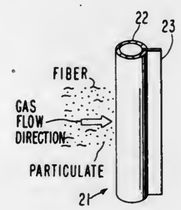
FIBER-REJECTING CORONA DISCHARGE ELECTRODE AND A FILTERING SYSTEM EMPLOYING THE DISCHARGE ELECTRODE

Richard K. Teague, and Henry H. S. Yu, both of Winston-Salem, N.C., assignors to Envirotech Corporation, Menlo Park, Calif.

Filed Jan. 4, 1980, Ser. No. 109,695

Int. Cl.³ B03C *3/12, 3/14, 3/41*

U.S. Cl. 55—126 **20 Claims**



1. A fiber-rejecting corona discharge electrode for imparting electric charge to particulates in a gas stream, comprising:

an arcurate shielding member for positioning within the path of a gas stream to confront the direction of flow of gases along said path;

a corona discharge member having a radius of curvature about a terminal end, the corona discharge member being connected to the shielding member and projecting radially outwardly from the elongate axis of the shielding member such that when placed in said path the corona discharge member is downstream from the shielding member, the radius of curvature of the shielding member being larger than the radius of curvature of the corona discharge member in a plane perpendicular to the direction of elongation of the electrode, and the cross-sectional perimeter around the connected shielding member and corona discharge member being greater than 1.25 inches.

15. A system for filtering fibers and particulates from a gas stream comprising:

a fiber separator for positioning in the path of a gas stream for removing fibers in gross quantities from said gas stream;

a corona charging apparatus for positioning within said path downstream of the fiber separator for imparting electric charge to particulates in said gas stream and to fibers that escape removal from said gas stream by the fiber separator, the corona charging apparatus including a fiber-rejecting corona discharge electrode having a shielding member connected to a corona discharge member such that said shielding member faces generally upstream and said corona discharge member faces generally downstream when positioned in the path of said gas stream such that the shielding member shields said corona discharge member from entanglement with fibers in said gas stream, the radius of curvature of said shielding member being larger than the radius of curvature of said corona discharge member in a plane perpendicular to the direction of elongation of the electrode, and the cross-sectional perimeter around said electrode being greater than 1.25 inches; and

an electro-static filter medium positioned downstream of the corona charging apparatus for removing electrically charged particulates and fibers from said gas stream.

4,266,949

DEGASSING COLUMN

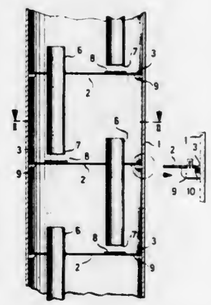
Bernhard Kuxdorf, Brühl; Kurt Wissel, Wesseling-Urfeld, and Karl Kaiser, Brühl, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 899,321, Apr. 24, 1978, abandoned. This application Aug. 9, 1979, Ser. No. 65,190

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1977, 2718857; Apr. 28, 1977, 2718858

Int. Cl.³ B01D *19/00, 3/22*

U.S. Cl. 55—186 **6 Claims**



1. A degassing column for removing monomers from polymers present in dispersions comprising a tubular shell provided with a plurality of apertured plates, the apertures in said plates having a diameter of less than 5 mm, said plates being vertically spaced within said shell; a small gap uniform in width over the periphery being left between each plate and said shell; each of said plates being penetrated by at least one eccentrically arranged circular conduit comprising a draining chute in the upper portion thereof and an intake chute in the lower portion below the penetrated plate with a circular imperme-

able area on the plate situated below; each plate being supported by a plurality of ring segments and a plurality of wedge mountings, said wedge mountings and ring segments being level with respect to each other; said wedge mountings being fastened at equal distances around the inside of the shell, each of said wedge mountings comprising a flat profile structure in upright position in its middle portion with an upwardly extended projection formed with a slotted opening; each of said ring segments being fastened between two of said wedge mountings to the inside of the shell, said ring segments having a length necessary for them to provide a free peripheral gap between them with respect to said wedge mountings; and each plate being kept in horizontal position by wedges forced through the openings in the projections of each of said wedge mountings whereby minimal contacting surfaces and gassing from all sides are provided and formation of dead spaces, deposits of solids, adhesions of polymerides and clogging are avoided about the wedge mountings in the gap.

5. A degassing column for removing monomers from polymers present in dispersions comprising a tubular shell provided with a plurality of apertured plates, the apertures in said plates having a diameter of less than 5 mm, said plates being vertically spaced within said shell; a small gap uniform in width over its periphery being left between each plate and said shell; each of said plates being penetrated by at least one eccentrically arranged circular conduit comprising a draining chute in the upper portion thereof and an intake chute in the lower portion below the penetrated plate with a circular impermeable area on the plate situated below, a capping sleeve disposed over each draining chute; said capping sleeve comprising an upper portion and a lower portion securely connected to one another, said upper portion having a cross-section similar to that of the draining chute and said lower portion having a cross-section larger than that of said upper portion, the lower portion of said capping sleeve overlapping the upper portion thereof and being formed with a plurality of rectangularly shaped slots distributed around its periphery, said slots' lower portions being extended in axial direction of said capping sleeve and said slots' upper portions being extended transversely thereto whereby only one contacting surface is provided between the lower portion of the capping sleeve and the draining chute and whereby the possibility of having solids accumulate or polymerides adhere is considerably reduced; each draining chute being provided with number of screw-threaded bolts equal to the number of slots being formed in said capping sleeve, said bolts being secured in a radial orientation of the surface area of each draining chute so as to engage with said slots; and said capping sleeve being held in position by means of nuts screw-threadedly engaged on said bolts.

4,266,950

BUBBLING TYPE DISSOLVED GAS SEPARATOR

Yoshihiro Makino, and Toshihiko Yoshihara, both of Akoh, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,520
Claims priority, application Japan, Jun. 30, 1978, 53-90576[U]
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—196 **3 Claims**

1. A bubbling type dissolved gas separator for separating a dissolved gas in a liquid, comprising:

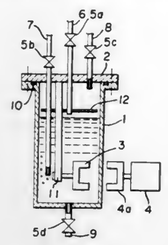
a closed vessel having a substantially horizontal bottom;

a baffle plate in said vessel for containing the agitation of said liquid;

a magnetic stirrer positioned in said vessel and rotatable about an axis parallel to the bottom of said vessel and closely adjacent the lower part of said vessel and a side wall of said vessel;

magnetic means outside of said vessel for rotating said stirrer about said axis; and

means for feeding a bubbling gas into said vessel, said means for feeding having a gas outlet adjacent said axis and adjacent the upstream side of said magnetic stirrer,



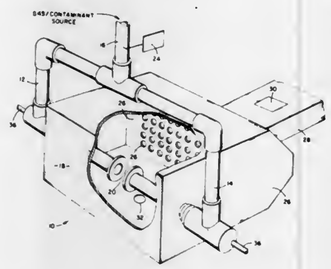
whereby said bubbled gas is sucked by the magnetic stirrer, thrown against said wall of said vessel and finely divided.

4,266,951

PARTICLE SCRUBBER AND RELATED METHOD

Seymour Calvert, San Diego, Calif., assignor to Air Pollution Technology, Inc., San Diego, Calif.

Continuation of Ser. No. 906,000, May 15, 1978, abandoned.
This application Mar. 5, 1979, Ser. No. 17,182
Int. Cl.³ B01D *53/14*
U.S. Cl. 55—84 **10 Claims**



1. A scrubber for removing finely-divided contaminants from a gas stream by inertial impaction comprising a housing forming an impaction chamber, a gas stream generating source, first and second conduits disposed in said chamber, each said conduit having an inlet and an outlet, means for directing said stream containing said finely divided contaminants from said gas stream generating source to each said conduit, substantially straight nozzle means disposed adjacent each said outlet and configured such that the flow path of the gas stream through said first conduit intersects the flow path of the gas stream through said second conduit, and outwardly extending flow guide flange members disposed on said first and second conduits adjacent each said nozzle means, wherein the cross-sectional area for flow between the flange members just after collision is from about 1 to 10 times the combined cross-sectional area of both said nozzle means, said flange members and said nozzle means thereby regulating the flow path of the gas stream as it is discharged from each conduit such that improved collection efficiency of the contaminants is achieved.

9. A method for removing various finely divide contaminants from a gas stream by inertial impaction and interception comprising the steps of:

(a) passing a first stream of gas containing said contaminants through a first conduit having a first discharge nozzle and an outwardly extending flow guide means adjacent one end thereof;

(b) providing said first stream of gas with finely divided liquid droplets such that said droplets are entrained by said first gas stream and are caused to accelerate and to impinge upon said contaminants in said first gas stream so as to encourage the removal of said contaminants by inertial impaction;

(c) passing a second stream of gas containing said contaminants through a second conduit having a second discharge nozzle and an outwardly extending flow guide means disposed adjacent one end thereof;

(d) providing said second stream of gas with finely divided liquid droplets such that said droplets are entrained by said second gas stream and are caused to accelerate and to impinge upon said contaminants in said second gas stream so as to encourage removal of said contaminants by inertial impaction; and

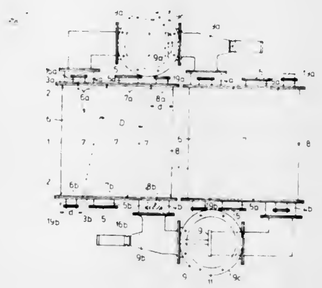
(e) controlling the direction and flow rates of said first gas stream through said first discharge nozzle and said second gas stream through said second discharge nozzle such that said streams are caused to intersect while maintaining a high relative velocity between the colliding streams, and to form a collision zone between said outwardly extending flow guide means, the cross-sectional area for flow between the outwardly extending flow guide means just after collision is from about 1 to 10 times the combined cross-sectional area of both nozzles, said outwardly extending flow guide means and said nozzles thereby regulating the flow path of the gas stream as it is discharged from each conduit such that improved collection efficiency of the contaminants is achieved.

4,266,952

APPARATUS OPERATING WITH AN ADSORBENT SUBSTANCE FOR PURIFYING AIR

Klaus Turek, Marsstrasse 52, 5620 Velbert, Fed. Rep. of Germany

Filed Dec. 17, 1976, Ser. No. 751,713
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—179 **17 Claims**



1. An apparatus operating with an adsorbent substance for purifying air or another gas laden with an adsorbate, comprising a tank having a gas inlet chamber, an adsorbent chamber and a gas outlet chamber in side-by-side juxtaposed relationship and extending from one end of the tank to the other, end face cover closures and a tank envelope enclosing the three chambers which consists of a plurality of sections connected at their end faces together by flanges, in at least one section of the tank envelope the connection zones for the inlet and outlet of gas and adsorbent substance being arranged at the end faces through apertures in inlet, outlet and adsorbent portions of said end faces comprising means defining said gas inlet, gas outlet and adsorbent chambers, respectively,

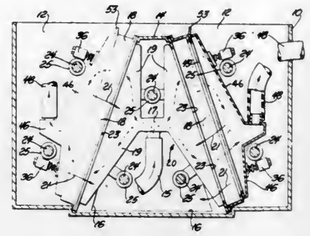
and first and second porous dividing means each extending between said end faces separating said gas inlet and gas outlet chambers respectively from said adsorbent chamber for confining said adsorbate in said adsorbent chamber while allowing gas to flow therethrough from said gas inlet chamber to said gas outlet chamber.

4,266,953

MECHANISM FOR REMOVING DUST PARTICLES FROM AN ENGINE AIR CLEANER

Bernard A. Matthys, Dakota; Donald W. Schoen, Ramsey, and Carl E. Anderson, Hennepin, all of Minn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 2, 1980, Ser. No. 155,340
Int. Cl.³ B01D *46/04*
U.S. Cl. 55—294 **4 Claims**



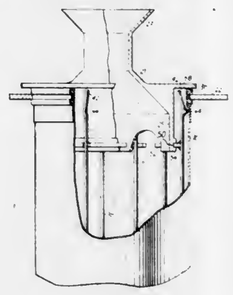
1. An engine air cleaner comprising downflow air passage box; means for supporting a rectilinear air filter panel in an inclined upright attitude in the box; means for periodically removing dust particle accumulations from the filter panel comprising an air nozzle located on the downstream face of the panel, said nozzle having a slot-type orifice for discharging pressurized air through the filter media to dislodge particulates embedded in the media; an air receiver located on the upstream face of the panel, said receiver having a slot-type orifice for capturing the pressurized air and entrained particulates after passage thereof through the media; means supporting the nozzle and receiver for linear travel across the filter panel, comprising first and second parallel ball screws extending transversely across the box, first and second ball nuts meshed with respective ones of the screws, a first flexible connection between the first nut and receiver, and a second flexible connection having swing flexibility in a plane normal to the ball screw axis, said second flexible connection having swing flexibility in a plane parallel to the ball screw axis.

4,266,954

HOLDER FOR BAG FILTER

Arthur A. Oare, and Harold J. Wonderling, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Jul. 12, 1979, Ser. No. 56,758
Int. Cl.³ B01D *46/02*
U.S. Cl. 55—341 R **1 Claim**



1. Apparatus for filtering solids from gas comprising a housing having an inlet for dust bearing carrier gas and an outlet for gas from which dust has been removed, a tube sheet with a

plurality of apertures therein extending across the housing intermediate the inlet and outlet to provide an inlet compartment for dirty gas and an outlet compartment for clean gas, a plurality of flexible bands, each of said bands having a groove in the outer surface thereof adapted to engage the periphery of an aperture of the tube sheet when the band is in an annular condition, a plurality of tubular filter bags depending from the tube sheet, each of said bags having an open end lying concentrically between one of the flexible bands and the periphery of one of the apertures in the tube sheet and a closed end extending into the inlet compartment for dirty gas, cage means adapted to support each filter bag and simultaneously bias each flexible band outward against the open end of each filter bag and the surrounding periphery of each aperture in the tube sheet, and means carried by the open end of each filter bag, said last named means having a venturi portion that extends above the tube sheet and a holding portion that extends into an open end of the cage means.

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PARTICLE-IN-GAS FILTRATION

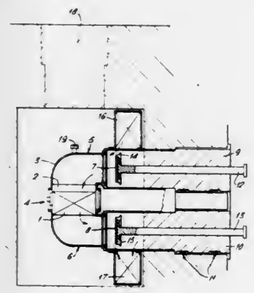
Stanley Hackney, Warrington, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed May 15, 1978, Ser. No. 906,201

Claims priority, application United Kingdom, May 31, 1977, 23034/77; Feb. 23, 1978, 7332/78

Int. Cl.[2] B01D *35/12*

U.S. Cl. 55—412 **8 Claims**



1. A filter assembly for particle in gas filtration comprising an inlet duct having an inlet opening and an outlet opening, an outlet duct having an inlet opening and an outlet opening,

a housing for filter means having an inlet housing opening and an outlet housing opening, said housing being removably placed between the outlet opening of the inlet duct and the inlet opening of the outlet duct with the inlet housing opening aligned with and connected to the outlet opening of the inlet duct and the outlet housing opening aligned with and connected to the inlet opening of the outlet duct so that gas passing through the filter assembly passes from the inlet duct to the outlet duct through the housing,

filter means located within the housing for filtering particles from the gas passing through the housing,

a first housing sealing member releasably received in the inlet housing opening for sealingly closing the inlet housing opening to prevent egress of the contents of the housing,

a second housing sealing member releasably received in the outlet housing opening for sealingly closing the outlet housing opening to prevent egress of the contents of the housing,

a first duct sealing member releasably received in the outlet opening of the inlet duct for sealingly closing the outlet opening,

a second duct sealing member releasably received in the inlet opening of the outlet duct for sealingly closing the inlet opening,

means on said first housing sealing member for engaging said first duct sealing member,

means on said second housing sealing member for engaging said second duct sealing member,

means for locating said first housing sealing member in the inlet housing opening and said first duct sealing member in the outlet opening of the inlet duct while the inlet housing opening is aligned with and connected to the outlet opening of the inlet duct,

means for locating said second housing sealing member in the outlet housing opening and said second duct sealing member in the inlet opening of the outlet duct while the outlet housing opening is aligned with and connected to the inlet opening of the outlet duct,

said first and second duct sealing members being engageable with said first and second housing sealing members respectively in such a way that the surfaces of the housing sealing members which are exposed to the surroundings when the housing sealing members are in place in the housing openings and the housing has been separated from the ducts and the surfaces of the duct sealing members which are exposed to the surroundings when the duct sealing members are in place in the duct opening and the housing has been separated from the ducts lie within the housing sealing members and duct sealing members, when the housing sealing members and duct sealing members are engaged, to minimize the exposure of said surfaces to the gas passing through the housing.

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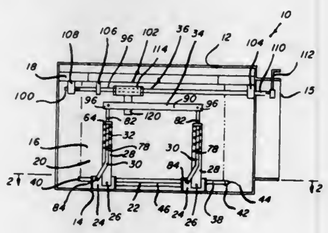
FILTER CLAMPING DEVICE

Alan Revell, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Dec. 26, 1979, Ser. No. 106,464

Int. Cl.[3] B01D *39/00*

U.S. Cl. 55—478 **10 Claims**



1. A unit filter clamping device for removably clamping a unit filter cell in position against a flow through unit filter seating structure located in a housing, the unit filter clamping device comprising:

a movable filter support tray for supporting the unit filter cell against the flow-through unit filter seating structure, the filter support tray being disposed a distance from the unit filter seating structure and movable toward and away from the unit filter seating structure;

at least one pair of opposing stationary support brackets being affixed in the housing, each stationary support bracket being located on opposite sides of the filter support tray from one another;

a rod spanning the distance between each pair of stationary support brackets, each rod being mounted to said pair of support brackets for translation in a direction transverse to its longitudinal axis toward and away from the unit filter seating structure;

means for mounting the unit filter support tray to each rod so that the unit filter support tray will move with each rod toward and away from the unit filter seating structure;

a pair of opposing actuating levers positioned with respect to each pair of stationary support brackets and disposed on opposite sides of the filter tray from one another, each actuating lever being pivotally attached at one of its ends to said pair of support brackets;

a pair of opposing follower levers positioned with respect to each pair of support brackets and disposed on opposite sides of the filter tray from one another, each of said follower levers being pivotally connected at one of its ends to the rod mounted to said pair of support brackets and being structurally positioned with respect to the actuating lever and pivotally attached to one of said support brackets on the same side of the filter tray so that the follower lever will pivot with the actuating lever;

means for pivotally moving each actuating lever selectively in either rotational direction about its point of pivotal attachment to said one of the support brackets; and,

means for moving each follower lever toward the unit filter seating structure as the actuating levers and connected follower levers rotate together about their respective pivot points in one direction thereby causing the filter support tray to move with the follower levers toward the unit filter sealing structure and clamping a unit filter cell supported on the filter support tray against the flow through unit filter seating structure.

4,266,957

RECOVERY OF HYDROGEN AND AMMONIA FROM PURGE GAS

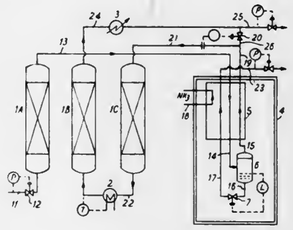
Wieslaw H. Isalski, Sale, England, assignor to Petrocarbon Development Limited, Manchester, England

Filed Aug. 13, 1979, Ser. No. 65,963

Claims priority, application United Kingdom, Jun. 7, 1979, 19927/79

Int. Cl.[3] F25J *1/00*

U.S. Cl. 62—18 **15 Claims**



1. A method for treating a purge gas from an ammonia synthesis recycle stream to recover from said purge gas ammonia and hydrogen values for recycle to the ammonia synthesis reaction, the method comprising providing the purge gas at superatmospheric pressure, removing ammonia from the compressed purge gas by adsorption in an ammonia adsorber, cooling substantially ammonia-free compressed purge gas recovered from the adsorption step to sub-ambient temperature to partially condense it and recovering therefrom a hydrogen rich gas stream and a condensate stream both at superatmospheric pressure, providing refrigeration for the partial condensation by expanding the condensate and thereafter evaporating it in indirect heat exchange relationship with the purge gas to be cooled, and regenerating the ammonia adsorber by passing therethrough at elevated temperature a regenerating gas at superatmospheric pressure, which gas is provided from the hydrogen rich gas stream.

4,266,958

SIMULTANEOUS COOLING AND REMOVAL OF WATER FROM HYDROCARBON GAS MIXTURES

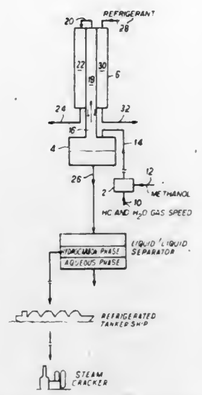
Donald R. Cummings, Cheltenham, England, assignor to Dut Pty Limited, Sydney, Australia

Filed Jul. 11, 1979, Ser. No. 56,724

Claims priority, application United Kingdom, Jul. 17, 1978, 30085/78

Int. Cl.[3] F25J *1/02*

U.S. Cl. 62—20 **24 Claims**



1. A method of simultaneously dehydrating and chilling a gaseous composition comprising a water-containing gaseous hydrocarbon mixture and a controlled or known concentration of methanol vapour to a temperature which lies below the ice or hydrate formation temperature of said water-containing gaseous hydrocarbon mixture by passing it upwards in indirect heat exchange relationship with a coolant through a heat exchanger in which the composition is cooled and liquids therefrom flow downwards in a counter-current fashion in contact with the rising composition being cooled, the temperature of the rising composition and the down flowing condensed liquids in the exchanger decreasing from bottom to top of the heat exchanger, and recovering a dehydrated hydrocarbon gas from the top of the exchanger and an aqueous condensate from the bottom.

4,266,959

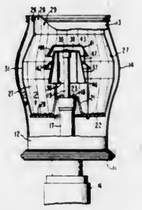
CRYOGENIC PUMP WITH RADIATION SHIELD

Kimo M. Welch, Mountain View, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Sep. 28, 1979, Ser. No. 79,860

Int. Cl.[3] B01D *8/00*

U.S. Cl. 62—55.5 **15 Claims**



1. In a cryogenic pump for removing gaseous species from a chamber: means forming an inlet opening for gaseous commu-

nication with the chamber, a first stage extending axially from the inlet opening and having a pumping surface maintained at a first temperature for removing a portion of the gaseous species, a second stage having a pumping surface maintained at a temperature lower than the first temperature for removing an additional portion of the gaseous species, and a plurality of baffle members spaced axially apart between the first and second stages for shielding the pumping surface of the second stage from direct exposure to the inlet opening while permitting substantially unimpeded flow of the gaseous species from the inlet opening to the second stage.

4,266,960

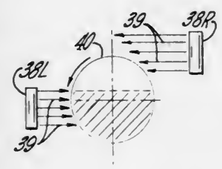
METHOD AND APPARATUS FOR PRODUCING FIBROUS WOOL PACKS

James W. Scott, and Robert Rising, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation of Ser. No. 575,870, May 9, 1975, abandoned. This application Mar. 2, 1977, Ser. No. 773,890

Int. Cl.³ C03D *37/04*

U.S. Cl. 65—4 R **9 Claims**



1. The method of recovering mineral fibers from a veil of mineral fibers comprising contacting said veil with simultaneously pulsating gaseous blasts from at least two nozzles to divide said veil into at least two principal fiber flows, and recovering said fibers.

4,266,961

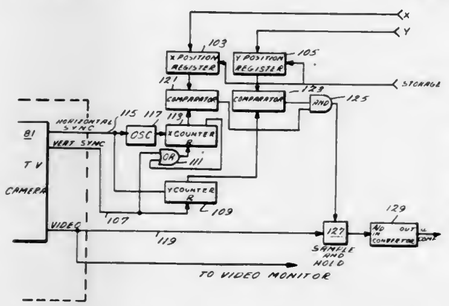
OVERRIDE SYSTEM FOR GLASS FORMING MACHINERY

Charles L. Wood, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind.

Continuation of Ser. No. 898,213, Apr. 20, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 79,368

Int. Cl.³ C03B *7/14, 9/40, 11/16*

U.S. Cl. 65—29 **25 Claims**



1. In a glassware forming machine having a plurality of sections, each of which includes a plurality of movable components which operate in timed relationship with respect to one another, a gob feeder for feeding gobs of molten glass from a predetermined location to each of said sections, said sections forming rigid glassware articles from the gobs taken from said gob feeder, wherein said movable components are each actuated at respective relative times in each of a plurality of machine cycles, a controller for said glassware forming machine comprising: timing means for generating a digital signal, said digital signal providing an indication of the time elapsed in each cycle of operation of said machine,

means responsive to said timing means for generating component operation commands for at least one movable component of a section during the machine cycle,

means for continuously monitoring the change in position of at least one of said components of said section of said glassware forming machine,

means responsive to said monitoring means for determining if said at least one monitored component is in the correct position during at least one portion of the cyclic operation of said section, and

means responsive to said determining means for inhibiting the operation of said machine if at least one of said monitored components is not in the correct position.

18. In a glassware forming machine having a plurality of sections each of which includes a plurality of movable components which operate in timed relationship with respect to one another, a gob feeder for feeding gobs of molten glass from a predetermined location to each of said sections, said sections forming rigid glassware articles from the gobs taken from said gob feeder, wherein said movable components are each actuated at respective relative times in each of a plurality of machine cycles, a method of controlling said glassware forming machine comprising the steps of:

generating a signal in synchronism with the machine cycle, said signal providing an indication of the elapsed time in each cycle of operation of said machine,

generating a component operation command for at least one movable component of a section at each of a plurality of times in the machine cycle,

continuously monitoring the position of at least one of said movable components of each section of said glassware forming machine,

determining in response to said monitoring step if at least one monitored component is in the incorrect position during at least one portion of the cyclic operation of said section of said machine, and

inhibiting the operation of said machine if at least one of said monitored components is not in the correct position.

4,266,962

DRIFT REDUCING AGRICULTURAL COMPOSITIONS

Elmar Kersting, Stolberg, and Heinz J. Niessen, Berg. Gladbach, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

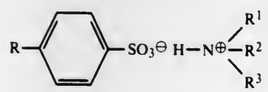
Filed May 7, 1975, Ser. No. 575,316

Claims priority, application Fed. Rep. of Germany, May 11, 1974, 2422954

Int. Cl.³ A01N *43/74, 37/10, 37/38, 57/28*

U.S. Cl. 71—90 **18 Claims**

1. Method of reducing the drift of sprayed agricultural chemical compositions which method comprises applying to an area of vegetation a crop protection composition containing an active crop protection agent and, as a foaming agent, an amine salt of a p-alkylbenzenesulfonic acid of the general formula.



(I)

in which

R is alkyl of from 8 to 16 carbon atoms.

R^1 and R^2 are individually selected from hydrogen, alkyl, or hydroxyalkyl of from 1 to 6 carbon atoms, and

R^3 is alkyl or hydroxyalkyl of from 1 to 6 carbon atoms.

4,266,963

PYRAZOLE DERIVATIVES, HERBICIDAL COMPOSITIONS CONTAINING THE SAME, AND A PROCESS FOR THE PREPARATION OF THE SAME

Ryuzo Nishiyama, Takatsuki; Fumio Kimura, Kusatsu; Takahiro Haga, Kusatsu; Nobuyuki Sakashita, Kusatsu, and Tetsuji Nishikawa, Kusatsu, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

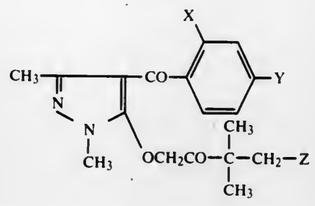
Filed Mar. 7, 1980, Ser. No. 128,060

Claims priority, application Japan, Mar. 7, 1979, 54-26564; Sep. 11, 1979, 54-116358

Int. Cl.³ A01N *43/56;* **C07D** *231/20*

U.S. Cl. 71—92 **16 Claims**

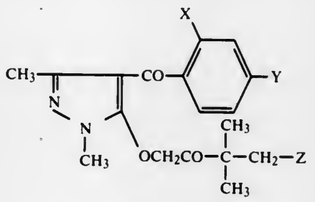
1. A pyrazole derivative having the formula (I):



(I)

wherein X and Y each represents a chlorine atom, a nitro group or a trifluoromethyl group, and Z represents a hydrogen atom or a halogen atom.

9. A herbicidal composition comprising a herbicidally effective amount of at least one compound having the formula (I):



(I)

wherein X and Y each represents a chlorine atom, a nitro group or a trifluoromethyl group, and Z represents a hydrogen atom or a halogen atom as an active ingredient, and agriculturally acceptable adjuvants not deleteriously affecting desired plants.

4,266,964

HERBICIDE ANTIDOTE COMPOUNDS AND METHOD OF USE

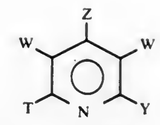
Theodore W. Holmsen, Clayton; Norman H. Kurihara, Walnut Creek, both of Calif., and Paul A. Thomas, Shawnee Mission, Kans., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 30, 1979, Ser. No. 34,891

Int. Cl.³ A01N *25/32*

U.S. Cl. 71—94 **28 Claims**

1. A herbicidal composition comprising an active herbicide compound selected from the group consisting of the herbicidal S-alkyl dialkylthiocarbamates wherein alkyl contains 2 to about 6 carbons and is straight chained, branched or cyclic and 2-(2,2,2-trichloroethyl)-2-(3,5-dichlorophenyl)oxirane and a non-phytotoxic antidotally effective amount of a chlorpyridine compound having the formula:



wherein:

T is H, Cl, CCl_3, CH_2Cl or $CHCl_2$;

Y is H, NH_2, Cl, CCl_3, $CHCl_2$ or CH_2CHl;

Z is H, Cl, CCl_3, $-SO_2CH_3$ or morpholinyl;

each W is independently H or Cl; and

at least one of T, Y and Z is chloromethyl and at least one of T, W, Y and Z is Cl;

said chloropyridine compound being antidotally active with said herbicide compound and wherein said chloropyridine compound is present in an effective amount ranging between about 0.01 to about 4 parts by weight of the chloropyridine compound per part of herbicide compound.

4,266,965

2-(α-NAPHTHOXY)-N,N-DIETHYL PROPIONAMIDE AS AN AQUEOUS FLOWABLE CONCENTRATE

Richard W. Simons, Suisun, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Oct. 29, 1979, Ser. No. 89,070

Int. Cl.³ A01N *37/18, 25/22*

U.S. Cl. 71—118 **12 Claims**

1. A flowable, storage-stable, aqueous pesticidal concentrate readily dilutable in water to form a spontaneous dispersion, which consists essentially of, by weight of the total concentrate,

(a) from 10 to 60% of 2-(α-naphthoxy)-N,N-diethyl propionamide;

(b) from 0.1 to 2.0% of a smectite clay;

(c) from 1.0 to 10.0% of a water-soluble nonionic surfactant;

(d) from 0.5 to 5.0% of a water-soluble dispersant; and

(e) from 1.0 to 20.0% of a water-soluble freezing point depressant;

the balance being water; the solid components having an average particle size of from about 5 to about 15 microns.

4,266,966

DUST TREATMENT

Harold T. Stirling, 39 Hoodridge Dr., Mount Lebanon, Pa. 15228

Filed Mar. 28, 1979, Ser. No. 24,658

Int. Cl.³ C21B *1/04;* **C22B** *7/02*

U.S. Cl. 75—25 **8 Claims**

1. A process for converting waste dust from a refining process into valuable material suitable for recycling to a refining process comprising the steps of pelletizing said dust, heating the resulting pelletized dust in the presence of a material capable of reducing oxides without intermediate significant drying to a temperature between about 1900° and 2200° F. and at a rate sufficient to explode at least 10 percent of said pellets and thereby remove volatile impurities, and removing the resulting material from said chamber.

8. A process for converting waste dust from a basic oxygen steelmaking process into valuable material suitable for recycling to a refining process comprising the steps of pelletizing said dust, heating the resulting pelletized dust in the presence of a material capable of reducing oxides to a temperature between about 1900° and 2200° F. and at a rate sufficient to explode at least some of said pellets, removing a substantially zinc free sinter feed material of plus eight mesh and minus ¼" from said chamber, water quenching the sinter and recycling it to said steelmaking process.

4,266,967

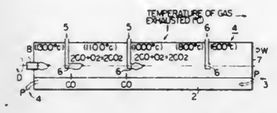
PROCESS FOR PRODUCING METALLIZED PELLETS FROM RAW PELLETS BY CONTROLLING DISTRIBUTION OF TEMPERATURE IN A ROTARY KILN

Yasuteru Yamada, Wakayama, and Kenji Kadota, Niihama, both of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka and Sumitomo Heavy Industries, Ltd., Tokyo, both of, Japan

Continuation of Ser. No. 830,215, Sep. 2, 1977, abandoned, which is a continuation of Ser. No. 662,278, Feb. 27, 1976, abandoned. This application Aug. 6, 1979, Ser. No. 64,001

Int. Cl.[3] C21B *13/08*

U.S. Cl. 75—36 4 Claims



1. A process for reducing raw pellets prepared from iron-containing dust exhausted from an iron plant to metallized pellets having high metallic iron content wherein the raw pellets containing metallic oxides and sufficient carbon to reduce said oxides are charged into a charge end of a rotary kiln and are heated therein, and wherein the metal oxides contained in the raw pellets are reduced by the carbon, which comprises introducing cooling water in a spray state into a portion of the interior of the rotary kiln which is in the first 3/7ths of the entire length of the kiln as measured from the charge end thereof and in which combustion does not occur, to lower the temperature of said portion and to reduce the rate of heating the raw pellets in the temperature range of from about 600° C. to about 800° C.

3. A process for reducing raw pellets prepared from iron-containing dust exhausted from an iron plant to metallized pellets having high metallic iron content wherein the raw pellets containing metallic oxides and sufficient carbon to reduce said oxides are charged into a charge end of a rotary kiln and are heated therein, and wherein the metal oxides contained in the raw pellets are reduced by the carbon, which comprise introducing cooling water in a spray state into a portion of the interior of the kiln which is in the first 3/7ths of the entire length of the kiln as measured from the charge end thereof and to lower the temperature of said portion and to reduce the heating rate of the raw pellets in the temperature range of from about 600° C. to about 800° C.

4,266,968

PROCESS FOR INJECTING BROWN COAL INTO A BLAST FURNACE

Heinz G. Daldrup, Kerpen-Sindorf; Günther Nothhelfer, Frechen; Friedrich H. Franke, Cologne, all of Fed. Rep. of Germany, and Raymond Limpach, Huncherange, Luxembourg, assignors to Rheinische Braunkohlenwerke A.G., Stüttgenweg, Fed. Rep. of Germany and Arbed S.A., Luxembourg

Filed Mar. 25, 1980, Ser. No. 133,555

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1979, 2912441

Int. Cl.[3] C21B *5/00*

U.S. Cl. 75—42 26 Claims

1. In a process for injecting fine-grain brown coal into a blast furnace through tuyere notches thereof, the improvement which provides that the initial speed at which the brown coal particles move after leaving a feed conduit therefor towards the center region of the hearth is substantially lower than the speed at which the hot blast passes into the tuyere notch.

4,266,969

DESULFURIZATION PROCESS

Peter J. M. Koros, Pittsburgh, Pa., assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

Filed Jan. 22, 1980, Ser. No. 114,262

Int. Cl.[3] C21C *7/02*

U.S. Cl. 75—58 7 Claims

1. A process for desulfurizing a bath of molten iron contained in a vessel comprising the steps of:

injecting particulate lime and a carbon-containing particulate with a non-oxidizing carrier gas beneath the surface of said bath to remove sulfur from said iron, while controlling the rate of injection of said carbon-containing particles to prevent substantial ejection to said bath from said vessel.

4,266,970

METHOD FOR BLOWING GAS FROM BELOW INTO MOLTEN STEEL IN REFINING VESSEL

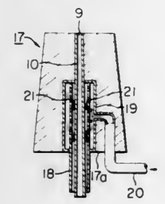
Shoji Iwaoka, Ashiya; Hiroyuki Kaito; Shigeo Anzai, both of Takarazuka; Susumu Ushigome, Nagoya; Yoshiaki Watanabe, and Nobuyuki Mimura, both of Tajimi, all of Japan, assignors to Kawasaki Steel Corporation, Kobe and Tokyo Yogyo Kabushiki Kaisha, Tokyo, both of, Japan

Filed Dec. 13, 1979, Ser. No. 103,177

Claims priority, application Japan, Dec. 21, 1978, 53-156869; Dec. 21, 1978, 53-156870; Dec. 21, 1978, 53-156871

Int. Cl.[3] C21C *5/34*

U.S. Cl. 75—59 5 Claims



1. A method for blowing gas from below into molten steel received in a refining vessel, which comprises:

using a refining vessel including at least one gas blowing aperture provided in the bottom wall thereof and a frusto-conical plug matching with said gas blowing aperture, releasably inserted into said gas blowing aperture from the outside of said bottom wall, which has a small-diameter bore having a diameter within the range of from 0.5 to 6.0 mm and a length within the range of from 60 to 700 mm;

closing the top end of said small-diameter bore of said plug opening into said vessel with a granular packing which is removable by the pressure of the gas blown, thereby ensuring prevention, during receiving a molten steel into said vessel, of said received molten steel from penetrating into said small-diameter bore;

blowing from below a gas having a pressure of over the static pressure of said molten steel through said small-diameter bore of said plug, after receiving said molten steel in said vessel, into said received molten steel, thereby instantaneously removing said granular packing to effect a prescribed gas blowing into said molten steel; and

after discontinuing said gas blowing, causing a portion of said molten steel in said vessel to penetrate by gravity into said small-diameter bore of said plug to solidify the molten steel in said small-diameter bore, thereby closing said small-diameter bore to ensure prevention of said molten steel in said vessel from flowing out from said vessel.

4,266,971

CONTINUOUS PROCESS OF CONVERTING NON-FERROUS METAL SULFIDE CONCENTRATES

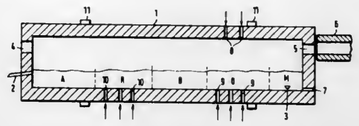
Werner Schwartz, Frankfurt am Main; Peter Fischer, Bad Vilbel, and Heinrich Traulsen, Schwalbach, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,521

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2807964

Int. Cl.[3] C22B *15/00*

U.S. Cl. 75—69 10 Claims



1. A continuous process for the conversion of a non-ferrous metal sulfide whereby to form:

(a) a slag phase and

(b) a non-ferrous metal phase of greater non-ferrous metal than the unconverted non-ferrous metal sulfide

which comprises feeding said non-ferrous metal sulfide onto a molten bath at a plurality of points along the length of a horizontal reactor into said horizontal reactor and heating the same therein, said horizontal reactor provided with an oxidizing zone to which an oxidizing gas is added wherein in said oxidizing zone oxidation conditions predominate and a reducing zone to which a reducing gas is added and wherein in said reducing zone reducing conditions predominate, while maintaining a concentration of oxidizing gas in the gas atmosphere which develops in the reactor such that the concentration of the oxidizing gas progressively decreases through said reducing zone to a minimum point where the slag phase is removed, stepwise introducing an oxidizing gas into the molten bath by passing the same oxidizing gas through nozzles disposed below the level of said molten bath, withdrawing said slag phase from one end of said horizontal reactor and said non-ferrous metal phase from the other end of the reactor, passing the gas atmosphere which develops in said reactor in a countercurrent direction to said slag phase and withdrawing exhaust gas from said reactor at the same end of said reactor as said non-ferrous metal phase is withdrawn.

4,266,972

PROCESS FOR NON-FERROUS METALS PRODUCTION FROM COMPLEX SULPHIDE ORES CONTAINING COPPER, LEAD, ZINC, SILVER AND/OR GOLD

Angel L. Redondo-Abad; Eduardo Diaz-Nogueira; Martin Gerez-Pascual, and Jose M. Regife-Vega, all of Madrid, Spain

Filed Dec. 14, 1979, Ser. No. 103,807

Claims priority, application Spain, Dec. 15, 1978, 476.055

Int. Cl.[3] C22B *19/22, 15/08, 11/04, 13/04*

U.S. Cl. 75—101 R 16 Claims

1. A process for non-ferrous metals production from complex sulphide ores containing copper, lead, of zinc, silver and/or gold which comprises: grinding said ore and subjecting it to a flotation operation for obtaining a bulk concentrate of the non-ferrous metals minerals and for separating most of the pyrite as a flotation tail, slurrying said concentrate in water in such a way as to obtain a predetermined solid-liquid ratio and subjecting said slurry to an oxidation leach in a stirred pressure reactor, at an oxygen partial pressure in the range of from about 5 to 15 Kg/cm^2g and a temperature in the range of from about 150° to 250° C. for complete oxidation of metal sulphides to sulphates, separating the reaction mixture into a solid residue containing ferric oxide, lead sulphate and precious metals, and a leaching liquor containing sulphuric acid, copper sulphate and zinc sulphate, neutralizing the free sulphuric acid contained in said leaching liquor with grounded limestone to a final pH in the range of from about 1.5 to 2.5. removing precipitated gypsum from solution, recovering copper by cementation or solvent extraction and electrowinning, leaching lead, silver and gold from the said solid residue by a strong chloride solution containing calcium chloride at a temperature in the range of about 60° to 90° C. at a pH in the range of from about 7.0 to 1.0 and in the presence of about 1 gram per liter of ferric chloride, recovering lead, silver and gold from the brine solution after solid removal by cementation with scrap zinc, mixing the lead free brine solution containing the zinc used in lead cementation with the zinc bearing solution from the copper recovery operation, and recovery zinc from the resulting solution by solvent extraction and electrowinning.

4,266,973

TARNISH-RESISTANT GOLD COLOR ALLOY AND DENTAL RESTORATIONS EMPLOYING SAME

Matthew M. Guzowski, Wallingford; Stephen P. Schaffer, Bloomfield, and David C. Wright, Enfield, all of Conn., assignors to The J. M. Ney Company, Bloomfield, Conn.

Filed Dec. 14, 1979, Ser. No. 103,846

Int. Cl.[3] C22C *5/02, 5/06, 5/00*

U.S. Cl. 75—134 N 8 Claims

1. A tarnish-resistant gold color alloy consisting essentially of:

A. 30–50 percent by weight gold;

B. 20–50 percent by weight copper;

C. 5–15 percent by weight silver;

D. 2–20 percent by weight zinc;

E. 1.5–15 percent by weight palladium;

F. up to 4.0 percent by weight platinum; and

G. up to 1.0 percent by weight rhenium;

the copper to silver atomic ratio being 6–8:1; the copper to zinc atomic ratio being 2–12:1; and the copper to palladium atomic ratio being 5–30:1; the weight ratio of copper to silver being 3.5–4.7:1; the weight ratio of copper to zinc being 3.0–18:1; and the weight ratio of copper to palladium being 1.95–11.66:1.

4,266,974

ALLOY STEEL POWDER HAVING EXCELLENT COMPRESSIBILITY, MOLDABILITY AND HEAT-TREATMENT PROPERTY

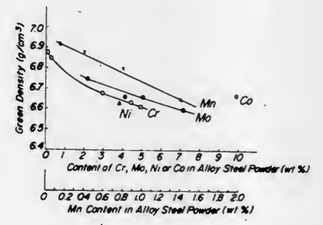
Minoru Nitta; Yoshihiro Kajinaga, both of Chiba; Ichio Sakurada, Ichihara; Kuniaki Ogura, and Shunji Ito, both of Chiba, all of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Oct. 26, 1979, Ser. No. 88,539

Claims priority, application Japan, Oct. 30, 1978, 53/133565

Int. Cl.[3] B22F *1/00*

U.S. Cl. 75—251 2 Claims



1. An alloy steel powder having excellent compressibility, moldability and heat-treatment property, consisting of not more than 0.05% by weight of carbon, not more than 0.0040% by weight of nitrogen, not more than 0.10% by weight of

silicon, not more than 0.01% by weight of aluminum, not more than 0.25% by weight of oxygen, at least one of 0.35–1.50% by weight of manganese, 0.2–5.0% by weight of chromium, 0.1–7.0% by weight of molybdenum and 0.01–1.0% by weight of vanadium, and the remainder being iron and incidental impurities, and having a green density of at least 6.60 g/cm^3 and a rattler value of not higher than 1.20% in the green compact produced therefrom under a molding pressure of 5 ton/cm^2.

2. An alloy steel powder having excellent compressibility, moldability and heat-treatment property, consisting of not more than 0.05% by weight of carbon, not more than 0.0040% by weight of nitrogen, not more than 0.10% by weight of silicon, not more than 0.01% by weight of aluminum, not more than 0.25% by weight of oxygen, at least one of 0.35–1.50% by weight of manganese, 0.2–5.0% by weight of chromium, 0.1–7.0% by weight of molybdenum and 0.01–1.0% by weight of vanadium, at least one of not more than 0.02% by weight of boron, 0.2–5.0% by weight of nickel, 0.2–2.0% by weight of copper, 0.2–10.0% by weight of cobalt and not more than 0.10% by weight of niobium, and the remainder being iron and incidental impurities, and having a green density of at least 6.60 g/cm^3 and a rattler value of not higher than 1.20% in the green compact produced therefrom under a molding pressure of 5 ton/cm^2.

4,266,975

ANTICORROSIVE COATING COMPOSITION

Takao Higashiyama, and Toshio Nishikawa, both of Yokohama, Japan, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Apr. 3, 1980, Ser. No. 136,943
Claims priority, application Japan, Apr. 6, 1979, 54-41052
Int. Cl.^{3} C09D *5/10*; 148 *6.2*
U.S. Cl. 106—1.12 **16 Claims**

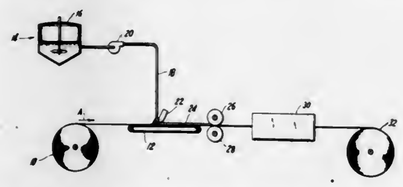
1. In a substantially resin-free aqueous coating composition for application to metal substrates, comprising a chromic acid constituent, particulate metal and at least one high-boiling organic oxohydroxy liquid having a molecular weight of 300 or less; the improvement comprising a boric acid component in an amount of 5 to 95% by weight of the chromic acid constituent and boric acid component.

4,266,976

FABRIC TREATING COMPOSITIONS

Razmic S. Gregorian, Aiken, and Chettoor G. Namboodri, North Augusta, both of S.C., assignors to United Merchants and Manufacturers, Inc., New York, N.Y.

Continuation of Ser. No. 794,627, May 6, 1977, abandoned, which is a division of Ser. No. 584,389, Jun. 6, 1975, Pat. No. 4,118,526. This application Feb. 26, 1979, Ser. No. 15,030
Int. Cl.^{3} C09K *3/18*
U.S. Cl. 106—2 **14 Claims**



1. In a foamable composition suitable for treating fabrics with a finishing agent comprising a fabric finishing agent in an amount effective to impart the properties of the finishing agent to a fabric, a foam stabilizer, and a liquid diluent; the improvement comprising about 0.5 to 8 percent foam stabilizer and in an amount sufficient to form said composition into a stable foam having a blow ratio in the range from about 2:1 to 20:1, a foam density in the range from about 0.5 gm/cc to 0.05 gm/cc, and which is sufficiently stable to substantially retain its characteristics during application until a mechanical force is applied thereto.

6. In a stable foamed composition suitable for continuously treating fabrics with a finishing agent comprising a fabric finishing agent in an amount effective to impart the properties of the finishing agent to a fabric, a foam stabilizer and a liquid diluent; the improvement comprising about 0.5 to 8 percent foam stabilizer and in an amount sufficient to form a stable foam having a flow ratio in the range from about 2:1 to 20:1, a foam density in the range from about 0.5 gm/cc to 0.05 gm/cc, and which is sufficiently stable so that upon application onto a fabric said foam composition will flow on the fabric surface and not break down until a mechanical force is applied thereto.

4,266,977

SUBMICRON CARBON-CONTAINING TITANIUM BORIDE POWDER AND METHOD FOR PREPARING SAME

Roger A. Steiger, Canal Fulton, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 546,835, Feb. 3, 1975, abandoned. This application Dec. 4, 1978, Ser. No. 966,526
Int. Cl.^{3} C04B *35/58*
U.S. Cl. 106—43 **28 Claims**

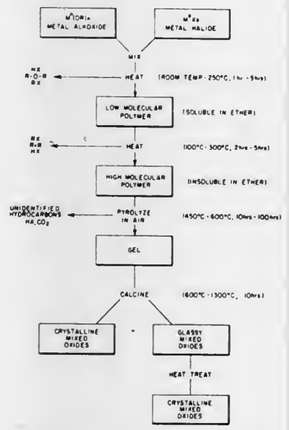
1. Submicron titanium diboride powder having dispersed therein solid submicron carbon-containing additive selected from the group elemental carbon, titanium carbide and mixtures of elemental carbon and titanium carbide, the total carbon content of said additive being from about 0.3 to about 2 weight percent based on titanium diboride, and wherein the titanium diboride powder has a surface area of between about 3 and 15 square meters per gram and the nominal sectional diameter of at least 90 percent of the titanium diboride particles of the powder are less than one micron, said particles being tabular to equidimensional hexagonal crystals having well developed faces, the number median particle size of said particles being between 0.08 and 0.6 microns.

4,266,978

SYNTHESIS OF MIXED OXIDE COMPOSITION

Svante Prochazka, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 25, 1979, Ser. No. 51,695
Int. Cl.^{3} B01J *13/00*; C03C *3/04, 3/12, 3/22*; C04B *35/18, 35/44, 35/48*
U.S. Cl. 106—39.5 **21 Claims**



1. A process for producing a solid amorphous precursor gel composed of at least two metal oxides, said solid gel being free of water and hydroxyl groups and having a specific surface area higher than 10 square meters per gram, consisting essentially of reacting under reflux conditions in a substantially moisture-free atmosphere a mixture of metal alkoxide and metal halide at a temperature ranging from about room temperature up to about 250° C. at a pressure ranging from atmospheric pressure to superatmospheric pressure ranging up to about 10 atmospheres forming a polymeric reaction product, said metal alkoxide being $M^n(OR)_n$ where M^n is metal ion, R is an alkyl radical, and n is the valence of M^n, said metal halide being M^eX_e where M^e is metal ion different from M^n, X is a halide selected from the group consisting of chloride, bromide, iodide and fluoride, and e is the valence of M^e, heating said polymeric reaction product in a substantially moisture-free atmosphere at a temperature ranging from about 100° C. up to about 300° C. producing a polymeric product insoluble in ethyl ether at room temperature, pyrolyzing said ether-insoluble polymeric product in air or oxygen at a temperature ranging from about 450° C. to about 600° C. producing said gel comprised of a submicroscopically homogeneous mixture of the oxides of M^n and M^e and up to about 0.02% by weight of elemental carbon based on the total weight of said gel.

6. A solid amorphous precursor gel free of water and hydroxyl groups and having a specific surface area higher than 10 square meters per gram, said gel consisting essentially of a submicroscopically homogeneous mixture of at least two metal oxides and up to about 0.02% by weight of elemental carbon based on the total weight of said gel, said gel having interconnecting pores open to the surface.

12. A polycrystalline ceramic body produced by sintering the gel of claim 6 and having a density ranging from about 70% to about 100%.

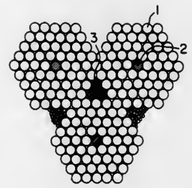
21. An impermeable glassy submicroscopically homogeneous mixture of oxides of aluminum and silicon corresponding to about $3Al_2O_3 \cdot 2SiO_2$ and up to about 0.02% by weight of elemental carbon based on the total weight of said glassy mixture, said glassy mixture being free of water and hydroxyl groups.

4,266,979

OXYGEN SENSOR CERAMIC AND PROCESS FOR PREPARING THE SAME

Tadahiko Miyoshi, and Takeo Yamazaki, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 1, 1979, Ser. No. 80,469
Claims priority, application Japan, Sep. 29, 1978, 53/119312
Int. Cl.^{3} C04B *35/48*; C01N *27/58*
U.S. Cl. 106—57 **8 Claims**



1. An oxygen sensor ceramic of a solid electolyte of a zirconia-yttria system, which comprises aggregates of cubic zirconia grains having an average grain size of 2–10 μm and monoclinic zirconia grains having an average grain size of 0.2–1 μm, the aggregates of said cubic zirconia grains being in contact with one another, and said monoclinic zirconia grains being distributed as aggregates in clearances among the aggregates of the cubic zirconia grains.

4,266,980

EXPANSIVE SOLIDIFYING MATERIAL

Akira Chudo, Sakai; Tomomitsu Sugi, Ashiya, and Ko[illegible] Kataoka, Osaka, all of Japan, assignors to Osaka Cement Co., Ltd., Osaka, Japan

Filed Sep. 7, 1979, Ser. No. 73,305
Claims priority, application Japan, Sep. 21, 1978, 53-115134
Int. Cl.^{3} C04B *7/02*
U.S. Cl. 106—97 **2 Claims**

1. An expansive solidifying material comprising:
15 to 40% by weight of gypsum;
25 to 40% by weight of blast furnace slag;
30 to 50% by weight of Portland cement; and not more than 10% by weight of a soluble aluminate selected from the group consisting of aluminous cement, aluminum sludge obtained in the remelting of aluminum material, burnt alunite, alumite sludge and red muddy slag occurring in the melting process of bauxite.

4,266,981

PROCESS FOR RECOVERING AND UTILIZING CELLULOSE USING SULFURIC ACID

George T. Tsao, and Terry Y. Chou, both of West Lafayette, Ind., assignors to Purdue Research Corporation, West Lafayette, Ind.

Filed Oct. 3, 1979, Ser. No. 81,538
Int. Cl.^{3} C13K *1/02*
U.S. Cl. 127—37 **19 Claims**

1. A process for recovering cellulose from a cellulosic material which contains hemicellulose, cellulose and lignin, which comprises the steps of: contacting the cellulosic material with dilute acid under mild conditions to hydrolyze only the hemicellulose portion thereof;
removing the hydrolyzed hemicellulose portion from the remainder of the cellulosic material residue, said residue being in solid form;
blending and mixing said residue with concentrated sulfuric acid under mild conditions to dissolve and partially hydrolyze the cellulose portion of said residue, the lignin portion being substantially unaffected by the mild reaction conditions and remaining as a solid; and
reprecipitating the dissolved and partially hydrolyzed cellulose by adding a reprecipitating agent to the reaction mass resulting from said blending and mixing step, said reprecipitating agent being a member selected from the group consisting of water, water soluble organic solvents and mixtures thereof.

11. The process of claim 1 wherein said reprecipitated cellulose has a lowered DP and has its internal structure and lignin seal disrupted whereby said cellulose may be readily substantially completely hydrolyzed to yield glucose.

12. The process of claim 11 further comprising the step of hydrolyzing said reprecipitated cellulose to glucose by means of cellulase enzymes or a dilute acid or a mixture of a dilute acid and enzymes.

4,266,982

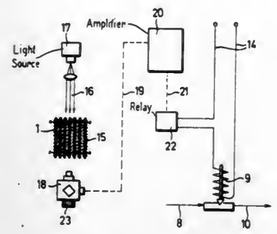
METHOD AND APPARATUS FOR CLEANING A MATRIX OF A WET MAGNETIC SEPARATOR

Hans Bender, Leverkusen; Rupprecht Graf; Karl-Heinz Unkelbach, both of Cologne, and Wolf Zabel, Seelscheid, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Jul. 18, 1979, Ser. No. 12,393
Claims priority, application Fed. Rep. of Germany, Feb. 15, 1978, 2806340
Int. Cl.^{3} B08B *7/00*
U.S. Cl. 134—18 **9 Claims**

1. In a method for cleansing a matrix of a wet magnetic separator loaded with adherent magnetic material wherein the matrix is cleaned with a liquid medium and a compressible gas,

the improvement comprising the steps of measuring the extent of loading of the magnetic material and initiating the cleaning



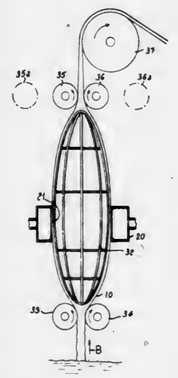
with the compressible gas upon exceeding a given threshold value of loading.

4,266,983

METHOD OF, AND MEANS FOR, REDUCING THE LIQUID CONTENT OF AIR-PERMEABLE MATERIAL IN TUBULAR FORM

Akos Laszlo, Nottingham, and Horace B. Merriman, South Ascot, both of England, assignors to Courtaulds Limited, London, England

Filed Mar. 12, 1979, Ser. No. 19,629
Int. Cl.[3] B08B *5/04*
U.S. Cl. 134—21 **13 Claims**



1. A method of reducing the liquid content of air-permeable material in tubular form, said method comprising the steps of:
(a) moving the tube of material longitudinally through structure defining a surface surrounding the tube, and formed with elongated apertures inclined at a slight angle to the direction of the longitudinal axis of the tube,
(b) applying forces to said tube to maintain it in open form and applied closely to said apertured surface,
(c) applying suction to said apertures of create a gas current from within said tube out through said apertures.

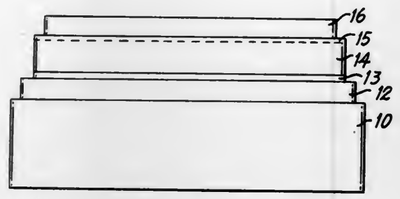
3. Apparatus for reducing the liquid content of air-permeable material in tubular form, said apparatus comprising:
(a) at least one hollow member defining a frame to surround the tube of material and presenting an inwardly-facing surface thereto,
(b) said surface being formed with elongated apertures inclined at a slight angle to the longitudinal direction of a tube of material passing through said frame,
(c) said apertures communicating with the interior of said at least one hollow member,
(d) means for creating a sub-atmospheric pressure within said at least one hollow member,
(e) means for advancing the tube of material through the frame to move the external surface of the tube past said inwardly-facing, apertured surface,
(f) means for maintaining said tube in open form and applied closely to said surface,
(g) whereby said suction will create a gas current from within and substantially only from within said tube into said at least one hollow member.

4,266,984

ENHANCED OPEN CIRCUIT VOLTAGE IN AMORPHOUS SILICON PHOTOVOLTAIC DEVICES

Christopher R. Wronski, Princeton, and Bruce P. Myers, Garwood, both of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Dec. 3, 1979, Ser. No. 99,421
Int. Cl.[3] H01L *31/04*
U.S. Cl. 136—255 **8 Claims**



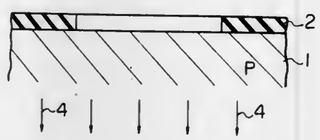
1. An enhanced voltage photovoltaic device having a body of amorphous silicon produced by the process comprising:
depositing a layer of photoconductive amorphous silicon onto a substrate;
exposing a surface of said amorphous silicon layer to a gas containing a partial pressure of sulfur dioxide at a temperature ranging from between 23° C. and 300° C.;
forming a diode junction to said exposed surface.

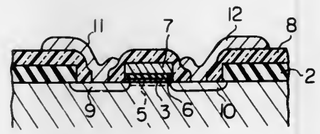
4,266,985

PROCESS FOR PRODUCING A SEMICONDUCTOR DEVICE INCLUDING AN ION IMPLANTATION STEP IN COMBINATION WITH DIRECT THERMAL NITRIDATION OF THE SILICON SUBSTRATE

Takashi Ito, Kawasaki, and Shinpei Hijiya, Sagamihara, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 18, 1979, Ser. No. 40,407
Int. Cl.[3] H01L *21/265, 21/31*
U.S. Cl. 148—1.5 **16 Claims**





1. A process for producing a semiconductor device comprising the steps of:

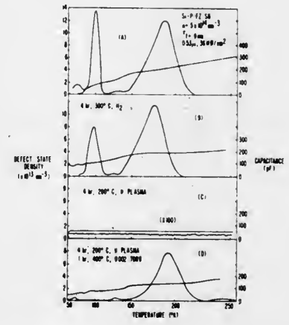
forming a silicon nitride film by direct thermal nitridation of the silicon of a semiconductor silicon substrate;
implanting impurity ions into said semiconductor silicon substrate, and;
heating said semiconductor substrate to a temperature for electrically activating said impurities and for correcting damage to said semiconductor substrate caused by the ion implantation, while maintaining essentially the entire amount of the ion implanted impurities at the surface of said semiconductor silicon substrate.

4,266,986

PASSIVATION OF DEFECTS IN LASER ANNEALED SEMICONDUCTORS

Janet L. Benton, Warren; Charles J. Doherty; Lionel C. Kimerling, both of Westfield, and Harry J. Leamy, Summit, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 29, 1979, Ser. No. 98,398
Int. Cl.[3] H01L *21/265*
U.S. Cl. 148—1.5 **3 Claims**



1. A method for processing a semiconductor comprising exposing at least a portion of the semiconductor to laser or electron radiation sufficient to heat the portion to within 200 degrees C. of the melting point, quenching the heated portion, and exposing the quenched portion to atomic hydrogen thereby passivating a substantial number of the defects.

4,266,987

PROCESS FOR PROVIDING ACID-RESISTANT OXIDE LAYERS ON ALLOYS

Chih-Chung Wang, Lexington, Mass., assignor to Kennecott Copper Corporation, New York, N.Y.

Filed Apr. 25, 1977, Ser. No. 790,498
Int. Cl.[3] C23C *11/00*
U.S. Cl. 148—6.3 **2 Claims**

1. A process for providing a stable, acid-resistant coating on the surface of a titanium alloy containing aluminum, said process comprising the steps of:
providing a clean surface on the alloy;
exposing the clean surface to an environment containing oxygen which is oxidizing with respect to aluminum and reducing with respect to the titanium constituents of said alloy; and
maintaining the environment at a selected temperature for a sufficient amount of time to form an aluminum oxide coating on the surface and reduce the titanium to form an acid-resistant coating of the alloy.

4,266,988

COMPOSITION AND PROCESS FOR INHIBITING CORROSION OF FERROUS OR NON-FERROUS METAL SURFACED ARTICLES AND PROVIDING RECEPTIVE SURFACE FOR SYNTHETIC RESIN COATING COMPOSITIONS

William D. Krippes, Schaumburg, Ill., assignor to J. M. Eltzroth & Associates, Inc., Schaumburg, Ill.

Filed Mar. 25, 1980, Ser. No. 133,955
Int. Cl.[3] C23F *7/26*
U.S. Cl. 148—6.21 **23 Claims**

1. A chromate depositing composition having a solids content within the range from 0.2 gram per liter to 75.0 grams per liter, the remainder being water, and consisting essentially of the following:

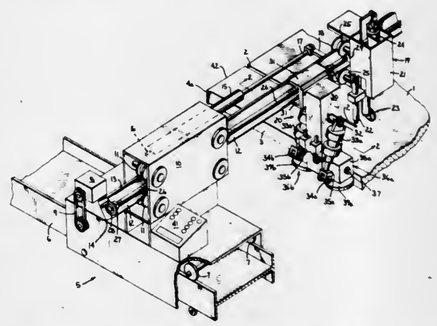
Ingredients	Grams per Liter
Chromic acid (CrO_3), (expressed as Cr)	0.10–50.0
Hydrofluoric acid (H_2F_2) (expressed as F)	0.01–5.0
Fluoboric acid (HBF_4) (expressed as BF_4)	0.01–50.0
Sulfuric acid (H_2SO_4) (expressed as SO_4)	0.01–5.0
Hydrofluosilicic acid (H_2SiF_6) (expressed as SiF_6)	0.0–5.0
Additive from the group consisting of: zinc oxide, magnesium oxide, magnesium hydroxide, aluminum sulfate, aluminum hydroxide and mixtures thereof	0.01–saturation solubility at 22° C.

4,266,989

CUTTING TOOL GUIDING SYSTEM FOR METAL CUTTING MACHINES

Robert G. Ludwigson, Brookfield, Wis., assignor to C-R-O, Inc., Menomonee Falls, Wis.

Filed Oct. 30, 1979, Ser. No. 89,405
Int. Cl.[3] B23K *7/00*
U.S. Cl. 148—9 R **5 Claims**



1. For use in a machine for cutting a seam in a metal workpiece with a longitudinally movable cutting tool, apparatus comprising:
(a) tool guide means connected for longitudinal movement with said cutting tool and adapted to followingly contact the exposed longitudinal edge of the workpiece,
(b) said tool guide means including selectively actuatable means to cause bypass of said contact with any deformed corners associated with said workpiece edge while maintaining guiding contact with said edge remote from said corners.

5. The method of guiding a cutting tool in the formation of

a longitudinal seam in a metal workpiece having a longitudinal edge with a starting corner comprising:

(a) providing leading and trailing guide members operatively connected to said cutting tool and which are longitudinally spaced on either side of a transverse plane containing said tool,

(b) positioning said tool adjacent said workpiece,

(c) advancing said leading guide member transversely into engagement with said workpiece edge downside and remote from said starting corner,

(d) retracting said trailing guide member transversely away from the workpiece,

(e) moving said tool and guide members longitudinally along the workpiece,

(f) and subsequently advancing said trailing guide member into work-engaging position, and retracting said leading guide member.

4,266,990

PROCESS FOR DIFFUSION OF ALUMINUM INTO A SEMICONDUCTOR

Naohiro Momma, Hitachi, and Hiroyuki Taniguchi, Kodaira, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 25, 1979, Ser. No. 88,136

Int. Cl.³ H01L *21/223*

U.S. Cl. 148—189 **10 Claims**

1. A process for the diffusion of aluminum into a semiconductor comprising, in combination, the steps of:

(a) subjecting a semiconductor substrate, made of a material selected from the group consisting of silicon and germanium, to a first heat treatment under vacuum to diffuse aluminum thereinto from an aluminum diffusion source carried by a holding means of a refractory metal disposed within an evacuated sealed tube; and

(b) subjecting said semiconductor substrate to a second heat treatment in an atmosphere selected from the group consisting of oxygen and nitrogen at a temperature higher than that applied in said first step, whereby aluminum diffusion is achieved while substantially preventing reduction in the lifetime of minority carriers in the semiconductor substrate.

4,266,991

CHLORINEFLUORIDE SOLID GAS GENERATOR

Joseph E. Flanagan, Woodland Hills, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 13, 1979, Ser. No. 57,463

Int. Cl.³ C06B *33/06*

U.S. Cl. 149—42 **5 Claims**

1. A stoichiometrically-balanced solid propellant chlorine-fluoride gas generator, which comprises:

an alkali chloride or mixtures of alkali chlorides, as the primary source of chlorine;

potassium fluorochlorinate oxidizer; and

aluminum fuel.

4,266,992

METHOD FOR END TO END CONNECTION OF MINERAL-INSULATED ELECTRIC CABLE AND ASSEMBLY FOR SAME

Michel Agaisse, St. Gratien, France, assignor to Les Cables De Lyon, Lyon Cedex, France

Filed Sep. 11, 1978, Ser. No. 941,354

Claims priority, application France, Sep. 30, 1977, 77 29456

Int. Cl.³ B21F *15/06*; H02G *15/18*

U.S. Cl. 156—49 **9 Claims**

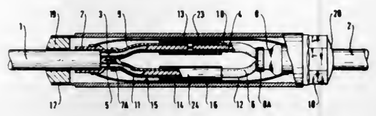
1. A method of end-to-end connection of single- or multiconductor electric cables having at least one electrical conductor, a conductive metal sheath and compressed mineral insulation within said conductive metal sheath and between said sheath and said at least one conductor, said method comprising the steps of:

removing the conductive metal sheath and the mineral insulation which surrounds the conductor at the ends of the cables to be connected,

fitting a metal conductor connection sleeve onto opposed ends of each pair of corresponding conductors of respective cable ends,

crimping said metal conductor connection sleeve onto the ends of said pair of conductors,

fitting a ring made of the same metal as that of the sheaths on each of the cable ends;



fitting a cap made of a flexible heat-resistant material onto the end of each cable and internally of said ring, and

positioning a cylindrical metal connection sleeve having an appreciably greater inside diameter than the outside diameter of the cable sheaths and having a reduced wall thickness at each of its ends onto said rings for fitting and crimping said cylindrical connection sleeve onto said rings at its ends of reduced wall thickness such that the reduced wall thickness ends are crimped onto said rings and the ends of the cable sheaths.

4,266,993

METHOD FOR THE SEALING OF A COVER STRIP ONTO PACKING CONTAINERS

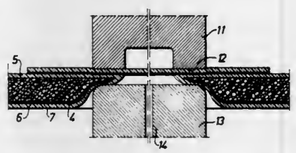
Jan-Erik Olsen, Malmö, Sweden, assignor to Tetra Pak International AB, Lund, Sweden

Filed May 2, 1979, Ser. No. 35,348

Claims priority, application Sweden, May 2, 1978, 7805004

Int. Cl.³ B29C *27/02*; B65B *61/18*

U.S. Cl. 156—69 **5 Claims**



1. A method for sealing a cover strip over an opening in a packing container wall, said wall including at least a central layer arranged between first and second thermoplastic layers, and said central layer including a surface defining an outer boundary of said opening, which surface includes edges and cavities where bacteria may breed, comprising the steps of:

placing said cover strip over said opening in said packing container wall, in contact with said first thermoplastic layer;

heating said packing container wall about said opening until said thermoplastic layers are at a softening temperature;

compressing said packing container wall about said opening simultaneously with the heating step;

urging said second thermoplastic layer of said packing container wall at said opening toward said first thermoplastic layer until said second thermoplastic layer is joined both to said first thermoplastic layer and to the cover strip and said surface of said central layer is entirely covered by at least said second thermoplastic layer.

4,266,994

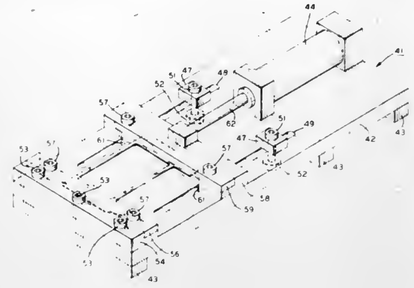
METHODS FOR MAKING DYNAMOELECTRIC MACHINE PHASE INSULATORS

Richard D. Burns, Holland, Mich., assignor to General Electric Company, Fort Wayne, Ind.

Filed Feb. 1, 1979, Ser. No. 8,603

Int. Cl.³ B29C *17/02*, *17/10*; B32B *31/16*

U.S. Cl. 156—73.2 **27 Claims**



1. A method of making a phase insulator for a dynamoelectric machine of a predetermined stack height, the method comprising the steps of severing a phase insulator from a sheet of insulating material having a preselected thickness and thereby forming an individual phase insulator having first and second spaced apart planar portions interconnected by at least one connector extending therebetween, with the planar portions and at least one connector initially having a thickness generally corresponding to the predetermined thickness; and subsequently stretching the at least one connector so as to increase the spacing between the planar portions thereby to produce a phase insulator of a size other than the size of the phase insulator as originally severed and of a size sufficient to accommodate subsequent relaxation of the connector, whereby an initially severed phase insulator may be used with stator cores of various stack heights.

27. A method of making phase insulators for a dynamoelectric machine, the method comprising the steps of elongating longitudinally extending filamentary material segments a predetermined amount corresponding to a preselected stator core stack height by subjecting such segments to a tensile stress of at least about 36,000 psi but less than about 67,000 psi, and thereby elongating such material into straightened segments, and joining together first and second planar insulation pieces with such elongated segments.

4,266,995

LIGHT WEIGHT PNEUMATIC TIRE HAVING A THIN SIDE WALL RUBBER

Yoichi Kitazawa, Kodaira; Takeshi Sato, Higashi-Yamato, and Hisao Tsuji, Akigawa, all of Japan, assignors to Bridgestone Tire Company Limited, Kyobashi, Japan

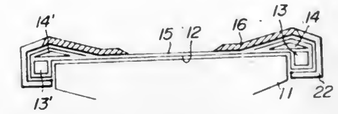
Continuation of Ser. No. 883,984, Mar. 6, 1978, abandoned, which is a division of Ser. No. 720,294, Sep. 3, 1976, Pat. No. 4,096,899. This application Jul. 13, 1979, Ser. No. 57,476

Claims priority, application Japan, Sep. 18, 1975, 50/112066

Int. Cl.³ B29H *17/14*, *17/22*

U.S. Cl. 156—123 R **6 Claims**

1. A method of producing a light weight pneumatic tire having a thin sidewall rubber, comprising: initially squeezing a thin sidewall rubber layer only onto opposite outer sidewall portions of an upper ply layer consisting of cord strips by means of calender rolls, said thin sidewall rubber layer having a thickness of 0.5 mm to 2.0 mm and a Shore A hardness after vulcanization of 40° to 55°, and thereafter forming the tire by winding at least one carcass ply layer having a width substantially corresponding to a distance between a pair of bead cores around a cylindrical former, positioning a pair of bead cores on said at least one carcass ply layer at axially opposite end portions of said former, superimposing said upper ply layer with the thin sidewall rubber layer squeezed thereon by calender



rolls about regions extending from said bead cores to at least crown edges of the tire to cover said regions with said thin sidewall rubber layer on said former, and vulcanizing the thus assembled layers.

4,266,996

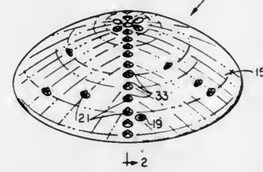
METHOD AND TOOL FOR PRODUCING CENTERED PARTS HAVING SPHERICAL SURFACES

Reinhold F. Garbe, Mountain View; Leo A. Esterl, Sunnyvale, and Ronald E. Koltun, Colfax, all of Calif., assignors to Spectra-Physics, Inc., Mountain View, Calif.

Filed Jan. 25, 1980, Ser. No. 115,204

Int. Cl.³ B32B *31/16*; B24B *1/00*; B29D *11/00*

U.S. Cl. 156—154 **14 Claims**



1. A method of producing parts having centered spherical surfaces, said method comprising,

generating a very accurate spherical surface on a block,

attaching a shell to said surface on the block,

drilling an opening through the shell to expose a spherical shaped seating surface on the block,

putting an adhesive into the opening,

placing a part in the opening with an inner end of the part engaged with the spherical shaped seating surface on the block and with the sides of the part located and supported by the sidewall surfaces of the opening and said adhesive, and

grinding a spherical surface on the outer end of the part concentric with the underlying precisely formed spherical surface of the block.

8. A tool for holding a part during the grinding on the part or the grinding and polishing on the part of a spherical surface having a center of curvature which defines an optical axis of the part that lies in close coincidence with the mechanical axis of the part, said tool comprising,

spherical support means for supporting the part against longitudinal movement of the part during grinding and polishing of the spherical surface,

lateral support means for supporting the part against lateral movement of the part during grinding and polishing of the spherical surface,

said spherical support means comprising a block having an outer, accurately generated spherical surface engagable with a surface of the part on an end of the part which is opposite the surface to be ground and polished,

said lateral support means comprising a shell attached to the

spherical support means and having a generally cylindrically shaped opening extending radially through the shell and providing sidewall means for locating and supporting the sides of the part, and

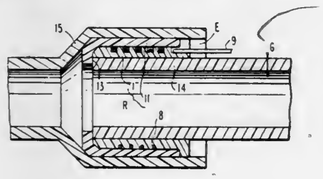
wherein the opening in the shell exposes a spherical seating surface for the inner end of the part and which enables the outer end of the part to be ground to a curvature concentric with the underlying precisely formed spherical surface of the block.

4,266,997

METHOD OF COUPLING PLASTIC PIPES BY WELDING

Noel Lippera, Blenod Les Pont-A-Mousson, France, assignor to Pont-A-Mousson S.A., Nancy, France

Division of Ser. No. 789,327, Apr. 20, 1977, Pat. No. 4,176,274. This application Jun. 28, 1979, Ser. No. 53,157
Claims priority, application France, Jun. 3, 1976, 76 17182
Int. Cl.³ H05B *3/58;* B29C *27/02*
U.S. Cl. 156—158 **2 Claims**



1. In a method of coupling a male plastic pipe end to a socket plastic pipe end by axially fitting a connecting piece comprising a bifilar electrical heating resistance wire element with plastic material onto one of the two pipe ends and then axially fitting the other pipe end onto said one pipe end equipped with said connecting piece with two free ends of said bifilar electrical heating resistance wire element remaining accessible at the mouth of the socket end and energizing said bifilar electrical heating resistance wire element covered with plastic material to couple said male plastic end and said socket plastic end by electric welding by melting of said plastic material, the improvement comprising the steps of:

forming said connecting piece of two complementary concentric plastic rings for axial sliding fit, one to the other, said complementary interfitted plastic rings being essentially of equal thickness, said complementary rings comprising internal and external rings,

and said method further including the step of helically grooving the radial periphery of one of said rings in sliding contact with the periphery of the other ring to a depth approximately equal to the diameter of said bifilar electrical heating resistance wire element,

winding said bifilar electrical heating resistance wire element to said one complementary ring within said groove, with said bifilar electrical heating resistance wire element being just below the surface of said other plastic ring, and

axially fitting said plastic rings concentric to each other;

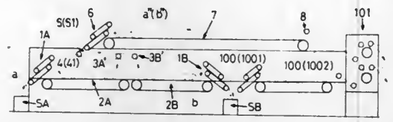
whereby, said bifilar electrical heating resistance wire element is centered relative to said connecting piece and to both pipe ends such that energization of said bifilar electrical heating resistance wire element causes, upon melting of said inner and outer rings, uniform welding of said male end and socket end of said pipes together.

4,266,998

METHOD FOR PRODUCING DOUBLE-FACED CORRUGATED BOARDS

Masateru Tokuno, Nishinomiya, Japan, assignor to Rengo Co., Ltd., Osaka, Japan

Filed Apr. 28, 1980, Ser. No. 144,308
Claims priority, application Japan, May 2, 1979, 54-54292; Sep. 17, 1979, 54-119899; Mar. 15, 1980, 55-33173
Int. Cl.³ B31F *5/00*
U.S. Cl. 156—159 **5 Claims**



1. A method for producing double-faced corrugated boards, which includes a method for changing single-faced corrugated boards, characterized in that said method for changing single-faced corrugated boards comprises the step of:

cutting a single-faced corrugated board, which is fed from a single facer onto a bridge and delivered from the bridge into a double facer, at a position which is located on or before said bridge;

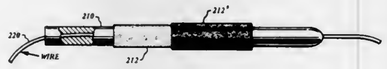
and splicing the tailing edge of the board with the leading edge of another single-faced corrugated board which is fed from another single facer onto said bridge.

4,266,999

CATHETER FOR LONG-TERM EMPLACEMENT

Robert E. Baier, Buffalo, N.Y., assignor to Calspan Corporation, Buffalo, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,584
Int. Cl.³ B32B *31/00;* A61M *25/00;* B29C *19/02*
U.S. Cl. 156—227 **8 Claims**



1. A method for making a sheath for a catheter including the steps of:

forming a cured elastomeric sheath on a mandrel;

coating the sheath with elastomeric coating material;

contacting the elastomeric coating material on the mandrel with solid, solvent-soluble particles while the elastomeric coating material is in a tacky state;

curing the elastomeric coating material containing said particles;

leaching said particles from the cured elastomeric coating material to produce a roughened surface suitable for tissue ingrowth;

removing the coated sheath from the mandrel;

trimming the sheath;

placing the sheath on a catheter such that when the sheath is folded back to form a cuff, the roughened surface will form the outer surface of the cuff;

folding back the sheath to form a relatively large cuff;

glow discharge treating the external surface of the relatively large cuff; and

pushing back the sheath to form a relatively smaller cuff whereby when the catheter is fixedly implanted in a body, tissue ingrowth will occur at the roughened outer surface of the cuff and the outward growth of the skin will peel back the cuff exposing new surfaces for tissue ingrowth while the catheter remains securely in place.

7. A catheter for long-term emplacement including:

core means for the percutaneous transmission of energy or matter;

anchoring means for securing said core means in place; and

an elastomeric sheath located on said core means and folded back to form a cuff having an outer surface roughened by leaching solid solvent-soluble particles from a coating on the outer surface of said cuff and further having been treated by glow discharge in order to render the outer surface of said cuff suitable for tissue ingrowth whereby when said catheter is fixedly implanted in a body by said anchoring means, tissue ingrowth will occur at the outer surface of the cuff and the outward growth of the skin will peel back said cuff exposing new surfaces for tissue ingrowth while the catheter remains securely in place.

4,267,000

METHOD FOR MASKING GLASS, GLASS-CERAMIC AND CERAMIC SURFACES

James F. Dix, Horseheads; Clarence E. Ford, Jr., Painted Post; Ray B. Forker, Jr., Horseheads, all of N.Y., and Ronald E. Johnson, Tioga, Pa., assignors to Corning Glass Works, Corning, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,908
Int. Cl.³ B44C *1/18*
U.S. Cl. 156—235 **6 Claims**

1. A method for masking selected areas of a glass, glass-ceramic, or ceramic surface against coating compositions which comprises the steps of:

(a) applying a thermoplastic molten masking coating consisting essentially, in weight percent, of about 10–60% bentonite clay, 0–40% of a refractory metal oxide, and 40–80% thermoplastic organic medium from a heated surface onto the surface of an elastomeric or silicone-coated body;

(b) cooling said masking coating on said elastomer or silicone-coated body to a temperature at which said coating exhibits sufficient tack and cohesiveness to enable transfer of the resultant coating from the elastomeric or silicone-coated body to the surface to be masked;

(c) bringing said elastomeric or silicone-coated body into contact with the surface of a glass, glass-ceramic, or ceramic article to transfer said coating to said article surface in said selected areas.

4,267,001

METHOD FOR MAKING PICTURE RECORDS

Harold F. Dague, Costa Mesa, Calif., assignor to Pic Disc, Inc., Los Angeles, Calif.

Filed Apr. 9, 1979, Ser. No. 28,579
Int. Cl.³ B29C *3/00;* B29D *17/00*
U.S. Cl. 156—245 **27 Claims**



1. A method of making a picture record comprising the steps of:

(a) printing a picture on a first surface of paper;

(b) laminating said first surface with a thin clear thermoplastic sheet to form a laminated paper including a laminated picture having said picture showing through the clear thermo plastic sheet;

(c) cutting the laminated paper including said laminated picture to a diameter less than the diameter of the flash lands on a record press and greater than the diameter of the sound grooves on a finished record, said thermoplastic sheet being cut to the same diameter as the laminated picture;

(d) loading said laminated picture made in accordance with steps (a) through (c) into a record press having a first and second platen with at least one of said platens having sound grooves defined on the surface of said platen, with picture and clear thermoplastic sheet facing the platen having said sound grooves;

(e) placing a quantity of thermoplastic material adjacent a second surface of the paper; and

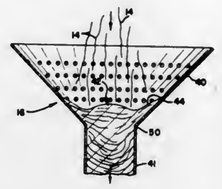
(f) closing the record press to mold a record and impress sound grooves into the outer surface of the clear thermoplastic sheet.

4,267,002

MELT BLOWING PROCESS

Cephas H. Sloan; Jerry A. Wright, and Gerald P. Morie, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 5, 1979, Ser. No. 17,744
Int. Cl.³ B22B *31/00*
U.S. Cl. 156—276 **11 Claims**



1. Process of forming a fibrous mass comprising the steps of

(1) extruding an attenuating molten thermoplastic material into a plurality of fibers by directing a jet of gas at the extruded material, said jet being directed such as to move the fibers toward a collecting and forming device having a radially flared end portion which converges into a throat section,

(2) intercepting said fibers by said collecting and forming device to obtain a relatively heavy build-up of fibrous mass in the throat section, the mass decreasing as the radius of the flared upper section increases,

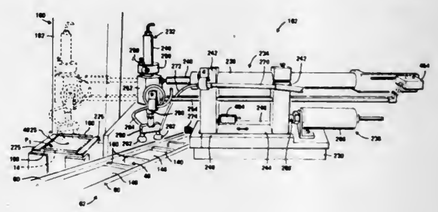
(3) withdrawing the fibrous mass from said throat at a speed synchronized with the build-up of fibers on said collecting and forming device such that the outer fibers on said flared section are continuously folded back over the core of said fibrous mass to form a relatively dense skin and providing a generally randomly parabolic orientation of fibers in longitudinal cross-section.

4,267,003

AUTOMATIC SOLAR CELL GLASSING MACHINE AND METHOD

Hans G. Mesch, Manhattan Beach; Colin H. Debenham, Oceanside, and Robert K. Yasui, Torrance, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Aug. 14, 1979, Ser. No. 66,581
Int. Cl.³ B32B *31/00*
U.S. Cl. 156—356 **23 Claims**



1. A solar cell glassing machine, comprising:

adhesive dispensing means for applying adhesive to the faces of solar cells,

cover glass dispensing means for applying a coverglass to each cell face,

means for effecting relative movement of solar cells past said dispensing means and operating said dispensing means in timed relation to apply adhesive and then a coverglass to the face of each cell to form an adhesively bonded cell stack, and means for positively aligning each coverglass relative to its respective solar cell

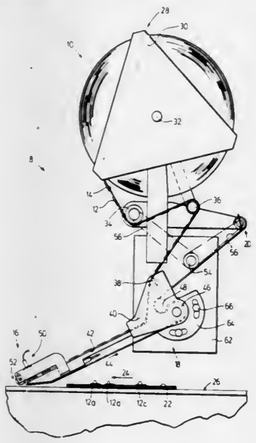
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4,267,004

LABEL POSITION SENSOR FOR LABELLER

Dale L. Anderson, Mound, Minn., assignor to Datafile Limited, Willowdale, Canada

Filed Mar. 8, 1979, Ser. No. 17,966
Int. Cl.³ B32B *1/00*
U.S. Cl. 156—361 **12 Claims**



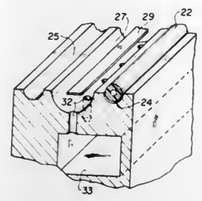
1. In labelling apparatus for applying labels to a continuously conveyed article, a labeller adapted to use a supply of labels carried on a web, each such label having a pressure-sensitive adhesive on its back which is releasably affixed to such web, said labeller comprising a label separation means for commencing a separation of a label leading edge from such web, said label separation means being located proximate such article to be labelled when conveyed thereby, label application means for contacting such pressure-sensitive adhesive side of separated label leading edge with such conveyed article, web handling means for feeding such supply of labels to and for taking such web away from said label separation means, label sensor means adapted to sense said leading edge of such label next to be separated from such web, control means for controlling web movement, said control means on receiving a signal from said label sensor that said leading edge of label has been sensed, controls said web handling means in separating at least such sensed leading label edge from such web and continue movement of said leading edge of separated label portion to a position preparatory to article application, said control means timing the resumption of web movement to synchronize label speed with the detected article speed for contacting the label at the desired location on such conveyed article.

4,267,005

HEAT SEALING APPARATUS

Roland E. Barnaby, Leggett Rd. R.D. 1, High Falls, N.Y. 12440

Filed Apr. 30, 1979, Ser. No. 34,748
Int. Cl.³ B29C *27/02*
U.S. Cl. 156—380 **8 Claims**



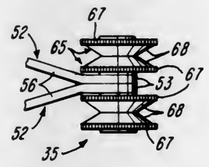
1. Apparatus for bonding overlapping thermoplastic films comprising complementary mating head portions adapted to be brought together across the film layers to be heat bonded, support means carried by at least one of the heads to hold the plastic films in laminated relationship and under tension transversely of the bonding line, each head having a longitudinal cavity to overlie the bonding area, an electrical resistance wire suspended in each cavity spaced from the plane of the plastic films to define a radiation gap, means to pulse the wires with electrical energy to establish radiation to melt the plastic films to effect severing through the films along a parting line and bonding of the overlapping molten films in beads on both sides of the parting line, and duct means to introduce coolant fluid into at least one of the cavities, said ducts being positioned to discharge jets of coolant fluid directly against the wire on the side opposite the plastic films, thereby to impinge directly on the wire to reduce the temperature and indirectly on the bonding film to effect hardening thereof without destroying the beads, said coolant fluid being introduced a predetermined time after the application of radiant energy and before release of the support means holding the laminated films.

4,267,006

LABEL PRINTING APPARATUS

Donald L. Karn, Springboro, and James A. Makley, Miamisburg, both of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Oct. 3, 1979, Ser. No. 81,374
Int. Cl.³ B65C *11/02*
U.S. Cl. 156—384 **11 Claims**



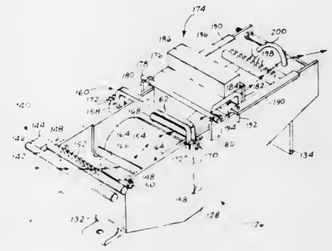
1. Labeling apparatus adapted for successively printing, dispensing and applying a series of pressure sensitive labels to corresponding articles, said apparatus comprising means for supporting a supply roll of pressure sensitive labels carried by a web, selectable printing means for printng selected characters on each label, means for advancing the web, means for delaminating each printed label from the web in response to advancement of the web, a label applicator including a series of separate label applicating wheels mounted on a support shaft, each said wheel having a peripheral surface positioned to engage the printed side of each label for pressing the label against the corresponding article being labeled, each said wheel having a hub portion projecting axially from said peripheral surface by a predetermined distance to provide said wheel with a non-symmetrical cross-sectional configuration, and means for arranging said hub portions of said wheels at different axial positions on said shaft for positioning the corresponding peripheral surfaces at different axial positions to accommodate labels printed at different locations by different arrangements of said printing means and to engage an unprinted portion of each printed label.

4,267,007

WINDING APPARATUS FOR THE MANUFACTURE OF FILAMENT-WOUND, REINFORCED RESINOUS PRODUCTS

Charles W. Kellogg, 18220 NE. Cramer Rd., Battleground, Wash. 98604

Filed Mar. 19, 1979, Ser. No. 21,679
Int. Cl.³ B65H *81/00*
U.S. Cl. 156—425 **6 Claims**



1. Winding apparatus for the manufacture of filament-wound, reinforced resinous products, comprising:

(a) a mandrel,

(b) mandrel mounting means rotatably mounting the mandrel,

(c) a track positioned parallel to the mandrel, a spaced distance therefrom,

(d) a reciprocating carriage on the track,

(e) drive means for the mandrel and the carriage,

(f) variable speed coupling means coupling the drive means to the mandrel for rotating the same at a selected rotational speed,

(g) a vat supported on the carriage and adapted to contain a quantity of liquid settable resin,

(h) mounted in the vat an upstream filament guide for guiding a plurality of filaments in separated parallel relation into the vat,

(i) a resin applicator roll rotatably mounted in the vat downstream from the upstream filament guide with at least its lower portion submerged in the liquid resin,

(j) a filament holddown guide assembly positioned above the roll for holding the filaments in frictional engagement with the upper surface of the roll, the filament holddown guide assembly comprising a pair of vertical guides mounted on opposite sides of the vat, a substantially U-shaped bracket dimensioned for reception in the guides, a pair of transverse plates fastened to the bracket and secured in parallel relation to the opposite sides of the bracket, and a pair of guide bars extending transversely across the vat and mounted between the plates, one on each end thereof,

(k) a squeegee assembly positioned downstream from the applicator roll for wiping excess resin from the filaments,

(l) a downstream filament guide for maintaining the filaments in separated parallel relation as they traverse the vat and

(m) a terminal clustering guide for clustering the filaments as they leave the vat and are applied to the mandrel,

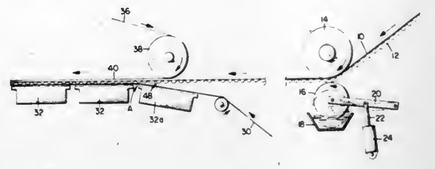
(n) the clustered filaments being attached to the rotating mandrel and being pulled thereby through the vat.

4,267,008

CORRUGATING MACHINE

James J. Owens, Ware, Mass., assignor to Eastern Container Corporation, Springfield, Mass.

Filed Sep. 24, 1979, Ser. No. 78,088
Int. Cl.³ B31F *1/20*; **B32B** *31/04*
U.S. Cl. 156—462 **1 Claim**



1. In a corrugated board making machine comprising apparatus for the forming of a corrugated web consisting of upper and lower liners and a pre-corrugated medium sandwiched between and bonded to the liners and wherein the upper liner and corrugated medium are first bonded together prior to passage through a gluing section for the adhesive coating by a primary adhesive applying means of the yet exposed flutes of the corrugated medium preliminary to passage to a double backer section for entrainment with and bonding to the lower liner, the improvement adapted expressly for and operative only in such machine downtime situations as where a length of the forming web carrying a section of yet exposed flutes of the corrugated medium and charge of adhesive is exposed while stopped in transit before entrainment with and bonding to the lower liner with a resultant drying of the adhesive charge and comprising:

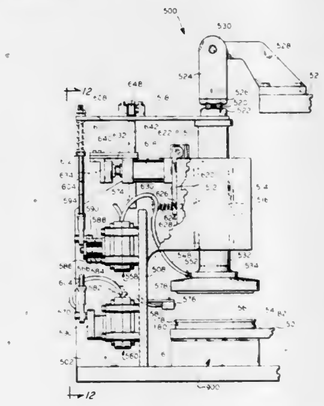
a supplemental adhesive applying means disposed transversely of the forming web and between the lower liner and the corrugated medium inboard of their point of joinder for spraying a controlled shower of adhesive in the nip, and timing means rendering the shower operative for an interval commencing only upon machine start up following a down time situation and until the newly glued portion of the corrugated medium arrives at the nip.

4,267,009

APPARATUS FOR ASSEMBLING CLOSURES

William R. Eddy, Kansas City, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,232
Int. Cl.³ B37B *31/00*
U.S. Cl. 156—538 **20 Claims**



1. In an apparatus for assembling closures, each closure

including a generally cylindrical ring having a generally cylindrical outer surface and generally circular open ends and a generally circular disc, for use with a generally cylindrically shaped container, of the type which includes a plate having an upper surface and a lower surface and a plurality of ring receiving means on said upper surface each adapted for receiving one of said generally cylindrical rings thereon; plate drive means operatively related to said plate for rotating said plate about an axis of rotation, said plate drive means being adapted to continuously incrementally rotate said plate whereby said plate is periodically stopped for a predetermined time; and disc feed means positioned adjacent said plate for positioning one of said generally circular discs within one of said open ends of each of said generally cylindrically shaped rings, the improvement comprising:

ring feed means positioned adjacent said plate for positioning one of said rings on a first one of said ring receiving means;

adhesive dispensing means positioned adjacent said plate for dispensing a quantity of adhesive at at least one location within one of said open ends of one of said rings on a second one of said ring receiving means;

lubricant dispensing means positioned adjacent said plate for dispensing a quantity of lubricant on at least one of said rings; and

ejecting means positioned adjacent said plate for ejecting a ring-type closure from a third one of said ring receiving means.

4,267,010

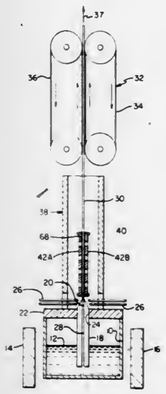
GUIDANCE MECHANISM

Herbert E. Bates, Sudbury, and Stanley W. Strzepek, Hudson, both of Mass., assignors to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Filed Jun. 16, 1980, Ser. No. 159,837

Int. Cl.³ C30B *15/24*

U.S. Cl. 156—608 **14 Claims**



1. For use with apparatus for growing a substantially flat crystalline body of a selected material from a melt of the same material, said apparatus being of the type comprising means for establishing a melt pool of said material and pulling means for pulling a substantially flat crystalline body progressively from said pool along a predetermined axis, an improved guidance mechanism comprising:

a pair of heat-conductive plates for guiding said body as said body is pulled from said pool; and

means for holding said plates stationary relative to said melt pool substantially opposite and parallel to one another so that they are disposed (1) respectively on opposite sides of and close to said body when said body is pulled by said pulling means from said pool, and (2) in a region between said pool and said pulling means where said body cools through a range of temperatures at which significant plastic deformation of said body occurs;

said plates having confronting mutually spaced surfaces forming a passageway therebetween, the passageway having a minimum size measured from one to the other of said surfaces which size is (1) greater than the maximum expected thickness of said body passing therebetween and (2) sufficiently small so that when flatness variations produced in said body as it is pulled from said melt pool exceed a predetermined maximum dimension as determined by said minimum size the body interacts with said plates so as to reduce those flatness variations in the body so as not to exceed said predetermined maximum dimension.

4,267,011

METHOD FOR MANUFACTURING A SEMICONDUCTOR DEVICE

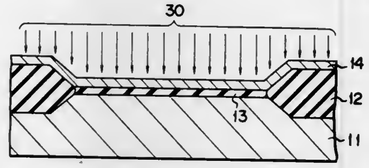
Tadashi Shibata, Menlo Park, Calif., and Hisakazu Iizuka, Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 20, 1979, Ser. No. 77,272

Claims priority, application Japan, Sep. 29, 1978, 53-119211; Sep. 29, 1978, 53-119212; Sep. 29, 1978, 53-119213

Int. Cl.³ H01L *21/306*; B44C *1/22*; C03C *15/00, 25/06*

U.S. Cl. 156—628 **6 Claims**



1. A method for manufacturing a semiconductor device, comprising:

a process for forming an insulating film at least on part of the surface of a semiconductor;

a process for forming a polycyrstalline silicon layer on said insulating film;

a process for forming an electrically conductive portion by patterning of said polycrystalline silicon layer; and

a process for forming other insulating film covering at least said electrically conductive portion;

said method characterized by further comprising a process for flattening and homogenizing at least a part of said polycyrstalline silicon layer by applying a laser light or electron beam to said at least a part of said polycyrstalline silicon layer which is to be formed as said electrically conductive portion, prior to the patterning process.

4,267,012

PROCESS FOR PATTERNING METAL CONNECTIONS ON A SEMICONDUCTOR STRUCTURE BY USING A TUNGSTEN-TITANIUM ETCH RESISTANT LAYER

John M. Pierce, Palo Alto; William I. Lehrer, Los Altos, and Kenneth J. Radigan, Mountain View, all of Calif., assignors to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Apr. 30, 1979, Ser. No. 34,781

Int. Cl.³ H01L *21/283, 21/308*

U.S. Cl. 156—643 **19 Claims**

1. A process for patterning a layer of conductive material formed on a semiconductor structure comprising;

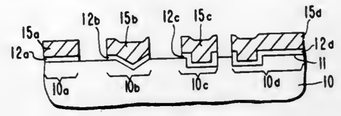
depositing a first layer of an alloy of tungsten and titanium on the semiconductor structure;

depositing the layer of conductive material onto the first layer;

removing undesired portions of the layer of conductive material by etching said layer with a plasma containing chlorine, wherein the plasma etching is substantially stopped by the first layer after etching through the layer of conductive material;

removing the thereby exposed portions of the first layer with an etchant other than the plasma etchant used to etch the layer of conductive material;

removing selected portions of the first layer, said selected portions lying beneath the layer of conductive material



and contiguous to the edge of the layer of conductive material; and

treating at least those portions of the layer of conductive material from beneath which the first layer has been removed to cause those portions to come into contact with the underlying material, the treating including forming a layer of dielectric material over the surface of the layer of selected material.

4,267,013

METHOD FOR DRY-ETCHING ALUMINUM AND ALUMINUM ALLOYS

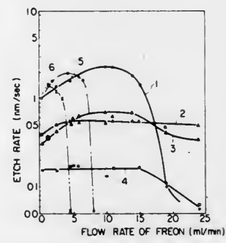
Shinya Iida, Tama; Kazuyoshi Ueki, Ohme; Hideo Komatsu, Hinodemachi, and Tatsumi Mitzutani, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 5, 1979, Ser. No. 45,744

Claims priority, application Japan, Jun. 5, 1978, 53-66772

Int. Cl.³ C23F *1/00, 1/02*

U.S. Cl. 156—643 **17 Claims**



1. A method for dry-etching aluminum and aluminum alloys which comprises producing plasma discharges with a gas comprising boron trichloride and at least one member selected from the group consisting of a halogenated hydrocarbon selected from the group consisting of CF_4, C_2F_6, C_3F_8, C_4F_8, CHF_3 and CCl_2F_2 and oxygen and patterning aluminum or an aluminum alloy with ions or radicals generated by said discharges.

4,267,014

SEMICONDUCTOR ENCAPSULANT FOR ANNEALING ION-IMPLANTED GaAs

John E. Davey, Alexandria; Aristos Christou, and Harry B. Dietrich, both of Springfield, all of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 29, 1980, Ser. No. 126,088

Int. Cl.³ H01L *21/265, 21/324*

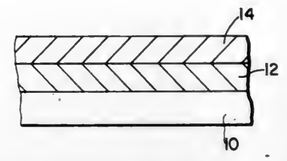
U.S. Cl. 156—662 **11 Claims**

1. A method of forming an ion-implanted GaAs device which comprises:

implanting ions into one surface of a GaAs substrate,

vacuum-depositing onto said ion-implanted surface an encapsulant selected from the group consisting of germanium, gallium-arsenide, and gallium-aluminum-arsenide,

annealing said encapsulated, ion-implanted GaAs substrate to remove any ion implantation damage,



subsequent to annealing said encapsulated ion-implanted GaAs substrate, selective-chemical-etching said encapsulant to remove said encapsulant from said ion-implanted GaAs substrate without any damage to said ion-implanted GaAs substrate.

4,267,015

PROCESS FOR COOLING HOT CONCENTRATED MILK COMING FROM AN EVAPORATOR, BY EXPANSION BY STAGES

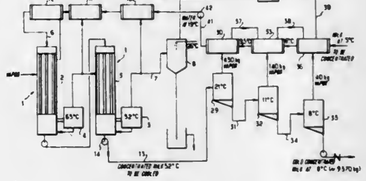
Jacques J. Ciboit, 164 bis, rue de l'Université, 75007 Paris, and Pierre R. Laguilharre, 6, rue Robin, 95880 Enghien les Bains, both of France

Filed Apr. 10, 1979, Ser. No. 28,859

Claims priority, application Luxembourg, Apr. 11, 1978, 79411

Int. Cl.³ B01D *1/26, 1/28*

U.S. Cl. 159—47 R **11 Claims**



1. A process for concentrating a liquid comprising:

evaporating and concentrating an incoming cool liquid in a multi-effect evaporator;

eliminating vapor resulting from said evaporation and concentrating step;

cooling the hot concentrated liquid in expansion stages under decreasing pressure;

interacting the vapor from an expansion stage in a condenser for preheating the incoming cool liquid prior to the multi-effect evaporator and further concentrating said concentrated liquid in the expansion stage; and

eliminating vapor resulting from said interacting step.

4,267,016

POLYVINYL ALCOHOL FIBER FOR BINDING A FIBROUS SHEET AND A PROCESS FOR THE PREPARATION THEREOF

Masaki Okazaki, 4-20-(14-405) Fukushima, and Akio Mizobe, 2-6-19 Fukushima, both of Okayama-City, Okayama Prefecture, Japan

Filed Oct. 23, 1979, Ser. No. 87,347

Claims priority, application Japan, Oct. 23, 1978, 53-130764; Oct. 26, 1978, 53-132435

Int. Cl.³ D21H *5/12*

U.S. Cl. 162—146 **10 Claims**

1. A fibrous sheet exhibiting enhanced wet strength compris-

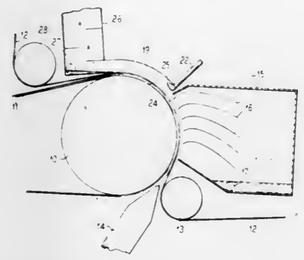
ing a dispersion of paper stock fibers and from 2 to 30 percent by weight of polyvinyl alcohol fibers, said polyvinyl alcohol fiber comprising a water-soluble polyvinyl alcohol fiber containing from 5 to 50 percent by weight of an adduct comprising a polyamide condensation product and a 1-halogen-2,3-epoxy propane or ethylene glycol diglycidyl ether, said fiber, when not having been heat treated at a temperature about 120° C., possesses the latent ability of becoming boiling-water resistant upon being heat treated at a temperature above 120° C., said sheet having been heat treated at a temperature above 120° C.

4,267,017

DRAINAGE ROOF FOR TWIN WIRE ROLL FORMER

Merle W. North, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Jan. 9, 1980, Ser. No. 110,597
Int. Cl.³ D21F 1/66
U.S. Cl. 162—190 **6 Claims**



1. A twin wire forming apparatus for forming a fibrous web comprising:
an imperforate rotatable roll,
a first liquid permeable forming wire,
means for guiding said first forming wire about a portion of the periphery of said rotatable roll,
a second liquid permeable forming wire,
means for guiding said second forming wire about the same portion of said periphery as said first forming wire,
delivery means for delivering a liquid suspension of fibers between said forming wires as said wires are being received about said portion of said rotatable roll,
an arcuate imperforate roof conforming to the periphery of said rotatable roll along a limited part of said portion of said rotatable roll over which said two forming wires travel,
injection means for injecting pressurized air along the surface of said roof to form an air film therealong, and
collector means at the end of said portion for collecting liquid expelled from the forming wires during their travel along said portion.

5. The method of forming a fibrous web which comprises:
providing a rotating imperforate roll,
training a pair of liquid permeable forming wires over a limited portion of said imperforate roll,
depositing a fibrous stock suspension between said forming wires as they converge on said limited portion,
rotating said imperforate roll at a sufficiently high velocity to cause water droplets and mist to be ejected from the stock suspension present between said forming wires,
passing said forming wires and the fibrous web confined an imperforate roof conforming to the periphery of said imperforate roll spaced relation to said imperforate roll,
injecting a film of pressurized air between the interior of said roof and said imperforate roll to carry away water droplets and mist which could otherwise be deposited on said roof and collecting the water carried away by said air film to prevent its redeposition on said forming wires.

4,267,018

METHOD FOR CHANGING FABRICS IN PAPER MANUFACTURING MACHINES

Eino J. Haltsonen, and Martti T. Oksanen, both of Jyväskylä, Finland, assignors to Valmet Oy, Finland

Filed Aug. 15, 1979, Ser. No. 66,836
Claims priority, application Finland, Aug. 17, 1978, 782521
Int. Cl.³ D21F 1/10
U.S. Cl. 162—200 **6 Claims**

1. A method for introducing an endless fabric loop over rolls in a paper making machine for changing the fabrics therein, comprising the steps of:
providing an inflatable changing bag which, upon being inflated, has a vertical cross-sectional configuration in the machine direction which is substantially the same as the configuration of the intended run of the fabric loop;
positioning the inflatable changing bag in its at least partially deflated condition within the fabric loop to be introduced over the paper machine rolls;
inflating the bag with the fabric loop encircling the same and positioning the resulting assembly on one side of the paper machine in the region adjacent to the rolls onto which the fabric loop is to be introduced; and
while the changing bag maintains the configuration of the fabric loop, pulling the fabric loop over the inflatable bag into the paper machine so that it encircles the rolls.

4,267,019

NUCLEAR FUEL PARTICLES

James L. Kaae, Solana Beach, Calif.; George H. Reynolds, Houston, Tex.; Stewart A. Sterling, San Diego, and Ling Yang, La Jolla, both of Calif., assignors to General Atomic Company, San Diego, Calif.

Filed May 10, 1978, Ser. No. 904,518
Int. Cl.² G21C 3/06
U.S. Cl. 176—82 **8 Claims**

1. A nuclear fuel particle having a core of nuclear fuel material, a surrounding layer of low density pyrolytic carbon adjacent said core and a continuous layer of higher density material exterior of said low density layer wherein the improvement comprises said core being formed of nuclear fuel selected from the group consisting of uranium oxide, thorium oxide, plutonium oxide and mixtures thereof and therefore being subject to undergo thermal migration and also being subject to undergo the loss of oxygen upon fissioning which forms CO with carbon in said surrounding low density layer and wherein particles of a substance selected from the group consisting of silicon carbide, zirconium carbide and mixtures thereof are dispersed throughout said low density pyrolytic carbon layer whereby not only is the build-up of carbon monoxide within said high density outer layer effectively counteracted but thermal migration of said core is also reduced to such an extent that the amoeba effect is no longer of consequence during normal fuel life.

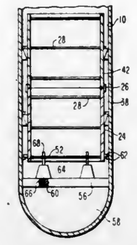
4,267,020

NUCLEAR STEAM GENERATOR WRAPPER AND SHELL ASSEMBLY AND METHOD FOR ASSEMBLING

Robert D. Burack, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 14, 1978, Ser. No. 933,335
Int. Cl.² G21C 15/16
U.S. Cl. 176—87 **2 Claims**

1. A nuclear steam generator internal wrapper assembly and shell construction comprising:
a generally cylindrical shell of a given diameter vertically disposed in a nuclear containment building, said shell having an apertured tube sheet in its lower end portion;
a wrapper assembly comprising at least an upper and a lower separate modules, each module including a substantially round, upright cylinder with vertically spaced apart tube support plates in the form of apertured, substantially round discs therein, said modules being in stacked relation and being welded together in the vicinity of the abutting rims to form the wrapper assembly;
said wrapper assembly being of a sufficiently lesser diameter than said shell as to fit therein with an annular space between said assembly and shell; and



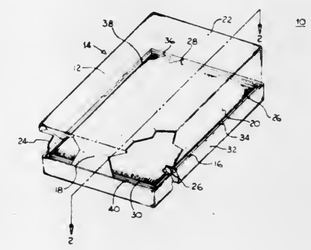
a plurality of adjustable spacer means fixed to the outer circumference of said modules and sized to be received in said annular space and adjustable outwardly for locking said wrapper assembly within said shell with substantial axial alignment of the apertures in the plates and sheet, irrespective of variations in width of the annular space at different locations.

4,267,021

METHOD AND APPARATUS FOR SOLAR DISTILLATION

Dimitrios M. Speros, and Philip C. Speros, both of 10293 Prouty Rd., Painesville, Ohio 44077

Filed Feb. 27, 1978, Ser. No. 881,613
Int. Cl.³ C02F 1/14; B01D 1/22
U.S. Cl. 202—176 **16 Claims**



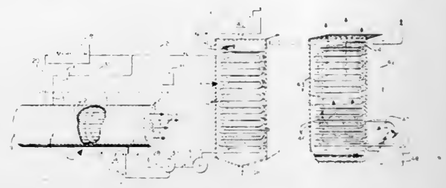
1. An inclined floor solar distillation apparatus which comprises:
(a) chamber means including floor, roof, bottom, top and side wall members which form an enclosed perimeter about an inclined floor member by abutting relationship where solar distillation takes place,
(b) liquid distilland feed means including a longitudinally extending conduit member located at the top end of said enclosed perimeter and extending between the side walls, said conduit member feeding distilland to the floor member,
(c) a liquid absorbent covering disposed on the floor member of said enclosed perimeter and operatively connected to the conduit member by wick means for continuous wetting of said covering by a capillary action to feed the distilland at a predetermined flow rate,
(d) sidewall members extending between floor and roof members to intersect with top and bottom wall members and define said enclosed perimeter, the aggregate surface area of said wall members being at least equal to the surface area of said floor member for laminar vapor flow in said enclosed perimeter which is substantially devoid of vapor turbulence during distillation,
(e) a transparent roof member admitting solar radiation to be absorbed by the floor member, and
(f) distillate collection means located at the bottom end of said enclosed perimeter and extending between the side wall members.

4,267,022

ENERGY EFFICIENT PROCESS AND APPARATUS FOR DESALINIZING WATER

Frederick L. Pitcher, 310 Hale St., Beverly, Mass. 01915

Continuation-in-part of Ser. No. 791,602, Apr. 27, 1977, abandoned. This application Apr. 26, 1978, Ser. No. 900,079
Int. Cl.³ C02F 1/16; B01D 1/00
U.S. Cl. 203—11 **20 Claims**



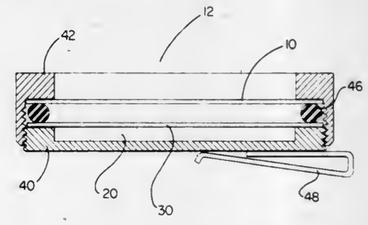
1. A process for desalinizing water comprising the steps of:
feeding salt water to an enclosure defining an evaporation zone maintained at subatmospheric pressure; boiling the water in the evaporation zone and allowing water vapor to pass to a condensation zone; condensing the vapor in the condensation zone; and collecting desalinized water therefrom, wherein the improvement comprises:
providing the heat of vaporization by transferring heat from a thermal sink comprising a body of water into the evaporation zone and transferring the heat of condensation from the condensation zone into a low temperature sink, at least one of the heat transfers being a transfer from a first temperature to a higher temperature and being effected via a closed system wherein a refrigerant is cyclically condensed and evaporated and wherein the ratio of energy transferred as heat to energy required to effect the transfer is at least 15.

4,267,023

CHEMICALLY INTEGRATING DOSIMETER AND GAS ANALYSIS METHODS

Martin S. Frant, Newton, and Jon Soderberg, East Falmouth, both of Mass., assignors to Orion Research Incorporated, Cambridge, Mass.

Continuation-in-part of Ser. No. 842,394, Oct. 17, 1977, abandoned. This application Nov. 21, 1979, Ser. No. 96,572
Int. Cl.³ G01N 27/46, 27/56
U.S. Cl. 204—1 T **47 Claims**



1. Method for detecting hydrogen sulfide gas by chemical integration comprising the steps of:

providing a gas permeable, liquid impermeable outer membrane in conjunction with a liquid impermeable microporous hydrophobic inner membrane, the latter with a gas permeation rate substantially greater than that of the outer membrane;

placing an internal electrolyte solution containing silver ions in contact with the inner membrane;

allowing hydrogen sulfide gas to diffuse through the outer membrane, through the inner membrane, and into the internal electrolyte where the outer membrane is a gas permeation rate controlling membrane, and the inner membrane is a protective membrane;

reacting the internal electrolyte with hydrogen sulfide gas to completely absorb said gas and to alter the composition of the internal electrolyte; and

measuring the change in the concentration of silver ions in the electrolyte due to the entry of hydrogen sulfide gas into the internal electrolyte, whereby the concentration of the gas is determined.

15. A chemically integrating dosimeter for measuring hydrogen sulfide gas in the atmosphere comprising:

a structural base, open on one side, for housing a solution;

an internal electrolyte solution containing silver ions and a complexing agent, placed in the structural base so that upon absorption of H_2S gas into the electrolyte a chemical reaction occurs within the electrolyte causing a change in silver ion concentration;

a gas permeable, liquid impermeable gas permeation rate-controlling outer membrane with a permeation rate for H_2S gas substantially lower than the diffusion rate of H_2S gas in air, placed to cover the opening in the structural base;

a microporous hydrophobic inner membrane substantially more permeable to gases than the outer membrane, impermeable to the internal electrolyte, and interposed between the internal electrolyte solution and the outer membrane to prevent chemical attack on the outer membrane by the electrolyte and to prevent precipitate deposition from the electrolyte on the outer membrane;

means to seal the inner membrane and the outer membrane to the structural base; and

means to measure the change in concentration of silver ions Ag^+ in the internal electrolyte.

27. A chemically integrating dosimeter for measuring sulfur dioxide gas in the atmosphere comprising:

a structural base, open on one side, for housing a solution;

an internal electrolyte solution containing bromide ion and mercuric bromide placed in the structural base so that upon absorption of SO_2 gas into the electrolyte a chemical reaction occurs within the electrolyte causing a change in bromide ion concentration;

a gas permeable, liquid impermeable gas permeation rate-controlling outer membrane with a permeation rate for SO_2 gas substantially lower than the diffusion rate of SO_2 gas in air, placed to cover the opening in the structural base;

a microporous hydrophobic inner membrane substantially more permeable to gases than the outer membrane, impermeable to the internal electrolyte, and interposed between the internal electrolyte solution and the outer membrane to prevent chemical attack on the outer membrane by the electrolyte and to prevent precipitate deposition from the electrolyte on the outer membrane;

means to seal the inner membrane and the outer membrane to the structural base; and

means to measure the change in concentration of bromide ions Br^- in the internal electrolyte.

38. Method for detecting sulfur dioxide gas by chemical integration comprising the steps of:

providing a gas permeable, liquid impermeable outer membrane in conjunction with a liquid impermeable microporous hydrophobic inner membrane, the latter with a gas permeation rate substantially greater than that of the outer membrane;

placing an internal electrolyte solution containing bromide ion and mercuric bromide in contact with the inner membrane;

allowing sulfur dioxide gas to diffuse through the outer membrane, through the inner membrane, and into the internal electrolyte where the outer membrane is a gas permeation rate controlling membrane, and the inner membrane is a protective membrane;

reacting the internal electrolyte with sulfur dioxide gas to completely absorb said gas and to alter the composition of the internal electrolyte; and

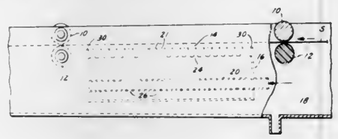
measuring the change in the concentration of bromide ions in the electrolyte due to the entry of sulfur dioxide gas into the internal electrolyte, whereby the concentration of the gas is determined.

4,267,024

ELECTROLYTIC COATING OF STRIP ON ONE SIDE ONLY

Daniel A. Weiskopf, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 17, 1979, Ser. No. 104,620
Int. Cl.³ C25D *5/02, 5/08, 7/06*
U.S. Cl. 204—15 **8 Claims**



1. A process for electrolytically coating one side only of a horizontally moving flat rolled strip with a protective metal, comprising the steps of

(a) maintaining the entire upper surface of said strip exposed to the atmosphere while moving said strip along a horizontal path over at least one electrocoating cell, said cell including

(1) a solution chamber whose lateral dimension exceeds that of said strip, and whose sides are below said path,

(2) means to feed coating solution to said solution chamber,

(3) a perforated, insoluble anode disposed within said solution chamber just below said path of said strip, and

(4) means for supplying an electro-coating current between said strip and said anode; and

(b) continuously feeding coating solution to said solution chamber and maintaining the quantity of solution therein in excess of capacity, whereby by said solution feeding means is such as to cause the coating solution to flow through said perforated anode toward said strip edges and countercurrent to said movement of the strip against said one side of the strip while minimizing contact of said solution with the opposite side of said strip.

4,267,025

ELECTRODES FOR ELECTROLYTIC PROCESSES, ESPECIALLY PERCHLORATE PRODUCTION

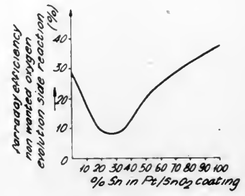
Vittorio de Nora, Nassau, The Bahamas; Antonio Nidola, Milan, Italy; Placido M. Spaziante, Lugano, Switzerland, and Giuseppe Bianchi, Milan, Italy, assignors to Diamond Shamrock Technologies, S.A., Geneva, Switzerland

Filed Nov. 26, 1979, Ser. No. 97,360
Int. Cl.³ C25B *1/26, 1/28, 11/08*
U.S. Cl. 204—82 **8 Claims**

1. An electrode for use in electrolytic processes, comprising an electrically-conductive corrosion-resistant substrate having an electrocatalytic coating, characterized in

that the coating contains a mixture of at least one platinum group metal and tin dioxide dispersed in one another throughout the coating in the ratio of from 8.5:1 to 3:2 by weight of the platinum group metal(s) to the tin of the tin dioxide.

8. A process for the production of chlorates, perchlorates and other percompounds by electrolysis, characterized by



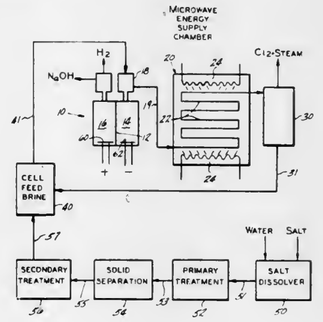
using as anode an electrode as stated in claims **1**, **2**, **4**, **6**, **7**, **3** or **5**.

4,267,026

SPENT BRINE CONCENTRATION USING MICROWAVE ENERGY

Harshad M. Patel, Cleveland, Tenn., assignor to Olin Corporation, New Haven, Conn.

Filed Dec. 21, 1979, Ser. No. 106,180
Int. Cl.³ C25G *1/34*
U.S. Cl. 204—98 **4 Claims**



1. A process for the concentration of spent brine from a membrane electrolytic cell which comprises:

(a) removing spent brine containing dissolved chlorine and from about 14 to about 22 percent by weight of NaCl from said membrane electrolytic cell,

(b) feeding said spent brine to a concentration zone,

(c) applying microwave energy to said spent brine to produce concentrated brine and a gaseous mixture of chlorine and steam,

(d) feeding said concentrated brine and said gaseous mixture to a separation zone,

(e) separating said gaseous mixture from said concentrated brine, and

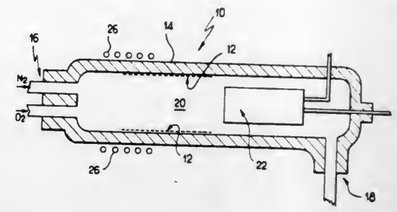
(f) returning said concentrated brine containing from about 23 to about 26 percent by weight of NaCl to said membrane electrolytic cell.

4,267,027

PROCESS AND APPARATUS FOR THE PREPARATION OF NITROGEN OXIDES

Jacques Amouroux, Bure S. Yvette; Demetre Rapakoulias, and Simeon Cavadias, both of Paris, all of France, assignors to Electricite de France (Service National), Paris, France

Filed Mar. 18, 1980, Ser. No. 131,427
Claims priority, application France, Mar. 21, 1979, 7907142
Int. Cl.³ C01B *21/20, 21/30, 21/32*
U.S. Cl. 204—179 **12 Claims**



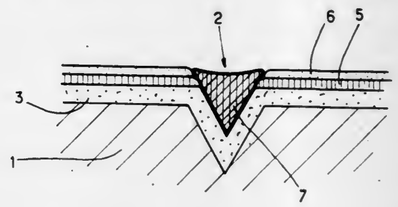
1. Process for the preparation of nitrogen oxides (NO and NO_2) by the reaction of nitrogen and oxygen in a plasma furnace of the type comprising a plasma torch, a reaction chamber and a quenching device, wherein an oxygen and nitrogen plasma is introduced into said reaction chamber, whereof the inner surface of the walls is covered with a catalyst of tungsten trioxide (WO_3) and/or molybdenum trioxide (MoO_3), and a mixture of gaseous reaction products rich in nitrogen oxides (NO and NO_2) is recovered from the region of the quenching device.

4,267,028

PROCESS FOR SMOOTH CUT PRINTING

Daniel Beaune, La Prunerie, Marsac sur l'Isle (Dordogne), France

Filed Jan. 26, 1978, Ser. No. 872,451
Claims priority, application France, Jan. 28, 1977, 77 02505
Int. Cl.³ C25D *13/06, 13/12*
U.S. Cl. 204—181 R **2 Claims**



1. A process for smooth cut printing with a metal printing plate having an engraved portion of smooth cuts and a non-printing surface, said process comprising the steps of:

obstructing the engraved portion with an electrically non-conductive material,

coating the non-printing surface of the plate with at least a layer anti-adhesive towards printing inks formed by electrolytically depositing a solid fluorocarbonaceous resin on said non-printing surface,

removing the electrically non-conductive material from the engaved cut,

coating the plate with a printing ink,

and compacting the ink into the cuts of the engraving.

4,267,029

ANODE FOR HIGH RESISTIVITY CATHODIC PROTECTION SYSTEMS

Philip M. Massarsky, Warren, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Jan. 7, 1980, Ser. No. 109,959
Int. Cl.³ C23F *13/00*
U.S. Cl. 204—196 **3 Claims**



1. In an impressed D.C. current cathodic protection system for protecting a metal water tank or the like from rust corrosion effects of an electrolytic material having a resistivity of at least 1000 ohm-centimeters, said system having suspension means suspending an improved anode within said tank, said anode comprising:

(a) a cable including

(b) an elongated electrical conductor connected to said source of D.C. current, and

(c) a jacket of electrical insulation on the outside of said conductor for substantially the length thereof, operative to seal said conductor from the electrolytic material in said tank;

(d) a sheet of expanded metal gripping said jacket of generally arcuate cross-section formed about said cable and extending along said cable, said sheet comprising

(e) a substrate made of a first metal from the group consisting of niobium, tantalum and titanium, and

(f) a coating of platinum clad to the outwardly facing surface of said substrate; and

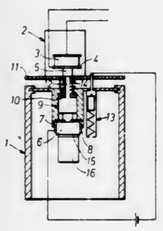
(g) a terminal providing an electrical connection between said electrical conductor and said sheet and including a housing enclosing said electrical connection.

4,267,030

APPARATUS FOR CHECKING GAS ANALYSIS DEVICES

Wolfram Breuer; Wolf-Jürgen Becker, both of Leverkusen; Jacques Deprez, Frechen; Eckard Drope, Cologne; Karl-Heinz Kaufmann, Langenfeld-Immigrath, and Kurt Schreckling, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 791,125, Apr. 25, 1977, Pat. No. 4,151,739. This application Dec. 15, 1978, Ser. No. 970,100
Claims priority, application Fed. Rep. of Germany, May 15, 1976, 2621677
Int. Cl.³ C25B *1/00, 1/26;* **C25C** *1/22*
U.S. Cl. 204—278 **19 Claims**



1. An apparatus for checking gas analysis devices with respect to their known sensitivity and their known response and regeneration behavior with respect to time, comprising means for producing a reproducible quantity M_E of the measuring component in a given time interval Δt_E at a predetermined production rate $m_E(t)$, where

$$M_E = \int_{t_E}^{t_E + \Delta t_E} m_E(t)dt$$

by a chemical reaction including electrolytic decomposition means for controlling the chemical reaction comprising an electrolysis cell wherein the electrolyte consists of at least one hygroscopic substance and the electrodes or the electrolyte being gas-permeable and electrical power supply means for producing a current flow through the electrolyte only during the given time interval Δt_E comprising a capacitor and means for discharging same through the electrolysis cell during the time Δt_E, means for guiding at least a constant proportion of the produced measurement component to a measurement sensor of the gas analysis device, means for transforming the temporal distribution of the quantity into a concentration pulse and for applying same to the measurement sensor within a predetermined period and means for evaluating the response of the gas analysis device to the concentration pulse received at the sensor.

11. An apparatus for checking gas analysis devices with respect to their known sensitivity and their known response and regeneration behavior with respect to time, comprising means for producing a reproducible quantity M_E of the measuring component in a given time interval Δt_E at a predetermined production rate $m_E(t)$, where

$$M_E = \int_{t_E}^{t_E + \Delta t_E} m_E(t)dt$$

by a chemical reaction including electrolytic decomposition means for controlling the chemical reaction comprising an electrolysis cell comprising an electrolyte consisting of at least one hygroscopic substance, electrodes or the electrolyte being gas-permeable and means defining a cavity beneath the electrolyte and an electrolyte reservoir below the cavity containing the same electrolyte substance therein and separated from the electrolyte solely by the cavity to enable diffusion interaction and electrical power supply means for producing a current flow through the electrolyte only during the given time interval Δt_E, means for guiding at least a constant proportion of the produced measurement component to a measurement sensor of the gas analysis device, means for transforming the temporal distribution of the quantity into a concentration pulse and for applying same to the measurement sensor within a predetermined period and means for evaluating the response of the gas analysis device to the concentration pulse received at the sensor.

4,267,031

COKING PROCESS

Hideo Hirabayashi, Yokohama; Hiroshi Yamaguchi, Tokyo, and Masahiko Uemura, Ohi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

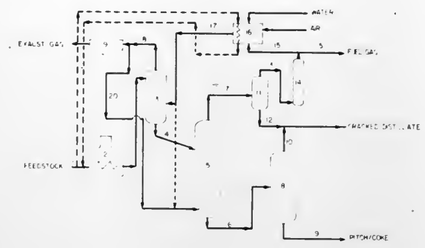
Filed Nov. 26, 1976, Ser. No. 745,223
Claims priority, application Japan, Dec. 10, 1975, 50-147672
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—106 **9 Claims**

1. A process for coking hydrocarbon oils which comprises the following steps in combination:

(a) preheating a hydrocarbon oil feedstock in a preheating zone to a temperature lower than the cracking temperature of said feedstock;

(b) directly contacting the preheated feedstock from step (a) in a combustion exhaust gas zone with combustion exhaust gas produced in the combustion gas generation zone of step (c), said gas being maintained at a temperature capable of heating the said feedstock to a temperature higher than its cracking temperature;

(c) thereafter introducing said heated feedstock into a coking zone maintained at a temperature higher than the cracking temperature of said feedstock so as to coke at least a portion of said feedstock;



(d) separating hot gaseous, liquid and solid products from said coking zones;

(e) introducing at least a portion of said hot gaseous product to a combustion gas generation zone; and

(f) introducing at least a portion of the combustion exhaust gas produced in said combustion gas generation zone to said combustion exhaust gas contact zone of step (b).

4,267,032

DEMETALLIZATION PROCESS FOR A CONVERSION CATALYST

Emmett H. Burk, Jr., Glenwood; Jin S. Yoo, Flossmoor; John A. Karch, Chicago, and Jui-Yuan Sun, South Holland, all of Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 58,346, Jul. 17, 1979, which is a continuation-in-part of Ser. No. 840,875, Oct. 11, 1977, abandoned, which is a continuation-in-part of Ser. No. 695,602, Jun. 14, 1976, Ser. No. 695,662, Jun. 14, 1976, Pat. No. 4,101,444, Ser. No. 695,687, Jun. 14, 1976, Pat. No. 4,102,811, and Ser. No. 756,581, Jan. 3, 1977. This application Oct. 4, 1979, Ser. No. 81,724
Int. Cl.³ C10G *11/00, 11/05;* **B01J** *21/20, 29/38*
U.S. Cl. 208—113 **11 Claims**

1. A process for an aqueous phase oxidation of a sulfided and metals contaiminated conversion catalyst containing sulfided components to convert at least a portion of said sulfided components to a water dispersible material comprising: treating said sulfided and metals contaminated catalyst in a slurry comprising an effective amount of soluble nitrate ions in the presence of a catalytically effective concentration of nitrite ions at a temperature and for a time sufficient to cause said oxidation of at least a portion of said sulfided components to produce said water dispersible material, and separating from said slurry a conversion catalyst having a reduced amount of metal contaminants.

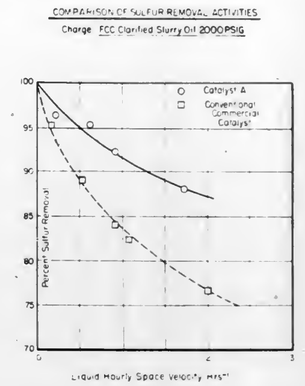
2. The process of claim **1**, wherein the nitrate ion concentration in moles per liter of solution is in the range of about 0.1 to about 10 moles per liter of solution and the ratio in moles of the nitrate ion concentration to nitrite ion concentration is in the range of about 100:1 to about 10,000:1.

4,267,033

UPGRADING OF AROMATIC LIQUIDS

Roland H. Heck, Pennington; Stephen M. Oleck, Moorestown; Stuart S. Shih, Cherry Hill, and Robert C. Wilson, Woodbury, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,876
Int. Cl.³ C10G *45/04*
U.S. Cl. 208—216 PP **16 Claims**



1. A process for catalytically upgrading a highly aromatic petroleum or coal derived liquid comprising contacting said liquid with hydrogen under hydroprocessing conditions in the presence of a catalyst comprising at least one Group VIII metal or its oxides or sulfides and at least one Group VIA metal or its oxides or sulfides on a refractory base support, said catalyst having a surface area of between about 100 and about 300 m^2/g and a total pore volume of between about 0.5 and about 0.8 cc/g and is further characterized as follows:

Pore Volume Distribution, Volume % in Pores of	
0–150 Angstroms diameter	20–40
150–200 Angstroms diameter	40–60
200+ Angstroms diameter	10–30

4,267,034

SEPARATING OLEFINS FROM PARAFFINS WITH DIMETHYL SULFOXIDE EXTRACTANT

Cecil O. Carter, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 14, 1979, Ser. No. 94,252
Int. Cl.³ C07C *7/10;* **C10G** *21/02*
U.S. Cl. 208—323 **6 Claims**

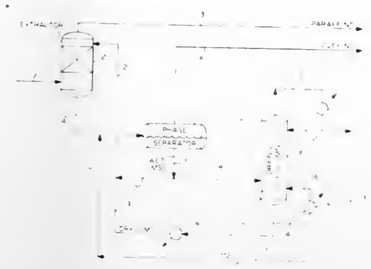
1. A method for separating olefins from paraffins of corresponding carbon atom content said method comprising:

(a) contacting in liquid phase a mixture of said olefin and paraffin with a dimethyl sulfoxide extractant stream in an amount and for a time sufficient to dissolve olefins in the DMSO stream;

(b) separating the paraffin from the DMSO which contains dissolved olefin;

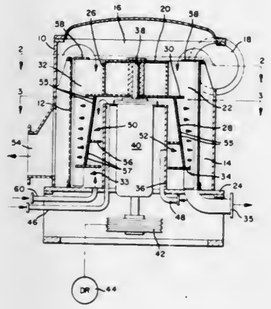
(c) contacting with water the DMSO which contains dis-

solved olefin, thereby causing a phase separation of the contacted mixture into
(1) DMSO and water mixture and



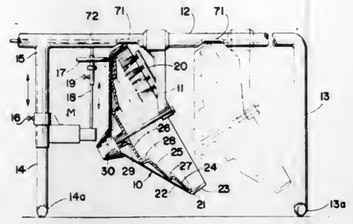
(2) olefin; and
(d) separating said olefin from the DMSO and water mixture.

4,267,035
PRESSURIZED ROTARY SCREENING APPARATUS
Andrew C. Martin, Middletown, Ohio, assignor to The Black Clawson Company, Middletown, Ohio
Filed Aug. 27, 1979, Ser. No. 70,209
Int. Cl.³ B07B *1/20*
U.S. Cl. 209—273 **10 Claims**



1. A pressurized rotary screening apparatus comprising a pressurized housing having an upper stock inlet chamber having a tangentially disposed stock inlet, a lower stock screening chamber with a rejects discharge outlet, and an outer annular accepts chamber, said stock screening chamber having a generally cylindrical screenplate with rotary impeller means extending at least a portion of the length of the screenplate and mounted for axial rotation within the screenplate, said rotary impeller means having at least one rotor blade attached thereto and extending outwardly to within a short distance of the radially inwardly facing surface of said screenplate, said rotary impeller means additionally having a plurality of generally horizontally oriented baffle means extending substantially circumferentially around said impeller means and dividing the area between said rotary impeller means and said screenplate into at least three stock treatment sections.

4,267,036
APPARATUS AND METHOD FOR SEPARATING FREE METAL FROM ORE
Jonny H. Kleven, P.O. Box 6979, Burbank, Calif. 91510
Filed Dec. 10, 1979, Ser. No. 102,232
Int. Cl.³ B03B *5/74*
U.S. Cl. 209—444 **12 Claims**

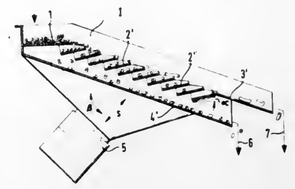


1. An apparatus for separating free metal from ore, comprising:
a. at least one upwardly inclined, rotatable, separating wheel, providing: i. a peripheral lip for retaining ore; ii. a central annulus, the wheel being concentrically rotatable about the annulus; iii. a plurality of spiral separating grooves disposed on the upper portion of the wheel and directed from the periphery to the annulus, the separating grooves providing, in the direction of the periphery to the annulus, an increasing angle of attack to the ore being applied to the wheel; and,
b. means to form a water slurry with the ore on each wheel.
10. A process for separating free metal from ore, comprising:
a. applying the ore containing the metal to at least one upwardly inclined, rotatable separating wheel, said wheel providing: i. a peripheral lip for retaining ore; ii. a central annulus, the wheel being concentrically rotatable about the annulus; iii. a plurality of spiral separating grooves disposed on the upper portion of the wheel and directed from the periphery to the annulus, the separating grooves providing, in the direction of the periphery to the annulus, an increasing angle of attack to the ore being applied to the wheel;
b. forming a water slurry with the ore on each wheel;
c. washing lighter waste ore out of the grooves and downwardly over the peripheral lip; and,
d. forwarding the slurry of beneficiated ore inwardly and upwardly along the spiral grooves and out through the central annulus.

4,267,037
APPARATUS FOR SEPARATING WASTE MATERIAL CONTAINED IN A HEAP
Karlheinz Merz, Waldshut-Tiengen, and Roland Ulrich, Lauchringen, both of Fed. Rep. of Germany, assignors to Karl Merz Maschinenfabrik, Waldshut-Tiengen, Fed. Rep. of Germany
Filed Dec. 14, 1979, Ser. No. 103,698
Claims priority, application Fed. Rep. of Germany, Dec. 15, 1978, 2854177
Int. Cl.³ B07B *13/10*
U.S. Cl. 209—481 **13 Claims**

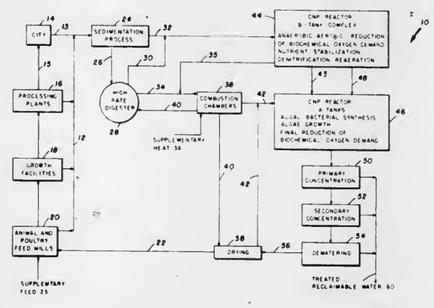
1. Apparatus for separation of waste material in a heap in at least one separating zone including a plurality of inclined conveying surfaces staggered in cascade-like manner with respect to one another, the heap largely comprising similar particles of substantially the same shape, size and density and from which only the waste particles differ, means for feeding the heap onto the inclined surfaces disposed adjacent the top of the separating zone, vibrator means for vibrating the inclined surfaces, the vibration direction thereof being at a larger angle

to the horizontal than the inclinations of said surfaces, the leading edges of the cascade-like conveying surfaces forming a



slope over which long and/or voluminous waste particules can slide without passing onto the conveying surfaces.

4,267,038
CONTROLLED NATURAL PURIFICATION SYSTEM FOR ADVANCED WASTEWATER TREATMENT AND PROTEIN CONVERSION AND RECOVERY
Worthington J. Thompson, 109 Powell St., Snow Hill, Md. 21863
Filed Nov. 20, 1979, Ser. No. 95,969
Int. Cl.³ C02F *3/30, 3/32*
U.S. Cl. 210—602 **17 Claims**



1. A method for controlling the natural purification of settled organic wastewater to provide an advanced wastewater treatment to produce a conversion to microalgae and recovery of same, comprising, first processing the settled organic wastewater by a treatment procedure without a light source, second processing the partially treated wastewater from the first process by a treatment procedure with a light source, causing aeration and turbulence within the wastewater during both the first and second treatment procedures, causing biochemical oxygen demand reduction, nitrification and denitrification, and nitrate-nitrogen removal during the first treatment procedure, and causing biochemical oxygen demand reduction, phosphate-phosphorous removal during the second treatment procedure, and thereafter harvesting microalgal and discharging reclaimable water.
2. A controlled natural purification system for advanced wastewater treatment and microalgae conversion and recovery, comprising:
a first processing tank system, said first processing tank system being fully enclosed and operating without any exposure to daylight;
a second processing tank system, said second processing tank system being exposed to daylight, said second processing tank system being connected to said first tank procession system;
a microalgal harvesting system, said microalgal harvesting system being connected to said second processing tank system;
and a sewerage disposal sedimentation system, said first processing tank system being installed after said sewerage disposal sedimentation system, said first processing tank system receiving settled organic wastewater therefrom as influent for processing,
said first processing tank system consists of:
at least one equalization tank, said equalization tank being installed within said first processing tank system, said equilization tank receiving said settled organic wastewater for initial storage and equalization of temperature and flow rate;
at least one anaerobic filter means, said anaerobic filter means being connected to said equalization tank and receiving influent therefrom;
at least one aerobic treatment tank, said aerobic treatement tank being connected to said anaerobic filter means and receiving influent therefrom;
at least two recirculation tanks for each said aerobic treatment tank, said recirculation tanks being connected to said aerobic treatment tank and receiving influent therefrom for recirculation and later discharge back into said aerobic treatment tank;
at least one denitrification means for each said recirculation tank, said denitrification means being anaerobic denitrification filters, each said denitrification means being connected to said aerobic treatment tank and then further connected to one of said recirculation tanks, said denitrification means receiving said influent from said aerobic tank to stabilize excessive nitrogen in solution as needed during certain seasonal operations and then discharging said influent into said recirculation tank for removal by reaeration;
a first carbon dioxide collecting means, said carbon dioxide collecting means being connected to said first tank system;
a first sludge removal means, said first sludge removal means being installed in said first tank system;
a first methane gas collection means, said first methane gas collection means being connected to said anaerboic filter means;
a first plurality of aerators, said first plurality of aerators being installed in said aerobic treatment tank, said first plurality of aerators aerating air through said influent and causing turbulence therein as it passes through said aerobic treatment tank;
a second plurality of aerators, said second plurality of aerators being installed in said recirculation tanks, said second plurality of aerators aerating air through said influent as it passes through said recirculation tanks;
a baffle means, said baffle means being installed in said recirculation tanks to provide a directional flow control and turbulence in said influent being recirculated; and
a first piping system, said first piping system inter-connecting all elements of said first processing tank system as herein provided and connecting said first processing tank system to said second processing tank system to transfer said influent after processing in said first processing tank system.

4,267,039
FLUID FILTRATION METHOD AND APPARATUS
Leo F. Ryan, Bridgewater, N.J., assignor to Ecodyne Corporation, Lincolnshire, Ill.
Continuation of Ser. No. 857,504, Dec. 5, 1977, abandoned. This application Nov. 29, 1979, Ser. No. 98,522
Int. Cl.³ B01D *37/00*
U.S. Cl. 210—767 **10 Claims**

1. In a filter unit for purifying liquid, having a filter tank, an inlet for passing liquid to be purified into the filter tank, an outlet for removing purified liquid from the filter tank, and a means for precoating filter elements within the tank with a precoat of particles of a filter medium, at least one improved tubular filter element positioned within the tank so that liquid to be purified enters the outer area of the filter element during a service cycle and passes longitudinally through the filter element to a discharge end of the filter element, comprising:

a perforated tubular support member for supporting the precoat of filter medium particles;

a tubular distributor core, concentrically located within said support member to define an annular space between said support member and said distributor core, having a plurality of apertures in the wall of said distributor core; and



a plurality of dividers positioned axially along said distributor core within said annular space to prevent the unimpeded flow of liquid through said annular space, said dividers defining a plurality of annular chambers within said annular space, said annular chambers decreasing in length in a direction away from the service cycle discharge end of the filter element.

4,267,040

HEMODIALYSIS APPARATUS

Wilfried Schäl, Bad Homburg von der Hohe, Fed. Rep. of Germany, assignor to Dr. Edward Fresenuis, Chemischpharmazeutische Industrie KG, Apparatebau KG, Bad Homburg, Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,387

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838414

Int. Cl.³ B01O *31/00*

U.S. Cl. 210—104 **14 Claims**



1. A hemodialysis apparatus, comprising:

(a) dialyzer means, and dialysis solution supply means,

(b) balancing chamber means having a defined volume

(c) sealing means movably supported in said defined volume, said sealing means separating said defined volume into two chamber components each having respective inlet and outlet means said inlet and outlet means being operatively connected to said dialyzer means and to said dialysis solution supply means,

(d) controllable valve means operatively connected to said inlet and outlet means for controlling the inflow to and the outflow from said chamber components,

(e) control means operatively connected to said controllable valve means for supplying, in a first operational phase, fresh dialysis solution into one of said chamber components while discharging used dialysis solution from the other chamber component, and for transferring, in a second operational phase fresh dialysis solution from said one chamber component into said dialyzer while supplying used dialysis solution from the dialyzer into said other chamber component,

(f) sensor means operatively arranged for sensing end positions of said sealing means, said sensor means being operatively connected to said control means, for controlling the sequencing of said first and second operational phases and vice versa in response to said sealing means reaching its end positions,

(g) adjustable means (7) operatively connected to said dialyzer means for withdrawing measured quantities of ultrafiltrate from said dialyzer means, and indicator means connected to said withdrawing means for indicating the quantity of withdrawn ultrafiltrate,

(h) said dialysis solution supply means including mixing means connected to a source of water and a source of dialysis concentrate and having an output operatively connected to said one chamber component for filling the latter,

(i) dosing means operatively connected to said mixing means for supplying said dialysis concentrate to said mixing means, said control means being also operatively connected to said dosing means for controlling the dosing means also in response to said sealing means reaching its end positions,

(j) and means operatively connected to said hemodialysis apparatus for monitoring the concentration of said dialysis solution.

4,267,041

APPARATUS FOR THE ULTRAFILTRATION CONTROL IN CONNECTION WITH THE HEMODIALYSIS

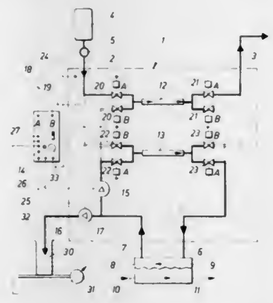
Wilfried Schael, Bad Homburg von der Hohe, Fed. Rep. of Germany, assignor to Eduard Fresenius and Chemisch-pharmazeutische Industrie KG, Apparatebau KG, Bad Homburg, Fed. Rep. of Germany

Continuation of Ser. No. 925,984, Jul. 19, 1978, abandoned. This application Oct. 10, 1979, Ser. No. 83,321

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1977, 2734561

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—109 **6 Claims**



1. An apparatus for continuously controlling the liquid flow in a single pass hemodialysis treatment system, comprising at least two elongated container means (**12, 13**) for the unidirectional and laminar supply of fresh dialysate and for the unidirectional and laminar discharge of used dialysate, each said container means having a given length and a given diameter substantially smaller than the length, whereby the filling and emptying of said elongated container means advances with a unidirectional, laminar flow which moves always in the same direction in said container means, each container means having inlet means at one end thereof and outlet means at the opposite end thereof, said unidirectional flow flowing in each container from said inlet means to said outlet means during filling and during emptying, each of said inlet means and each of said outlet means comprising branching conduit means connected to the respective end of the corresponding container means, controllable valve means operatively interposed in each of said branching conduit means, dialysis liquid feeder container means (**4**) and feeder conduit means operatively connecting said feeder container means (**4**) to each inlet means through the respective valve means (**20A, 22B**) for providing fresh dialysis liquid to said inlet means, discharge conduit means (**3**) operatively connected to each of said outlet means through the respective valve means, dialyzer means (**8, 9**) having dialyzer inlet means and dialyzer outlet means for dialysis liquid, first circulatory conduit means (**6**) operatively connecting each outlet of said elongated container means through the respective valve means to the dialyzer inlet means, second circulatory conduit means (**7**) operatively connecting each inlet of said elongated container means to said dialyzer outlet means, circulatory pump means (**15**) operatively interposed in said second circulatory conduit means (**7**), said first and second circulatory conduit means (**6, 7**), said circulatory pump means (**15**) with the respective valve means and one of said container means forming a closed circulatory loop, said circulatory pump means for unidirectional pumping through said closed circulatory loop, control means (**14**), including conductor means (**18, 19**) operatively connected for controlling said controllable valve means to alternately connect said elongated container means in timed sequence into said closed circulatory loop said control means for causing at any time at least one of said elongated container means to be connected in said closed circulatory loop while at least one other elongated container means is connected between said dialysis liquid feeder container means (**4**) and said discharge conduit means so as to discharge used dialysis liquid without recirculation to said dialyzer means and for causing the reversal of said connections such that at the beginning of an operating phase at least one container is filled with fresh dialysis liquid and at least another continner is filled with used-up dialysis liquid and this filling status is reversed at the end of said operating cycle so that used-up and fresh dialysis liquid will not be mixed; branching pump means (**17**) operatively connected to said second circulatory conduit means (**7**) upstream of said circulatory pump means (**15**) for withdrawing liquid from said closed circulatory loop, liquid quantity measuring means (**30, 31**) operatively connected to said branching pump means for measuring dialysis liquid withdrawn per unit of time from said closed circulatory loop by said branching pump means, said liquid quantity measuring means producing a feedback control signal proportional to the withdrawn dialysis liquid, and closed loop feedback means (**32, 26**) operatively controlling the operation of said branching pump means in closed loop feedback fashion in response to the withdrawn proportion of dialysis liquid.

4,267,042

WATER FILTER, IN PARTICULAR FOR AQUARIUM WATER

Kurt H. Hofmann, Eulenthal, 5063 Overath, Fed. Rep. of Germany

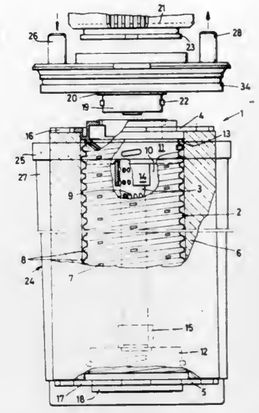
Filed Sep. 11, 1979, Ser. No. 74,714

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843641

Int. Cl.³ E04H *3/20;* **B01D** *25/06*

U.S. Cl. 210—169 **9 Claims**

1. A water filter, in particular for aquarium water, including a filter chamber having a water inlet and a water outlet said filter chamber being filled with exchangeable filter material, as well as a boost pump arranged downstream of said water outlet, wherein said filter chamber is defined by the annular space between two concentric tubes of different diameters, the outer tube being formed as a corrugated tube with helical corrugation ribs and having as said water inlet a series of perforations arranged space substantially around its entire circumference and substantially throughout its entire length, wherein the perforations are respectively disposed between the outwardly directed corrugation ribs, said outer tube being encompassed by a shell of water-permeable foam, the inner



tube being likewise provided with a series of perforations arranged substantially around its entire circumference and substantially throughout its entire length, and screw-threaded end caps screwed onto both ends of said outer tube, said end caps having radially projecting flanges, said two end caps having central locations for retaining said inner perforated tube and wherein the end cap arranged at the water outlet has a central water outlet opening in fluid tight connection with the interior of said inner tube to which is connected a water outline line, while the other end of the inner tube is closed.

4,267,043

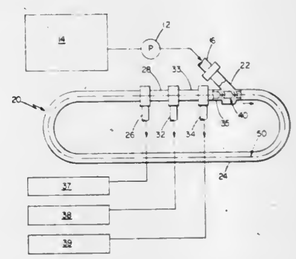
IMMISCIBLE LIQUID SEPARATING

Robert A. Benson, Cohasset, Mass., assignor to Seapower, Inc., Cohasset, Mass.

Filed Apr. 14, 1980, Ser. No. 139,839

Int. Cl.³ B01D *15/00, 33/14*

U.S. Cl. 210—241 **11 Claims**



6. Immiscible liquid mixture separating apparatus, comprising

a closed loop tubular enclosure having an immiscible liquid mixture inlet, a first outlet spaced from said inlet by a driving and absorbing portion of said enclosure and a second outlet located between said first outlet and said inlet, the inner cross section area of said enclosure having

a first reduced portion located adjacent said first outlet and a second further reduced portion adjacent said second outlet

mixture input means for feeding said immiscible liquid mixture into said inlet, and

selectively absorbent compressible means within said enclosure in contact with the inner wall of said enclosure and movably mounted therein for continuous movement therearound by the force of said immiscible liquid mixture fed from said inlet in a downsteam direction from said inlet first to said first outlet and next to said second outlet

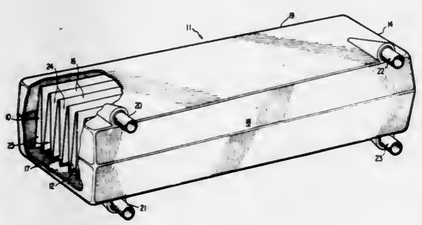
said absorbent means selectively absorbing said immiscible liquid mixture in said driving and absorbing portion and discharging first a major portion of one liquid through said first outlet upon mild compression of said compressible means by said first reduced portion and next a major portion of another liquid through said second outlet upon higher compression of said compressible means by said second further reduced portion.

4,267,044

THIXOTROPIC POLYURETHANE COMPOSITIONS AS SEALANTS FOR MEMBRANE SEPARATORY DEVICES

Thaddeus F. Kroplinski, Bound Brook, and Barton C. Case, Howell, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Filed Apr. 10, 1978, Ser. No. 894,845
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—321.2 **12 Claims**



12. A folded membrane artificial kidney comprising:

(a) a case comprised of a polymeric material selected from the group consisting of polystyrene, styreneacrylonitrile copolymers and polycarbonates;

(b) a membrane located within said case having a plurality of folds and a series of adjacent channels formed between said folds, the edge portions of each fold being sealed with the polyurethane composition of a curable nonflowing thixotropic polyurethane composition comprising:

(1) about 60% to about 20% of a prepolymer comprising the reaction product of a polyol consisting of a mixture of castor oil and a polyether diol having a molecular weight of about 400 with at least one mole per hydroxy group of said polyol of an arylene diisocyanate; and

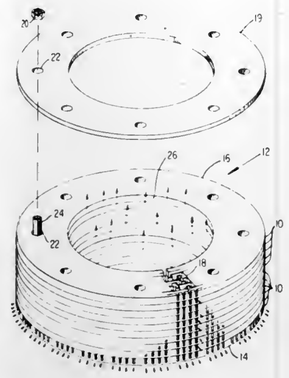
(2) about 40% to about 80% of a crosslinking agent comprising a mixture of (1) about 75% to about 99% of a polyoxypropylene triol having a molecular weight of about 3000 and being end-capped with ethylene oxide to provide above about 40% primary hydroxyl groups or a polyether tetrol; (2) about 1% to about 10% of a polyoxypropylene glycol polyamine having a molecular weight of about 230; and (3) up to about 10% of N,N,N¹,N¹,-tetrakis(2-hydroxypropyl)ethylene diamine or diisopropanol amine.

4,267,045

LABYRINTH DISK STACK HAVING DISKS WITH INTEGRAL FILTER SCREENS

Robert G. Hoof, Irvine, Calif., assignor to The Babcock & Wilcox Company, New Orleans, La.

Continuation of Ser. No. 955,050, Oct. 26, 1978, abandoned.
This application Dec. 13, 1979, Ser. No. 103,256
Int. Cl.³ B01D *25/18;* **F16K** *47/08*
U.S. Cl. 210—322 **5 Claims**



1. A device for subjecting particulate fluid flow to a labyrinth passage between the inlet and outlet of the device comprising:

a multi-turn labyrinth disk stack with integral inlet filter having a series of disks with inlet and outlet circumferences forming the inlet and outlet of said disk stack;

means for allowing fluid flow in the device to flow from the inlet circumference of the disk stack to the outlet circumference of the disk stack;

each disk of said series having a series of small area openings located around the entire inlet circumference of said disk forming an inlet filter for the particulate fluid flow through the device and leading to a large circumferential passageway;

each of said series of disks having a series of multi-turn passages located proximately to said large circumferential passageway, each multi-turn passage having a substantially constant area significantly larger than the area of each of said series of circumferential passages to prevent the blocking of the passageway by a particle of the particulate fluid flow passing through the inlet filter of said disk; and

outlet means located on each of said series of disks proximate to said multi-turn passages to exhaust the particulate fluid from the disk stack of the device.

4,267,046

METHOD AND APPARATUS FOR DEWATERING OF FINE-GRAINED MATERIALS

Stoycho M. Stoev, 51, Blvd. Kl. Gottwald; Ivan M. Sapunarov, 1, Suhodolska Str., and Vladimir K. Ivanov, 6, Blvd. Kiskinov, all of Sofia, Bulgaria

Filed Jun. 24, 1976, Ser. No. 694,241
Claims priority, application Bulgaria, Jun. 9, 1975, 30233
Int. Cl.² B01D *35/20*
U.S. Cl. 210—780 **6 Claims**

1. A method of concentrating and dewatering fine-grained materials, comprising the steps of

feeding the fine-grained material to be treated into a pressing chamber disposed in an arcuately shaped housing with an inlet and an outlet opening, wherein a sieve divides the housing into an upper pressing chamber and a lower dewatering chamber, the lowermost portion of said sieve in said housing being disposed below said inlet and outlet openings,

imparting a vertical-elliptical oscillatory vibrating motion onto said housing, said motion having a frequency up to 160 Hz and an amplitude up to 5 mm,

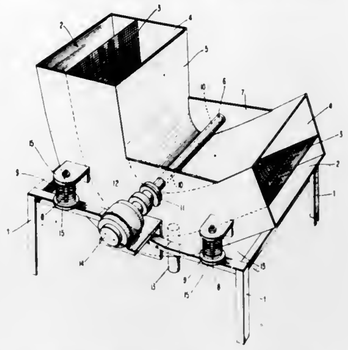
whereby said fine-grained material passes through said sieve from said pressing chamber into said dewatering chamber, and

discharging water from the dewatering chamber.

3. An apparatus for concentrating and dewatering fine-grained materials, comprising in combination,

a support frame;

an electric motor rigidly supported on said frame;



an arcuately shaped housing having an inlet and an outlet opening;

spring means supporting said housing on said frame;

a sieve mounted in said housing and dividing said housing into an upper pressing chamber and a lower dewatering chamber, the lowermost portion of said sieve in said housing being disposed below said inlet and outlet openings;

said electric motor being operatively connected to said housing so as to vibrate it at a preselected frequency and amplitude when said motor is energized; and

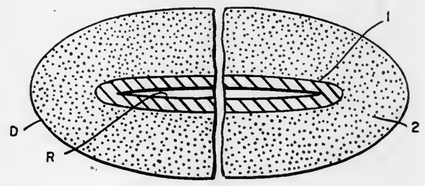
a discharge pipe on said housing extending from said dewatering chamber and adapted to discharge liquid therefrom.

4,267,047

DIALYZING MEMBRANE WITH ADSORBENT LAYER

Werner Henne; Gustav Dünweg; Werner Schmitz; Raimund Pohle, and Friedrich Lawitzki, all of Wuppertal, Fed. Rep. of Germany, assignors to Akzo N.V. of Arnhem/Nederland, Arnhem, Netherlands

Division of Ser. No. 809,486, Jun. 23, 1977, Pat. No. 4,164,437.
This application Apr. 16, 1979, Ser. No. 30,705
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1977, 2705734
Int. Cl.³ B01D *39/18*
U.S. Cl. 210—490 **15 Claims**



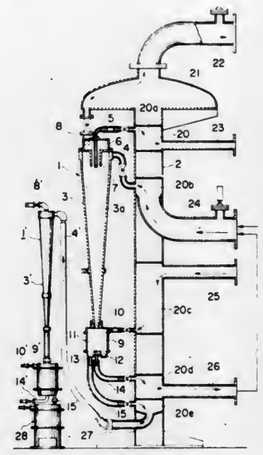
1. A dialyzing membrane for hemodialysis in the form of a hollow fiber, a tubular foil or a flat sheet formed by regeneration of cellulose from a cuprammonium solution, said membrane comprising at least two firmly self-adhered cellulosic layers with at least one of said layers being a dialyzing layer consisting essentially of a semipermeable regenerated cellulose having a thickness of about 1 to 10μ and at least one other of said layers being an adsorbent layer consisting essentially of a semipermeable regenerated cellulose having a thickness of about 10 to 100μ in which fine particles of an adsorbent material are embedded in an amount of up to 95% by weight of the adsorbent layer.

4,267,048

EQUIPMENT FOR SEPARATING FOREIGN MATTER FROM LIQUID PAPERMAKING MATERIALS

Saburo Ohishi, Shizuoka, Japan, assignor to Oishikikai Mfg. Co., Ltd., Shizuoka, Japan

Filed Mar. 12, 1979, Ser. No. 19,631
Int. Cl.³ B04C *5/28*
U.S. Cl. 210—512.2 **4 Claims**



1. Equipment for separating foreign matter from liquid papermaking materials including a plurality of radially disposed cyclone separators defining a single stage, each of said cyclone separators comprising a separator body to the upper portion of which a supply pipe for said materials is tangentially connected and from which an exhaust pipe for light foreign matter extends, a collecting chamber for said materials disposed at the top of said separator body out of which collecting chamber a collecting pipe extends, and a cyclone vortex chamber disposed under said separator body with a pressurized fresh water supply pipe tangentially connected to its upper portion, with a re-collecting port provided at the center of the bottom of said vortex chamber, with a portion of said bottom around said re-collecting port made lower than the recollecting port and with an outlet pipe for waste connected to said portion of said bottom; a re-collecting pipe being connected to said re-collecting port; and a hollow structure disposed at the center of the circle described by said cyclone separators and spaced equidistantly therefrom, and partitioned into an intermediate chamber for accumulating the light foreign matter, an intermediate chamber for distributing the liquid papermaking materials, an intermediate chamber for supplying pressurized clear water, an intermediate chamber for re-collection, and an intermediate outlet chamber, said first-mentioned intermediate chamber being connected both to all the exhaust pipes for the light foreign matter extending from all the cyclone separators and to a main exhaust pipe for the light foreign matter, said second-mentioned intermediate chamber being connected both to all the supply pipes for said materials extending to all the cyclone separators and a main supply pipe for said materials, said third-mentioned intermediate chamber being connected both to all

the pressurized clear water supply pipes extending to all the cyclone separators and to a main pressurized clear water supply pipe, said fourth-mentioned intermediate chamber being connected both to all the re-collecting pipes from all the cyclone separators and to a main re-collecting pipe, and said fifth-mentioned intermediate chamber being connected to all the outlet pipes from all the cyclone separators and to a common outlet pipe, said hollow structure being also provided at the top with a collecting intermediate tank.

4,267,049

BIOLOGICAL SLUDGE-ENERGY RECYCLING METHOD

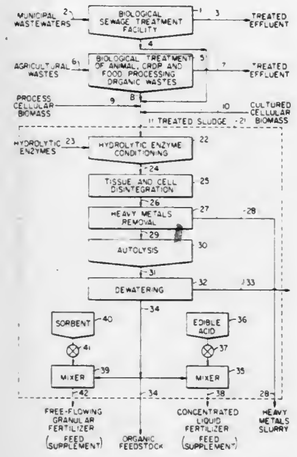
Lennart G. Erickson, 1070 E. Meadow Cir., Palo Alto, Calif. 94303, and Howard E. Worne, Lyon Industrial Pk., Route 73, Berlin, N.J. 08009

Continuation-in-part of Ser. No. 877,195, Feb. 13, 1978, Pat. No. 4,159,944. This application Jun. 27, 1979, Ser. No. 52,644

The portion of the term of this patent subsequent to Jul. 3, 1996, has been disclaimed.

Int. Cl.³ C02F *3/34*

U.S. Cl. 210—606 **31 Claims**



1. A method for converting treated sludge into useful substances, the method comprising the steps of: hydrolyzing organic materials present in the sludge by adding to the sludge at least one of hydrolytic enzymes and hydrolytic enzyme producing microorganisms; thereafter disintegrating organic cells present in the sludge into organic particles to thereby form a colloidal slurry including the particles; holding at least one of the sludge, including the enzymes or the microorganisms, and the slurry, including the particles; and thereafter separating the slurry into an effluent and a moist product including the organic particles and adapted for a relatively rapid metabolization by living organisms.

4,267,050

HIGH SOLUBILITY GAS FLOTATION IN LIQUID-SOLID SEPARATION

Richard A. Conway, and Robert F. Nelson, both of Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 21, 1979, Ser. No. 22,625

Int. Cl.³ C02F *3/12*

U.S. Cl. 210—608 **14 Claims**

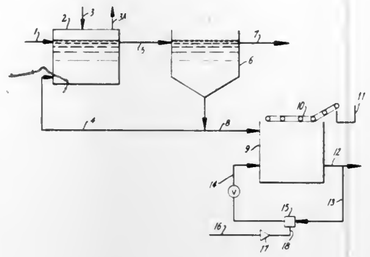
14. A method for purifying BOD-containing water comprising:

(a) subjecting said BOD-containing water to bacterial action in a bacterial treatment zone so as to produce first effluent of reduced BOD content,

(b) feeding at least part of said first effluent to a flotation zone,

(c) providing an aqueous fluid stream for pressurization,

(d) pressurizing said step (c) stream to pressure of 40–70 psig with a gas having a solubility in water higher than that of air and expanding said pressurized stream into the flotation zone,



(e) gravity separating the first effluent into lower, second effluent and overhead, impurity-containing floated material, and

(f) removing said lower, second effluent and overhead, impurity-containing floated material from said flotation zone.

4,267,051

METHOD AND APPAPARATUS FOR AERATING WATER

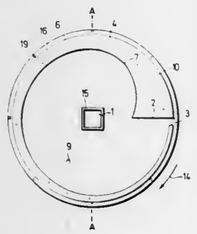
Georg Uhlmann, Koblenz, Fed. Rep. of Germany, assignor to Rheintechnik Weiland & Kaspar KG, Neunkirchen, Fed. Rep. of Germany

Filed Jun. 29, 1979, Ser. No. 53,246

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 2829006

Int. Cl.³ C02F *3/04, 3/18*

U.S. Cl. 210—619 **10 Claims**



1. A method for the aeration and biological cleansing of water comprising the steps of: pushing water and air through a passage continuously converging from an inlet opening to an outlet opening; said passage being located on a rotating circular disk and comprising an annularly bent funnel thereon, said funnel extending in part above the water surface and continuously converging in direction from said inlet opening to said outlet opening; receiving said water and said air in said passage in alternation; directing said air to leave said passage through said outlet opening beneath water surface and to rise in the water; and directing said water to leave said passage through said outlet opening at least in part above said water surface for accepting oxygen from the air, said passage having a continuously reducing cross-section, whereby the water becomes accelerated and thereby compressed due to the reduction in cross-sectional area; rotating said funnel about a horizontal shaft, the outer circumference of said funnel being substantially circular-shaped and the inner circumference of said funnel is substantially spiral-shaped; arranging said outlet opening and

said inlet opening of said funnel at a substantially small distance from one another, said disk being rotatably mounted on said horizontal shaft; driving said disk on said horizontal shaft in a reservoir containing said water, said funnel being mounted on said disk at its circumference whereby a biological cover useful for cleansing the water forms on the disk and on the outer surface of the funnel.

4,267,052

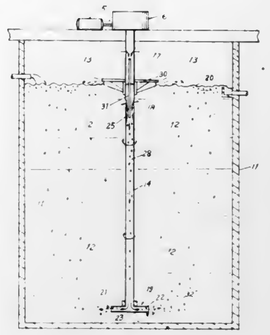
AERATION METHOD AND APPARATUS

Shih-chih Chang, 2339 Davison Ave., Richland, Wash. 99352

Filed Dec. 10, 1979, Ser. No. 101,709

Int. Cl.³ C02F *3/16*

U.S. Cl. 210—629 **6 Claims**



1. A process for mixing a gas with a liquid in a vessel comprising the steps;

a. rotating a submerged rotor in said vessel containing said liquid by driving a substantially vertically disposed hollow shaft; said rotor comprising a plurality of substantially radially outward channels of which the inward end communicating with the hollow center of said hollow shaft and the outward end being open to said liquid in said vessel;

b. continuously drawing said liquid by the pumping action of said rotor into said hollow center through at least one shaft wall opening to said liquid near the liquid surface and flowing said liquid downwardly within said hollow center;

c. continuously inducing said gas to enter said hollow center through at least one shaft wall opening for said gas above said liquid surface and mixing said gas with the flowing liquid by a hydraulic gas entrainment said hydraulic gas entrainment being accomplished by a venturi means downstream of said shaft wall opening to said liquid, said flowing liquid forming a low pressure region in said venturi means and thereby entraining gas therein through a gas tube communicating said gas entering into said hollow center with said low pressure region in said venturi means;

d. continuously injecting said flowing liquid with the entrained gas into said liquid through said channels of said rotor by the pumping action of said rotor to form a plurality of rotary jet streams of a gas-liquid mixture.

2. A process as defined in claim **1** wherein said liquid being wastewater and said gas being air.

5. An apparatus for mixing a gas with a liquid comprising a vessel for containing said liquid, prime mover disposed above said vessel for driving a substantially vertically disposed hollow shaft; the hollow center of said shaft being open to said liquid through at least one liquid opening near the surface level of said liquid and open to said gas through at least one gas opening above said surface level of said liquid, a submerged rotor being mounted on said shaft and submerged in said liquid at a desired depth; said rotor having a plurality of substantially radially outward channels of which the inward end communicating with said hollow center of said shaft and the outward end being open to said liquid in said vessel, a gas entraining means disposed in said hollow center of said hollow shaft and downstream of said liquid opening said gas entraining means comprising a venturi nozzle for producing a low pressure region therein, and a gas tube for communicating said gas entering said hollow center with said low pressure region; the pumping action of said rotor drawing said liquid of said vessel to flow in said hollow center of said shaft through said liquid opening and downwardly therein, the flowing liquid entraining said gas through said gas opening in said gas entraining means and forming a gas-liquid mixture therein, said rotor drawing said mixture to flow further downwardly in said hollow center of said shaft and subsequently injecting it in said liquid of said vessel through said channels of said rotor to form a plurality of rotary jet streams for mixing said liquid in said vessel and promoting gas-liquid mass transfer.

4,267,053

INLINE INTRAVENOUS FINAL FILTER UNIT

Yasuo Hashino; Fusakazu Hayano, both of Fuji, and Kazuo Toyomoto, Yokohama, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha and Morishita Pharm., both of Osaka, Japan

Continuation of Ser. No. 837,208, Sep. 27, 1977, abandoned. This application Jun. 20, 1979, Ser. No. 50,444

Claims priority, application Japan, Oct. 15, 1976, 51-122876

Int. Cl.³ B01D *29/32, 31/00*

U.S. Cl. 210—650 **10 Claims**

1. A method for removing bacteria and fungi from an infusion solution in an inline intravenous final filter unit which includes a casing having an inlet at one end and an outlet at the other end thereof which comprises:

arranging a plurality of hollow fibers within the casing, each of said hollow fibers having an outside diameter of up to 3 mm, an inside diameter of at least 0.5 mm, a porous size of 0.1μ to 0.5μ and a porosity of 80% to 90% with the hollow fibers being opened at at least one end thereof;

fixing a security member to each end of said hollow fibers so as to connect said hollow fibers to each other and to abut the inner wall of the casing such that the final filter unit has a total effective filtration area of 5–100 cm^2 wherein the ratio of the total effective filtration area to the capacity of the casing is at least about 4:1; and

filtering the solution through said inline intravenous final filter unit.

5. An inline intravenous final filter unit including a casing having an inlet cap at its one end and an outlet cap at the other end thereof, a plurality of tubed filter elements arranged within the casing parallel to the longitudinal direction thereof, each of said tubed filter elements being closed at one end thereof op-

posed to the inlet cap and open at the other end thereof opposed to the outlet cap and a securing member for tightly fixing each of said tubed filter elements at the outer peripheral portion of each open end thereof to the inner wall of the casing wherein each of said tubed filter elements comprises porous hollow fiber of up to 3 mm in outside diameter and at least 0.5 mm in inside diameter, said porous hollow fiber having a porosity of 80–90% so as to be free from clogging by particulate matter in infusion solutions, a porosity rating of 0.1–0.5μ so as to suitable for the removal of bacteria or fungi contaminated thereinto and including a total effective filtration area of 5–100 cm^2 and wherein the ratio of the total effective filtration area to the capacity of the casing is at least about 4:1.

4,267,054

METHOD FOR THE CHROMATOGRAPHIC SEPARATION OF SOLUBLE COMPONENTS IN FEED SOLUTION

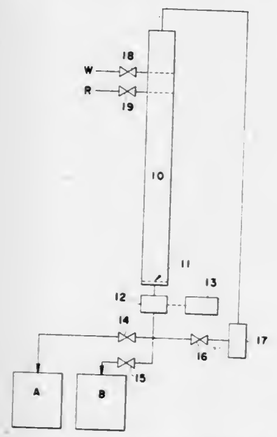
Kenzaburo Yoritomi; Teruo Kezuka, and Mitsumasa Moriya, all of Chiba, Japan, assignors to Sanmatsu Kogyo Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 908,455, May 22, 1978. This application Apr. 23, 1979, Ser. No. 32,723

Claims priority, application Japan, May 26, 1977, 52/62023

Int. Cl.³ B01D *15/08*

U.S. Cl. 210—659 **5 Claims**



1. A method for the chromatographic separation of each of the soluble components of a feed solution containing as major components (1) a component A which is relatively less adsorbed by a solid adsorbent having ion-exchanging or molecular sieve action and (2) a component B which is more selectively adsorbed by the solid adsorbent having ion-exchanging or molecular sieve action, said solid adsorbent having its adsorbency restored by displacing the selectively adsorbed components, said method comprising:

sequentially introducing said feed solution and a liquid desorbent into a column packed with said solid adsorbent;

thereafter separating effluent at the bottom of said column in one cycle of operation into four fractions, including

(a) a fraction rich in said component A,

(b) a mixed fraction containing both of said components A and B but with incremental increases in the concentration of said component B,

(c) a fraction rich in said component B, and

(d) a dilute fraction of the tailing edge portion of said fraction (c) and the leading edge portion of said fraction (a) in the next cycle of operation;

directly returning said fractions (b) and (d) to the top of said column;

feeding additional fresh feed solution to said column through a position on said column located at or approximately at a point where the liquid composition in said column has a maximum concentration of components A and B or the ratio of component A to component B in the liquid composition is substantially equal to that of said feed solution during effluence of said fraction (a) or (c);

feeding additional fresh liquid desorbent to said column through a position on said column located at or approximately at a point where the liquid composition in said column has a lowest concentration during effluence of said fraction (a) or (c); and separately recovering said fractions (a) and (c).

4,267,055

SEPARATION OF MORE PLANAR MOLECULES FROM LESS PLANAR MOLECULES

James W. Neely, North Wales, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 4, 1979, Ser. No. 71,808

Int. Cl.³ B01D *15/00*

U.S. Cl. 210—670 **10 Claims**

1. A process for selectively removing planar molecules from a mixture containing planar and non-planar molecules which comprises contacting the mixture with a particulate adsorbent which is the product of controlled thermal degradation, at a temperature of about 500° C. or greater, of a macroporous synthetic polymer containing macropores ranging from about 50 to about 100,000 Angstroms in average critical dimension, and a carbon-fixing moiety, and derived from one or more ethylenically unsaturated monomers, or monomers which may be condensed to yield macroporous polymers, or mixtures thereof, until planar molecules have been selectively adsorbed, and subsequently separating the adsorbent from the mixture.

4,267,056

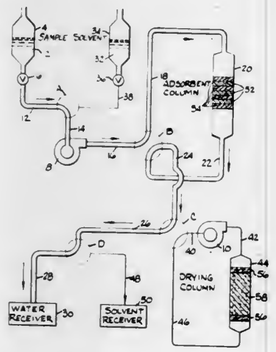
SAMPLE PREPARATION APPARATUS AND PROCESS FOR THE USE THEREOF

Thomas D. McClure, Northglenn, Colo., assignor to Johns-Manville Corporation, Denver, Colo.

Filed Apr. 5, 1979, Ser. No. 27,332

Int. Cl.³ B01D *15/08*

U.S. Cl. 210—678 **12 Claims**



1. Apparatus for the preparation of samples for chromatographic analysis, which samples comprise organic materials initially present in a quantity of water, said apparatus comprising:

(a) at least one sample reservoir and at least one solvent reservoir, each having a fluid conduit leading therefrom;

(b) at least one adsorbent column containing at least one layer of adsorbent material and having fluid conduits at opposite ends thereof, with the fluid conduit of said adsorbent column to which a first valve means is at any given time connecting one of said reservoirs being at that time the inlet fluid conduit of said adsorbent column and the other fluid conduit of said adsorbent column being at that time the outlet fluid conduit of said adsorbent column;

(c) at least one water receiver and at least one solvent receiver, each having a fluid conduit leading thereto;

(d) said first valve means to alternately connect each of said fluid conduits of said reservoirs to said inlet fluid conduit of said adsorbent column;

(e) second valve means to alternately connect each of said fluid conduits of said receivers to said outlet fluid conduit of said adsorbent column; and

(f) at least one drying column containing at least one layer of drying material and having respectively inlet and outlet fluid conduits at opposite ends thereof, said drying column being interposed between said adsorbent column and said second valve means and with said outlet fluid conduit of said adsorbent column connected to said inlet fluid conduit of said drying column and said outlet fluid conduit of said drying column connected to said second valve means.

4,267,057

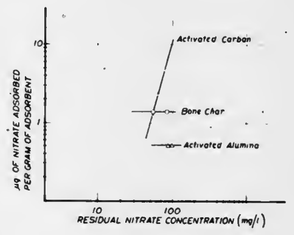
WATER TREATMENT FOR SELECTIVE REMOVAL OF NITRATES

Donald G. Hager, and Frederick Rubel, Jr., both of Tucson, Ariz., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 18, 1980, Ser. No. 113,354

Int. Cl.³ C02F *1/28*

U.S. Cl. 210—678 **11 Claims**



1. A method for treating nitrate-containing potable water for selectively removing substantially all of the nitrate present in the water comprising the steps of:

(a) controlling the pH of nitrate-containing water such that the pH is less than 8; and

(b) passing the pH-controlled water through activated carbon to remove substantially all of the nitrate initially present in the water.

4,267,058

PRECIPITATING AGENT FOR DEPHOSPHATIZING EFFLUENT

Hans Kyri, Cologne, and Jürgen Dobbers, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,227

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1978, 2843053

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—716 **4 Claims**

1. A process for the dephosphatization of effluent, comprising mixing the effluent having a pH of about 4.5 to 8.5 with a precipitating agent consisting essentially of about 5 to 75% by weight of active iron (III) sulphate, about 25 to 95% by weight of active iron (III) oxide and 0 to about 10% by weight of anhydrous magnesium sulphate, the active iron (III) sulphate and active iron (III) oxide having been produced by supplying oxygen while roasting iron (II) sulphate for a time insufficient to remove all the sulphate but sufficient to stop at the desired sulphate content.

4,267,059

AUXILIARY FOR IMPROVING RETENTION, DEWATERING AND WORKING UP, PARTICULARLY IN THE MANUFACTURE OF PAPER

Rudolf Behn; Lutz Hoppe, and Branislav Böhmer, all of Walsrode, Fed. Rep. of Germany, assignors to Wolff Walsrode Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 930,188, Aug. 2, 1978, abandoned. This application Oct. 15, 1979, Ser. No. 84,647

Claims priority, application Fed. Rep. of Germany, Aug. 13, 1977, 2736651

Int. Cl.³ D21H *3/52*

U.S. Cl. 210—736 **5 Claims**

1. An auxiliary for improving the retention of flushable solids, for accelerating the dewatering of suspensions and for more rapidly working up industrial waters, effluents and sludges by the addition of a basic water-soluble polymer in the form of an aqueous polymersolution said polymer being produced by reacting

(a) an aliphatic polyethylene glycol ether amine prepared by reacting a polyethylene glycol/epihalohydrin condensate with

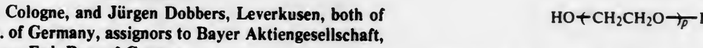


or a polyamine of the formula



or mixtures thereof wherein R_1 and R_2 may be the same or different and each is C_xH_{2+1} or C_xH_{2x}—OH and R_3 is H or C_xH_{2x+1} and x is an integer from 1–4, y and z are each integers of 2–4, n is an integer of 2–5 and m is an integer of 0–5; and

said condensate is the reaction product of about 2 parts epihalorhydrin per part polyethylene glycol of the formula



where p is an integer of 1–27; and

(b) a basic polyamino amide whereby the halogens of compound (a) react with the —NH moieties of the polyamino amide with elimination of hydrohalic acid to form an intermediate product; and

(c) reacting said intermediate with a member selected from the group consisting of epibromhydrin, epifluorhydrin, epichlorhydrin, dihaloalkanes, glyoxal-bis-acrylamide, bisacrylamidoacetic acid, acrylamidoglycolic acid and tetraalkyloxyethane.

5. Improving the retention of flushable solids, accelerating the dewatering of suspensions and for more rapidly working up industrial waters, effluents and sludges by adding an aqueous polymer solution of a basic water-soluble polymer according to claim 1.

4,267,060

TRAVELLING SHEET, FLAT-BED VACUUM FILTER AND METHOD

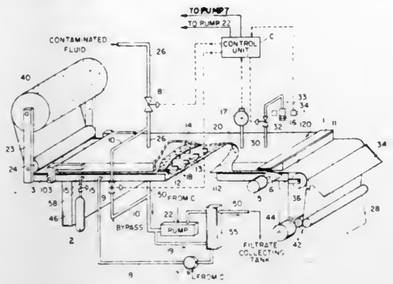
Peter A. Miller, Mozartstrasse 16, D-6370 Oberursel, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 854,192, Nov. 23, 1977, Pat. No. 4,233,157, which is a continuation-in-part of Ser. No. 466,171, Apr. 10, 1975, abandoned. This application Feb. 19, 1980, Ser. No. 123,101

The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.[3] **B01D** *29/02, 29/36*

U.S. Cl. 210—741 **15 Claims**



1. In a travelling sheet, flat-bed filter apparatus to filter contaminated liquid from a contaminant supply (**26'**) and deliver filtered fluid to a filtered fluid outlet (**50'**) having

a web of filter medium (**28**);

a perforate support plate (**14**) to support the filter medium thereon;

cover means (**120**) located above the support plate (**14**) and forming therewith a contaminant chamber (**20**) which is in communication with the contaminant supply (**26'**);

a collecting pan including a bottom support plate (**12**) located beneath the support plate (**14**), having upstanding supporting rim portions (**112**), and forming with the filter medium (**28**) on the support plate a filtrate chamber (**13**);

a filtered fluid connection (**50**) in fluid communication with the filtrate chamber (**13**) and the filtered fluid outlet (**50'**);

a pump (**22**) connected in the filtered fluid connection (**50**);

and transport means (**42, 44**) in engagement with the filter medium and transporting the filter medium over the support plate (**14**) and between the contaminant chamber (**20**) and the filtrate chamber (**13**);

the improvement comprising

said cover means being a hood or cap-shaped element (**20**) positioned by gravity over said support plate (**14**) and having fixed depending rim portions (**121**) which are located to directly engage the web of the filter medium (**28**) only, said filter medium being positioned between the depending rim portions (**121**) of the cover means (**120**) and the upstanding rim portions (**112**) of the support plate (**12**);

said pump means comprising a suction-and-vacuum pump means (**22**) in operation generating sufficient vacuum in both the filtrate chamber (**13**) and the contaminant chamber (**20**) to draw said hood or cap-shaped element (**120**) into sealing engagement with the upper surface of the filter medium (**28**), the ambient atmospheric pressure at the outside of the hood or cap-shaped element pressing said hood or cap-shaped element on the filter medium (**28**) and against the upstanding supporting rim portions;

means (**17**) sensing the vacuum in the contaminant chamber (**20**);

and valve means (**8'**) interposed in the liquid supply and controllable in dependence on the vacuum sensed by the vacuum sensing means, and operative to inhibit supply of contaminated fluid to the contaminant chamber (**20**) until the vacuum, upon operation of the suction-and-vacuum pump means, has reached a predetermined level indicative of sealing engagement of the rim portions of the cover means and the collecting pan, respectively, with the filter medium interposed, and then controlling said valve means to open to admit contaminated liquid for conjoint continued application of suction by said pump means to effect said sealing engagement, draw contaminated liquid from said contaminant supply, and thus provide for supply of contaminated liquid to the contaminant chamber (**20**), sucking fluid through the filter medium (**28**), removing the filtered fluid out from the filtrate chamber (**13**) while continuing to maintain the sealing vacuum beneath the hood or cap-shaped cover means.

10. Method to operate a travelling sheet, flat-bed filter apparatus to filter contaminated liquid from a contaminant supply (**26'**) and deliver filtered fluid to a filtered fluid outlet (**50'**) and utlizing an apparatus having

a web or filter medium (**28**);

a perforate support plate (**14**) to support the filter medium thereon;

cover means (**120**) located above the support plate (**14**) and forming therewith a contaminant chamber (**20**) which is in communication with the contaminant supply (**26'**);

a collecting pan including a bottom support plate (**12**) located beneath the support plate (**14**), having upstanding supporting rim portions (**112**) and forming with the filter medium (**28**) on the support plate a filtrate chamber (**13**);

a filtered fluid connection (**50**) in fluid communication with the filtrate chamber (**13**) and the filtered fluid outlet (**50'**);

a suction-and-vacuum pump (**22**) in the filtering fluid connection (**50**); and transport means in engagement with the filter medium and transporting the filter medium over the support plate (**14**) between the contaminant chamber (**20**) and the filtrate chamber (**13**);

said method comprising the steps of

positioning said cover means, by gravity, over the support plate (**14**) with depending rim portions (**121**) thereof in direct engagement with the upper surface of the web of filter medium, and fitting against, and in alignment with, the upstanding rim portions (**112**) of the collecting pan;

inhibiting flow of contaminated liquid to the contaminant chamber;

starting said suction-and-vacuum pump, and creating a vacuum within said chambers, to draw the cover means, with the filter medium interposed, against the collecting pan, and tightly and sealingly engage said rim portions;

admitting contaminated liquid when a predetermined vacuum, indicative of sealing engagement of said rim portions, has been sensed;

continuing operation of said pump to continue to effect said sealing engagement, draw contaminated liquid from the contaminant supply, and provide supply of contaminated liquid into the contaminant chamber, suck fluid through the filter medium and remove filtered fluid from the filtrate chamber to the filtered fluid outlet.

4,267,061

PROCESS AND SEPARATING AND RECOVERING SOLIDS AND CLEAR LIQUID PHASE FROM DISPERSIONS

Thomas Simo, Frankfurt am Main, and Roland Rammler, Königstein, both of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Reuterweg, Fed. Rep. of Germany

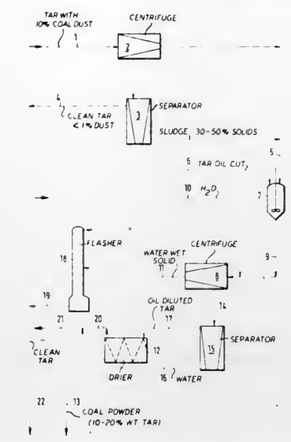
Continuation of Ser. No. 815,465, Jul. 13, 1977, abandoned, which is a continuation of Ser. No. 647,831, Jan. 9, 1976, abandoned. This application Jan. 4, 1979, Ser. No. 1,100

Claims priority, application Fed. Rep. of Germany, Feb. 4, 1975, 2504487

Int. Cl.[3] **B01D** *43/00*

U.S. Cl. 210—772 **4 Claims**

1. Process for separating solids from high-boiling liquid hydrocarbons, preferably high-boiling oils or tars, which comprises feeding solids-containing liquid hydrocarbons into a first separation zone, separately withdrawing from said first separation zone a solids-enriched sludge phase and a liquid hydrocarbon phase containing less than 1% by weight of solids with a particle size below 5 microns, reducing the density and/or the viscosity of the liquid constituents of the sludge phase by the addition of a hydrocarbon fraction obtained from high-boiling hydrocarbons withdrawn from a second separation zone, recovering the hydrocarbon fraction added to reduce the density and/or viscosity of the sludge phase in a flashing zone from the



hydrocarbons withdrawn from the second separation zone and subsequently recycled to said sludge phase, adding water to the sludge phase and feeding the resulting mixture into a centrifuging zone, separately withdrawing from said centrifuging zone a liquid phase and a high-solids phase, feeding said liquid phase to said second separation zone and separately withdrawing water and the high-boiling hydrocarbons therefrom.

4,267,062

ABANDONED BOREHOLE COMPOSITIONS

Thomas L. Byerley, Fountain Valley, Calif., assignor to NL Industries, Inc., New York, N.Y.

Continuation of Ser. No. 844,279, Oct. 21, 1977, abandoned. This application May 29, 1979, Ser. No. 42,885

Int. Cl.[3] **E21B** *33/00*

U.S. Cl. 252—8.55 R **3 Claims**

1. A process for suspending solids and controlling formation pressures within a borehole to be abandoned which comprises:

(a) preparing a composition essentially comprising about 89.5 to about 99.4% by weight water swellable clay gellant selected from the group consisting of natural and synthetic, sodium form montmorillionite, bentonite, beidellite, hectorite, saponite, stevensite, and mixtures thereof, about 0.5% to about 10% by weight water-soluble alkali metal salt selected from the group consisting of sodium and potassium carbonates, bicarbonates, citrates, oxalates, stearates, and mixtures thereof and about 0.1 to about 3.0% by weight of a water soluble, essentially non-hygroscopic salt of carboxymethylcellulose, having a degree of substitution in the range of about 0.5 to 1.5, selected from the group consisting of sodium carboxymethylcellulose, potassium carboxymethylcellulose and mixtures thereof;

(b) Mixing said composition of step (a) with fresh water to form an aqueous slurry having a gel strength of at least 20 lb/100 ft^2 and having an API filtration rate less than about 15 cc/30 minutes;

(c) Circulating said aqueous slurry throughout the total depth of said borehole and allowing said aqueous slurry to remain in the borehole.

4,267,063

AMINE DERIVATIVES OF DIALKYLPHOSPHONATE-ALKLMALEATE ESTER REACTION PRODUCTS AS ANTIWEAR/LOAD CARRYING ADDITIVES AND LUBRICANTS CONTAINING SAME

Gerassimos Frangatos, Haddonfield, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Feb. 20, 1980, Ser. No. 122,918

Int. Cl.[3] **C10M** *1/46*

U.S. Cl. 252—49.9 **8 Claims**

1. A lubricant composition comprising an oil of lubricating viscosity or a grease prepared therefrom and a minor antiwear/load-carrying amount of a product prepared by (a) reacting a dialkylphosphonate and an alkylmaleate ester and (b) converting the product of (a) to an amine derivative by reacting same with an amine selected from the group consisting of primary alkyl amines, secondary alkyl amines, primary aryl amines, secondary aryl amines and polyalkylene amines; wherein the molar ratio of dialkylphosphonate to alkyl maleate ester to amine varies from about 1:1:0.5 to about 4:1:3.

4,267,064

REFRIGERATION LUBRICATING OIL COMPOSITIONS

Umekichi Sasaki; Masaaki Tsunemi, both of Kawasaki; Kaichi Yamada, and Yoshiyuki Morikawa, both of Kadoma, all of Japan, assignors to Nippon Oil Company, Ltd. and Matsushita Electric Industrial Co., Ltd., both of, Japan

Filed Oct. 24, 1979, Ser. No. 87,675

Claims priority, application Japan, Oct. 25, 1978, 53-131200

Int. Cl.[3] **C09K** *15/06;* **C10M** *3/20, 3/22*

U.S. Cl. 252—52 A **5 Claims**

1. A refrigeration lubricating oil composition which comprises:

a starting polyglycol oil (A) having a kinetic viscosity in the range of 25–50 cSt at 98.9° C. and a viscosity index of greater than 150, the polyglycol oil being represented by the formula

$$R_1\text{+O}-(R_2O)_m-R_3\text{ }]_n$$

wherein R_1 and R_3 each are a hydrogen atom, hydrocarbon radical or acyl group and may be identical with, or different from, each other; R_2 is an alkylene group; n is an integer of 1–6; and $m \times n$ is 2 or greater; and

an additive (B) selected from the group consisting of glycidyl ether type epoxy compounds (1), epoxidized fatty acid monoesters (2) and epoxidized vegetable oils (3), the additive (B) being in the range of 0.1–10 percent by weight of the total weight of components (A) and (B).

4,267,065

DISPERSANTS FOR A CERAMIC SLURRY

David W. Johnson, Jr., Pluckemin, and Eva M. Vogel, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 1, 1978, Ser. No. 929,930

Int. Cl.[3] **C04B** *35/38;* **C09C** *1/24, 1/04*

U.S. Cl. 252—62.62 **4 Claims**

1. A method of processing ceramics which comprises forming a slurry and spray drying said slurry under conventional conditions to yield a product consisting of ceramic material and a dispersant said ceramic material forming between 65 percent and 80 percent by weight of said slurry and being a mixture of metal oxides suitable for forming a ferrite

CHARACTERIZED IN THAT

said dispersant is ammonium citrate having a concentration of 0.02 to 0.8 percent by weight of the ceramic material.

4,267,066

PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF DETERGENT USING DERIVATIVES OF CIS-3-HEXENOL

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Edward J. Granda, Englishtown; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 85,707, Oct. 17, 1979, Pat. No. 4,241,098. This application Jul. 17, 1980, Ser. No. 169,812

Int. Cl.[3] C11D *3/50, 9/44*

U.S. Cl. 252—174.11 1 Claim

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic or nonionic detergent comprising the step of intimately admixing with a solid or liquid anionic, cationic or nonionic detergent base from 0.01% up to 0.5% of at least one substance selected from the group consisting of:

A. A composition of matter consisting essentially of cis-3-hexenal, cis-3-hexenyl-cis-3-hexenoate, trans-2-hexenal, and cis-3-hexenol;

B. A composition of matter consisting essentially of cis-3-hexenal, cis-3-hexenyl-cis-3-hexenoate, cis-3-hexenyl formate and trans-2-hexenal;

C. A composition of matter consisting essentially of cis-3-hexenal, cis-3-hexenyl-cis-3-hexenoate, cis-3-hexenol, cis-3-hexenyl formate and trans-2-hexenal; and

D. Cis-3-hexenyl methyl ether.

4,267,067

PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF A DETERGENT USING 2-OXABICYCLOOCTANE DERIVATIVE

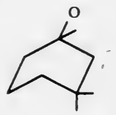
Mark A. Sprecker, Sea Bright; Frederick L. Schmitt, Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 77,539, Sep. 21, 1979, which is a continuation-in-part of Ser. No. 953,128, Oct. 20, 1978, Pat. No. 4,195,099. This application Aug. 7, 1980, Ser. No. 176,093

Int. Cl.[3] C11D *3/50, 9/44*

U.S. Cl. 252—174.11 1 Claim

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic or nonionic detergent comprising the step of adding to a solid or liquid anionic, cationic or nonionic detergent base from 0.01% up to 0.5% of 1,3,5,5-tetramethyl-2-oxabicyclo[2.2.2]octane having the structure:



4,267,068

STORAGE-STABLE, POURABLE SILICATE SUSPENSIONS

Paul Diessel, Mannheim; Johannes Perner, Neustadt; Bernd Leutner, Frankenthal, and Hans-Ulrich Schlimper, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 22, 1979, Ser. No. 41,523

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1978, 2824443

Int. Cl.[3] C11D *3/12*

U.S. Cl. 252—179 4 Claims

1. A storage-stable, pourable and pumpable aqueous suspension which contains, based on the weight of suspension, from 20 to 60% of finely divided, water-insoluble sodium aluminum silicates, together with an organic acid or salt thereof as a stabilizer and flow improver, wherein the organic acid or salt thereof is exclusively one or more hydroxyl-free saturated or unsaturated dicarboxylic acids of 3 to 10 carbon atoms or alkali metal salts thereof, present in an amount of from 0.5 to 15%, based on the weight of the suspension.

4,267,069

REGENERATION OF ACTIVATED CARBON TO INCREASE ITS GOLD ADSORPTION CAPACITY

Raymond J. Davidson, 5 Max Michaelis St., Montgomery Park, Johannesburg, Transvaal, and Vittorio Veronese, 19 Lewis Dr., Horizon View, Roodepoort, Transvaal, South Africa

Filed Sep. 28, 1979, Ser. No. 80,158

Claims priority, application South Africa, Oct. 18, 1978, 78/5864

Int. Cl.[3] B01J *20/34;* C22B *11/04, 11/08*

U.S. Cl. 252—412 17 Claims

1. A method of regenerating an activated carbon which has had its collecting capacity for gold adsorption reduced through use, includes the step of contacting the carbon with an aqueous copper salt solution having a pH of less than 6.

10. A method of regenerating an activated carbon which has had its collecting capacity for gold adsorption reduced through use, includes the step of contacting the carbon with an aqueous copper salt solution containing up to 5 percent by weight of the copper salt and also containing carbonic acid.

13. A method of claim 1 wherein contact between the copper salt solution and the carbon is followed by contacting the carbon with a suitable carbonate or bicarbonate solution.

4,267,070

CATALYST FOR THE SYNTHESIS OF AROMATIC MONOISOCYANATES

Boris K. Nefedov, ulitsa Shosseinaya, 9 kv. 64; Vladimir I. Manov-Juvensky, ulitsa Angarskaya, 1, korpus 3, kv. 72, both of Moscow; Jury I. Dergunov, prospekt Pobedy, 3, kv. 39; Anatoly I. Rysikhin, prospekt Pobedy, 3, kv. 7, both of Dzerzhinsk Gorkovskoi oblasti, and Alexandr L. Chimishkian, Volgogradsky prospekt, 153, korpus 1, kv. 14, Moscow, all of U.S.S.R.

Filed Oct. 30, 1979, Ser. No. 89,300

Int. Cl.[3] B01J *31/02;* C07C *118/06*

U.S. Cl. 252—429 R 5 Claims

1. A catalyst for the synthesis of aromatic monoisocyanates consisting of 1.64 to 16.6% by weight of palladium chloride, 0.16 to 47.6% by weight of an oxide of a metal of Group V B of the periodic system, 1.5 to 81.8% by weight of an oxide of a metal of Group VI B of the periodic system, 1.64 to 89.8% by weight of pyridine or an alkyl-substituted pyridine.

4,267,071

CATALYST FOR HYDROTREATING RESIDUAL PETROLEUM OIL

Stephen B. Jaffe, Cherry Hill, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 8, 1977, Ser. No. 822,495

Int. Cl.[3] B01J *21/04, 23/84, 23/88, 27/04*

U.S. Cl. 252—439 7 Claims

1. A method of making a porous catalyst for hydrotreating residual petroleum oil in contact with hydrogen comprising:

measuring the size distribution of sulfur, nickel and vanadium-containing molecules in said residual oil,

determining from said measured size distribution the pore size distribution of a catalyst producing desired demetalization and desulfurization of said residual oil for specified process condition, and

producing an alumina having deposited thereon an oxide or a sulfide of a group VI-B metal and an iron group metal thereby forming said catalyst, said catalyst having a determined pore size distribution.

4,267,072

CATALYTIC CRACKING CATALYST WITH REDUCED EMISSION OF NOXIOUS GASES

Iacovos A. Vasalos, Downers Grove, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 20,634, Mar. 15, 1979, Pat. No. 4,206,039, which is a division of Ser. No. 748,556, Dec. 8, 1976, Pat. No. 4,153,534, which is a continuation-in-part of Ser. No. 642,542, Dec. 19, 1975, abandoned. This application Aug. 6, 1979, Ser. No. 63,704

The portion of the term of this patent subsequent to Aug. 19, 1997, has been disclaimed.

Int. Cl.[3] B01J *29/06*

U.S. Cl. 252—455 Z 11 Claims

1. A composition of matter comprising a particulate physical mixture of:

(a) a particulate solid cracking catalyst for cracking hydrocarbons comprising a crystalline aluminosilicate zeolite in association with a matrix, wherein the amount of said cracking catalyst is in excess of about 30 weight percent with respect to the particulate physical mixture; and

(b) a particulate solid other than said particulate cracking catalyst comprising at least one sodium containing compound in association with at least one inorganic oxide selected from the group consisting of silica and alumina, wherein the amount of sodium, calculated as the metal, is from about 50 parts per million to about 10 weight percent with respect to said particulate physical mixture, and said particulate solid other than cracking catalyst is substantially free of crystalline aluminosilicate zeolite.

2. The composition as set forth in claim 1 wherein the amount of sodium, calculated as the metal, is from about 0.6 to about 3 weight percent with respect to said particulate physical mixture.

3. The composition as set forth in claim 2 wherein said inorganic oxide is alumina.

4,267,073

ETHYLENE OXIDE CATALYST

Robert P. Nielsen, and Albert A. Jecminek, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 916,437, Jun. 19, 1978, abandoned, and a continuation-in-part of Ser. No. 816,569, Jul. 18, 1977, abandoned, which is a continuation of Ser. No. 652,603, Jan. 26, 1976, abandoned. This application Dec. 17, 1979, Ser. No. 104,229

Int. Cl.[3] B01J *23/08, 23/66*

U.S. Cl. 252—455 R 28 Claims

1. A catalyst for the production of ethylene oxide by the controlled incomplete oxidation of ethylene with molecular oxygen which comprises a porous refractory support having deposited on its exterior and interior pore surfaces metallic silver and compounds of thallium wherein the silver ranges from about 1 percent to about 25 percent by weight and the thallium concentration ranges from about 0.5×10^{-3} to about 1.5×10^{-3} gram atomic weight per kilogram (gaw/kg) of total catalyst.

7. The catalyst of claim 1 wherein the support comprises siliceous material.

8. A catalyst for the production of ethylene oxide by the controlled incomplete oxidation of ethylene with molecular oxygen consisting essentially of a porous alpha alumina support having a surface area of from about 0.03 m^2/g to about 5 m^2/g and having deposited on its exterior and pore surfaces from about 1 to about 25 percent by weight of silver and from about 0.5×10^{-3} to about 1.5×10^{-3} gaw/kg of total catalyst of thallium.

4,267,074

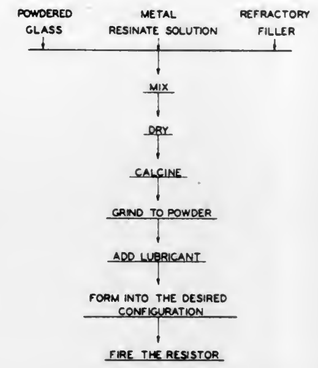
SELF SUPPORTING ELECTRICAL RESISTOR COMPOSED OF GLASS, REFRACTORY MATERIALS AND NOBLE METAL OXIDE

Curtis L. Holmes, Elkhart, Ind.; William M. Faber, Sr., Plano, Tex.; Gaylord L. Francis, Morristown, N.J., and Otis F. Boykin, Chicago, Ill., assignors to CTS Corporation, Elkhart, Ind.

Continuation of Ser. No. 506,449, Oct. 24, 1965, abandoned, which is a continuation of Ser. No. 169,355, Jan. 29, 1962, abandoned. This application Oct. 5, 1977, Ser. No. 839,756

Int. Cl.[3] H01B *1/00*

U.S. Cl. 252—514 6 Claims



1. An electrical resistor comprising a composition having a glass, at least 0.2 percent by weight of the total composition being a noble metal selected from the group consisting of iridium and ruthenium, said noble metal provided as a pyrolytically decomposable organo-metallic composition calcined to effect iridium oxide or ruthenium oxide and dispersed through the composition, and 30 percent to 70 percent by weight of the total composition of a finely divided refractory filler oxide selected from the group consisting of alumina and silica, the glass bonding the finely divided refractory filler oxide together, the refractory filler oxide being uniformly dispersed in the composition, said composition attaining consistent electrical resistor properties.

4,267,075

PERFUME COMPOSITIONS CONTAINING ESTERS OF 3,5,5-TRIMETHYLHEXANOIC ACID

Ulf-Armin Schaper, Düsseldorf; Jens Conrad, Hilden, and Klaus Bruns, Krefeld-Traar, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Dec. 13, 1978, Ser. No. 969,205

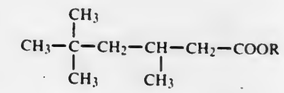
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1977, 2757559

The portion of the term of this patent subsequent to Dec. 21, 1995, has been disclaimed.

Int. Cl.[3] C11B *9/00;* A61K *7/46*

U.S. Cl. 252—522 R 5 Claims

1. A perfumery composition comprising from 1% to 50% by weight of an ester of 3,5,5-trimethylhexanoic acid of the formula



wherein R is a member selected from the group consisting of alkyl having from 1 to 5 carbon atoms, alkenyl having from 3

to 5 carbon atoms and alkynyl having from 3 to 5 carbon atoms, and the remainder customary constituents of perfumery compositions.

4,267,076

PREPARATION OF A CARYOPHYLLENE ALCOHOL MIXTURE IN PERFUME COMPOSITIONS

Braja D. Mookherjee, Holmdel; Cynthia J. Mussinan, Bricktown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J.; Jacob Kiwala, Brooklyn, N.Y., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 947,186, Sep. 29, 1978. This application Dec. 21, 1979, Ser. No. 105,924

Int. Cl.³ C11B *9/00;* **A11K** *7/46*

U.S. Cl. 252—522 R **1 Claim**

1. A process for augmenting or enhancing the aroma of a perfume composition comprising intimately admixing with a perfume composition which additionally comprises at least one material selected from the group consisting of hydrocarbons, alcohols other than caryophyllene alcohols or dihydro caryophyllene alcohols ketones, aldehydes, nitriles, esters, lactones, synthetic essential oils and natural essential oils, from 0.005% up to 70% by weight of the perfume composition prepared by the process which consists essentially of the steps of (i) intimately admixing aluminum isopropylate, toluene and a caryophyllene derivative selected from the group consisting of caryophyllene oxide and dihydro caryophyllene oxide to form a mixture; (ii) heating the resulting mixture at a temperature of from 100° C. up to 150° C. for a period of time of from 1 up to 5 hours; and (iii) recovering rearranged caryophyllene oxide or dihydro caryophyllene oxide, a mixture of alcohols, from the reaction mass; the concentration of aluminum isopropylate catalyst in the reaction mass varying from about 0.025 molar up to about 0.75 molar and the concentration of caryophyllene oxide or dihydro caryophyllene oxide in the reaction mass varying from about 0.25 molar up to about 1.00 molar.

4,267,077

DETERGENT COMPOSITION FOR DRY CLEANING

Yukihisa Niimi, Sakura, and Katsumi Saegusa, Funabashi, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

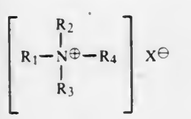
Filed Feb. 12, 1979, Ser. No. 11,753

Claims priority, application Japan, Feb. 15, 1978, 53-16318

Int. Cl.³ C11D *1/65, 7/28, 7/50*

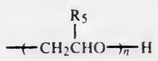
U.S. Cl. 252—545 **10 Claims**

1. A homogeneous, stable, liquid, detergent composition for dry cleaning consisting essentially of (A) 5 to 60% by weight of at least one quaternary ammonium salt of the formula (1):



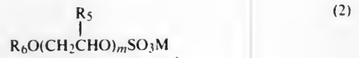
(1)

wherein R_1 is alkyl having 12 to 22 carbon atoms, R_2 and R_3, which are the same or different, each is alkyl having 1 to 3 carbon atoms or



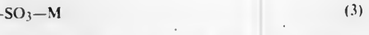
in which R_5 is hydrogen or methyl and n is an integer of from 1 to 3, R_4 is the same as R_2 or alkyl having 12 to 22 carbon atoms, and X is a halogen or monoalkyl sulfate group having 1 to 3 carbon atoms in the alkyl,

(B) 1 to 50% by weight of at least one anionic surfactant alkanolamine salt selected from the group consisting of compounds of the formula



(2)

wherein R_6 is alkyl having 10 to 20 carbon atoms, R_5 is hydrogen or methyl, m is an integer of from 0 to 5, and M is an alkanolamine counter ion derived from an alkanolamine having a boiling point higher than 200° C., and compounds of the formula



(3)

wherein R_7 is alkyl having 8 to 20 carbon atoms, Ar is phenylene or naphthylene, and M is said alkanolamine counter ion, and

(C) 5 to 80% by weight % of a dry cleaning solvent selected from the group consisting of tetrachloroethylene, trichloroethylene, trichloroethane, trifluorotrichloroethane and petroleum dry cleaning solvent, the weight ratio of component (A) to component (B) being in the range of from 100/5 to 100/60.

4,267,078

PROCESS FOR EASILY DEGRADING WASTE CONSISTING OF THE REACTION PRODUCTS OF ORGANIC COMPOUNDS CONTAINING ISOCYANATE GROUPS WITH ALCOHOLS AND/OR WATER

Werner Lidy, Essen; Gerd Rossmy, Haltern-Lavesum, and Hans-Joachim Kollmeier, Essen, all of Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 55,075

Claims priority, application Fed. Rep. of Germany, Aug. 5, 1978, 2834431

Int. Cl.³ C08J *11/00*

U.S. Cl. 260—2.3 **3 Claims**

1. A process for easily degrading waste composed of the reaction products of organic compounds containing isocyanate groups with alcohols or water, consisting essentially of mechanically comminuting the waste, reacting at least 20% by weight of an alkylene oxide selected from the group consisting of ethylene oxide, propylene oxide and mixtures thereof, based on the total weight of the waste, with the waste in a closed reactor at temperatures of from 120° C. to 200° C., and then removing any unreacted alkylene oxide.

4,267,079

CURED RUBBER SKIM COMPOSITIONS EXHIBITING BETTER HUMIDITY AGED METAL ADHESION AND METAL ADHESION RETENTION

James A. Davis, Uniontown, and Robert C. Koch, Akron, both of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Nov. 13, 1979, Ser. No. 93,463

Int. Cl.³ C08L *15/02*

U.S. Cl. 260—3.5 **4 Claims**

1. In a cured rubber skim stock composition containing natural rubber, having better adhesion and adhesion retention with metallic reinforcement embedded therein, the improvement wherein:

from about 5 to about 25 parts by weight of Neoprene is incorporated replacing an equivalent amount of the natural rubber.

4,267,080

POLYETHYLENE COMPOSITION FOR ROTATIONAL MOLDING

Takayuki Yokoyama, Tokyo; Yoshiaki Nakayama, Moriyama, and Yasuo Yasuda, Kawasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 28, 1979, Ser. No. 79,743

Claims priority, application Japan, Oct. 19, 1978, 53-127819

Int. Cl.³ C08L *23/06, 23/08, 23/28*

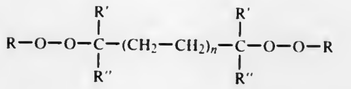
U.S. Cl. 260—4 R **9 Claims**

1. An ethylene polymer composition for rotational molding consisting essentially of

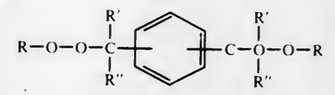
(a) an ethylene polymer containing at least 85% by weight of ethylene,

(b) 5 to 50% of an elastomer based on the weight of (a),

(c) a crosslinking agent of the formula:



(1) or



(2)

wherein n is 1 or 2, R is a tertiary alkyl group, and R′ and R″ each independently is an alkyl group, and (d) 50 to 500% based on the weight of (c) of at least one crosslinking aid selected from group consisting of 1,2-polybutadiene, triallyl cyanurate and triallyl isocyanurate.

4,267,081

HIGH SOLIDS POLYURETHANE COATINGS

James A. Seneker, Anaheim, Calif., assignor to Ameron, Inc., Monterey Park, Calif.

Filed Oct. 23, 1978, Ser. No. 953,696

Int. Cl.² C09D *3/64, 3/66, 3/72*

U.S. Cl. 260—22 TN **30 Claims**

1. A high solids polyol-containing component for reaction with an isocyanate-containing component for preparation of polyurethane resins, the polyol-containing component comprising the condensation product of:

(a) from about 70 to about 90 parts by weight castor oil;

(b) from about 5 to about 20 parts by weight pentaerythritol; and

(c) from about 5 to about 30 parts by weight of a condensation agent having a molecular weight of less than about 400 and selected from the group consisting of polycarboxylic acids having up to about 4 carboxyl groups, methyl and ethyl esters of such polycarboxylic acids, and combinations thereof,

wherein the solids content of the polyol-containing component is at least about 60% by weight, and the component has an average of at least 3 hydroxyl groups per molecule.

4,267,082

AIR-CROSS-LINKABLE POLYACRYLATE LACQUER BINDERS CONTAINING CHEMICALLY FIXED WOOD PRESERVATIVES

Rolf Dhein, Krefeld; Gerswid Poetter, Rheinberg, and Hans Rudolph, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,551

Claims priority, application Fed. Rep. of Germany, May 3, 1978, 2819340

Int. Cl.³ C09D *3/28, 3/80, 5/14*

U.S. Cl. 260—23 AR **3 Claims**

1. An air cross-linkable lacquer binder comprising a copolymer of copolymerised units of from 10 to 40% by weight of glycidyl acrylate, glycidyl methacrylate or a mixture thereof, and 70 to 10% by weight of at least one other vinyl monomer which has been reacted with, based in each case on the quantity of lacquer binder, from 0.01 to 30% by weight of at least one wood preservative having at least one glycidyl-reactive phenolic hydroxyl group and from 20 to 60% by weight of at least one air-drying natural or isomerised fatty acid and from 0 to 10% by weight of a dicarboxylic acid anhydride, said lacquer binder having an average molecular weight M_n of from 1500 to 15,000 measured in tetrahydrofuran by determining the lowering of vapor pressure and an acid number of 3 to 15.

4,267,083

HEAT-STABILIZED VINYL CHLORIDE POLYMERS

Jean-Claude Torloting, Saint-Auban, France, assignor to Rhone-Poulenc Industries, Paris, France

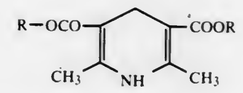
Filed May 11, 1979, Ser. No. 38,138

Claims priority, application France, May 12, 1979, 78 15156

Int. Cl.³ C08K *5/34*

U.S. Cl. 260—23 XA **17 Claims**

1. In a composition of matter comprising a vinyl chloride polymer and a heat-stabilizing amount of divalent metal salts of aliphatic or aromatic carboxylic acids or of phenols, the improvement which comprises, as a co-stabilizer therefor, a heat-stabilizing amount of (i) at least one organic β-diketone having the structural formula $R_1—CO—CHR_3—CO—R_2$ and (ii) a substituted dihydropyridine having the structural formula:



in which formulae R is alkyl or alicyclic having up to 20 carbon atoms, or phenyl, each R_1 and R_2, which can be identical or different, is a member selected from the group comprising hydrogen, a linear or branched chain alkyl or alkenyl radical having up to 36 carbon atoms, an aralkyl radical having from 7 to 36 carbon atoms, and an aryl or cycloaliphatic radical having up to 14 carbon atoms, with the proviso that R_1 and R_2 cannot both be hydrogen, and R_3 is hydrogen or —CO—X, wherein X is R, or —NH—Y, with Y being aryl, as above defined.

4,267,084

VINYL CHLORIDE POLYMER BLEND COMPOSITION

Yukio Mizutani; Katsuo Mitani, and Takashi Maehara, all of Tokuyama, Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi, Japan

Filed Oct. 2, 1979, Ser. No. 81,070

Claims priority, application Japan, Oct. 3, 1978, 53-121175

Int. Cl.³ C08L *27/06*

U.S. Cl. 260—23 XA **18 Claims**

1. A vinyl chloride polymer composition comprising an intimate mixture of a first vinyl chloride polymer containing a sulfide linkage and a hydroxyl group in the molecular chain, which is obtained by radical polymerization in the presence of, as a chain transfer agent, a mercaptoalkanol compound containing 2 or 3 carbon atoms, and a second vinyl chloride polymer having a higher molecular weight than the first polymer.

4,267,085

INJECTION MATERIALS FOR RAILROAD TRACK BEDS

Yasuo Katoh; Hideo Kakegawa, both of Tokyo; Shigeyuki Hayashi, Kawasaki, and Tadakazu Yamashita, Yokohama, all of Japan, assignors to Japanese National Railways and Nippon Oil Company, Ltd., both of Tokyo, Japan

Continuation-in-part of Ser. No. 708,117, Jul. 23, 1976, abandoned. This application Mar. 29, 1979, Ser. No. 25,056

Int. Cl.³ C08F *45/52;* **C08L** *91/00;* **B44D** *1/02*

U.S. Cl. 260—28.5 AS **4 Claims**

1. An injection material for railroad track bed and having a

compressive stress at 10% strain of 0.4–30 Kg/Cm^2 at a compressive strain at 40° C. of 1.5% per minute upon being cured, said injection material consisting of a member selected from (A) a composition of (a) 97–60 wt. % of blown asphalt having a penetration number of 10–30 at 25° C. and (b) 3–40 wt. % of (i) a paraffin wax having a melting point of 35°–200° C. or (ii) a microcrystalline wax having a melting point of 35°–200° C. and/or (iii) a low molecular weight C_{2-4} polyolefin having an average molecular weight of 500–8000 and a melt flow index of 0.1–100,000; and (B) a blend of (c) 99–80 wt. % of said composition (A) with (d) 1–20 wt. % of an ethylene-vinyl acetate copolymer having a melt flow index of 0.1–400 and a vinyl acetate content of 5–35 wt. % based on the total amount of the copolymer.

4,267,086

SACRAFICIAL BINDERS FOR MOLDING PARTICULATE SOLIDS

Robert A. Pett, Franklin; S. Burhan A. Qaderi, Livonia, both of Mich., and Ronald J. Tabar, Amherst, Mass., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 908,863, May 23, 1978, abandoned, which is a division of Ser. No. 810,458, Jun. 27, 1977, Pat. No. 4,158,688, which is a continuation-in-part of Ser. No. 644,400, Jan. 7, 1976, abandoned. This application Oct. 17, 1979, Ser. No. 86,002

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—28.5 R **9 Claims**

1. A moldable mixture for preparing sintered solids, comprising a mixture of sinterable particulate solids and a binder composition comprising an intimate mixture of about 10 to about 90 parts by weight of resinous material and about 90 to about 10 parts by weight of a plasticizer for said resinous material wherein

(1) said resinous material is a block polymer having the structural formula

$$X\text{-}\left[B\ (AB)\eta A\right]\text{-}\eta'$$

wherein "η" is 0 or a positive integer, "η'" is a positive integer greater than 2, "A" is a linear or branched polymer that is glassy or crystalline at 20°–25° C. and has its softening point in the range of about 80° C. to about 250° C. and "B" is a polymer of different chemical composition than A that behaves as an elastomer at temperatures between 5° C. below the softening point of A and about 120° C. above the softening point of A, and "X" is a multifunctional linking compound, A or B, and

(2) said plasticizer is selected from the group consisting of

(a) an oil at least 75 percent by weight of which boils in the range of about 550° F. to about 1038° F., has viscosity at 210° F. in the range of about 30 to about 220 Saybolt Universal Seconds and aniline point in the range of about 170° F. to about 255° F.,

(b) a wax melting at a temperature in the range of about 130° F. to about 170° F. at least 75 percent by weight of which boils at temperatures in the range of about 600° F. to about 900° F., and

(c) an oil in accordance with (a) and a wax in accordance with (b).

4,267,087

PERFLUOROALKYL SUBSTITUTED ANHYDRIDES AND POLYACIDS, AND DERIVATIVES THEREOF

Karl F. Mueller, New York, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 828,461, Aug. 29, 1977, Pat. No. 4,153,590, which is a division of Ser. No. 646,689, Jan. 5, 1976, Pat. No. 4,058,537. This application Feb. 16, 1979, Ser. No. 12,611

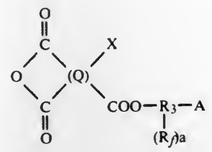
Int. Cl.³ C08L *63/00*

U.S. Cl. 260—29.2 EP **10 Claims**

1. A method for improving the coating of substrates by a water based coating formulation of a water soluble, crosslinkable resin containing polyethylene oxide segments as water solubilizing units and being derived from diepoxides, said formulation containing an ionic fluorinated surfactant, which comprises

adding an effective amount of a water-soluble or water-dispersible, resin-compatible product obtained by reacting

(a) an R_f containing anhydride of the formula I



(I)

wherein

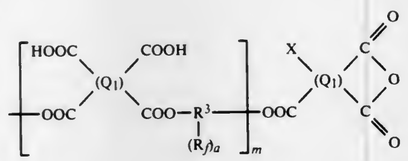
Q is a tetraradical of a tricarboxylic or tetracarboxylic acid selected from the group consisting of trimellitic acid, 3,3',4,4'-benzophenonetetracarboxylic acid and 1,2,4,5-benzenetetracarboxylic acid,

X is hydrogen or carboxy;

R_f is perfluoroalkyl of 6 to 18 carbon atoms;

a is 1 or 2;

A is hydrogen or group II;

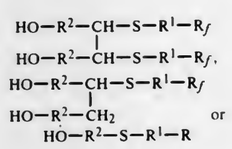


(II);

m is 0;

Q_1 is the same as Q, and

R^3 is the residue of an R_f substituted aliphatic alcohol or diol of the structure



where R^1 is a branched or straight chain alkylene of 1 to 12 carbon atoms, alkylenethioalkylene of 4 to 12 carbon atoms, alkyleneoxyalkylene of 4 to 12 carbon atoms or alkyleneiminoalkylene of 4 to 12 carbon atoms where the nitrogen atom contains as the third substituent hydrogen or alkyl of 1 to 6 carbon atoms; and

R^2 is straight or branched chain alkylene of 1 to 12 carbon atoms or an alkylenepolyoxyalkylene of the formula $C_nH_{2n}(OC_kH_{2k})_r$ where n is 1 or 12, k is 2 to 6 and r is 1 to 40; with

(b) a tertiary amine containing compound selected from the group consisting of N,N-dimethylpropane-1,3-diamine; N-methyl-di-(3-aminopropyl)amine; 1,4-bis(3-aminopropyl)piperazine; N,N-diethylpropane-1,3-diamine; N,N,N'-trimethyl-1,2-ethylenediamine; and n-(3-aminopropyl)morpholine; in the ratio of one mole of the tertiary amine containing compound (b) used for each mole of anhydride group of R_f containing compound (a); with the mol ratio of carboxy/R_f groups in the product being 1 to 4; to said formulation.

4,267,088

SOLVENT RESISTANT INKS AND COATINGS

Paul S. Kempf, P.O. Box 690, Solana Beach, Calif. 92075, assignor to Paul S. Kempf, Trustee or Successor Trustee

Filed Sep. 13, 1979, Ser. No. 74,980

Int. Cl.³ C08L *79/00, 63/00*

U.S. Cl. 260—29.2 EP **6 Claims**

1. A composition for depositing an organic solvent-resistant, water-removable coating comprising a solution in water of from about 3.2 to about 6.9 parts by weight of an epichlorhydrin-modified polyethylenimine (I) and one part by weight of an ethylene oxide-modified polyethlenimine (II).

4,267,089

ADHERENT, FLAME-RESISTANT ACRYLIC DECORATIVE COATING COMPOSITION FOR WALL BOARD AND THE LIKE

William F. Brown, Wausau, Wis., assignor to Weston Research Corporation, Wausau, Wis.

Filed Nov. 9, 1978, Ser. No. 959,309

Int. Cl.³ C08L *33/08*

U.S. Cl. 260—29.6 MM **3 Claims**

1. A coating composition for covering the surface of a substrate and providing an adherent, flame-resistant coating thereon comprising an aqueous dispersion containing nepheline syenite, aluminum hydrate, sodium silicate, wollastonite, titanium dioxide, an acrylic resin, zinc oxide, and hydrated magnesium aluminum silicate.

4,267,090

PROCESS FOR PREPARING VINYL ACETATE-ETHYLENE COPOLYMER LATICES

Manfred Heimberg, Cincinnati, and Louis J. Rekers, Wyoming, both of Ohio, assignors to National Distillers and Chemical Corp., New York, N.Y.

Filed Jan. 22, 1979, Ser. No. 5,070

Int. Cl.³ C08L *23/08, 31/04*

U.S. Cl. 260—29.6 R **8 Claims**

1. A process for preparing vinyl acetate-ethylene copolymer latices having an inherent viscosity of not less than about 1.90 measured upon solution of 0.250 gm of latex in 50–75 ml of 80% weight aqueous acetic acid heated to 50°–60° C., and demonstrating superior performance in the Time of Set Test and Vinyl Wetting Test which comprises copolymerizing from about 60% to about 95% by weight of vinyl acetate monomer with from about 40% to about 5% by weight of ethylene monomer is an emulsified reaction medium containing:

(a) at least one surface active agent in an amount of not less than 1.0% by weight, and not more than 2.0% by weight, of the total monomer,

(b) a catalyst, and

(c) a protective colloid, the total weight of the surface active agent and vinyl acetate monomer being introduced into the reaction medium in delayed increments prior to and after the commencement of copolymerization.

4,267,091

BINDERS FOR PAINTS

Hans J. Geelhaar, Frankenthal; Erich Penzel, Ludwigshafen, and Gregor Ley, Wattenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,928

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1978, 2819092

Int. Cl.³ C08K *5/17*

U.S. Cl. 260—29.6 TA **5 Claims**

1. A binder for paints and pebble dash renderings, which comprises

(A) an aqueous emulsion, of from 20 to 70% strength, of a copolymer A, having a glass transition temperature of 0°–50° C., of

(a) a monomer from the group comprising methyl methacrylate, styrene, vinyl acetate, tert.-butyl acrylate and vinyl chloride, with or without acrylonitrile and

(b) a monomer from the group comprising alkyl methacrylates, where alkyl is of 2 to 8 carbon atoms, alkyl acrylates, where alkyl is of 2 to 8 carbon atoms, and/or vinyl propionate, which additionally contains, as copolymerized units,

(c) from 0.5 to 10%, of its weight, of a monomer from the group comprising monoolefinically unsaturated monocarboxylic acids of 3 to 5 carbon atoms, monoolefinically unsaturated dicarboxylic acids of 4 or 5 carbon atoms, amides of monoolefinically unsaturated monocarboxylic acids of 3 to 5 carbon atoms, amides of monoolefinically unsaturated dicarboxylic acids of 4 or 5 carbon atoms and N-alkylolamides of monocarboxylic acids of 3 to 5 carbon atoms and

(d) from 0.5 to 10%, of its weight, of monomers containing carbonyl groups,

(B) from 0.05 to 1 mole, per mole of carbonyl groups present in the copolymer A, of a water-soluble aliphatic dihydrazine compound and

(C) from 0.0002 to 0.02 mole, per mole of dihydrazine compound, of a water-soluble salt of a metal from the group comprising zinc, manganese, cobalt and lead.

4,267,092

FILLER COMPOSITION COMPRISING A FILLER AND AN AQUEOUS BINDER RESIN EMULSION COMPRISING A QUICK DRYING POLYMER EMULSION AND A FLEXIBLE POLYMER EMULSION

Denis V. Glaser, London, and Norman Heeley, Hitchin, both of England, assignors to Polycell Products Limited, Hertfordshire, England

Filed Jun. 21, 1979, Ser. No. 50,608

Claims priority, application United Kingdom, Jun. 23, 1978, 27782/78

Int. Cl.³ C08L *33.08*

U.S. Cl. 260—29.6 RB **6 Claims**

1. A filler composition comprising, (i) 60 to 85% by weight of a particulate filler selected from the mineral group consisting of silica, dolomite and calcite, or mixtures of any thereof, said particulate filler being of such particle size that at least 95% of the filler passes a 150 μm sieve, at least 50% by weight passes a 53 μm sieve, and having a weight average particle size of at least 20 μm, and correspondingly (ii) 40 to 15% by weight of an aqueous binder resin emulsion of solids content 40 to 70% by weight, said binder resin emulsion comprising (a) a quick drying polymer emulsion having a minimum film forming temperature above 5° C. and (b) a flexible polymer emulsion having a minimum film forming temperature below 5° C., the amount of polymer in said emulsion of minimum film forming temperature above 5° C. being 60 to 90% by weight of the total weight of the polymers in said emulsions, said composition being hardenable to provide a crack-and-weather-resistant finish which can be abraded, for example by sanding.

4,267,093

AQUEOUS SUSPENSION OF INORGANIC OXIDIC MATERIAL

Horst Hanisch, Niederkassel-Mondorf; Karl-Martin Rödder, Troisdorf-Spich; Robert Büning, Troisdorf-Sieglar, and Hans-Jürgen Hass, Troisdorf-Spich, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 59,878

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832111

Int. Cl.³ C08L *33/02*

U.S. Cl. 260—29.6 H **1 Claim**

1. Aqueous filler suspension composed of inorganic oxide material and a dispersing agent, characterized in that it con-

tains as a dispersing agent an aqueous solution of maleic acid-vinyl alkoxysilane copolymer.

4,267,094

AQUEOUS POLYMER MIXTURE, PROCESS FOR ITS PREPARATION AND ITS USE AS SUBSTRATE ANCHORING, BLOCKING RESISTANT ONE-COAT SEALING LACQUER ON SHEET PRODUCTS

Helmut Huhn, Walsrode, and Werner Karstens, Fallingbostel, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,367

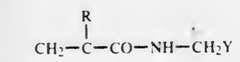
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 2906118

Int. Cl.³ C08L *27/08*

U.S. Cl. 260—29.6 RW **14 Claims**

1. An aqueous polymer mixture of at least two components containing a vinylidene halide copolymer for the preparation of heat-sealing one layer coatings comprising

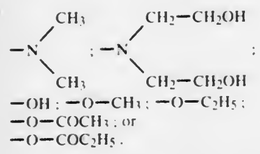
I component A which containins the vinylidene halide compolymer and is present in the form of an acid aqueous dispersion and consists of micronuclear shell structures comprising a copolymer which forms the nuclear portion which copolymer consists of recurrent structural units derived from a monomer mixture of 10 to 57% by weight of methyl acrylate and/or 5 to 30% by weight of ethyl acrylate and/or 1 to 5% by weight of acrylic acid and/or 15 to 30% by weight of methacrylic acid-n-butyl ester and/or 15 to 30% by weight of methyl methacrylate and the amount of vinylidene halide necessary to make up the percentage by weight to 100, and a copolymer forming the shell portion, consisting of recurrent structural units derived from a monomer mixture of 1 to 14% by weight of methyl acrylate and/or 1 to 14% by weight of methyl methacrylate and/or 1 to 14% by weight of ethyl methacrylate and/or 1 to 14% by weight of ethyl hexyl acrylate and/or 1 to 14% by weight of acrylic acid-n-butyl ester and/or 1 to 14% by weight of methacrylic acid-n-butyl ester and 0.1 to 5% by weight of itaconic acid and the quantity of vinylidene halide required to make up this monomer mixture to 100% by weight but not amounting to more than 95% by weight thereof based on 100% of the total monomer mixture and II of a component B, which is a polymeric anchoring substance containing functional groups and which is added in form of an alkaline aqueous solution and consists of homopolymers and/or copolymers derived from unsaturated carboxylic acid amid-N-methylol derivatives corresponding to the general formula



in which

R represents —H or —CH_3

and Y represents



—OH ; —O—CH_3 ; —O—C_2H_5 ; —O—$COCH_3$; or —O—COC_2H_5 .

4,267,095

RESIN COMPOSITION

Clara J. del Valle, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 26, 1978, Ser. No. 955,040

Int. Cl.³ C08L *63/00, 67/06;* **C08K** *3/20, 3/26*

U.S. Cl. 260—40 R **19 Claims**

1. A resin composition comprising: an organic resin selected from the group consisting of polyester, vinylester and mixtures thereof, an organic halogenated flame retardant incorporated within said organic resin so that halogen atoms are bonded to said organic resin in an amount sufficient to impart flame retardancy to said organic resin, and a synergistic smoke suppressive filler of calcium carbonate and alumina trihydrate.

4,267,096

COMPOSITION OF A SELECTIVELY HYDROGENATED BLOCK COPOLYMER OF A VINYL AROMATIC COMPOUND AND A DIOLEFIN, A POLYCARBONATE AND AN AMORPHOUS POLYESTER

Jan Bussink, Bergen op Zoom, and Jean M. H. Heuschen, Halsteren, both of Netherlands, assignors to General Electric Company, Pittsfield, Mass.

Filed Nov. 9, 1979, Ser. No. 93,129

Int. Cl.³ C08L *53/02, 69/00*

U.S. Cl. 260—40 R **11 Claims**

1. A thermoplastic composition comprising an intimate blend of:

(a) from about 0.1 to about 6 parts by weight of a selectively hydrogenated linear, sequential or radial teleblock copolymer of a vinyl aromatic compound $(A)_n$ and $(A)_n^1$ and a diolefin (B), of the A-B-A^1; A-(B-A-B)$_n$-A; $A(BA)_nB$; $(A)_4B$; $B(A)_4$; or $B[(AB)_nB]_4$ type, wherein n is an integer of from 1 to 10;

(b) from about 65 to about 97.5 parts by weight of an aromatic polycarbonate resin; and

(c) from about 1 to about 30 parts by weight of an essentially amorphous polyester resin.

4,267,097

MATERIAL FOR DENTAL PURPOSES

Rudy Michl, and Peter Wollwage, both of Mauren, Liechtenstein, assignors to Perdent, GmbH., Schaan, Liechtenstein

Filed Jan. 23, 1975, Ser. No. 543,532

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1974, 2403211

Int. Cl.³ C08K *3/36, 9/06*

U.S. Cl. 260—42.15 **9 Claims**

1. A composition for dental uses, such as prostheses, filing materials or the like, comprising:

a first component comprising a monomeric binding material selected from a member of the group consisting of (a) long chain monomer esters of bisphenol A and glycidyl methacrylates, (b) adducts of diisocyanates and hydroxymethylacrylates, (c) difunctional esters of acrylic and methacrylic acids, and (d) mixtures of two, or of three of (a), (b) and (c), and

a second component comprising a micro-fine inorganic filler being present in an amount of about 50 to 90% based on the weight of said composition and having a particle size within the range of about 10 to 400 millimicrons and a BET surface area of less than about 200 m^2/g, wherein at least 50% of the filler particles have a particle size within the range of 10 to 40 millimicrons, in admixture with at least one bead or chip polymer of the group consisting of polyvinylchloride and copolymers thereof, polystyrene and copolymers thereof, polyamides, polymeric acrylates and polymeric methacrylates.

4,267,098

STABILIZED COPOLYMERS BASED ON ETHYLENE AND TETRAFLUOROETHYLENE, AND PROCESSES FOR THEIR PREPARATION

Robert Hartwimmer, and Jürgen Kuhls, both of Burghausen, Salzach, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 19, 1979, Ser. No. 4,708

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1978, 2802916

Int. Cl.³ C08K *5/51, 5/52*

U.S. Cl. 260—45.75 W **12 Claims**

1. A mixture comprising:

(a) 99.999 to 98% by weight, calculated on the mixture, of at least one ethylene-tetrafluoroethylene copolymer which in addition to polymerized ethylene and tetrafluoroethylene units can contain further polymerized units, derived from monomers which are copolymerizable with tetrafluoroethylene, and

(b) 0.001 to 2% by weight, calculated on the mixture, of at least one metal salt of an acid of phosphorus selected from the group consisting of phosphorous acid $H_2(HPO_3)$, diphosphorous acid $H_2(H_2P_2O_5)$, hypodiphosphorous acid $H_2(H_2P_2O_4)$, and hypophosphorous acid $H(H_2PO_2)$, or mixtures thereof wherein the cation of that metal salt is a metal cation of the first to third main group of the periodic table of the elements, zinc or manganese.

4,267,099

PROCESS FOR PREPARING AQUEOUS DISPERSION OF ROSIN-BASE MATERIALS

Toshiharu Okumichi, Suita, and Kimio Kawatani, Daito, both of Japan, assignors to Arakawa Kagaku Kogyo Kabushiki Kaisha, Japan

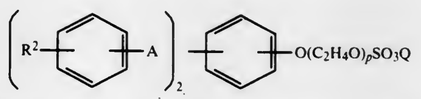
Filed Jan. 21, 1980, Ser. No. 113,604

Claims priority, application Japan, Dec. 28, 1978, 53-161560; Feb. 7, 1979, 54-13516; Feb. 28, 1979, 54-23631; Mar. 28, 1979, 54-37567

Int. Cl.³ C09F *1/04;* **C08L** *93/04*

U.S. Cl. 260—101 **4 Claims**

1. A process for preparing an aqueous dispersion of a rosin-base material by mixing together a melt of the rosin-base material, a dispersant and water to obtain a dispersion comprising a continuous phase of the rosin-base material and a dispersed phase of the water, and adding water to the dispersion to invert the dispersion to the contemplated aqueous dispersion comprising a dispersed phase of the rosin-base material and a continuous phase of the water, said rosin-base material comprising 0 to 95% by weight of rosins and 5 to 100% by weight of fortified rosins, the process being characterized in that the dispersant is at least one salt of sulfuric acid half ester represented by the formula



wherein R^2 is hydrogen or lower alkyl, A is straight-chain or branched-chain alkylene having 2 to 3 carbon atoms, p is an integer of 4 to 25, and Q is a monovalent cation.

4,267,100

PROCESS FOR FORMING AN EGG WHITE SUBSTITUTE

Pei K. Chang, Montrose, and Mary C. Concilio-Nolan, New York, both of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 582,489, May 30, 1975, abandoned. This application Sep. 28, 1977, Ser. No. 837,119

Int. Cl.³ A23J *1/20*

U.S. Cl. 260—112 R **10 Claims**

1. A process for forming an egg white substitute which consists of adjusting the pH of a solution containing a whey protein to a value of from about 11 to about 13, thereafter reducing the pH of the solution to a value of from about 4.0 to about 6.0 to thereby yield a water solution of a modified whey product and insoluble whey solids, and separating the water solution of the modified whey product to yield said water solution as the egg white substitute.

4,267,101

PROCESS FOR OBTAINING HUMAN RELAXIN FROM FETAL MEMBRANES

Mario Bigazzi, Florence, Italy, assignor to Serono Laboratories Inc., Braintree, Mass.

Filed Feb. 1, 1980, Ser. No. 117,444

Int. Cl.³ A61K *35/48, 35/54*

U.S. Cl. 260—112 R **6 Claims**

1. A process for obtaining human Relaxin which comprises the steps of:

(a) mincing and homogenizing human fetal membranes; and

(b) precipitating and discarding the tissue residues and the heaviest cellular organelles to obtain a crude Relaxin extract.

5. In a process of obtaining human Relaxin by recovery from human source material, the improvment which comprises employing fetal membranes as said source material.

4,267,102

BLEOMYCIN GROUP ANTIBIOTICS

Akio Fujii, Kamakura; Takeyo Fukuoka, Tokyo; Yasuhiko Muraoka, Kitamoto; Tomohisa Takita, Asaka, and Hamao Umezawa, Tokyo, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

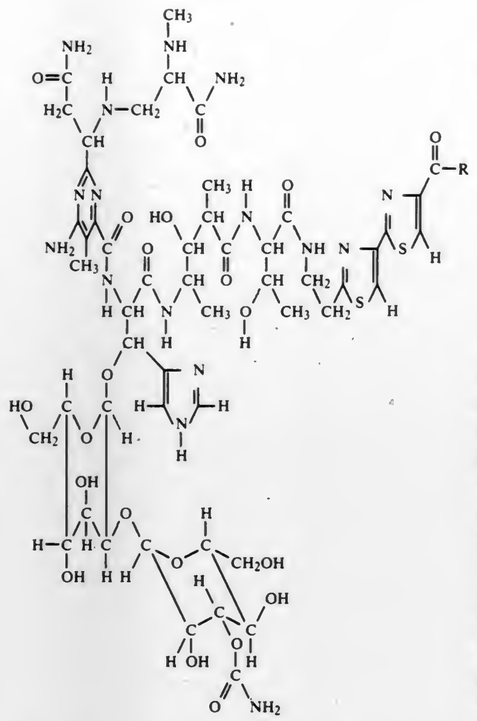
Filed Feb. 29, 1980, Ser. No. 126,123

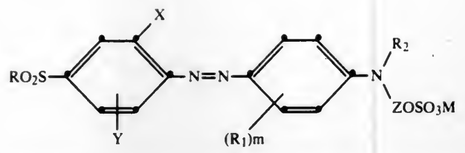
Claims priority, application Japan, Mar. 5, 1979, 54-24555; Mar. 5, 1979, 54-24556

Int. Cl.³ C07C *103/52;* **A61K** *37/00*

U.S. Cl. 260—112.5 R **8 Claims**

1. A N-methylbleomycin represented by the general formula





wherein R is selected from alkoxy, aryl, cycloalkyl, aryloxy, NH_2, NH alkyl, NH aryl, N(alkyl)$_2$, N(alkyl)aryl,



alkyl, and alkyl substituted with 1–3 groups selected from hydroxy, phenyl, alkoxy, alkoxyalkoxy, alkanoylamino, and alkanoyloxy; X is hydrogen, halogen, alkyl, or alkoxy; Y is hydrogen or halogen; R_1 is selected from hydrogen, alkyl, alkoxy, halogen, acylamido, alkylthio, and aryloxy; R_2 is selected from hydrogen, aryl, cycloalkyl, and alkyl; m is 0, 1, or 2; M is Na^+, K^+, H^+, or NH_4^+; Z is selected from straight or branched chain alkylene, and such alkylene substituted with aryl, halogen, OSO_3M, alkoxy, or aryloxy, $-CH_2(CH_2)_nX-$ $-CH_2(CH_2)-_p$, where n is 1, 2 or 3, p is 0, 1, 2 or 3, and X is O, S, SO_2, $-SO_2NH-$, $-SO_2N(alkyl)-$, $SO_2N(aryl)-$, $-N(SO_2$ aryl)—, —NHCO—, —NHCONH—, $-N(SO_2$ alkyl)—, and —CON(alkyl)—; wherein in all of the above groups containing alkyl, alkylene, or cyclic radicals, such radicals bear from 0—3 substituents selected from hydroxy, alkoxy, aryl, aryloxy, cyclohexyl, furyl, alkylcyclohexyl, aroyloxy, alkoxycarbonyl, alkanoyloxy, sulfamoyl, $SO_2NH(aryl)$, $SO_2NH(alkyl)$, $SO_2N(dialkyl)$, NHCOO(alkyl), NHCONH(alkyl), alkanoylamino, lower alkylsulfonamido, succinimido, glutarimido, phthalimido, 2-pyrrolidono, cyano, carbamoyl, alkylcarbamoyl, alkoxyalkoxy, alkylthio, halogen, arylthio, alkylsulfonyl, and arylsulfonyl; wherein the alkyl or alkylene moieties of the above groups are straight or branched of 1–6 carbons; and wherein the aryl moieties of the above groups are of 6–12 carbons.

(wherein R represents a terminal amine moiety of bleomycins), a copper complex thereof, and a non-toxic salt thereof.

4,267,103

SOLVENT POLYMERIZATION OF CARBOXYL CONTAINING MONOMERS

Louis Cohen, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Dec. 7, 1978, Ser. No. 967,447

Int. Cl.[3] **C08F** *2/06;* **C08L** *1/02, 1/00*

U.S. Cl. 260—17.4 UC **24 Claims**

1. A process for preparing polymers of olefinically unsaturated polymerizable carboxylic acid monomers in a solvent consisting essentially of a moderate to strongly hydrogen bonded solvent having a hydrogen bonding number from about 0.7 to 1.7 and solubility parameters of greater than about 8 up to about 15 which comprises converting at least three weight percent of said carboxylic acid monomer to a salt by reaction with an alkali, ammonia or amine and wherein said acid monomer comprises at least 70 weight percent of total monomers being polymerized in said solvent.

4,267,104

DYES FROM SELECTED SUBSTITUTED ANILINE DIAZO COMPONENTS AND ANILINE COUPLERS CONTAINING SULFATE ESTER GROUPS

Ralph R. Giles, and Max A. Weaver, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 14, 1979, Ser. No. 48,562

Int. Cl.[3] **C09B** *29/033, 29/036, 29/085, 29/26*

U.S. Cl. 260—207.3 **6 Claims**

1. A compound of the formula:

4,267,105

PROCESS FOR THE RAPID COOLING OF GASES WHICH CONTAIN CAPROLACTAM VAPOR

Uwe Brand, Rosengarten; Hugo Fuchs, Ludwigshafen, and Ruediger Schmitz, Lambsheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 9, 1980, Ser. No. 138,545

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1979, 2916415

Int. Cl.[3] **C07D** *201/16*

U.S. Cl. 260—239.3 A **6 Claims**

1. A method for rapidly cooling gases which contain caprolactam vapor produced by catalytic rearrangement of cyclohexanone-oxime in the gas phase in the presence of a supported catalyst containing boric acid, in a cooling zone, which comprises;

(a) feeding a finely divided liquid coolant at a temperature of from 90° to 200° C. into the cooling zone from above;

(b) injecting the gases containing caprolactam vapor at 330° to 400° C. radially, at high velocity, through nozzle orifices into the cooling zone at locations downstream from the liquid coolant feed;

(c) mixing thoroughly the gases containing caprolactam vapor with the finely divided liquid coolant to cool said gases to a temperature of from 100° to 200° C.; and

(d) discharging the cooled mixture of gases and coolant from the cooling zone.

4,267,106

NEW PROCESS FOR THE PREPARATION 17β-HYDROXY-3-OXO-17α-PREGNENE AND PREGNADIENE-21-CARBOXYLIC ACID γ-LACTONES

Arthur F. Marx, Delft; Peter M. Smid, Bleiswijk, and Pieter Vellekoop, The Hague, all of Netherlands, assignors to Gist Brocades N.V., Delft, Netherlands

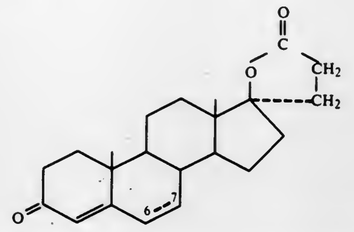
Filed Aug. 15, 1979, Ser. No. 66,854

Claims priority, application United Kingdom, Aug. 15, 1978, 33384/78

Int. Cl.[3] **C07J** *71/00, 73/00*

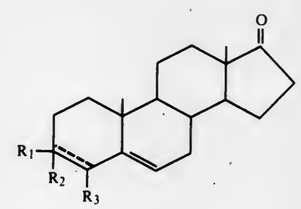
U.S. Cl. 260—239.57 **14 Claims**

1. A process for the preparation of 17β-hydroxy-3-oxo-17α-pregn-4-ene-21-carboxylic acid γ-lactone and 17β-hydroxy-3-oxo-17α-pregna-4,6-diene-21-carboxylic acid γ-lactone of the formula:



I

wherein the dotted line between the 6–7 positions indicates an optional double bond, the double bond being present in the latter compound, which comprises reacting an androst-5-ene-17-one of the formula:



III

wherein:

(i) R_1 represents a group $-OR_4$, in which R_4 represents a hydrogen atom, an alkyl or methoxyalkyl group or a 2-tetrahydropyranyl group or a 2-tetrahydrofuryl group, and

R_2 and R_3 each represent a hydrogen atom; or

(ii) R_1 and R_2 are the same or different and each represents an alkoxy group or R_1 and R_2 together represent an alkylenedioxy group having 2 or 3 carbon atoms in the alkylene moiety, and

R_3 represents a hydrogen atom, or

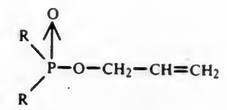
(iii) R_1 represents an alkoxy or methoxyalkoxy group or a group



wherein R_7 and R_8 are the same or different and each represents an alkyl group, or R_7 and R_8 together with the nitrogen atom to which they are attached represent a 5- or 6-membered heterocyclic group, which may contain a further hetero atom in the ring, and

R_2 and R_3 together represent an additional bond in the 3-4 position

with an organo-phosphorus compound of the formula:

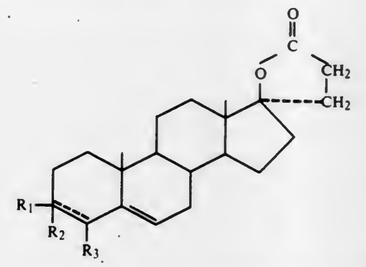


IV

wherein:

R represents a group —OR′ in which R′ represents an alkyl group, or

R represents a group $-N(R'')_2$ in which R″ represents an alkyl group or $-N(R'')_2$ represents a 5- or 6-membered heterocyclic group, which may contain a further hetero atom in the ring, wherein alkyl moieties in all of said formulas contain no more than 6 carbon atoms, in an organic medium at a temperature between about −90° and +50° C. in the presence of a strong base to obtain a corresponding γ-lactone of the formula:



V

wherein R_1, R_2 and R_3 are as hereinbefore defined, and converting the compound thus obtained into the 3-oxo-pregn-4-ene-21-carboxylic acid γ-lactone or 3-oxo-pregna-4,6-diene-21-carboxylic acid γ-lactone of formula I.

4,267,107

REACTIVE DYESTUFFS

Manfred Groll, Cologne, and Klaus Wunderlich, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

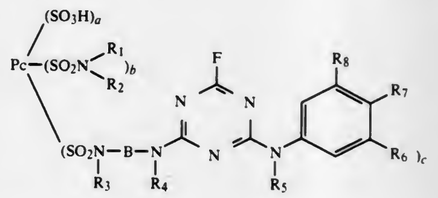
Continuation of Ser. No. 919,312, Jun. 26, 1978, abandoned. This application May 29, 1979, Ser. No. 43,120

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1977, 2729011

Int. Cl.[3] **C09B** *47/04*

U.S. Cl. 260—242.2 **3 Claims**

1. Phthalocyanine reactive dyestuffs of the formula



wherein

Pc = the radical of a copper phthalocyanine or nickel phthalocyanine,

R_1, R_2, R_3 and R_4 = hydrogen, methyl or ethyl,

R_5 = hydrogen,

B = 1,2-phenylene, 1,3-phenylene, 1,4-phenylene or C_2–C_6-alkylene (straight-chain or branched), optionally C_1–C_4-alkyl, C_1–C_4-alkyl or halogen atoms substituted, R_6, R_7 and R_8 = hydrogen, methyl, ethyl, methoxy, SO_3H or

COOH, at least one of these radicals being SO_3H or COOH,
a=1 to 3,
b=1 to 2,
c=1 and
a+b+c=3 to 4.

4,267,108
HYDROXYALKANE DIPHOSPHONIC ACIDS

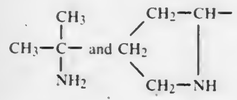
Helmut Blum, Düsseldorf; Hans-Ulrich Hempel, Overath, and Karl-Heinz Worms, Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Sep. 21, 1978, Ser. No. 944,603
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1977, 2745083
Int. Cl.³ C07D *207/12;* **C07F** *9/02*
U.S. Cl. 260—326.61 **3 Claims**

1. An hydroxyalkane diphosphonic compound selected from the group consisting of (A) acids having the formula



wherein X is a member selected from the group consisting of



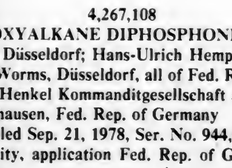
and (B) a non-toxic pharmacologically-acceptable water-soluble salt thereof.

4,267,109
CYCLIC PERKETALS AND THEIR USE FOR CROSS-LINKING HIGH DENSITY POLYETHYLENE

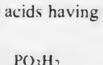
Pastorino, Ronald L., Larkspur, and Roger N. Lewis, Martinez, both of Calif., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Division of Ser. No. 772,407, Feb. 28, 1977, which is a division of Ser. No. 688,874, May 21, 1976, which is a continuation-in-part of Ser. No. 591,783, Jun. 30, 1975, abandoned. This application Jul. 31, 1978, Ser. No. 929,160
Int. Cl.³ C07D *323/00*
U.S. Cl. 260—338 **7 Claims**

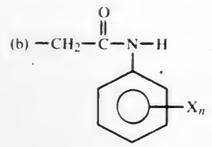
1. An organic peroxide of the formula:



wherein each of R_2 and R_3 is selected from methyl and ethyl; R_1 is selected from



and

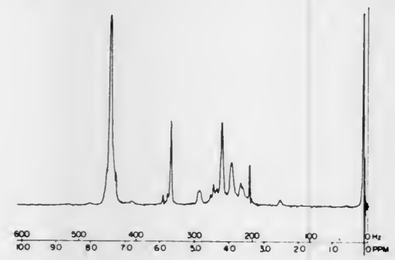


where n=0 to 3 and X is lower alkyl or alkoxy of up to about 5 carbon atoms.

4,267,110
PROCESS FOR PREPARING DIBENZYLIDENESORBITOL AND COMPOSITION CONTAINING THE SAME

Hiroshi Uchiyama, Hirakata, Japan, assignor to E.C. Chemical Ind. Co., Ltd. and C. Itoh & Co., Ltd., both of Osaka, Japan

Filed Aug. 29, 1979, Ser. No. 70,833
Claims priority, application Japan, Nov. 29, 1978, 53-146587; May 30, 1979, 54-661036
Int. Cl.³ C07D *319/04*
U.S. Cl. 260—340.7 **5 Claims**



1. In a process for preparing dibenzylidenesorbitol by dehydrocondensation of 1 mol of sorbitol with 2 mols of benzaldehyde in the presence of an acid catalyst, the improvement in which the reaction is carried out in two stages; the first-stage reaction comprising reacting, at a temperature of 50° to 70° C., benzaldehyde with an aqueous solution of sorbitol having a sorbitol concentration of at least 70%, in the presence of 0.03 to 0.5 part by weight of an acid catalyst per part by weight of sorbitol; the first-stage reaction being shifted to the second-stage reaction by adding water, as a reaction medium, and an additional amount of an acid catalyst to the first-stage reaction mixture when the conversion of sorbitol to dibenzylidenesorbitol reaches 10 to 40% in the first-stage reaction, the amount of the added water being such that the amount of water in the reaction system during the second-stage reaction is at least 2.5 parts by weight per part by weight of sorbitol charged to the first-stage reaction, the amount of the additional acid catalyst being 0.02 to 0.5 part by weight per part by weight of sorbitol charged to the first stage-reaction; the second-stage reaction comprising reacting the resultant mixture in the suspended state at a temperature of 15° to 25° C.; the resulting dibenzylidenesorbitol being obtained as an aqueous suspension thereof.

4,267,111
PROCESS FOR PREPARING β-(3-EXO-HYDROXY-ENDO-2,3-DIMETHYL-2-NORBORNYL)-PROPIONIC ACID δ-LACTONE

Brian J. Willis, Bergenfield; Philip A. Christenson, Midland Park, both of N.J., and Derek H. R. Barton, Gif-sur-Yvette, France, assignors to Fritzsche Dodge & Olcott Inc., New York, N.Y.

Division of Ser. No. 877,759, Feb. 14, 1978. This application Jun. 7, 1979, Ser. No. 46,481
Int. Cl.³ C07D *311/94*
U.S. Cl. 260—343.21 **7 Claims**

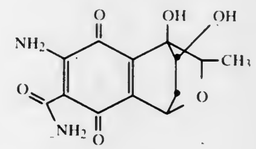
1. A method of preparing β-(3-exo-hydroxy-endo-2,3-dimethyl-2-norbornyl)-propionic acid δ-lactone which comprises treating β-(2-exo-hydroxy-3,3-dimethyl-2-norbornyl)-propionic acid γ-lactone and its endo isomer with an acid capable of effecting rearrangement under suitable conditions of temperature and time.

4,267,112
ANTIBIOTIC U-58,431

Fritz Reusser, Portage, and Libor Slechta, Kalamazoo, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 34,247, Apr. 30, 1979, abandoned. This application Sep. 27, 1979, Ser. No. 79,446
Int. Cl.³ C07D *311/74*
U.S. Cl. 260—345.2 **4 Claims**

1. Antibiotic U-58,431 which can be shown by the following formula:



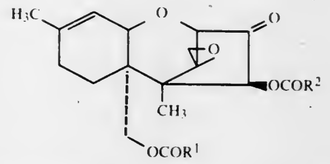
and base addition salts thereof.

4,267,113
ANTITUMOR AGENTS

Takushi Kaneko, Fayetteville; John M. Essery, Pleasantville; Henry Schmitz, Syracuse, and Terrence W. Doyle, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,917
Int. Cl.³ C07D *311/78*
U.S. Cl. 260—345.2 **7 Claims**

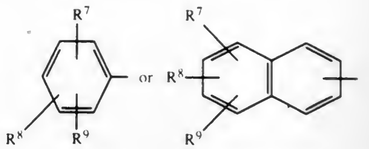
1. A compound of the formula



wherein R^1 and R^2 are each independently (lower)alkyl; halo(lower)alkyl; alkenyl of the formula $-CR^3=CR^4R^5$ in which R^3 is hydrogen, (lower)alkyl or 1'-halo(lower)alkyl and R^4 and R^5 are each independently hydrogen or (lower)alkyl; alkynyl of the formula $-C\equiv CR^6$ in which R^6 is hydrogen or (lower)alkyl; or a radical of the formula

$$Ar-(CH_2)_m-$$

in which m is 0 or an integer from one to four and Ar is



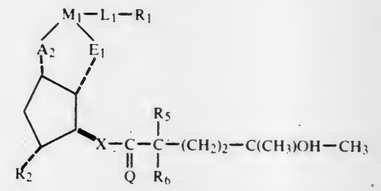
wherein R^7, R^8 and R^9 are each independently hydrogen, halogen, (lower)alkyl or (lower)alkoxy, with the proviso that R^1 and R^2 may not both be methyl.

4,267,114
19-HYDROXY-19-METHYL-6,9α-EPOXYMETHANO-PGF COMPOUNDS

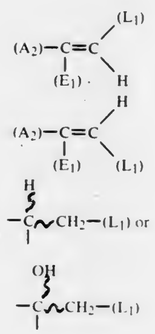
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,509
Int. Cl.³ C07D *311/02*
U.S. Cl. 260—345.2 **6 Claims**

1. A prostacyclin-type compound of the formula



wherein A_2 is $-CH_2O-$ with $-CH_2$ bonded to the cyclopentane ring and E_1 is $-CH_2-$;
wherein L_1 is
(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive,
(2) $-(CH_2)_p-CF_2-$, wherein p is 2, 3, or 4; or
(3) $-CH_2-CH=CH-$;
wherein M_1 is



(1)
(2)
(3)
(4)

wherein Q is oxo, α—H:β—H, α—OH:β—R_4, or α—R_4:β—OH, wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive;
wherein R_1 is
(1) $-COOR_3$,
(2) $-CH_2OH$,
(3) $-CH_2N(R_7)(R_8)$,
(4) $-CO-N(R_7)(R_8)$,
(5) $-CO-NH-SO_2-R_{15}$, or
(6) tetrazolyl,
wherein R_3 is

(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;
(g) —(Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β—naphthyl,
(n) —CH_2—CO—R_{16},

wherein —(Ph)— is inter-phenylene and —(p-Ph) is inter-para-phenylene or para-phenyl;

wherein R_{16} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different, and wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl-substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive, in the alkoxy group wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl, wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and

wherein X is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) —CH_2CH_2—.

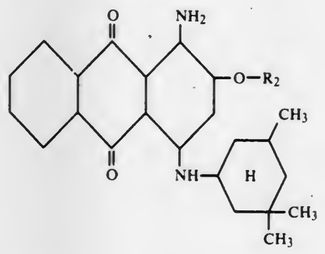
4,267,115

ANTHRAQUINONE COMPOUNDS

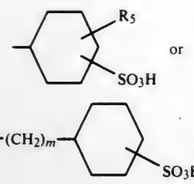
Wolfgang Frey, Münchenstein, and Wolfgang Schoenauer, Riehen, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

Division of Ser. No. 529,293, Dec. 4, 1974, abandoned, which is a division of Ser. No. 199,811, Nov. 17, 1971, Pat. No. 3,872,137, which is a division of Ser. No. 808,322, Mar. 18, 1969, Pat. No. 3,646,071. This application Aug. 7, 1978, Ser. No. 931,753
Claims priority, application Switzerland, Apr. 8, 1968, 5122/68; May 3, 1968, 8169/68; Sep. 30, 1968, 14593/68
Int. Cl.³ C07C *143/665*
U.S. Cl. 260—373 **3 Claims**

1. A dye of the formula

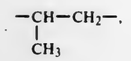

(VII)

wherein p1 R_2 is

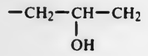

or

R_5 is hydrogen, alkyl or alkoxy with 1 to 9 carbon atoms or halogen,

—CH_2—CH_2—CH_2—,



or



—$(O—CH_2—CH_2)_p$—

and m is 1 or 2.

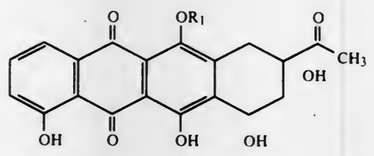
4,267,116

NOVEL DAUNOMYCIN DERIVATIVES, THEIR AGLYCONES AND THE USE THEREOF

Paolo Masi; Antonino Suarato; Luigi Bernardi, all of Milan, and Federico Arcamone, Nerviano, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

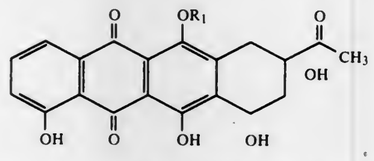
Division of Ser. No. 901,358, May 1, 1978, Pat. No. 4,191,755. This application May 14, 1979, Ser. No. 38,689
Claims priority, application United Kingdom, May 5, 1977, 18775/77
Int. Cl.³ C07C *50/16*
U.S. Cl. 260—376 **4 Claims**

1. A compound of the formula II:


II

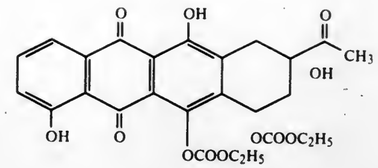
wherein R_1 is a lower alkyl having from 1 to 4 carbon atoms.

2. A process for preparing a daunomycinone derivative of the formula:

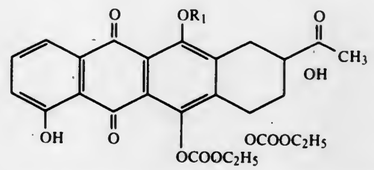

(II)

wherein R_1 is a lower alkyl group having 1 to 4 carbon atoms, by

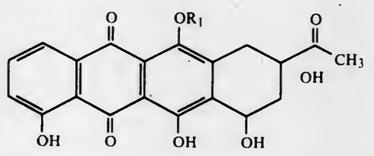
(a) reacting a compound of formula:


(V)

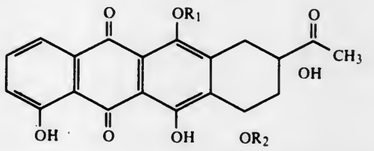
with a halide of the general formula R_1-Y wherein R_1 is a lower alkyl group having 1 to 4 carbon atoms and Y is Cl, Br or I in the presence of a solvent selected from the group consisting of dichloromethane and chloroform, and in the presence of about one equivalent of a base to yield the monoether derivative of the formula:


(VI)

(b) reacting the compound of Formula VI in the presence of a solvent selected from the group consisting of aqueous solvents and alcohols with a base selected from the group consisting of a dilute alkaline hydroxide and an activated basic resin to yield in case of an aqueous medium the compound of the formula:

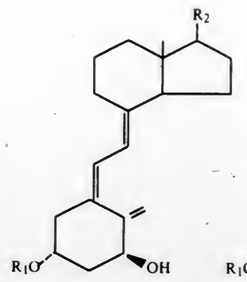

(II)

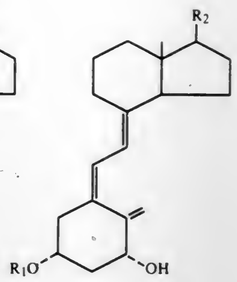
wherein R_1 is as defined above; and in case of an alcoholic medium to yield a bis-phenol derivative of the formula:

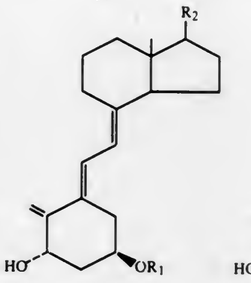

(VII)

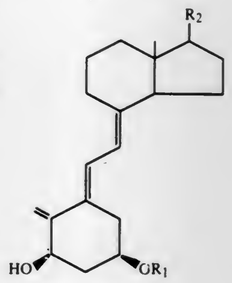
wherein R_1 is as defined above and R_2 is an alkyl group:

(c) hydrolyzing the compound of Formula VII, formed when the solvent is an alcohol, in aqueous trifluoroacetic acid to yield the compound of Formula II.

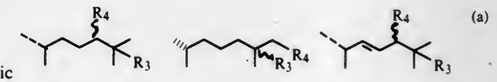

IV


V

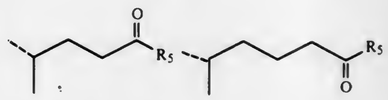

VI


VII

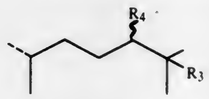
wherein R_1 is selected from the group consisting of hydrogen, trimethylsilyl, t-butyldimethylsilyl, phenyldimethylsilyl, acyl of from 2 to 6 carbon atoms, and aroyl wherein the aryl group is phenyl or substituted by a lower alkyl, lower alkoxy, halogen, nitro or a cyano group; R_2 is selected from the group consisting of


(a)

wherein R_3 is selected from the group consisting of hydrogen, hydroxy, trimethylsilyloxy, acyloxy of from 2 to 6 carbon atoms, inclusive and aryloxy; R_4 is selected from the group consisting of hydrogen, hydroxy, trimethylsilyloxy, t-butyldimethylsilyloxy, phenyldimethylsilyloxy, acyloxy of from 2 to 6 carbon atoms, inclusive, benzoyl, substituted benzoyl; and wherein R_3 and R_4 when taken together form a group selected from the group consisting of acetonide, carbonate and thiocarbonate;


(b)

wherein R_5 is selected from the group consisting of hydrogen, methyl hydroxyl and lower alkoxyl of from 1 to 5 carbon atoms, inclusive; with the proviso that when R_2 is the group



and R_3 is hydrogen or hydroxy R_1 cannot be hydrogen or acyloxy.

4,267,117

COMPOUNDS AND PROCESS

William G. Salmond, Mattawan, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 916,921, Jun. 19, 1978, Pat. No. 4,206,131. This application Jun. 14, 1979, Ser. No. 48,406
Int. Cl.³ C07J *9/00*
U.S. Cl. 260—397.2 **28 Claims**

1. A compound selected from the group consisting of compounds having the formula

4,267,118

PROCESS FOR PRODUCING FOOD GRADE SOYBEAN OIL

Troy M. Trueblood, St. Joseph, and Robert H. Moulton, St. Louis County, both of Mo., assignors to John R. Hersh and Russell E. Allen, both of St. Joseph, Mo.

Filed Sep. 7, 1979, Ser. No. 73,209
Int. Cl.³ C09F *5/10*
U.S. Cl. 260—428 **16 Claims**

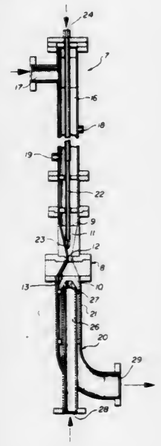
1. The method of producing food grade soybean oil comprising providing a predetermined quantity of crude soybean oil, adding to said crude soybean oil under ambient conditions a predetermined quantity of water and a predetermined quantity of protein substance, then subjecting the crude soybean oil, water, and protein substance to agitation for forming a mixture thereof, subsequent to said agitation permitting the mixture to settle, and then drawing off the oil.

4,267,119

SULFONATING METHOD

Burton Brooks, Bellevue, and Richard J. Brooks, Seattle, both of Wash., assignors to The Chemithon Corporation, Seattle, Wash.

Division of Ser. No. 850,350, Nov. 10, 1977, Pat. No. 4,185,030, which is a continuation of Ser. No. 690,652, May 27, 1976, abandoned, which is a continuation-in-part of Ser. No. 393,192, Aug. 30, 1973, abandoned. This application Dec. 21, 1979, Ser. No. 106,247
Int. Cl.³ C07C *130/00*
U.S. Cl. 260—458 R **1 Claim**



1. A continuous process for reacting a gaseous sulfonating agent comprising sulfur trioxide with a sulfonatable liquid organic reactant to produce a reaction product, said process comprising the steps of:

introducing said liquid organic reactant into a stream of said gaseous sulfonating agent;

flowing said stream of gaseous sulfonating agent downwardly along a straight path from a point upstream of the location where said organic reactant is introduced;

coaxially injecting said organic reactant downwardly into said gaseous stream from a location along said straight path;

atomizing said liquid organic reactant to form a mist of organic reactant particles;

at least partially atomizing said organic reactant before said introduction thereof into said stream of gaseous sulfonating agent;

reacting said mist of organic reactant particles and said gaseous sulfonating agent in a temperature-increasing exothermic reaction to form a reaction mixture comprising particles of said reaction product;

and then cooling said reaction product.

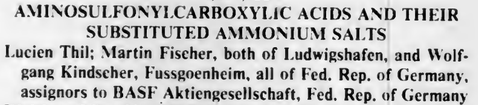
4,267,120

POLYESTER POLYCARBONATES

Michael Cuscurida, and George P. Speranza, both of Austin, Tex., assignors to Texaco Development Corp., White Plains, N.Y.

Filed Dec. 14, 1979, Ser. No. 103,757
Int. Cl.³ C07C *69/96*; **C08G** *63/62*
U.S. Cl. 260—463 **4 Claims**

1. A polyester polycarbonate of the structure



wherein X and Y, independently, are H, methyl, or ethyl, m and n independently are integers of 1-5, R is a nucleus of a glycol selected from the group of lower alkylene glycols which have 2-6 carbon atoms and polyalkylene glycols of up to about 600 molecular weight, Z is an organic radical from a cyclic aliphatic or aromatic organic acid anhydride having 4-20 carbon atoms, and r is an integer of 1-5.

4,267,121

PREPARATION OF 2,2-DIMETHYL-4-CYANO-BUTYRALDOXIME N-METHYL-CARBAMATE

Rainer Buerstinghaus, Weinheim-Luetzelsachsen; Karl-Heinz Koenig, Frankenthal, and Karl Kiehs, Lampertheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,993
Claims priority, application Fed. Rep. of Germany, Sep. 25, 1978, 2841714
Int. Cl.³ C07C *120/00, 121/16*
U.S. Cl. 260—465.4 **1 Claim**

1. A process for the preparation of 2,2-dimethyl-4-cyano-butyraldoxime N-methyl-carbamate which comprises: contacting 2,2-dimethyl-4-cyano-butyraldoxime with an at least equimolar amount of methylcarbamic acid chloride in the form of a concentrated solution of at least 8 moles thereof per liter of inert organic solvent, in the presence of from 1.05 to 2 moles of a tertiary aliphatic amine per mole of 2,2-dimethyl-4-cyano-butyraldoxime, at from 0° to 30° C., whereby the reaction is completed within 15 minutes after the reactants have been added.

4,267,122

AMINOSULFONYLCARBOXYLIC ACIDS AND THEIR SUBSTITUTED AMMONIUM SALTS

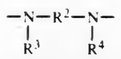
Lucien Thil; Martin Fischer, both of Ludwigshafen, and Wolfgang Kindscher, Fussgoenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 820,722, Aug. 1, 1977, Pat. No. 4,126,634. This application Sep. 27, 1978, Ser. No. 946,200
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1976, 2638860
Int. Cl.³ C07C *147/02*; **C23F** *11/16*; **C07C** *147/00, 147/06*
U.S. Cl. 260—501.12 **3 Claims**

1. A compound of the formula I



where R^1 is alkylene of 1 to 5 carbon atoms, A is the radical of a diamine of the formula II



II

R^2 is alkylene of 2 to 18 carbon atoms, alkylene of 2 to 18 carbon atoms interrupted by oxygen or nitrogen, arylene, arylene substituted by alkyl of 1 to 4 carbon atoms, methoxy, ethoxy or halogen, or arylene-alkylene of 6 to 18 carbon atoms, R^3 and R^4 are identical or different radicals chosen from hydrogen, linear and branched saturated, olefinically unsaturated or acetylenically unsaturated alkyl of 1 to 8 carbon atoms, if saturated, or of 2 to 18 carbon atoms, if unsaturated, alkyl of the above type substituted by methoxy or ethoxy, cycloalkyl of 5 to 12 members, phenyl, phenyl substituted by alkyl of 1 to 3 carbon atoms, methoxy, ethoxy, chlorine or bromine, or phenylalkyl, where alkyl is of 1 to 6 carbon atoms, and $X^{\oplus}$ is a substituted ammonium cation.

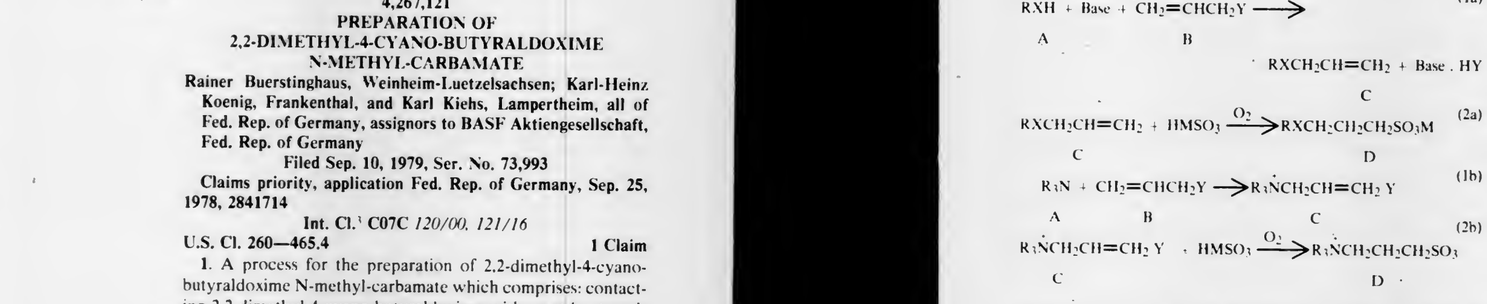
4,267,123

METHOD OF PREPARING PROPANE SULFONATES

Catherine S. H. Chen, Berkeley Heights; Kirk D. Schmitt, Pennington, and Albert L. Williams, Princeton, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,947
Int. Cl.³ C07C *143/14, 143/38*
U.S. Cl. 260—501.12 **9 Claims**

1. A method of preparing propane sulfonates comprising the following two step reactions:



(1a)

(2a)

(1b)

(2b)

where X is O or S in (1a) and (2a), M is NH_4^+ or an alkali metal and R is C_6-C_{16} alkyl, alkenyl or alkynyl and C_6-C_{20} aryl, or C_6-C_{20} alkyl or aryl —O—$(CH_2CH_2O)n$— in which n=2-13 and Y is halide or tosylate and where a predetermined minimum amount of final product D in a molar ratio of D to compound C of at least 1 to 5 is initially added to the reaction mixture of Step (2a) and (2b).

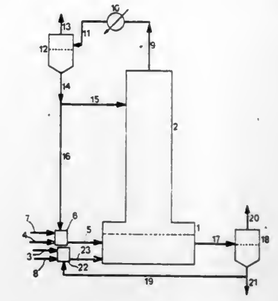
4,267,124

PROCESS FOR THE MANUFACTURE OF CARBOXYLIC PERACIDS

Nicolas Hardy, Jemeppe-sur-Sambre; Luc Lerot, and Rene Walraevens, both of Brussels, all of Belgium, assignors to Propylox, Brussels, Belgium

Filed Mar. 27, 1979, Ser. No. 24,372
Claims priority, application France, Mar. 28, 1978, 78 09199
Int. Cl.³ C07C *179/10, 179/12*
U.S. Cl. 260—502 R **18 Claims**

1. In a continuous process for the manufacture of a carboxylic peracid by reaction, in a reaction mixture and under reaction conditions sufficient to produce said carboxylic peracid, of the corresponding carboxylic acid with hydrogen peroxide in the presence of a catalyst and in the presence of an inert organic liquid which is contained in an organic phase and is a solvent for the peracid and is capable of forming a heterogeneous azeotrope with water, which process includes removing water present in the reaction mixture by distillation of the water/organic liquid azeotrope, the improvement comprising maintaining a sufficient amount of water in the reaction mixture to allow the formation of an aqueous phase which is separate from the organic phase containing the organic liquid, the weight ratio of the aqueous phase to the organic phase in the reaction mixture being more than 0.05.



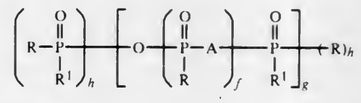
4,267,125

PROCESS FOR THE MANUFACTURE OF PHOSPHINIC AND PHOSPHONIC ACID ANHYDRIDES

Walter Dürsch, Königstein, and Hans-Jerg Kleiner, Kronberg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 27, 1980, Ser. No. 125,183
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, 2908264
Int. Cl.³ C07F *9/02*
U.S. Cl. 260—545 P **1 Claim**

1. Process for the manufacture of phosphinic and phosphonic acid anhydrides of the formula



(I),

in which

A stands for alkylene, aralkylene or arylene with 1 to 10 carbon atoms each,

R is C_1-C_8-alkyl,

R^1 is C_1-C_{18}-alkyl or alkenyl which may be substituted by fluorine, chlorine or bromine and may be interrupted by ether oxygen atoms; cycloalkyl or alkylcycloalkyl of a total of 1 to 10 carbon atoms each; aryl or alkylaryl optionally being substituted in the ring by chlorine and/or bromine;

f is 0 ot 1, preferably 0, and always 0 if h is 1;

g is 1, if h is 1 and f is 0 at the same time, or if h is 0, f is 1 and A is C_3H_6;

g is 3 to formally infinite, if h and f are 0, and

g is 2 to formally infinite, if h is 0, f is 1 and A is other than C_3H_6, and

h is 0 or 1, preferably 0, which comprises reacting at 30°-160° C. one mol of a compound of the formula



(II),

in which X is chlorine or bromine, preferably chlorine, Y

is defined as R and is additionally defined as X, and R, R^1, A and f are defined as in the above formula I, with at least b/2 mol(s) of an aliphatic carboxylic acid anhydride of the formula

$$(R^2—CO—)_2—O \qquad (III),$$

b being the number of the halogen atoms in the compound of the formula I and R^2 being C_1-C_3-alkyl, chloromethyl, dichloromethyl or trichloromethyl, preferably CH_3 and C_2H_5, and removing the carboxylic acid halides being formed as by-products by distillation.

4,267,126
N-(PHOSPHONOACETYL)-L-ASPARTIC ACID COMPOUNDS

Robert J. Schultz, Amherst, and Fred W. Starks, Kenmore, both of N.Y., assignors to Starks Associates, Inc., Buffalo, N.Y.

Division of Ser. No. 954,579, Oct. 25, 1978, Pat. No. 4,215,070, which is a continuation-in-part of Ser. No. 932,501, Aug. 10, 1978, Pat. No. 4,179,464, which is a continuation-in-part of Ser. No. 851,382, Nov. 14, 1977, abandoned. This application Jan. 23, 1980, Ser. No. 114,624

Int. Cl.³ C07F *9/40*; A61K *31/66*

U.S. Cl. 260—942 **8 Claims**

1. A compound of the group selected from the group consisting of N-(phosphonoacetyl)-L-aspartic acid, disodium salt, P-ethyl ester and dibenzyl ester; N-(phosphonoacetyl)-L-aspartic acid, dibenzyl ester, and the corresponding N,N'-dibenzyl-ethylenediamine salt and cyclohexylamine salt; N-(phosphonoacetyl)-L-aspartic acid, tetraethyl ester, and the corresponding dimethyl P,P-diethyl ester.

4,267,127
PROCESS FOR THE PRODUCTION OF PHOSPHORIC ACID TRIESTERS

Harald Selbeck; Claus Wulff, both of Krefeld; Uwe Hucks, Alpen; Erhard Tresper, and Hugo Vernaleken, both of Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

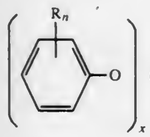
Filed Jul. 25, 1979, Ser. No. 60,679

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833341

Int. Cl.³ C07F *9/09*

U.S. Cl. 260—973 **9 Claims**

1. A process for the production of phosphoric acid triesters corresponding to the formula:



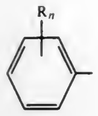
wherein

R represents hydrogen, alkyl containing from 1 to 20 carbon atoms, alkoxy containing from 1 to 20 carbon atoms, phenoxy, an optionally fused phenyl radical, and —$COOR_1$, where R_1 represents an alkyl containing from 1 to 20 carbon atoms, a nitrile or a halogen atom,

n represents an integer of from 1 to 5 and each R may be the same or different,

x represents an integer of from 1 to 3,

Z represents an alkyl containing from 1 to 20 carbon atoms or the formula:



wherein

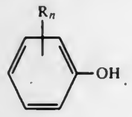
R and n are defined as above and

y represents 3-x,

said process comprising reacting phosphorus oxyhalides, phosphorus pentahalides, phosphoric acid monoester dihalides or phosphoric acid diester halides corresponding to the formula:

ZO PO Hal_2 or $(ZO)_2$PO Hal

wherein Z is defined as above and Hal represents Cl and/or Br. with at least one hydroxyaryl compound of the formula:



wherein R and n are defined as above, in a two-phase mixture of an organic solvent, an aqueous alkaline earth metal and/or alkali metal hydroxide solution, characterized in that the reaction is carried out in stages comprising the steps of reacting the entire quantity of hydroxyaryl compounds with from 30 to 95% by weight of the total quantity of the alkaline earth metal and/or alkali metal hydroxide solution to be used with from 30 to 95% by weight of the total quantity of phosphorus halogen compounds to be used under high turbulence in the presence of the water-immiscible solvent, as a first stage and then adding the remaining 5 to 70% by weight of alkaline earth metal and/or alkali hydroxide metal solution and the phosphorus halogen compound to the reaction mixture as one or more individual portions.

4,267,128
VARIABLE VENTURI TYPE CARBURETOR

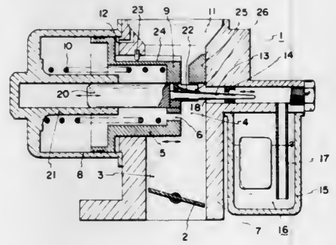
Tatuo Kobayashi, Susono, and Nobuo Yamada, Kariya, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 11, 1979, Ser. No. 83,830

Claims priority, application Japan, Apr. 11, 1979, 54-043037

Int. Cl.³ F02M *9/06*

U.S. Cl. 261—44 C **8 Claims**



1. In a variable venturi type carburetor including a casing and having a suction chamber formed at one side of its venturi portion upstream from a throttle valve, a suction piston movably received by the suction chamber so as to be moved into and out of the suction chamber, suction spring means for biasing the suction piston in one direction, a metering jet formed in another side of the venturi portion opposed to the suction chamber and a metering needle provided on the suction piston facing the metering jet, the improvement comprising at least one axial guide groove formed on said suction piston, at least one guide pin, and at least one guide roller rotatably mounted on said guide pin provided on said casing of the carburetor, said guide roller being operatively positioned to roll in said guide groove, said spring means rotatably biasing said suction piston against said roller.

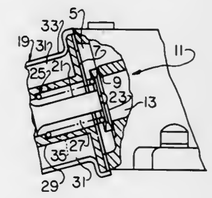
4,267,129
CARBURETOR BOWL VENT

Harvey L. Ruth, St. Louis; Michael H. Schneider, Chesterfield, and Michael B. Phelan, Florissant, all of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Nov. 9, 1979, Ser. No. 92,751

Int. Cl.³ F02M *5/08*

U.S. Cl. 261—72 R **2 Claims**



1. In a carburetor for an internal combustion engine, the carburetor having a fuel bowl in which fuel vapors are collected when the engine is not in operation and an air passage into which air is drawn into the engine when the engine is in operation, the improvement comprising means defining a flow passage through which vapors created in the fuel bowl are drawn off from the fuel bowl, a chamber to which fuel vapors drawn off from the fuel bowl are directed, the chamber having a first outlet through which fuel vapors drawn to the chamber are directed to the canister and a second outlet through which fuel vapors drawn to the chamber are directed to the air passage, the passage defining means defining a flow passage from the second outlet of the chamber to the air passage; and an electrically operated solenoid having a movable armature to one end of which is attached a valve member movable between a first position opening the first chamber outlet and closing the second chamber outlet and a second position closing the first chamber outlet and opening the second chamber outlet, the valve member being moved to its first position when the engine is off and to its second position when the engine is operating, and the solenoid having a housing and a circular inner wall within the housing, the wall defining a first chamber in which the armature moves and the wall and housing defining a second and outer chamber communicating with the first chamber via passages through the wall, and the housing having an opening communicating with the canister whereby fuel vapors directed to the canister when the valve member is moved to its first position flow to the canister through the first and second chambers formed within the solenoid.

4,267,130
PORTABLE AUXILIARY COOLING TOWER

Harold D. Curtis, Rte. 2, Chickasha, Okla. 73018

Filed Aug. 16, 1979, Ser. No. 66,926

Int. Cl.³ B01F *3/04*

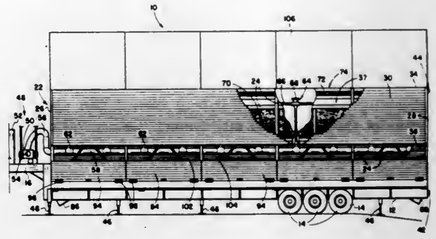
U.S. Cl. 261—112 **11 Claims**

1. A portable auxiliary cooling tower for performing cooling and aerating of liquids comprising:

(a) a housing having shape and size compatible for movement with traffic along the highways without disassembly, air intake ports along each side of the housing, air outlet ports along the top of the housing, a frame member for supporting the housing and a plurality of wheels axially supported by the frame suitable for movement along the highways;

(b) a plurality of closely spaced blowers carried within an upper portion of the housing for pulling outside air through the intake ports and expelling the air through the outlet ports;

(c) packing provided within the housing between the inlet and outlet ports for filming the liquid being cooled and aerated;



(d) a liquid distribution system for pulling liquid into the housing and distributing the liquid to the packing;

(e) drift eliminator means provided in the outlet ports for stripping liquid from the air after it has passed through the packing;

(f) liquid expulsion system for removing the cooled aerated liquid; and

(g) leveling means carried by the frame and contactable with the ground for leveling and adjusting elevation at the site.

4,267,131
METHOD FOR INTIMATE CONTACTING OF PLURAL PHASES AND PHASE CONTACTOR APPARATUS THEREFOR

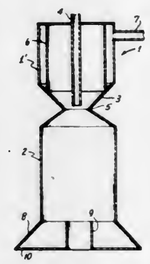
Francois Prudhon, Versailles, and Augustin Scicluna, Aubervilliers, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 872,151, Jan. 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 770,802, Feb. 22, 1977, which is a continuation of Ser. No. 479,774, Jun. 17, 1974, abandoned. This application Feb. 21, 1979, Ser. No. 13,295

Claims priority, application France, Jan. 25, 1977, 77 02015

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—153 **33 Claims**



1. A process for the intimate contacting of plural, physically disparate phases, comprising (i) establishing a vertically descending current of axially extending, axially symmetrical helical flow of a first gaseous phase, (ii) separately establishing a current of coaxially downwardly vertically extending, rectilinear continuous jet stream of a physically disparate second phase, (iii) maintaining said currents of said first and said second phases physically separate from each other, (iv) circulating and directing said currents which comprise the plural phases to a zone of restricted flow passage with respect to said

helical flow, (v) at said zone of restricted flow passage, converging and intimately, homogeneously admixing said plural currents, and disintegrating into a multitude of droplets and entraining said rectilinear jet stream current within said helical current of gaseous flow, and maintaining at such zone of convergence a momentum of the first phase helical flow of at least 100 times greater than the momentum of the second phase, coaxial rectilinear jet stream, (vi) concurrently establishing a flow defining a layered horizontal stack of a plurality of hyperboloids by means of the trajectory of said helical current of gaseous flow, which, at a point downstream from said zone of restricted flow passage coestablishes a zone of narrower width than said zone of restricted flow passage, thus circumscribing a zone of depression, and thence (vii) diverging and abruptly changing the velocity of at least one of said plural phases, while at the same time maintaining the general direction of flow of said admixed plural phases, and whereby phase separation of the product of admixture results.

18. A phase contactor for the intimate contacting of plural, physically disparate phases, which comprises (i) a distribution zone, said distribution zone being comprised of means for establishing a vertically descending current of axially extending, axially symmetrical helical flow of a first gaseous phase, means for separately establishing a current of coaxially downwardly vertically extending, rectilinear continuous jet stream of a physically disparate second phase, and means for insuring physical separation from each other of said currents of said first and second phases, (ii) a contact zone, said contact zone being comprised of a zone of restricted flow passage with respect to the means for establishing the helical flow, means for the convergence and intimate homogeneous admixture of the separately supplied disparate phases, means for imparting a momentum to the gaseous first phase helical flow which is at least 100 times greater than the momentum of the second phase, coaxial rectilinear flow, means for disintegrating into a multitude of droplets and entraining said rectilinear jet stream current within said helical current of gaseous flow, means for concurrently establishing a flow defining a layered horizontal stack of a plurality of hyperboloids via the trajectory of said helical current of gaseous flow, and means for establishing, at a point downstream from said zone of restricted flow passage, a flow zone of narrower width than said zone of restricted flow passage, same also circumscribing a zone of depression, and (iii) a phase separation zone, said phase separation zone being comprised of means for abruptly changing the velocity of at least one of said plural phases, means for maintaining the general direction of flow of said admixed plural phases, and means for effecting phase separation of the product of admixture of said plural phases.

4,267,132

METHOD FOR HIGH STRENGTH DOUBLE BASE SOLVENTLESS GUN PROPELLANT

Larry D. Henderson, Bryans Rd., and Craig E. Johnson, Indian Head, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 28, 1974, Ser. No. 475,331
Int. Cl.³ C06B *21/00*
U.S. Cl. 264—3 B **3 Claims**

1. A method of preparing crosslinked double base propellants which comprises incorporating up to 0.1 weight percent of a crosslinking catalyst into the subsequently crosslinked double base propellant, partially curing the propellant at a temperature from about 120° F. to about 140° F. until the energetic binder has become plasticized, and extruding the propellant at a temperature from about 110° F. to about 150° F. at a rate from about 0.5 ins/min to about 6 ins/min after plasticization has occurred but before crosslinking has made the propellant too viscous for extrusion.

4,267,133

MANUFACTURE OF DENTURE BASE

Tamotsu Kohmura, Anamushi, and Jun-ichi Yoshimine, Kohama-nishi, Japan, assignors to Sankin Industry Co., Ltd., Osaka, Japan

Filed Mar. 14, 1979, Ser. No. 20,478
Claims priority, application Japan, Mar. 15, 1978, 53-30459
Int. Cl.³ A61C *13/00*
U.S. Cl. 264—18 **19 Claims**

1. A method for manufacturing a denture base, comprising in sequence the steps of:

(a) applying thinly a photocuring resin compound to a plaster mold coated with a mold release agent and curing the resin compound by uniform exposure thereof to actinic radiation, said photocuring resin compound comprising a polymerizable methacrylate and/or acrylate with the addition of a light sensitizer or a filler;

(b) applying the above defined photocuring resin compound to the layer photocured in the step (a), after the affixing and alignment of artificial teeth, then curing the resin compound by uniformm exposure to actinic radiation; and

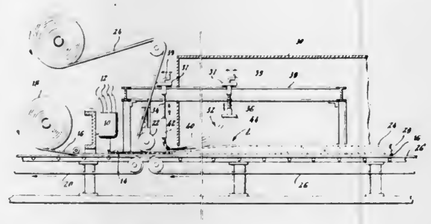
(c) applying the above defined photocuring resin compound to the layer photocured during the step (b), after the formation of artificial gingavae, then curing the resin compound by uniform exposure to actinic radiation.

4,267,134

METHOD AND APPARATUS FOR SMOOTHING FOAMED PLASTIC CORE PANELBOARD SURFACE

Richard A. Kolakowski, Northford, and Stephen A. Knis, Meriden, both of Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Sep. 24, 1979, Ser. No. 77,984
Int. Cl.³ B29D *27/04*
U.S. Cl. 264—46.2 **8 Claims**



1. In a method for improving planarity of the surface of panelboard composed of a foamed plastic core having a facing sheet thereon when produced in continuous manner on a conventional nip-roll, free-rising, foamed plastic core panelboard production line, the improvement which comprises

draping above said production line, downstream of the nip-roll, and extending over a region of said production line corresponding to locations of less than full development of the foam in the panelboard being produced thereon, a non-advancing smoothing member comprising a length of longitudinally flexible, transversely stiff belt-like material,

supporting said member at its ends to allow an intermediate portion thereof to sag by weight of gravity in the foam of a loop toward said facing sheet, and

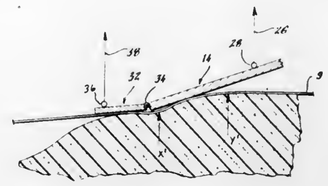
adjusting the location and area of contact between the sagging loop portion of said member and facing sheet in said region downstream of said nip-roll by changing the position of the supporting means at the ends of said member.

4,267,135

PROCESS AND APPARATUS FOR THE CONTINUOUS MOLDING OF POLYMER FOAM BUNSTOCK HAVING A SUBSTANTIALLY RECTANGULAR CROSS-SECTION

Richard M. Stroud, Houston, Tex., and Richard A. Kolakowski, Northford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Jan. 21, 1980, Ser. No. 113,678
Int. Cl.³ B29D *27/04*
U.S. Cl. 264—51 **5 Claims**



1. In a process for producing a continuous length of polymer foam bunstock having substantially rectangular cross-section, uniform density and uniform cell structure comprising the steps of:

advancing at a predetermined, constant rate a continuous conveyor surface along a predetermined path of travel, said conveyor surface comprising a lower supporting portion and separate upstanding portions on laterally opposite sides of said lower portion and defining together a generally trough-like moving mold for the developing foam product;

continuously depositing liquid polymer foam forming mixture on the floor of said moving mold at a location near the entrance thereto, said polymer foam forming mixture being one in which two different polymerization reactions are occurring resulting in two distinct rise steps in the foam rise profile the major portion of the total rise prior to gel point taking place in said first step and the minor portion in said second step;

allowing said foam forming mixture to expand freely over the major portion of its expansion; and

causing said expanding foam, at a point approaching the top of said second step of the foam rise and beyond that at which the gel point is reached out before said foam is no longer sufficiently mobile to be molded without distortion of the cell structure, to contact the underside of a panel member having a width substantially coextensive with that of said moving mold and being pivotally mounted, at the downstream end thereof, above said moving mold, said panel member depending from said pivotal mounting and floating freely on said rising foam in tangential contact therewith;

the improvement which comprises:

causing said expanding foam, at a point in the foam rise immediately prior to the gel point, to contact the underside of an extension of said panel member, which extension is pivotally mounted on the upstream end of said panel member, has substantially the same width as said panel member, and is of a length such that said extension can float freely in tangential contact with said rising foam without the leading edge thereof being in contact with said rising foam; and

adjusting the downward pressures exerted by said panel member and said extension thereof so that in combination they cause said rising foam to assume a substantially rectangular cross-section;

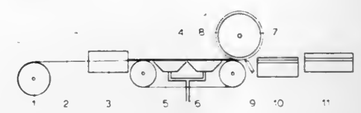
said combination of downward pressures being the only restraining forces applied to the surface of said polymer foam during its entire passage through said trough-like moving mold.

4,267,136

PRODUCTION OF THIN, PLASTIC-REINFORCED, HYDRAULICALLY BOUND BOARDS

Jan M. J. M. Bijen, Munstergeleen, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands

Filed Aug. 28, 1978, Ser. No. 937,134
Claims priority, application Netherlands, Aug. 30, 1977, 7709522
Int. Cl.³ B28B *23/00*
U.S. Cl. 264—87 **6 Claims**



1. A continuous process for the manufacture of composite articles consisting of a hydraulically bound material having an extended net plastics material incorporated therein, said process including the successive steps of

(a) contacting a stretched, fibrillated, extended plastics net reinforcing material in the form of a continuous belt with an aqueous suspension of hydraulic binding material thereby forming a thin layer of aqueous suspension on and in the net while adjusting the rate of application and thickness of the thin layer as it is formed;

(b) removing excess water from the thus formed thin layer;

(c) rolling the dewatered thin layer onto a forming roller and continuing such rolling until the predetermined number of continuous net layers desired in the final product are formed in the composite;

(d) removing the rolled composite from the roller when the predetermined thickness is obtained;

(e) shaping the composite; and

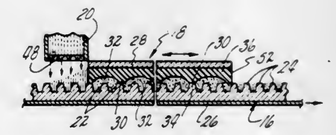
(f) hardening the shaped composite to form the desired shaped composite article.

4,267,137

METHOD FOR MOLDING SHEET MATERIAL WITH PARALLEL RIBS ON ONE SIDE

J. Harold Smith, Amherst, Mass., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 11, 1978, Ser. No. 968,600
Int. Cl.² D04H *1/16*
U.S. Cl. 264—113 **10 Claims**



1. In a method for molding sheet material having closely spaced parallel ribs on one side thereof from dry, particulate, heat curable molding material using a mold and a coater, the coater being disposed above the mold, the mold comprising closely spaced parallel grooves therein having the shape of the ribs to be formed, said mold including lands between the grooves, said lands defining the top surface of the mold, said coater including a plurality of spaced apart parallel blades defining a plurality of parallel channels between said blades, said blades including tips parallel to said top surface of the mold and either in contact with said top surface or in close proximity thereto, the steps of:

1. depositing dry particulate heat curable molding material onto said top surface of the mold and within said grooves;

2. uniformly filling the grooves of said mold with said depos-

ited molding material and uniformly compacting said deposited molding material within said grooves by moving the mold relative to the coater in a direction parallel to said top surface of the mold such that a vector representing the direction of motion of the coater relative to said top surface forms an angle of greater than zero degrees with the blades and with the mold grooves, wherein said step of moving the mold brings the said molding material in contact with the coater blades and between the coater and the mold, wherein said steps of depositing, filling and compacting are continued until the grooves are completely filled and no additional material can be forced into the grooves by the relative movement between the coater and the mold;

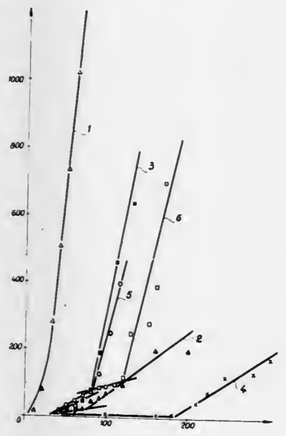
3. after the step of uniformly filling the grooves and compacting said molding material within said grooves, applying a uniform layer of a dry particulate heat curable molding material over the filled grooves and over the lands of said mold;
4. compacting said applied layer;
5. then, heating the molding material within the grooves and the molding material in the compacted layer to at least partially cure said molding materials to form an at least partially cured ribbed sheet which can be removed from the mold while still retaining its molded shape;
6. removing the at least partially cured ribbed sheet material from the mold; and
7. fully curing said sheet material if not yet fully cured.

4,267,138

COATING ENSURING A CONTROLLED RELEASE OF ACTIVE INGREDIENTS OF BIOLOGICALLY ACTIVE COMPOSITIONS, PARTICULARLY PHARMACEUTICAL COMPOSITIONS AND A PROCESS FOR PREPARATION OF BIOLOGICALLY ACTIVE COMPOSITIONS ENSURING CONTROLLED RELEASE OF ACTIVE INGREDIENTS

Janos Dobo; Erzsebet Takacs; Gyozo Hortobagyi; Marianne Skvorecz nee Hajnoczy; Ilona Kolbe, and Katalin Hoffmann nee Vas, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Filed Sep. 19, 1977, Ser. No. 834,492
Claims priority, application Hungary, Sep. 17, 1976, 596
Int. Cl.³ A61J *3/10*
U.S. Cl. 264—117 **8 Claims**



1. A process for preparing a pharmaceutical for gastrointestinal release, comprising the steps of:

(a) forming a water-in-oil emulsion from a solution of a varnish-forming polymer substantially unaffected by exposure to gastrointestinal juices in a water-immiscible solvent and an aqueous phase dispersed in the organic phase in particles not more than 20 microns in diameter, said aqueous phase constituting 2 to 30% of the total volume and containing at least one substance selected from the group which consists of a plasticizer, a wetting agent, a buffer and a hygroscopic substance;

(b) coating granules of a pharmaceutical suitable for oral administration with the emulsion formed during step a) and evaporating the solvent to form a coating which substantially retains the aqueous phase of the emulsion dispersed throughout the varnish-forming polymer; and

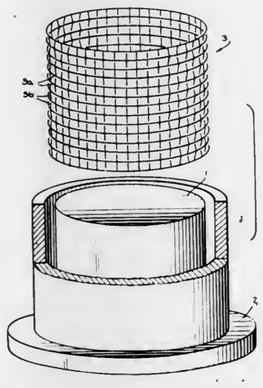
(c) agglomerating the granules coated during step b) into a pharmaceutical dosage unit.

4,267,139

REINFORCED PLASTIC BELT LOOP

Joachim Scheibe, Laudenbach, and Helmut Kuhn, Mörlenbach, both of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany

Filed Oct. 10, 1979, Ser. No. 83,276
Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844907
Int. Cl.³ B29D *29/00*
U.S. Cl. 264—229 **8 Claims**



1. A method for making an endless circumferentially reinforced plastic belt loop, comprising positioning endless shrinkable reinforcement strands circumferentially around a core and shrinking the strands onto the core so that the strands are under tension, casting a hardenable casting plastic in a mold surrounding the core and strands, and hardening the plastic so that it holds the strands under said tension and forms said loop when removed from the core and mold.

4,267,140

METHOD AND APPARATUS FOR SHAPING THERMOPLASTIC SHEETS

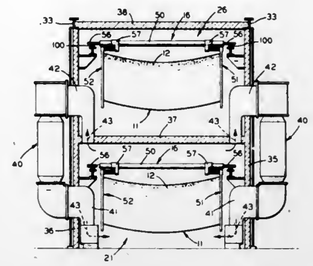
James A. Meeker, Toledo, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Mar. 28, 1980, Ser. No. 135,212
Int. Cl.³ B29C *17/02*
U.S. Cl. 264—291 **11 Claims**

1. A method of shaping a generally rectangular refrigerated thermoplastic sheet having opposite longitudinal and transverse edges comprising: supporting said refrigerated thermoplastic sheet in a substantially vertical plane by clamping the opposite transverse edges thereof such that the opposite longitudinal edges thereof are disposed generally horizontally, heating said sheet while applying lateral tension forces to said opposite transverse edges to stretch said sheet laterally a predetermined amount as said sheet becomes heat-softened, continuing to heat said sheet after stretching said sheet said predetermined amount to cause said sheet to sag and be deflected

intermediate the opposite transverse edges thereof into a desired shape.

5. Apparatus for shaping a generally rectangular refrigerated thermoplastic sheet comprising: a frame having an elongated bar and clamping assemblies carried by said bar in spaced



relation to each other for securing the opposite transverse edges of at least one refrigerated thermoplastic sheet, a pair of supports mounted on said bar, said supports including means mounting said clamping assemblies, respectively, thereon for sliding movement relative thereto, and means on said supports for biasing said clamping assemblies away from each other.

4,267,141

PHENOLIC RESINS WITH IMPROVED LOW TEMPERATURE PROCESSING STABILITY

Myron C. Annis, North Tonawanda, N.Y., assignor to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Division of Ser. No. 30,038, Apr. 13, 1979, Continuation-in-part of Ser. No. 915,335, Jun. 13, 1978, abandoned. This application Dec. 28, 1979, Ser. No. 108,082
Int. Cl.³ B29F *1/00*
U.S. Cl. 264—328.1 **5 Claims**

1. In a runnerless injection molding process wherein a thermosetting resin is fused in the manifold of a runnerless injection molding apparatus and cured in a mold cavity, the improvement which comprises employing as the thermosetting resin component, a phenolic novolak molding composition comprising a phenol-aldehyde resin wherein (a) from about 55% to about 90% of the available theoretical para-phenyl linkages in the resin chain are bridged to a phenyl group, (b) the carbon chains linked between adjacent hydroxyl-substituted phenyl nuclei have 1 to 5 carbon atoms, and (c) the hydroxyl-substituted phenyl nuclei are capable of chain growth at unsubstituted ortho and para-positions of said nuclei; hexamethylenetetramine, and a filler material.

4,267,142

REINFORCED RESIN MOLDING METHOD AND APPARATUS

Jay A. Lankheet, 1329 Bayview Ave., Holland, Mich. 49423

Filed Oct. 22, 1979, Ser. No. 87,008
Int. Cl.³ B29D *9/04*
U.S. Cl. 264—510 **22 Claims**

1. A method for molding plastic articles comprising:

providing male and female mold halves wherein the configuration of the male core and the female cavity correspond generally to the configuration desired for the opposing surfaces of the article to be formed;

locating a flexible bladder over one of said male mold core or said female mold cavity, said bladder having a configuration corresponding to that desired for the surface of the article which is to be formed against said one of said male core or said female cavity;

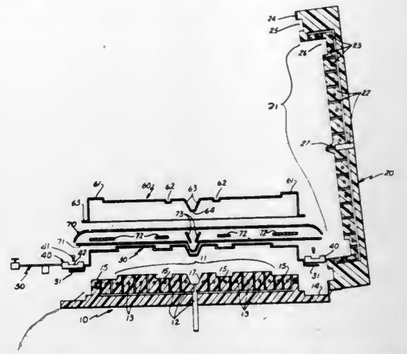
drawing a vacuum between said bladder and its adjacent mold half to hold said bladder in place;

applying a layer of resin over one of said bladder or the other of said male mold core or female mold cavity;

closing said male and female mold halves;

drawing a vacuum between said bladder and said other of said mold members while simultaneously maintaining said vacuum between said bladder and its respective adjacent mold half to thereby draw air out of said resin layer;

followed by releasing said vacuum between said bladder and its respective mold and opening the space between said bladder and its said mold half to a positive pressure rela-



tive to the vacuum being drawn between said bladder and said other mold member, while simultaneously maintaining said vacuum between said bladder and said other mold member to thereby cause said bladder to compress against said resin layer and to force some against said other mold member;

followed by curing said article, opening said mold halves and removing said article from said mold.

4,267,143

PROCESS FOR THE MANUFACTURING OF BIORIENTED HOLLOW BODIES

Gilbert Roullet, Tremblay les Gonesse, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed Feb. 8, 1979, Ser. No. 10,218
Claims priority, application France, Feb. 13, 1978, 78 03938
Int. Cl.³ B29C *17/07*
U.S. Cl. 264—516 **17 Claims**

1. Process for producing polyester bioriented hollow articles, comprising depositing at least one layer of polyvinyl alcohol on at least one wall of a polyester tube or preform, drying the deposited layer, and then drawing and blowing the preform in a mold at the orientation temperature of the polyester whereby the adhesion of the polyvinyl alcohol layer to the polyester base is increased and the gas tightness is increased by reason of crystallization of the polyvinyl alcohol during the drawing and blowing step to form the bioriented hollow structure.

4,267,144

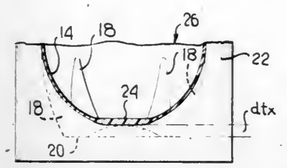
PROCESS OF REDUCING BLOWING CYCLE FOR BLOW MOLDED CONTAINERS

Wayne N. Collette, Westmoreland; Suppayan M. Krishnakumar, and Gautam K. Mahajan, both of Nashua, all of N.H., assignors to The Continental Group, Inc., New York, N.Y.

Filed Jul. 3, 1979, Ser. No. 54,500
Int. Cl.³ B29C *17/07*
U.S. Cl. 264—523 **3 Claims**

1. A process of blow molding in a blow mold a plastic material bottle of the type having a generally hemispherical bottom with said bottom having projecting therefrom in circumferentially spaced relation hollow legs terminating in feet depending a selected axial distance below said bottom and forming the sole support for said bottle, said process comprising the steps of providing a mold having an axial spacing in that portion of said mold for producing said bottle between said bottom and said

feet which is greater than said selected axial distance, blow molding a bottle within said mold with a reduction of the cooling time of the blown bottle within said mold as compared to that cooling time required for a bottle formed in a conventional mold with an axial spacing equal to said selected axial



distance to thereby reduce molding cycle time and increase the production rate for said mold, and then permitting the blown bottle to finish cooling outside of said mold with said feet shrinking axially relative to said bottom back to substantially said selected axial distance.

4,267,145

PROCESS FOR PREPARING COLD WATER-SOLUBLE FILMS FROM PVA BY MELT EXTRUSION

Robert D. Wysong, Talleyville, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 739,280, Nov. 5, 1976, abandoned, which is a continuation-in-part of Ser. No. 525,446, Nov. 20, 1974, abandoned, which is a continuation-in-part of Ser. No. 430,554, Jan. 3, 1974, abandoned. This application Aug. 25, 1978, Ser. No. 936,795

Int. Cl.³ B29C *17/07*

U.S. Cl. 264—563 **13 Claims**

1. A process for making a cold water-soluble film 0.5-10 mils thick comprising melt-extruding a composition consisting essentially of 5 to 20 parts by weight of a polyethylene glycol, having an average molecular weight in the range between 325 and 550 (based upon measurement of the hydroxyl content thereof obtained by esterification of said glycol with phthalic anhydride/pyridine), in 100 parts by weight of a low molecular weight polyvinyl alcohol which is about 85 to about 90 mol% hydrolyzed (determined by saponification) and has a viscosity in the range between about 3 and about 10 cps as measured on a 4% aqueous solution at 20° C. (determined by the Hoeppler Falling Ball Method ASTM-D 1343-56, Part 8).

4,267,146

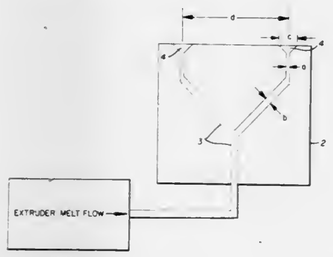
METHOD FOR REDUCING MELT FRACTURE DURING EXTRUSION OF ETHYLENE POLYMERS

Stuart J. Kurtz, Somerset; Theodore R. Blakeslee, III, Hillsborough, and Leonard S. Scarola, Union, all of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jan. 8, 1979, Ser. No. 1,932

Int. Cl.³ B29D *23/04*

U.S. Cl. 264—564 **12 Claims**



1. A process for reducing sharkskin melt fracture during extrusion of a molten narrow molecular weight distribution ethylene polymer into film form under film forming conditions of flow rate and melt temperature which would otherwise produce sharkskin melt fracture, which comprises extruding said polymer through a die having a die gap greater than about 50 mils and wherein at least a portion of one surface of the die lip and/or die land in contact with the molten polymer is at an angle of divergence or convergence relative to the axis of flow of the molten polymer through the die.

4,267,147

METHOD FOR PRODUCING FIBER REINFORCED STRUCTURE COMPONENTS

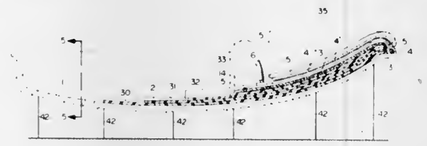
Dieter Pogoda, Hamburg; Claus Petters, Brekendorf, and Arno Rost, Diemelsee, all of Fed. Rep. of Germany, assignors to Messerschmit-Boelkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 846,816, Oct. 31, 1977, abandoned. This application Sep. 6, 1979, Ser. No. 72,890

Claims priority, application Fed. Rep. of Germany, Jun. 11, 1976, 2650859

Int. Cl.³ B29C *3/00*

U.S. Cl. 264—571 **7 Claims**



1. A method for producing a large structural component of fiber reinforced mats which are pre-impregnated by thermosetting synthetic material and which are applied to a conventional mold, comprising the steps of:

(a) applying strips of said fiber reinforced mats to a first surface area of a mold to build-up a given thickness of several layers in said first surface area and repeating said applying on further surface areas,

(b) applying pressure to said mats on said first surface area where the mats have reached said given layer thickness, for pressing said mats to the mold by covering said first surface area with a flexible means, providing a vacuum seal between said flexible means and said first surface area around the edges of said first surface area and evacuating the space between said flexible means and said first surface area,

(c) heating, outside an autoclave, said first surface area where the mats have reached said given layer thickness for curing said mats in said first surface area, and

(d) sequentially repeating said applying of pressure and heat for said curing on said further surface areas where said given layer thickness has meanwhile been reached, whereby the structural component is formed in a continuously advancing yet stepwise manner, so that said structural component may be cured by said thermosetting without regard to the size of available autoclaves, prior to its removal from the mold.

4,267,148

CORROSION MONITORING AND TESTING SYSTEM

Leon L. Dickson, and Bart T. Ellison, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 10, 1979, Ser. No. 101,969

Int. Cl.³ G01N *17/00*

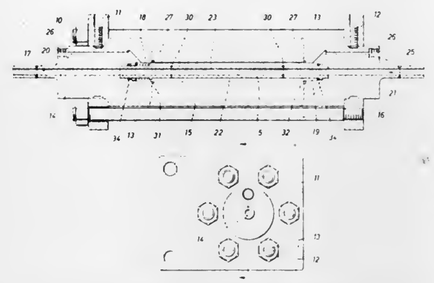
U.S. Cl. 422—53 **12 Claims**

1. Apparatus for monitoring the effects of certain corrosive fluids, comprising:

a sample tube divided along its axis into at least two parts, said parts having substantially the same mass as said tube before division, said tube having a finite inner diameter;

means for holding said sample tube having a fluid passageway therethrough substantially equal to said sample tube inner diameter, said means sealingly engaging said sample tube at each end such that fluid flow through said holding means and said sample tube occurs without restriction; said means for holding said sample tube comprising a main body for enclosing said sample tube having an opening therethrough of a larger cross-section than the cross-section of said sample tube, said opening comprising a fluid chamber;

a first body portion for joining said main body at one end in alignment with said opening having a passageway therethrough at least part of which has the same diameter as the



inner diameter of said sample tube, said first body portion providing for connecting to corrosive fluid flow;

a second body portion for joining said main body at its other end in alignment with said opening having a passageway therethrough at least part of which has the same diameter as the inner diameter of said sample tube, said second body portion providing for connecting to corrosive fluid flow; and,

means for clamping said first body portion, said main body, and said second body portion in a longitudinal orientation for fixedly supporting said sample tube within said fluid chamber, whereby said holding means may be dismantled and the sample tube parts examined for effects of corrosion after the corrosive fluid has been passed through said sample tube.

4,267,149

EVALUATION INSTRUMENT FOR AUTOMATIC PHOTOMETRIC ANALYSIS OF LIQUID SAMPLES

Elmar Bruckner, Bischberg; Hans Gausmann, Aalen; Philipp Schipper, Erlangen, and Walter Tausch, Aalen, all of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

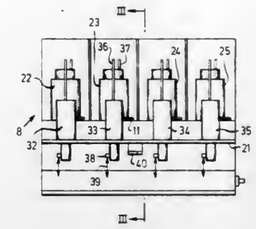
Filed Jan. 31, 1979, Ser. No. 8,038

Claims priority, application Fed. Rep. of Germany, Feb. 4, 1978, 2804881

Int. Cl.³ G01N *35/02, 33/50, 21/11*

U.S. Cl. 422—65 **11 Claims**

1. An evaluation instrument for the automatic analysis of a liquid specimen pursuant to a prescribed analysis program, said instrument comprising a specimen container, a specimen vessel, intermittently operative conveyor means for indexing the specimen vessel into consecutive positions, specimen-feeding means having an inlet connection to said specimen container and a discharge outlet at one of said positions for transferring to said specimen vessel when in said one position a predetermined volume of a liquid specimen from said specimen container, reagent-feeding means at another of said positions for supplying to said specimen vessel when in said other position a predetermined reagent dose, the reagent dose having been selected in accordance with the specific analysis to be performed, photometer means for measuring the specimen with instrument parameters adapted to the specific analysis, specimen-transfer means associated with said photometer means and operative at a further conveyor position to transfer reagent-mixed specimen liquid from said specimen vessel to said photometer means upon indexed displacement to said further position; said reagent-feeding means comprising a replaceably disposed holder having a plurality of different reagent containers for the respective different reagents necessary for the specific analysis, a separate metering pump associated with each



reagent container and operative to transfer reagent from a particular reagent container to said specimen vessel, said holder incuding pre-coded means unique to the specific analysis to be performed; and control means having a synchronizing connection to said conveyor means and a code-reading relation to the pre-coded means of an installed holder, as well as actuating connections to said specimen-feeding means and to said reagent-feeding means and to said photometer means, for determining the entire course of the specific analysis prescribed by said pre-coded means.

4,267,150

SPLASH GUARD DEVICE

Raymond A. Firestone, 60 Hunter Ave., Fanwood, N.J. 07023

Filed Aug. 30, 1979, Ser. No. 70,967

Int. Cl.³ B64C *27/42*

U.S. Cl. 422—103 **9 Claims**



1. A splash guard device which comprises a tube having one imperforated end and one open end; at least one void on the side of the tube adjacent the imperforated end and a joining means attached to the open end of said tube; said joining means having an outer surface means for sealing said splash guard device to a reboiling means for a distillation operation and an inner surface means for sealing said splash guard device to a condensing means for a distillation operation.

4,267,151

APPARATUS FOR CRYSTAL GROWTH CONTROL

Douglas A. Yates, Burlington; Arthur E. Hatch, Waltham, and Jeff M. Goldsmith, Medford, all of Mass., assignors to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Filed Jun. 14, 1978, Ser. No. 915,443

Int. Cl.³ C30B *15/36*

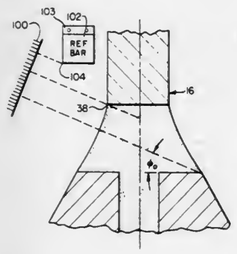
U.S. Cl. 422—105 **16 Claims**

1. In an apparatus for growing a crystalline body of selected material from a growth pool of melt so that said body has a selected cross-sectional shape for some preselected distance

along its length, said growth pool being characterized by a meniscus which joins said body at said growth pool providing a junction therebetween said apparatus comprising observation means spaced from said junction for observing said junction at an angle where a contrast is provided by differing amounts of reflected radiation from the respective surfaces of said meniscus and body at said junction; position determining means coupled to said observation means for determining the spatial position where the observed contrast between said meniscus and body occurs; and means responsive to said position determining means for controlling the speed at which the body is pulled from said growth pool or the temperature of said growth pool so that the spatial position where said observed constrast occurs can be controlled relative to a predetermined reference position, the improvement comprising;

reference object means positioned a predetermined distance from said observation means and positioned near said junction so that said observation means is also capable of observing said reference object means relative to the spatial position where said observed contrast occurs, such that (1) said reference object means defines said predetermined reference position and (2) shifts in the observed position of said junction due to convection currents between said junction and said observation means will be accompanied with similar shifts in the observed position of said reference object.

10. Apparatus for growing a crystalline body of selected



material from a growth pool of melt so that said body has a selected cross-sectional shape for some preselected distance along its length, said growth pool being characterized by a meniscus which joins said body at said growth pool providing a junction therebetween, said apparatus comprising:

means containing said growth pool;

reference object means positioned adjacent the junction where said meniscus meets said body;

observation means positioned a predetermined distance from said junction and said reference object for observing said body, said reference object means and said meniscus along an axis where an observable contrast between said body and meniscus is provided and the reference object means appears spaced from the junction and provides a contrast with the observed portion of said meniscus or said body spaced between the junction and reference object;

means for determining a first spatial position where a sharp contrast in reflected radiation occurs between said junction and said observed portion and a second spatial position where a sharp contrast in reflected radiation occurs between said observed portion and said reference object means;

means for referencing said first spatial position relative to said second spatial position; and

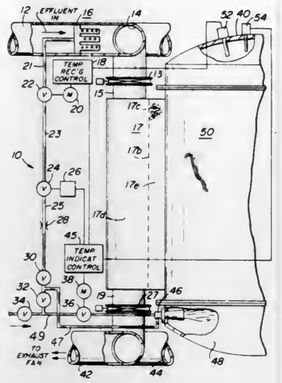
means for controlling the speed at which said body is pulled from said growth pool or the temperature of said growth pool so that said first spatial position can be controlled relative to said second spatial position.

4,267,152

ANTI-POLLUTION THERMAL REGENERATION APPARATUS

Edward H. Benedick, Morristown, N.J., assignor to Regenerative Environmental Equipment Co., Inc., Morris Plains, N.J.

Filed Jul. 25, 1979, Ser. No. 60,494
Int. Cl.³ F23G *7/06*
U.S. Cl. 422—111 **10 Claims**



1. Incineration apparatus to which noxious or polluting effluents produced by an industrial process or the like are applied for purification and in which there is a combustion chamber normally heated by a main heat source, the combination comprising:

(a) means for detecting when the temperature within said chamber attains a predetermined level,

(b) means outside of said combustion chamber for uniformly distributing a combustible fuel gas with substantially all of said effluents when said predetermined level has been attained and detected by said detecting means, and

(c) means coupled to said means for uniformly distributing said fuel gas for applying said effluents with or without said uniformly mixed fuel gas into said chamber.

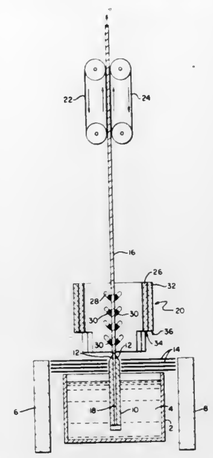
4,267,153

GRAVITY DAMPENED GUIDANCE SYSTEM

Aaron S. Taylor, Acton, Mass., assignor to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Filed Aug. 9, 1979, Ser. No. 65,281
Int. Cl.³ C30B *35/00, 15/34*
U.S. Cl. 422—249 **16 Claims**

1. In combination with apparatus for growing a continuous substantially flat crystal from a melt material, said apparatus including means for establishing a pool of said melt material and crystal pulling means vertically supported above said means for establishing said pool for pulling said crystal from said pool, a crystal growth guidance mechanism located between said means for establishing said pool and said crystal pulling means, said crystal growth guidance mechanism comprising a first plurality of guide rods, each respectively mounted on a corresponding one of a like plurality of pairs of spaced-apart ramped supports, said guide rods of said first plurality being spaced vertically apart with respect to one another, a second like plurality of guide rods, each respectively mounted on a corresponding one of a second like plurality of pairs of spaced-apart ramped supports, said guide rods of said second plurality being spaced vertically apart with respect to one another and disposed with respect to said first plurality of guide rods such that each guide rod of said first plurality opposes and is spaced from a corresponding guide rod of said second plurality by a predetermined spacing, the predetermined spacings between said first and second plurality of guide rods being such so as to define therebetween a vertically extending passageway between said means for establishing said pool and said crystal pulling means for guiding said crystal as it is pulled from said pool, said passageway having a width slightly less than the thickness of the crystal to be grown, said first and second pluralities of guide rods each having sufficient mass and number so that (1) when acting in unison said rods



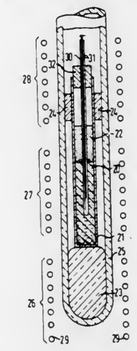
will provide sufficient resistance to prevent induced motion from being translated down the crystal to the top of said pool as said crystal is pulled from said pool, and (2) each guide rod will be moved against the force of gravity relative to the corresponding pair of ramped supports supporting the rod by localized surface perturbations in said growing crystal.

4,267,154

APPARATUS FOR MANUFACTURING HIGH QUALITY CRYSTALS

Georg Mueller, Birkenstr. 17, 8521 Langensendelbach, and Herbert Weiss, Normannenstr. 26, 8000 Munich 81, both of Fed. Rep. of Germany, assignors to Georg Mueller, Langensendelbach and Herbert Weiss, Munich, both of, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 68,219
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842605
Int. Cl.³ C30B *35/00*
U.S. Cl. 422—249 **4 Claims**



1. An apparatus for manufacture of highly quality crystals comprising:

(a) a centrifuge means having a horizontally operated arm;

(b) a temperature controllable crystal growth system positioned on said arm in a rotatable and tiltable manner;

(c) a furnace trap mounted on said centrifuge in a symmetrical fashion relative to the center of rotation;

(d) a shunt-motor operationally coupled to said centrifuge means for driving said centrifuge;

(e) an electromagnetic proximity switch in operational association with said centrifuge for measuring the number of revolutions of said centrifuge;

(f) a current supply means operationally associated with said crystal growth system;

(g) thermo-couples operationally associated with said crystal growth system for regulating and sensing the temperature thereof;

(h) acceleration-proof amplifiers positioned on said centrifuge arm for providing thermo-electrical voltages to said crystal growth system; and

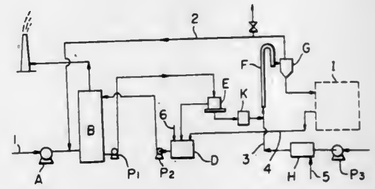
(i) a slip ring system mounted on said centrifuge means and operationally associated with said crystal growth system and said amplifiers for transmitting the thermo-electrical voltage from said amplifiers to said crystal growth system.

4,267,155

PROCESS FOR CLEANING FLUE GAS

Yoshio Kobayashi, Yokohama; Koichi Ando, Chigasaki, and Susumu Hyodo, Hiratsuka, all of Japan, assignors to Mitsubishi Kakoki Kaisha Ltd., Toyko, Japan

Filed Aug. 20, 1979, Ser. No. 67,772
Int. Cl.³ B01D *53/34*
U.S. Cl. 423—235 **5 Claims**



1. In a process for cleaning a flue gas containing SO_x, NO_x and O_2 by washing with an alkaline aqueous solution containing a NO_x removal catalyst, wherein a dithionate, a sulfate and an imidobissulfate, formed in said washing step are separated as their crystals, the improvement comprising heating the crystals to a temperature higher than the pyrolysis temperature of the dithionate but lower than the pyrolysis temperatures of the imidobissulfate to form a solid product and a gas containing SO_2, separating the gas containing SO_2 and feeding it into said alkaline aqueous solution for washing the flue gas whereby the SO_2 gas produced by the pyrolysis is effectively utilized for NO_x removal.

4,267,156

METHOD USING LIME SLURRY FOR REGENERATING SODIUM SULFITE IN DOUBLE ALKALI FLUE GAS DESULFURIZATION PROCESS

Leonard Dauerman, Ft. Lee; Krishna K. Rao, Paterson; Joseph C. Dabbs, Fort Lee, and Brian Delaney, Roseland, all of N.J., assignors to The Foundation at New Jersey Institute of Technology, Newark, N.J.

Filed Jul. 11, 1979, Ser. No. 56,467
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—242 **8 Claims**

1. In a flue gas desulfurization process wherein sulfur dioxide is reacted in a scrubber with an alkaline solution of sodium to form a sodium bisulfite solution, and wherein the sodium bisulfite solution is reacted with a lime slurry to regenerate the sodium solution for recycling to the scrubber, said slurry com-

prising lime particles of a predetermined size and a water carrier with said particles having a tendency to settle out of the water carrier at a predetermined velocity of the slurry, the improvement in the regenerating phase of the process comprising the steps of:

producing a stream of a lime slurry flowing at a rate greater than said particle settling velocity,

producing a stream of a sodium bisulfite solution flowing at a rate in relation to said lime slurry stream, and

simultaneously conflowing said streams into a bifurcated mixing nozzle having a pair of inlets for said streams and a common outlet to cause the lime to react with the sodium bisulfite in the nozzle to produce an effluent comprising a calcium sulfite precipitate and a regenerated alkaline solution of sodium.

4,267,157

PROCESS OF PREPARING METAL PHOSPHORUS TRISULFIDES

Edward T. Maas, Jr., Kendall Park, and John J. Steger, Scotch Plains, both of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Nov. 14, 1979, Ser. No. 103,536

Int. Cl.³ C01B *25/14*

U.S. Cl. 423—303 **8 Claims**

1. A process for producing metal phosphorus trisulfides of the formula MPS_3 wherein M is a metal selected from the group consisting of Mg, Ca, Sr, V, Mn, Fe, Co, Ni, Pd, Zn, Cd, Hg, Sn, Pb, Sm, Eu, Yb and mixtures thereof, said process comprising contacting, in a reaction zone, phosphides of said metals of the formula M_xP_y wherein the ratio of y/x ranges between $\frac{1}{8}$ to 5/1 with one or more compounds of the formula PS_z wherein z ranges from 1-3, said PS_z being present in the reaction zone as a liquid in equilibrium with its vapor and in an amount sufficient to exceed the amount of P and S stoichiometrically required to form the desired MPS_3, for a time sufficient to produce said MPS_3.

4,267,158

CONTINUOUS PROCESS FOR THE PRODUCTION OF AMORPHOUSE SODIUM ALUMINOSILICATE

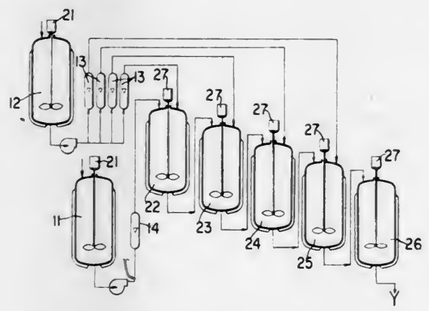
Peter Christophliemk, Dusseldorf; Willi Wüst, Ratingen-Hoesel, and Franz-Josef Carduck, Haan, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf and Deutsche Gold-und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, both of, Fed. Rep. of Germany

Filed Mar. 5, 1980, Ser. No. 127,382

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910147

Int. Cl.³ C01B *33/26, 33/28*

U.S. Cl. 423—329 **12 Claims**



1. A process for the continuous production of an aqueous, alkaline suspension of x-ray amorphous sodium aluminosilicate having a small particle size of at least 99% by volume of a particle size of less than 50μ, suitable for conversion into zeolite sodium aluminosilicate of the smallest particle sizes, by mixing an aqueous sodium aluminate solution with an aqueous sodium silicate solution in the presence of excess sodium hydroxide solution at a temperature in the range of from 20° to 103° C., where the solutions being mixed have a mathematical total molar ratio of:

1.5 to 9 Na_2O:1 Al_2O_3:1 to 7 SiO_2:40 to 400 H_2O

consisting essentially of the steps of continuously passing one of said two aqueous solutions into the first zone of a progressively, separately zoned mixing area, continuously splitting the other aqueous solution into at least three partial streams, continuously passing the first of said partial streams into said first zone, continuously passing the mixed contents of said first zone into the second zone of a progressively, separately zoned mixing area, continuously passing the remainder of said partial streams separately into downstream zones of said progressively, separately zoned mixing area, where said mean holding time of the reaction mixture in each of said separately zoned mixing areas is at least 5 seconds and sufficient to effect substantial mixing of said contents.

4,267,159

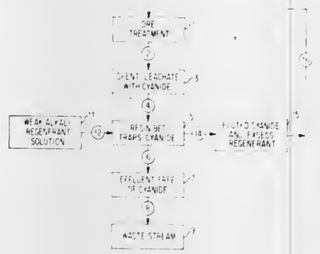
CYANIDE RECOVERY

George J. Crits, Havertown, Pa., assignor to Crane Co., New York, N.Y.

Filed Aug. 8, 1980, Ser. No. 176,355

Int. Cl.³ C01C *3/08;* **B01J** *41/04;* **C02F** *1/42;* **C22B** *3/00*

U.S. Cl. 423—371 **17 Claims**



1. In treatment of particulate ore with aqueous liquor comprising cyanide to segregate minerals therefrom, wherein spent aqueous liquor is discharged subsequently, the improvement comprising the steps of passing the spent liquor through a bed of Type II strong-base anion-exchange resin and thereby removing and retaining cyanide present in the liquor, subsequently passing weak alkaline regenerant solution through the bed and thereby eluting cyanide therefrom and regenerating the resin, and recycling the regenerant solution with eluted cyanide for further ore treatment.

12. Process of separating free and complexed cyanide anions from aqueous liquor containing both, comprising passing such aqueous liquor through a bed of Type II anion-exchange resin and thereby segregating the cyanides from the effluent from the bed, passing weak base or salt solution at intervals through the bed and thereby eluting the free cyanide, then passing strong base or salt solution through the bed and thereby eluting the complexed cyanide.

4,267,160

CARBON BLACK FOR LOW-HYSTERESIS RUBBER COMPOSITIONS

Gerard Kraus, and Harold R. Hunt, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 822,779, Aug. 8, 1977, abandoned, which is a division of Ser. No. 681,977, Apr. 30, 1976, Pat. No. 4,071,496. This application Sep. 17, 1979, Ser. No. 75,874

Int. Cl.³ C01B *31/02;* **C09C** *1/48*

U.S. Cl. 423—456 **10 Claims**

1. A process for making carbon black having a tint residual −6 or less, comprising the steps of:

(a) passing a vortex of hot combustion gases through a reaction flow passage in a carbon black reactor having in series a first section of a first diameter, a second section having an inlet of a second diameter smaller than said first diameter and an outlet of a third diameter, and a third section of a fourth diameter larger than said third diameter, said reaction flow passage abruptly widening from said second section to said third section so that by passing the vortex of hot combustion gases from said second section to said third section said gases are rapidly expanded; and

(b) introducing a hydrocarbon feedstock radially into said hot combustion gases at a location in said third section adjacent the reactor wall and in the proximity of the abrupt diameter change between the second section and the third section.

4,267,161

METHOD OF MAKING ALUMINUM CHLOROHYDRATE

William C. Ziegenhain, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Apr. 21, 1980, Ser. No. 142,587

Int. Cl.³ C01F *7/56, 7/02*

U.S. Cl. 423—462 **8 Claims**

1. A method for preparing aluminum chlorohydrate comprising

(a) reacting aluminum alkoxides with methanol at a temperature of from about 130° F. to about 450° C. for a time sufficient to form solid aluminum methoxide in a liquid phase,

(b) washing the aluminum methoxide recovered with methanol to remove higher alcohols, then recovering solid aluminum methoxides from the liquid phase, and

(c) reacting aluminum methoxide with aqueous hydrochloric acid for a time and at a temperature sufficient to form aluminum chlorohydrate.

4,267,162

PROCESS AND APPARATUS FOR THE EXPLOITATION OF THE SULFUR COMPOUNDS CONTAINED IN GASES CONTAINING OXYGEN AND A HIGH WATER VAPOR CONTENT

Franz Maier, Markt Schwaben, Fed. Rep. of Germany, assignor to Süd-Chemie Aktiengesellschaft, Lenbachplatz, Fed. Rep. of Germany

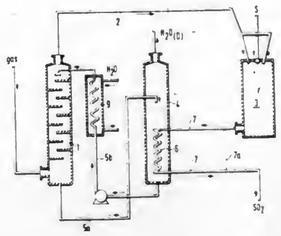
Continuation of Ser. No. 646,825, Jan. 6, 1976, abandoned. This application May 7, 1979, Ser. No. 36,958

Claims priority, application Fed. Rep. of Germany, Jan. 15, 1975, 2501419

Int. Cl.³ B01D *19/00;* **C01B** *17/52, 17/54*

U.S. Cl. 423—542 **17 Claims**

1. Process for the exploitation of the sulfur compounds of gases, said sulfur compounds consisting essentially of hydrogen sulfide or hydrogen sulfide mixed with organic sulfur compounds selected from the group consisting of CS_2, COS and mercaptans, said gases also containing oxygen in an amount sufficient to oxidize said hydrogen sulfide and water vapor in an amount corresponding to a relative humidity of from 30 to 100 percent, which comprises removing water vapor by treating the gases having temperatures of from 20 to 70° C. at atmospheric pressure with an ethylene glycol, and using the dried gas, still containing said sulfur compounds, as an oxidation gas for the burning of sulfur or for the roasting of



sulfidic ores in the production of highly concentrated sulfuric acid.

4,267,163

CARNITINE AND ITS USE IN REDUCING CARDIAC TOXICITY

Stephen L. De Felice, Westfield, N.J., assignor to Biocarn Limited, New York, N.Y.

Continuation-in-part of Ser. No. 681,063, Apr. 28, 1976, Pat. No. 4,075,352, which is a continuation-in-part of Ser. No. 485,301, Jul. 2, 1974, Pat. No. 3,968,241, which is a continuation-in-part of Ser. No. 303,772, Nov. 6, 1972, Pat. No. 3,830,931. This application May 23, 1977, Ser. No. 799,473

Int. Cl.³ A61K *49/00, 31/70, 31/71, 31/195*

U.S. Cl. 424—9 **8 Claims**

1. A method of reducing cardiac toxicity in humans which results from the administration to such human of a cytostatic compound selected from the group consisting adriamycin, adriamycin-14-octanoate, 4'-epi-adriamycin, adriamycin β-anomer and 4'-epi-adriamycin β-anomer which comprises administering to said human in combination with said cytostat an amount of β-hydroxy-γ-trimethylaminobutyric acid, an isomer thereof, a pharmaceutically acceptable salt thereof or a pharmaceutically acceptable salt of an isomer thereof sufficient to reduce cardiac toxicity.

4,267,164

EFFERVESCENT STANNOUS FLUORIDE TABLET

Kuo-Chen Yeh, Westfield, N.J., and Frank Mazzella, Brooklyn, N.Y., assignors to Block Drug Company Inc., Jersey City, N.J.

Filed Jan. 31, 1980, Ser. No. 117,124

Int. Cl.³ A61K *7/18, 9/46, 33/16*

U.S. Cl. 424—44 **8 Claims**

1. An effervescent stannous fluoride containing dental tablet comprising stannous fluoride and an effervescent couple consisting essentially of malic acid and an alkali metal bicarbonate in a weight ratio of about 3:2.

4,267,165

COMESTIBLES SWEETENED WITH ALPHA AMINO ACID DIHYDROCHALCONES

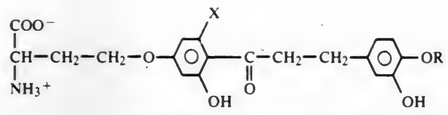
Grant E. DuBois, Palo Alto; Rebecca A. G. Stephenson, Redwood, and Guy A. Crosby, Palo Alto, all of Calif., assignors to Dynapol, Palo Alto, Calif.

Division of Ser. No. 19,054, Mar. 9, 1979, and a continuation-in-part of Ser. No. 19,054, Mar. 9, 1979. This application Dec. 12, 1979, Ser. No. 102,694

Int. Cl.³ A23L *1/236;* **A23G** *3/30;* **A61K** *7/16*

U.S. Cl. 424—48 **11 Claims**

1. A sweetened comestible comprising a comestible material in admixture with a concentration of a dihydrochalcone represented by the formula



wherein X is selected from between hydrogen and hydroxy and R is an alkyl of from one to four carbon atoms, which is effective to impart sweetness.

4,267,166

CYCLODEXTRINS AS MALODOROUS BREATH REDUCING AGENTS

Mizuo Yajima, Tokyo, Japan, assignor to Asama Chemical Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1980, Ser. No. 127,300
Claims priority, application Japan, Mar. 13, 1979, 54-28281
Int. Cl.³ A61K *7/16, 7/32, 9/68;* **A61L** *9/01*
U.S. Cl. 424—48 **10 Claims**

1. A method for treating a human being having pre-existing malodorous breath which comprises orally administering to said human being, an effective, malodor-reducing amount of a composition containing, as an effective malodor-reducing ingredient, from 0.5 to 50% by weight of cyclodextrin, with the balance of said composition being edible carrier safe for oral administration to human beings, said composition being in the form of edible particles, an edible troche, an edible liquid, chewing gum or toothpaste.

4,267,167

THIXOTROPIC TOPICAL FLUORIDE-PHOSPHATE GEL COMPOSITIONS USEFUL FOR THE PREVENTION OF DENTAL CARIES

Stewart Weitzman, Portland, and Roy D. Archibald, Gresham, both of Oreg., assignors to Cooper Care, Inc., Palo Alto, Calif.

Continuation of Ser. No. 626,068, Oct. 28, 1975, abandoned.
This application May 27, 1980, Ser. No. 153,089
Int. Cl.³ A61K *7/18, 33/16, 33/42*
U.S. Cl. 424—52 **6 Claims**

1. A fluoride-phosphate dental composition useful for topical application to the teeth for the control of dental caries, comprising a fluoride compound which is soluble in water to provide a source of fluoride ions under acid conditions, an acid phosphate compound which is soluble in water to provide a source of phosphate ions, a thixotropic constituent, and water, said thixotropic constituent serving to impart thixotropic properties to the resulting composition so that it exhibits fluid properties when agitated so as to facilitate its dispensation from a bulk container into a dental applicator tray but, when immobilized, sets up on the tray in a few seconds into a gel-like substance which penetrates to interproximal surfaces of all teeth with which it comes in contact and which, when followed by inversion and insertion of the tray in the mouth cavity over the lower teeth, will not drip, run or thin out in the presence of saliva for a sustained period of time of at least five minutes duration, said thixotropic constituent being compatible with fluoride ions under acid conditions and stable in pH range of approximately 3.0 to 4.5 and being within the range of 3.5 to 12% by weight of said fluoride-phosphate composition.

4,267,168

METHOD OF REDUCING BACTERIA ON HUMAN TISSUE USING LIQUID BIOCIDAL COMPOSITIONS COMPRISING A MIXTURE OF SILVER IONS AND SODIUM PECTATE

James W. Van Leuven, Duarte, Calif., assignor to Aquatain Partnership, Arcadia, Calif.

Division of Ser. No. 776,776, Mar. 11, 1977, Pat. No. 4,184,974, which is a continuation-in-part of Ser. No. 693,622, Jun. 7, 1976, abandoned, which is a continuation of Ser. No. 470,629, May 16, 1974, abandoned. This application Sep. 17, 1979, Ser. No. 75,979
Int. Cl.³ A01N *1/00, 59/16*
U.S. Cl. 424—75 **12 Claims**

1. A method for treating external tissue of a human body to reduce bactericidal count comprising the step of applying to such tissue a liquid biocidal composition comprising:

dodecyl benzene sulfonic acid or water soluble salt thereof in the range of from about 2.5 to 6% by weight;

lauryl diethanolamide in the range of from about 2.7 to about 6.5% by weight;

triethanolamine in the range of from about 1.1 to 3.0% by weight;

propylene glycol in the range of from about 1.2 to about 2.5% by weight;

glycerine in the range of from about 4 to about 10% by weight;

sodium polypectate in the range of from about 100 to about 400 parts per million;

silver ion in the range of from about 13 to about 250 parts per million;

sufficient ammonium hydroxide to maintain a pH in the range of from about 7.2 to about 7.8; and

a balance primarily of sterile distilled water substantially free of alkaline earth cations, halide ions, and strong acid anions.

4,267,169

NOVEL PREPARATION OF CLOTRIMAZOLE

Takuzo Kamishita, and Kazuhiko Kamishita, both of Takatsuki, Japan, assignors to Toko Yakuhin Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jul. 12, 1979, Ser. No. 56,978
Claims priority, application Japan, Jul. 22, 1978, 53-89787; Jul. 22, 1978, 53-89788; Jul. 22, 1978, 53-89789
Int. Cl.³ A61K *31/74, 31/415, 31/165*
U.S. Cl. 424—78 **13 Claims**

1. A preparation useful for external treatment of trichophytoses, which comprises a solution of clotrimazole in crotamiton in admixture with a carrier or diluent, wherein said clotrimazole is contained in an amount of 0.5 to 2% by weight and said crotamiton is contained in an amount of 2 to 10% by weight, based upon the total weight of the preparation.

11. A process for preparing a transparent gel preparation useful for external treatment of trichophytoses, which comprises dissolving clotrimazole in crotamiton, adding thereto ethanol or ethanol containing less than 40% by weight of propylene glycol and an aqueous solution of a carboxyvinyl polymer, and then neutralizing the mixture with a basic substance to a pH of 4 to 10, said gel preparation comprising 0.5 to 2.0% by weight of clotrimazole, 2 to 10% by weight of crotamiton, 30 to 70% by weight of ethanol or propylene glycol-containing ethanol, 0.1 to 3.0% by weight of the carboxyvinyl polymer, and remainder of water, and having a pH of 4 to 10 and a viscosity of 2,000 to 100,000 cps at 20° C.

4,267,170

METHODS OF USING CHLAMYDIA VACCINE FOR PREVENTING AND TREATING BOVINE DISEASES

Albert C. Seawell, 1047 Carol Ave., Ripon, Wis. 54971

Filed Sep. 6, 1979, Ser. No. 73,004
Int. Cl.³ A61K *39/118*
U.S. Cl. 424—88 **17 Claims**

1. A method of immunizing and treating bovines against *chlamydia psittaci* which comprises parenterally administering modified live Chlamydia feline pneumonitis vaccine to the bovines to stimulate the production of antibodies therein.

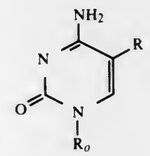
4,267,171

C-5 SUBSTITUTED CYTOSINE NUCLEOSIDES

Donald E. Bergstrom, Davis, and Jerry L. Ruth, Encinitas, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

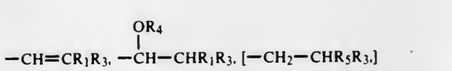
Filed Jul. 2, 1979, Ser. No. 53,943
Int. Cl.³ A61K *31/70;* **C07H** *17/00*
U.S. Cl. 424—180 **7 Claims**

1. A compound of the formula

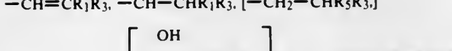


(I)

wherein R_o is β-D-ribofuranosyl, β-D-2-deoxyribofuranosyl or β-D-arabinofuranosyl and R is selected from the group consisting of



and



wherein R_1 is hydrogen; R_3 is hydrogen or methyl; R_4 is C_{1-4} lower alkyl; R_6 is hydrogen; and the pharmaceutically acceptable acid addition salts thereof.

4,267,172

BIS(TRIORGANOSILYLALKYL) PHOSPHITES

Shigeshi Toyoshima, Funabashi; Ryuichi Sato, Urawa; Koichi Ito, Higashi Kurume; Toshio Shinohara, and Masatoshi Arai, both of Annaka, all of Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Filed Sep. 25, 1979, Ser. No. 78,772
Claims priority, application Japan, Sep. 26, 1978, 53-118491
Int. Cl.³ A01N *55/00;* **C07F** *9/02, 7/08*
U.S. Cl. 424—184 **15 Claims**

1. A bis(triorganosilylalkyl) phosphite represented by the general formula

$$[R_3Si(CH_2)_nO]_2POH,$$

where R is a monovalent hydrocarbon group having from 1 to 6 carbon atoms and n is a number of 1, 2 or 3.

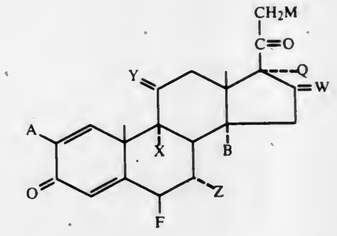
4,267,173

USE OF 6β-FLUORO-7α-HALOGENOCORTICOIDS AS TOPICAL ANTI-INFLAMMATORIES AND PHARMACEUTICAL FORMULATIONS USEFUL THEREFOR

Richard W. Draper, North Caldwell, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Filed Nov. 5, 1979, Ser. No. 91,612
Int. Cl.³ A61K *31/58*
U.S. Cl. 424—243 **17 Claims**

1. The method of treating an inflammatory condition in a warm-blooded animal responsive to treatment with anti-inflammatory agents, which comprises applying topically to the inflamed area, a non-toxic, anti-inflammatory-effective amount of a 6β-fluoro-7α-halogeno-1,4-pregnadiene of the following formula I together with a non-toxic, pharmaceutically acceptable carrier:



I

wherein A is hydrogen, or when Y is (H,β—OH), then A is also chlorine, bromine or methyl;

B is hydrogen, or taken together with Q is 14α,17α-alkylidenedioxy;

X is a member selected from the group consisting of hydrogen, fluorine and chlorine;

Y is (H,β—OH), (H,β—OCOH), or when X is chlorine then Y is also (H,β—fluorine) or (H,β-chlorine);

Z is halogen;

Q is OV wherein V is hydrogen or an acyl radical of a hydrocarboncarboxylic acid having up to 8 carbon atoms;

W is a member selected from the group consisting of (H,H), (H, lower alkyl); (H,α-OV_1) wherein V_1 is hydrogen or an acyl radical of an acid selected from the group consisting of a hydrocarboncarboxylic acid having up to 12 carbon atoms and retinoic acid; =CHT wherein T is a member selected from the group consisting of hydrogen, lower alkyl, fluorine and chlorine; and W together with Q is 16α,17α-lower alkylidenedioxy, 16α,17α-cycloalkylidenedioxy or 16α,17α-alkylorthoalkanoate; and

M is a member selected from the group consisting of chlorine and fluorine provided Q is other than hydroxy, and OV_2 wherein V_2 is hydrogen or an acyl radical of an acid selected from the group consisting of a hydrocarboncarboxylic acid having up to 12 carbon atoms, a hydrocarbonsulfonic acid having up to 12 carbon atoms; retinoic acid, and phosphoric acid and mono and di-alkali and alkaline earth metal salts thereof; and OV_2 together with OV is a member selected from the group consisting of alkylidenedioxy and alkylorthoalkanoate.

4,267,174

IMMUNE-STIMULATING AND CANCEROSTATIC 1-ACYL-2-CYANOAZIRIDINES

Herbert Berger, Mannheim-Kafertal; Rudi Gall, Hirschberg-Grossachsen; Wolfgang Kampe, Heddesheim; Uwe Bicker, Mannheim, and Rolf Kuhn, Mannheim-Waldhof, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim, GmbH, Mannheim, Fed. Rep. of Germany

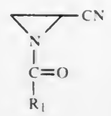
Filed Jun. 16, 1978, Ser. No. 916,389

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1977, 2731264

Int. Cl.[3] **A61K** *31/395;* **C07D** *403/06, 401/06, 405/06*

U.S. Cl. 424—244 **24 Claims**

1. A 1-acyl-2-cyanoaziridine of the formula



in which R_1 is

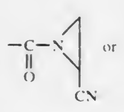
(a) a cyclic aliphatic hydrocarbon radical with 3 to 7 carbon atoms,

(b) a straight-chained or branched hydrocarbon radical with 1 to 5 carbon atoms which is mono- or di-substituted by

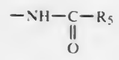
(1) a carbamoyl optionally mono- or di-substituted by a lower alkyl group,

(2) a lower alkoxy carbonyl,

(3) a lower alkoxy or a lower alkylthio substituted by a radical or the formula

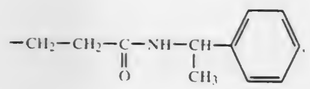


(4) an acylamino group of the formula

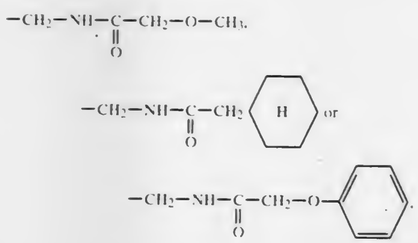


in which R_5 is hydrogen, lower alkoxy, vinyl or lower alkyl,

(c) a phenyl group which is substituted by a phenyl group,

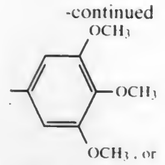


(d)

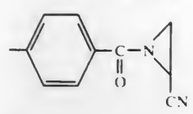


(e)

(f)



(g)



or a pharmacologically compatible salt thereof.

3. An immune-stimulating composition of matter consisting essentially of an immune-stimulating effective amount of a compound or salt according to claim **1** in combination with a pharmacologically compatible diluent.

4,267,175

BENZAMIDE DERIVATIVES

Eric A. Watts, Harlow, England, assignor to Beecham Group Limited, England

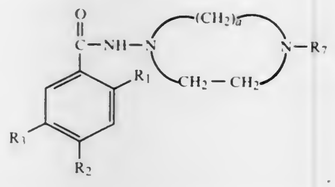
Continuation-in-part of Ser. No. 799,308, May 19, 1977, abandoned. This application Mar. 8, 1979, Ser. No. 18,625

Claims priority, application United Kingdom, Jun. 3, 1976, 22879/76; Jan. 1, 1977, 3474/77

Int. Cl.[3] **A61K** *31/495;* **C07D** *295/00*

U.S. Cl. 424—244 **37 Claims**

1. A compound of the formula:



and the pharmaceutically acceptable acid addition and quaternary salts thereof, wherein

R_1 is alkoxy of 1 to 6 carbon atoms;

R_2 is $—NH_2$ or alkanoylamino of 2 to 7 carbon atoms;

R_3 is hydrogen or halo;

R_7 is alkyl of 1 to 6 carbon atoms unsubstituted or monosubstituted with phenyl, said phenyl being unsubstituted or monosubstituted by halo, alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, hydroxy, nitro, trifluoromethyl, amino, or mono- or dialkylamino wherein alkyl contains from 1 to 6 carbon atoms; and

a has a value of 2 or 3.

4,267,176

AMINO OR ACYLAMINO-SUBSTITUTED PYRIMIDINYL CEPHALOSPORANIC ACID DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS THEREOF

Takashi Kamiya, Suita; Tsutomu Teraji, Toyonaka; Yoshiharu Nakai, Otsu; Kazuo Sakane, Amagasaki, and Jiro Goto, Suita, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

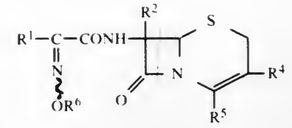
Continuation-in-part of Ser. No. 960,226, Nov. 13, 1978, abandoned. This application Apr. 24, 1979, Ser. No. 32,778

Claims priority, application United Kingdom, Nov. 14, 1977, 47352/77; Apr. 27, 1978, 16810/78; Sep. 4, 1978, 35436/78

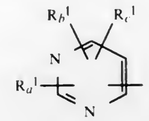
Int. Cl.[3] **A61K** *31/545;* **C07D** *501/56*

U.S. Cl. 424—246 **25 Claims**

1. A compound of the formula:



wherein R^1 is a group of the formula



in which

R_a^1 is amino or acylamino located at the 2, 4 or 6-position of the ring, acyl being selected from the group consisting of lower alkanoyl, halo (lower) alkanoyl, and lower alkoxycarbonyl, R_b^1 and R_c^1 are each hydrogen, halogen, lower alkoxy, phenylthio, tolylthio, xylylthio, mesitylthio or naphthylthio,

R^2 is hydrogen or lower alkoxy

R^4 is substituted or unsubstituted heterocyclic-thiomethyl, the heterocyclic moiety of R^4 being a 5 to 6-membered monocyclic group or an unsaturated bicyclic condensed heterocyclic group whose rings have 5 or 6 members, the ring atoms of said heterocyclic group being C and at least one hetero atom selected from N, O and S, the heterocyclic to thiomethyl bond being a C—S bond, the substituent in said substituted heterocyclicthiomethyl group being located in the heterocyclic moiety, and being selected from lower alkyl, C_{5-6} cycloalkyl, lower alkenyl, amino(lower) alkyl, lower alkoxy-carbonyl amino (lower) alkyl, carboxy (lower) alkyl, sulfo (lower) alkyl, phenyl, mono to tri halo substituted phenyl, and lower alkyl amino (lower) alkyl,

R^6 is hydrogen, lower alkyl, mono to tri halo (lower) alkyl, lower alkenyl, lower alkynyl, phenyl, tolyl, xylyl, cumenyl, naphthyl, phenyl (lower) alkyl, mono or di halo (lower) alkanoyl, or lower alkoxy, and R^5 is carboxy, or pharmaceutically acceptable esterified carboxy, and non-toxic pharmaceutically acceptable salts thereof.

24. A pharmaceutical antibacterial composition comprising, as an active ingredient, the compound of claim **1** in association with a non-toxic, pharmaceutically acceptable carrier or excipient.

4,267,177

β-LACTAM ANTI-BACTERIALS, COMPOSITIONS CONTAINING THEM, A PROCESS FOR THEIR PREPARATION, AND METHODS OF USE THEREOF

Andrew J. G. Baxter, Hull, England, assignor to Beecham Group Limited, England

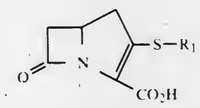
Filed Aug. 23, 1979, Ser. No. 68,898

Claims priority, application United Kingdom, Aug. 25, 1978, 34643/78

Int. Cl.[3] **C07D** *521/00;* **A61K** *31/545, 31/44;* **C07D** *401/14*

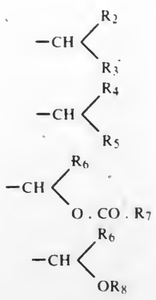
U.S. Cl. 424—246 **65 Claims**

1. A compound of the formula (II):



(II)

a pharmaceutically acceptable salt thereof or an ester thereof wherein the hydrogen atom of the carboxyl group is replaced by a group of the formula:



(a)

(b)

(c)

(d)

wherein:

R_2 is hydrogen or alkyl, alkenyl or alkynyl each of up to 3 carbon atoms;

R_3 is hydrogen or methyl;

R_4 is phenyl unsubstituted or substituted by fluorine, chlorine, bromine, nitro, methyl or methoxyl;

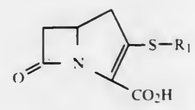
R_5 is hydrogen or phenyl unsubstituted or substituted by florine, chlorine, bromine, nitro, methyl or methoxyl;

R_6 is hydrogen or methyl;

R_7 is lower alkyl or lower alkoxy of up to 3 carbon atoms, or phenyl; or R_6 is joined to R_7 to form phthalidyl; and

R_8 is lower alkyl of up to 3 carbon atoms, phenyl, chlorophenyl or nitrophényl, each such ester being de-esterifiable by hydrogenolysis to the acid form of formula (II) and salifiable in conventional manner to pharmaceutically acceptable salt form and R_1 is pyridyl unsubstituted or substituted by one or two lower alkyl or lower alkanoyl of up to 3 carbon atoms.

65. A method of treating bacterial infections in humans and animals which comprises administering to a human or animal in need thereof, a synergistically effective amount of a compound of the formula (II):



(II)

or a pharmaceutically acceptable salt or ester thereof wherein the salt or ester is as defined in claim **1**, and R_1 is pyridyl unsubstituted or substituted by one or two lower alkyl or lower alkanoyloxy, and an antibacterialy effective amount of a penicillin or a cephalosporin.

4,267,178

DISUBSTITUTED PIPERAZINES

Gilbert Regnier, Chatenay Malabry; Michel Laubie, Vaucresson, and Jean-Claude Poignant, Bures sur Yvette, all of France, assignors to Science Union et Cie, Societe Francaise de Recherche Med., Surësnes, France

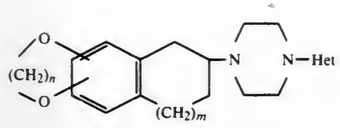
Filed Feb. 26, 1979, Ser. No. 14,876

Claims priority, application United Kingdom, Mar. 3, 1978, 8530/78

Int. Cl.[3] **A61K** *31/36, 31/335;* **C07C** *405/14*

U.S. Cl. 424—250 **8 Claims**

1. A compound selected from the group consisting of: disubstituted piperazines of the formula:



in which:

n is selected from 1 and 2;

m is selected from 0 and 1, and

Het is selected from the group consisting of pyridyl, pyrimidinyl, pyrazinyl, thiazolyl and thiadiazolyl and each of these radicals mono- and poly-substituted by alkyl having from 1 to 5 carbon atoms inclusive; and, physiologically tolerable acid addition salts thereof.

8. A method for treating a living animal body afflicted with hypertension, comprising the step of administering an amount of a compound of claim **1** which is effective for the alleviation of the said condition.

4,267,179

HETEROCYCLIC DERIVATIVES OF (4-PHENYLPIPERAZIN-1-YL-ARYLOXYMETHYL-1,3-DIOXOLAN-2-YL)METHYL-1H-IMIDAZOLES AND 1H-1,2,4-TRIAZOLES

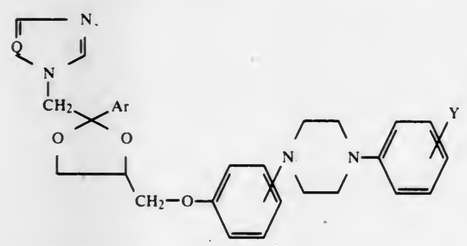
Jan Heeres, Vosselaar, and Leo J. J. Backx, Arendonk, both of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Continuation-in-part of Ser. No. 919,333, Jun. 23, 1978, abandoned. This application Mar. 14, 1979, Ser. No. 20,383

Int. Cl.[3] **A61K** *31/495;* **C07D** *405/14*

U.S. Cl. 424—25 D **7 Claims**

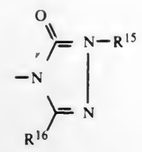
7. A composition for combatting the growth of a microorganism selected from the group consisting of fungus and bacterium comprising an inert carrier material and as an active ingredient an effective antifungal or antibacterial amount of a compound selected from the group consisting of an azole derivative having the formula



and the pharmaceutically acceptable acid addition salts and stereochemically isomeric forms thereof, wherein:

Q is a member selected from the group consisting of CH and N;

Ar is a member selected from the group consisting of phenyl, thienyl, halothienyl and substituted phenyl, said substituted phenyl having from 1 to 3 subtituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy and trifluoromethyl; and the radical Y is a 2,3-dihydro-4H-1,2,4-triazol-4-yl radical of the formula



(f)

wherein R^{15} is selected from the group consisting of lower alkyl and aryl lower alkyl and R^{16} is selected from the group consisting of hydrogen, lower alkyl, and aryl lower alkyl;

wherein said aryl as used in the foregoing definition is selected from the group consisting of phenyl and substituted phenyl, said substituted phenyl having from 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy and trifluoromethyl.

4,267,180

NOVEL ANTIBACTERIAL AMIDE COMPOUNDS AND PROCESS MEANS FOR PRODUCING THE SAME

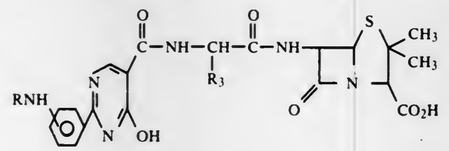
Theodore H. Haskell, Ann Arbor; Marland P. Hutt, Jr., Saline, and Ernest D. Nicolaides, Ann Arbor, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 19,984, Mar. 12, 1979, abandoned. This application Jan. 31, 1980, Ser. No. 117,318

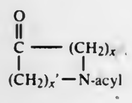
Int. Cl.[3] **A61K** *31/505;* **C07D** *499/68*

U.S. Cl. 424—251 **24 Claims**

1. A compound of the formula



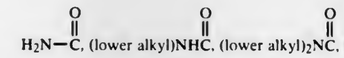
and pharmaceutically acceptable salts thereof; wherein R is



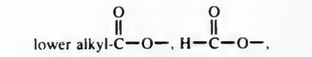
or $R_1[NR_4\text{-acyl}]_n$; x is an integer from one to five, x' is zero, one or two; R_1 is hydrogen, lower alkyl, benzyl or



wherein R_2 is hydrogen, amino or a lower alkyl group of from one to four carbon atoms, optionally substituted by from one to three chlorine or fluorine atoms; R_4 is hydrogen or lower alkyl; NH-acyl is an aminoacyl moiety derived from a carboxylic acid of from two to ten carbon atoms optionally substituted by from one to three of the following groups, hydroxyl, carboxyl,



lower alkylamido



lower alkoxy, lower alkylthio carbamido, amino, carbonyl oxygen or sulfonic acid; R_3 is phenyl, 4-hydroxyphenyl, 2-thienyl or cyclohexa-1,4-dien-1-yl and n is an integer of from one to four; when n is two to four, the acyl groups may be the same or different; when the acyl group is substituted by more than one group, the substituents may be the same or different.

23. An antibacterial pharmaceutical composition; comprising from 50 mg to 1000 mg of a compound of claim **1** and a pharmaceutical carrier.

4,267,181

HALOGENO DERIVATIVES OF ISOPROPYLAMINO PYRIMIDINE AND THERAPEUTIC USE

Andre Esanu, Paris, France, assignor to Societe d'Etudes de Produits Chimiques, Paris, France

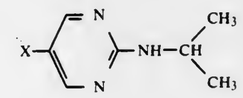
Filed Apr. 28, 1980, Ser. No. 144,761

Claims priority, application United Kingdom, May 15, 1979, 16918/79

Int. Cl.[3] **A61K** *31/505;* **C07D** *239/42*

U.S. Cl. 424—251 **2 Claims**

1. New isopropylamino pyrimidine halogeno derivatives of the formula:



in which X represents a fluorine, a chlorine or a bromine atom.

2. A therapeutic composition of mattter comprising, per dosage unit, from 1 mg to 0.1 g of a compound according to claim **1** together with an appropriate carrier.

4,267,182

NARCOTIC ANTAGONISTS IN THE THERAPY OF SHOCK

John W. Holaday, Rockville, Md., and Alan I. Faden, Washington, D.C., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 16, 1979, Ser. No. 3,699

Int. Cl.[3] **A01N** *43/42*

U.S. Cl. 424—260 **16 Claims**

1. A method of treating an animal which is suffering from a form of shock selected from the group consisting of anaphylactic, anaphylactoid, burn, cardiogenic, hypovolemic, and septic which comprises administering to said animal a therapeutically effective amount of a narcotic antagonist drug selected from the group consisting of naloxone, naltrexone, nalorphine, diprenorphine, levallorphan, pentazocine, metazocine, cyclazocine, etazocine and the pharmaceutically-acceptable acid addition salts thereof.

4,267,183

TETRAHYDROPYRIDINE DERIVATIVE

Malcolm Johnson, Wilmslow; Stuart D. Mills, Macclesfield, and Paul J. Phillips, Congleton, all of England, assignors to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 26,224, Apr. 2, 1979, Pat. No. 4,225,602. This application Feb. 7, 1980, Ser. No. 119,418

Claims priority, application United Kingdom, Apr. 12, 1978, 14322/78

Int. Cl.[3] **A61K** *31/44;* **C07D** *213/04*

U.S. Cl. 424—263 **3 Claims**

1. A pharmaceutical composition for inhibiting the aggregation of blood platelets in the form of a tablet, capsule, sterile injectable solution or suspension, suppository, oily solution or suspension, syrup or elixir, which comprises an effective amount of 1-(2-chlorobenzyl)-1,2,3,6-tetrahydropyridine or a pharmaceutically acceptable acid-addition salt thereof, together with a pharmaceutically acceptable diluent or carrier.

4,267,184

ANTIINFLAMMATORY 4,5-DIARYL-2-(SUBSTITUTED-THIO)PYRROLES AND THEIR CORRESPONDING SULFOXIDES AND SULFONES

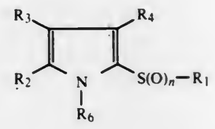
Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 10,259, Feb. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 972,201, Dec. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 886,337, Mar. 13, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,501

Int. Cl.[3] **C07D** *207/48, 207/36, 401/04, 409/04*

U.S. Cl. 424—263 **72 Claims**

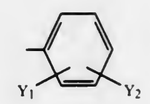
1. A compound of the formula



where

R_1=C_1-C_4 alkyl, C_1-C_4 mono- or polyfluoroalkyl or allyl;

R_2 and R_3, independently, =2-thienyl, 3-pyridyl, 3-pyridyl-N-oxide or



Y_1=C_1-C_4 alkyl, C_1-C_4 alkoxy, F, Cl, Br, H, $(R_5)_2N$ or $R_5S(O)_m$, wherein R_5=methyl or ethyl, and m=0, 1, or 2;

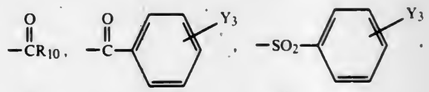
Y_2=H, F or Cl;

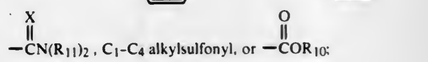
R_4=H or C_1-C_5 alkyl;

R_6=H, C_1-C_4 alkyl, allyl, $-CH_2CH_2N(R)_7)_2$,



2-tetrahydropyranyl, 2-tetrahydrofuranyl,





R_7=H, methyl or ethyl;

R_8=H or methyl;

R_9=C_1-C_3 alkyl, benzyl, $-CH_2CH_2OCH_3$, or

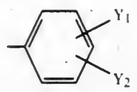


R_{10}=C_1-C_4 alkyl or benzyl;

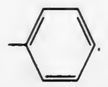
R_{11}=methyl or ethyl;

X=O or S;

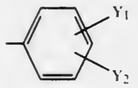
Y_3=H, F, Cl, Br, C_1-C_4 alkyl, C_1-C_4 alkoxy or nitro; and n=0, 1 or 2;
provided that when R_2 and R_3 both=



where Y_1 and Y_2 both=H, R_1 is CF_3; and further provided that when
R_1=CH_3, R_2=



R_3=



where one of Y_1 and Y_2=F and the other is H,
R_4=H and R_6=H,
n cannot be 2;
or its pharmaceutically suitable acid addition salt where at least one of
R_2 or R_3=3-pyridyl, Y_1=$(R_5)_2N$, or
R_6=—$CH_2CH_2N(R_7)_2$.

41. A method of treating arthritis in a mammal which comprises administering to the mammal an antiarthritic amount of a compound of claim **1**.

4,267,185
ANTIDEPRESSANT PYRROLYLPIPERIDINES, THEIR PHARMACEUTICAL COMPOSITIONS AND METHOD OF USE
Michael Finizio, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 9, 1980, Ser. No. 138,706
Int. Cl.[3] **C07D** *401/02;* **A61K** *31/455*
U.S. Cl. 424—267 **7 Claims**

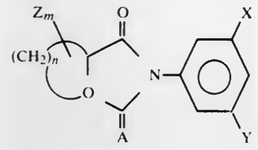
1. A compound selected from the group consisting of:
(a) 1-methyl-4-(1-methylpyrrol-2-yl)-4-piperidinol,
(b) 1,2,3,6-tetrahydro-1-methyl-4-(1-methylpyrrol-2-yl)pyridine, and
(c) a pharmaceutically acceptable salt of (a) or (b).

2. A pharmaceutical composition consisting essentially of a pharmaceutically acceptable carrier and an effective antidepressant amount of a compound of claim **1**.

3. The pharmaceutical composition of claim **2** wherein the compound is 1-methyl-4-(1-methylpyrrol-2-yl)-4-piperidinol or a pharmaceutically acceptable salt thereof.

4,267,186
COMBATING FUNGI WITH SUBSTITUTED SPIRO-DERIVATIVES OF 3-(3,5-DIHALOGENOPHENYL)-OXAZOLIDINE-2,4-DIONES (THIONE-ONES)
Hans-Joachim Knops, Wuppertal; Hans-Georg Heine, Krefeld; Wilfried Draber, Wuppertal, and Wilhelm Brandes, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Nov. 19, 1979, Ser. No. 95,715
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1978, 2852924
Int. Cl.[3] **A01N** *43/76;* **C07D** *261/04*
U.S. Cl. 424—272 **10 Claims**

1. A substituted spiro-derivative of 3-(3,5-dihalogenophenyl)-oxazolidine-2,4-dione(thione-one) of the formula

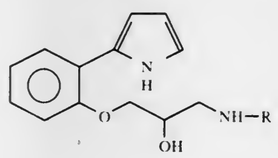


in which
A is oxygen or sulphur,
X and Y each independently is halogen,
Z each independently is alkyl with 1 to 4 carbon atoms or a fused cyclopentane, cyclohexane, cyclopentene or cyclohexene ring,
m is 1, 2, 3, or 4, and
n is 2 or 3.

9. A method of combating fungi which comprises applying to the fungi, or to a habitat thereof, a fungicidally effective amount of a compound according to claim **1**.

4,267,187
AMINOPROPANOL DERIVATIVES OF 2-(o-HYDROXYPHENYL)-PYRROLE
Fritz-Frieder Frickel, Ludwigshafen; Albrecht Franke, Wachenheim; Horst Koenig; Hans-Dieter Lenke, both of Ludwigshafen, and Josef Gries, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Aug. 8, 1979, Ser. No. 64,907
Claims priority, application Fed. Rep. of Germany, Aug. 12, 1978, 2835438
Int. Cl.[3] **A61K** *31/40;* **C01D** *207/30*
U.S. Cl. 424—274 **6 Claims**

1. A compound of the formula (I)



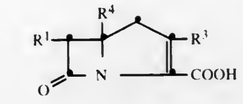
(I)

where R is alkyl of 3 to 6 carbon atoms which is branched at the carbon in the α-position to the nitrogen or an alkyl of 3 to 6 carbon atoms which is branched at the carbon in the α-position to the nitrogen and is substituted by an alkoxy group of 1 to 3 carbon atoms, and its physiologically acceptable acid addition salts.

4. A therapeutic agent for the treatment of cardiac and circulatory disorders which comprises a therapeutically effective amount of a compound as set forth in claim **1**, or a physiologically acceptable acid addition salt thereof, together with conventional excipients and diluents.

4,267,188
5-SUBSTITUTED-1-CARBA-PEN-2-EM-3-CARBOXYLIC ACID
Lovji D. Cama, Cresskill, and Burton G. Christensen, Scotch Plains, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Aug. 9, 1979, Ser. No. 65,306
Int. Cl.[3] **G07D** *487/04;* **A61K** *31/40*
U.S. Cl. 424—274 **32 Claims**

1. A compound having the structural formula:



and a pharmaceutically acceptable salt thereof wherein:
R^1 is selected from the group consisting of hydrogen, hydroxyloweralkyl and hydroxyloweralkyl substituted by trifluoromethyl;
R^4 is selected from the group consisting of loweralkyl, phenyl and benzyl; and
R^3 is selected from the group consisting of hydrogen; loweralkyl which may be substituted by hydroxy, amino, formamidino, acetamidino, guanidino, and aminoloweralkyl; and phenyl which may be substituted by loweralkoxy, hydroxyloweralkyl, aminoloweralkyl, and the mono-, di-, and tri-loweralkyl derivatives thereof, formamidinoloweralkyl, acetamidinoloweralkyl, guanidinoloweralkyl and carboxyl.

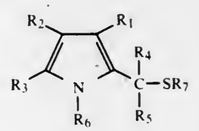
32. An antibiotic pharmaceutical composition comprising a therapeutically effective amount of a compound according to claim **1** and a pharmaceutical carrier therefor.

4,267,189
METHOD OF USE AND COMPOSITION FOR 1,3-DIHYDRO-3-(2-HYDROXY-2-METHYLPROPYL)-2H-ISOINDOL-1-ONE
Wilbur Lippmann, St. Laurent, Canada, assignor to American Home Products Corporation
Filed Sep. 24, 1979, Ser. No. 78,548
Int. Cl.[3] **A61K** *31/40*
U.S. Cl. 424—274 **5 Claims**

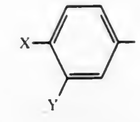
1. A method of treating ulcers in a mammal, which comprises orally or parenterally administering to said mammal an effective ulcer alleviating amount of 1,3-dihydro-3-(2-hydroxy-2-methylpropyl)-2H-isoindol-1-one.

4,267,190
ANTIINFLAMMATORY 4,5-DIARYL-α,α-BIS(POLYFLUOROMETHYL)-1H-PYRROLE-2-METHANETHIOLS
Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 18, 1980, Ser. No. 141,663
Int. Cl.[3] **A61K** *31/40;* **C07D** *207/323, 207/333, 401/04*
U.S. Cl. 424—274 **24 Claims**

1. A compound of the formula



wherein
R_1=H or C_1-C_2 alkyl;
R_2 and R_3 independently=3-pyridyl or

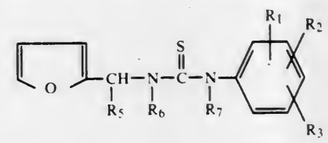


where
X=H, F, Cl, Br, C_1-C_2 alkyl, C_1-C_2 alkoxy, di(C_1-C_2 alkyl-)amino or $CH_3S(O)_n$—where n=0, 1 or 2; and
Y=H, F or Cl;
with the proviso that when Y is F or Cl, then X is F or Cl;
R_4 and R_5 independently=CF_3, CF_2H, CF_2Cl, or $CFCl_2$;
R_6 and R_7 independently=H, C_1-C_6 alkyl, C_1-C_6 alkanoyl, benzyl or benzyl substituted with up to two atoms selected from the group consisting of F, Cl, Br, NO_2, and CF_3; or
a pharmaceutically suitable acid addition salt where R_2 or R_3 is 3-pyridyl or dialkylaminophenyl; or
a pharmaceutically suitable metal salt where R_7 is H.

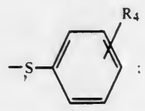
17. A method of treating arthritis in a mammal which comprises administering to the mammal an antiarthritic amount of a compound of claim **1**.

4,267,191
PROCESS FOR ENHANCING GROWTH PROMOTION IN ANIMALS
Pamela K. Baker, Hopewell; Goro Asato, Titusville, and John Dusza, Nanuet, all of N.J., assignors to American Cyanamid Company, Stamford, Conn.
Filed May 21, 1980, Ser. No. 152,267
Int. Cl.[3] **A61K** *31/44*
U.S. Cl. 424—285 **10 Claims**

1. A method for enhancing the growth rate of an animal and increasing the efficiency of feed utilization thereby, comprising: orally or parenterally administering to said animal an effective amount of a compound having the structure:



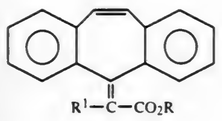
wherein R_1 is hydrogen, halogen, alkyl C_1-C_4, alkoxy C_1-C_4, CF_3, alkylthio C_1-C_4, nitro, cyano, C_1-C_4 alkanoyl —$COOR_4$ or



R_2 and R_3 each represent hydrogen, halogen, alkyl C_1-C_4 or alkoxy C_1-C_4; R_4 is hydrogen or alkyl C_1-C_4; R_5, R_6 and R_7 are each hydrogen or alkyl C_1-C_4.

4,267,192
METHOD FOR TREATING INFLAMMATION
Milton Wolf, West Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.
Filed Mar. 11, 1980, Ser. No. 129,296
Int. Cl.[3] **A61U** *31/19, 31/235*
U.S. Cl. 424—308 **4 Claims**

1. A method of treating inflammation in a mammal which comprises administering thereto an effective amount of a compound having the formula:



where R is hydrogen or an alkyl group of 1–4 carbon atoms, R^1 is hydrogen or an alkyl group of 1–4 carbon atoms, and pharmaceutically acceptable salt thereof.

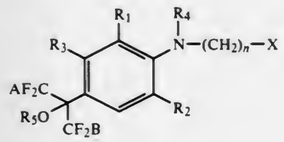
4,267,193

N-SUBSTITUTED-4-(POLYFLUORO-2-HYDROXY-2-PROPYL)ANILINES AND COMPOUNDS RELATED THERETO

Bernard R. Neustadt, and Elijah H. Gold, both of West Orange, N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed May 4, 1979, Ser. No. 35,962
Int. Cl.³ A01N *37/10*; C07C *101/72*
U.S. Cl. 424—309 **7 Claims**

1. A compound of the formula



wherein

A and B are independently hydrogen, chloro or fluoro;

R_1 is hydrogen, halo, lower alkyl or lower alkoxy;

R_2 is halo, lower alkyl or lower alkoxy;

R_3 is hydrogen or lower alkyl;

R_4 is hydrogen or lower alkyl;

R_5 is hydrogen or lower alkyl;

n is 1–3; and

X is carboxy; and the pharmaceutically acceptable salts thereof.

6. A method of treating hypertension which comprises administering to a hypertensive mammal an antihypertensive amount of a compound of claim 1.

4,267,194

CALCIUM DERIVATIVES OF TAURINE HAVING REINFORCED NEURO-MUSCULAR ACTIVITY

Jean P. Durlach, Paris, France, assignor to Les Laboratories Meram, Paris, France

Continuation-in-part of Ser. No. 888,202, Mar. 20, 1978, Pat. No. 4,199,601. This application Dec. 14, 1979, Ser. No. 103,730
Claims priority, application France, Mar. 23, 1977, 77 08692
Int. Cl.³ C07C *143/155*; A61K *31/195*
U.S. Cl. 424—315 **6 Claims**

1. A derivative of taurine represented by the formula:

$$(CH_3—CO—NH—CH_2—CH_2—SO_3)_2—Ca^{++}.$$

6. A method for the treatment of alcoholism comprising administering an effective amount of the compound recited in claim 1.

4,267,195

DOG FOOD FLAVORS

James C. Boudreau, and Thomas D. White, both of Houston, Tex., assignors to University of Texas, Austin, Tex.

Continuation of Ser. No. 722,103, Sep. 10, 1976, abandoned. This application Mar. 21, 1978, Ser. No. 888,795
Int. Cl.³ A23K *1/00*
U.S. Cl. 426—2 **10 Claims**

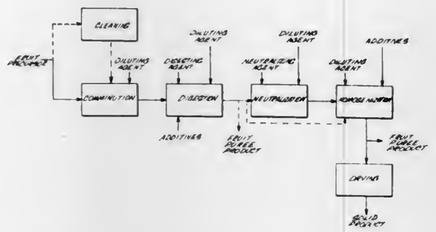
1. A process for improving the palatability of a nutritionally balanced dog food containing protein, fat, carbohydrates, vitamins and minerals, consisting essentially of incorporating into the dog food an amount of a palatability improving material selected from the group consisting of L-proline, L-cysteine, L-histidine, L-lysine, inosine 5'-triphosphate, inosine 5'-diphosphate, adenosine 5'-triphosphate or a combination of these; the amount of the palatability improving material being effective to increase the palatability of the dog food.

4,267,196

FOOD FROM NON-EDIBLE FRUIT BY-PRODUCTS AND METHOD FOR PRODUCTION

Ian F. Johnston, 4001 Westerly Pl., Suite 106, Newport Beach, Calif. 92660

Continuation of Ser. No. 830,127, Sep. 2, 1977, abandoned. This application Nov. 27, 1978, Ser. No. 963,816
Int. Cl.³ A23L *1/212*
U.S. Cl. 426—49 **37 Claims**



1. A method for preparing a palatable and edible food product for human consumption from a fruit precursor comprising substantially non-edible and substantially non-palatable portions of a fruit selected from the group consisting of citrus fruits, pineapple, banana, papaya, mango, and combinations thereof, the fruit precursor containing amylytic enzymes and cells, the method comprising the steps of:

(a) comminuting the precursor to a weight average particle size of less than about 40 mesh, the comminuted precursor having a pH of about 1.9 to about 5.2;

(b) digesting the comminuted precursor by combining an edible, water-soluble digesting agent with the comminuted precursor for adjusting the pH of the precursor to a value at which the precursor cells rupture and amylytic enzymes in the precursor are active; and

(c) neutralizing the digested precursor by changing the pH of the digested precursor with an edible, water-soluble neutralizing agent to about the value of the pH of the comminuted precursor prior to digestion.

4,267,197

ANIMAL FEED SUPPLEMENT AS A THIXOTROPIC STABLE SUSPENSION

James W. Sawhill, Canoga Park, Calif., assignor to Pacific Kenyon Corporation, Long Beach, Calif.

Continuation of Ser. No. 917,472, Jun. 21, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,903
Int. Cl.³ A23K *1/22*
U.S. Cl. 426—69 **11 Claims**

1. a method for the preparation of a thixotropic animal feed suspension supplement which consists essentially of:

(1) incorporating, as the sole gelation agent, in an aqueous sugar solution containing at least 12 weight percent sugar, ammonium orthophospate or sulfate in sufficient quantity to form a gel;

(2) controlling the pH value of the gel to a value from about 6.5 to about 7.5;

(3) adding to said gel water-insoluble, powdered-solid animal feed nutrients comprising from 2 to about 20 weight percent of at least one member selected from the class consisting of calcium carbonate, calcium sulfate, calcium phosphate, and mixtures thereof, having a size passing about a 100 mesh, and retained on about a 325 mesh standard screen, and

(4) adjusting the water content of the mixture to provide a viscosity thereto from 4,000 to about 10,000 cps.

4,267,198

MELT-COATED PREPARATION CONTAINING SORBIC ACID

Kazuo Sato; Akira Asahi, both of Arai, and Takahiro Koyama, Amagasaki, all of Japan, assignors to Daicel Ltd., Sakai, Japan

Filed Jun. 27, 1979, Ser. No. 52,641
Claims priority, application Japan, Jun. 27, 1978, 53-78243
Int. Cl.³ A23B *4/10, 4/12*
U.S. Cl. 426—332 **14 Claims**

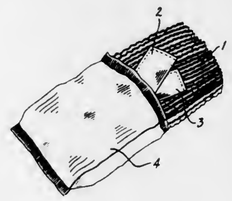
1. A melt-coated solidified spherical preparation comprising sorbic acid particles bound together by and coated with a coating agent composed mainly of a solid fat, at least 80% by weight of said sorbic acid having a particle diameter greater than 80 microns and up to a maximum particle size of about 150 microns, the amount of said sorbic acid in said spherical preparation being about 0.9 to 2 times the weight of the coating agent.

4,267,199

NOODLE SOUP MIX

Daikichi Koshida, Toyonaka; Ko Sugisawa; Yasushi Matsumura, both of Nara, and Kazumitsu Taga, Neyagawa, all of Japan, assignors to House Food Industrial Company Limited, Osaka, Japan

Filed Aug. 6, 1979, Ser. No. 63,599
Claims priority, application Japan, Aug. 7, 1978, 53-108623[U]
Int. Cl.³ A23L *1/40, 1/16*
U.S. Cl. 426—589 **8 Claims**



1. A convenience food comprising:

(a) dehydrated noodles,

(b) a first soup adapted to maintain the pH value of the liquid obtained after boiling said noodles with said first soup at more than 7, and

(c) a second soup having an acidity sufficient to reduce the pH value of the liquid to 5.0 to 7.0 by adding said second soup to the liquid obtained from boiling the dehydrated noodles with the first soup.

4,267,200

AGGREGATED MIXED-MOISTURE FLAKED COFFEE OF HIGH AROMA

Caren A. Klien, Wyoming, and Donald R. Gieseker, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

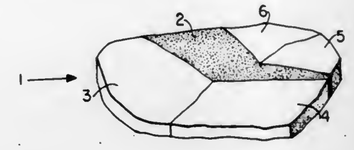
Filed Oct. 26, 1978, Ser. No. 955,054
Int. Cl.² A23F *1/00*
U.S. Cl. 426—595 **10 Claims**

1. A method of making an improved flaked roast coffee product characterized by increased extractability of the water-soluble flavor constituents and increased initial aroma intensity and comprising coffee flake aggregates, said method comprising the steps of:

A. Comminuting roast low-moisture coffee beans at a temperature of below 40° F., said low-moisture coffee beans having a moisture content of from about 1% to about 3.5% by weight of said low-moisture coffee beans thereby forming a low-moisture roast and ground coffee;

B. comminuting roast high-moisture coffee beans at a temperature of below 40° F., said high-moisture coffee beans having a moisture content of about 4.5% to 7% by weight of said high-moisture coffee, thereby forming a high-moisture roast and ground coffee;

C. Admixing said low-moisture roast and ground coffee and said high-moisture roast and ground coffee at a temperature of below 40° F., the mixture having an average moisture content of about 3% to 5% by weight;



D. passing the coffee mixture of step (C) through a roll mill at a feed rate of about 10 lbs./hr.-inch of nip to 400 lbs./hr.-inch of nip, said roll mill having

I. a roll pressure of from about 150 lbs./in. of nip to about 4000 lbs./in. of nip,

II. a roll temperature of from about 40° F. to about 80° F.,

III. a static gap setting of less than 0.001 inch,

IV. a roll peripheral speed of from about 470 ft./min. to 1880 ft./min., and

V. a roll diameter of from about 6 inches to 48 inches, to produce coffee flake aggregates having a flake thickness of about 0.009 inch to 0.016 inch;

and thereafter

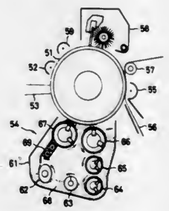
E. screening said coffee flake aggregates to produce a flaked roast coffee product such that no more than 60% by weight of said product passes through a U.S. Standard 30 mesh screen.

4,267,201

MAGNETIC BRUSH DEVELOPMENT APPARATUS AND METHOD

Tosio Nakahara; Hidetoshi Yano, and Nobuo Kasahara, all of Yokohama, Japan, assignors to Ricoh Company, Ltd., Japan

Filed Oct. 17, 1979, Ser. No. 85,490
Claims priority, application Japan, Oct. 20, 1978, 53-129176; Oct. 20, 1978, 53-129177
Int. Cl.³ B05D *1/04, 1/06, 5/00*
U.S. Cl. 427—27 **4 Claims**



1. In a process for attracting a powder developer containing magnetic powder onto a development roller to form a magnetic brush for contact with an electrostatic image on the surface of one of a photoconductor member and a recording member, the process being of the type including the steps of magnetically attracting the powder into contact with a moving

non-magnetic outer surface of a developer application roller having an internally disposed stationary magnet and transferring the developer from said outer surface to the development roller, the improvement which comprises the steps of terminating the rotation of said developer application roller when development is not performed and rotating said development roller irrespective of whether development is performed.

3. A magnetic brush development apparatus for attracting a powder developer containing magnetic powder and transferring the developer for contact with an electrostatic image comprising: a container for holding the developer, a developer application roller rotatably mounted in said container for transporting said developer, said developer application roller including a movable non-magnetic outer sleeve and a stationary magnet disposed within said sleeve, a development roller rotatably mounted in said container adjacent said developer application roller for receiving the developer therefrom and transporting the developer for contact with the electrostatic image, means for continuously rotating said development roller whether or not development is performed and for stopping rotation of said developer application roller when development is not performed.

4,267,202

METHOD FOR MODIFYING THE SURFACE PROPERTIES OF POLYMER SUBSTRATES

Hiroyuki Nakayama, and Tsuguo Nezu, both of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Japan

Filed May 21, 1979, Ser. No. 40,672
Claims priority, application Japan, Jun. 9, 1978, 53-69679
Int. Cl.³ B05D *3/06*
U.S. Cl. 427—40 **8 Claims**

1. A method for modifying the surface properties of polymer substrates which comprises the steps of:

subjecting the surfaces of said polymer substrates to glow discharge treatment under the conditions of a current frequency of 1 to 10^7 kHz, a power consumption of 5 to 1000 W and a pressure of 0.01 to 10 Torr;

applying a photopolymerizable composition containing a radically polymerizable compound capable of grafting to said surfaces to said treated surfaces of polymer substrates; and

irradiating said photopolymerizable composition on said surfaces of polymer substrates with actinic rays;

thereby grafting the radically polymerizable compound contained in said photopolymerizable composition, to the surfaces of said polymer substrates.

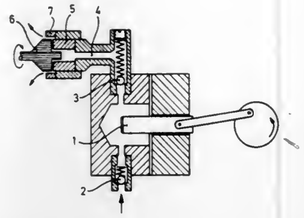
4,267,203

MANUFACTURE OF MAGNETIC RECORDING MEDIA

Herbert Motz, Willstaett; Dieter Schaefer, Lindenberg; Werner Huebner, Frankenthal, and Dieter Mayer, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 18, 1979, Ser. No. 86,135
Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846623
Int. Cl.³ B05D *3/14*
U.S. Cl. 427—48 **3 Claims**

1. In a process for the manufacture of a magnetic recording medium by dispersing a mixture of particulate anisotropic magnetic material and additives in a solution of a polymeric binder in an organic solvent, applying a layer of the dispersion to a non-magnetizable base, orienting the anisotropic magnetic materials by means of a magnetic field and drying the coating, the improvement which comprises: subjecting the dispersion, before application to the base, to a pressure of from 98 to 784



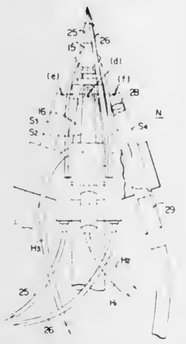
bar and immediately thereafter releasing the dispersion under pressure through a valve onto an impact member.

4,267,204

METHOD OF MANUFACTURING STRIPED PHOSPHOR SCREEN FOR BLACK MATRIX TYPE COLOR PICTURE TUBE

Yoshifumi Tomita; Masahiro Nishizawa, and Takashi Fujimura, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 9, 1978, Ser. No. 959,151
Int. Cl.³ H01J *29/32*
U.S. Cl. 427—68 **6 Claims**



1. A method of manufacturing a striped phosphor screen for a black matrix type color picture tube, comprising the steps of:

forming a pattern of stripes of a light-absorbing material on the inner surface of a faceplate of a panel of an envelope to define transparent striped windows between the light-absorbing portions on the inner surface of said faceplate; and

applying phosphor materials of different kinds on said striped windows on which said light-absorbing material does not lie by the use of a nozzle assembly having at least one nozzle; wherein said phosphor material applying step includes,

(a) supplying said nozzle with a phosphor material,

(b) controlling the position of said nozzle with respect to said faceplate while said nozzle is in motion with respect to said faceplate, the controlling including adjusting the nozzle position in a direction perpendicular to the length of said stripes in the plane of said faceplate and in a direction perpendicular to said faceplate, so that phosphor material will be properly applied to said striped windows,

(c) causing said nozzle to sweep along a striped window while said nozzle discharges the phosphor material onto said striped windows,

(d) causing said nozzle to move from one striped window to the next while said nozzle stops the discharge of the phosphor material each time sai nozzle finishes a complete sweep of one striped window, and

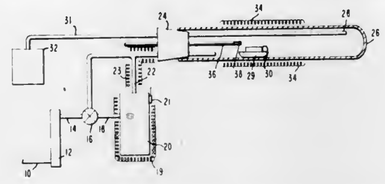
(e) repeating the above steps (b)–(d) as many times as necessary to finish the sweep of the whole effective area of said faceplate by said nozzle.

4,267,205

PROCESS FOR LOW-TEMPERATURE SURFACE LAYER OXIDATION OF A SEMICONDUCTOR SUBSTRATE

Ricardo C. Pastor, Manhattan Beach; Remedios K. Chew, Canoga Park, and Luisa E. Gorre, Gardena, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 15, 1979, Ser. No. 66,606
Int. Cl.³ B05D *5/12;* **H01L** *21/316*
U.S. Cl. 427—93 **4 Claims**



1. A process for forming a coherent, uniform oxide layer on the surface of a silicon wafer which comprises:

(a) providing said wafer; and

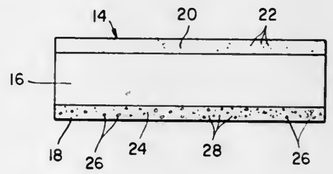
(b) heating said wafer at 750° C. in a vapor mixture of predetermined amounts of iodine and water that is conducive to the formation of atomic oxygen for a period of time sufficient to enable said oxygen to react with the surface atoms of said wafer to form said uniform, coherent oxide layer.

4,267,206

PROCESS OF MAKING HIGH-TEMPERATURE MAGNETIC TAPE

Robert A. Johnson, Graham, Tex., assignor to Graham Magnetics, Inc., North Richland Hills, Tex.

Division of Ser. No. 887,545, Mar. 17, 1978, Pat. No. 4,189,514.
This application Oct. 12, 1979, Ser. No. 84,399
Int. Cl.³ B05D *5/12*
U.S. Cl. 427—128 **2 Claims**



1. A process for coating a pre-polymerized polyurethane based binder system, dispersed in a tetrahydrofuran solvent system onto a polyimide substrate comprising the step of incorporating a quantity of dimethylformamide (DMF) into said binder system before said coating is carried out, thereupon coating said binder system onto said substrate, and removing said DMF by evaporation, wherein said quantity of DMF is effective to form means to increase the adherence between said pre-polymerized polyurethane binder system and said substrate.

4,267,207

PROCESS FOR PRODUCING COBALT-CONTAINING FERROMAGNETIC IRON OXIDE POWDER

Koji Sasazawa; Tatsuji Kitamoto; Goro Akashi; Kouichi Masaki, and Shinichiro Dezawa, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 886,863, Mar. 15, 1978, abandoned.
This application May 14, 1979, Ser. No. 39,028
Claims priority, application Japan, Mar. 16, 1977, 52-29102
Int. Cl.³ B05D *5/12*
U.S. Cl. 427—129 **20 Claims**

1. A process for producing a cobalt-containing ferromagnetic iron oxide powder suitable for magnetic recording which comprises

(a) mixing cobalt ion, ferrous ion and an alkali with an aqueous dispersion of acicular ferromagnetic iron oxide nuclei under non-oxidizing conditions of nitrogen gas or inert gas which completely prevent oxidation at a temperature of about 50° C. or less;

(b) heating the dispersion to a temperature of at least about 60° C. but below the boiling point of the dispersion under non-oxidizing conditions of nitrogen gas or inert gas which completely prevent oxidation to cause a reaction;

(c) treating the dispersion at a temperature of at least about 60° C. but below the boiling point of the dispersion under the following conditions:

(1) initially treating the dispersion under non-oxidizing conditions of nitrogen gas or inert gas which completely prevent oxidation for about 5 minutes or more;

(2) subsequentially treating the dispersion under oxidizing conditions for about 5 minutes or more prior to the termination of the reaction; and

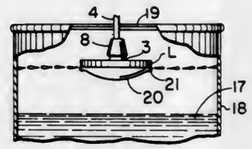
(3) a total treating time under non-oxidizing conditions and oxidizing conditions of at least about 30 minutes, said non-oxidizing conditions which completely prevent oxidation being maintained by bubbling nitrogen or an inert gas through said dispersion and said non-oxidizing conditions being maintained continuously from said mixing of said (a) through said initial treating of step (c) (1).

4,267,208

COATING OF OPTICAL LENS FOR BLOCKING PURPOSES

Jack W. Ireland, 664 Merriman Rd., Akron, Ohio 44303

Filed Jul. 30, 1979, Ser. No. 61,949
Int. Cl.³ B65B *33/00;* **B05D** *5/00, 3/12;* **B32B** *3/02*
U.S. Cl. 427—154 **8 Claims**



1. The method of coating the convex side of an optical lens for blocking and for grinding and polishing the concave side which comprises dipping the convex side in solvent-containing liquid coating material in a can while the lens is held by a suction cup coaxially on the upwardly facing concave side; moving the suction cup upwardly to withdraw the convex side and adhering coating material above the level of the coating material; rotating the suction cup about its vertically disposed axis to spin the lens about its vertically disposed axis to centrifugally spread out said coating material as a continuous film covering said downwardly facing convex side and to centrifugally spin-off excess coating material from the periphery of said convex side against the inside of the can for reuse while forming a thickened bead-like peripheral portion at the periph-

ery of said convex side which, after de-blocking of the lens, facilitates peeling of the film in one piece from said convex side; and upwardly withdrawing the suction cup and lens from the can while continuing the spinning of said lens at least until the film of coating material on said convex side has dried sufficiently for handling.

4,267,209

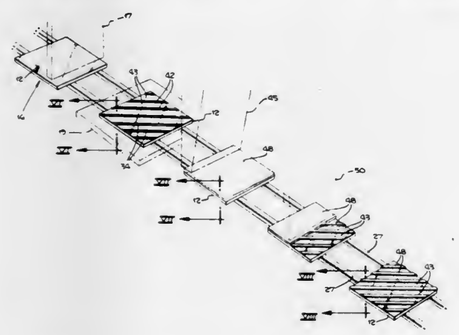
METHOD OF DECORATING A SURFACE OF A CERAMIC ARTICLE

Martin B. Hanson, Huntington Beach, Calif., assignor to Interpace Corporation, Parsippany, N.J.

Continuation of Ser. No. 794,849, May 9, 1977, abandoned. This application Jun. 5, 1979, Ser. No. 45,751

Int. Cl.[3] B05D *5/02, 1/12, 1/36*

U.S. Cl. 427—199 **9 Claims**



1. In a method of decorating a ceramic surface on a ceramic body, the step of:

advancing a ceramic body having a top surface to be decorated along a path;

supplying a flowable ceramic and organic adhesive material including an organic gum, Bentonite, and a frit material adjacent to said path;

flowing said adhesive material onto said surface to be decorated to provide a preselected design defined by first surface areas covered by said material and by secod surface areas not covered by said material;

said first surface areas being sticky at ambient temperatures;

flowing discrete hard dry granules of a ceramic composition material including an organic gum over said first and second surface areas as said body moves along said path;

said granules adhering to said adhesive material in said first sticky surface areas and not adhering to said second areas;

removing said granules from said second surface areas while said body moves along said path;

and firing said ceramic body, adhesive material thereon, and granules on said adhesive material, wherein said granules, adhesive material and ceramic body interact with each other to provide a coherent design said organic gum in said granules coacting with the organic gum, Bentonite, and frit material in the adhesive material to maintain said coherent design by inhibiting crawling of the granules during firing and fusing the granules to the ceramic body and the adhesive material and to provide some granular identity after firing.

4,267,210

METHOD FOR PRODUCING CORROSION-, HEAT- AND OXIDATION-RESISTANT MATERIALS

Seishi Yajima; Kiyohito Okamura; Toetsu Shishido, and Yoshio Hasegawa, all of Oharai, Japan, assignors to The Foundation: The Research Institute for Special Inorganic Materials, Ibaragi, Japan

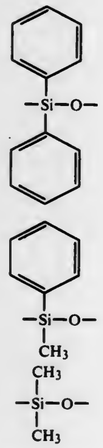
Filed Jul. 25, 1979, Ser. No. 60,563

Claims priority, application Japan, Jul. 28, 1978, 53-91432; Dec. 22, 1978, 53-157506; Dec. 23, 1978, 53-158158

Int. Cl.[3] B32B *17/10, 15/08*

U.S. Cl. 427—226 **10 Claims**

1. A method for producing a corrosion-, heat and oxidation-resistant material which comprises coating a substrate composed of at least one material selected from metals, carbonaceous substances and ceramics with a semi-inorganic compound, and heat-treating the coated substrate at a temperature of 300° to 2000° C. said semi-inorganic compound being a modified organoborosiloxane compound obtained by reacting an organoborosiloxane compound composed of (1) at least one siloxane unit selected from the group consisting of



(A),

(B), and

(C)

the content of the siloxane unit (C) being 0 to 30 mole% based on the total siloxane units, and (2) a boroxane unit of the formula



(D)

with at least one organic compound selected from the group consisting of polyhydric aliphatic alcohols, aromatic alcohols, phenols and aromatic carboxylic acids at a temperature of from 250° to 450° in an atmosphere inert to the reaction.

4,267,211

PROCESS FOR PRODUCING CORROSION-, HEAT- AND OXIDATION-RESISTANT SHAPED ARTICLE

Seishi Yajima; Kiyohito Okamura; Toetsu Shishido, and Yoshio Hasegawa, all of Oharai, Japan, assignors to The Foundation: The Research Institute for Special Inorganic Materials, Kashima, Japan

Filed Nov. 8, 1979, Ser. No. 92,405

Claims priority, application Japan, Nov. 13, 1978, 53-138937; Dec. 22, 1978, 53-157506; Dec. 23, 1978, 53-158158

Int. Cl.[3] B05D *3/02*

U.S. Cl. 427—228 **5 Claims**

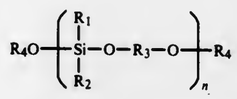
1. A process for producing a corrosion-, heat- and oxidation-resistant shaped article which comprises coating a shaped article composed of at least one material selected from metals, carbonaceous substances and ceramics with a coating composition comprising a semi-inorganic compound, and heat-treating the coated article at 400° to 2,000° C. in a non-oxidizing atmosphere, said semi-inorganic compound being at least one polymer selected from the group consisting of

(1) polycarbosilanes of the following formula

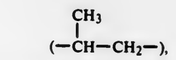


wherein R_1, R_2, R_3, R_4 and R_5, independently from each other, represent a hydrogen atom, an alkyl group having not more than 4 carbon atoms, a haloalkyl group having not more than 4 carbon atoms, a phenyl group, a cycloalkyl group having 5 to 8 carbon atoms, a benzyl group or a vinyl group, and n is from 5 to 200, and

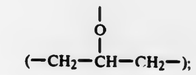
(2) polycarbosiloxanes of the formula



wherein R_1, R_2 and R_4, independently from each other, represent an alkyl group having not more than 4 carbon atoms, a haloalkyl group having not more than 4 carbon atoms, a phenyl group, a cycloalkyl group having 5 to 8 carbon atoms, a benzyl group or a vinyl group; R_3 represents a linear alkylene group of the formula $-(CH_2)_n-$ in which n is an integer of 1 to 6, a propylene group



or a glycerol group



and n is from 2 to 200.

4,267,212

SPIN COATING PROCESS

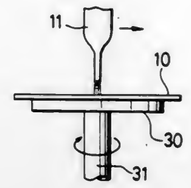
Shinichi Sakawaki, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Sep. 19, 1979, Ser. No. 77,070

Claims priority, application Japan, Sep. 20, 1978, 53-115368

Int. Cl.[3] B05D *5/10, 1/40*

U.S. Cl. 427—240 **16 Claims**



1. A spin coating method in which after a coating solution is supplied onto a horizontal substrate, said substrate is rotated about a rotary axis perpendicular to said substrate, and a coated film is formed to a desired thickness on said substrate by controlling the speed of rotation of said substrate, the improvement comprising; while said substrate is being rotated at a low speed of 50 to 150 rpm., moving a coating solution supplying nozzle radially of said rotating substrate to supply said coating solution onto said substrate to substantially uniformly coat said substrate with said coating solution and thereafter, said substrate is subsequently rotated to produce a desired thickness of said coating solution upon said substrate.

4,267,213

SULFONATO-ORGANOSILANOL COMPOUNDS AND AQUEOUS SOLUTIONS THEREOF

Boyd R. Beck, Spring City; Frank T. Sher, and George V. D. Tiers, both of St. Paul ,all of Minn., assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 895,528, Apr. 11, 1978. This application Oct. 10, 1979, Ser. No. 83,465

Int. Cl.[3] C07F *7/02*

U.S. Cl. 427—292 **4 Claims**

1. A process for imparting hydrophilicity to a substrate having a siliceous surface said process comprising the steps of:

(a) contacting said surface with an aqueous solution comprising a sulfonato-organosilanol compound having at least one sulfonato-organic substituent, wherein the weight percentage of oxygen in said compound is at least about 30%, and the weight percentage of silicon in said compound is not greater than about 15%, said percentages being taken with reference to the water-free acid form of said compound, and

(b) drying said solution on said surface.

4,267,214

METHOD AND APPARATUS FOR BROMINATING TACKY SURFACES OF A PHOTOPOLYMER ARTICLE

Leigh Jezorek, Somerville; Irving Pitel, Edison, and Richard Silverman, Clark, all of N.J., assignors to Kelleigh Corporation, Avenel, N.J.

Filed Sep. 18, 1979, Ser. No. 76,787

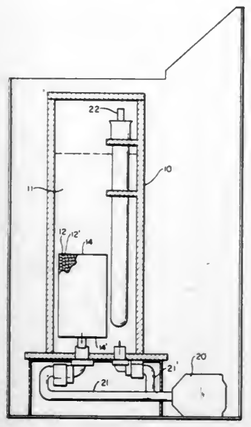
Int. Cl.[3] B05D *3/10*

U.S. Cl. 427—341 **7 Claims**

7. A method for treating the tacky portions of the surface of a photopolymer article comprising:

(a) immersing said photopolymer article in a zone containing

an aqueous solution of bromine and an ion-exchange resin to which elemental bromine has been added; and



(b) circulating said solution across said tacky photopolymer article surface and through said ion-exchange resin.

4,267,215

PROCESS FOR COATING A WEB USING REVERSE APPLICATOR ROLL

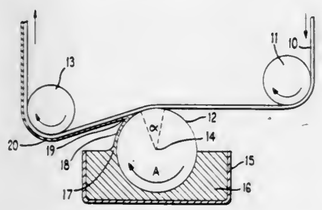
Aubrey F. Riggs, Knebworth, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jun. 5, 1978, Ser. No. 913,004

Claims priority, application United Kingdom, Jun. 23, 1977, 26307/77

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—372.2 **12 Claims**



1. A method of coating a surface of a web, consisting essentially of forwarding the web in contact with the surface of an applicator roll, supplying a flowable coating medium to the surface of the applicator roll in the absence of mechanical metering means cooperating with said applicator roll, and rotating the applicator roll in a direction contrary to the direction of forward movement of the web to transfer the coating medium from said applicator roll surface to said web surface wherein the dynamic viscosity of the coating medium and the peripheral velocity of the applicator roll are each selected in accordance with the relationship

$$h = k\eta^{0.5}U^{0.5}$$

such that a layer of coating medium of equilibrium thickness not exceeding 5.0 mm is entrained on the surface of the applicator roll for transfer to the surface of the web, and the ratio of the peripheral velocity of the applicator roll to the forward speed of the web is maintained at a value not exceed 0.4:1, wherein

h is the equilibrium thickness (mm) of the entrained coating medium on the applicator roll surface,

k has a value of from 0.01 to 100,

η is the dynamic viscosity (Nsm^{-2}) of the coating medium, and

U is the peripheral velocity (ms^{-1}) of the applicator roll.

4,267,216

METHOD FOR PROTECTING POWER CONNECTED MACHINE PART PAIRS FROM FRICTION CORROSION

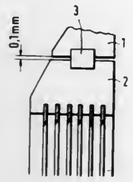
Klaus Boddenberg; Jürgen Waldmann, and Manfred Demmer, all of Duisberg, Fed. Rep. of Germany, assignors to Mannesmann Demag AG, Duisburg, Fed. Rep. of Germany

Filed Aug. 9, 1979, Ser. No. 65,375

Claims priority, application Fed. Rep. of Germany, Aug. 19, 1978, 2836334

Int. Cl.³ B32B *15/20;* **C23F** *15/00;* **F16B** *1/06*

U.S. Cl. 427—397.8 **8 Claims**



1. A method for protecting connected-together, paired bronze machine parts, which operate in the presence of oxygen and are subject to oscillatory load, from friction corrosion, comprising the steps of

(a) maintaining a separation distance between the mating surfaces of said machine parts of at least about 0.05 mm.; and

(b) carrying out said maintaining step by placing a single separating material between said machine parts, said separating material having a hard consistency and being selected from materials having a greater relative hardness than said machine parts.

4,267,217

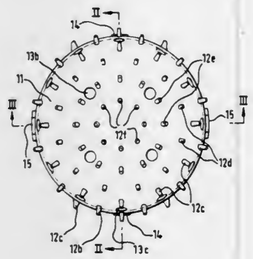
BALL

Bernard F. Brooker, Silver Birches Balcombe Rd., Crawley, Sussex, England

Division of Ser. No. 973,596, Dec. 27, 1978, Pat. No. 4,203,941. This application Sep. 19, 1979, Ser. No. 77,153

Int. Cl.³ A63B *37/02;* **A47G** *33/04*

U.S. Cl. 428—11 **3 Claims**



1. A supporting shell for fitting over a spherical core comprising a pair of half-spherical shells clipped or adapted to be clipped together, and having a plurality of spaced projections extending substantially radially therefrom with the tips located on an imaginary sphere concentric with the core.

4,267,218

SOLAR COLLECTOR WITH BLACKENED LAYER FACING INSULATION

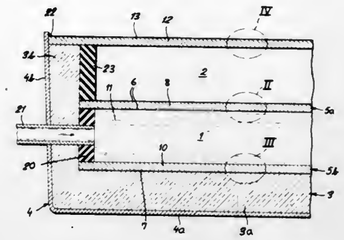
Robert Brügger, Neuss, Fed. Rep. of Germany, assignor to Langbein-Pfanhauser Werke AG, Neuss, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,075

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1978, 2815746

Int. Cl.³ F24J *3/02*

U.S. Cl. 428—35 **4 Claims**



1. A solar energy collector comprising:

a housing;

a heat exchange cell formed in said housing and traversible by a heat exchange medium to carry away collected thermal energy;

a heat-insulating chamber in said housing adjoining said cell along side thereof turned toward solar energy incident upon the collector; and

a body of insulating material in said housing along the side of said cell, said cell having a first wall separating it from said chamber and a second wall separating it from said body, each of said walls being constituted of an aluminum sheet, the sheet of said first wall being provided with black metal-containing aluminum oxide layers on both of its sides to form energy transmitter layers and the sheet of said second wall being formed with a black metal-containing aluminum oxide layer on its side turned toward said body of insulation and constituting an energy absorber layer, each of said black aluminum oxide layers containing a metal other than aluminum and selected from the group which consists of tin or silver.

4,267,219

FLOCKED LAMINATES HAVING ADHESIVE CONTAINING HOT-MELT POLYMER PARTICLES

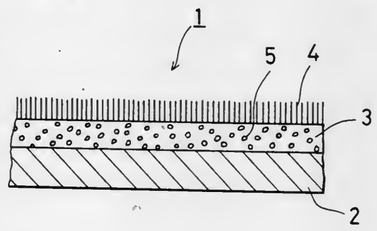
Hideo Ueno, Kawachinagano, and Juiti Miyosi, Sakai, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Sep. 17, 1979, Ser. No. 76,082

Claims priority, application Japan, Oct. 2, 1978, 53-122165

Int. Cl.³ B32B *33/00*

U.S. Cl. 428—90 **11 Claims**



1. A flocked laminate comprising a synthetic resin base layer having hotmelt adhering properties, an adhesive layer applied to said base layer, said adhesive layer prepared from a polymer emulsion and admixed with a finely divided synthetic resin compatible or identical with said base layer synthetic resin, in an amount of about 0.1 to about 50 parts by weight per 100 parts by weight of the solids of the polymer emulsion; and a flock layer formed on the adhesive layer.

4,267,220

DUST-CONTROLLING MAT HAVING GOOD FLAME-PROOFNESS

Akira Yagi, Takatsuki; Ichiro Miyoshi, Kobe, and Nobusue Nogami, Kyoto, all of Japan, assignors to Duskin Franchise Co., Ltd., Osaka, Japan

Filed Jan. 8, 1980, Ser. No. 110,531

Int. Cl.³ B32B *3/02*

U.S. Cl. 428—96 **10 Claims**

10. A dust-controlling mat comprising a base fabric, pile yarns formed by tufting spun yarns to said base fabric and a packing of a synthetic rubber or synthetic resin for fixing the pile yarns to the base fabric, wherein said pile yarns are spun yarns containing at least 10% by weight of staples of mix-spun fibers comprising 30 to 70% by weight of polyvinyl alcohol and 70 to 30% by weight of polyvinyl chloride, said mix-spun fibers have a micro-structure in which polyvinyl chloride is present in the form of fibrils in a matrix of polyvinyl alcohol, a dust adsorbing agent is adsorbed and retained in said pile yarns in an amount of 1 to 40% by weight based on said pile yarns, and dust adsorbing agent is a lubricating oil of the synthetic oil or mineral oil type or an organic phosphoric acid ester.

4,267,221

ARCHITECTURAL PANEL AND METHOD OF MAKING THE SAME

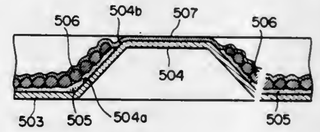
Takashi Ishikawa, No. 1355, Ooaza Higashine Ko, Higashine-shi, Yamagata-ken, Japan

Continuation of Ser. No. 931,498, Aug. 7, 1978, abandoned. This application Apr. 9, 1980, Ser. No. 138,816

Claims priority, application Japan, Aug. 23, 1977, 52-102031; Sep. 24, 1977, 52-114931; Apr. 22, 1978, 53-53759[U]; May 11, 1978, 53-63065[U]

Int. Cl.³ B32B *3/30, 5/16, 27/14*

U.S. Cl. 428—121 **9 Claims**

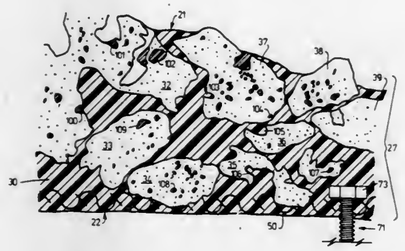


1. An architectural panel, comprising:

a one-piece base sheet having a substantially uniform wall thickness and which is embossed to form a multitude of protruding surface area portions having substantially flat upper walls which lie within a first common plane, the remainder of said sheet consisting essentially of a multitude of depressed surface area portions located between said protruding surface area portions, said depressed surface area portions having substantially flat upper faces which lie within a second common plane which is substantially parallel with said first common plane, said second common plane being offset vertically downwardly from said first common plane a distance in the range of from 0.3 to 5 mm, said protruding surface area portions being joined to said depressed surface area portions by downwardly inclined side walls which extend at an angle of from about 30° to 70° with respect to said first common plane; adhesive base coat layers made of synthetic resin and adhered to and covering the upper faces of said depressed surface area portions and said side walls; layers of particulate solids having a particle size in the range of 28 to 32 mesh respectively adhered to said adhesive base coat

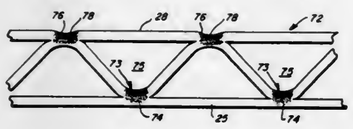
layers and substantially covering same; the upper walls of said protruding surface area portions being free of adhesive base coat layers and layers of particulate solids; and an overcoat synthetic resin layer covering the entirety of said layers of particulate solids and the upper walls of said protruding surface area portions.

4,267,222
COMPOSITE PANEL AND PROCESS OF ITS MANUFACTURE
Eugene D. Sanders, 624 Birge, Dumas, Tex. 79029
Continuation of Ser. No. 714,856, Aug. 16, 1976, abandoned. This application Jun. 14, 1978, Ser. No. 915,545
Int. Cl.³ B32B *5/16*
U.S. Cl. 428—150 **10 Claims**



1. A building panel comprising essentially, when completed, a main body mass consisting of a substantially rigid polyester resin in sheet form having molded therein a plurality of closely compacted porous scoria rock particles of varied size in range of ¼ to 1¼ inch diameter size and each comprising vesicules of varied size in range of 0.1 to 0.5 millimeters diameter that occupy the major portion of the volume of each such particle, such particles being compacted to form a substantially imcompressible mass, said polyester resin being of substantial tensile strength and extending between the rock particles and including fingerlike intrusions extending into the larger vesicules of the rock particles and holding the rock particles together, said compacted rock particles substantially filling the entire volume of the main body mass, and including rock portions extending beyond the volume occupied by such polyester resin mass.

4,267,223
CORRUGATED PLASTICBOARD
Henry D. Swartz, Chestnut Hill, Mass., assignor to Standard Oil Company (Indiana), Chicago, Ill.
Division of Ser. No. 921,501, Jul. 3, 1978, Pat. No. 4,188,253, which is a division of Ser. No. 754,504, Dec. 27, 1976, Pat. No. 4,132,581. This application May 9, 1979, Ser. No. 37,472
Int. Cl.³ B32B *3/30*
U.S. Cl. 428—172 **5 Claims**



1. A corrugated plasticboard having a core of corrugations which give rise to apexes, capable of being cleanly folded either parallel or transverse to said corrugations without a pressure assist bar, comprising: two face sheets separated and heat bonded to a corrugated core, wherein, on a first side of said corrugated core, a first of said two face sheets is heat bonded substantially along the complete width of apexes of said corrugated core, and wherein, on a second side of said corrugated core, a second of said two face sheets has separate heat bonds transverse to and spaced apart along substantially each apex of said corrugated core, wherein some of said heat bonds form colinear indentations transverse to a plurality of said corrugations which indentations are at such a depth that a smooth fold incorporating some of said indentations can be made by means of a flexing force about said some of said indentations without applying a pressure thereto by means of a pressure assist bar.

4,267,224
PLASTIC MATERIAL FOR SIMULATING ENGRAVED METAL PLATES
James C. Kanzelberger, Riverside, Ill., assignor to Contemporary, Inc., River Forest, Ill.
Continuation-in-part of Ser. No. 801,863, May 31, 1977, which is a division of Ser. No. 770,797, Feb. 22, 1977, Pat. No. 4,125,655, which is a continuation-in-part of Ser. No. 579,419, May 21, 1975, abandoned, which is a continuation-in-part of Ser. No. 454,166, Mar. 25, 1974, Pat. No. 3,940,864. This application Jul. 18, 1979, Ser. No. 58,568
Int. Cl.³ B32B *7/02, 27/06;* **B44C** *1/24*
U.S. Cl. 428—216 **13 Claims**



1. A plastic material comprising a laminated structure forming a plate having a metal-like appearance, said structure having a substrate layer of material which does not distort under hot stamping pressures and temperatures, a second layer of thermoplastic material having a predetermined thickness superimposed over said substrate, said thermoplastic material flowing under the heat and pressure of a hot stamping die, whereby the depth of the hot stamping debossment is limited to the predetermined thickness of said thermoplastic layer, and a film of non-heat-spreading material covering the surface of said thermoplastic material which is opposite said substrate, said film following and containing the flow of said thermoplastic material under hot stamping heat and pressure.

11. A process for making a debossable plastic material, said process comprising the steps of:

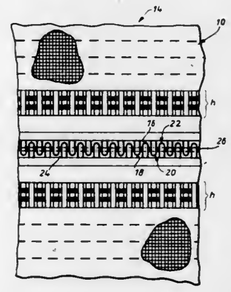
a. forming a substrate from a material which does not deboss under heat and pressure;

b. forming a layer of thermoplastic material of limited thickness integrally with and over the surface of said substrate, whereby debossment under heat and pressure is only possible in said layer of limited thickness; and

c. forming integrally with and over the surface of said thermoplastic material a heat-resisting film which does not spread said heat, said film having a thickness which follows and confines said debossment.

4,267,225
Patent Not Issued For This Number

4,267,226
FABRIC WEB AND A METHOD OF MAKING A FABRIC WEB FOR A DEWATERING MACHINE
Ernst Kohler, and Friedrich Moninger, both of Eislingen, Fed. Rep. of Germany, assignors to Wurttembergische Filztuchfabrik, Goppingen, Fed. Rep. of Germany
Filed Sep. 19, 1979, Ser. No. 76,688
Int. Cl.³ D21F *1/10*
U.S. Cl. 428—223 **22 Claims**



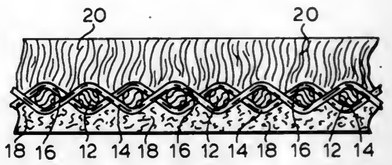
1. A fabric web for a drying section of a paper, paperboard and cellulose dewatering machine, said web comprising at least two fabric layers formed of longitudinal and transverse filaments, one of said layers having a plurality of longitudinal filaments of greater cross-section than the remainder of said longitudinal filaments at at least one end thereof, said one layer containing said longitudinal filaments of greater cross-section being folded back at said end, said folded back end of said layer and said longitudinal filaments of greater cross-section contained therein being secured to the other of said layers, said folded back and secured longitudinal filaments of greater cross-section forming a plurality of spaced apart curved connecting members at said end.

4,267,227
PRESS FABRIC RESISTANT TO WAD BURNING
Stanley C. Schiher, Troy, and Armen Renjilian, Colonie, both of N.Y., assignors to Albany International Corp., Albany, N.Y.
Filed Jan. 11, 1980, Ser. No. 111,367
Int. Cl.³ B32B *5/02*
U.S. Cl. 428—234 **4 Claims**

1. A wad burning resistant wet press fabric, which comprises:

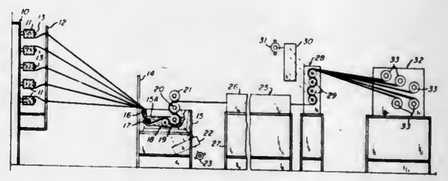
a base layer of a textile;

a surface layer for receiving a wet paper sheet, affixed to the base layer by needling, said surface layer comprising non-woven textile fibers of a high-temperature resistant, synthetic, polymeric resin; and



a coating of a high-temperature resistant, synthetic, water-insoluble, polyamide-imide polymeric resin on the surface exposed portions of said fibers.

4,267,228
METHOD FOR PRODUCING TEAR TAPE AND SEAL AND TEAR LINE FOR PACKAGING
Arnold F. Stone, Franklin, and William D. Kinnard, Spring Hill, both of Tenn., assignors to CPS Industries, Franklin, Tenn.
Continuation-in-part of Ser. No. 13,577, Feb. 21, 1979. This application Sep. 6, 1979, Ser. No. 72,961
Int. Cl.³ B32B *3/00, 5/06;* **D02G** *3/00;* **C09J** *7/00*
U.S. Cl. 428—297 **16 Claims**



1. A hot-melt adhesive line comprised of at least one bundle of fibrous strands and a hot-melt adhesive in sufficient quantity to effect interfibrous adhesion throughout the fibrous strands, the fibrous strands of said bundle having a denier of between 500 and 2200, said line having a preselected shape defined by an extruded outer layer of compacted hot-melt adhesive enclosing the bundle of fibrous strands, said line being adapted to adhere to a surface under an applied force causing lateral spreading and a reduction in thickness of both the hot-melt adhesive and bundle of fibrous strands from said preselected shape after reheating of the hot-melt adhesive and under application of said applied force.

4,267,229
DECORATIVE ACRYLIC SHEETS AND ARTICLES FORMED THEREFROM
Peter A. Knight, Darwen, and Janet P. Tilley, Welwyn, both of England, assignors to Imperial Chemical Industries Limited, London, England
Filed Oct. 30, 1978, Ser. No. 955,602
Claims priority, application United Kingdom, Nov. 14, 1977, 47283/77
Int. Cl.³ B32B *27/00*
U.S. Cl. 428—324 **14 Claims**

1. A coloured acrylic sheet having dispersed therein a mixture of pigments or a pigment and a dye, characterised in that said mixture comprises an inorganic pigment which is distributed non-uniformly throughout the sheet and concentrated preferentially towards one surface of the sheet and a colourant selected from an organic pigment, organic dye or a non-sedimenting inorganic pigment distributed substantially uniformly throughout the sheet, the concentration of non-uniformly distributed inorganic pigment being sufficient to give a total luminous transmittance of 0–50%, if the uniformly distributed colourant were absent from the sheet, and the concentration of

the uniformly distributed colourant being sufficient to give a total luminous transmittance of between 0 and 90%, if the non-uniformly distributed inorganic pigment were absent from the sheet, the total luminous transmittance values being measured on sheet 5 mm in thickness according to the method of ASTM D1003-59T using Procedure B, wherein a 3-dimensional depth of colour is visible through the surface of the sheet that is opposite the surface where the non-uniformly distributed inorganic pigment is preferentially concentrated.

4,267,230

FILM FOR A MAGNETIC BUBBLE DOMAIN DEVICE

Norio Ohta; Fumihiko Ishida, both of Hachioji; Tadashi Ikeda, Kodaira; Keikichi Ando, Musashino, and Yutaka Sugita, Tokorozawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 30, 1979, Ser. No. 89,380
Claims priority, application Japan, Nov. 1, 1978, 53/133713
Int. Cl.[3] G11B *5/64*
U.S. Cl. 428—336 **3 Claims**

1. A garnet film on a substrate, for a magnetic bubble domain device, said garnet film having a composition $Y_aSm_bLu_cGd_x$-$Fe_{5-y}Ga_yO_{12}$, wherein with reference to a single FIGURE in the accompanying drawing, values of x and y lie in a region A surrounded by a line segment a connecting a point 5 (0.90, 0.16) and a point 7 (0.65, 0.85), a line segment b connecting the point 7 (0.65, 0.85) and a point 25 (0.09, 1.14), a line segment c connecting the point 25 (0.09, 1.14) and a point 15 (0.25, 0.48), and a line segment d connecting the point 15 (0.25, 0.48) and the point 5 (0.90, 0.16), a+b+c+x=3, and a is from 0.04 to 1.59, b is from 0.30 to 1.00, and c is from 0.70 to 1.55, said substrate being a $Gd_3Ga_5O_{12}$ single crystalline substrate, and said garnet film being an epitaxially grown film.

4,267,231

POLYESTER IMIDE WIRE ENAMELS

Otto S. Zamek, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,247
Int. Cl.[3] B32B *15/08;* **C08G** *73/16*
U.S. Cl. 428—379 **6 Claims**

1. An electrical wire enamel comprising
(a) a polyester imide obtained by heating ingredients consisting essentially of
(i) an aromatic diamine:
(ii) an aromatic carboxylic anhydride containing at least one additional carboxylic group;
(iii) terephthalic acid or a reactive derivative thereof;
(iv) a polyhydric alcohol having at least three hydroxyl groups;
(v) an alkylene glycol; and
(vi) the secondary alcohol compound, 1-butoxyethoxy-2-propanol, until reaction therebetween is substantially complete; and
(b) a solvent therefor comprising predominantly
(i) an alkylene glycol monoether or monoester,
(ii) a polyalkylene glycol monoether or monoester or
(iii) a mixture of (i) and (ii).

5. An electrical conductor provided with a continuous coating of the polyester-polyimide wire enamel of claim 1.

4,267,232

CONDUCTORS HAVING INSULATION OF POLYESTER IMIDE RESIN

Karl Schmidt; Ferdinand Hansch; Hans-Malte Rombrecht, and Hans-Joachim Beck, all of Hamburg, Fed. Rep. of Germany, assignors to Dr. Beck & Co. Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Division of Ser. No. 677,207, Apr. 15, 1976, Pat. No. 4,170,684, which is a continuation of Ser. No. 293,878, Oct. 2, 1972, abandoned, which is a division of Ser. No. 659,234, Aug. 8, 1967, Pat. No. 3,697,471, which is a continuation of Ser. No. 238,315, Nov. 2, 1962, abandoned. This application Oct. 9, 1979, Ser. No. 82,507
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1961, 64660; Dec. 12, 1961, 65140; Jul. 6, 1962, 67935
The portion of the term of this patent subsequent to Oct. 9, 1996, has been disclaimed.
Int. Cl.[3] H01B *3/42, 19/04*
U.S. Cl. 428—379 **42 Claims**

1. An insulated electrical conductor comprising in combination, an electrical conductor and a cured polyester imide resin coating said electrical conductor, said polyester imide resin having ester groups of acid and alcohol moieties in the chain which are condensation products of at least difunctional carboxylic acid or a derivative thereof which is a functionally active equivalent, and at least difunctional alcohol or a derivative thereof which is a functionally active equivalent, and between said ester groups, moieties containing a 5-membered imide ring and which are condensation products of an aromatic carboxylic acid anhydride containing a 5-membered cyclic carboxylic anhydride group or a derivative thereof which is a functionally active equivalent and at least one additional reactable group, and a primary amine or a derivative thereof which is a functionally active equivalent, containing at least one additional reactable group.

21. Method of coating an electrical conductor with electrically insulating enamel which comprises passing the conductor through an enameling lacquer comprising a resin for forming the enamel and a cresol type solvent, to coat the conductor with a film of the enameling lacquer, and thereafter heating the coated conductor to cure the resin and drive off the solvent, said resin being a polyester imide resin having ester groups of acid and alcohol moieties in the chain which are condensation products of at least difunctional carboxylic acid or a derivative thereof which is a functionally active equivalent, and at least difunctional alcohol or a derivative thereof which is a functionally active equivalent, and, between said ester groups, an amount effective to improve the thermal stability of the resin without rendering the resin insoluble to the extent which would make it unsuitable for use in a wire lacquer composed of the resin dissolved in cresol and solvent naphtha, of moieties containing a 5 membered imide ring and which are condensation products of an aromatic carboxylic acid anhydride containing a 5-membered cyclic carboxylic acid anhydride group or a derivative thereof which is a functionally active equivalent and at least one additional reactable group, and a primary amine or a derivative thereof which is a functionally active equivalent, containing at least one additional reactable group.

4,267,233

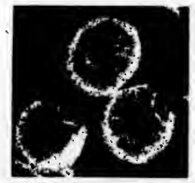
ELECTRICALLY CONDUCTIVE FIBER AND METHOD FOR PRODUCING THE SAME

Hiroaki Tanaka, and Kiyokazu Tsunawaki, both of Matsuyama, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Feb. 6, 1980, Ser. No. 119,019
Claims priority, application Japan, Feb. 14, 1979, 54-15035; May 1, 1979, 54-52465; May 8, 1979, 54-55229
Int. Cl.[3] B32B *9/00*
U.S. Cl. 428—389 **12 Claims**

1. An electrically conductive fiber comprising an organic polymeric fiber matrix and copper (I) iodide which is located in the inside of at least the peripheral surface layer of said organic polymeric fiber matrix and which is in an amount

sufficient to cause the electric resistivity of the conductive fiber under a D.C. voltage of 1 K.V. at a temperature of 20° C.



and at a relative humidity of 65% to be 1×10^{12} ohm/cm or less.

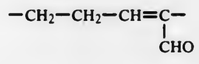
4,267,234

POLYGLUTARALDEHYDE SYNTHESIS AND PROTEIN BONDING SUBSTRATES

Alan Rembaum, Altadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 887,825, Mar. 17, 1978, abandoned. This application Mar. 19, 1979, Ser. No. 21,989
Int. Cl.[3] B32B *5/16*
U.S. Cl. 428—403 **16 Claims**

1. Microspheres having a diameter from 200 Å to 10μ consisting essentially of polylutaraldehyde having a repeating conjugated aldehyde containing structural unit of the formula:



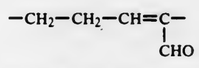
4,267,235

POLYGLUTARALDEHYDE MICROSPHERES

Alan Rembaum, Altadena, and Shlomo Margel, N. Hollywood, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Mar. 19, 1979, Ser. No. 21,988
Int. Cl.[3] B32B *5/16*
U.S. Cl. 428—407 **15 Claims**

1. Microspheres having a diameter from 200 A to 10μ consisting essentially of water-insoluable copolymer of glutaraldehyde having a repeating conjugated aldehyde containing unit of the formula:



cross linked with 0.1 to 10% by weight of a water-dispersible or water-soluble organic cross-linking agent containing at least two functional groups reactive with said aldehyde group selected from amine, hydroxyl, imine mercaptan or amide and said microspheres containing 0.5 to 40% by weight of metal containing particles having an atomic number above 50 and a diameter below 1000 A.

4,267,236

ALLOYS OF EPOXY AND HOMOPOLYMERS OF FURFURYL ALCOHOL

Ignatius Metil, 364 Whitfield Ave., Buffalo, N.Y. 14220

Filed Aug. 9, 1979, Ser. No. 65,086
Int. Cl.[3] B05D *3/02;* **B32B** *15/08, 27/38*
U.S. Cl. 428—413 **8 Claims**

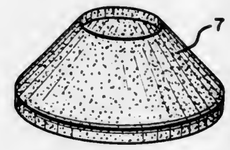
1. An article comprising a structure having thereon a temperature- and corrosion-resistant cured coating which adheres to various substrates including metals and concrete, which coating consists essentially of an intimate mixture of homopolymer of furfuryl alcohol and epoxy resin cured with an agent selected from the group consisting of polyfunctional amines and amides, said homopolymer being present in weight ratio with respect to the epoxy resin in the range 10/90 to 90/10, to provide the cross-linking necessary to make the cured coating self-supporting.

4,267,237

MOLDED PREFORMED POLYTETRAFLUOROETHYLENE STRUCTURES

Gilbert Duperray, Lozanne; Andre A. Monnet, Lyons, and Claude Tournut, Francheville, all of France, assignors to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Continuation of Ser. No. 882,881, Mar. 1, 1978, abandoned, which is a division of Ser. No. 671,042, Mar. 29, 1976, Pat. No. 4,102,966. This application Apr. 17, 1979, Ser. No. 30,736
Claims priority, application France, Apr. 16, 1975, 75 11770
Int. Cl.[3] B32B *27/00;* **B29C** *3/00*
U.S. Cl. 428—422 **13 Claims**



1. A composite, complex, molded granular polytetrafluoroethylene product made from the method comprising:
a. compressing granular polytetrafluoroethylene powder at a pressure between about 10 and 50 bars to cohere the granules into a consolidated preform,
b. placing the preform in contact with additional polytetrafluoroethylene granules in an isostatic mold, and
c. subjecting the preform in step (b) to isostatic molding at a pressure between about 100 and 1000 bars to cohere the preform and the additional granules into a complex, molded, composite structure.

4,267,238

FLEXIBLE MAGNETIC RECORDING MEDIA LUBRICATED WITH FLUORINATED TELECHELIC POLYETHER POLYMER

John G. Chernega, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 18, 1979, Ser. No. 100,699
Int. Cl.[3] G11B *5/78;* **B32B** *27/28*
U.S. Cl. 428—422 **7 Claims**

1. Magnetic recording medium comprising a flexible backing and magnetizable layer, said layer having a lubricating coating comprising a fluorinated telechelic polyether polymer having a backbone comprising $-C_aF_{2a}-O-$units wherein a is an integer from 1 to 4, which backbone is terminated by at least one polar group, the μ^2/MW of the polymer being at least 19×10^{-4} Debye^2-moles/g, which lubricating coating reliably provides effective lubrication at 40° C. and 80% relative humidity.

4,267,239

VAPOR PERMEATION CURABLE COATINGS BASED ON ALKYD RESINS

Chacko Thankachan, Willowdale; John G. Ritchie, Mississauga; Eugene Sahayada, Toronto, and Asok Sengupta, Downsview, all of Canada, assignors to J.G.L. Chemicals Ltd., Toronto, Canada

Filed Sep. 19, 1979, Ser. No. 76,680
Int. Cl.[3] C08L *91/00;* **B05D** *3/02;* **B32B** *27/40*
U.S. Cl. 428—425.1 **24 Claims**

18. An article comprising a substrate coated with a cured urethane coating derived from a urethane forming composition comprising

(i) an alkyd resin modified with p-hydroxy benzoic acid to provide side chain aromatic hydroxyl groups on the alkyd resin backbone, and
(ii) at least one organic isocyanate selected from the group consisting of di- and poly-isocyanates, said at least one isocyanate having an at least partial aromatic character, wherein
(iii) components (i) and (ii) are present in amounts such that the ratio of active hydroxyl hydrogen groups in (i) to isocyanate groups in (ii) is 1:1 to 1.5.

4,267,240

RELEASE SHEETS AND PROCESS OF USE

Richard F. Jaisle, Batesville, Ind., and Kenneth D. Bunkowski, Cincinnati, Ohio, assignors to Formica Corporation, Cincinnati, Ohio

Division of Ser. No. 93,414, Nov. 13, 1979. This application Apr. 28, 1980, Ser. No. 144,081
Int. Cl.³ B32B *21/06, 27/04, 29/06*
U.S. Cl. 428—484 **11 Claims**

1. A separator sheet comprising a web of paper having a water absorption of at least about 200 seconds, at least one side of which has been sized with a water-soluble salt of an alkaline earth metal or earth metal in an amount sufficient to provide a solids content of said salt distributed throughout the sized surface of said web ranging from about 0.001% to about 10%, by weight, based on the dry weight of the sized web, and then coated on its sized side with a film of a mixture of a salt of alginic acid and a triglyceride, lecithin or hydrolyzed lecithin.

7. A separator sheet according to claim 1 wherein said paper is corrugating medium kraft.

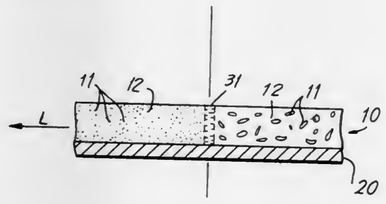
11. A separator sheet according to claim 1 wherein said web is phenol-formaldehyde resin impregnated.

4,267,241

METHOD OF PREPARING STEEL-BACKED ANTIFRICTION ALLOY, COMPOSITE STRIPS AND PRODUCTS THEREFROM

Duraid Mahrus, and Antonio C. Paulos, both of Sao Paulo, Brazil, assignors to Metal Leve S.A. Industria e Comercio, Brazil

Filed Sep. 11, 1979, Ser. No. 74,801
Claims priority, application Brazil, Sep. 15, 1978, 7806091
Int. Cl.³ C23C *1/06*
U.S. Cl. 428—645 **8 Claims**



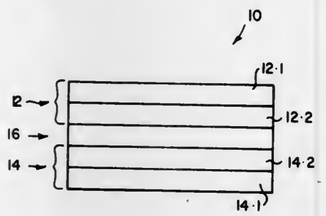
1. A method for preparing an anti-friction bearing material composite comprising a steel backing-strip supporting at the interface therewith, on at least one side of said strip, an anti-friction alloy coating, said alloy of said coating consisting essentially of a higher-melting, hard-metal matrix phase having homogenously distributed therethrough a lower melting soft-metal inclusion phase, which comprises coating said steel strip with a metal mixture comprising said hard metal admixed with said soft metal, locally fusing said coated mixture from its outer surface to its interface with said steel backing strip by local impingement of a concentrated high-energy beam on said coating to form a uniform molten pool area of said higher melting and lower melting alloy at the area of impingement of said beam, and abruptly cooling and solidifying said molten pool by moving said beam-impinging area from said fused area to an adjacent locale and by conducting the fusion energy from said fused area by conduction into cooler portions of said coated strip to form in said cooled area a homogeneous solid dispersion of said soft-metal inclusion phase in said hard-metal matrix phase, and fusing and cooling successive areas of said coating by traversing locales of said coated strip until the entire area of said coated strip has been successively fused and solidified to provide the bearing material composite comprising the alloycoated steel strip wherein said alloy consists of substantially said soft-metal inclusion phase homogenously dispersed in said hard-metal matrix phase.

4,267,242

ELECTROCHEMICAL CELL

Johan Coetzer, and Michael M. Thackeray, both of Pretoria, South Africa, assignors to South African Inventions Development Corp., Pretoria, South Africa

Filed Oct. 18, 1979, Ser. No. 85,999
Claims priority, application South Africa, Oct. 23, 1978, 78/5950
Int. Cl.³ H01M *4/36*
U.S. Cl. 429—104 **25 Claims**



1. An electrochemical cell comprising an anode, a solid electrolyte and a cathode, the anode comprising one or more materials selected from the group consisting of silver, silver amalgams, silver alloys, copper, copper amalgams and copper alloys, the cathode comprising an electronegative element selected from the group consisting of the halogens, the chalcogens and phosphorus sorbed in a molecular sieve carrier having a pore size of less than 1 micron, and the solid electrolyte comprising a double or multiple salt system having a silver or copper halide as one of its components.

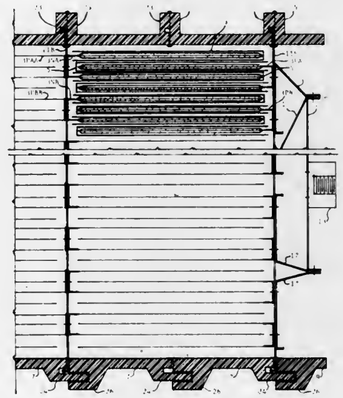
4,267,243

BIPOLAR STORAGE BATTERY OF EXTENDED SURFACE ELECTRODE TYPE

Robert H. Park, 1510 W. Demeter Dr., Freeport, Ill. 61032, and Clark A. Waage, 477 B Buckingham Dr., Lakehurst, N.J. 08733

Continuation-in-part of Ser. No. 958,122, Nov. 6, 1978, abandoned, and Ser. No. 908,447, May 22, 1978. This application Mar. 24, 1980, Ser. No. 133,561
Int. Cl.³ H01M *10/30, 2/26*
U.S. Cl. 429—136 **10 Claims**

1. A bipolar, extended surface alkaline battery comprising:
(A) barrier plates;
(B) dual porous electrode plates;
(C) separators;
(D) enclosure/supporting frames;
(E) externally accessible terminal means;
(F) externally accessible filling and/or venting means; and
(G) electrolyte
wherein
said barrier plates have rims and are composed of nickel or nickel-plated steel;
said dual porous electrode plates are composed of flexible rectangular nickel or nickel plated steel strips having perforated areas at each end which have been coated with a plaque of porous nickel; one half of said plates having said porous plaque impregnated with active materials adapted to confer positive electrode polarity and the other half of said plates having said porous plaque impregnated with active materials adapted to confer negative electrode polarity, said plates being folded in half to form dual-leaf electrode pairs with "U" shaped channel base, each leaf being enclosed in said separator;
said separator being an envelope-shaped, ion-permeable sheet;
said enclosure/supporting frames being rectangularly shaped, four-sided plastic forms whose edges contain means for sequentially connecting one frame to another, one set of edges per frame having means for connecting said barrier plate, said frame having said externally accessible filling and/or venting means positioned so as to be above said electrolyte level;
whereby
internal subassemblies are composed of a number of said dual-leafed positive electrodes permanently affixed to one side of said barrier plates with an equal number of dual-



leafed negative electrodes permanently affixed to the opposite side of said barrier plates secured at one of the mating edges of at least one of said frames;
two terminal assemblies, one positive and one negative are composed of said negative dual-leafed electrodes permanently affixed to one side of said barrier plate and conductor strips with said externally accessible terminal means permanently affixed to the opposite side of said barrier in the case of a negative terminal assembly, said positive dual-leafed electrodes being used with positive terminal assemblies; said barrier plates secured on the edge outermost the battery of said frames
whereby
said battery is composed of a stack of said internal subassemblies assembled with electrodes of opposite polarity in interleafed relationship and said positive terminal assembly attached at one end of said stack with said negative terminal assembly attached at the other end of said stack;
said battery containing sufficient electrolyte to effectively produce an electrical potential between said externally accessible positive and negative terminal means.

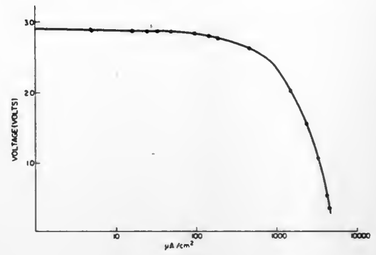
4,267,244

LAYERED CHARGE TRANSFER COMPLEX CATHODES OR SOLID ELECTROLYTE CELLS

Demetrios V. Louzos, Rocky River, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 28, 1980, Ser. No. 134,864
Int. Cl.³ H01M *4/36*
U.S. Cl. 429—213 **13 Claims**

1. A layered cathode for use in solid electrolyte cell systems comprising a charge transfer complex in which the complex is the reaction product of at least one halogen (acceptor) with an organic compound (donor) and wherein an electronic conductor is dispersed within one layer of the charge transfer complex cathode and wherein a second layer of the charge transfer complex cathode does not contain the electronic conductor.



4,267,245

METHOD OF REMOVING FOREIGN MATERIALS FROM MAGNETIC DEVELOPERS

Kenichi Wada, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Japan

Filed Jul. 11, 1980, Ser. No. 167,521
Claims priority, application Japan, Jul. 25, 1979, 54-95260
Int. Cl.³ G03G *13/09, 21/00*
U.S. Cl. 430—97 **12 Claims**

1. A method for continuous removal of foreign materials from a particulate magnetic developer material comprising the steps of:
(a) substantially intermittently supplying said magnetic developer containing said foreign materials to the peripheral surface of a nonmagnetic sleeve containing a rotatable magnet roller concentrically disposed therein;
(b) causing a layer of said supplied developer to travel around the peripheral surface of said sleeve rotating said magnet roller, said developer moving in a direction opposite the direction of rotation of said magnet roller and said foreign materials also moving in the same direction as said developer material but at a substantially higher speed.
(c) recovering, at a position a specified distance away from the location of supply of said developer along said peripheral surface, the forward end portion of said layer of said supplied developer moving around the sleeve peripheral surface.

4,267,246

PRESSURE OR HEATED ROLLER ELECTROPHOTO IMAGE FIXING USES HALOGEN OR NITRILE CONTAINING POLYMER DISPERSED WITHIN RESIN BINDER AS OFFSET PREVENT TONER

Katsumi Nishibayashi, Hirakata; Yoshimi Amagai, Katano; Norio Hikake, Kyoto; Toshihiro Kouchi, Hirakata, and Tatsuo Aizawa, Osaka, all of Japan, assignors to Mita Industrial Company Limited, Katano, Japan

Division of Ser. No. 906,650, Jun. 5, 1978. This application Feb. 21, 1980, Ser. No. 123,463
Claims priority, application Japan, May 17, 1977, 52-55970; Jun. 14, 1977, 52-69444
Int. Cl.³ G03G *11/00, 13/16*
U.S. Cl. 430—98 **14 Claims**

1. In an electrostatic photographic process which comprises providing an electrostatic image on a photosensitive plate for electrostatic photography, developing the electrostatic image with a powder developer to form a powder image, transferring the powder image onto a transfer sheet and fixing the powder image on the transfer sheet, the improvement which comprises causing the transfer sheet bearing the powder image to fall in

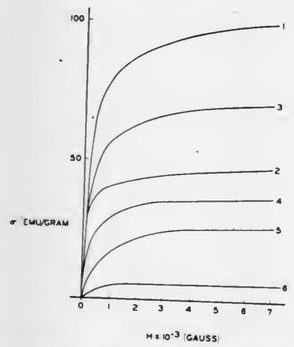
contact with a surface of a fixing roller under application of heat or pressure, said powder developer comprising a binder medium and a pigment dispersed therein, said binder medium comprising (A) a thermoplastic or rubbery polymer containing a member selected from the group consisting of a halogen atom and a nitrile group at a concentration of at least 100 milliequivalents per 100 g of the polymer and (B) a binder having a melting temperature lower than that of the polymer (A) at an (A)/(B) mixing weight ratio of from 1/20 to 1/1, the halogen- or nitrile-containing polymer (A) being present in the form of fine particles dispersed in the continuous phase of the binder (B).

4,267,247

LOW SPECIFIC GRAVITY MAGNETIC CARRIER MATERIALS

Ronald F. Ziolo, Webster, and Richard B. Lewis, Williamson, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 10, 1976, Ser. No. 722,234
Int. Cl.³ G03G *9/10*
U.S. Cl. 430—120 **7 Claims**



1. A magnetically-responsive, low density electrostatographic composite carrier particle having an average particle diameter of from between about 10 microns and about 850 microns, said carrier particle comprising a porous silicaceous material having an average bulk density of between about 0.2 and about 3.0 grams/cm^3, said silicaceous material being micro-reticulated and having pores with an average pore size of from between about 10 and about 500 Angstroms, wherein said pores of said silicaceous material are impregnated with a magnetic or magnetically-attractable transition metal or metal oxide thereof in the form of connecting networks.

4,267,248

MAGNET-BRUSH DEVELOPMENT PROCESS OF ELECTRIC PATTERN IMAGES

Keitaro Yamashita, Kodama, and Ryuji Goto, Tokyo, both of Japan, assignors to Hitachi Metals, Ltd., Japan

Filed Feb. 26, 1979, Ser. No. 15,545
Claims priority, application Japan, Feb. 24, 1978, 53/20647
Int. Cl.³ G03G *13/09, 15/09*
U.S. Cl. 430—122 **14 Claims**

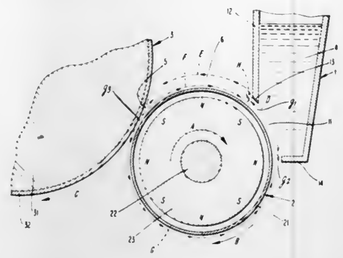
1. A process for developing latent electrographic images carried on an image carrier using magnetically attractable developer powder and a magnet roll, the powder flowing to the images through a first gap formed with the magnet roll, the magnet roll including a non-magnetic shell and a permanent magnet positioned within the shell, the shell and the magnet being independently rotatable, and the developer powder being attracted to the shell from a powder supply forming a second gap with the shell, the process comprising:

(a) transporting the attracted powder toward the first gap;

(b) forming an accumulation of the attracted powder on the surface of the shell in the vicinity of the first gap, both said transporting and forming steps being carried out by rotating the permanent magnet, the angular direction of said permanent magnet being such as to produce magnet peripheral motion away from the first gap and toward the supply;

(c) feeding a portion of the attracted powder in said accumulation into the first gap for developing the images; and

(d) circulating the powder remaining in said accumulation, said circulating step including:



(i) establishing an understream of powder flowing toward said second gap and counter to the direction of, and underneath, the powder being transported from the supply, said understream being established by concurrently rotating the non-magnetic shell in the same angular direction as the permanent magnet but at slower angular speed, and

(ii) transferring the powder flowing in said understream to the powder being transported from the supply, for stabilizing said accumulation.

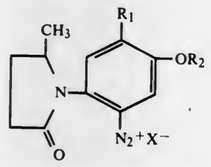
4,267,249

BENZENE DIAZONIUM SALTS AND DIAZOTYPE MATERIAL UTILIZING SAME

Niklaus Baumann, Marly, Switzerland, assignor to Aerni-Leuch AG, Kanton Bern, Switzerland

Filed Aug. 22, 1979, Ser. No. 68,565
Claims priority, application Switzerland, Aug. 22, 1978, 8923/78
Int. Cl.³ G03C *1/54;* C07C *113/04*
U.S. Cl. 430—187 **6 Claims**

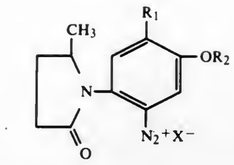
1. Photosensitive benzene diazonium compound of the formula:



(I)

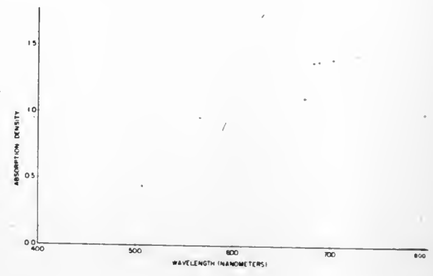
wherein R_1 is p-methylphenylthio; R_2 is methyl, and X is an anion.

4. A one-component diazotype material having a support containing thereon a photosensitive layer comprising a photosensitive benzene diazonium salt of the formula



(I)

wherein R_1 is p-methylphenylthio; R_2 is methyl; and X is an anion.



4,267,250

COLOR DIFFUSION TRANSFER PHOTOGRAPHIC ELEMENT

Seiki Sakanoue; Kokichi Waki; Motohiko Tsubota; Osamu Takahashi, and Asao Nakatsuka, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Oct. 11, 1979, Ser. No. 83,706
Claims priority, application Japan, Oct. 12, 1978, 53-125600
Int. Cl.³ G03C *1/40, 1/10, 5/54, 1/76*
U.S. Cl. 430—214 **15 Claims**

1. A color diffusion transfer photographic element comprising a group of layers consisting essentially of, in sequence, a silver halide photographic emulsion layer, a dye releasing redox compound-containing layer associated with the silver halide photographic emulsion and capable of releasing a diffusible dye as a result of a redox reaction with the oxidation product of a developing agent produced by the development of silver halide with an alkaline processing solution, a spacer layer and a layer containing a ballasted anti-stain agent, the said spacer layer being a layer essentially containing a hydrophilic colloid or a silver halide emulsion layer having substantially the same spectral sensitivity as that of the associated silver halide emulsion.

15. The photographic element of claim 1, comprising in sequence from the topmost layer: a protective layer, a blue-sensitive silver halide emulsion layer, a yellow dye-releasing redox compound-containing layer, a spacer layer, a layer containing a diffusion-resistant, antistain agent, a green-sensitive silver halide emulsion layer, a magenta dye-releasing redox compound-containing layer, a spacer layer, a layer containing a diffusion-resistant antistain agent, a red-sensitive silver halide emulsion layer, a cyan dye-releasing redox compound-containing layer, a light-intercepting layer containing a black pigment, a reflective layer containing a white pigment, a mordant layer containing a dye-mordanting agent.

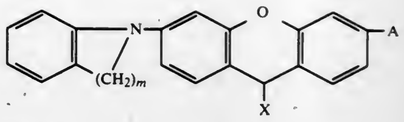
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NOVEL IMAGE DYE-PROVIDING MATERIALS, PHOTOGRAPHIC PRODUCTS AND PROCESSES

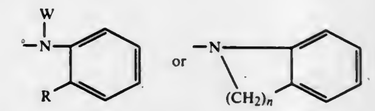
Louis Locatell, Jr., Wellesley Hills; Charles M. Zepp, Boylston, and Ronald F. Ciecіuch, Brookline, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 26, 1979, Ser. No. 106,506
Int. Cl.³ G03C *1/40, 7/00, 5/54, 1/10*
U.S. Cl. 430—224 **33 Claims**

18. A photosensitive element comprising a support, a silver halide emulsion in a layer carried by said support and an image dye-providing material containing at least one diffusion control moiety in a layer carried by said support on the same side thereof as said silver halide emulsion, said image dye-providing material being capable of providing an image dye containing the chromophoric system represented by the formula



wherein A is



X is H, alkyl, phenyl, naphthyl, substituted phenyl or substituted naphthyl; W is H or alkyl; R is H or alkyl; and m and n are each integers of from 2 to 6.

32. A diffusion transfer color film unit comprising

(a) a photosensitive element as defined in claim **18**;

(b) a second sheet-like element adapted to be superposed on said photosensitive element during or after photoexposure;

(c) an image-receiving layer positioned in one of said photosensitive or sheet-like elements; and

(d) a rupturable container releasably holding an aqueous alkaline processing composition and so positioned as to be adapted to distribute said processing composition between predetermined layers of said elements.

4,267,252

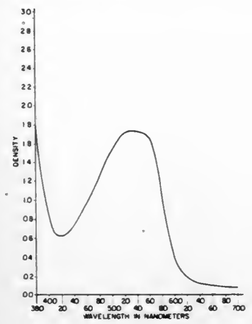
CHROME COMPLEXED MAGENTA DYE DEVELOPERS

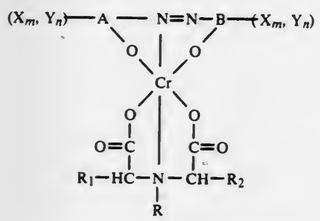
Elbert M. Idelson, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 1,449, Jan. 8, 1979, abandoned. This application Mar. 21, 1980, Ser. No. 132,546
Int. Cl.³ G03C *1/40, 1/10*
U.S. Cl. 430—225 **16 Claims**

8. A photographic film unit comprising a first support and a second support, at least one of said supports being transparent; a plurality of layers including at least one photosensitive silver halide emulsion layer associated with a dye developer layer carried on one of said supports; an image receiving layer carried on one of said supports; a rupturable container releasably holding a processing composition adapted, when distributed between a pair of predetermined layers carried by said supports, to develop said photosensitive silver halide emulsion layers and provide a diffusion transfer image in said image receiving layer; means providing a white light-reflecting layer between said image receiving layer and said silver halide emulsion layer(s) to mask said silver halide emulsion layers after development thereof and to provide a white background for a diffusion transfer image formed in said image receiving layer, said diffusion transfer image being viewable through said transparent support; said supports and the layers carried thereon

being held in fixed relationship with said photosensitive silver halide emulsion layer(s) being photoexposable through a transparent support, one of said dye developer layer(s) comprising a dye developer which is represented by the structural formula:





wherein A is a radical of benzene or naphthalene; B is a radical of benzene or naphthalene or a nitrogen-containing heterocyclic radical; Y is a silver halide developing substituent; each n is 0, 1 or 2 with the proviso that at least one n is 1; R is H, alkyl having 1 to 6 carbon atoms or X_m, X is the radical of an onium salt; each m is 0 or 1 with the proviso that only one m is 1; R_1 and R_2 are each H or when taken together represent the carbon atoms necessary to complete a five or six member heterocyclic moiety.

4,267,253

CHROME COMPLEXED MAGENTA DYE DEVELOPERS

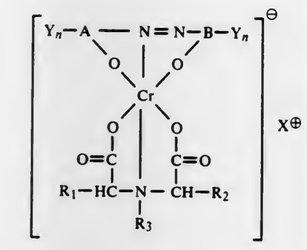
Elbert M. Idelson, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 1,450, Jan. 8, 1979, abandoned. This application Mar. 21, 1980, Ser. No. 132,549

Int. Cl.³ G03C *1/40, 1/10*

U.S. Cl. 430—225 **22 Claims**

11. A photographic film unit comprising a first support and a second support, at least one of said supports being transparent; a plurality of layers including at least one photosensitive silver halide emulsion layer associated with a dye developer layer carried on one of said supports; an image receiving layer carried on one of said supports; a rupturable container releasably holding a processing composition adapted, when distributed between a pair of predetermined layers carried by said supports, to develop said photosensitive silver halide emulsion layers and provide a diffusion transfer image in said image receiving layer; means providing a white light-reflecting layer between said image receiving layer and said silver halide emulsion layer(s) to mask said silver halide emulsion layers after development thereof and to provide a white background for a diffusion transfer image formed in said image receiving layer, said diffusion transfer image being viewable through said transparent support; said supports and the layers carried thereon being held in fixed relationship with said photosensitive silver halide emulsion layer(s) being photoexposable through a transparent support, one of said dye developer layer(s) comprising a dye developer which is represented by the structural formula:



wherein A is a radical of benzene or naphthalene; B is a radical of benzene or naphthalene or a nitrogen-containing heterocyclic radical; Y is a silver halide developing substituent; X is a photographically acceptable cation; each n is 0, 1 or 2 with the proviso that at least one n is 1; R_1 and R_2 are H or when taken together represent the carbon atoms necessary to complete a five or six member heterocyclic moiety; and R_3 is H or alkyl having from 1 to 6 carbon atoms.

4,267,254

PHOTOGRAPHIC PROCESS

Stanley M. Bloom, deceased, late of Waban, Mass. (by Arlene N. Bloom, executrix), and Krishna G. Sachdev, Cambridge, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 1, 1979, Ser. No. 80,349

Int. Cl.³ G03C *5/54, 7/00, 5/38*

U.S. Cl. 430—245 **15 Claims**

1. A diffusion transfer photographic process comprising the steps of:

(a) exposing a positive-negative diffusion transfer film unit comprising a support carrying an additive color screen, a photosensitive silver halide emulsion layer and a silver precipitating layer through said additive color screen in imagewise fashion;

(b) developing the exposed silver halide emulsion layer by contacting it with a photographic processing composition comprising an aqueous alkaline solution including a silver halide developing agent and a silver complexing agent, said silver complexing agent being stable in an alkaline environment, having a melting point less than about 50° C. and wherein the log of the stability constant (β) for a 1:1 complex of said silver complexing agent with silver is at least 10.5, wherein a silver complex which is soluble in said alkaline solution is formed between undeveloped silver halide and said silver complexing agent; and

(c) transferring said silver complex to said silver precipitating layer and forming a silver image therein, wherein said process is carried out while retaining said film unit intact and without washing the unit.

4,267,255

NOVEL PHOTOGRAPHIC PROCESSING COMPOSITION

Karl J. Schreiber, Waban, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 32,887, Apr. 24, 1979, abandoned. This application Dec. 12, 1979, Ser. No. 102,670

Int. Cl.³ G03C *5/54, 1/48, 5/30, 1/02*

U.S. Cl. 430—245 **24 Claims**

12. The method which comprises contacting an exposed silver diffusion transfer film unit which comprises a support, carrying on one surface, a layer comprising silver-precipitating nuclei, and a photosensitive silver halide layer; with a photographic processing composition comprising an aqueous alkaline solution, a silver halide developing agent and a surfactant comprising a hydrophobe and a polyethylene oxide portion containing an average of about 5–25 units of ethylene oxide per hydrophobe wherein said hydrophobe is a fluorinated hydrocarbon or an organo silicone.

20. The method of claim **12** wherein said film unit includes an additive color screen.

4,267,256

NOVEL SILVER COMPLEXING AGENTS

Stanley M. Bloom, deceased, late of Waban, Mass. (by Arlene N. Bloom, executrix), and Krishna G. Sachdev, Cambridge, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 1, 1979, Ser. No. 80,350

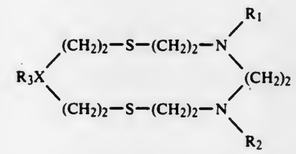
Int. Cl.³ G03C *5/54, 1/48, 5/38, 1/06*

U.S. Cl. 430—251 **16 Claims**

1. A diffusion transfer photographic process comprising the steps of:

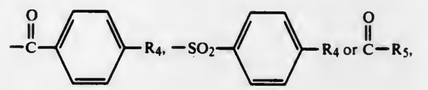
(a) reacting exposed silver halide in an imagewise exposed photosensitive silver halide emulsion layer carried on a support with a silver halide developing agent in aqueous alkaline solution;

(b) reacting unreduced silver halide in said photosensitive smulsion with at least one silver complexing compound to form a complex silver salt which is soluble in said alkaline solution, said silver complexing compound being represented by the formula



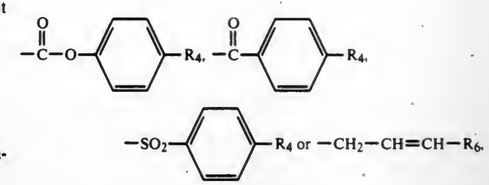
wherein X is selected from the group consisting of oxygen, nitrogen, and sulfur:

R_1 and R_2 are the same or different and are H. alkyl, hydroxyalkyl, alkoxyalkyl,

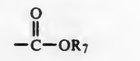


wherein R_4 is H, alkyl, alkoxy or $—NO_2$ and R_5 is H, alkyl, alkoxy or alkoxyalkyl; provided that

where X is —N—, R_3 is H, alkyl, hydroxyalkyl, alkoxyalkyl,



wherein R_6 is H, alkyl, cyano or



wherein R_7 is H or alkyl;

(c) transferring said silver complex salt to a superposed image-receiving layer; and

(d) reducing said complex silver salt on said image-receiving layer to provide a silver image thereon.

4,267,257

METHOD FOR FORMING A SHALLOW SURFACE RELIEF PATTERN IN A POLY(OLEFIN SULFONE) LAYER

Eugene S. Poliniak, Willingboro, and Nitin V. Desai, Edison, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 30, 1976, Ser. No. 710,135

Int. Cl.³ B05D *3/06*

U.S. Cl. 430—270 **2 Claims**

1. A method for forming a surface relief pattern in a metal layer which comprises:

(a) exposing a poly (3-methyl-1-cyclopentene sulfone) layer to a modulated beam of electrons whereby the portion of the polymer layer exposed to the electron beam becomes more soluble in a solvent developer than the unexposed portions;

(b) contacting the exposed polymer layer to a solvent developer which is a mixture of about 50% by weight cycloheptanone and about 50% by weight 2-methylcyclohexanol whereby a surface relief pattern is formed in the polymer layer; and

(c) depositing a metal layer on the surface relief pattern in the polymer layer whereby the surface relief pattern is formed in the metal layer.

4,267,258

NEGATIVE TYPE DEEP ULTRAVIOLET RESIST

Yasuhiro Yoneda, Yokohama; Kenro Kitamura, Fujisawa; Jiro Naito, Yamanishi, and Toshisuke Kitakohji, Machida, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

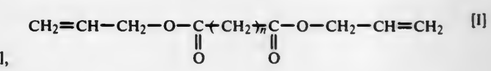
Filed Dec. 10, 1979, Ser. No. 101,688

Claims priority, application Japan, Dec. 15, 1978, 53-156136

Int. Cl.³ G03C *1/68*

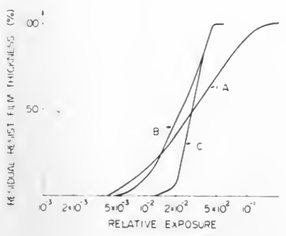
U.S. Cl. 430—270 **12 Claims**

1. A negative type resist for deep ultraviolet light lithography derived from a polymer selected from the group consisting of (i) diallyl esters of aliphatic dicarboxylic acids having the general formula



[I]

where n is zero or an integer from 1 to 8, and (ii) diallyl esters of aromatic dicarboxylic acids having the general formula



$$CH_2{=}CH{-}CH_2{-}O{-}\overset{\overset{O}{\|}}{C}{-}A{-}\overset{\overset{O}{\|}}{C}{-}O{-}CH_2{-}CH{=}CH_2 \quad [II]$$

where A is a phenylene or a naphthylene group, the degree of dispersion of said polymer within the range from 1 to 3.

4,267,259

EXPOSURE PROCESS

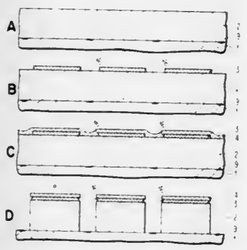
Harald Bohlen, Boeblingen; Johann Greschner, Pliezhausen; Werner Külcke, and Peter Nehmiz, both of Boeblingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 16, 1979, Ser. No. 12,634

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807478

Int. Cl.³ B05D *3/06;* G03F *7/26*

U.S. Cl. 430—296 **10 Claims**



1. A process for x-ray exposing a radiation sensitive layer comprising the following steps:

(a) applying a first, x-ray sensitive layer to a semiconductor wafer, used for the manufacture of a plurality of integrated circuits, on which are provided alignment marks between the individual surface areas destined to accomodate said integrated circuits,

(b) applying a second, superimposed x-ray absorbing metal layer only to the individual surface areas destined to accomodate said integrated circuits,

(c) applying a third, superimposed electron beam sensitive layer,

(d) removing the areas of the x-ray sensitive layer and the electron beam sensitive layer over the alignment marks by exposure and development to bare the alignment marks,

(e) electron beam exposing the third layer in the form of a pattern defining the areas of the first layer which are to be x-ray exposed after alignment of the individual surface areas using electron beams and said alignment masks,

(f) removing the exposed areas of the third layer by development,

(g) removing the bared areas of the second layer by etching, and

(h) exposing the first layer to x-rays through the opening in the second layer which serves as a mask.

4,267,260

DEVELOPER FOR LITHOGRAPHIC PRINTING PLATE

Konoe Miura; Chihiro Eguchi, both of Yokohama; Yoshihiro Takahashi, Tokyo; Akinobu Oshima, Kawasaki; Kazuo Torige, and Shinichi Bunya, both of Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

Filed Jul. 19, 1976, Ser. No. 706,600

Claims priority, application Japan, Jul. 31, 1975, 50-93467

Int. Cl.³ G03C *5/24;* G03F *7/02*

U.S. Cl. 430—302 **6 Claims**

1. A method for developing the exposed image of a lithographic photosensitive polymer containing repeating units of the formula:

$$-CH_2{-}\underset{\underset{CH_2O{-}\overset{\overset{O}{\|}}{C}{-}(CX{=}CY)_n{-}Ar}{|}}{CH}{-}O{-} \quad (4)$$

or the formula:

$$-CH_2{-}\underset{\underset{(CH_2)_m}{|}\\ \underset{O=C{-}(CX{=}CY)_n{-}Ar}{|}}{\overset{\overset{O}{|}}{CH}} \quad (5)$$

wherein X and Y represent hydrogen, halogen, cyano or nitro; Ar represents an aryl group which can be substituted and m and n each represent an integer of 1 to 2, which comprises:

treating said exposed lithographic photosensitive medium with a developer consisting essentially of an image developable amount of a compound of the formula:

$$RO{-}CH_2{-}CH_2{-}O{-}_kR^1 \quad (2)$$

or

$$ROCH_2CH_2OR^2 \quad (3)$$

wherein R represents an alkyl groups with a carbon number of 1 to 4, R^1 represents hydrogen or an acyl group, R^2 represents an acyl group with a carbon number of 2 to 5, and k represents an integer of 2 to 3, for a time sufficient to dissolve and remove only the unexposed portions of said photosensitive medium.

2. The method of claim 1, wherein said compound is a diethyleneglycol monoalkylether, a triethyleneglycolmonoalkylether, a diethyleneglycol monoalkylether acetate, or a triethyleneglycolmonoalkylether acetate.

4,267,261

METHOD FOR FULL FORMAT IMAGING

Robert W. Hallman, San Diego, Calif.; Stanford R. Ovshinsky, Bloomfield Hills, Mich., and John P. de Neufville, Mendham, N.J., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 162,842, Jul. 15, 1971, abandoned. This application May 13, 1975, Ser. No. 577,003

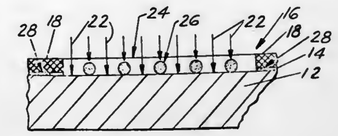
The portion of the term of this patent subsequent to Dec. 28, 1993, has been disclaimed.

Int. Cl.³ G03C *5/04, 5/24;* B05D *3/06*

U.S. Cl. 430—322 **22 Claims**

1. The method of producing an image by full format imaging, which method comprises the step of providing on a substrate a solid continuous film of a dispersion imaging material which, upon application of a short pulse of high intensity radiant energy in an amount sufficient to increase the absorbed

energy in the material above a certain threshold value, is capable of changing to a substantially molten state in which the surface tension of the material acts to cause the continuous film where subject to said energy pulse to change to a discontinuous film comprising spaced globules and free space therebetween in the film which are frozen in place following said energy pulse and through which free space light can pass, the step of applying a short pulse of high intensity non-coherent radiant energy through an imaging mask having a full format image pattern including portions of higher transmissiveness and portions of lower transmissiveness for said energy pulse to said continuous film of dispersion imaging material simultaneously and substantially evenly in a full format pattern, wherein said full format pattern of the simultaneously and substantially evenly applied energy pulse includes a plurality of



areas in which the intensity and pulse width of said energy is sufficient to increase simultaneously and substantially evenly the absorbed energy in the corresponding pattern areas of said dispersion imaging material above said threshold value, and wherein the amount of the radiant energy pulse supplied in a plurality of other areas is insufficient to increase the absorbed energy above said threshold value, thereby causing the material of the continuous film in those pattern areas simultaneously and substantially evenly receiving the higher amount of the non-coherent radiant energy pulse to change to the discontinuous film comprising the spaced globules and free space in the film which are substantially evenly distributed in said pattern areas and through which free space light can pass to provide at one time a stable finished full format image pattern of said discontinuous film in the continuous film corresponding to said full format pattern of the energy pulse.

4,267,262

COLOR DIFFUSION TRANSFER PHOTOGRAPHIC ELEMENTS COMPRISING A NEUTRALIZING SYSTEM TIMING LAYER

Yukio Karino; Shinji Sakaguchi, and Yoshio Sakakibara, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 3, 1979, Ser. No. 26,510

Claims priority, application Japan, Apr. 3, 1978, 53-38932

Int. Cl.³ G03C *1/40, 1/48, 1/76, 5/38*

U.S. Cl. 430—463 **21 Claims**

1. In a photographic element for the color diffusion transfer process comprising a support having a neutralizing system for reducing the pH of an alkaline processing composition, said neutralizing system comprising a neutralizing layer and a timing layer or layers, said timing layer or layers being directly or indirectly disposed on or under said neutralizing layer in such a positional relationship that the aforementioned alkaline processing composition reaches the neutralizing layer through the timing layer or layers, the improvement which comprises: at least one of said timing layers containing a mixture of acetyl cellulose and a polymer represented by the general formula (I):

$$\leftarrow A\rightarrow_x \leftarrow \underset{\underset{C=O}{|}\\ \underset{OH}{|}}{CH} \underset{\underset{C=O}{|}\\ \underset{OR_1}{|}}{CH}\rightarrow_y \leftarrow B\rightarrow_z \quad (I)$$

wherein A represents a repeating unit represented by the formula (II):

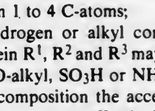
$$\leftarrow \underset{\underset{R_3}{|}}{\overset{\overset{R_2}{|}}{CH_2{-}C}}\rightarrow \quad (II)$$

wherein R_2 represents a hydrogen atom, a halogen atom, or a methyl group; R_3 represents a hydrogen atom, a halogen atom, an alkyl group, an aryl group,

a $-(CH_2)_a{-}OR_4$ group, a $-(CH_2)_a{-}O{-}\overset{\overset{O}{\|}}{C}{-}R_5$ group, or

a $-\overset{\overset{O}{\|}}{C}{-}O{-}R_6$ group;

R_4 represents an alkyl group or an aralkyl group; R_5 and R_6, which may be the same or different, each represents an alkyl group, an aryl group or an aralkyl group; and a represents 0 or 1; R_1 represents an alkyl group, an aryl group or an aralkyl group; B represents a repeating unit derived from an ethylene-type monomer different than A excluding substantially



x represents about 20 to 90 mol%; y represents about 10 to 80 mol%; and z represents about 0 to 30 mol%.

4,267,263

USE OF β-AMINOETHYL CARBAMIC ACID FOR PRODUCING PHOTOGRAPHIC BATHS AND DEVELOPER COMPOSITIONS

Friedrich-Wilhelm Kunitz; Erich Wolff, and Karl Frank, all of Leverkusen, Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,999

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1978, 2854942

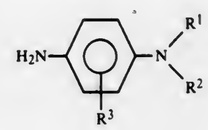
Int. Cl.³ G03C *5/30*

U.S. Cl. 430—469 **8 Claims**

1. The method of preparing a developer composition for processing color photographic materials, said composition used in development of exposed silver halide emulsion material of the photographic material,

including the steps of

first preparing a solution comprising a developer substance corresponding to the following general formula:



FORMULA (I)

in which

R^1 and R^2 may be the same or different and represent alkyl containing from 1 to 4 C-atoms;

R^3 represents hydrogen or alkyl containing from 1 to 4 C-atoms, wherein R^1, R^2 and R^3 may optionally be substituted by OH, O-alkyl, SO_3H or $NH{-}SO_2{-}CH_3$;

and adding to the composition the accelerator β-aminoethyl carbamic acid in an amount to effectively accelerate development with said composition.

4,267,264

COLOR PHOTOGRAPHIC RECORDING MATERIAL

Joachim W. Lohmann, Kuerten; Otto Lapp, and Erwin Rønz, both of Leverkusen, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 873,740, Jan. 31, 1978, abandoned. This application Jan. 28, 1980, Ser. No. 115,923

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1977, 2704826

Int. Cl.³ G03C *1/76*

U.S. Cl. 430—505 **4 Claims**

1. The color photographic recording material consisting of

(a) a layer support having applied to it a plurality of layers including light-sensitive layers and including

(b) three green-sensitive silver halide emulsion component layers of different speed each having associated with it a magenta-forming coupler including a least-sensitive green-sensitive silver halide emulsion layer, a more-sensitive green-sensitive silver halide emulsion layer having the ratio of silver halide to coupler higher than in the least-sensitive green-sensitive layer and arranged further from said layer support than said least-sensitive green-sensitive layer and a most-sensitive green-sensitive silver halide emulsion layer having a ratio of silver halide to coupler higher than in the more-sensitive green-sensitive layer and arranged further from said layer support than said more-sensitive green-sensitive layer;

(c) two red-sensitive silver halide component layers of different speed each having associated with it a cyan-forming coupler, including a less-sensitive red-sensitive silver halide emulsion layer, and a more-sensitive red-sensitive silver halide emulsion layer having a ratio of silver halide to coupler higher than in the less-sensitive red-sensitive layer;

(d) at least one non-light-sensitive yellow filter layer is located further removed from the layer support than any one of said red-sensitive layers, and green-sensitive layers, and

(e) one or more blue-sensitive silver halide emulsion layers each having associated with it a yellow-forming coupler and being located further removed from the layer support than said yellow filter layer;

wherein the improvement comprises each of the green-sensitive layers being arranged further away from the layer support than the less-sensitive red-sensitive layer, the more-sensitive red-sensitive layer is located between the more-sensitive green-sensitive layer and the most-sensitive green-sensitive layer,

whereby said more sensitive red-sensitive layer being less adjacent the layer support than said more-sensitive green-sensitive layer and said less-sensitive red-sensitive layer.

4,267,265

PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Naohiko Sugimoto; Ikutaro Horie; Kameji Nagao; Masakazu Yoneyama, all of Minami-ashigara; Yasuhiro Nakayama, Fujimiya, and Nobuo Yamamoto, Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 711,920, Aug. 5, 1976, abandoned, which is a continuation of Ser. No. 549,259, Feb. 12, 1975, abandoned. This application Dec. 29, 1978, Ser. No. 974,460

Claims priority, application Japan, Feb. 13, 1974, 49-17393

Int. Cl.³ G03C *1/31*

U.S. Cl. 430—523 **13 Claims**

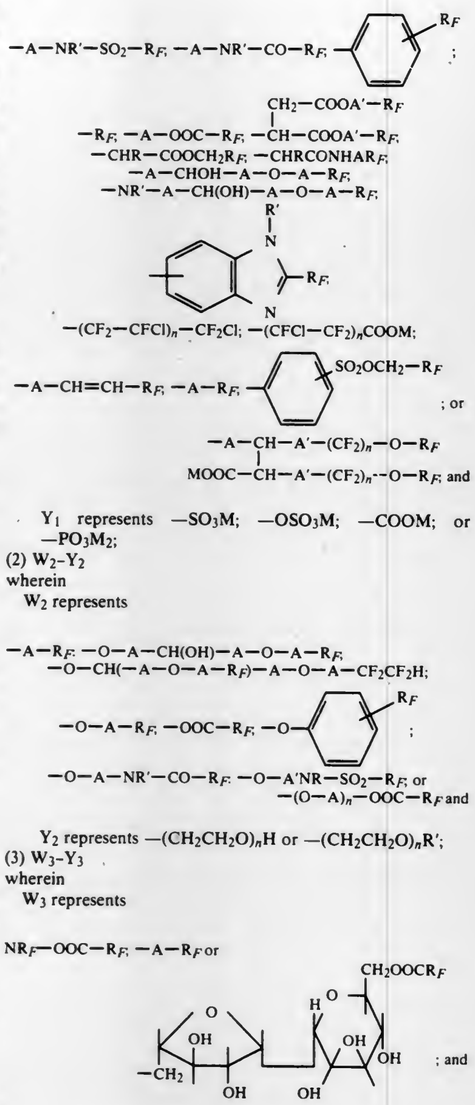
1. In a photographic light-sensitive material containing a support comprising thereon at least one light-sensitive silver halide emulsion layer and a protecting layer, the said material containing at least one hygroscopic or adhesive plasticizer compound selected from the group consisting of cyclohexanediol, cyclohexane dimethanol, dibutyl phthalate, tricresyl phosphate, 1,2-hexanediol, tri-N-(2-hydroxyethyl) cyanuric acid and polyglycidol in at least one of the said layers on the support, the improvement wherein in the said protecting layer contains and/or the said light-sensitive halide emulsion layer, in amounts in combination sufficient to improve adhesion resistance and antistatic properties

(a) at least one organic fluoro-compound selected from group consisting of compounds having the general formula (1) to (3),

(1) W_1–Y_1

wherein

W_1 represents



Y_1 represents —SO_3M; —OSO_3M; —COOM; or —PO_3M_2;

(2) W_2–Y_2

wherein

W_2 represents

Y_2 represents —$(CH_2CH_2O)_nH$ or —$(CH_2CH_2O)_nR'$;

(3) W_3–Y_3

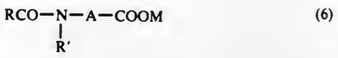
wherein

W_3 represents

Y_3 represents —OH or —OOCR'

in the above general formulae (1) to (3), R represents an alkyl group having 1 to 32 carbon atoms, R' represents a hydrogen atom or an alkyl group having 1 to 32 carbon atoms, A and A' each represents a divalent aliphatic hydrocarbon group, M represents a hydrogen atom or an alkali metal atom or an ammonium group dissociating into an ion in an aqueous solution, R_F represents a perfluoroalkyl group having 1 to 22 carbon atoms, and n represents 0 or an integer ranging from 1 to 20; and

(b) a carboxy group-containing compound of the general formula (6)



(6)

wherein R represents an alkyl group having 1 to 32 carbon atoms; R' represents a hydrogen atom or an alkyl group having 1 to 32 carbon atoms; A represents a divalent aliphatic hydrocarbon group, and M represents a hydrogen atom, an alkali metal atom or an ammonium group, dissociating into an ion in an aqueous solution.

7. In a method for improving the adhesion resistance and antistatic properties of a photographic light-sensitive material having a silver halide emulsion layer and containing a hygroscopic or adhesive plasticizer compound selected from the group consisting of cyclohexanediol, cyclohexane dimethanol, dibutyl phthalate, tricresyl phosphate, 1,2-hexanediol, tri-N-(2-hydroxyethyl) cyanuric acid and polyglycidol in a layer on a support, the improvement which comprises impregnating a protecting layer and/or an emulsion layer of the light-sensitive material containing at least one organic fluorocompound selected from group consisting of compounds having the general formula (1) to (3);

(1) W_1–Y_1

wherein

W_1 represents

Y_1 represents —SO_3M; —OSO_3M; —COOM; or —PO_2M_2;

(2) W_2–Y_2

wherein

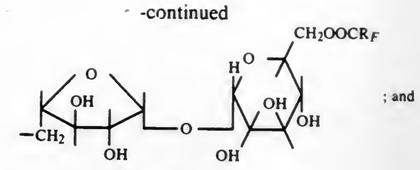
W_2 represents

Y_2 represents —$(CH_2CH_2O)_nH$ or —$(CH_2CH_2O)_nR'$

(3) W_3–Y_3

wherein W_3 represents

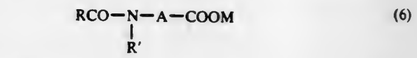
-continued



; and

Y_3 represents —OH or —OOCR',

wherein in the general formulae (1) to (3), R represents an alkyl group having 1 to 32 carbon atoms, R' represents a hydrogen atom or an alkyl group having 1 to 32 carbon atoms, A and A' each represents a divalent aliphatic hydrocarbon group, M represents a hydrogen atom or an alkali metal atom or an ammonium group dissociating into an ion in an aqueous solution; R_F represents a perfluoroalkyl group having 1 to 22 carbon atoms; and n represents 0 or an integer ranging from 1 to 20; with an aqueous solution containing at least one carboxy group-containing compound of the general formula (6)



(6)

wherein R represents an alkyl group having 1 to 32 carbon atoms; R' represents a hydrogen atom or an alkyl group having 1 to 32 carbon atoms; A represents a divalent aliphatic hydrocarbon group, and M represents a hydrogen atom, an alkali metal atom or an ammonium group dissociating into an ion in aqueous solution.

4,267,266

PHOTOGRAPHIC FILMS

Toshiaki Shibue, and Koichi Nagayasu, both of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

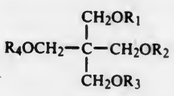
Filed Aug. 1, 1979, Ser. No. 62,804

Claims priority, application Japan, Aug. 7, 1978, 53-96001

Int. Cl.³ G03C *1/80, 1/82*

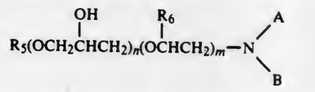
U.S. Cl. 430—530 **16 Claims**

1. A photographic film having at least one light-sensitive silver halide emulsion layer on one side of a support and at least one reverse side layer on the other side of the support which comprises, in said reverse side layer, a compound represented by formula [I]:



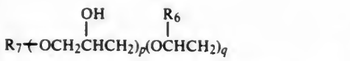
[I]

wherein R_1, R_2, R_3 and R_4 each represent a hydrogen atom or an aliphatic acyl group having from 12 to 24 carbon atoms provided that at least three of R_1, R_2, R_3 and R_4 each represent an aliphatic acyl group having from 12 to 24 carbon atoms, and a tertiary amine represented by the formula [II]:

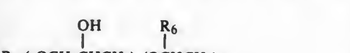


[II]

wherein R_5 represents an alkyl group having from 8 to 24 carbon atoms; R_6 represents a hydrogen atom, a methyl group or a group —CH_2OR_7 in which R_7 means a hydrogen atom, an alkyl group having from 1 to 7 carbon atoms, an aryl group or an aralkyl group; m and n each represent an integer of from 0 to 3 (provided $3 \geqq m+n \geqq 1$); A represents a group



in which R_6 and R_7 have the same meanings as defined above, and p and q each represent an integer of from 1 to 3 (provided $3 \geqq p+q \geqq 1$); and B represents an alkyl group having from 1 to 7 carbon atoms, an aryl group, an aralkyl group or a group



in which R_6, R_7, m and n have the same meanings as defined above.

4,267,267

THERMALLY-DEVELOPABLE LIGHT-SENSITIVE ELEMENTS

Shinpei Ikenoue, and Takao Masuda, both of Minami-Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation-in-part of Ser. No. 868,167, Jan. 9, 1978, abandoned. This application Oct. 2, 1979, Ser. No. 81,237
Claims priority, application Japan, Jan. 2, 1977, 52/2051
Int. Cl.³ G03C *1/02*
U.S. Cl. 430—533 **31 Claims**

1. In a thermally developable light-sensitive element comprising a support having in one or more layers thereon at least (a) an organic silver salt, (b) light-sensitive silver halide grains and (c) a reducing agent, the improvement wherein the average grain size of the light-sensitive silver halide grain is 0.05μ or larger, the support is a gas-permeable support and the support has thereon a subbing layer comprising at least one copolymer selected from the group consisting of a vinyl chloride copolymer in which vinyl chloride is present in the copolymer in an amount of 50 mol % to 98% and a vinylidene chloride copolymer in which vinylidene chloride is present in the copolymer in an amount of 50 mol % to 98 mole %, whereby the light-sensitive element shows reduced thermal fog with the passage of time, said vinyl chloride type copolymer or the vinylidene chloride type copolymer is selected from the group consisting of a copolymer of a vinyl ester and vinyl chloride, a copolymer of an acrylate and vinyl chloride, a copolymer of a maleate and vinyl chloride, a copolymer of a fumarate and vinyl chloride, a copolymer of acrylonitrile and vinyl chloride, a copolymer of a vinyl alkyl ether and vinyl chloride, a copolymer of vinyl chloride and vinylidene chloride, a copolymer of acrylonitrile and vinylidene chloride, or a copolymer of a vinyl ester and vinylidene chloride.

4,267,268

SPERMATOZOA EXTENDERS

Robert A. Nelson, Jr., 340 Promenade East, #138, Portland, Me. 04101

Filed Mar. 12, 1979, Ser. No. 19,308
Int. Cl.³ A01N *1/02*
U.S. Cl. 435—2 **10 Claims**

1. A solution for use in porcine artificial insemination, said solution comprising an extender which acts to prolong motility and fertility of porcine sperm before or after dilution of said sperm, is obtainable from porcine seminal fluid and contains a protein material extender selected from the class consisting essentially of a porcine seminal fluid protein having a molecular weight of about 800,000, a porcine seminal fluid protein having a molecular weight of about 200,000, a porcine seminal fluid protein having a molecular weight of about 30,000, a porcine seminal fluid protein having a molecular weight of about 10,000, a porcine seminal fluid protein having a molecular weight of about 9,000, and mixtures thereof.

4,267,269

RED CELL STORAGE SOLUTION

Gerald A. Grode, Grayslake, and Jeffrey E. Miripol, Evanston, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Feb. 5, 1980, Ser. No. 118,695
Int. Cl.³ A01N *1/02*
U.S. Cl. 435—2 **16 Claims**

1. An aqueous cell storage solution which contains per 100 ml. of solution essentially from 5 to 50 mg. of adenine; from 1000 to 3500 mg. of a sugar selected from the group consisting of glucose and fructose; from 400 to 1200 mg. of sodium chloride; and from 250 to 2000 mg. of mannitol.

4,267,270

METHOD FOR THE DETERMINATION OF ANTIGENS AND ANTIBODIES USING SITE-DEACTIVATING MEDIA

Robert L. Stout, Overland Park, Kans., assignor to Enzyme Technology, Inc., Overland Park, Kans.

Filed May 21, 1979, Ser. No. 40,641
Int. Cl.³ G01N *33/54*
U.S. Cl. 435—7 **6 Claims**

1. In a process for the determination of the presence of a component of an antigen-antibody reaction in a sample, which comprises the steps of placing said sample, the antigen component of said reaction, and the antibody component of said reaction, is a reaction vessel, allowing said antigen-antibody reaction to proceed, and thereafter determining whether said sample contained said component, one of said antigen and antibody components having been labeled, the improvement which comprises:

covalently bonding to the walls of said reaction vessel a site-deactivating medium for minimizing non-specific interactions between said vessel and sample,

said medium being selected from the group consisting of water soluble animal-derived plasma, animal-derived sera, vegetable-derived gelatins and mixtures thereof.

4,267,271

RADIOIMMUNOASSAY FOR ISOENZYMES OF CREATIVE KINASE HAVING A B-SUBUNIT AND REAGENTS THEREFOR

Robert Roberts, Chesterfield, Mo., assignor to Washington University, St. Louis, Mo.

Continuation-in-part of Ser. No. 846,095, Oct. 27, 1977. This application Aug. 1, 1979, Ser. No. 62,777
Int. Cl.³ C12Q *1/66*
U.S. Cl. 435—7 **14 Claims**

1. A competitive displacement radioimmunoassay method for quantitative determination of the concentration of a B subunit-containing isoenzyme of human creatine kinase in a sample, said method comprising:

(1) incubating said sample with a pre-determined stoichiometric excess quantity of antibodies to purified MB creatine kinase to form a first reaction mixture comprising (a) the product of antigen-antibody association of B subunit-containing isoenzymes in the sample with antibodies to purified MB creatine kinase, and (b) unreacted antibodies to purified MB creatine kinase;

(2) incubating the reaction mixture of step (1) with a stoichiometric excess of radioisotopically labelled, purified B subunit-containing isoenzymes of creatine kinase to form a second reaction mixture comprising the association product of step (1) and the product of antigen-antibody association of said labelled isoenzymes with said unreacted antibodies in said first reaction mixture; and

(3) removing unreacted labelled isoenzymes from said second reaction mixture and ascertaining the concentration of B subunit-containing isoenzymes in said sample on the basis of the extent of antigen-antibody association between said antibodies and said labelled isoenzyme.

4,267,272

PROSTATIC ACID PHOSPHATASE IMMUNO ASSAY

Lee Josephson, Arlington, Mass., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Nov. 5, 1979, Ser. No. 91,622
Int. Cl.³ C12Q *1/66*
U.S. Cl. 435—7 **8 Claims**

1. In an immunoassay for PAP wherein the amount of PAP in PAP standards is determined, the improvement comprising contacting the standards with a composition for stabilizing the enzymatic activity of PAP under conditions that would otherwise render the standard PAP ineffective in displacing tracer PAP from PAP antibody thereby also stablizing the PAP immunological activity.

4,267,273

ENZYME PREPARATION HAVING AFFINITY FOR WATER-IMMISCIBLE LIQUIDS

Richard A. G. Smith, Wallington, England, assignor to Beecham Group Limited, England

Continuation of Ser. No. 912,363, Jun. 5, 1978, abandoned, which is a continuation of Ser. No. 769,047, Feb. 16, 1977, abandoned, which is a continuation of Ser. No. 603,148, Aug. 8, 1975, abandoned. This application Apr. 12, 1979, Ser. No. 29,204
Claims priority, application United Kingdom, Aug. 13, 1974, 35556/74; Apr. 26, 1975, 17434/75
Int. Cl.³ C12P *37/06;* C12N *11/00, 11/10*
U.S. Cl. 435—44 **27 Claims**

1. In an enzyme preparation having an enzyme portion and a polymeric support in which the enzyme portion is covalently bound directly to the polymeric support or is covalently bound to an inert bridging group which bridging group is in turn covalently bound to said polymeric support, the improvement which comprises the presence of a plurality of hydrophobic groups covalently bound to either or both of said enzyme portion and said polymeric support, said hydrophobic groups being hydrophobic at least by reason of a free terminal non-polar hydrocarbon portion of six or more carbon atoms, and being present in said enzyme preparation in such proportion as to impart, without deactivation of the enzyme portion, sufficient overall hydrophobic properties to said enzyme preparation to permit separation of the preparation from aqueous media through preferential association with an inert water-immiscible organic liquid.

4,267,274

STREPTOMYCES MEDITERRANEI MUTANT CAPABLE OF PRODUCTION OF RIFAMYCIN B

Richard J. White, Como, and Giancarlo Lancini, Pavia, both of Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

Division of Ser. No. 354,811, Apr. 26, 1973, Pat. No. 3,871,965. This application Jun. 13, 1974, Ser. No. 479,018
Int. Cl.³ C12N *1/20;* C12R *1/465*
U.S. Cl. 435—253 **2 Claims**

1. A biologically pure culture comprising a new microorganism mutant identified as *Streptomyces mediterranei M* 18, ATCC 21789, and a nutrient medium consisting essentially of an assimilable carbon source, an assimilable nitrogen source and essential mineral salts, said culture being capable of producing rifamycin B in a recoverable quantity upon fermentation.

4,267,275

METHOD OF RECOVERING PRODUCTS OF HIGH PROTEIN CONTENT FROM PROTEIN-POLYSACCHARIDE COMPLEXES

Hans Müller, Im Allmendli, 8703 Erlenbach, Switzerland, assignor to Dr. Ing Hans Müller, Mannedorf, Switzerland

Continuation of Ser. No. 704,914, Jul. 13, 1976, abandoned. This application Oct. 18, 1978, Ser. No. 952,265
Claims priority, application Switzerland, Jul. 28, 1975, 9908/75; Feb. 12, 1976, 1828/76
Int. Cl.³ C07G *7/00;* A23J *3/00*
U.S. Cl. 435—272 **2 Claims**

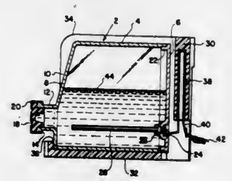
1. A method of recovering both a water-soluble and a water-insoluble protein fraction from a protein-polysaccharide complex, said method consisting essentially of subjecting wheat gluten to a treatment with a starch degrading enzyme in the presence of water at a temperature of about 75° C. for a period of about ½ to 2 hours so as to decompose at least a portion of the polysaccharide content of said gluten and dissolve at least a portion of the protein content of said gluten, thereby obtaining an aqueous suspension of solids, thereafter separating said suspension by filtration or centrifuging into (a) a solids fraction which after drying results in a first protein fraction and (b) a liquid fraction which after concentration and drying constitutes a second protein fraction, and recovering and combining both of these fractions so as to obtain a total concentration of protein substantially above 60% in the form of a high protein product obtained both from the water insoluble and the water-soluble protein fraction.

4,267,276

MEDICAL SPECIMEN CULTURE BOTTLE

Andrew B. Crawford, Jr., and Gerald J. Wade, both of Littleton, Colo., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 28, 1979, Ser. No. 79,696
Int. Cl.³ C12M *1/34*
U.S. Cl. 435—291 **11 Claims**



1. A micro-organism culture bottle comprising:

a main body portion having five substantially rectangular surfaces and an open end,

a base portion having a substantially rectangular planar surface, said base portion being dimensioned to fit and close said open end of said main body portion,

said main body portion having a neck extending outwardly from the front face thereof opposite said open end, said neck being positioned asymmetrically positioned relative to said front surface, being located entirely within the lower half of said front surface;

said base portion having recess form therein near one end of said base portion, and

a pair of electrode rods sealed through said base portion and having an external tip extending into but not beyond said recess,

said base portion being bonded into sealing relation to said open end of said main body portion with said electrode rods extending into said main body portion spaced from and parallel to each other and the adjacent walls of said main body portion,

said neck and said electrodes being positioned to be below the liquid content of the bottle when said bottle is sealed and prepared for operation.

4,267,277

METHOD OF PRODUCING UREA-FORMALDEHYDE RESIN AND FOAM HAVING REDUCED FORMALDEHYDE EMISSION

Heinz L. Korf, Montreal, Canada, assignor to Rapco Foam, Inc., New York, N.Y.

Filed Jan. 7, 1980, Ser. No. 110,083
Int. Cl.³ C08J 9/30
U.S. Cl. 521—103 2 Claims

1. A method of producing a cellular foam having reduced aldehyde vapor emission during use thereof, comprising:

dispensing a foaming gas into an aqueous resin solution of a condensation product of urea and formaldehyde, the aqueous resin containing an aqueous surfactant foaming agent, an acid curing catalyst and a sufficient amount of an alkali or alkaline earth metal borohydride to reduce any free formaldehyde emitted from the foam.

4,267,278

ABS MOULDING COMPOUNDS HAVING IMPROVED SURFACE

Christian Lindner, Cologne; Bernhard Arnold; Dieter Kuhlmann, both of Pulheim; Friedrich Kowitz, Dormagen, and Karl-Heinz Ott, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 17, 1980, Ser. No. 141,203
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1979, 2916136
Int. Cl.³ C08K 5/53
U.S. Cl. 525—2 5 Claims

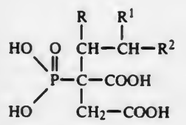
1. A thermoplastic molding composition comprising

(A) from 99.99 to 94% by weight of a composition comprising

(a) from 5 to 70% by weight of at least one rubber based graft polymer and

(b) from 95 to 30% by weight of at least one thermoplastic resin and

(B) from 0.01 to 6.0% by weight of at least one compound of the formula



wherein R is hydrogen, C_1-C_4 alkyl or carboxyl; R^1 is hydrogen or methyl and R^2 is carboxyl.

4,267,279

POLYESTER COMPOSITION STABILIZED AGAINST GEL-TIME DRIFT WITH AMINE SALT AND METHOD FOR MAKING SAME

Hilda Howell, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jul. 27, 1979, Ser. No. 61,379
Int. Cl.³ C08L 67/06
U.S. Cl. 525—17 80 Claims

1. A curable promoted polyester resin system comprising unsaturated polyester and ethylenically unsaturated monomer and one or more additive components for altering a physical or chemical property of the resin system, wherein one of said additive components is a salt-like reaction product of an amine and an aromatic dicarboxylic acid.

4,267,280

CONTROLLED RELEASE PESTICIDES AND METHOD OF PREPARATION

Charles L. McCormick, 2308 Clayton Pl., Hattiesburg, Miss. 39401

Continuation-in-part of Ser. No. 766,522, Feb. 7, 1977, abandoned, and a continuation-in-part of Ser. No. 929,749, Jul. 31, 1978, abandoned. This application Jul. 20, 1979, Ser. No. 59,169
Int. Cl.³ C08G 18/04, 18/64
U.S. Cl. 525—56 10 Claims

1. A pesticide polymer, which has a macromolecular backbone with pendant pesticidal groups chemically linked thereto by linkages which are broken under environmental conditions of use to controllably release an effective amount of active pesticide, is prepared by reacting a pesticide having a replaceable hydrogen with a multifunctional organic isocyanate to form a pesticide-isocyanate adduct and then reacting the adduct with a polymer having pendant groups containing a replaceable hydrogen, to form linkages which are cleaved under enviromental conditions of use to controllably release an effective amount of pesticide.

4,267,281

CONTROLLED RELEASE PESTICIDES

Charles L. McCormick, 2308 Clayton Pl., Hattiesburg, Miss. 39401

Continuation-in-part of Ser. No. 766,522, Feb. 7, 1977, abandoned, and Ser. No. 820,956, Aug. 1, 1977, abandoned. This application Jul. 20, 1979, Ser. No. 59,570
The portion of the term of this patent subsequent to May 12, 1998, has been disclaimed.
Int. Cl.³ C08F 8/32
U.S. Cl. 525—61 5 Claims

1. A pesticide-polymer having a macromolecular backbone with pendant pesticidal groups chemically linked thereto by linkages which are broken under environmental conditions of use to controllably release an effective amount of active pesticide, which pesticide-polymer is prepared by reacting a polymer having pendant hydroxy groups, said polymer being selected from polyvinyl alcohol and polyvinylalcohol copolymers, with a pesticide derivative having an —NCO group, said pesticide derivative having been prepared from a pesticide having an $—NH_2$ group.

4,267,282

MINIMIZING FEED PROBLEMS AND REDUCING RESIDUAL ACRYLONITRILE MONOMER IN PROCESSING NITRILE POLYMERS

Edward F. Tokas, West Hatfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Sep. 18, 1978, Ser. No. 943,566
Int. Cl.³ C08L 9/02, 55/02
U.S. Cl. 525—86 12 Claims

1. In the process of melting a blend of nitrile polymer and liquid myrcene by means of a rotating plasticizing element, the improvements which comprise having an absorptive, anti-slip agent in admixture with the blend when charging the blend to the plasticator, said anti-slip agent being employed in an amount sufficient to reduce slippage of the blend on the surface of the rotating screw and then melting the anti-slip agent along with the polymer to form a fluid melt of polymer, anti-slip agent and myrcene.

4,267,283

STYRENIC IMPACT POLYMERS

Richard O. Whitehead, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 16, 1980, Ser. No. 159,712
Int. Cl.³ C08L 53/00
U.S. Cl. 525—89 12 Claims

1. A graft copolymer composition having improved toughness consisting essentially of:

(a) from about 8.0 to about 16.0 parts by weight of a mixture of an ABA block copolymer and an A'B'A' tapered block copolymer in a weight ratio of the ABA copolymer to the A'B'A' copolymer of between about 25:75 and about 75:25 where each A segment is an essentially pure polymer block of styrene having a number average molecular weight of between about 14,000 and about 18,000, the B segment is an essentially pure polymer block of butadiene having a number average molecular weight of between about 60,000 and about 80,000, the B block having a glass transition temperature of about −105° C.±5° C., the weight ratio of total A to B being between about 1:1.8 and about 1:2.7, and wherein each A' segment represents essentially polymerized styrene, the balance of the A' segment being polymerized butadiene, the B' segment represents essentially polymerized butadiene, the balance of the B' segment being polymerized styrene, the weight ratio of total A' to B' being from about 1:2.6 to about 1:3.6, the number average molecular weight of said A'B'A' block copolymers being between about 400,000 and about 660,000, and said B' block having a glass transition temperature of about −90° C.±5° C.: and

(b) from about 92.0 to about 84.0 parts by weight of monomeric styrene polymerized in the presence of said ABA and said A'B'A' copolymers.

4,267,284

TOUGH, TRANSPARENT ARTICLES FROM STYRENE POLYMERS BLENDED WITH CERTAIN BLOCK-RANDOM COPOLYMERS

Alonzo G. Kitchen, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 7, 1977, Ser. No. 757,526
Int. Cl.³ C08F 293/00
U.S. Cl. 525—99 12 Claims

1. A blend comprising

20–70 weight percent based on a total weight of the blend of a styrene polymer and

30–80 weight percent based on the total weight of said blend of an impact modifier having a terminal monovinyl-substituted aromatic compound/conjugated diene random copolymer block segment and a terminal monovinyl-substituted aromatic compound homopolymer block segment, said monovinyl-substituted aromatic compound being present in said impact modifier in an amount within the range of 60 to 90 weight percent based on a total weight of said impact modifier, said monovinyl-substituted aromatic compound homopolymer block containing from 40 to 60 weight percent of a total of the monovinyl-substituted aromatic compound in said impact modifier.

4,267,285

COMPOSITES OF POLYMERIC MATERIAL AND THERMOSETTING RESINOUS FIBERS AND PARTICLES AND METHOD

Lawrence J. Broutman, 1037 Edgebrook La., Glencoe, Ill. 60022

Filed Aug. 20, 1979, Ser. No. 67,901
Int. Cl.³ C08L 23/12
U.S. Cl. 525—145 22 Claims

1. A composite formed of a matrix of organic polymeric material and fibers of a cured thermosetting resinous material in an infusible insoluble stage dispersed within the matrix of organic polymeric material in which the fibers are surface treated to enhance the interbonding relationship with the polymeric material of the matrix.

4,267,286

MODIFIED POLYESTER COMPOSITIONS

Richard W. Campbell, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Jul. 3, 1979, Ser. No. 54,403
Int. Cl.³ C08L 67/02
U.S. Cl. 525—176 11 Claims

1. A thermoplastic composition comprising:

(a) a polyester composition comprising:

(i) a poly(1,4-butylene terephthalate) resin;

(ii) a blend of a poly(1,4-butylene terephthalate) resin and a poly(ethylene terephthalate) resin;

(iii) a block copolyester of poly(1,4-butylene terephthalate) and an aromatic/aliphatic or aliphatic polyester;

(iv) a blend of (iii) and a poly(ethylene terephthalate) resin; or

(v) a blend of (iii) and a poly(1,4-butylene terephthalate) resin; and

(b) an impact modifier therefor comprising a combination of:

(i) a polyacrylate resin or a vinyl aromatic-diene block copolymer resin; and

(ii) a poly(1,3-butylene terephthalate) resin, in an amount of up to 60 parts per 100 parts by weight of (a) and (b) together.

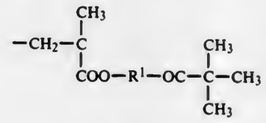
4,267,287

POLYMERS OF PIVALOYLOXYALKYL METHACRYLATES, METHOD FOR THEIR PREPARATION AND MODIFICATION

Stanislav Sevcik; Jiri Trekoval; Jan Holata, and Jiri Stamberg, all of Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Division of Ser. No. 944,392, Sep. 21, 1978, Pat. No. 4,218,552, which is a division of Ser. No. 783,398, Mar. 31, 1977, Pat. No. 4,130,705, which is a continuation-in-part of Ser. No. 590,635, Jun. 26, 1975, abandoned. This application Oct. 29, 1979, Ser. No. 89,628
Claims priority, application Czechoslovakia, Jun. 27, 1974, 4540-74; Jun. 27, 1974, 4541-74; Jun. 27, 1974, 4542-74
Int. Cl.³ C08F 220/10
U.S. Cl. 525—271 2 Claims

1. A method for the preparation of block copolymers formed from monomers of methacrylates and pivaloyloxyalkyl methacrylates having the general formula



where R^1 is $(CH_2)_{n1}$—O or $(CH_2CH_2—O)_{n2}$, n_1 being 2 to 10 and n_2 being 1 to 4, which comprises first initiating polymerization of a methacrylate monomer solution in the presence of butyllithium at −70° C., continuing the polymerization until the methacrylate monomer has been polymerized, then adding the pivaloyloxyalkyl methacrylate monomer and effecting complete polymerization of same.

4,267,288

EPOXY-URETHANES BASED ON COPOLYESTERS

Dean C. Burkhart, Ft. Madison, Iowa; Lee R. Harper, Media, and Eugene G. Sommerfeld, Penn Valley, both of Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 899,697, Apr. 14, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,888
Int. Cl.³ C08L 63/00
U.S. Cl. 525—438 11 Claims

1. An epoxy-urethane consisting essentially of an epoxy

endcapped and chain-extended copolyesterurethane, said epoxy-urethane being:

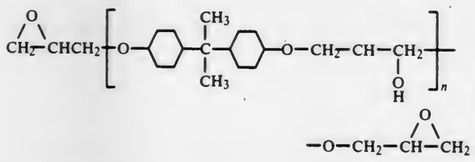
I. produced by admixing

(a) at least one copolyester, such copolyester produced by the reaction of one linear or more diols or polyether glycols with at least two different dicarboxylic acids, anhydrides of dicarboxylic acids, or methyl esters of dicarboxylic acids, about 40–80 mole percent of said dicarboxylic acids, anhydrides of dicarboxylic acids or methyl esters of dicarboxylic acids being aromatic and about 60–20 mole percent of said dicarboxylic acids, anhydrides of dicarboxylic acids, or methyl esters of dicarboxylic acids being aliphatic, and

(b) at least one organic diisocyanate, the molar ratio of isocyanate contained on the diisocyanate to hydroxyl contained on the copolyester being about 0.7/1.0 to about 1/1, at a temperature and for a time sufficient to form a copolyester-urethane;

II. reacted to the extent of 10 to 100% of the hydroxyl groups thereof with trimellitic anhydride or a dicarboxylic acid or anhydride thereof selected from the group consisting of malonic, succinic, glutaric, adipic, pimelic, suberic, azelaic, sebacic, brassylic, maleic, fumaric, dilinoleic, diphenic, phthalic, tetrachlorophthalic, isophthalic, terephthalic orthophthalic, cyclohexane dicarboxylic, p-phenylene diacetic, naphthalene dicarboxylic, dihydromuconic, beta-methyl adipic, trimethyl adipic, and ethylether-2,2′-dicarboxylic acids in an amount and for a time to form acid or anhydride endcapped copolyester-urethane with dicarboxylic acid or anhydride; and

III. endcapped and/or chain-extended to form said epoxy-urethane by reacting by heat 10–100% of the carboxyl groups of said endcapped copolyester urethane with an epoxy resin of the structure



wherein

n is an integer sufficient to provide the epoxy resin with an epoxide equivalent of at least about 450 and up to about 6000.

4,267,289

BLEND OF WHOLLY AROMATIC POLYESTERS

Michael F. Froix, Menlo Park, Calif., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 3, 1980, Ser. No. 165,534

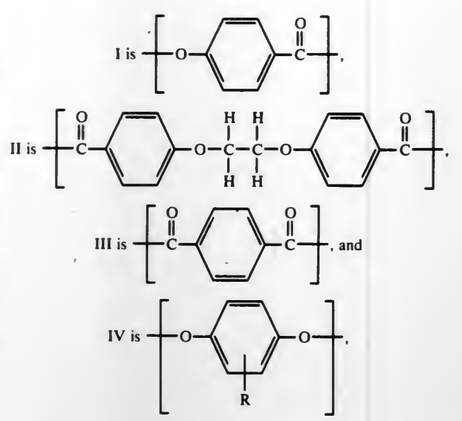
Int. Cl.³ C08L *67/00*

U.S. Cl. 525—444 **39 Claims**

1. A polymer blend which is capable of exhibiting an anisotropic melt phase and which is capable of forming shaped articles which exhibit satisfactory mechanical properties comprising:

(a) approximately 5 to approximately 95 percent by weight, based upon the total weight of components (a) and (b), of a first melt processable wholly aromatic polyester which is capable of forming an anisotropic melt phase apart from said blend and comprises not less than approximately 10 mole percent of recurring units which include a naphthalene moiety, and

(b) approximately 5 to approximately 95 percent by weight, based upon the total weight of components (a) and (b), of a second melt processable wholly aromatic polyester which is capable of forming an anisotropic melt phase at a temperature no higher than approximately 320° C. apart from said blend and which consists essentially of the recurring moieties I, II, III, and IV wherein:



where R is methyl, chloro, bromo, or mixtures thereof, and is substituted for a hydrogen atom present upon the aromatic ring,

and wherein said second wholly aromatic polyester comprises approximately 20 to 60 mole percent of moiety I, approximately 5 to 18 mole percent of moiety II, approximately 5 to 35 mole percent of moiety III, and approximately 20 to 30 mole percent of moiety IV.

4,267,290

METHOD OF BINDING A PHENOL-BASED THERMOPLASTIC RESIN TO A CURED AND MOLDED-THERMOSET PHENOLIC PLASTIC

William F. Sherman, 2 Burtenmar Cir., Paxton, Mass. 01612

Division of Ser. No. 632,026, Nov. 14, 1975, Pat. No. 4,088,729, which is a continuation of Ser. No. 450,261, Mar. 11, 1974, abandoned, which is a division of Ser. No. 108,789, Jan. 22, 1971, Pat. No. 3,800,483. This application Apr. 4, 1978, Ser. No. 893,381

Int. Cl.³ C08L *61/10*

U.S. Cl. 525—465 **10 Claims**

1. A new material comprised of a thermoplastic resin selected from the group consisting of phenol-containing thermoplastic resins and a cured and molded thermoset phenol-formaldehyde resin bonded to each other through cross-linking chemical bonds formed after the curing of said thermoset.

4,267,291

PROCESS FOR COATING REACTORS USING ORGANIC COMPOUND VAPOR APPLICATION

Richard A. Jones, Avon Lake, and Donald E. Witenhafer, North Olmsted, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Sep. 14, 1979, Ser. No. 75,553

Int. Cl.³ B01J *19/00, 12/02*; B08B *17/00*

U.S. Cl. 526—62 **19 Claims**

1. A process for substantially eliminating the buildup of polymer on the internal surfaces of a polymerization reaction vessel for polymerizing olefinic monomer(s) which comprises, making a coating solution of a coating material which, in the form of a film, is capable of resisting polymer buildup thereon, applying said coating material to said surfaces by means of a hydrocarbon gas, said hydrocarbon gas being a saturated straight chain or branched hydrocarbon containing from 1 to 8 carbon atoms and acting as a carrier for said coating material, and thereafter conducting the polymerization of said monomer(s) while in constant contact with the coated internal surfaces of said vessel.

4,267,292

ADDITION OF CHLORINE COMPOUND TO ZIEGLER POLYMERIZATION PROCESS

Kenneth C. Benton, Garfield Heights, Ohio; James F. White, Westchester, Pa.; Curtis E. Uebele, Bedford, and Raymond J. Weinert, Jr., Garfield Heights, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Dec. 26, 1979, Ser. No. 106,814

Int. Cl.³ C08F *2/00, 2/14*

U.S. Cl. 526—79 **11 Claims**

1. A process for polymerizing an alpha-olefin comprising contacting the alpha-olefin with a Ziegler-type catalyst and subsequently adding at least one halogen containing compound selected from the group consisting of dichloroethane, dichloropropane and chlorine gas, with the proviso that said halogen compound is not added until at least 5% of said alpha-olefin has been converted to polymer.

4,267,293

METHOD FOR PRODUCING ETHYLENE POLYMERS USING TREATED CATALYSTS CONTAINING TITANIUM AND VANADIUM

Darryl R. Fahey, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 907,471, May 19, 1978, Pat. No. 4,208,304. This application Dec. 21, 1979, Ser. No. 106,345

Int. Cl.³ C08F *4/64, 4/68*

U.S. Cl. 526—116 **11 Claims**

1. A method for producing polymers of ethylene comprising contacting ethylene monomer under conditions suitable for polymerization with a catalyst system comprising (1) an organoaluminum compound having the formula $AlR''_aX'_{3-a}$ wherein R'' is hydrogen or an alkyl or an aryl group containing from 1 to about 20 carbon atoms, X′ is bromine, chlorine, iodine, or an alkoxy group containing from 1 to about 12 carbon atoms, a is an integer of from 1 to 3, with the further proviso that when X′ is alkoxy, a is 2, and (2) a catalyst component that is a composition of titanium, vanadium, and halogen groups prepared by sequentially treating

(a) a mixture of titanium and vanadium compounds with

(b) an organometallic compound and

(c) titanium tetrachloride wherein said titanium compound of (a) is described by the formula $Ti(OR)_nX_{4-n}$ in which R is selected from among alkyl, cycloalkyl, aryl, and acyl groups and combinations thereof; each group can contain from 1 to about 20 carbon atoms per molecule; n designates 1, 2, 3, or 4; and X is bromine, chlorine, or iodine and said vanadium compound of (a) is VX_4 or $VO(OR')_mX_{3-m}$ in which R′ is an alkyl group containing from 1 to about 20 carbon atoms, m is 0–3 and X is bromine, chlorine, or iodine.

4,267,294

1-OLEFIN POLYMERIZATION CATALYST

Wendell P. Long, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 18, 1979, Ser. No. 104,929

Int. Cl.³ C08F *4/02, 10/06*

U.S. Cl. 526—125 **4 Claims**

1. In a process for the polymerization of 1-olefins containing a least three carbon atoms in the presence of a solid catalyst component composed of a titanium halide deposited on an anhydrous, essentially magnesium halide support and an activator component composed of a trialkylaluminum and a lower alkyl ester of an aromatic carboxylic acid, said ester containing from eight to sixteen carbon atoms, the improvement which comprises substituting a dialkylaluminum hydride for a portion of the trialkylaluminum in the activator, such substitution being made so as to provide a mole ratio of total aluminum to ester of from 3:1 to 4:1 and a mole ratio of dialkylaluminum hydride to ester of from about 0.5:1 to about 1.5:1.

4,267,295

POLYMERIC COMPOSITIONS AND HYDROGELS FORMED THEREFROM

Paul M. Gallop, Chestnut Hill, and Donald R. Korb, Boston, both of Mass., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Feb. 9, 1979, Ser. No. 10,992

Int. Cl.³ C08F *220/20*

U.S. Cl. 526—264 **30 Claims**

1. A hydrophilic polymer comprising the polymerization product of:

a first monomer comprising a dihydroxyalkyl acrylate,

a second monomer comprising a substantially water insoluble alkyl acrylate or alkyl methacrylate, the mole ratio of said first monomer to said second monomer varying within the range from about 1:3 to about 20:1;

a third monomer comprising a compound selected from the group consisting of:

 (a)

where R^3 is hydroxyl, alkoxy having 1 to 6 carbon atoms, a sulfonic acid moiety,

wherein R^4 and R^5 are independently selected from hydrogen and an unsubstituted or substituted alkyl group having from 1 to about 3 carbon atoms, and R^4 and R^5 may be combined to form a cyclic group, or



wherein R^4 and R^5 are as defined above, and n is an integer from 0 to about 4, except that n must be at least 1 when R^3 is hydroxyl;

 (b)

where R^6 is hydroxyalkoxy having 1 to 6 carbon atoms or $-NR^7R^8$ where R^7 and R^8 are independently selected from hydrogen and lower alkyl groups having 1 to 4 carbon atoms;

 (c)

where R^9 is hyroxyalkoxy having from 1 to about 6 carbon atoms; and

(d) mixtures thereof:

the total of the molar quantities of said first and second monmers to the molar quantity of said third monomer being in the range of 1:1 to 1:0.2.

4,267,296

OXYGEN-CURABLE MERCAPTO-FUNCTIONAL ORGANOSILICON-ORGANIC COMPOUND COMPOSITIONS POSSESSING RAPID SURFACE REACTION AND METHOD OF FORMING HIGHER MOLECULAR WEIGHT PRODUCTS THEREFROM

Gary R. Homan, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,284
Int. Cl.³ C08G 77/06
U.S. Cl. 528—15 **26 Claims**

1. A composition of matter, stable in the absence of oxygen, which consists essentially of a product obtained by mixing the following substantially in the absence of oxygen

(A) 100 parts by weight of an ingredient selected from the group consisting of

(1) at least one mercapto-functional copolymer having both organic compound segments and organosilicon compound segments, there being an average of at least two mercapto groups per copolymer molecule and

(2) a mixture of at least two different types of components, said components being selected from the group consisting of (a) at least one copolymer as described in (A)(1) above, (b) at least one mercapto-functional organic compound which contains an average of at least two mercapto groups per molecule and (c) at least one mercapto-functional organosilicon compound selected from the group consisting of mercapto-functional organosilanes and mercapto-functional organosiloxanes,

wherein

each organic compound segment and mercapto-functional organic compound is free of silicon atoms, aliphatic unsaturation and radicals which are reactive with mercapto groups at room temperature;

said mercapto-functional organosilanes have an average of at least two mercapto groups per molecule and are of an average formula

$$\{(HS)_vZ\}_wSiR^8_{4-w}$$

where

each Z is a divalent or polyvalent hydrocarbon radical free of aliphatic unsaturation, the valence of Z being v+1,

each R^8 is a monovalent hydrocarbon radical free of aliphatic unsaturation or OR^7,

each R^7 is an alkyl radical of 1 to 4 inclusive carbon atoms,

v has a value greater than 0,

w has a value of from 1 to 3 inclusive and the sum of v+w has a value of at least 3; and

said mercapto-functional organosiloxanes have an average of at least two mercapto-functional siloxane units per molecule selected from the group consisting of mercapto-functional siloxane units of the average unit formula

$$\{HSC_nH_{2n}\}_aR_b^9SiO_{\frac{4-a-b}{2}} \quad \text{and} \quad \begin{matrix} HSCH-CH_2 \\ | \quad\quad \diagdown \\ CH_2-CH_2 \end{matrix} \begin{matrix} R_c^9 \\ | \\ SiO \end{matrix}_{\frac{2-c}{2}},$$

any other siloxane units present having the average unit formula

$$R_d^{10}SiO_{\frac{4-d}{2}},$$

where

each R^{10} is an organic radical selected from the group consisting of R^9 and 3,3,3-trifluoropropyl radicals,

each R^9 is R^6 or OR^7,

each R^6 is an alkyl radical of 1 to 4 inclusive carbon atoms or phenyl radical,

n has a value of from 2 to 4 inclusive,

a has a value of from 1 to 2 inclusive,

b has a value of from 0 to 2 inclusive,

c has a value of from 0 to 1 inclusive,

d has a value of from 0 to 3 inclusive and the sum of a+b has a value of from 1 to 3 inclusive, and the ratio of the total R^6, HSC_nH_{2n}-,

$$\begin{matrix} HSCH-CH_2 \\ | \quad\quad \diagdown \\ CH_2-CH_2 \end{matrix}$$

and 3,3,3-trifluoropropyl radicals to silicon atoms in the mercapto-functional organosiloxane is in the range of 0.98/1 to 3.00/1;

(B) 0 to 200 parts by weight of at least one filler;

(C) a catalytic amount of an iron carbonyl compound selected from the group consisting of $Fe(CO)_5$, $Fe_2(CO)_9$, $Fe_3(CO)_{12}$, dicyclopentadienyldiiron tetracarbonyl, butadieneiron tricarbonyl, and cyclohexadieneiron tricarbonyl; and

(D) 0.1 to 6 parts by weight of an acid which meets the following criteria:

(1) it must be compatible with the mixed composition,

(2) it must be a proton donor, and

(3) the dissociation constant of the acid in an aqueous solution must be greater than 10^{-5}.

4,267,297

ROOM TEMPERATURE CURABLE SILICONE RESINS

Tsuneo Hanada, and Ryuzo Mikami, both of Ichihara, Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Oct. 19, 1979, Ser. No. 86,559
Int. Cl.³ C08L 83/06; C08G 77/16, 77/18
U.S. Cl. 528—18 **9 Claims**

1. A silicone resin composition comprising

(A) 100 parts by weight of a hydroxylated organopolysiloxane of the general formula

$$\left[R_n^1SiO_{\frac{4-n-m}{2}}(OH)_m\right]_p$$

wherein R^1 is a substituted or unsubstituted monovalent hydrocarbon radical, n has an average value of from 0.80 to 1.80, p is an integer equal to or greater than 3, m has a value such that the total hydroxyl content of the organopolysiloxane is equal to or greater than 0.01 weight percent;

(B) 0.5–150 parts by weight, per 100 parts of (A), of an alkoxylated organopolysiloxane of the general formula

$$\left[R_a^2SiO_{\frac{4-a-b}{2}}(OR^3)_b\right]_q$$

wherein R^2 has the same meaning as R^1, R^3 is a substituted or unsubstituted alkyl radical having 1–6 carbon atoms, a has an average value of from 0.40 to 1.70, g is an integer equal to or greater than 3, b has a value such that the total alkoxy content in (B) is equal to or greater than 5 weight percent;

(C) 1–150 parts by weight, per 100 parts of (A), of an alkoxysilane of the general formula

$$R_c^4Si(OR^5)_{4-c}$$

wherein R^4 has the same meaning as R^1, R^5 has the same meaning as R^3, c has a value of 0.1 to 2 and,

(D) 0.1–20 parts by weight, per 100 parts of (A) of an aminoalkylalkoxysilane of the general formula

$$R^6NH-R^7Si(OR^9)_{3-d}$$
$$\quad\quad\quad

4,267,303

PROCESS FOR THE PREPARATION OF POLYMERS WITH DIPHENOL CARBONATE END GROUPS

Klaus König, Leverkusen; Manfred Schreckenberg, Krefeld; Christian Lindner, Cologne; Carlhans Süling, Odenthal, and Dieter Freitag, Krefeld-Traar, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 70,072

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1978, 2837526

Int. Cl.³ C08G *63/62, 63/64*

U.S. Cl. 528—171 11 Claims

1. A process for the preparation of a polymer with diphenol carbonate end groups, characterized in that (a) a diol selected from polyester-diols, and polyacetal-diols with average molecular weights of $\overline{M}n$ (number average) 300–6,000, (b) a carbonic acid bis-aryl ester and (c) a diphenol are reacted together, a catalyst also being used if appropriate, at a temperature between 80° and 270° C. and under a vacuum of between 200 mg Hg and 0.1 mm Hg, n mols of diol, m mols of diphenol and p mols of carbonic acid bis-aryl ester being employed for the preparation of 1 mol of the polymer with diphenol carbonate end groups, n being a number from 1 to 20 and being chosen in each case such that the product of n and the molecular weight $\overline{M}n$ (number average), increased by 26, of the diol employed is a number between 500 and 14,500, and m being any desired number between 2 and 5 and p being at least n+1, but at most (n+m)−1.

4,267,304

AROMATIC COPOLYESTERS CAPABLE OF FORMING AN ANISOTROPIC MELT

Ronald G. Feasey, Knebworth, and Brian P. Griffin, St Albans, both of England, assignors to Imperial Chemical Industries Limited, London, England

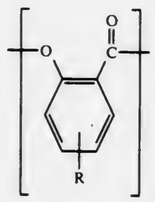
Filed Jul. 18, 1979, Ser. No. 58,442

Claims priority, application United Kingdom, Jul. 31, 1978, 31763/78

Int. Cl.³ C08G *63/60, 63/66, 63/68*

U.S. Cl. 528—193 9 Claims

1. An aromatic polyester characterised in that it is capable of forming an anisotropic melt and contains 5 to 75 mole % of recurring units of formula:



wherein R may be hydrogen, chlorine, bromine or alkyl groups containing from 1 to 4 carbon atoms.

4,267,305

PROCESS FOR PREPARING POLYCARBONATES USING NITROGEN CROWN-CYCLIC COMPOUNDS AS CATALYSTS

Victor Mark, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Dec. 28, 1979, Ser. No. 107,724

Int. Cl.³ C08G *63/62*

U.S. Cl. 528—199 12 Claims

1. An interfacial polymerization process for preparing high molecular weight aromatic polycarbonates which comprises reacting, under interfacial polycarbonate-forming conditions, a dihydric phenol and a carbonate precursor in the presence of a catalytic amount of a catalyst selected from the group consisting of nitrogen crown-cyclic compounds and mineral acid salts of nitrogen crown-cyclic compounds.

4,267,306

POLYESTER POLYMERS CONTAINING RESIDUES OF ANTHROQUINONE DYES

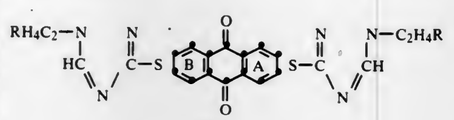
Thomas G. Davis, and Max A. Weaver, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 15, 1979, Ser. No. 12,415

Int. Cl.³ C08G *63/68*

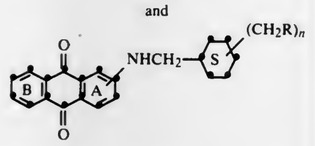
U.S. Cl. 528—226 6 Claims

1. Colored polymeric material comprising a linear thermoplastic or unsaturated cross-linkable polyester, containing a coloring amount of one or more copolyesterifide compounds of the formula



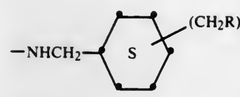
I

and



II

wherein R is —OH, —COOR¹ or —COX wherein R¹ is —H or lower alkyl, X is halogen, n is 1 or 2, either A or B of II must contain, and A or B of I may contain, at least one additional



group, each of rings A and B may be further substituted with 1–3 radicals selected from lower alkyl which may be substituted with lower alkoxy, phenyl, Cl, Br, and lower alkanoylamino; lower alkoxy which may be substituted with lower alkoxy, phenyl, Cl, Br, and lower alkanoylamino; chlorine; bromine; amino; lower alkyl amino which may be substituted with lower alkoxy, cyclohexyl, phenyl, Cl, Br, and lower alkanoylamino; aryl amino; arylthio; and aroylamino; wherein each aryl is 6–10 carbons; lower alkylsulfonyl; lower alkylthio; lower alkanoylamino; and cyclohexylamino.

4,267,307

SEALANT COMPOSITIONS

Rector P. Louthan, and Richard C. Doss, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 29, 1979, Ser. No. 98,446

Int. Cl.³ C08G *63/68, 75/00*

U.S. Cl. 528—293 14 Claims

1. An improved sealant composition having non-tacky surfaces prepared by curing a mixture comprising:

(a) a poly(oxyalkylene)-polyester-poly(sulfide)-polythiol having more than two pendant thiol groups per molecule;

(b) a curing agent in an amount sufficient to convert at least 70% of the mercapto groups to polysulfide linkages; and

(c) the balance being non-elastomeric components selected from fillers, plasticizers, antioxidants, adhesion promoters, and the like, the improvement comprising forming said polythiol (a) by reacting at least one of a mercapto acid and a mercapto acid ester with a polyether polyol having on average at least 2.5 primary hydroxyl end groups per molecule.

4,267,308

LAYERED ZIRCONIUM BIS(BENZENEPHOSPHONATE) INORGANIC POLYMERS

Victor E. Parziale, Irvine; Martin B. Dines, Santa Ana, and Peter M. DiGiacomo, Mission Viejo, all of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 7,275, Jan. 29, 1979, abandoned. This application Jan. 4, 1980, Ser. No. 109,444

Int. Cl.³ C07F *7/00;* C08F *130/02*

U.S. Cl. 528—395 1 Claim

1. Layered inorganic homopolymers of zirconium bis(benzene-phosphonate).

4,267,309

PROCESS FOR PREPARING OLEFIN OXIDE POLYMERIZATION CATALYSTS

George L. Goeke, Kendall Park, and Frederick J. Karol, Belle Mead, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 928,974, Jul. 28, 1978, Pat. No. 4,193,892, which is a continuation-in-part of Ser. No. 902,566, May 8, 1978, abandoned, which is a continuation of Ser. No. 741,013, Nov. 11, 1976, abandoned. This application Jan. 31, 1980, Ser. No. 117,294

Int. Cl.³ C08G *65/10*

U.S. Cl. 528—413 3 Claims

1. In a process for the polymerization of olefin oxides, the improvement comprising carrying out the process in the presence of a catalytically active amount of the catalyst prepared by a process which comprises:

(i) admixing calcium, ammonia, an alkylene oxide modifier and an organic nitrile modifier, the alkylene oxide consisting of carbon, hydrogen, and oxirane oxygen atoms and the organic nitrile consisting of carbon, nitrogen, and hydrogen atoms, at least one hydrogen atom being acidic, to form a slurry of modified calcium hexamine in ammonia;

(ii) evaporating ammonia to provide a solid residue; and

(iii) aging the solid residue at a temperature in the range of about 150° C. to about 225° C.

4,267,310

PROCESS FOR PRODUCING SPHERICAL PARTICLES OF CRYSTALLINE POLYMERS

Leo M. Landoll, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 26, 1979, Ser. No. 107,472

Int. Cl.³ C08J *3/12, 3/20, 3/08*

U.S. Cl. 260—40 R 15 Claims

1. A process for producing spherical particles having diameters ranging from about 1 to about 300 microns of polyester or polyamide crystalline, normally solid condensation-type polymers having a melt viscosity of at least 2000 poises at 20° C. above the crystalline melting point of the polymer and having a degree of crystallinity above 20%, which process comprises agitating under conditions of shear a fluid mixture of said polymer in an aprotic liquid which is a non-solvent for said polymer and which contains dissolved or dispersed therein from 0.1 to 20%, based on the weight of said polymer of a water-insoluble block or graft copolymer having a number average molecular weight above about 2000 and having at least one polymeric component which is soluble in the aprotic liquid and at least one other polymeric component of a different type which is insoluble in the aprotic liquid and associates with the condensation-type polymer, at a temperature above the crystalline melting point of the condensation-type polymer until a dispersion of liquid particles having a size within the range of about 1 to 3000 microns is formed, agitating the dispersion while cooling to a temperature below the crystalline melting point of the condensation-type polymer until the liquid particles solidify, and recovering the resulting particles from the aprotic liquid.

4,267,311

NOVEL METHOD FOR REMOVAL OF SODIUM CHLORIDE FROM PHOSPHAZENE RUBBER CRUMB SWOLLEN IN WATER

Robert A. Elefritz, Jr., Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Feb. 22, 1977, Ser. No. 770,888

Int. Cl.³ C08G *73/00;* C08J *3/00*

U.S. Cl. 528—499 5 Claims

1. A process for the removal of alkali metal halide from phosphazene rubber crumb resulting from the precipitation from solution of the reaction product formed by reacting a polydihalophosphazene of the formula $(NPHal_2)_n$ in which Hal represents a halogen and n is between about 20 and 50,000, with at least one compound having the formula QOR wherein Q represents an alkali metal and R represents an organic substituent whereby a mixture of QHal and $[NP(OR)_2]_n$ containing 25% by weight or more of said alkali metal halide is produced which method comprises the steps of (1) swelling said crumb by immersing the said crumb in hot water, to dissolve a substantial portion of the alkali metal halide present in said crumb, (2) withdrawing said swollen crumb from said hot water, and (3) squeezing said swollen crumb sufficiently to express a substantial amount of the resulting alkali metal halide solution associated therewith from said crumb and recovering the resulting phosphazene rubber crumb with a greatly diminished alkali halide content.

4,267,312

ANTHRACYCLINE DERIVATIVES AND PROCESS FOR PREPARING THE SAME

Toshikazu Oki, Yokohama; Akihiro Yoshimoto, Fujisawa; Taiji Inui, Chigasaki; Tomio Takeuchi, and Hamao Umezawa, both of Tokyo, all of Japan, assignors to Sanraku-Ocean Co., Ltd., Tokyo, Japan

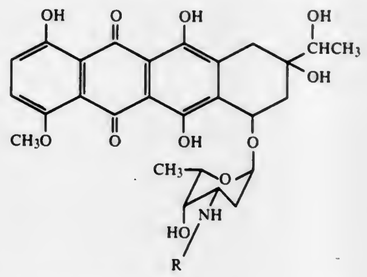
Filed Sep. 12, 1979, Ser. No. 75,302

Claims priority, application Japan, Sep. 20, 1978, 53-115507

Int. Cl.³ A61K *31/71;* C07H *15/24*

U.S. Cl. 536—17 A 3 Claims

1. An anthracycline glycoside of the general formula (I)



(I)

wherein R represents a hydrogen atom or a formyl group (—CHO)
or a non-toxic acid addition salt thereof.

4,267,313

SACCHARIDE DERIVATIVE HAVING UREIDO GROUP

Takanori Sannan, Tokyo, and Shojiro Horiguchi, Hoya, both of Japan, assignors to Dainichiseika Color & Chemicals Mfg. Co. Ltd., Tokyo, Japan

Filed Jan. 2, 1980, Ser. No. 109,031
Claims priority, application Japan, Feb. 16, 1979, 54-16217
Int. Cl.³ C07H *5/06*
U.S. Cl. 536—18 **2 Claims**

1. A macromolecular polysaccharide derived from chitin, having a ureido group, which has 100 to 1% of N-carbamoyl-D-glucosamine unit 0 to 90% of D-glucosamine unit, and 0 to 70% of N-acetyl-D-glucosamine unit.

4,267,314

PROCESS FOR THE PREPARATION OF LACTOSYLUREA, ITS PURIFICATION AND ITS CONVERSION TO THE CORRESPONDING N-HYDROXYMETHYLATED DERIVATIVE

Jean-Pierre Sachetto, St-Julien-en-Genevois; Alain Regnault, Par Ornex, both of France; Sergio Cuccolo, Geneva, Switzerland; Herve Tournier, Valleiry, France, and Jean-Michel Armanet, Onex, Switzerland, assignors to Battelle Memorial Institute, Carouge, Switzerland

Filed Feb. 12, 1979, Ser. No. 11,133
Claims priority, application Switzerland, Feb. 14, 1978, 1585/78
Int. Cl.³ C07H *5/00*
U.S. Cl. 536—53 **9 Claims**

1. A process for the preparation of lactosylurea suitable for supplementing nitrogen to reminants that comprises condensing lactose and urea in the presence of water and an acid catalyst at a temperature between 70 and 110° C. with a minimum quantity of water although sufficient to keep the reaction mixture fluid enough to be agitated but also stiff enough to be spread on a horizontal flat surface without collapsing.

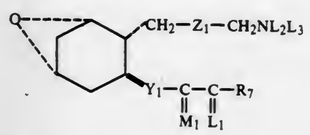
4,267,315

2-DECARBOXY-2-AMINOMETHYL-11A-METHANO-TXA$_2$ COMPOUNDS

Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 35,143, May 1, 1979, Pat. No. 4,218,378.
This application Jan. 28, 1980, Ser. No. 116,079
Int. Cl.³ C09B *23/00, 23/16;* C07D *301/00*
U.S. Cl. 542—400 **3 Claims**

1. A thromboxane analog of formula IV



wherein Y_1 is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —CH_2CH_2—, or
(4) —C≡C—,
wherein M_1 is α-R_5:β-OH, α-OH:β-R_5, or α-H:β-H, wherein R_5 is hydrogen or methyl, and wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and β-R_3:α-R_4, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro, or wherein —C(M_1)—C(L_1)— is trans-CH=CH—;
wherein Z_1 is
(1) cis-CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—$(CH_2)_g$—CH_2—,
(4) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,
(5) —$(CH_2)_3$—$(CH_2)_g$—CF_2—,
(6) —CH_2—O—CH_2—$(CH_2)_g$—CH_2—,
(7) —$(CH_2)_2$—O—$(CH_2)_g$—CH_2—,
(8) trans—CH_2—$(CH_2)_g$—CH_2—CH=CH—,
(9) —(m(Ph)—O—$(CH_2)_g$—, or
(10) —(m-Ph)—CH_2—$(CH_2)_g$—,
wherein g is one, 2, or 3, and —(m-Ph)— is meta-phenylene;
wherein R_7 is
(1) —$(CH_2)_m$—CH_3, wherein m is an integer from one to 5, inclusive;
(2) phenoxy;
(3) phenoxy substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(4) phenyl;
(5) phenyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl; or
(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms inclusive; or alkoxy of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different; and wherein L_2 and L_3 are hydrogen or alkyl of one to 4 carbon atoms, inclusive, being the same or different, or a pharmacologically acceptable acid addition salt thereof.

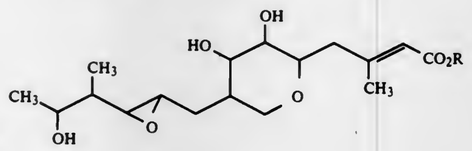
4,267,316

ANTIBACTERIAL COMPOUNDS

Kong Luk, Cranleigh; John P. Clayton, Horsham, and Norman H. Rogers, Rudgwick, all of England, assignors to Beecham Group Limited, England

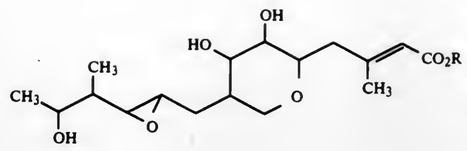
Division of Ser. No. 872,806, Jan. 27, 1978, which is a division of Ser. No. 803,466, Jun. 6, 1977, Pat. No. 4,102,901.
Filed Jun. 14, 1979, Ser. No. 48,506
Claims priority, application United Kingdom, Jun. 15, 1976, 24712/76; Sep. 29, 1976, 40472/76; Mar. 1, 1977, 8647/77
Int. Cl.³ C07D *213/55, 215/32*
U.S. Cl. 542—427 **6 Claims**

1. A compound of the formula:



wherein
R is a heterocyclic ring system comprising oxygen, nitrogen or sulfur as the hetero atom and containing six ring members in the hetero ring, said system being a monocyclic or a fused benzo bicyclic system and being unsubstituted or substituted with a member selected from the group consisting of alkyl of 1 to 6 carbon atoms, carbalkoxy of 1 to 6 carbon atoms in the alkoxy group, phenyl and oxo.

2. A compound of the formula:



wherein
R is 2-oxo-4H-chromen-4-yl, 2-oxo-4-methyl-2H-chromen-7-yl, 2-methyl-4-xo-4H-chromen-7-yl, 2-phenyl-4-oxo-4H-chromen-7-yl, 2-oxo-4-carbethoxy-2H-chomen-7-yl, 2-carbethoxy-4-oxo-4H-chromen-7-yl, quinol-8-yl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.

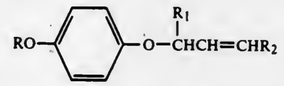
4,267,317

PROCESS FOR PRODUCING PHENOXYALKENE DERIVATIVE

Wataro Koike; Tadashi Sasuga, both of Shizuoka, and Chihiro Yazawa, Yokohama, all of Japan, assignors to Ihara Chemical Industry Co., Ltd., Tokyo, Japan

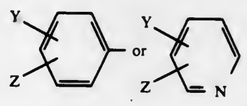
Filed Oct. 12, 1979, Ser. No. 84,161
Claims priority, application Japan, Nov. 14, 1978, 53-140284; Feb. 22, 1979, 54-19099
Int. Cl.³ C07C *69/76, 69/767, 59/48*
U.S. Cl. 542—416 **4 Claims**

1. A process for produding a phenoxyalkene derivative having the formula

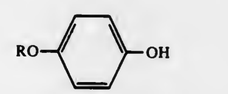


(III)

wherein R represents a hydrogen atom,

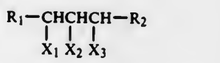


and Y and Z are the same or different and respectively represent a hydrogen atom, trifluoromethyl group, a halogen atom, a lower alkyl group, nitro group or cyano group; R_1 represents a hydrogen atom or a lower alkyl group and R_2 represents carboxyl, hydroxymethyl, allyloxycarbonyl, a lower alkoxycarbonyl, a lower haloalkoxycarbonyl, a S-lower alkylthiocarboxyl, carbamoyl, a N-lower alkylcarbamoyl or a N-phenylcarbamoyl group which comprises reacting a phenol compound having the formula



(I)

with a dihalogen compound at a molar ratio of 1.0 to 1.5 based on the phenol, having the formula



(II)

wherein R, R_1 and R_2 are defined above and X_1 represents a halogen atom and X_2 and X_3 are different and respectively represent a hydrogen atom or a halogen atom, by a simultaneous reaction of an etherification and an unsaturated double bond formation, in the presence of a dehydrogenhalide agent at a molar ratio of 1 to 3 based on the phenol, and a polar solvent or a combination of a non-polar solvent and a quaternary ammonium salt or a quaternary phosphonium salt, at a molar ratio of 0.005 to 0.05 based on the phenol, at a temperature between 30° to 150° C.

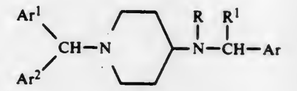
4,267,318

1-(DIARYLMETHYL)-4-PIPERIDINAMINE AND DERIVATIVES THEREOF

Fred M. Hershenson, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Sep. 12, 1979, Ser. No. 74,641
Int. Cl.³ C09B *55/00;* C07D *211/56*
U.S. Cl. 542—422 **20 Claims**

1. A compound of the formula



or a non-toxic pharmacologically acceptable acid addition salt thereof; wherein Ar^1 and Ar^2 independently are phenyl, phenyl substituted with up to five halogens, alkyl radicals of 1 to 7 carbon atoms or alkoxy radicals of 1 to 7 carbon atoms, 3,4-(methylenedioxy)phenyl or pyridyl optionally substituted with up to four alkyl radicals of 1 to 7 carbon atoms; wherein Ar is an alkoxy radical of 1 to 7 carbon atoms, or pyridyl optionally substituted with up to four alkyl radicals of 1 to 7 carbon atoms; and R and R^1 are each hydrogen or together form a double bond between the nitrogen and carbon atoms to which they are attached.

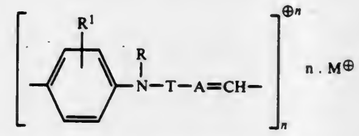
4,267,319

COLORED POLYMERIC COMPOUNDS

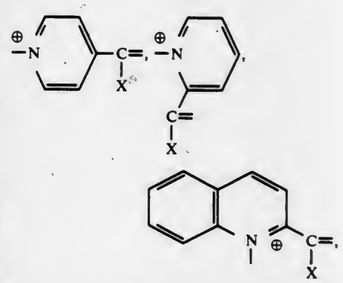
Hans-Juergen Degen, Lorsch, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 30, 1979, Ser. No. 98,775
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1978, 2852919
Int. Cl.³ C07D *401/06, 401/14, 403/06*
U.S. Cl. 542—434 **9 Claims**

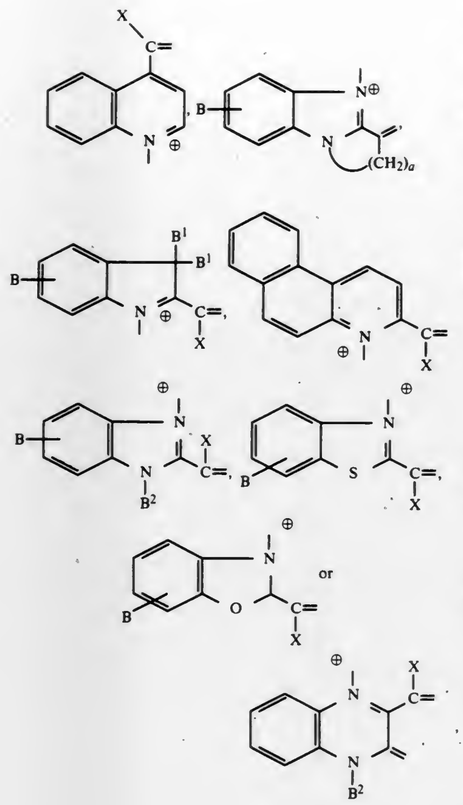
1. A colored polymeric compound of the formula:



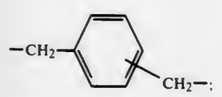
wherein A is a radical of the formula:



-continued



wherein a is 2, 3, or 4, B is hydrogen, unsubstituted or substituted C_1–C_4-alkyl, unsubstituted or substituted benzyl, C_1–C_4-alkoxy, halogen, C_1–C_4-alkylamino or di-C_1–C_4-alkylamino, nitro, C_1–C_4-alkoxycarbonyl, carbamyl or cyano, B^1 is unsubstituted or substituted alkyl, B^2 is unsubstituted or substituted C_1–C_4-alkyl or unsubstituted or substituted benzyl and X is the same as the radicals of groups B and B^1; R is unsubstituted or substituted alkyl, cycloalkyl or phenyl; R^1 is hydrogen, chlorine, bromine, hydroxyl, C_1–C_4-alkyl or C_1–C_4 alkoxy; T is alkylene which is unsubstituted or substituted by halogen, C_1–C_4 alkoxy or hydroxyl, or is a radical of the formula:



$M^{\oplus}$ is an amion and n is a number >1.

4,267,320

CEPHALOSPORIN ANTIBIOTICS

Michael Gregson, Middlesex, and Richard B. Sykes, Chalfont St. Giles, both of England, assignors to Glaxo Laboratories Limited, England

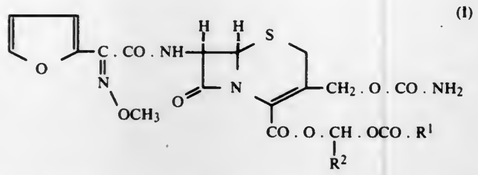
Continuation of Ser. No. 921,120, Jun. 30, 1978, abandoned, which is a continuation of Ser. No. 768,720, Feb. 15, 1977, abandoned. This application Jul. 27, 1979, Ser. No. 61,260

Claims priority, application United Kingdom, Feb. 16, 1976, 6009/76; Jun. 30, 1976, 27301/76; Jun. 30, 1976, 27302/76

Int. Cl.³ C07D *501/34*

U.S. Cl. 544—22 **11 Claims**

1. A cephalosporin antibiotic of the sym form having a formula



(I)

(wherein R^1 is a primary or secondary alkyl group containing 1 to 4 carbon atoms and R^2 is a primary or secondary alkyl group containing 1 to 6 carbon atoms provided that at least one of the groups R^1 and R^2 is methyl).

4,267,321

CEPHALOSPORIN DERIVATIVES

Gerd Ascher, Wörgl, Austria, assignor to Sandoz Ltd., Basel, Switzerland

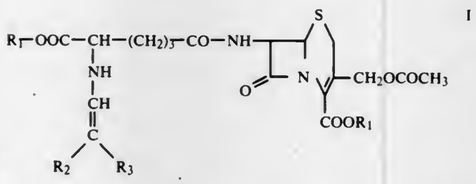
Filed Jan. 22, 1980, Ser. No. 114,154

Claims priority, application Austria, Jan. 25, 1979, 531/79

Int. Cl.³ C07D *501/20*

U.S. Cl. 544—030 **7 Claims**

1.



I

in which each R_1 independently represents hydrogen or an ester protecting group,

and R_2 and R_3, each independently represent hydrogen, nitro, cyano or lower alkoxy carbonyl, or and alkali metal salt provided at least one R_1 represents hydrogen.

4,267,322

PROCESS FOR THE MANUFACTURE OF 7-NITRO-1,3,5-TRIAZA-ADAMANTANE

Hartmut Wiezer, Gersthofen, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 16, 1979, Ser. No. 57,566

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1978, 2831632

Int. Cl.³ C07D *487/18*

U.S. Cl. 544—180 **4 Claims**

1. In a process for the manufacture of 7-nitro-1,3,5-triaza-adamantane by reaction of hexamethylene tetramine with nitromethane in an organic solvent at elevated temperature in the presence of an acid catalyst, the improvement which comprises using as solvent an aliphatic alcohol having from 1 to 4 carbon atoms and a water content not exceeding 4 weight %,

or an anhydrous aliphatic monocarboxylic acid having from 1 to 3 carbon atoms, employing the catalyst in an amount at least equimolar to that of the hexamethylene tetramine, and carrying out the reaction at 40° to 180° C.

4,267,323

HETEROCYCLIC CHEMICAL COMPOUND 6-PHENYL-[1,2,3]-OXADIAZOLO-(4,5 D)-PYRIDAZINE-7(6H)-ONE AND PROCESS FOR PRODUCING IT

Raimondo Motta, Milan, Italy, assignor to Oxon Italia S.p.A., Milan, Italy

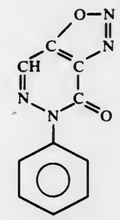
Filed Jul. 10, 1979, Ser. No. 56,400

Claims priority, application Italy, Jul. 28, 1978, 26230 A/78

Int. Cl.³ C07D *498/04, 237/02;* **A61K** *31/50*

U.S. Cl. 544—236 **3 Claims**

1. Heterocyclic chemical compound 6-phenyl-[1,2,3]-oxadiazolo-(4,5 d)-pyridazine-7(6H)-one having the formula:



4,267,324

PROCESS FOR PREPARING 4-AMINOPYRAZOLO-(3,4-d)PYRIMIDINE

John W. Sparks, Boston, and Henry Bader, Newton Center, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jun. 20, 1979, Ser. No. 50,432

Int. Cl.³ C07D *487/04*

U.S. Cl. 544—262 **7 Claims**

1. A process for synthesizing 4-aminopyrazolo (3,4-d)pyrimidine which comprises the step of reacting 3-amino-4-cyanopyrazole with formamidine or a salt of formamidine in the presence of a solvent at a temperature in the range of from about 85° C. to about 125° C.

4,267,325

BLEACHING AGENTS

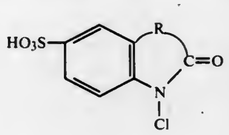
Robin M. Black, Porton, Near Salisbury, England, assignor to Cadbury-Schweppes Limited, London, England

Filed Feb. 27, 1979, Ser. No. 15,705

Int. Cl.³ C07D *239/80, 241/52, 235/26*

U.S. Cl. 544—285 **8 Claims**

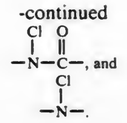
1. N-Chlorinated sulphonic acids of the formula:



and alkali metal salts thereof, wherein R is a group selected from the group consisting of groups of the formula:



-continued



4,267,326

URACIL DERIVATIVES

Shoichiro Ozaki, Kamakura; Yoshimasa Ike, Yokohama; Katsutoshi Ishikawa, Yugawara, and Haruki Mori, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

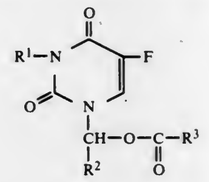
Continuation-in-part of Ser. No. 829,914, Sep. 1, 1977, abandoned. This application Feb. 26, 1979, Ser. No. 15,149

Claims priority, application Japan, Sep. 6, 1976, 51-105714

Int. Cl.³ C07D *239/54*

U.S. Cl. 544—313 **7 Claims**

1. Uracil derivatives of the general formula:



wherein:

R^1 stands for a hydrogen atom;

R^2 is a hydrogen atom and R^3 is phenyl or straight chain alkyl with 5–11 carbon atoms; or

R^2 is n-propyl and R^3 is methyl; or

R^2 is methyl and R^3 is n-butyl; or

R^2 is phenyl and R^3 is methyl.

4,267,327

2-HYDROXYMETHYL-PYRAZINE DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Paolo Cozzi, Milan; Osvaldo Magni, Certosa di Pavia; Leone Bertone, Milan; Romano Angelucci, Milan, and Pier P. Lovisolo, Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

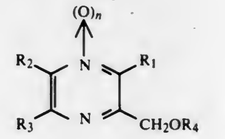
Filed Feb. 26, 1979, Ser. No. 15,223

Claims priority, application Italy, Mar. 23, 1978, 21520 A/78

Int. Cl.³ C07D *241/52*

U.S. Cl. 544—336 **2 Claims**

2. A compound of the formula



(I)

wherein n is 1; R_1, R_3 and R_4 are each hydrogen; and R_2 is C_1–C_6 alkyl, and the pharmaceutically acceptable acid addition salts thereof.

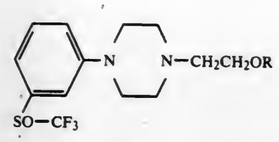
4,267,328

1-PHENYLPIPERAZINES

Henry Najer, Paris, and Philippe Manoury, Le Plessis-Robinson, both of France, assignors to Synthelabo, Paris, France

Filed Jul. 27, 1979, Ser. No. 61,245
Claims priority, application France, Aug. 1, 1978, 78 22672; Nov. 23, 1978, 78 33105; Jun. 22, 1979, 79 16030
Int. Cl.³ C07D *295/06;* A01N *43/60*
U.S. Cl. 544—394 **3 Claims**

1. A compound of the formula:



wherein R is hydrogen, alkyl of less than 7 carbon atoms or —CO-alkyl wherein the alkyl group contains less than 7 carbon atoms or pharmaceutically acceptable salts thereof.

4,267,329

PROCESS FOR PREPARATION OF 2-VINYLPYRIDINE FROM ACETYLENE AND ACRYLONITRILE

Helmut Bönnemann, Essen, and Marc Samson, Hanau, both of Fed. Rep. of Germany, assignors to Studiengesellschaft Kohle GmbH, Mülheim, Fed. Rep. of Germany

Division of Ser. No. 75,458, Sep. 14, 1979. This application Jun. 2, 1980, Ser. No. 155,803
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840460
Int. Cl.³ C07C *13/15, 13/263;* C07D *213/22*
U.S. Cl. 546—4 **3 Claims**

1. π-indenyl (cycloocta-1,5-diene)cobalt.
2. π-trimethylsilylcyclopentadienyl(cycloocta-1,5-diene)-cobalt.
3. π-cyclopentadiene-α,α'-bipyridylcobalt.

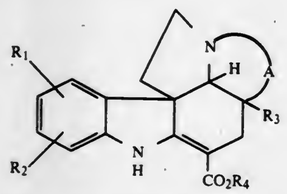
4,267,330

PROCESS FOR THE SYNTHESIS OF VINCADIFFORMINE AND RELATED DERIVATIVES

Martin E. Kuehne, Burlington, Vt., assignor to Omnium Chimique Societe Anonyme, Brussels, Belgium

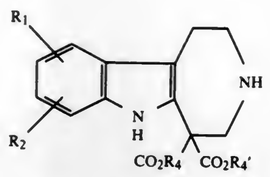
Filed Aug. 24, 1978, Ser. No. 936,454
Int. Cl.³ C07D *471/14, 487/04*
U.S. Cl. 546—51 **29 Claims**

1. A process for the preparation of vincadifformine or related compound of the formula I



I

wherein each R_1 and R_2 individually is hydrogen, or hydroxy, or carbamate, or lower alkoxy, or lower alkyl having from one to 7 carbon atoms, or halo, or a combination of such substituents; R_3 and R_4 are the same or different and are hydrogen or alkyl having from one to 7 carbon atoms; A represents an alkyl chain or from 2 to 5 carbon atoms and which may be substituted by at least one alkyl, hydroxy, or hydroxy-alkyl groups of from 1 to 7 carbon atoms, characterised in condensing a dialkyl 1,2,3,4,5,6-hexahydroazepino (4,5-b) indole-5,5-dicarboxylate of the formula VI



VI

wherein R_1, R_2 and R_4 are as defined above, and R'_4 is as defined for R_4; with a straight chain or branched chain aldehyde selected from the group of halo aldehyde, arylsulfoxy aldehyde, lower alkylsulfoxy aldehyde or epoxy aldehyde and having from three to fourteen carbon atoms to produce vincadifformine or a related compound of the formula I.

3. A process for preparing dialkyl 1,2,3,4,5,6-hexahydroazepino(4,5-b)indole-5,5-dicarboxylate characterized by

reacting a N-benzyl-tetrahydro-γ-carboline (III) with t-butyl hypochlorite to obtain a halogenoindolenine directly treating said halogenoindolenine with a sodium or a thallium dialkyl malonate to provide a dialkyl 3-benzyl-1,2,3,4,5,6-hexahydroazepino(4,5-b)indole-5,5-dicarboxylate (V);

hydrogenating the compound (V) in the presence of a palladium on charcoal hydrogenation catalyst to provide a dialkyl 1,2,3,4,5,6-hexahydroazepino(4,5-b)indole-5,5-dicarboxylate (VI).

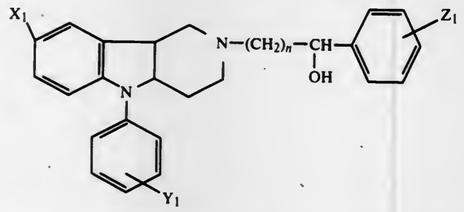
4,267,331

PROCESS FOR THE PRODUCTION OF 2-SUBSTITUTED PYRIDO[4,3-B]-INDOLES

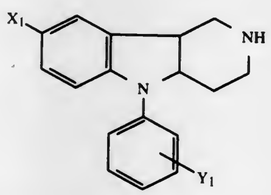
Willard M. Welch, Jr., Mystic, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 5,698, Jan. 23, 1979, which is a continuation-in-part of Ser. No. 799,392, May 23, 1977, abandoned. This application Jan. 15, 1980, Ser. No. 112,189
Int. Cl.³ C07D *471/04*
U.S. Cl. 546—85 **6 Claims**

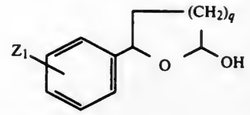
1. A process for production of a compound of the formula



wherein the hydrogen attached to the carbon atoms in the 4a and 9b positions are in a trans-relationship to each other and X_1 and Y_1 are the same or different and are each hydrogen or fluoro; Z_1 is hydrogen, fluoro or methoxy and n is 3 or 4 which comprises contacting a dextrorotatory or racemic amine of the formula



with an equimolar amount of a compound of the formula



wherein X_1, Y_1 and Z_1 are as previously defined and q is 1 or 2; in the presence of a reaction inert organic solvent and in the presence of a reducing agent, said reducing agent being an equivalent amount of (1) sodium cyanoborohydride or (2) hydrogen and a catalytic amount of noble metal catalyst; at a temperature of from about −10° to 50° C.

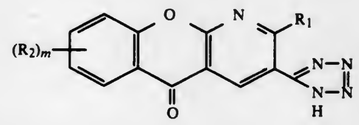
4,267,332

3-(TETRAZOL-5-YL)-1-AZAXANTHONES

Akira Nohara, Kyoto; Toshihiro Ishiguro, and Kiyoshi Ukawa, both of Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Sep. 18, 1978, Ser. No. 942,925
Claims priority, application Japan, Sep. 26, 1977, 52/115817
Int. Cl.³ C07D *273/01;* A61K *31/395*
U.S. Cl. 546—89 **20 Claims**

1. A compound of the formula:



wherein R_1 is hydrogen, amino or hydroxyl;

R_2 is C_{1-6}alkyl, C_{1-4}alkoxy, halogen, nitro, carboxyl, hydroxyl, butadienylene attached to any two adjacent carbon atoms, amino, C_{1-3}alkylamino or bis(C_{1-3}alkyl)amino; and

m is 0, 1 or 2 or its physiologically acceptable salt.

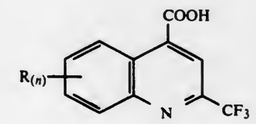
4,267,333

PREPARATION OF 2-TRIFLUOROMETHYL CINCHONINIC ACIDS

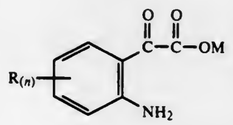
Hsiang-Wei Tsao, Lansdale, Pa., assignor to Union Carbide Agricultural Products Company, Inc., Ambler, Pa.

Filed Sep. 26, 1979, Ser. No. 78,922
Int. Cl.³ C07D *215/50*
U.S. Cl. 546—170 **30 Claims**

1. In an improved method of preparing 2-trifluormethyl cinchoninic acids of the formula:

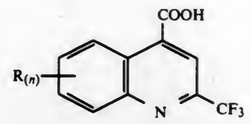


wherein R is selected from the group consisting of halogen, alkyl, aryl and alkoxy radicals, and n is an integer having a value of from 0 to 2, which comprises reacting an alkali metal 2-aminophenylglyoxylate of the formula:

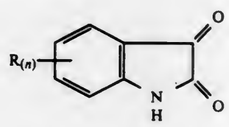


wherein M is an alkali metal, and R and n are as above defined, with 1,1,1-trifluoroacetone in the presence of an acid, the improvement comprising said acid being a weak acid, and said acid having an ionization constant between 1×10^{-2} and 1×10^{-7}, and said reaction being effected in the presence of a metal salt of a weak acid, and the pH of the reaction mixture being between 3 and 6.

16. In an improved method of preparing 2-trifluoromethyl cinchoninic acids of the formula:



wherein R is selected from the group consisting of halogen, alkyl, aryl and alkoxy radicals, and n is an integer having a value of from 0 to 2, which comprises hydrolyzing an isatin compound of the formula:



wherein R and n are as above defined in the presence of an alkali metal hydroxide, and then reacting the hydrolysis product with 1,1,1-trifluoroacetone in the presence of an acid, the improvement comprising said acid being a weak acid, and said acid having an ionization constant between 1×10^{-2} and 1×10^{-7}, and said reaction being effected in the presence of a metal salt of a weak acid, and the pH of the reaction mixture being between 3 and 6.

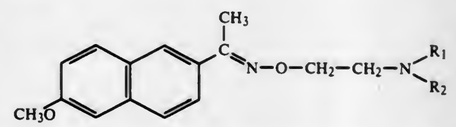
4,267,334

6-METHOXY-2-ACETHYLNAPHTHALENE OXIMES

Antonio Esteve Subirana, Barcelona, Spain, assignor to Productos Esteve Internacional S.A., Barcelona, Spain

Filed Jul. 20, 1979, Ser. No. 59,249
Claims priority, application France, Aug. 2, 1978, 78 22836
Int. Cl.³ C07D *241/04, 207/09;* C07C *131/00*
U.S. Cl. 546—206 **11 Claims**

1. A 6-methoxy-2-acetylnaphthalene oxime derivative of the formula



in which R_1 and R_2 each represent a lower alkyl radical of from 1 to 4 carbon atoms, or form, in association with the nitrogen atom to which they are linked, a pyrrolidino or piperidino group and the acid addition salts thereof with physiologically acceptable acids.

4,267,335

SUBSTITUTED 2,2'-BIPYRIDYL COMPOUNDS AND PROCESS FOR PREPARING SAME

Charles K. McGill, Indianapolis, Ind., assignor to Reilly Tar & Chemical Corporation, Indianapolis, Ind.

Division of Ser. No. 928,396, Jul. 27, 1978. This application May 21, 1979, Ser. No. 41,291

Int. Cl.³ C07D *213/22*

U.S. Cl. 546—257 **5 Claims**

1. A substituted 2,2'-bipyridyl compound selected from the group consisting of:

4,4'-di-(5-nonyl)-2,2'-bipyridyl;

6,6'-di-(5-nonyl)-2,2'-bipyridyl;

4,4'-di-(cyclohexylmethyl)-2,2'-bipyridyl; and

5,5'-di-(5-nonyl)-2,2'-bipyridyl.

4,267,336

PROCESS FOR PRODUCING 4-(PYRIDYL-2-OXY)-PHENOXYALKANECARBOXYLIC ACID OR ITS DERIVATIVES

Ryuzo Nishiyama, Takatsuki; Kanichi Fujikawa, Moriyama; Rikuo Nasu, Kyoto, and Itaru Shigehara, Moriyama, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

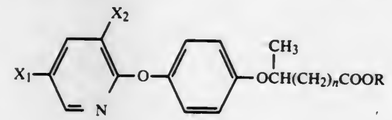
Filed Apr. 7, 1980, Ser. No. 137,954

Claims priority, application Japan, Apr. 19, 1979, 54/48147

Int. Cl.³ A01N *9/22*; C07D *213/57, 213/64*

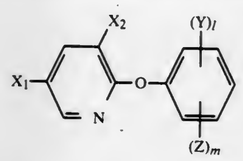
U.S. Cl. 546—302 **4 Claims**

1. A process for producing 4-(pyridyl-2-oxy) phenoxyalkanecarboxylic acid or its derivative having the formula



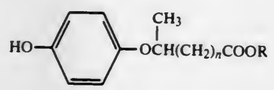
(III)

wherein X_1, X_2, R and n are defined below, which comprises reacting 2-phenoxypyridine derivative having the formula



(I)

wherein X_1 represents a halogen atom or trifluoromethyl group; X_2 represents hydrogen or a halogen atom; Y represents methyl group; Z represents a halogen atom; l is 0 to 2 (integer); m is 0 to 5 (integer); and l+m is an integer of 5 or less, with 4-hydroxyphenoxyalkanecarboxylic acid or its derivative having the formula



(II)

wherein R represents hydrogen atom, a lower alkyl group of one to four carbon atoms, or a cation selected from the group consisting of sodium, potassium, magnesium, and calcium; and n is 0 or 2, in the presence of an alkaline compound selected from the group consisting of alkali metals, alkali metal hydroxides and alkali metal carbonates, in an aprotic polar solvent at a reaction temperature of 50° C. to the refluxing temperature, the molar ratio of the 4-hydroxyphenoxyalkanecarboxylic acid or its derivative to the 2-phenoxypyridine derivative being from 1 to 1.5, and the molar ratio of the alkaline compound to the 2-phenoxypyridine derivative being from 1 to 2.

4,267,337

IMIDAZOLEMETHYLPHOSPHONIUM SALTS

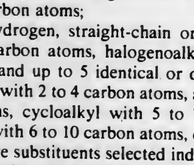
Joseph J. Lewis, and Robert L. Webb, both of West Chester, Pa., assignors to SK&F Lab Co., Carolina, P.R.

Division of Ser. No. 915,497, Jun. 14, 1978, Pat. No. 4,215,217, which is a division of Ser. No. 771,044, Feb. 22, 1977, Pat. No. 4,119,781, which is a continuation-in-part of Ser. No. 626,948, Oct. 29, 1975, abandoned. This application Dec. 12, 1979, Ser. No. 102,693

Int. Cl.³ C07F *9/65*

U.S. Cl. 548—119 **5 Claims**

1. A compound of the formula:



in which:

R^1 is hydrogen or lower alkyl;

R^3 is hydrogen, lower alkyl, trifluoromethyl, benzyl, amino or $-SR^4$ where R^4 is phenyl, benzyl or chlorobenzyl;

R^5 is lower alkyl or phenyl; and

X is halo.

4,267,338

N-AZOLYLALKYL-ANILINES

Jörg Stetter; Wilfried Draber; Rudolf Thomas, and Winfried Lunkenheimer, all of Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

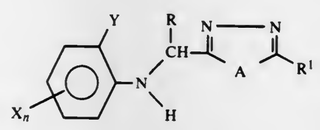
Filed Feb. 9, 1979, Ser. No. 10,784

Claims priority, application Fed. Rep. of Germany, Feb. 10, 1978, 2805756

Int. Cl.³ A01N *43/82*; C07D *271/10*

U.S. Cl. 548—143 **34 Claims**

1. N-Azolylalkyl-aniline compound of the formula



(I)

wherein A is oxygen, sulfur or $<NR^2$, wherein R^2 represents hydrogen, straight-chain or branched alkyl with 1 to 4 carbon atoms or aryl with 6 to 10 carbon atoms, which may optionally carry one or more substituents selected independently from halogen, alkyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 or 2 carbon atoms, cyano, nitro and halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms;

R represents hydrogen or straight-chain or branched alkyl with 1 to 4 carbon atoms;

R^1 represents hydrogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, halogenoalkyl with up to 3 carbon atoms and up to 5 identical or different halogen atoms, alkenyl with 2 to 4 carbon atoms, alkynyl with 2 to 4 carbon atoms, cycloalkyl with 5 to 7 carbon atoms, halogen, aryl with 6 to 10 carbon atoms, optionally carrying one or more substituents selected independently from halogen, alkyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 or 2 carbon atoms, cyano, nitro and halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms; aralkyl with 6 to 10 carbon atoms in the aryl part and 1 to 4 carbon atoms in the alkyl part, optionally carrying one or more substituents selected independently from halogen, alkyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 or 2 carbon atoms, cyano, nitro and halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms; or the grouping $-OR^3$, $-SR^3$ or $-NR^2R^3$, wherein R^2 represents hydrogen, straight-chain or branched alkyl with 1 to 4 carbon atoms or aryl with 6 to 10 carbon atoms, which may optionally carry one or more substituents selected independently from halogen, alkyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 or 2 carbon atoms, cyano, nitro and halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, and R^3 represents hydrogen, straight-chain or branched alkyl with 1 to 4 carbon atms, halogenoalkyl with up to 3 carbon atoms and up to 5 identical or different halogen atoms, alkenyl with 2 to 4 carbon atoms, alkynyl with 2 to 4 carbon atoms, cycloalkyl with 5 to 7 carbon atoms and aralkyl with 6 to 10 carbon atoms in the aryl part and 1 to 4 carbon atoms in the alkyl part, the aryl part of the aralkyl radical optionally carrying one or more substituents selected independently from halogen, alkyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 or 2 carbon atoms, cyano, nitro and halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms;

X represents straight-chain or branched alkyl with 1 to 4 carbon atoms;

Y represents straight-chain or branched alkyl with 1 to 4 carbon atms, fluorine, chlorine or bromine and

n is 0, 1 or 2.

4,267,339

IMIDAZO(2,1-b)THIAZOLES

Enzo Tedeschi, Tel-Aviv, Israel, assignor to Plantex Ltd., Netanya, Israel

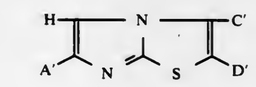
Continuation of Ser. No. 546,442, Feb. 3, 1975, abandoned. This application Dec. 28, 1976, Ser. No. 755,031

Claims priority, application Israel, Feb. 7, 1974, 44161; Jun. 26, 1974, 45127

Int. Cl.³ A61K *31/425*; C07D *513/04*

U.S. Cl. 548—154 **27 Claims**

1. An imidazo (2,1-b) thiazole compound having the formula:



in which;

A' is COOR" or CH_2OCOR''', wherein R" is hydrogen, $H_3N^+C(CH_2OH)_3$, $H_3N^+C(CH_3)_2CH_2OH$, $HN^+(CH_2CH_2OH)_3$, $HN^+(CH_2CH_3)_3$, a pharmaceutically acceptable inorganic cation or a lower alkyl group; and R''' is an alkyl group containing one to eight carbon atoms or parachlorophenyl;

C' is methyl; and

D' is hydrogen or an alkyl group containing one to eight carbon atoms;

said compound being free of the 5-carbalkoxy isomer thereof; and physiologically acceptable acid addition or quaternary salts thereof.

26. An imidazo(2,1-b)thiazole, having the formula 3-t.butyl-6-carbomethoxy-imidazo(2,1-b)-thiazole.

27. An imidazo(2,1-b)thiazole, having the formula 3-phenyl-6-carbomethoxy-imidazo(2,1-b)thiazole.

4,267,340

DISULFIDE SUBSTITUTED OXAZETIDINE DERIVATIVES

Takashi Kamiya, Suita; Yoshihisa Saito, Takarazuka; Tsutomu Teraji, Hirakata; Osamu Nakaguti, Nagaihigashi, and Teruo Oku, Shinmachi, Hitoshi Nakamura, Masahi Hashimoto, both of Tayonaka, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Division of Ser. No. 711,980, Aug. 5, 1976, Pat. No. 4,071,527, which is a division of Ser. No. 430,688, Jan. 4, 1974, Pat. No. 3,993,646, which is a continuation-in-part of Ser. No. 266,470, Jun. 26, 1972, abandoned. This application Nov. 16, 1977, Ser. No. 852,053

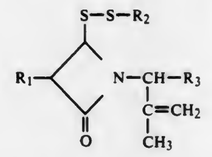
Claims priority, application Japan, Jun. 24, 1971, 46-46158; Aug. 14, 1971, 46-61776; Aug. 14, 1971, 46-61777; Aug. 18, 1971, 46-62687; Aug. 21, 1971, 46-63885; Aug. 21, 1971, 46-63886

The portion of the term of this patent subsequent to Jan. 31, 1995, has been disclaimed.

Int. Cl.³ C07D *277/20, 263/30*

U.S. Cl. 548—187 **13 Claims**

1. An oxoazetidine compound of the formula:



wherein R_1 is amino or amino substituted with a pharmaceutically acceptable carboxylic acyl protective group for the amino substituents in penicillin compounds, R_3 is a pharmaceutically acceptable carboxy, ester, acid amide, acid anhydride, acid halide, acid azide or salt of said carboxy group employed in penicillin compounds and R_2 is a pharmaceutically acceptable heterocyclic group selected from the group consisting of oxazolyl, benzoxazolyl, thiazolyl, benzothiazolyl, benzimidazolinyl, and imidazolizinyl, or said heterocyclic group substituted by lower alkyl radical, lower alkoxy radical, a halogen atom, a nitro radical, phenyl, tolyl, xylyl, chlorophenyl, nitrophenyl, benzyl, phenethyl, lower alkanoyl, benzoyl, phenylacetyl, thioacetyl, thiopropionyl, thiobenzoyl and phenyl thioacetyl.

4,267,341

PROCESS FOR PREPARING 2,3-SUBSTITUTED-1,2,-ISOTHIAZOLIUM SALT ANTIMICROBIALS

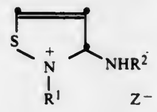
Joshua Rokach, Chomedey-Laval, Canada; Clarence S. Rooney, Worcester, and Edward J. Cragoe, Jr., Lansdale, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 854,292, Nov. 23, 1977. This application Feb. 8, 1979, Ser. No. 10,333

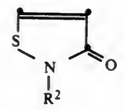
Int. Cl.³ C07D *275/02*

U.S. Cl. 548—206 **3 Claims**

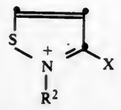
1. A process for preparing compounds of the formula:



where R' is hydrogen or an alkyl group of from 1–16 carbon atoms phenyl or benzyl and R^2 is an alkyl group of from 1–16 carbon atoms phenyl or benzyl and Z^- is a counter ion comprising reacting a compound of the formula:



where R^2 is as defined with at least a molar equivalent of phosphorus tribromide or phosphorus trichloride at a temperature of from 25° C. to 30° C. from 1 to 6 hours to obtain the intermediate compound



where X is chloro or bromo; reacting the intermediate compound with 2 molar equivalents of the amine R^1NH_2 at a temperature of from 0° C. to 25° C.

4,267,342

SPIRO-OXAZOLIDINDIONES

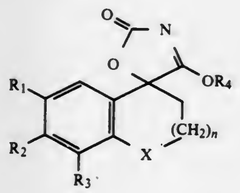
Rodney C. Schnur, Noank, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 935,199, Aug. 21, 1978, Pat. No. 4,200,642. This application Oct. 30, 1979, Ser. No. 89,686

Int. Cl.³ C07D *263/20*

U.S. Cl. 548—216 **4 Claims**

1. A compound of the formula



wherein

X is selected from the group consisting of oxygen and sulfur;

n is one or two;

R_1, R_2 and R_3 are each selected from the group consisting of hydrogen, chloro, bromo, fluoro, alkyl of 1 to 3 carbon atoms, phenyl and monosubstituted phenyl, wherein said substituent is selected from the group consisting of chloro, bromo, fluoro, hydroxyl, alkyl of 1 to 3 carbon atoms and alkoxy of 1 to 3 carbon atoms;

and R_4 is selected from the group consisting of alkyl of 1 to 4 carbon atoms, benzyl and monosubstituted benzyl, wherein said substituent is selected from the group consisting of chloro, bromo, fluoro, hydroxy, alkyl of 1 to 3 carbon atoms and alkoxy of 1 to 3 carbon atoms.

4,267,343

PROCESS FOR THE MANUFACTURE OF 2,5-BIS-(BENZOXAZOLYL)-THIOPHENE COMPOUNDS

Leonardo Guglielmetti, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

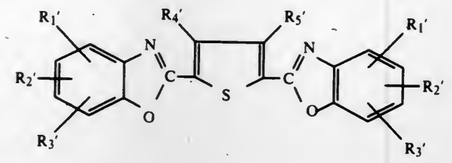
Continuation of Ser. No. 965,719, Dec. 1, 1978, abandoned, which is a continuation of Ser. No. 810,814, Jun. 28, 1977, abandoned. This application Nov. 14, 1979, Ser. No. 94,150

Claims priority, application Switzerland, May 11, 1975, 5892/77; Jul. 5, 1976, 8574/76

Int. Cl.³ C07D *409/14, 413/12*

U.S. Cl. 548—220 **10 Claims**

1. A process for the manufacture of 2,5-bis-(benzoxazolyl)-thiophene compounds of the formula



wherein

R_1' represents hydrogen, halogen, alkyl of 1 to 12 carbon atoms, haloalkyl, hydroxyalkyl, cyanoalkyl or phenylalkyl, each containing 1 to 4 carbon atoms in the alkyl moiety, alkyl of 1 to 4 carbon atoms which is substituted by a group of the formula

$$-COOY \text{ or } -CONY_1Y_2$$

in which Y represents hydrogen, an alkali metal, alkaline earth metal or ammonium salt, alkyl of 1 to 18 carbon atoms, alkenyl of 2 to 4 carbon atoms, hydroxyalkyl, cyanoalkyl or phenylalkyl, each containing 1 to 4 carbon atoms in the alkyl moiety, alkoxyalkyl of altogether 2 to 8 carbon atoms, phenyl or phenyl which is substituted by alkyl of 1 to 12 carbon atoms, and each of Y_1 and Y_2 independently represents hydrogen, alkyl of 1 to 8 carbon atoms, hydroxyalkyl, cyanoalkyl or phenylalkyl each containing 1 to 4 carbon atoms in the alkyl moiety; alkenyl of 3 or 4 carbon atoms, cyclohexyl, alkoxy of 1 to 4 carbon atoms, phenyl, phenoxy, cyano, alkylsulphonyl of 1 to 4 carbon atoms, the sulpho group or an alkali metal salt thereof, or the group of the formula

$$-COOY \text{ or } -CONY_1Y_2$$

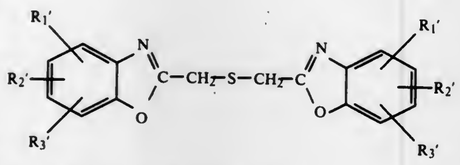
in which Y, Y_1 and Y_2 are as defined above,

R_2' represents hydrogen, alkyl of 1 to 4 carbon atoms or chlorine,

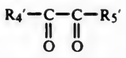
R_3' represents hydrogen or methyl, and each of

R_4' and R_5' independently represents hydrogen, alkyl of 1 to 4 carbon atoms, or together they represent the trimethylene or tetramethylene radical

which process comprises reacting in an inert solvent at a temperature of −5° C. to 100° C. in the presence of a base or an acid a sulfide of the formula



wherein R_1', R_2' and R_3' are as defined above, with a compound of the formula



wherein R_4' and R_5' are as defined above or an acetal, ketal, imine, oxime, hydrozone, sulfate, bisulfite or hydrate functional derivative thereof.

4,267,344

N-SUBSTITUTED N-CARBOXYANHYDRIDES OF α-AMINO ACIDS AND THEIR APPLICATION IN THE PREPARATION OF PEPTIDES

John B. Halstrom, Lyngby, and Karoly G. Kovacs, Farum, both of Denmark, assignors to Proteinkemisk Institut. tilknyttet Akademiet for de tekniske Videnskaber, Copenhagen, Denmark

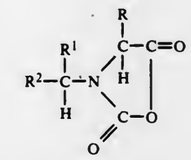
Continuation-in-part of Ser. No. 857,575, Dec. 5, 1977, abandoned, which is a continuation of Ser. No. 576,430, May 12, 1975, abandoned, which is a continuation of Ser. No. 398,805, Sep. 19, 1973, abandoned. This application Nov. 20, 1978, Ser. No. 961,944

Claims priority, application Denmark, Sep. 22, 1972, 4702/72

Int. Cl.³ 549 *26;* C07D *407/02, 412/02, 421/02*

U.S. Cl. 548—227 **5 Claims**

1. N-substituted N-carboxyanhydrides of α-amino acids, having the general formula I



I

wherein R designates hydrogen or the side-chain of an α-amino acid, any functional group or functional groups in said side-chain being optionally protected, R_1 and R_2 together with the adjacent carbon atom designates R_9-xanthyl-, R_9-thioxanthyl- or 9-selenoxanthyl group, said group being optionally substituted in positions other than 1 and 8 with probably lower alkyl, lower alkoxy, nitro, or chloro.

4,267,345

ARYLTRIFLUOROETHYLAMINES

Charles E. Malen, Fresnes; Pierre Roger, St-Cloud, and Michel Laubie, Vaucresson, all of France, assignors to Science Union et Cie, Suresnes, France

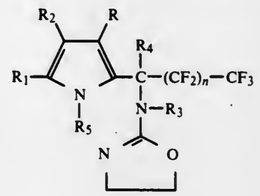
Continuation-in-part of Ser. No. 798,830, May 20, 1977, abandoned. This application Apr. 19, 1979, Ser. No. 31,386

Claims priority, application France, May 24, 1976, 76 15601

Int. Cl.³ A61K *31/42;* C07D *263/08*

U.S. Cl. 548—233 **6 Claims**

1. The oxazoline(trifluoroethyl)amines of the formula



wherein

R_1 and R_2, the same or different, are hydrogen, a lower alkoxy radical of 1 to 6 carbon atoms, inclusive, a lower alkylradical of 1 to 6 carbon atoms, inclusive, or a halogen,

R_3 is hydrogen, a methyl or an ethyl radical,

R_4 is hydrogen, a methyl, an ethyl or a cyclopropyl radical,

R is a hydrogen when R_1 and/or R_2 are different from hydrogen, or is a lower alkyl of 1 to 6 carbon atoms, inclusive, when R_1 and/or R_2 are hydrogen,

R_5 is hydrogen or a lower alkyl radical of 1 to 6 carbon atoms, inclusive, and

n is zero, 1 or 2.

4,267,346

PROCESS FOR THE PREPARATION OF 1,2,4-TRIAZOLE

Reinhard Kaiser, Cologne, and Guido Steffan, Odenthal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 2, 1979, Ser. No. 612

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 2802491

Int. Cl.³ C07D *249/08*

U.S. Cl. 548—262 **7 Claims**

1. A process for preparing 1,2,4-triazole which comprises contacting hydrazne with formamide in the molar ratio of 1:2.0–2.7 at atmospheric pressure at a temperature from 100° to 250° C. in the presence of ammonia, all or part of the ammonia given off in the reaction being recycled into the reaction.

4,267,347

METHOD FOR DIRECT PREPARATION FOR 1,2,4-TRIAZOLE FROM HYDRAZINE AND FORMAMIDE

Harris E. Petree, Kernersville; Joseph R. Pociask, Greensboro, both of N.C., and John T. Gupton, Casselberry, Fla., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 7, 1979, Ser. No. 92,257

Int. Cl.³ C07D *249/08*

U.S. Cl. 548—262 **8 Claims**

4. The process according to claim 1 wherein the recovery of said 1,2,4-triazole, after the vacuum distillation of the formamide, is via a melt at a temperature above 120°, its melting point, followed by cooling to the solid state.

4,267,348

FLUORINE-CONTAINING BENZIMIDAZOLES

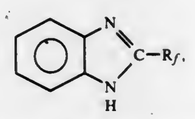
Christ Tamborski, Dayton, and John B. Christian, Yellow Springs, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 4, 1979, Ser. No. 100,301

Int. Cl.³ C07D *235/04*

U.S. Cl. 548—330 **5 Claims**

1. A fluorine-containing benzimidazole having the following structural formula:



wherein R_f is an acyclic perfluoroalkyleneether radical.

4,267,349

PROCESS FOR THE PREPARATION OF 2-SUBSTITUTED-ALKYL-1-ALKYL-NITROIMIDAZOLES

Helmut Hagen, Frankenthal, and Rolf-Dieter Kohler, Mannheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

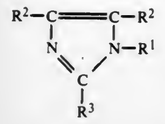
Division of Ser. No. 38,175, May 11, 1979. This application Feb. 8, 1980, Ser. No. 119,926

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827351

Int. Cl.³ C07D *233/94, 233/93*

U.S. Cl. 548—339 **16 Claims**

1. A process for the preparation of a 2-substituted 1-alkyl-nitroimidazole of the formula

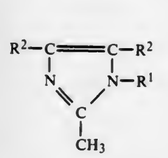


I

where R^1 is an aliphatic radical, one R^2 is nitro and the other R^2 is an aliphatic radical or hydrogen, R^3 is

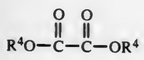


or —CHO and X is halogen, wherein, in a first stage, a 2-methylnitroimidazole of the formula



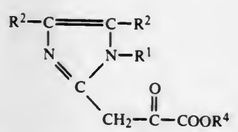
II

where R^1 and R^2 have the above meanings, is reacted with an oxalic acid diester of the formula



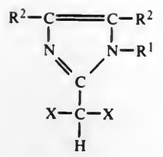
III

where the individual radicals R^4 may be identical or different and each is an aliphatic, cycloaliphatic or araliphatic radical, in the presence of a basic compound and of an organic solvent which is inert under the reaction conditions, and the resulting nitroimidazol-2-yl-pyruvic acid ester of the formula



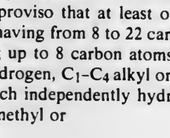
IV

where R^1, R^2 and R^4 have the above meanings, or its enolate, is reacted, in a second stage with halogen in the presence of an acid, and, if desired, the resulting 2-dihalomethylnitroimidazole of the formula



V

where R^1, R^2 and X have the above meanings, is reacted, in a third stage, with water in the presence of an acid to give a 2-formyl-nitroimidazole of the formula



VI

where R^1 and R^2 have the above meanings.

4,267,350

IMIDAZOLINIUM COMPOUNDS

Donald A. Tomalia, and Fredric L. Buchholz, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 12, 1979, Ser. No. 103,832

Int. Cl.³ C07D *233/18, 233/22*

U.S. Cl. 548—354 **7 Claims**

1. A quaternary imidazolinium salt represented by the formula

(I)

or

(IA)

wherein R and R_7 are each independently aliphatic, cycloaliphatic or aralkyl hydrocarbon radicals having up to 22, carbon atoms, with the proviso that at least one of R and R_7 is an aliphatic radical having from 8 to 22 carbon atoms; R_2 is alkyl or aralkyl having up to 8 carbon atoms; R_3 and R_4 are each independently hydrogen, C_1-C_4 alkyl or C_1-C_4 hydroxyalkyl; R_6 and R_8 are each independently hydrogen or C_1-C_4 alkyl; R_5 is hydrogen, methyl or

R_9 is hydrogen or methyl; Y is the divalent radical —O— or —NH—; X is an anion; and n is the integer 0, 1 or 2, with the proviso that if n is 2, then Y is —NH—.

4,267,351

SULFUR TRIOXIDE ADDUCTS OF SULFOLENES

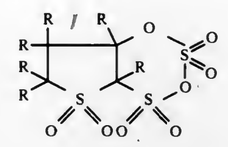
Van C. Vives, and John E. Mahan, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 944,958, Sep. 22, 1978, abandoned. This application Mar. 25, 1980, Ser. No. 133,721

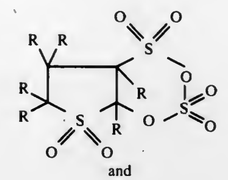
Int. Cl.³ C07D *333/00*

U.S. Cl. 549—19 **5 Claims**

1. Cyclic sulfonate-sulfate anhydrides represented by

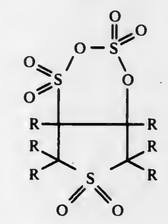


(I)



(II)

and



(III)

in which each R is individually selected from hydrogen and alkyl, cycloalkyl, aryl, aralkyl, and alkaryl hydrocarbon radicals.

4,267,352

19-HYDROXY-19-METHYL-6-OXO-PGF$_1$ SULFONYLAMIDES

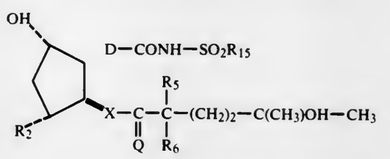
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,493

Int. Cl.³ C07C *143/75, 143/79*

U.S. Cl. 560—12 **1 Claim**

1. A prostacyclin-type compound of the formula



wherein D is $-(CH_1)_2-CO-CH_2-L_2-$ or $-CH_2-CO-CH_2-L_3-$

wherein L_2 is

(1) $-(CH_2)_j-$, wherein j is one to 4, inclusive,

(2) $-(CH_2)_q-CF_2-$, wherein q is one, 2, or 3, or

(3) $-CH=CH-$,

wherein L_3 is

(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive,

(2) $-(CH_2)_p-CF_2-$, wherein p is 2, 3, or 4, or

(3) $-CH_2-CH=CH-$;

wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,

wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;

wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive; wherein X is

(1) trans-CH=CH—,

(2) cis-CH=CH—,

(3) —C≡C—, or

(4) $-CH_2CH_2-$.

4,267,353

PREPARATION OF AROMATIC URETHANES

Hans-Joachim Scholl, Cologne, and Armin Zenner, Dormagen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 69,020

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838754

Int. Cl.³ C07C *125/063, 125/065, 125/07, 125/073*

U.S. Cl. 560—24 **7 Claims**

1. A process for the preparation of aromatic urethanes by the reaction of aromatic nitro compounds with aliphatic, cycloaliphatic or araliphatic alcohols and carbon monoxide in the presence of,

a. sulfur and/or selenium and/or compounds of these elements and

b. aromatic amino compounds and/or aromatic urea compounds and,

c. catalyst systems containing tertiary organic amines and/or alkali metal salts of weak acids, wherein said catalyst system additionally contains:

d. oxidizing agents selected from the group consisting of oxygen, oxidizing organic compounds containing chemically bound oxygen and oxidizing inorganic compounds of metals of the 1st, 2nd, and 5th through 8th sub-Groups of the Periodic System of Elements containing chemically bound oxygen, and

e. ammonia and/or aliphatic, araliphatic, cycloaliphatic or heterocyclic amines having at least one hydrogen atom bound to an amine nitrogen atom.

4,267,354

SUBSTITUTED AMIDES HAVING ANTIINFLAMMATORY ACTIVITY AND INTERMEDIATES

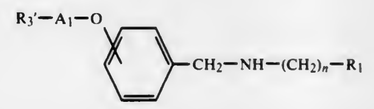
John Krapcho, Somerset, and Chester F. Turk, Kendall Park, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 33,299, Apr. 25, 1979, Pat. No. 4,216,335, which is a division of Ser. No. 897,476, Apr. 18, 1978, Pat. No. 4,166,072, which is a division of Ser. No. 773,561, Mar. 2, 1977, Pat. No. 4,098,789. This application Feb. 4, 1980, Ser. No. 118,173

Int. Cl.³ C07C *101/30, 103/26*

U.S. Cl. 560—39 **3 Claims**

1. A compound having the formula



wherein R_1 is alkoxycarbonyl, amido, alkylamido or dialkylamido;

R'_3 is alkylbenzylamino, dialkylamino, 1-pyrrolidinyl, 1-piperidinyl, 4-morpholinyl, or 4-alkyl-1-piperazinyl;

A_1 is an alkylene group having 2 to 5 carbon atoms; and n is 1, 2 or 3.

4,267,355

PRODUCTION OF HERBICIDALLY-ACTIVE DERIVATIVES OF ALANINE

Richard M. Scott, Sittingbourne, and Geoffrey D. Armitage, Whitstable, both of England, assignors to Shell Oil Company, Houston, Tex.

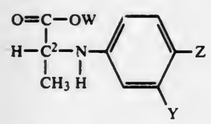
Filed Nov. 1, 1976, Ser. No. 737,313

Claims priority, application United Kingdom, Nov. 5, 1975, 45914/75

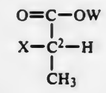
Int. Cl.³ C07C *101/08*

U.S. Cl. 560—43 **4 Claims**

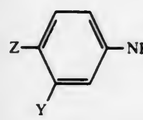
1. A process for preparing a compound of the formula



having the R-configuration at carbon atom 2, wherein Y is hydrogen, chlorine or fluorine, Z is chlorine or fluorine, and W is hydrogen or alkyl of from one to six carbon atoms, which consists of treating a compound of the formula



having the S-configuration at carbon atom 2, wherein X is $Q—SO_2—O—$, $Q—C(O)—$ or $CV_3—CH(OH)—O—$, wherein V is chlorine, bromine or fluorine and Q has up to ten carbon atoms and is alkyl, phenyl or alkyl-substituted phenyl, with an aniline of the formula



in the presence of a base selected from alkali metal carbonates, alkali metal bicarbonates and an excess of said aniline, at a temperature within the range of 50° C. to 200° C.

4,267,356

PROCESS FOR THE PREPARATION OF N-(1'-ALKOXYCARBONYLETHYL)-2,6-DIALKYLANILINES

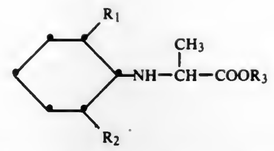
Alfred Grieder, Böckten; Klaus-Jürgen Coers, Reinach, and Peter Labuhn, Kaiseraugst, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 9, 1980, Ser. No. 157,762

Int. Cl.³ C07C *101/44*

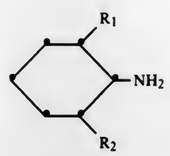
U.S. Cl. 560—43 **14 Claims**

1. A process for the preparation of N-(1'-alkoxycarbonylethyl)-2,6-dialkylanilines of the formula I



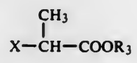
(I)

in which R_1 and R_2 are each methyl or ethyl and R_3 is an alkyl group having 1–4 carbon atoms, by reacting a 2,6-dialkylaniline of the formula II



(II)

in which R_1 and R_2 are as defined above, with a 2-halogenopropionic acid ester of the formula III



(III)

in which R_3 is as defined above and X is chlorine or bromine, which comprises carrying out the reaction of the 2,6-dialkylaniline of the formula II with the 2-halogenopropionic acid ester of the formula III at 110°–130° C., in the presence of an alkali metal iodide, as the catalyst, and of an alkali metal carbonate or alkali metal bicarbonate, as an acid acceptor, in excess 2,6-dialkylaniline of the formula II as the solvent, the water formed being removed by distillation during the reaction and the organic phase obtained after the addition of water and separation of the phases being worked up by distillation.

4,267,357

13,14-DIHYDRO-INTER-PHENYLENE-11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGE$_1$ COMPOUNDS

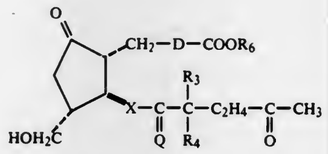
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, Pat. No. 4,228,104. This application Mar. 20, 1980, Ser. No. 132,236

Int. Cl.³ C07C *171/00*

U.S. Cl. 560—53 **4 Claims**

1. A compound of the formula



wherein D is

(1) —(m—Ph)—$(CH_2)_2$—, or

(2) —(m—Ph)—O—CH_2—,

wherein —(m—Ph)— is inter-metal-phenylene;

wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;

wherein R_6 is

(a) hydrogen,

(b) alkyl of one to 12 carbon atoms, inclusive,

(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

(d) aralkyl of 7 to 12 carbon atoms, inclusive,

(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,

(g) —(p—Ph)—CO—CH_3,

(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,

(i) —(p—Ph)—NH—CO—(p—Ph),

(j) —(p—Ph)—NH—CO—CH_3,

(k) —(p—Ph)—NH—CO—NH_2,

(l) —(p—Ph)—CH=N—NH—CO—NH_2,

(m) β-naphthyl,

(n) —CH_2—CO—R_{28},

wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and

wherein X is —CH_2CH_2—.

4,267,358

PHENOLIC ESTER INHIBITOR

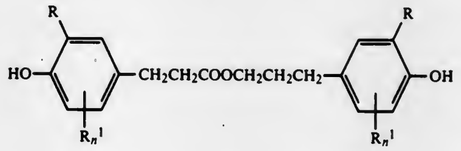
Ingenuin Hechenbleikner, Cornwall; William P. Enlow, Falls Village, and James H. Weis, South Kent, all of Conn., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 13, 1980, Ser. No. 129,877

Int. Cl.³ C07C *69/88*

U.S. Cl. 560—75 **2 Claims**

1. A phenolic ester having the structure



where R is an alkyl or cycloalkyl group having 3–8 carbon atoms, R^1 is an alkyl group having 1–6 carbon atoms, and n is 1–2.

4,267,359

NOVEL CARBOXYLIC ACID ESTERS

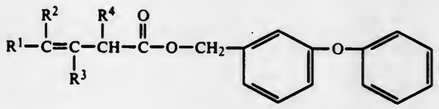
Richard J. Anderson, and Clive A. Henrick, both of Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Division of Ser. No. 902,624, May 4, 1978, Pat. No. 4,204,071. This application Feb. 26, 1979, Ser. No. 15,569

Int. Cl.³ C07C *69/76*; A01N *37/10*

U.S. Cl. 560—104 **15 Claims**

1. A compound of the following formula:



wherein,

R^1 is naphthyl, phenyl or substituted phenyl in which the phenyl group is substituted at one, two or three of the ring carbon atoms with lower alkyl, lower haloalkyl, lower alkoxy or halogen;

each of R^2 and R^3 is independently selected from hydrogen, chloro, fluoro or methyl; and

R^4 is lower alkyl of 2 to 5 carbon atoms.

4,267,360

NOVEL DERIVATIVES OF HEXAFLUOROPROPENE DIMER AND PROCESS FOR PREPARING SAME

Masahiro Ozawa, Kamifukuoka; Tadaaki Komatsu, Saitama, and Kimiaki Matsuoka, Kawagoe, all of Japan, assignors to Central Glass Company, Limited, Ube, Japan

Continuation of Ser. No. 825,476, Aug. 17, 1977, abandoned. This application Oct. 15, 1979, Ser. No. 84,854

Claims priority, application Japan, Aug. 20, 1976, 51-98747

Int. Cl.³ C07C *67/04, 69/54, 69/78*

U.S. Cl. 560—111 **6 Claims**

1. A process for preparing a mixture of compounds having the formula



in which R_f is $(CF_3)_2C=C(CF_2CF_3)$ in one compound of the mixture and $(CF_3)_2CH—CF(CF_2CF_3)$ in another compound of the mixture and R is a hydrocarbon residue of a monocarboxylic acid having the formula RCO_2H selected from the group consisting of acetic acid, acrylic acid, methacrylic acid and benzoic acid, the process comprising contacting for reaction a hexafluoropropene dimer having the formula $(CF_3)_2=CFCF_2CF_3$ with said monocarboxylic acid in an inert solvent in the presence of a catalyst selected from the group consisting of inorganic bases, tertiary amines and sodium, potassium, amine and ammonium salts of the monocarboxylic acid used as reactant at a temperature between −10° C. and 100° C.

4,267,361

1-DESCARBOXY-1-KETOESTER (KETOACID) PROSTAGLANDINS

Middleton B. Floyd, Jr., Suffern, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

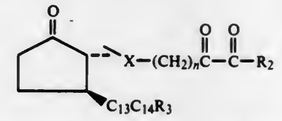
Filed Sep. 27, 1979, Ser. No. 79,652

Int. Cl.³ C07C *177/00*

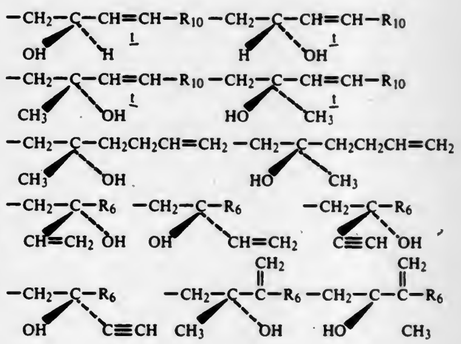
U.S. Cl. 560—118 **53 Claims**

1. A compound of the formula

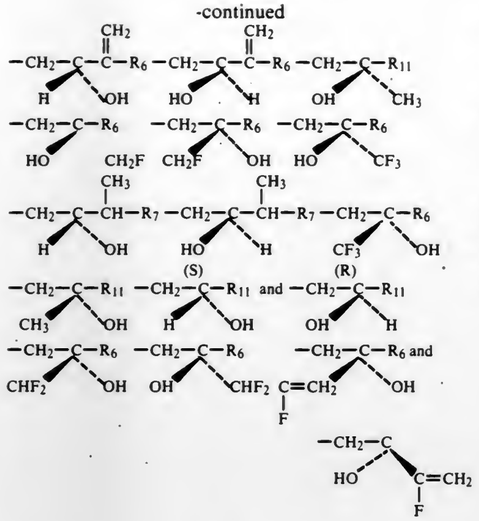
Ib



wherein R_2 is selected from the group hydroxy and C_1 to C_7 alkoxy; X is selected from the group cis or tarns —CH=CH— and $—CH_2—CH_2$; $C_{13}—C_{14}$ is trans CH=CH—; n is the integer 2, 3 or 4; and R_3 is selected from the group

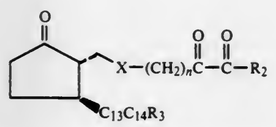


-continued



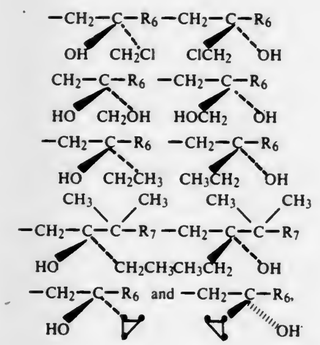
wherein R_6 is C_3 to C_5 alkyl, R_7 is C_2 to C_4 alkyl, R_{10} is C_1 to C_4 alkyl and R_{11} is C_3 to C_7 alkyl, the racemic mixtures thereof, the mirror images thereof and where R_2 is hydroxy, the pharmaceutically acceptable salts thereof.

2. A compound of the formula



Ib

wherein R_2 is selected from the group hydroxy and C_1 to C_7 alkoxy; X is selected from the group cis or trans —CH=CH— and —CH_2—CH_2—; C_{13}-C_{14} is trans CH=CH—, n is the integer 2, 3 or 4; and R_3 is selected from the group



wherein R_6 is C_3 to C_5 alkyl, R_7 is C_2 to C_4 alkyl, the racemic mixtures thereof, the mirror images thereof and where R_2 is hydroxy, the pharmaceutically acceptable salts thereof.

4,267,362

PROCESS FOR THE PREPARATION OF DELTA KETO-ACIDS AND DERIVATIVES THEREOF

Peter J. N. Meyer, Munstergeleen, and Josef M. Penders, Maastricht, both of Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Filed Aug. 17, 1979, Ser. No. 67,914

Claims priority, application Netherlands, Aug. 19, 1978, 7808605

Int. Cl.³ C07C *120/00, 121/34, 121/46, 64/716*

U.S. Cl. 560—174 **14 Claims**

1. In a process for the preparation of delta-keto-acids and derivatives thereof by reaction of aliphatic or cyclo-aliphatic ketones having at least one activated alpha H-atom with an acrylic compound in the liquid phase and with the aid of a catalyst, the improvement consisting essentially in the combination of

(i) using as said ketone a member of the group consisting of acetone, methyl-ethyl ketone, diethyl ketone, methyl-propyl ketone, methyl-isopropyl ketone, cyclopentanone, cyclohexanone, 2-methyl cyclohexanone, and 4-methyl cyclohexanone;

(ii) using as said acrylic compound a member of the group consisting of acrylic acid, methacrylic acid, crotonic acid, the lower alkyl esters of these acids, the nitriles of these acids and the amides of these acids;

(iii) using as said catalyst the adduct of a cyclic secondary amine and an acrylic compound as defined in (ii) herein.

4,267,363

INTERMEDIATES FOR A SEX PHERAMONE FOR YELLOW SCALE

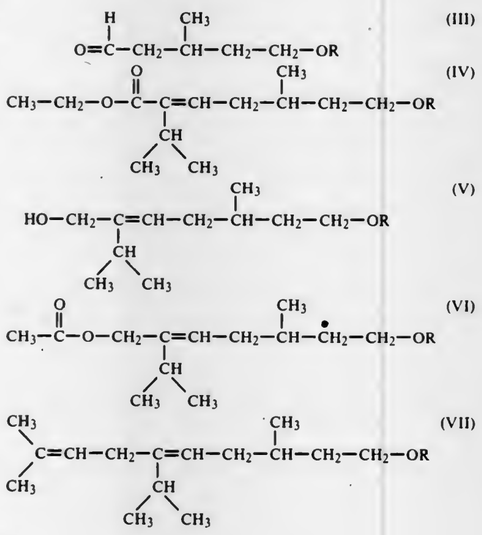
Richard J. Anderson, and Clive A. Henrick, both of Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Filed Jun. 26, 1978, Ser. No. 918,754

Int. Cl.³ C07C *43/315, 47/198, 69/145, 69/734*

U.S. Cl. 560—183 **9 Claims**

1. A compound selected from those of the following formulas (III), (IV), (V), (VI) and (VII):



(III)

(IV)

(V)

(VI)

(VII)

wherein R is β-methoxyethoxymethyl.

4,267,364

FLUORINATED ION EXCHANGE POLYMER CONTAINING CARBOXYLIC GROUPS, PROCESS FOR MAKING SAME, AND FILM AND MEMBRANE THEREOF

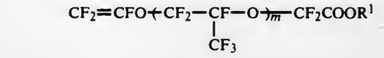
Walther G. Grot, Chadds Ford, Pa.; Charles J. Molnar, and Paul R. Resnick, both of Wilmington, Del., assignors to E. I. Du-Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 789,726, Apr. 20, 1977, and Ser. No. 789,727, Apr. 20, 1977. This application Nov. 13, 1978, Ser. No. 959,839

Int. Cl.³ C09C *69/73;* **B01D** *13/04*

U.S. Cl. 560—183 **3 Claims**

1. A compound of the formula



wherein m is 0, 1 or 2, and R^1 is lower alkyl or $M_{(1/n)}$, where M is H, alkali metal or alkaline earth metal, and n is the valence of M.

4,267,365

PROCESS FOR THE PREPARATION OF OLIGOMERIC ACRYLIC ACIDS

Kurt Findeisen, Odenthal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

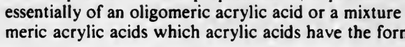
Filed Dec. 26, 1978, Ser. No. 973,342

Claims priority, application Fed. Rep. of Germany, Jan. 5, 1978, 2800357

Int. Cl.³ C07C *69/52*

U.S. Cl. 560—205 **7 Claims**

1. A process for the preparation of a product consisting essentially of an oligomeric acrylic acid or a mixture of oligomeric acrylic acids which acrylic acids have the formula



wherein

n represents a number from 1 to 6 which consists essentially of heating acrylic acid in the presence of 0.001 to 1% by weight of a polymerization inhibitor consisting essentially of molecular oxygen, nitric oxide, a phenol, a quinone, an aromatic amine, a nitro compound or diphenylpicrylhydrazyl in a reaction mixture consisting essentially of said acrylic acid and said polymerization inhibitor to a temperature of about 50° to about 200° C.

4,267,366

CYCLIC TERPENOID AMINES, THEIR PREPARATION AND USES

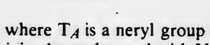
Bernard J. Kane, Atlantic Beach, and Richard A. Von Genk, Jacksonville, both of Fla., assignors to SCM Corporation, New York, N.Y.

Division of Ser. No. 860,284, Dec. 14, 1977. This application Jun. 18, 1979, Ser. No. 49,607

Int. Cl.³ C07C *69/02, 67/02, 91/02, 93/10*

U.S. Cl. 560—231 **12 Claims**

1. A process for producing an ester of a cyclized acyclic terpenoid group-containing amine, said acyclic terpenoid group-containing amine being represented by:



where T_A is a neryl group or a geranyl group; R_1 and R_2 are joined together and with N as a cyclic group which comprises first forming the cyclic terpenoid amine by maintaining an acidic aqueous solution of said acyclic terpenoid group-containing amine at a temperature of at least about 80° C. until said acyclic terpenoid group cyclizes, there being at least about 1.1 equivalents of acid per equivalent of said amine in said solution, the resulting cyclic terpenoid amine being a mixture of alpha-, beta-, and gamma-cyclogeranyl amines; recovering the resulting mixture of cyclic terpenoid amines from said solution; and then reacting said mixture of cyclic terpenoid amines with a carboxylic acid anhydride at about 70° C. to 250° C. to selectively form a beta-cyclogeranyl ester of a carboxylic acid; and recovering separately said beta-cyclogeranyl ester of a carboxylic acid and unreacted alpha-, and gamma-cyclogeranyl amines.

4,267,367

19-HYDROXY-19-METHYL-TRANS-2,3-DIDEHYDRO-PG_1 COMPOUNDS

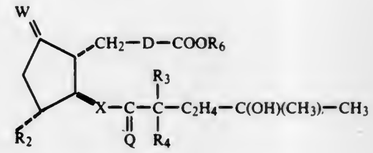
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 132,749

Int. Cl.³ C07C *177/00*

U.S. Cl. 562—503 **2 Claims**

1. A compound of the formula



wherein D is trans—$(CH_2)_3$—CH=CH—,

wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;

wherein R_6 is

(a) hydrogen,

(b) alkyl of one to 12 carbon atoms, inclusive,

(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

(d) aralkyl of 7 to 12 carbon atoms, inclusive,

(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,

(g) —(p—Ph)—CO—CH_3,

(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,

(i) —(p—Ph)—NH—CO—(p—Ph),

(j) —(p—Ph)—NH—CO—CH_3,

(k) —(p—Ph)—NH—CO—NH_2,

(l) —(p—Ph)—CH=N—NH—CO—NH_2,

(m) β-naphthyl,

(n) —CH_2—CO—R_{28},

wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation;

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and

wherein X is cis- or trans—CH=CH—, or —C≡C—.

4,267,368

19-HYDROXY-19-METHYL-CIS-4,5-DIDEHYDRO-13,14-DIHYDRO-PG_1 COMPOUNDS

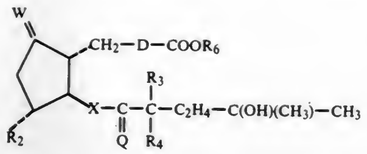
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 132,750

Int. Cl.³ C07C *177/00*

U.S. Cl. 562—503 **2 Claims**

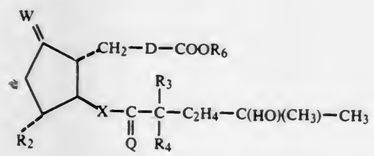
1. A compound of the formula



wherein D is cis—CH_2—CH=CH—CH_2—CH_2—,
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and
wherein X is —CH_2CH_2—.

4,267,369
19-HYDROXY-19-METHYL-TRANS-2,3-DIDEHYDRO-13,14-DIHYDRO-PG_1 COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 132,751
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—503 **2 Claims**

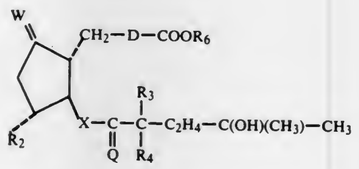
1. A compound of the formula



wherein D is trans-$(CH_2)_3$—CH=CH—,
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and
wherein X is cis— or trans—CH=CH— or —C≡C—.

4,267,370
19-HYDROXY-19-METHYL-INTER-OXA-PG_1 COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,197
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—503 **2 Claims**

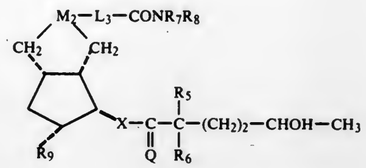
1. A compound of the formula



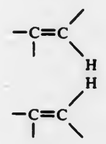
wherein D is
(1) —$(CH_2)_3$—O—CH_2—,
(2) —$(CH_2)_2$—O—$(CH_2)_2$—, or
(3) —CH_2—O—$(CH_2)_3$—,
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and
wherein X is cis— or trans—CH=CH— or —C≡C—.

4,267,371
19-HYDROXY-6A-CARBA-PGI_2 AMIDES
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 54,811, Jul. 5, 1979, Pat. No. 4,225,508.
This application Mar. 3, 1980, Ser. No. 126,468
Int. Cl.³ C07C *103/19*
U.S. Cl. 564—188 **1 Claim**

1. A prostacyclin-type compound of the formula



wherein L_3 is
(1) —$(CH_2)_n$—, wherein n is one to 5, inclusive,
(2) —$(CH_2)_p$—CF_2—, wherein p is 2, 3, or 4, or
(3) —CH_2—CH=CH—;
wherein M_2 is



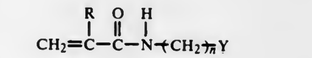
(1)

(2)

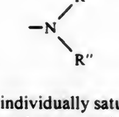
wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;
wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different;
wherein R_9 is hydrogen or hydroxyl; and
wherein X is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) —CH_2CH_2—.

4,267,372
PREPARATION OF N-SUBSTITUTED ACRYLAMIDE MONOMERS HAVING CATIONIC SUBSTITUENTS
Alan S. Rothenberg, Wilton, and Michael N. Desmond, Norwalk, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.
Filed Oct. 26, 1979, Ser. No. 88,738
Int. Cl.³ C07C *102/00, 102/04, 102/06*
U.S. Cl. 564—205 **10 Claims**

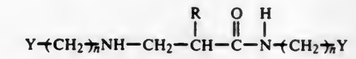
1. A process for preparing a cationic monomer of the general structure:



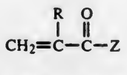
wherein R is hydrogen or methyl, n is an integer of from 2 to 6, inclusive, Y is selected from the group consisting of morpholine, pyrrolidone, piperidine and



wherein R' and R'' are individually saturated aliphatic radicals containing from 1 to 4 carbon atoms inclusive, which process comprises reacting a compound of the general structure:



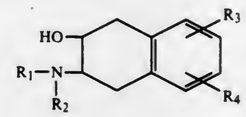
wherein R, Y and n are of the same significances previously set forth with an equal molar amount of a compound of the general structure:



wherein R is the same as above and Z is selected from the group consisting of —OH, —OR''' and —X wherein R''' is a saturated aliphatic radical having one or two carbon atoms, and —X is a halogen under reaction temperatures within the range of about 160°-230° C. and either distilling off the corresponding water or alcohol or neutralizing the hydrogen halide formed.

4,267,373
5,6,7,8-TETRAHYDRONAPHTHALENE HYPOTENSIVE AGENTS
Frederic P. Hauck, Somerville; Christopher M. Cimarusti, Hamilton, both of N.J., and Joseph E. Sundeen, Yardley, Pa., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.
Division of Ser. No. 428,466, Dec. 26, 1973, Pat. No. 4,076,843, which is a continuation-in-part of Ser. No. 268,314, Jul. 3, 1972, abandoned. This application Nov. 14, 1977, Ser. No. 851,018
Int. Cl.³ C07C *87/64*
U.S. Cl. 564—428 **13 Claims**

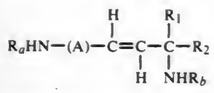
1. A compound having the structure



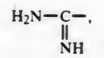
wherein R_1 is hydrogen or alkyl; R_2 is alkyl; R_3 and R_4 are each hydrogen, hydroxyl, alkoxy, or arylalkoxy, with the proviso that both R_3 and R_4 are not hydrogen and with the additional provisio that both R_3 and R_4 are not hydroxyl; and a pharmaceutically acceptable salt thereof.

4,267,374
DERIVATIVES OF AMINES AND AMINO ACIDS
Brian W. Metcalf, Strasbourg; Michel Jung, Illkirch Graffenstaden, and Charles Danzin, Strasbourg, all of France, assignors to Merrell Toraude et Compagnie, Strasbourg, France
Continuation of Ser. No. 812,115, Jul. 1, 1977, abandoned. This application Jun. 25, 1979, Ser. No. 52,035
Int. Cl.³ C07C *87/24, 103/28, 103/44, 125/06*
U.S. Cl. 564—509 **4 Claims**

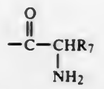
1. A compound of the formula



wherein A is methylene, ethylene or ethylidene; R_1 is —C≡CH; R_2 is hydrogen; R_a is hydrogen,



alkylcarbonyl wherein the alkyl moiety has from 1 to 4 carbon atoms and is straight or branched, alkoxycarbonyl wherein the alkoxy moiety has from 1 to 4 carbon atoms and is straight or branched, or



wherein R_7 is hydrogen, a straight or branched lower alkyl group of from 1 to 4 carbon atoms, benzyl, or p-hydroxybenzyl; R_b has the same meaning as defined for R_a except R_b is not



and R_a and R_b can be the same or different; with the proviso that when R_a is



A is methylene; and pharmaceutically acceptable salts and individual isomers thereof.

4,267,375

PREPARATION OF THIOETHERS

Alfred G. Maasbol, Hamburg, Fed. Rep. of Germany, and Lothar G. Dulog, St. Martens Latem, Belgium, assignors to s.a. Texaco Belgium n.v., Brussels, Belgium

Continuation of Ser. No. 703,045, Jul. 6, 1976, abandoned. This application Sep. 25, 1978, Ser. No. 945,273

Claims priority, application United Kingdom, Nov. 19, 1975, 47582/75

Int. Cl.³ C07C *149/30*

U.S. Cl. 568—57 **3 Claims**

1. A method for the preparation of 1-phenyl-1,2-bis(phenylthio)ethane wherein thiophenol is heated at reflux temperature is benzene with zinc chloride and with an oxygenated aromatic derivative selected from the group consisting of phenyl-1-hydroxyphenethyl sulphide, phenyl-2-hydroxyphenethyl sulphide and styrene oxide for a period of time sufficient to form 1-phenyl-1,2-bis(phenylthio)ethane, and 1-phenyl-1,2-bis(-phenylthio)ethane is separated.

4,267,376

STEROID SYNTHESIS

Jiro Tsuji, Kanagawa, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

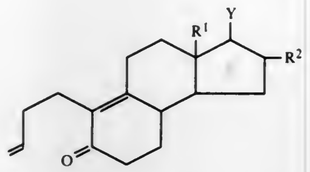
Filed Aug. 30, 1979, Ser. No. 71,404

Claims priority, application Japan, Sep. 8, 1978, 53-111093

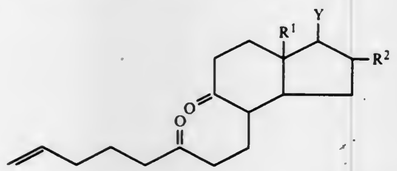
Int. Cl.³ C07C *45/32, 45/66, 49/643*

U.S. Cl. 568—344 **7 Claims**

3. Method for producing a compound of the general formula:



wherein R^1 is a lower alkyl group; R^2 is hydrogen or a lower alkyl group; Y is a protected hydroxyl group, which comprises subjecting a compound of the general formula:



wherein R^1, R^2 and Y are same as defined above, to dehydrative cyclization reaction in the presence of alkali or acid and in a solvent.

4,267,377

INTERMEDIATES FOR STEROID SYNTHESIS

Jiro Tsuji, Kamakura, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

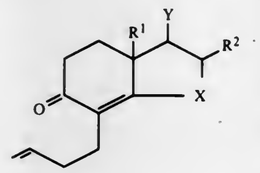
Filed Aug. 30, 1979, Ser. No. 71,405

Claims priority, application Japan, Sep. 8, 1978, 53-111092

Int. Cl.³ C07C *49/633, 49/637*

U.S. Cl. 568—374 **3 Claims**

1. A compound of the general formula:



wherein R^1 is a lower alkyl group containing from 1 to 3 carbon atoms; R^2 is H or a lower aklyl group containing from 1 to 3 carbon atoms; Y is an oxo group, H or an unprotected or protected hydroxyl group, the protective group on the protected hydroxyl being a group that may be removed under acidic condition or catalytic reduction; and X is a methylene or ethylene group.

4,267,378

2,2-DIALKOXY-6-CHLOROCYCLOHEXANONES

Carl E. Van Winckel, 1425 Sandhurst Pl., West Vancouver, British Columbia, Canada; David H. Dolphin, Vancouver, Canada; Elena Dumitrescu, Coquitlam, Canada, and Kent F. Van Winckel, West Vancouver, Canada, assignors to Carl E. Van Winckel, West Vancouver, Canada

Continuation-in-part of Ser. No. 713,784, Aug. 12, 1976, abandoned, and Ser. No. 802,181, May 31, 1977, Pat. No. 4,166,914. This application Jul. 2, 1979, Ser. No. 54,035

Int. Cl.³ C07C *49/403*

U.S. Cl. 568—376 **3 Claims**

1. 2,2-Dialkoxy-6-chlorocyclohexanones in which the alkyls of the alkoxy groups are the same and contain one to four carbon atoms.

4,267,379

DECOMPOSITION OF CUMENE HYDROPEROXIDE AND RECOVERY OF BORON TRIFLUORIDE CATALYST

Richard G. Austin, Churchill; Wayne R. Pretzer, and Thaddeus P. Kobylinski, both of Gibsonia, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 965,997, Dec. 4, 1978, abandoned. This application Aug. 13, 1979, Ser. No. 66,026

Int. Cl.³ C07C *45/53, 37/08*

U.S. Cl. 568—385 **12 Claims**

1. The method for cleaving cumene hydroperoxide at high selectivity to phenol and acetone which comprises the steps

(a) contacting a solution comprising about 0.1 to about 20 weight percent cumene hydroperoxide with a catalytic amount of boron trifluoride, a boron trifluoride complex with water or a boron trifluoride complex with an oxygen--containing polar organic compound at a temperature between about 25° and about 110° C. until the cleavage of said cumene hydroperoxide is substantially completed,

(b) deactivating said catalyst in a non-aqueous procedure by adding at least a stoichiometric amount of an amine selected from lower alkyl tertiary amines, lower alkyl secondary amines, mixed lower alkyl aromatic amines, aromatic amines and heterocyclic amines whereby a coordination compound of said boron trifluoride and said amine is formed,

(c) distilling the product solution at a temperature and a pressure whereby all components of the product solution are substantially distilled over except the said boron trifluoride.amine coordination compound and the polymeric tar solids produced during the cleavage reaction and the distillation procedure,

(d) separating the said boron trifluoride.amine coordination compound from the polymeric tar solids by distillation and dissociating said coordination compound at an elevated temperature, and

(e) separately recovering said dissociated boron trifluoride and amine.

4,267,380

DECOMPOSITION OF CUMENE HYDROPEROXIDE USING A LEWIS ACID CATALYST

Richard G. Austin, Churchill; Wayne R. Pretzer, and Thaddeus P. Kobylinski, both of Gibsonia, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Continuation of Ser. No. 51,864, Jun. 25, 1979, abandoned. This application May 19, 1980, Ser. No. 151,090

Int. Cl.³ C07C *45/53, 37/08*

U.S. Cl. 568—385 **3 Claims**

1. The method for cleaving cumene hydroperoxide at high selectivity to phenol and acetone which comprises contacting a solution comprising about 0.1 to about 20 weight percent cumene hydroperoxide with about 20 ppm to about one weight percent of a catalyst selected from tungsten hexafluoride, silicon tetrafluoride, stannous chloride, stannic fluoride, antimony pentachloride, sulfur monochloride and sulfur tetrafluoride at a temperature between about 25° and about 110° C.

4,267,381

PREPARATION OF SIDE-CHAIN FLUORINATED 3,3-DIMETHYL-BUTAN-2-ONE

Manfred Jautelat, Burscheid; Jörg Stetter, Wuppertal; Dieter Arlt, Cologne, and Wolfgang Krämer, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

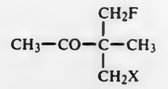
Filed Sep. 20, 1979, Ser. No. 77,447

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843767; May 10, 1979, 2918895

Int. Cl.³ C07C *47/14*

U.S. Cl. 568—419 **3 Claims**

1. A fluorine derivative of 3,3-dimethyl-butan-2-one, of the formula



in which

X is hydrogen or fluorine.

4,267,382

2,6-DICHLORO-4-METHOXY-5-METHYL-BENZENE ALDEHYDES

Werner Bollag, Basel; Rudolf Rüegg, Bottmingen, and Gottlieb Ryser, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

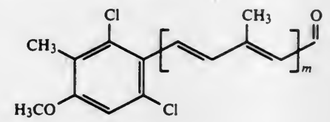
Division of Ser. No. 861,085, Dec. 15, 1977, Pat. No. 4,225,527. This application Feb. 4, 1980, Ser. No. 118,331

Claims priority, application Austria, Dec. 20, 1976, 9444/76; Switzerland, Oct. 11, 1977, 12388/77

Int. Cl.³ C07C *47/575, 47/232*

U.S. Cl. 568—442 **2 Claims**

1. An aldehyde of the formula:



wherein m is zero or 1.

4,267,383

HYDROCARBONYLATION

Frank B. Booth, Anaheim, Calif., assignor to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 36,045, May 4, 1979, abandoned, which is a continuation-in-part of Ser. No. 937,653, Aug. 28, 1978, abandoned, Ser. No. 926,046, Jul. 19, 1978, and Ser. No. 886,887, Jan. 4, 1978, abandoned, which is a continuation of Ser. No. 750,770, Aug. 7, 1968, abandoned, said Ser. No. 937,653, is a division of Ser. No. 840,815, Jul. 10, 1969, Pat. No. 4,110,404, which is a continuation-in-part of Ser. No. 518,562, Jan. 4, 1966, abandoned, said Ser. No. 926,046, is a continuation of Ser. No. 464,657, Apr. 26, 1974, abandoned, which is a continuation of Ser. No. 81,502, Oct. 16, 1970, abandoned, which is a continuation of Ser. No. 642,191, May 29, 1967, abandoned. This application Nov. 5, 1979, Ser. No. 91,382

Int. Cl.³ C07C *45/60*

U.S. Cl. 568—454 **6 Claims**

1. In a process for hydroformylating hydrocarbon alpha olefins having from 3 to about 25 carbon atoms to form aldehydes, wherein the process is carried out in a reaction zone: (1)

in the presence of a liquid reaction medium, (2) with carbon monoxide and hydrogen, (3) at a temperature of about 50° to about 200° C., (4) at a pressure of about 1 to about 10,000 atmospheres, and (5) with a catalyst comprising a complex between a rhodium carbonyl hydride or a rhodium carbonyl halide and an organic ligand of the formula:



wherein R_1, $R_2$and R_3 are aryl of 6 to about 9 carbon atoms, the improvement comprising:

sparging said carbon monoxide and hydrogen into said liquid reaction medium and maintaining in said reaction zone a relative concentration of hydrogen to carbon monoxide of at least 12/1, thereby effecting an increase in the yield of straight chain, relative to branched chain, aldehyde product.

4,267,384

RUTHENIUM CATALYZED PROCESS FOR ACETALDEHYDE AND ETHANOL

David W. Smith, Cincinnati, Ohio, assignor to National Distillers and Chemical Corp., New York, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,286
Int. Cl.³ C07C *27/00, 31/08, 47/06*
U.S. Cl. 568—462 **22 Claims**

1. A process which comprises reacting formaldehyde, carbon monoxide and hydrogen at a temperature of from about 75° to about 250° C. and superatmospheric pressure to form acetaldehyde in a first reaction stage and then ethanol in a second reaction stage, wherein a catalyst system initially comprised of a source of ruthenium and a source of halide is present at least during said first reaction stage.

7. A process for producing acetaldehyde and/or ethanol which comprises reacting formaldehyde, carbon monoxide and hydrogen at a temperature of from about 75° to about 250° C. and superatmospheric pressure in the presence of a catalyst system initially comprised of a source of ruthenium and a source of halide and recovering acetaldehyde and/or ethanol from said reaction.

4,267,385

PROCESS FOR THE CATALYTIC PREPARATION OF ACROLEIN AND METHACROLEIN

Sumio Umemura; Kyoji Ohdan, and Hiroyuki Asada, all of Ube, Japan, assignors to UBE Industries, Ltd., Yamaguchi, Japan

Filed Dec. 12, 1979, Ser. No. 102,992
Claims priority, application Japan, Dec. 27, 1978, 53/160109
Int. Cl.³ C07C *45/35*
U.S. Cl. 568—479 **11 Claims**

1. A process for the catalytic preparation of acrolein or methacrolein, comprising bringing, at a temperature of from 200° to 500° C., a reaction feed containing propylene or isobutylene and molecular oxygen, each in gas phase, into contact with a catalyst consisting essentially of an oxide composition of the empirical formula:

$$Mo_aCo_bNi_cFe_dBi_eAl_fTi_gA_hO_i$$

wherein A represents at least one alkali metal atom; the subscripts a, b, c, d, e, f, g and h respectively denote the numbers of the respective atoms of the elements, the ratio a:b:c:d:e:f:g:h being in a range of 10:0 to 10:0 to 10:0.1 to 5:0.001 to 3:0.05 to 10:1 to 15:0 to 4 and the ratio a:(b+c) being in a range of 10:1 to 10, and; the subscript i represents the number of oxygen atoms which satisfies the average valency of the elements, the ratio a:i being in a range of 10:33.2 to 99.

4,267,386

OLEFIN OXIDATION CATALYST

Thomas H. Vanderspurt, Morris, N.J., assignor to Celanese Corporation, New York, N.Y.

Division of Ser. No. 960,201, Nov. 13, 1978. This application Sep. 19, 1979, Ser. No. 77,104
Int. Cl.³ C07C *45/34*
U.S. Cl. 568—480 **11 Claims**

1. A process for the oxidation of alkenes containing between 3 and about 5 carbon atoms to the corresponding olefinically unsaturated aldehydes which comprises reacting in the vapor phase an alkene with molecular oxygen at a temperature between about 200°-525° C. in the presence of an oxidation catalyst which corresponds to the formula:

$$Mo_{12}Co_{1-7}Fe_{1-6}Ni_{1-6}Bi_{0.3-3}L_{0.55-2}M_{0.3-0.6}O_x$$

wherein Mo, Co, Fe, Ni, Bi and O are respectively the elements of molybdenum, cobalt, iron, nickel, bismuth and oxygen; L is at least one element selected from potassium and rubidium; M is at least one element selected from phosphorus, cerium, germanium, manganese, niobium, antimony and tantalum; and x represents the number of oxygen atoms between about 35 and 75 sufficient to satisfy the valence requirements of the other elements; and wherein said oxidation catalyst is prepared by a method which comprises the steps of (1) admixing and slurrying in an aqueous medium respectively compounds of Mo, Co, Ni, Bi, L and M which are at least partially water-soluble, (2) adjusting the final pH of the aqueous slurry admixture within the range between about 1-5, (3) concentrating the aqueous slurry admixture by water removal to yield a catalyst coprecipitate, (4) heating the catalyst coprecipitate at a temperature in the range between about 200°-250° C. in the presence of molecular oxygen, and (5) calcining the catalyst composition at a temperature between about 400°-600° C. in the presence of molecular oxygen.

2. A process for producing acrolein or methacrolein which comprises reacting propylene or isobutylene in vapor phase with molecular oxygen at a temperature between about 200°-525° C. in the presence of a catalyst which corresponds to the formula:

$$Mo_{12}Co_{4-5}Fe_{2-4}Ni_{2-3}Bi_{0.5-2}K_{0.65-1.3}P_{0.35-0.5}O_x$$

wherein Mo, Co, Fe, Ni, Bi, K, P and O are respectively the elements of molybdenum, cobalt, iron, nickel, bismuth, potassium, phosphorus and oxygen; and x represents the number of oxygen atoms between about 35 and 75 sufficient to satisfy the valence requirements of the other elements; and wherein said oxidation catalyst is prepared by a method which comprises the steps of (1) admixing and slurrying in an aqueous medium respectively compounds of Mo, Co, Ni, Bi, L and M which are at least partially water-soluble, (2) adjusting the final pH of the aqueous slurry admixture within the range between about 1-5, (3) concentrating the aqueous slurry admixture by water removal to yield a catalyst coprecipitate, (4) heating the catalyst coprecipitate at a temperature in the range between about 200°-250° C. in the presence of molecular oxygen, and (5) calcining the catalyst composition at a temperature between about 400°-600° C. in the presence of molecular oxygen.

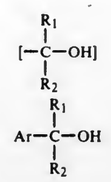
4,267,387

PROCESS FOR PREPARATION OF AROMATIC HYDROPEROXIDES

Ichiro Imai, Ohtake; Isao Hashimoto, Iwakuni; Keiji Suzuki, Ohtake, and Hiroaki Nakagawa, Iwakuni, all of Japan, assignors to Mitsui Petrochemical Industries Ltd., Tokyo, Japan

Filed Oct. 17, 1979, Ser. No. 85,587
Int. Cl.³ C07C *179/035*
U.S. Cl. 568—568 **12 Claims**

1. A process for the preparation of an aromatic hydroperoxide by oxidizing a hydroxyalkyl-substituted aromatic compound having at least one hydroxyalkyl group directly bonded to an aromatic ring carbon of the aromatic compound and being represented by the formula:



wherein Ar represents a benzene or naphthalene ring and R_1 and R_2 each represent a lower alkyl group, with hydrogen peroxide in the presence of an acid catalyst in a heterogeneous system of a water-immiscible inert aromatic hydrocarbon solvent at a reaction temperature of up to about 70° C. while removing by-product water as an azeotrope with the aromatic hydrocarbon solvent in the oxidation system; characterized in that said oxidation is carried out while feeding a vapor of a water-immiscible inert aromatic hydrocarbon solvent having a temperature higher than the reaction temperature but not exceeding about 90° C. into a liquid phase of the oxidation system.

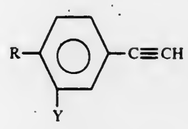
4,267,388

PROCESS FOR PRODUCING ETHYNYLBENZENES

Paul R. Darkes, Norristown; Henry F. Campbell, Lansdale, and George H. Douglas, Malvern, all of Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

Filed Jul. 12, 1979, Ser. No. 56,984
Claims priority, application Canada, Jul. 13, 1978, 307302
Int. Cl.³ C07C *41/18, 41/24, 25/18, 25/24*
U.S. Cl. 568—642 **12 Claims**

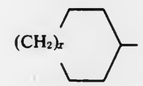
1. Process for preparing an ethynylbenzene derivative of the general formula:



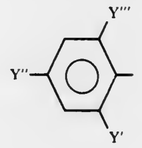
wherein

Y is hydrogen, halogen or loweralkyl of 1 to 3 carbon atoms;

R may stand for a ring of the structure:



wherein x is 1 to 3, or a ring of the structure:



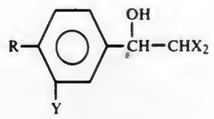
wherein

Y′ is hydrogen, halogen, loweralkyl of 1-3 carbon atoms and loweralkoxy of 1-3 carbon atoms;

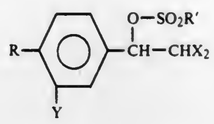
Y″ is hydrogen or halogen; and

Y‴ is hydrogen or halogen,

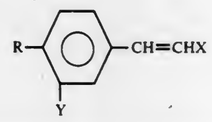
provided Y, Y′, Y″ and Y‴ are not all hydrogen at the same time, which comprises reacting a benzyl alcohol of the general formula:



wherein R and Y are as previously defined and X is chloro or bromo, with a sulfonyl chloride of the formula: $R'SO_3Cl$ wherein R′ is alkyl, aryl or a loweralkyl substituted alkyl in the presence of a base, to form the corresponding sulfonyl derivative of the formula:



reducing said sulfonyl derivative of the formula in the presence of zinc to form the halostyrene of the formula:



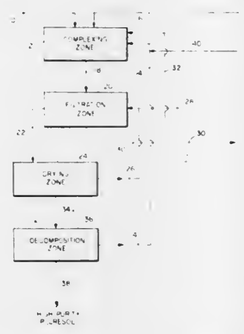
and then dehydrohalogenating said halostyrene compounds by reaction with an alkali metal alkoxide.

4,267,389

PROCESS FOR SEPARATING PARA-CRESOL FROM A MIXTURE OF METHYLATED AND ETHYLATED PHENOLS

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jun. 29, 1979, Ser. No. 53,438
Int. Cl.³ C07C *37/68*
U.S. Cl. 568—750 **18 Claims**



1. A process for obtaining predominantly para-cresol from a mixture of para-cresol and meta-cresol isomers, comprising the step of:

adding to the mixture one or more anhydrous or dehydrated inorganic halide salts selected from the group consisting of calcium bromide, lithium bromide, manganese bromide and magnesium chloride, in an amount to give a mole ratio

of the inorganic salt to the para-cresol isomer in the mixture from about 0.5 to one to about 1.5 to one, in the presence of a non-aqueous solvent to produce a complex predominantly with the para-cresol isomer, the mixture having a temperature in a range from about 20° C. to about 130° C. during the inorganic salt adding step;

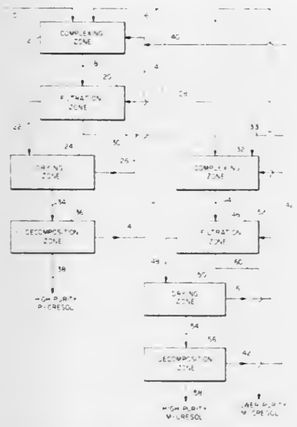
whereby said complex may be separated from the mixture, and then decomposed to yield predominantly the para-cresol and the anhyrous inorganic salt.

4,267,390

PROCESS FOR OBTAINING PARA-CRESOL AND META-CRESOL FROM A MIXTURE OF METHYLATED AND ETHYLATED PHENOLS CHARACTERIZED BY SELECTIVE COMPLEXATION WITH CALCIUM BROMIDE AND SODIUM ACETATE

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jun. 29, 1979, Ser. No. 53,195
Int. Cl.³ C07C *37/68, 37/74*
U.S. Cl. 568—751 **29 Claims**



1. A process for separating para-cresol and metacresol isomers from a mixture comprising methylated and ethylated phenols, the process comprising the steps of:

(a) for separation of the para-cresol isomer, adding to the mixture comprising methylated and ethylated phenols one or more anhydrous or dehydrated inorganic halide salts selected from the group consisting of calcium bromide, lithium bromide, manganese bromide and magnesium chloride, in an amount to give a mole ratio of said one or more salts to para-cresol in the mixture in a range of about 0.5 to one to about 1.5 to one, so as to produce a complex between predominantly para-cresol and the halide salt, the mixture having a temperature in a range from about 20° C. to about 130° C. during the halide salt adding step,

whereby the para-cresol-salt complex may be separated from the mixture comprising methylated and ethylated phenols, and then decomposed to produce predominantly para-cresol; and

(b) for separation of the meta-cresol isomer, adding to the mixture comprising methylated and ethylated phenols from which para-cresol has been removed an amount of sodium acetate to give a mole ratio of said sodium acetate to meta-cresol in the mixture in a range of 0.5 to one to about 5 to one, so as to produce meta-cresol-sodium acetate complex, the mixture having a temperature in a range from about 0° C. to about 75° C. during the sodium acetate adding step,

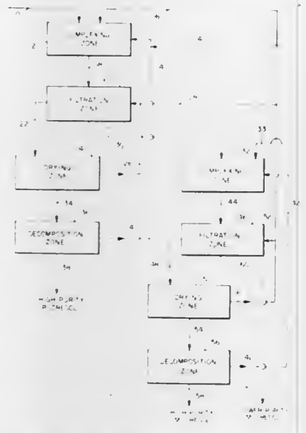
whereby the meta-cresol-sodium acetate complex may be separated from the mixture comprising methylated and ethylated phenols from which para-cresol has been removed, and then decomposed to produce predominantly meta-cresol.

4,267,391

PROCESS FOR OBTAINING PARA-CRESOL AND META-CRESOL FROM A MIXTURE OF METHYLATED AND ETHYLATED PHENOLS CHARACTERIZED BY UREA CLATHRATION OF METAL-CRESOL

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jun. 29, 1979, Ser. No. 53,531
Int. Cl.³ C07C *37/68, 37/74*
U.S. Cl. 568—751 **25 Claims**



1. A process for separating para-cresol and meta-cresol isomers from a mixture comprising methylated and ethylated phenols, the process comprising the steps of:

(a) for separation of the para-cresol isomer, adding to the mixture comprising methylated and ethylated phenols one or more anhydrous or dehydrated inorganic halide salts selected from the group consisting of calcium bromide, lithium bromide, manganese bromide and magnesium chloride, in an amount to give a mole ratio of said one or more salts to para-cresol in the mixture in a range of about 0.5 to one to about 1.5 to one, in the presence of a non-aqueous solvent so as to produce a complex between predominantly para-cresol and the salt, the mixture having a temperature in a range from about 20° C. to about 130° C. during the halide-salt adding step,

whereby the para-cresol-salt complex may be separated from the mixture comprising methylated and ethylated phenols, and then decomposed to produce predominantly para-cresol; and

(b) for separation of the meta-cresol isomer, adding to the mixture comprising methylated and ethylated phenols from which para-cresol has been removed an amount of urea to give a mole ratio of said urea to meta-cresol in the mixture in a range of about 0.7 to one to about 1.3 to one, in the presence of a non-aqueous solvent so as to produce meta-cresol-urea complex, the mixture having a temperature in a range from about 0° C. to about 100° C. during the urea adding step,

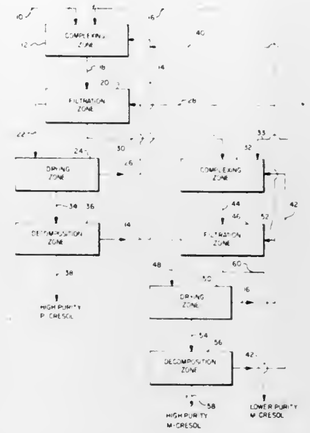
whereby the meta-cresol-urea complex may be separated from the mixture comprising methylated and ethylated phenols from which para-cresol has been removed, and then decomposed to to produce predominantly meta-cresol.

4,267,392

PROCESS FOR OBTAINING PARA-CRESOL AND META-CRESOL FROM A MIXTURE OF METHYLATED AND ETHYLATED PHENOLS CONTAINING META-PARA-CRESOL

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jun. 29, 1979, Ser. No. 53,532
Int. Cl.³ C07C *37/68, 37/74*
U.S. Cl. 568—751 **15 Claims**



1. A process for successively separating para-cresol and meta-cresol isomers from a mixture of methylated and ethylated phenols, comprising:

(a) adding to the mixture one or more anhydrous or dehydrated inorganic salts selected from the group consisting of calcium bromide, lithium bromide, manganese bromide and magnesium chloride, in an amount to give a mole ratio of said salt to para-cresol in the mixture in a range from about 0.5 to one to about 1.5 to one, in the presence of a non-aqueous solvent to produce a solid complex between predominantly para-cresol and said salt, the mixture having a temperature in a range from about 20° C. to about 130° C. during the salt adding step, said non-aqueous solvent being an organic solvent selected such that any complex formed with said solvent is weaker than the complex formed between para-cresol and said salt;

whereby said complex may be separated from the mixture and then decomposed to produce predominantly para-cresol; and

(b) adding to the mixture from which para-cresol has been removed an amount of calcium bromide to give a mole ratio of calcium bromide to meta-cresol in the mixture in a range from about 0.5 to one to about 1.0 to one in the presence of a non-aqueous solvent and at a temperature in a range from about −10° C. to about 40° C. to form predominantly meta-cresol-calcium bromide complex, said non-aqueous solvent selected such that any complex formed with said solvent is weaker than the complex formed between meta-cresol and said calcium bromide;

whereby said meta-cresol-calcium bromide complex may be separated from the mixture, and then decomposed to produce predominantly high purity meta-cresol.

4,267,393

PROCESS FOR PRODUCING ETHERS BY REACTING OLEFINS WITH ALCOHOLS

Bernard Torck, Boulogne sur Seine; Hugo Van Landeghem, Oytier Saint Oblas; Quang D. Vu, Paris, and Michel Hellin, Andresy, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Nov. 8, 1979, Ser. No. 92,317
Claims priority, application France, Nov. 8, 1978, 78 31768
Int. Cl.³ C07C *41/06*
U.S. Cl. 568—697 **18 Claims**

1. In a process for manufacturing ethers by contacting a mixture of at least one olefin having a double bond on a tertiary carbon atom and at least one alcohol with a sulfonated ion exchange resin catalyst in the acid form, the improvement comprising passing a liquid mixture of fresh reactants comprising said at least one olefin and said at least one alcohol, together with a liquid recycle stream as hereinafter defined at a feed rate of from 0.1 to 15 times the feed rate of the fresh reactants, upwardly through a first reaction zone containing a catalyst bed of particles of said sulfonated ion exchange resin in the acid form, at a temperature of from 60° to 120° C., said temperature being lower than the boiling temperature of the constituent of highest volatility in the mixture passing through the first reaction zone at the selected pressure, while maintaining a feed rate which is sufficient to expand the volume of said catalyst bed by at least 2% and to disperse the catalyst particles therein but insufficient to carry a substantial proportion of catalyst out of said first reaction zone, the contact time being selected to convert from 60 to 95% of said olefin; discharging the liquid product mixture formed in the first reaction zone, cooling a first portion thereof, and recycling the cooled portion to the first reaction zone as said liquid recycle stream, and feeding a second portion of said liquid product mixture to a second reaction zone containing a fixed bed of said sulfonated ion exchange resin catalyst in the acid form, at a temperature of from 30° to 70° C., the temperature in the second zone being at least 10° C. lower than the outlet temperature of the first reaction zone and lower than the boiling temperature of the constituent of highest volatility in the mixture passing through the second reaction zone at the selected pressure.

4,267,394

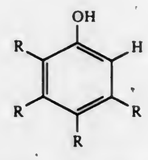
PHENOL ALKYLATION

Robert M. Parlman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 23, 1979, Ser. No. 23,354
Int. Cl.³ C07C *37/11*
U.S. Cl. 568—792 **9 Claims**

1. A process for the production of mono-substituted ortho-alkylated phenolic compounds in high yields and selectivity which comprises reacting

(a) at least one monohydroxy, monocyclic phenolic compound having at least one ortho-hydrogen represented by the general formula



wherein each R is a monovalent substituent such as hydrogen, or an alkyl, aryl or alkylaryl radical containing 1 to 12 carbon atoms with

(b) a slight molar excess of a monohydroxy alcohol represented by the formula

R'—OH

wherein R' is an alkyl or cycloalkyl radical containing 1 to 12

carbon atoms to the amount of phenolic compound (a) used in the presence of

(c) a catalytic amount of a catalyst consisting essentially of a dialkylether complex of boron trifluoride represented by the formula

$BF_3.OR_2\Delta$

wherein R'' is an alkyl radical containing 1–3 carbon atoms at reaction conditions sufficient to selectively alkylate (a) in the ortho-position to the significant reduction of alkylation in the meta- and para-positions and produce mono-substituted ortho-alkylated phenolic compounds in high yields and high selectivity.

4,267,395

2-DECARBOXY-2-HYDROXYMETHYL-19-HYDROXY-19-METHYL-6A-CARBA-PGI$_2$ COMPOUNDS

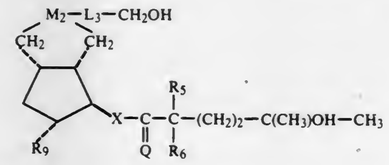
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,465

Int. Cl.^{3} C07C *33/05*

U.S. Cl. 568—819 **4 Claims**

1. A prostacyclin-type compound of the formula



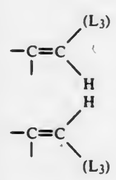
wherein L_3 is

(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive,

(2) $-(CH_2)_p-CF_2-$, wherein p is 2, 3, or 4,

or (3) $-CH_2-CH=CH-$;

wherein M_2 is



(1)

(2)

wherein Q is oxo, α—H:β—H, α—OH:β—R_4, or α—R_4:β—OH,

wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,

wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;

wherein R_2 is hydrogen or hydroxyl; and wherein X is

(1) trans—CH=CH—,

(2) cis—CH=CH—,

(3) —C≡C—, or

(4) $-CH_2CH_2-$.

4,267,396

PRODUCTION OF SODIUM AND POTASSIUM ALKOXIDES

Seymour Mann, New York, N.Y., assignor to Aceto Chemical Co, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 4,712, Jan. 19, 1979, abandoned. This application Dec. 10, 1979, Ser. No. 102,237

Int. Cl.^{3} C07C *29/70, 29/94*

U.S. Cl. 568—851 **9 Claims**

1. Method of producing sodium and potassium alkoxides, which comprises reacting a reaction mixture consisting essentially of calcium oxide, an alcohol of up to 6 carbon atoms, and an anhydrous metal hydroxide wherein the metal is sodium or potassium in the presence of a surfactant to form the corresponding metal alkoxide and calcium hydroxide, said surfactant being present in an amount of 0.1–4% of the anhydrous metal oxide and being selected from the group consisting of cationic amine oxides and oxygen containing amines other than those having amide linkages, cationic diamines and polyamines, cationic primary monoamines, cationic secondary and tertiary monoamines, cationic oxygen-containing quaternary ammonium salts, cationic quarternary ammonium salts not containing oxygen, nonionic glycerol esters of mixed acids, nonionic ethers and amphoteric surfactants selected from the group consisting of (1-carboxyheptadecyl) trimethylammonium hydroxide, inner salt, N-dodecyl-8-alanine, partial sodium salt, N-dodecyl-3-iminodipropionic acid, disodium salt, N-(dodecyl)-8-alamine, N-(tetradecyl)-8-alanine, and N-(tallow alkyl)-3-iminodipropionic acid, disodium salt.

4,267,397

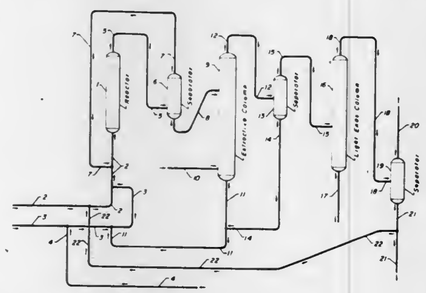
HYDRATION OF OLEFINIC COMPOUNDS WITH DILUTE SULFURIC ACID AND COBALT SULFATE

Robert J. Schmidt, Hoffman Estates, and Tamotsu Imai, Mt. Prospect, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Dec. 21, 1979, Ser. No. 106,312

Int. Cl.^{3} C07C *29/04*

U.S. Cl. 568—899 **4 Claims**



1. A process for the direct hydration of an olefinic compound which comprises treating said olefinic compound with a dilute aqueous sulfuric acid solution in the presence of cobalt sulfate at a temperature of from about 100° to 300° C. and a pressure of from about 1 to about 250 atmospheres, the concentration of sulfuric acid in said solution being from about 0.05 to about 40% by weight, and recovering the resultant alcohol.

4,267,398

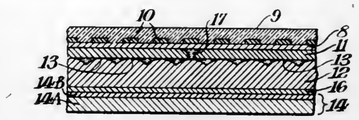
THIN FILM PHOTOVOLTAIC CELLS

Allen Rothwarf, Philadelphia, Pa., assignor to University of Delaware, Newark, Del.

Filed May 29, 1979, Ser. No. 43,339

Int. Cl.^{3} H01L *31/04*

U.S. Cl. 136—256 **1 Claim**



1. In a front wall photovoltaic cell of the type comprising an opaque electrical contact, a collector on and in ohmic electrical contact with said opaque electrical contact, an absorber on and in rectifying electrical contact with said collector and forming a junction therewith, a transparent electrical contact in ohmic electrical contact with said absorber, and an antireflection coating, the improvement being said absorber being a copper bearing material, said transparent electrical contact being in the form of a grid made from a material selected from the group consisting of copper, silver, chromium, nickel and their alloys, a diffusion barrier layer deposited on said absorber and providing a continuous layer between said absorber and said grid, and said diffusion barrier layer being of the same material as the material as of said antireflection coating.

4,267,399

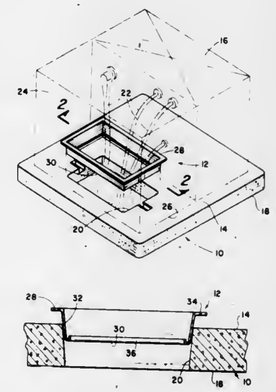
TRANSFORMER PAD WITH CABLE PROTECTIVE SLEEVE

Robert J. Lux, Jr., Broken Arrow, Okla., assignor to Thermodynamics Corporation, Broken Arrow, Okla.

Continuation of Ser. No. 7,419, Jan. 29, 1979, abandoned. This application Jun. 3, 1980, Ser. No. 156,165

Int. Cl.^{3} H02B *5/00*

U.S. Cl. 174—1 **5 Claims**



1. A means for supporting a transformer upon the earth's surface comprising:

a pad of rigid material having an upper and lower surface, the lower surface adapted to engage the earth's surface and the upper surface adapted to receive and support a transformer thereon, the pad having a cable opening therein communicating between the lower and upper surfaces; and

a hollow sleeve of rigid material of short height, having an upper and lower end and an outer and inner surface, the outer surface being non-cylindrical and configured to provide an interference fit with said pad cable opening, the sleeve being removably received and supported by said pad in said cable opening and dimensioned such that the upper end extends above the upper surface of said pad, the interior of the sleeve being dimensioned to receive cables therethrough.

4,267,400

SEISMIC BUSHING

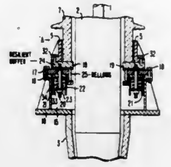
Mitsuhiro Kishida, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 2, 1980, Ser. No. 155,329

Claims priority, application Japan, Jun. 28, 1979, 54-82868

Int. Cl.^{3} H01B *17/26, 17/30*

U.S. Cl. 174—31 R **6 Claims**



1. A seismic bushing for a high voltage electrical apparatus charged with an insulating material and having a cylindrical mounting flange, comprising:

a porcelain tube;

an adapter rigidly connected to one end of said tube;

a connecting plate having a plurality of cylindrical pots, said plate being rigidly connected to the mounting flange such that said pots extend into said mounting flange;

a plurality of piston heads located within said cylindrical pots;

a plurality of connecting rods located within said cylindrical pots, said connecting rods being connected at one end to said adapter and at the other end to said piston heads;

a plurality of springs disposed on said connecting rods, said springs providing a predetermined fastening force between said adapter and said connecting plate such that said tube is free to move relative to said mounting flange, said springs and said piston heads absorbing the energy of said motion upon the development of a clearance between said adapter and said connecting plate;

a resilient buffer member interposed between said adapter and said connecting plate to provide mechanical stress relief upon the closing of said clearance between said adapter and said connecting plate; and

a sealing member for sealing the interface between said adapter and said connecting plate for containing the insulating material.

4,267,401

SEAL PLUG

William L. Wilkinson, 258 W. 31st St., Hamilton, Ontario, Canada (L9C 5G4)

Filed Jul. 3, 1978, Ser. No. 921,825

Int. Cl.^{3} H02G *15/013*

U.S. Cl. 174—77 R **8 Claims**

1. A seal plug for use in a conduit having a plurality of passages therethrough for receiving a respective number of elongated members therein to pass them through the seal plug, said seal plug comprising:

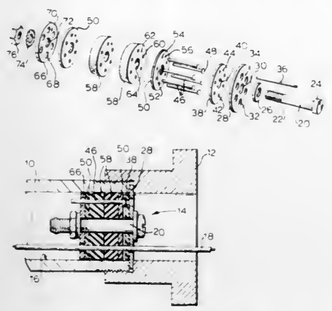
a plug core including at least one radially-expansible seal member having a respective plurality of passages therethrough and adapted for insertion into said conduit in unexpanded condition, the plug core closing and sealing said conduit when inserted therein and in radially-expanded condition, and also when in radially-expanded condition sealing around an elongated member that is inserted in its respective passage;

a pair of seal plug pressure members each having a respec-

tive plurality of passages therethrough and between which the seal member is sandwiched so as to be expanded radially upon axial movement of the pressure members toward each other;

a removable insert for each passage closing the respective passage in said seal member, and sealed in the passage along the length thereof when the plug core is in the radially-expanded condition, each removable insert consisting of a headed pin passing through the seal member and the pressure members;

retainer means engaging said removable headed pins to



retain them in their respective passages, the said retainer means consisting of an apertured plate having a respective plurality of apertures therein and having each pin head engaged in a respective aperture thereof of smaller diameter than the pin head, each pin head being forcible through the respective aperture for removal of the pin by the application of a suitable force to the pin shaft, and

axial compression means passing through the seal member, the pressure members and the retainer member for moving the pressure members toward each other to axially compress the seal member and effect the said radial expansion thereof.

4,267,402

POLYMER CONCRETE BODY WITH VIBRATION MOLDED THREADS, METHOD OF MAKING SAME, AND ELECTRICAL INSULATOR PROVIDED WITH THE SAME

David H. Reighter, Roslyn, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 931,493, Aug. 7, 1978, abandoned. This application Jun. 15, 1979, Ser. No. 48,722

Int. Cl.³ H01B *17/14, 3/40;* **B29D** *1/00*

U.S. Cl. 174—137 R **35 Claims**



1. A body of an acicular aggregate bonded by a cured synthetic resin binder having at least one thread vibration molded therein.

11. A method of manufacturing a body of an acicular aggregate bonded by a cured synthetic resin binder having at least one thread vibration molded therein comprising mixing of said aggregate and uncured synthetic resin binder under a vacuum of at least about 27 inches of mercury, vibration molding the resulting admixture against at least one thread die, and curing said polymer.

4,267,403

ELECTRIC LINE INSULATOR MADE OF ORGANIC MATERIAL AND HAVING AN INNER SEMI-CONDUCTIVE PART EXTENDING BETWEEN END ANCHOR FITTINGS

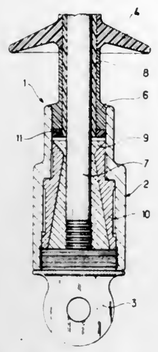
Laurent Pargamin, Vichy, France, assignor to Ceraver, Paris, France

Filed Nov. 16, 1978, Ser. No. 961,163

Claims priority, application France, Dec. 14, 1977, 77 37652

Int. Cl.³ H01B *17/42, 17/02*

U.S. Cl. 174—140 S **3 Claims**



1. In an electric line insulator comprising a high tensile strength bar made of a composite material which comprises inorganic or organic fibers or threads bonded together by a hardening synthetic resin, anchor fittings, the ends of said bar being embedded in said anchor fittings by means of a bedding material which directly surrounds said ends, the improvement wherein:

said bar is a semi-conductor bar,

the ends of said bar being embedded in said anchor fittings by means of semi-conductor sealing material constituting said bedding material, and

a protective sheath of an insulative elasomeric material being fixed over the entire surface of said bar except for the ends of said bar embedded within said semi-conductor sealing material.

4,267,404

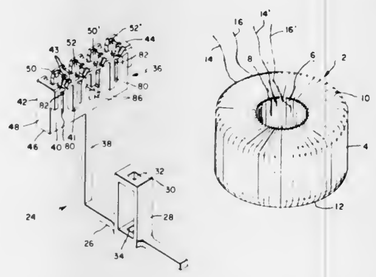
SUPPORTING DEVICE FOR TOROIDAL COIL HAVING INTEGRAL TERMINAL HOUSINGS

Carl W. Rohde, Hellam, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 25, 1979, Ser. No. 32,999

Int. Cl.³ H01F *17/08, 15/10, 15/02*

U.S. Cl. 178—46 **12 Claims**



1. A device for supporting a toroidal coil in a stack containing a plurality of identical coils, said device having integral

terminal housing means for connecting the wires in said coil to lead wires, said device comprising:

a one-piece molded plastic member having a coil support portion extending in a first plane, a coil locating post means extending normally from said coil support portion at a central location thereon, said locating post means being dimensioned to be received in the open center of said toroidal coil and accurately locate said coil with said coil on said coil support portion, said post means having a free end which is spaced from said support portion by a distance substantially equal to the height of said coil,

a deformable housing support arm extending normally from said coil support portion, said housing support arm being spaced from said locating post means by a distance which is sufficient to receive a section of said toroidal coil between said arm and said post means, said housing support arm having a terminal-receiving housing on its end,

a plurality of terminal-receiving cavities extending into said housing, each of said cavities being dimensioned to receive a terminal for connecting a coil wire to a lead wire,

first interengaging means on said housing and on said free end of said locating post means for securing said housing to said free end with said housing substantially against said one side of said coil, and second interengaging means on said housing and on said coil support portion for securing said device to identical devices on identical coils which are stacked against said coil on a common axis whereby, upon positioning said coil on said coil support portion with said locating post means extending through the central opening in said coil, connecting the wires of said coil to lead wires by means of terminals received in said cavities, and bending said housing support arm to position said housing against said free end of said locating post means, said housing can be secured to said free end of said locating post means by said first interengaging means, and said device and said coil can be stacked against identical coils and secured to said identical coils by said second interengaging means.

4,267,405
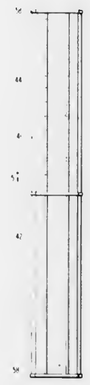
STEREO SPEAKER SYSTEM FOR CREATING STEREO IMAGES

Roger H. Russell, Binghamton, N.Y., assignor to McIntosh Laboratory, Inc., Binghamton, N.Y.

Filed Jun. 5, 1979, Ser. No. 45,709

Int. Cl.³ H04R *5/02*

U.S. Cl. 179—1 E **10 Claims**



1. A stereo speaker system adapted for home use in a room defined by perpendicular surfaces and arranged to increase stereo image perception by reducing spurious and confusing sound images comprising:

a pair of low frequency speaker assembly means for radiating acoustic energy in the frequency range below 1000 Hz.,

a pair of high frequency speaker assembly means for radiating acoustic energy in the frequency range above 1000 Hz., each of said pair consisting of:

a plurality of high frequency dynamic speakers having front and rear surfaces and radiating acoustic energy only from said front surface,

enclosure means for mounting said speakers in a single column with minimum distance between adjacent speakers, said plurality being of such number that said column will substantially completely extend between a pair of parallel surfaces defining one dimension of said room,

said enclosure means supporting said assembly means adjacent a supporting surface perpendicular to said parallel surfaces and locating said front surface of said speakers to minimize distance between said front surface and said supporting surface.

4,267,406

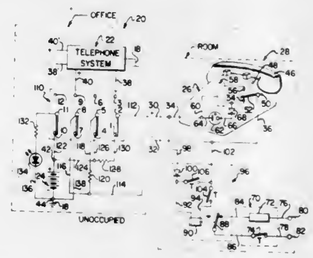
APPARATUS UTILIZING PORTIONS OF A CONVENTIONAL TELEPHONE INSTALLATION FOR SELECTIVELY CONTROLLING ELECTRICALLY OPERATED, TEMPERATURE REGULATING EQUIPMENT

James E. Perry, 9814 Hardesty, Kansas City, Mo. 64134

Filed Aug. 27, 1979, Ser. No. 69,710

Int. Cl.³ H04M *11/00*

U.S. Cl. 179—2 A **7 Claims**



1. In apparatus utilizing portions of a conventional telephone installation for selectively controlling electrically operated, temperature regulating equipment, wherein said installation includes a number of telephones each located within a corresponding remote area and having internal telephone components, internal electrical circuitry for intercoupling said components and a pair of externally extending, electrically conductive, connection leads electrically coupled with said circuitry, a pair of electrically conductive coupling lines for each telephone electrically coupled with said connection leads of the latter and extending to a central area, a central telephone system presenting within said central area for each telephone a pair of telephone line leads normally energized by said system with a direct current electrical potential therebetween, and terminal means presenting a source of direct current electrical potential within said central area, wherein each telephone further includes a handset shiftable between standby and use positions thereof, an electrically responsive message alert indicator and an internal electrical switching assembly responsive to the positioning of said handset for electrically coupling said indicator with said connection leads only when said handset is in said standby position thereof, and wherein said equipment includes a temperature altering device within each remote area having an electrical operating circuit adapted for coupling with a source of operating power for said device:

electrical switching structure for each telephone selectively actuatable into at least a normal telephone operating condition and a temperature controlling condition,

each switching structure being also selectively actuatable into a message alert signalling condition,

each switching structure being operable, when in said normal telephone operating condition thereof, for electrically coupling said coupling lines for the corresponding telephone with said telephone line leads for said telephone for flow of electrical current due to said potential between said telephone line leads through said coupling lines in one direction,

each switching structure being operable, when in said temperature controlling condition thereof, for electrically coupling said coupling lines for the corresponding telephone with said direct current source terminal means for flow of electrical current due to said potential between said source terminals through said coupling lines in a direction opposite said one direction,

each switching structure being operable, when in said message alert signalling condition thereof, for electrically coupling one of said coupling lines for the corresponding telephone with one of said telephone line leads for said telephone and electrically coupling said direct current source terminal means in voltage adding series between the other of said coupling lines for said telephone and the other of said telephone line leads for said telephone.

electrical switching means for each telephone electrically coupled with said operating circuit of the corresponding device for controlling the latter,

each switching means being provided with an operably associated, electrically responsive, actuating means having a pair of electrically conductive, control leads; and

electrical circuit means for electrically coupling said control leads of each switching means with said coupling lines for the corresponding telephone,

each coupling circuit means being provided with unidirectional current flow means coupled therewith for permitting flow of electrical current through said coupling circuit means only when the corresponding switching structure is in its temperature controlling condition.

4,267,407

METHOD AND APPARATUS FOR THE TRANSMISSION OF SPEECH SIGNALS

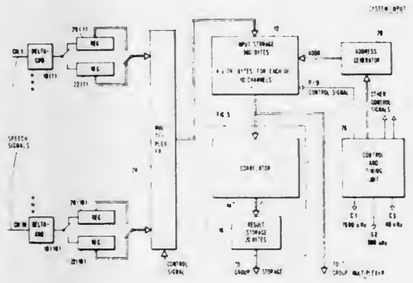
Hans R. Schindler, and Peter Vettiger, both of Langnau, Switzerland, assignors to IBM Corporation, Armonk, N.Y.

Filed Sep. 27, 1979, Ser. No. 79,412

Claims priority, application Switzerland, Oct. 27, 1978, 11115/78

Int. Cl.³ H04J *6/02*; G10L *1/10*

U.S. Cl. 179—15.55 R **8 Claims**



1. A method for coded transmission of speech signals, in which selected portions of a speech signal are not transmitted and are replaced in the receiver by stored previous portions of the same speech signal, the processing of a speech signal, comprising:

generating periodically a new fixed-length coded speech segment while at least the two last-previous segments are kept in storage in the transmitter;

determining in the transmitter in each frame period, the best correlated signal subsection of segment length within the stored previous segments, and its offset, both with respect to the new segment;

suppressing selectively a whole segment from transmission and transmitting instead an indication of the offset for the best correlated previous signal subsection; and

storing in the receiver, at least the two last-previous segments and replacing a suppressed segment by the best correlated subsection of the stored segments in response to the received offset indication.

4,267,408

ARRANGEMENT FOR APPLYING A SIGNAL TO A TRANSMISSION LINE

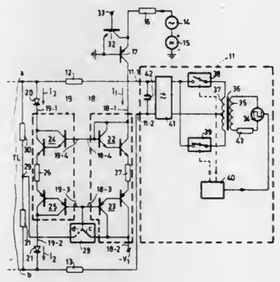
Franciscus A. C. M. Schoofs, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 22, 1979, Ser. No. 51,085

Claims priority, application Netherlands, Jul. 13, 1978, 7807531

Int. Cl.³ H04M *19/00*

U.S. Cl. 179—77 **4 Claims**



1. An arrangement for transferring a signal to a two wire transmission line, such a telephone line, comprising a source of d.c. voltage connected between said two wires for symmetrically feeding said line with a d.c. current, a bidirectional current source having a pair of high internal resistance output terminals each connected to a respective one of said two wires for supplying to each wire equal and oppositely directed currents, a circuit for supplying a reference voltage to said bidirectional current source, and means for superimposing said signal on a direct current and for applying said signal superimposed on said direct current to said voltage reference circuit so that the currents supplied to each of said wires by said bidirectional current source are proportional to the current applied to said voltage reference circuit.

4,267,409

KEYBOARD DECADE DIGITAL DIAL

Carlo Baldoni, 76 Via Villa Musone, 60025 Loreto (Ancona), Italy

Continuation of Ser. No. 703,250, Jul. 7, 1976, abandoned. This application Feb. 9, 1979, Ser. No. 10,986

Claims priority, application Italy, Jul. 15, 1975, 620 A/75; Sep. 25, 1975, 626 A/75; Apr. 9, 1976, 48925 A/76

Int. Cl.³ H04M *1/274*

U.S. Cl. 179—90 B **25 Claims**

1. A decade digital telephone dial unit for substitution in a telephone having a rotary dialing system, conventional phonic section and handset actuated switch for coupling and decoupling said telephone with the telephone lines of a telephone system wherein said telephone is ready for use by virtue of its coupling to said telephone lines when said handset is removed from said telephone, comprising:

power supply means coupled to said telephone lines and receiving the electrical current conducted therethrough for converting said electrical current to voltages suitable for powering said decade digital telephone dial unit;

a keyboard system positionable in said telephone in place of said rotary dial, said keyboard system including a support base having a plurality of openings therein, a plurality of key switches each being associated with a decimal digit and each movably positioned in an associated one of said openings, and encoding logic circuit means coupled to said key switches and having a plurality of electrical contacts thereon, said contacts being selectively closed by depression of selected ones of said key switches;

pulse generator circuit means coupled to said keyboard system for storing on command from the switching of the key switches of said keyboard system at least one stream of decimal digits corresponding to at least one telephone number, and for transmitting on command from said keyboard system said stored telephone number to said telephone lines in the form of pulses;

clock circuit means coupled to said pulse generator circuit means for generating basic timing pulses for synchronizing and controlling the operations of said pulse generator circuit means;

zero set marker means coupling said clock circuit means to said pulse generator circuit means for generating zero set markers to reset said pulse generator circuit means;

first electronic switching means for opening and closing said telephone lines for the transmission and reception of telephone numbers to and from said telephone lines in accordance with signals derived from said pulse generator circuit means;

second electronic switching means for muting said phonic section by shorting it in accordance with signals derived from said pulse generator circuit means; and

protection circuit means coupled between said first and second electronic switching means and said telephone lines for protecting said digital keyboard system from telephone line inversion;

wherein said keyboard switching means includes key switches each associated with a decimal digit 0-9 and R and P key switches wherein a first operation of said R switch causes a previously dialed and engaged number to be stored by said pulse generator circuit means and a second operation of said R switch causes said stored number to be redialed and wherein a first operation of said P switch causes a number dialed during a telephone conversation to be stored by said pulse generator circuit means and a second operation of said P switch causes the telephone line to be cleared and the stored number dialed.

4,267,410

PROSTHESIS

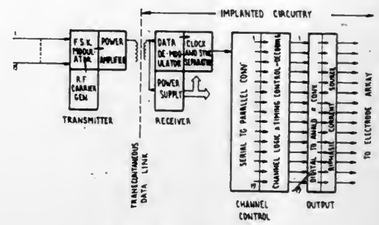
Ian C. Forster, Hawthorn; James F. Patrick, North Melbourne; Yit C. Tong, Burwood; Raymond C. Black, Carlton, and Graeme M. Clark, Eltham, all of Australia, assignors to The University of Melbourne, Parkville, Australia

Filed Nov. 1, 1978, Ser. No. 956,795

Claims priority, application Australia, Nov. 3, 1977, PD2291

Int. Cl.³ H04R *25/00*

U.S. Cl. 179—107 BC **5 Claims**



THE OVERALL PROSTHETIC SYSTEM

1. An aural prosthesis system comprising:

a first part adapted to be located exteriorally of the body to transmit a data signal and a second part adapted to be located within the body to receive said data signal,

said data signal comprising a plurality of sequential frames of an audio signal,

each of said frames having a set of channel signals,

each member of said set of channel signals including a first portion indicative of the channel signal intensity and a second portion indicative of the channel signal timing within the associated frame,

a transmitter in said first part for transmitting said frames of said data signal as a series of sets of channel signals,

a receiver in said second part for receiving the signal transmitted by said transmitter,

first storage means in said second part for storing each member of a set of channel signals as it is received,

loading means to load said sets of channel signals into said first storage means,

second storage means in said second part to store each member of a set of channel signals,

a plurality of electrodes adapted to be coupled to stimulate aural nerve endings, and

coupling means to couple each member of the set of channel signals in said second storage means to a separate one of said electrodes, said first portion of each said members of said set determining the intensity of stimulation to be applied by the associated electrode and said second portion of each of said members of said set determining the time within the associated frame in which that stimulation is initiated by said associated electrode,

said coupling means coupling the channel signals of a frame from said second storage means to said electrodes while said loading means is loading the set of channel signals from the next successive frame into said first storage means.

4,267,411

PUBLIC TELEPHONE SECURITY BRACKET

Vernon R. Raines, South Houston, Tex., assignor to Joyce Anita Raines, So. Houston, Tex., a part interest

Filed Oct. 15, 1979, Ser. No. 84,740

Int. Cl.³ H04M *1/00, 17/02*

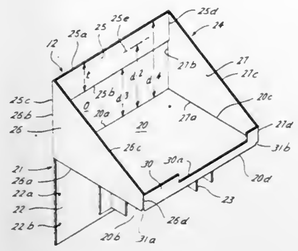
U.S. Cl. 179—184 **7 Claims**

1. An anti-theft bracket adapted for attachment to the back mounting panel for a public telephone booth housing and to engage the bottom portion of a public telephone unit attached to such back mounting panel, comprising:

a bottom member adapted to receive the bottom of a public telephone unit;

bracket mount means attached with said bottom member and depending downwardly from said bottom member for mounting said anti-theft bracket to the back mounting panel of a public telephone booth housing; and

an anti-theft bar and bar mount means mounting said anti-theft bar a predetermined distance from said bottom member for positioning between such back mounting panel of such public telephone booth housing and a public telephone unit in between spaced rows of booth mounting bolts which extend through such public telephone unit and such mounting panel so that one of said rows of mounting bolts is engaged by such anti-theft bar in response to unauthorized relative movement between said bottom member and such public telephone unit.



4,267,412

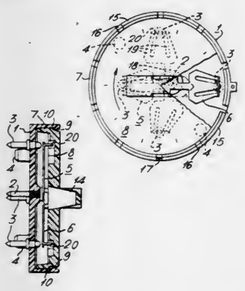
ELECTRICAL SWITCH

Johannes T. M. Janssen, Hedel; Hermanus P. J. Gilissen, Esch; Lucas Soes, Rosmalen; Ludovicus C. Van Der Sanden, and Petrus R. M. Van Dijk, both of 's-Hertogenbosch, all of Netherlands, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 22, 1979, Ser. No. 51,089

Int. Cl.[3] H01H *19/60*

U.S. Cl. 200—6 B **6 Claims**



1. An electrical switch comprising a circular base formed of electrically insulating material, an operating member of circular shape mounted for rotation on said base about an axis of rotation passing through the centers of said base and said operating member, said base and operating member including engaging portions along their respective peripheries which cooperate to mount said operating member for rotation on said base, said engaging portions including indexing means for indexing the motion of said operating member to one of a plurality of positions relative to said base, an input contact and a plurality of output contacts mounted on said base at positions spaced around the center of said base at mutually different distances from the center of said base, and a bridging contact fixedly mounted on the input contact having a plurality of radially extending resilient contact arms respectively associated with the output contacts, said operating member being formed with a plurality of arcuate cam projections thereon positioned at mutually different radii measured from the axis of rotation of the operating member such that the arcuate cam projections engage the contact arms of the bridging contact as said operating member is rotated relative to said base, there being at least one said arcuate cam projection associated with each output contact to urge the contact arms into contact with the associated output contacts whereby in each of the relative positions of the operating member the bridging contact is caused to provide a connection between the input contact and a respective one or combination of the output contacts.

4,267,413

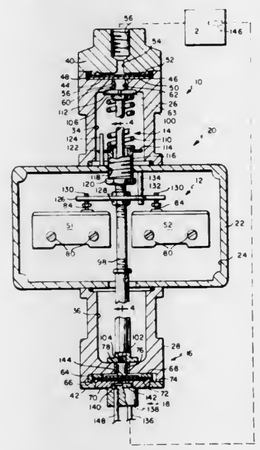
TEMPERATURE COMPENSATED PRESSURE CONTROL

Robert D. Reis, Hingham, Mass., assignor to United Electric Controls Company, Watertown, Mass.

Filed Sep. 11, 1978, Ser. No. 941,276

Int. Cl.[3] H01H *35/34*

U.S. Cl. 200—81.4 **6 Claims**



1. A temperature compensated pressure control device comperising a first diaphragm, means defining a conductor connecting one side of said first diaphragm to a pressurized zone, said first diaphragm comprising a membrane clamped within a chamber between a rib at one side of the chamber and a ring and disk at the other side of the chamber, switch means, transmitter means for transmitting movement of the first diaphragm to actuate the switch means comprising a rod and a post supported at the center of the disk in axial alignment with the rod for limited movement between the disk and the end of the rod, means operable by actuation of the switch means to establish a predetermined pressure in said pressurized zone, and means for predisposing the transmitter to compensate for a change in temperature from the normal predetermined temperature in said pressurized zone comprising a second diaphragm arranged to effect movement of the transmitter and sensing means responsive to a change in temperature in the pressurized zone for effecting compensating movement of the diaphragm.

4,267,414

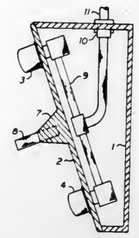
FOOT CONTROL FOR SNOW PLOWS

Michael B. Brueggeman, 63 Chestnut St., Painesville, Ohio 44077, assignor to Michael B. Brueggeman and Henry C. Brueggeman, both of Eastlake, Ohio

Filed Aug. 2, 1979, Ser. No. 63,147

Int. Cl.[3] H01H *21/26*

U.S. Cl. 200—86.5 **5 Claims**



1. Foot control construction comprising a body having a first set of operating means spaced fore and aft for toe and heel operation respectively, a second set of like means similarly spaced, positioned adjacent the first set for like operation, said sets of operating means extendly upwardly an arch support element extending transversely between the first and second toe operating means and the first and second heel operating means, and a reference member extending upwardly relative to the body beyond said sets of operating means and located between the said sets of operating means to prevent the operation of both toe operating means simultaneously.

4,267,415

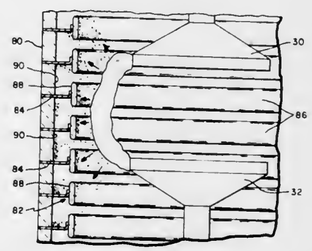
CURRENT LIMITER VACUUM ENVELOPE

Francis A. Holmes, Monroeville; Clive W. Kimblin, and Joachim V. R. Heberlei, both of Pittsburgh, all of Pa., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Oct. 6, 1977, Ser. No. 839,813

Int. Cl.[3] H01H *33/66*

U.S. Cl. 200—144 B **2 Claims**



1. A current interrupter for rapidly interrupting currents associated with power lines comprising: an evacuated envelope having spaced end portions and an intermediate insulating portion sealed to said end portions, a pair of electrode members each supported within said envelope by one of said end portion of said envelope, said electrode members being relatively movable along an axis and within said envelope into mutual contact to complete an electrical path, said electrode members also being separable to induce current interruption thereby causing an arc to arise which carries arc current between said electrode members in a direction generally along said axis, means for producing a magnetic field between said electrode members to rapidly extinguish the arc, said magnetic field having lines of magnetic force transverse to said axis, said insulating portion of said envelope being spaced from and surrounding said electrode members and being substantially cylindrical in shape, wherein said lines of magnetic force act to drive the arc and metallic arcing vapors associated therewith from between the electrodes towards said insulating portion, the metallic arcing vapors being deposited on the surrounding insulating portion in heaviest concentrations on a localized area of an interior portion of said insulating portion where the vector cross product of the lines of magnetic force and said arc current intersects said insulating portion, and a plurality of spaced baffles formed on said insulating portion and juxtaposed to said arc which arises between said electrode members and at least covering said localized area of said interior portion where the metallic arcing vapors are deposited in the heaviest concentrations, said baffles being shaped and oriented to shield a plurality of continuous annular areas of said insulating portion from said metallic deposits in a direction perpendicular to said axis said insulating portion being substantially formed of electrically insulating material and said baffles forming a plurality of spaced annular fins having a T-shaped cross section and formed entirely of electrically insulating material.

4,267,416

CONTACT ARRANGEMENT FOR VACUUM SWITCH

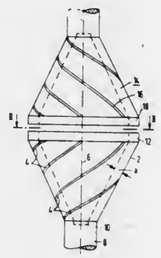
Irmo Paulus, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Continuation of Ser. No. 778,266, Mar. 16, 1977, abandoned. This application Jul. 27, 1978, Ser. No. 928,689

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1976, 2613567

Int. Cl.[3] H01H *33/66*

U.S. Cl. 200—144 B **4 Claims**



1. A contact for a vacuum switch including a pair of opposed contacts, each comprising a hollow body of revolution having an axis of revolution, said body of revolution having a plurality of slots extending in a spiral with respect to said axis of revolution; a solid annular contact seat at the base of said body of revolution forming a contact surface; and an electrical lead conductor connected to said body of revolution.

4,267,417

MEMBRANE KEYSWITCH

John A. Koepke, Mount Prospect, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

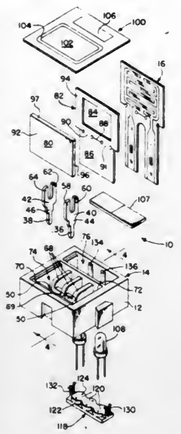
Filed Jun. 9, 1980, Ser. No. 157,903

Int. Cl.[3] H01H *13/02, 13/70*

U.S. Cl. 200—159 B **10 Claims**

1. A membrane switch comprising an electrically insulating housing having a top and a bottom, a first chamber with at least one walled cavity therein and a plurality of passageways in communication with said cavities which extend through said bottom of said housing, a thin, flexible membrane including a plurality of elongated legs each of which have an aperture therethrough, a plurality of unconnected electrically conductive patterns on a pattern area of said membrane, each pattern of which includes an elongated conductor strip which extends over one of said legs, a plurality of electrically conductive terminals each having a terminal end which is inserted into one

of said passageways so that said terminal end passes through an aperture in one of said elongated legs and projects through the bottom of said housing, the dimensions of said terminals being such that they are wedged into their associated passageways and the associated elongated leg is trapped between the walls



of the associated cavity and said terminal, a conductive plate in said housing, said flexible membrane being bent so as to position said pattern area of said membrane over said conductive plate and a spacer member having a window therein which is positioned between said pattern area and said conductive plate.

4,267,418

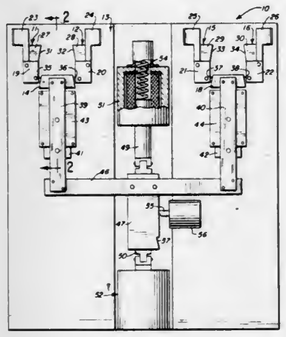
ELECTRIC SWITCH DEVICE

Ronald O. Brown, 333 Ozark Dr., Bolingbrook, Ill. 60439

Continuation-in-part of Ser. No. 839,192, Oct. 4, 1977, abandoned. This application Feb. 16, 1979, Ser. No. 12,909

Int. Cl.³ H01H *1/38*

U.S. Cl. 200—163 **2 Claims**



1. In an electrical switch device for handling large operating and surge currents, a first contact member defining a first planar contact surface, a second contact member defining a second planar contact surface, support means supporting said contact members for movement of said second contact member relative to said first contact member between an open position spaced therefrom and a closed position in which said first and second planar contact surfaces are in flush engagement in a plane at an acute angle to the direction of said relative movement, and actuating means for moving said second contact member between said open and closed positions, said contact surfaces being of a ductile metal and at least substantial portions thereof being very smooth and being in intimate contact in said closed position with said portions being such as produced by a very smooth surface-forming action on said contact surfaces during repeated movements from said open position to said closed position, said first and second contact members being substantially rigid, a third contact member supported by said support means in fixed relation to said first contact member, and cooperating with said second contact member to define third and fourth planar contact surfaces spaced apart in said open position of said contact member and in flush engagement with said closed position thereof, said third and fourth planar surfaces being at an acute angle to said direction of relative movement which is of the same magnitude as that of said first and second contact surfaces but in an opposite direction, equal and opposite transverse forces being applied to said contact member from impact of said second and fourth contact surfaces with said first and third contact surfaces so as to limit transverse movement of said second contact member, said support means and the relationship of said contact surfaces being further of such that said first and second planar surfaces are maintained at the same acute angle to said direction of movement at impact between said first and second planar surfaces to facilitate obtaining said very smooth surface-forming action for maintaining and enlarging the areas of said very smooth contact surface portions, said actuating means being operative to effect engagement of said first and second contact surfaces at a certain impact velocity and to apply a certain separating force between said contact members along said direction of movement, and said acute angle being on the order from five to eight degrees and being small enough to prevent separation of said contact surfaces from reverse direction rebound forces applied between said contact members at impact while being large enough to insure separation of said contact surfaces in response to application of said separate force.

4,267,419

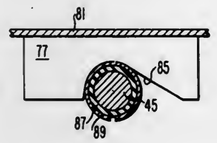
CIRCUIT BREAKER STRUCTURE WITH SHOCK ABSORBERS

Alfred E. Maier, Beaver Falls, and Walter V. Bratkowski, McKessport, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 30, 1979, Ser. No. 62,273

Int. Cl.³ H01H *3/60*

U.S. Cl. 200—288 **2 Claims**



1. A circuit breaker comprising:
(a) stationary contact means;
(b) movable contact means operable between open and closed positions of the stationary contact means;
(c) a frame;
(d) contact arm means for supporting the movable contact means and pivotally mounted for movement of the contacts between said positions;
(e) a circuit breaker operating mechanism releasable to effect opening and closing of said contacts;
(f) a cross bar operatively connected between the contact arm means and said mechanism and movable through an arc during opening and closing of the movable contacts;
(g) a stop plate mounted on the frame for stopping movement of the cross bar during opening of the contacts;
(h) shock absorbing means disposed in one of the stop plate and the cross bar for absorbing energy released when the cross bar moves to the open position of the contacts;
(i) said mechanism comprising toggle means including a toggle link connected to the cross bar;
(j) the stationary contact means comprising three laterally-spaced stationary contacts with corresponding movable contacts and contact-carrying arms;
(k) the cross bar extending between and being connected to the arms;
(l) spaced stop plates on the frame at locations between the locations of the stationary contacts; and
(m) the shock absorbing means comprises an elastic sleeve on the cross bar.

4,267,420

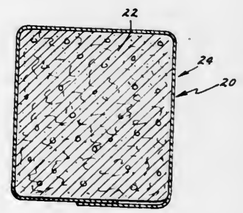
PACKAGED FOOD ITEM AND METHOD FOR ACHIEVING MICROWAVE BROWNING THEREOF

William A. Brastad, Minneapolis, Minn., assignor to General Mills, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 910,245, May 30, 1978, abandoned. This application Oct. 12, 1978, Ser. No. 950,757

Int. Cl.³ H05B *6/80*

U.S. Cl. 219—10.55 E **12 Claims**



1. In combination with a food item capable of having its color changed or being crispened by thermal energy, said food item to be heated in a microwave oven, wrapping material conforming generally to the shape of said food item comprising a flexible dielectric substrate having a thin semiconducting coating thereon residing in a close proximal relation to a substantial surface portion of said food item, said thin semiconducting coating having the property of being able to convert a proportion of the microwave energy of a microwave oven into heat in the coating itself to thereby change the color or crispness of the surface of the food item while permitting the remainder of the said microwave energy to pass through the wrapping material to dielectrically heat the food item.

4,267,421

APPARATUS FOR THE SUCCESSIVE WELDING OF C-SHAPED, PRE-BENT, INTERLINKED CHAIN LINKS

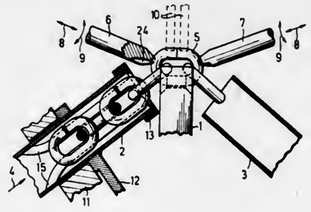
Karl-Julius Heppe, Cologne, Fed. Rep. of Germany, assignor to Meyer, Roth & Pastor, Cologne, Fed. Rep. of Germany

Filed Mar. 18, 1980, Ser. No. 131,549

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 2912677

Int. Cl.³ B21L *3/02*

U.S. Cl. 219—51 **5 Claims**



1. Apparatus for the successive welding of C-shaped, pre-bent interlinked chain links forming a chain, comprising
a saddle for supporting a given chain link to be welded, said saddle having a trough for accommodating the back portion of said given chain link and first and second cup-shaped recesses at each end of said trough for accommodating the rounded portions of the two chain links of said chain following and leading said given chain link;
first and second guides positioned on either side of said saddle adjacent said first and second cup-shaped recesses, respectively, for guiding the chain chain links entering and leaving said saddle, respectively, said first and second guides each having a longitudinal axis inclined at an angle with respect to the axis of said trough, said first guide being pivotable about its longitudinal axis;
a chain sprocket having crossed slots secured to the end of said first guide adjacent the first cup-shaped recess of said saddle, said chain links passing through said crossed slots; and
first and second clinchers movably mounted adjacent said first and second guides and provided with claw-like recesses in their ends for gripping the rounded portions at each end of the chain link to be welded, said first clincher having a trough-shaped recess on the lower portion thereof adjacent its claw-like recess, the trough-shaped recess of said first clincher guiding the following link of said chain after said given link has been welded and rotated by the pivoting of said first guide about its longitudinal axis.

4,267,422

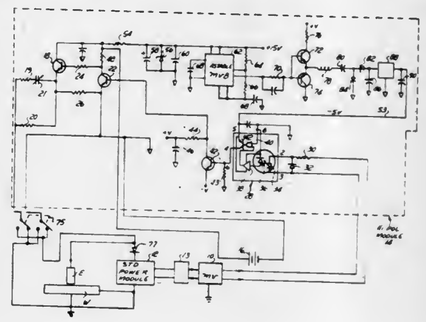
POWER SUPPLY CIRCUIT OF THE HIGH VOLTAGE TYPE FOR ELECTRICAL DISCHARGE MACHINING APPARATUS

Oliver A. Bell, Jr., Statesville; Randall C. Gilleland, Troutman, and Davey J. Chance, Concord, all of N.C., assignors to Colt Industries Operating Corp, New York, N.Y.

Filed Apr. 2, 1979, Ser. No. 26,049

Int. Cl.³ B23P *1/02*

U.S. Cl. 219—69 C **5 Claims**



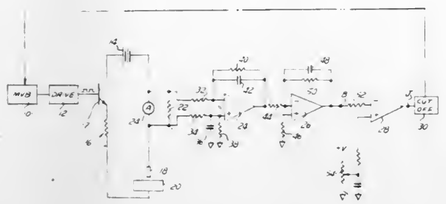
1. A high voltage machining power module for an electrical discharge machining power supply including a pulse generator having a triggering pulse output, comprising; a relatively large magnitude power source; an output electronic switch having its principal electrodes operably connected between said source and the gap for providing high voltage machining power pulses thereto; and an opticoupling stage connected intermediate said output of the pulse generator and said output switch for operating it to provide machining power pulses to the gap, said opticoupling stage including an input light emitting diode and an output photo diode, and a fast turn-on network for said output electronic switch connected in the circuit of said photo diode comprising in series an amplifier, a gate and a transistor connected intermediate said photo diode and said output electronic switch.

4,267,423

PROTECTION CIRCUIT FOR ELECTRICAL DISCHARGE MACHINING POWER SUPPLY

Oliver A. Bell, Jr., Statesville; Randall C. Gilleland, Troutman, and Davey J. Chance, Concord, all of N.C., assignors to Colt Industries Operating Corp, New York, N.Y.

Filed May 24, 1979, Ser. No. 41,766
Int. Cl.³ B23P *1/02*
U.S. Cl. 219—69 S **6 Claims**



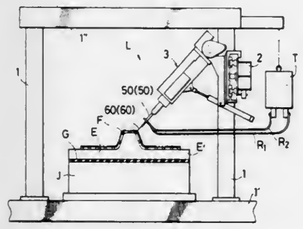
1. In a protection system for an electrical discharge machining power supply apparatus for machining a workplace by a relatively small tool electrode across a gap including a multivibrator, means for sensing gap current over a narrow range of acceptable values; an ammeter connected in the gap circuit; means for deriving a voltage signal representative of the gap current sensed comprising a resistor connected across said ammeter; an amplifier stage for amplifying said voltage signal; at least one integrator stage for integrating said amplified voltage signal; and a comparator stage; said comparator stage having one input from said integrator and the other input from a reference voltage; and a cutoff means connected to the output of said comparator and operable to reduce gap current responsive to the voltage signal being greater than the reference voltage signal.

4,267,424

SPOT WELDING MACHINE FOR HEAVY-DUTY OPERATIONS ON SURFACE CONTOURED WORKPIECES

Hirokazu Shimatake, Yamato; Shuichi Ogawa, Toyko; Shigeru Uchida, Tokyo; Ryuichi Nara, Tokyo, and Haruyoshi Takagishi, Yamato, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 17, 1979, Ser. No. 39,893
Claims priority, application Japan, May 22, 1978, 53-60725; May 22, 1978, 53-60726
Int. Cl.³ B23K *11/36, 37/02*
U.S. Cl. 219—86.41 **7 Claims**



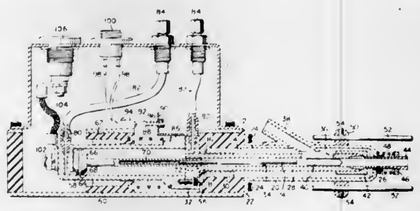
1. A spot welding machine comprising:
a pair of vertically spaced-apart parallel upper and lower guide rails;
means for supporting said guide rails a distance from the ground;
a slide member slidably mounted on said guide rails;
means for moving said slide member along said guide rails;
a first electrode tip electrically connected to a current source;
a robot arm structure having a housing pivotally mounted at a rearward end thereof on an upper pivot point of said slide member adjacent to said upper guide rail, an outer cylindrical shaft mounted movably in said housing along the longitudinal axis thereof, an inner shaft mounted in said outer shaft and rotatable about said longitudinal axis and axially movable with said outer shaft, first fluid operated telescopic means secured to said housing for axially moving said outer and inner shafts, second fluid operated telescopic means for rotating said inner shaft, and an electrode holder for holding said first electrode tip, said holder being axially movable with the axial movement of said outer and inner shafts and vertically swingable with the rotation of said inner shaft;
third fluid operated telescopic means pivotally connected between a lower pivot point of said slide member of said housing for pivoting said robot arm structure at a desired angular position on a vertical plane; and
a backing electrode disposed on the ground on which a workpiece is mounted to receive an electric current supplied from said first electrode tip.

4,267,425

STUD WELDING APPARATUS

Yoshiteru Kondo, Toyohashi, Japan, assignor to USM Corporation, Farmington, Conn.

Filed Apr. 30, 1979, Ser. No. 34,590
Claims priority, application Japan, May 9, 1978, 53/54843
Int. Cl.³ B23K *9/20*
U.S. Cl. 219—98 **4 Claims**



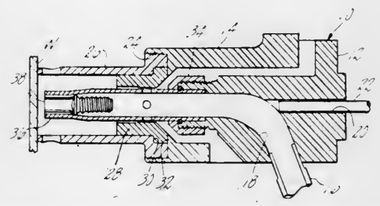
1. A stud welding apparatus including: a body housing; wall structure forming a gun housing secured to and insulated from the front end of said body housing and having an opening at the tip thereof; a spindle made of an electrically conductive material incorporated in said gun housing spaced apart and insulated from said gun housing wall, supported slidably in the longitudinal direction and having a hole penetrating therethrough in the axial direction and a side port at the front end thereof; a tubular member fitted to said wall of said gun housing and adapted to supply a stud to be welded to said side port; a stud feed port connected to a stud supply source; three legs made of an electrically conductive material secured in the insulated state around the outer circumference of said gun housing with a predetermined gap therebetween in front of said stud feed port and protruding forward beyond the tip of said gun housing by the same distance and in parallel with one another; a cylinder made of an electrically conductive material disposed inside said body housing in the insulated state and concentrically with said spindle, connected mechanically and electrically to the rear end of said spindle and allowed to slide together with said spindle; a piston slidably disposed in said cylinder and caused to move in the axial direction of said cylinder due to a pressure difference applied onto the front and back surfaces thereof; a push member extending forward from said piston and fitted slidably into said hole of said spindle; a collet made of an electrically conductive material fitted to the tip of said spindle, protruding outward beyond said opening at the tip of said gun housing and capable of receiving and supporting resiliently and firmly said stud to be welded when said stud is pushed forward by said push member of said piston; a spring device adapted to constantly push forward said cylinder and resiliently retract said spindle and hence, said cylinder, when said stud to be welded supported by said collet is pressed against a workpiece; a switch device actuated when said cylinder moves back to a predetermined position; a pressure feed conduit communicated with the inside of said cylinder at the front and back ends thereof and with a pressure fluid source; and electric control circuit means connected electrically to said legs, said cylinder and said switch device and adapted to control said stud supply source, said pressure fluid source and a welding current source in accordance with a predetermined sequence, said legs being interconnected into said electric control circuit means such that no welding current is allowed to flow to a stud supported by said collet unless a current flows simultaneously through said three legs.

4,267,426

AUTOMATIC STUD WELDING GUN WITH PERFORATED STUD COLLET

Lawrence G. Mallett, Rochester, Mich., assignor to USM Corporation, Farmington, Conn.

Filed Aug. 28, 1979, Ser. No. 70,402
Int. Cl.³ B23K *9/20*
U.S. Cl. 219—98 **1 Claim**



1. In combination with an automatic welding gun for end welding studs to a panel, having wall structure defining a conduit into which said studs are fed by gaseous pressure and means connecting said conduit with a source of studs and a source of gaseous pressure, a stud retaining collet comprising wall structure defining a tubular member having a large diameter portion of substantially constant cross section interconnecting with said conduit at one end thereof and into which said stud is fed by the gaseous pressure, said large diameter portion extending to a smaller diameter portion at the opposite end thereof for gripping a stud fed to the collet, and a plurality of circular openings formed in the large diameter portion of said collet wall structure and equally spaced about the circumference thereof for allowing gas flowing into said collet from said conduit to vent through said wall structure during the feed of a stud to said collet.

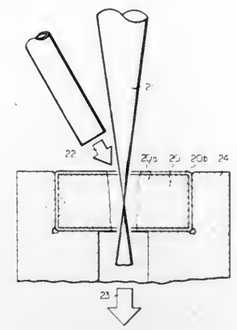
4,267,427

METHOD OF BORING A HOLE THROUGH A MAGNET MADE OF AN INTERMETALLIC COMPOUND

Hiroki Nomura; Masao Mafune, both of Kawagoe, and Masaru Koyanagi, Niiza, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Dec. 19, 1978, Ser. No. 970,951
Claims priority, application Japan, Dec. 27, 1977, 52-156431; Mar. 8, 1978, 53-026228; Mar. 11, 1978, 53-027957; Mar. 31, 1978, 53-037630
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LL **7 Claims**

1. A method of forming a hole through a magnet made of an intermetallic compound, comprising the steps of impregnating the magnet with a nonmagnetic material of a metal having low melting point to form a reinforced region at peripheral portions of the magnet, and laser machining said magnet to form said hole.

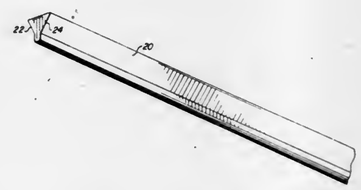


4,267,428

CONTOURED WELDING ROD

George S. Kennedy, Box 445, Edgewater, Fla. 32032

Filed Jul. 25, 1979, Ser. No. 60,658
Int. Cl.³ B23K *35/06*
U.S. Cl. 219—145.1 **9 Claims**



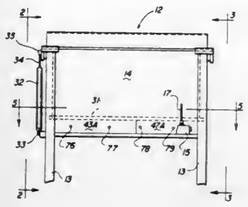
1. A hand-held welding rod for forming a stringer bead to fill the lower portion of the gap lying between adjacent beveled end surfaces of an aligned pair of metal pipes or metal sheets having an upper and a lower surface, each of said beveled end surfaces intersecting the upper surface at an obtuse angle and the lower surface at an acute angle, said welding rod comprising:
a. an uncoated alloy upper section having first and second side surfaces each inclined at an angle to match the angle of inclination of the adjacent beveled end surfaces of said pipe or sheet, said upper section further including an upper surface and a lower surface, wherein the width of the lower surface of said upper section is less than about 30% of the width of the upper surface of said upper section; and
b. an uncoated alloy lower section having a lower surface, and an upper surface coupled to and having a width equal to the width of the lower surface of said upper section, wherein the spacing between the upper and lower surfaces of said lower section is less than about 30% of the spacing between the upper surface of said upper section and the lower surface of said upper section;
whereby the lower surface of said upper section fits within the gap between said adjacent pipes or plates causing the entire lower section of said rod to protrude below the lower surface of said pipe or sheet and whereby the mass of the lower section of said rod comprises less than about 25% of the mass of the entire rod while the mass of the upper section comprises more than about 75% of the mass of the entire rod.

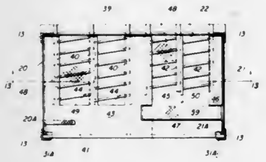
4,267,429

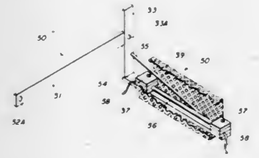
APPARATUS FOR ACTIVATING SHOE ASSEMBLY CEMENT

Thomas P. Fleer, Sunset Hills, and Reed E. Hannebaum, Oakville, both of Mo., assignors to Brown Group, Inc., St. Louis, Mo.

Filed Mar. 8, 1979, Ser. No. 18,650
Int. Cl.³ H43D *25/20*
U.S. Cl. 219—215 **9 Claims**







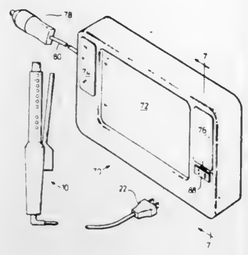
1. In apparatus providing an enclosure closed at least at the sides, back, and bottom, and open at the front through which are moved shoe outsoles and lasted uppers having thermoplastic cement applied to the surfaces thereof to be united to form finished shoes, the cement being flash activated by heat prior to uniting the outsole and a lasted upper, the improvement which comprises: means for supporting within the enclosure an outsole and a lasted upper with the cemented surfaces in positions to receive flash activating heat; separate sources of flash activating heat adjacent the positions of the outsole and lasted upper on said supporting means; operator protective shield means movable relative to the open front of said enclosure for shielding the source of heat from view, said shielding means being movable between shielding and nonshielding positions; and control means operatively connected to said separate heat sources and said protective shielding means, said control means including operation sequencing circuits connected to said separate heat sources and to said shielding means, and microprocessor means for scanning said circuits for selecting the sequence of operations of said separate heat sources and said shielding means and activating first means establishing a time delay between the operation of said shielding means and said separate sources of heat and activating a second means establishing a time delay in the turn on of said separate sources of heat at different time periods and the simultaneous turn off thereof, wherby the operation of said shielding means into shielding position occurs prior to the turn on of the first of said separate sources of heat and operation of said shielding means out of shielding position following the turn off of both of said separate sources of heat.

4,267,430

DUAL-VOLTAGE ELECTRIC HAIR CURLING APPARATUS AND VANITY CASE THEREFORE

John H. Downey, 1262 Don Mills Rd., Suite 88, Don Mills, Ontario, Canada (M3B 2W7)

Filed Oct. 6, 1978, Ser. No. 949,058
Int. Cl.³ A45D *2/00*; H05B *1/00*
U.S. Cl. 219—222 **3 Claims**



1. An electrically heated hair curling apparatus for use in an automobile vehicle said hair curling apparatus comprising an electrically heated hair curler having an elongated barrel portion attached to a handle portion, electric cord means attached to said handle portion for connecting the curler to an electrical supply, a positive temperature coefficient electrical heating means operable at automotive voltage located in said barrel portion for heating the barrel portion, and connection means connecting said heating means to said electric cord means; a portable case having exterior clip means at its rear for attachment thereof to an interior visor of a vehicle, a mirror located on the front surface of said case remote from said clip means, and at least one luminaire light on said case front surface adjacent said mirror for illumination of a user thereof and operable at automotive voltage; said electric cord means terminating in a plug, an electrical receptacle on said case for receiving said plug of said electric cord means in plugged-in relation therein, an automotive cord set connected to said luminaire light and said electrical receptacle for supplying electric power thereto at automotive voltage, said cord set having an electric plug for insertion into a cigar lighter of said vehicle, and at least one storage compartment in said case accessible through an opening in a wall of said case for receiving and holding said hair curler, cord means and said automotive cord set in stored relation therein when not in use.

4,267,431

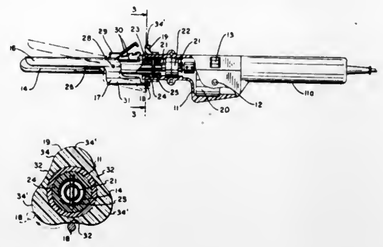
ELECTRIC HAIR CURLING APPARATUS HAVING A MOTOR-DRIVEN ROTATABLE HAIR WRAPPING MEMBER

Randy L. Rick; Paul F. Mazzotta, and Cosimo D. Daiello, all of Reading, Pa., assignors to Shearpower International Corporation, Reading, Pa.

Filed Dec. 22, 1978, Ser. No. 972,356
Int. Cl.³ H05B *1/00*; A45D *1/02*
U.S. Cl. 219—225 **8 Claims**

1. Curling apparatus comprising: a housing;
an elongate barrel extending from the housing, said barrel forming a mandrel about which hair may be wrapped to form a curl;
means mounting the barrel for rotation about its longitudinal axis relative to the housing;
an elongate wrapping member disposed along at least a portion of the barrel, said wrapping member being mounted on the barrel for rotation therewith and adapted for movement toward the longitudinal axis of the barrel to urge the hair against the barrel and for movement away from the longitudinal axis of the barrel to relax its engagement with the hair, said wrapping member having a shape that generally conforms to the shape of the barrel surface

and such that when the wrapping member is moved into contact with the barrel, the abutting surfaces are substantially in continuous contact;
means for unidirectionally rotating the barrel about its longitudinal axis and relative to the housing; and



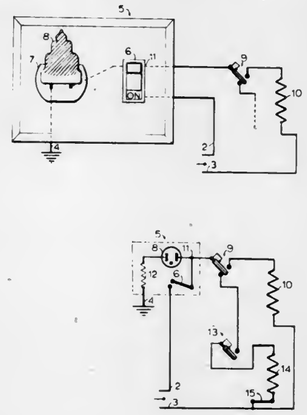
cooperating means on said housing and wrapping member for automatically and periodically moving the wrapping member toward and away from the longitudinal axis of the barrel, during each revolution of the barrel, in response to rotation of the barrel.

4,267,432

INSTALLATION CIRCUITRY FOR ELECTRIC WATER HEATERS

Paul E. Kiepe, 2141 First Ave. S., Payette, Id. 83661

Filed May 22, 1978, Ser. No. 907,990
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—328 **3 Claims**



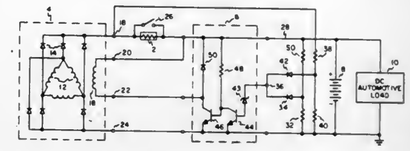
1. In an electric water heater energizing circuit comprising a resistive heater means, a three-wire electric supply system and thermostat means, a first leg of said three-wire system connected to a first contact means of said thermostat means, said thermostat means and said heater means serially connected in a second leg of said three-wire system with one end of said heater means electrically connected to a second contact of said thermostat means, and wherein the improvement comprises: a signal system means comprising switch means connected in said first leg and an electric signal system connected through a third leg of said system to said first contact means whereby the visible switch ON/OFF positions and the signal means provide a simple code to the hidden transient thermal and thermostat conditions within said water heater as an aid to economical power supply control through management of said hand operable switch means.

4,267,433

ELECTRICALLY HEATABLE WINDSHIELD HEATER CONTROL CIRCUIT

William H. Sahm, III, Syracuse, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 9, 1979, Ser. No. 83,177
Int. Cl.³ B60L *1/02*; H02J *7/14*
U.S. Cl. 219—491 **16 Claims**



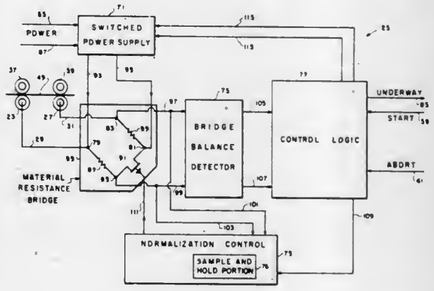
1. A heater control circuit for automotive vehicles which have an electric alternator for supplying current to the vehicle battery and load circuit and a voltage regulator means for regulating the alternator voltage at the output terminal of said alternator, said control circuit comprising:
(a) series resistive heating means selectively coupled between said output terminal and the high voltage terminal of said battery,
(b) first control means responsive to the battery voltage at said high voltage terminal for supplying a first control signal to said voltage regulator means for regulating said alternator voltage within a first narrow band which when translated through said resistive heating means corresponds to a given voltage rating for said battery, and
(c) second control means responsive to said alternator voltage for supplying a second control signal to said voltage regulator means for regulating said alternator voltage within a second narrow band which corresponds to a given power rating for said resistive heating means, whereby with said series resistive heating means connected in the circuit said heating means and said battery can be simultaneously energized under the control of a dual voltage regulation.

4,267,434

METHOD OF AND APPARATUS FOR HEAT PROCESSING PHOTOSENSITIVE MATERIAL

Gary R. Simpson, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jun. 14, 1979, Ser. No. 48,483
Int. Cl.³ H05B *1/02*; G01D *15/10*
U.S. Cl. 219—499 **15 Claims**



1. The method of heating material to the extent which produces a preselected change in the electrical resistance of the material representing a change in the material temperature to a corresponding preselected temperature, comprising the steps of
determining the initial electrical resistance of the unheated material,

setting an electrical resistance means to a set resistance which represents a preselected percentage of said initial resistance, said percentage corresponding to a preselected temperature of said material,

applying heat to said material,

continuing to determine the prevailing electrical resistance of said material as that resistance changes as said material is heated,

comparing said prevailing resistance to said set resistance of said means, and

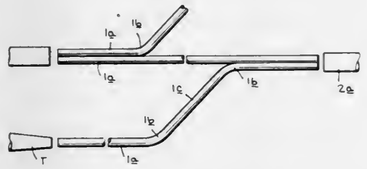
terminating said application of heat to said material when said compared resistances indicate the arrival of said prevailing resistance at said percentage of said initial resistance which is represented by said set resistance, whereby said application of heat is terminated upon the completion of a change in said material temperature to said preselected temperature.

4,267,435

ELECTRIC RESISTANCE HEATING ELEMENT

Albert B. Best, Danbury, Conn., assignor to The Kanthal Corporation, Bethel, Conn.

Filed Aug. 23, 1979, Ser. No. 68,767
Int. Cl.[3] H05B *3/10*
U.S. Cl. 219—552 **6 Claims**



1. An electric resistance element including at least one loop made of refractory metal silicide resistance wire and comprising separate lengths of said resistance wire, said separate lengths of said resistance wire each having one end positioned next to one end of the other length of resistance wire with said ends facing in the same direction, both of said ends of said separate lengths of said resistance wire being butt welded to an end of a refractory metal silicide connecting wire, said end of said connecting wire facing in a direction opposite to said direction in which said ends of said separate lengths of said resistance wire face, said connecting wire having a diameter approximately equal to the both diameters of said separate lengths of said resistance wire, and said separate lengths of said resistance wire diverging from each other so as to form said loop.

4,267,436

INTERVAL-EXPANDING TIMER COMPENSATED FOR DRIFT AND NONLINEARITY

Mishio Hayashi, 1280-35, Minaminakamaru, Omiya-shi, Saitama-ken, Japan

Filed Dec. 22, 1978, Ser. No. 972,355
Claims priority, application Japan, Dec. 26, 1977, 52/155688; Dec. 26, 1977, 52/155690
Int. Cl.[3] H03K *17/28*
U.S. Cl. 235—92 T **16 Claims**

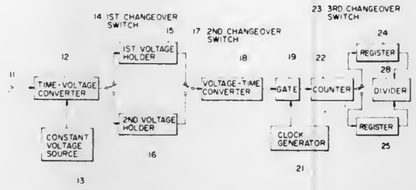
1. A time interval measuring instrument for measuring successive time intervals corresponding to respective ones of a plurality of successive pulses and providing a count output accordingly, comprising:

time-voltage converter means supplied with said plurality of successive pulses and having a conversion characteristic for converting each respective one of said plurality of successive pulses to corresponding respective voltages, said time-voltage converter means having an output for providing said converted successive pulses as respective successive conversion voltages;

a plurality of voltage holders, each having an input and an output;

first changeover switch means for connecting the output of the time-voltage converter means to the inputs of the plurality of voltage holders in a sequential order so as to supply thereto the respective successive conversion voltages one after another, said respective successive conversion voltages each being held in and provided as an output of a corresponding one of said plurality of voltage holders;

voltage-time converter means having an input for receiving and converting an input voltage to a time interval with such a conversion characteristic as to convert the input voltage to a time interval longer than that previously converted by the time-voltage converter means;



second changeover switch means for connecting the outputs of the plurality of voltage holders in a sequential order to the input of the voltage-time converter means, so as to cause conversion of said successive conversion voltages, provided as an output of said corresponding one of said plurality of voltage holders, to pulse waveforms representing respective converted time intervals;

generating means for generating clock pulses including first clock pulses; and

counting means for counting the number of first clock pulses generated during each respective time interval corresponding to each of said waveforms converted by the voltage-time converter means, said counting means providing the count value output.

4,267,437

EXPOSURE CONTROL DEVICE FOR A CAMERA

Nobuhiko Shinoda, Tokyo; Tadashi Ito; Fumio Ito, both of Yokohama; Yukio Mashimo, Tokyo, and Nobuaki Sakurada, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 765,192, Feb. 23, 1977, abandoned, which is a division of Ser. No. 606,572, Aug. 21, 1975, Pat. No. 4,037,233. This application Apr. 4, 1979, Ser. No. 27,108
Claims priority, application Japan, Aug. 27, 1974, 49/98660
Int. Cl.[3] G06M *3/02;* **H03K** *21/36*
U.S. Cl. 235—92 PE **3 Claims**

EXPOSURE TIME SECOND (T)	Tv	APERTURE VALUE APERTURE F VALUE (A)	Av	FILM SENSITIVITY ASA (Sv)	Sv	OBJECT LUMINANCE FOOT-LAMBERTS (B)	Bv	EXPOSURE VALUE Ev	Ev
1	0	1	0	3	0	1	0	1	0
1/2	1	1.4	1	6	1*	2	1	2	1
1/4	2	2	2	12	2*	4	2	4	2
1/8	3	2.8	3	25	3*	8	3	8	3
1/16	4	4	4	50	4*	16	4	16	4
1/32	5	5.6	5	100	5*	32	5	32	5
1/64	6	8	6	200	6	64	6	64	6
1/128	7	11	7	400	7*	128	7	128	7
1/256	8	16	8	800	8*	256	8	256	8
1/512	9	22	9	1600	9*	512	9	512	9
1/1024	10	32	10	3200	10*	1024	10	1024	10

1. An apparatus for reproducing a time interval corresponding to a digital information with an integral part to represent certain time intervals to change stepwise and a fractional part to represent intermediate time intervals between the respective certain time intervals, comprising:

(a) pulse supplying means for supplying a first pulse train having a period of T/8, wherein T/8 is a time interval in seconds between two successive pulses;

(b) first means responsive to the first pulse train for providing a second pulse train having a pulse period corresponding to $2^m \times T8$, wherein m is an integer which corresponds to the content of the integral part of said digital information;

(c) counting means for counting the number of pulses of the second pulse train from said first means; and

(d) output means for producing a predetermined output signal while the counting means counts (8+n) times, wherein n is an integer and corresponds to the content of the fractional part of said digital information and wherein said counting means includes:

(1) a control register for memorizing a digital signal corresponding to said (8+n); and

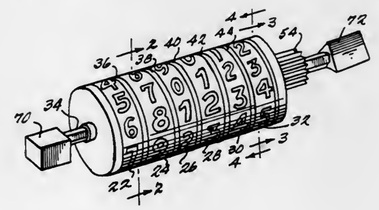
(2) subtracting means connected between said first means and said control register to subtract one from the contents of said control register successively in synchronism with the second pulse train from said first means.

4,267,438

TAMPER-PROOF ODOMETER

Thomas D. Regan, 4534 43rd Pl., N.W., Washington, D.C. 20016

Filed Sep. 15, 1978, Ser. No. 942,803
Int. Cl.[2] G01C *22/00*
U.S. Cl. 235—96 **9 Claims**



1. An odometer comprising:

a shaft;

a plurality of digit wheels mounted in a group on said shaft for rotation to display a count and each having an outer digit displaying peripheral surface recessed surfaces bounding both sides of said outer surface with a plurality of gear engaging teeth extending around the periphery of one of said recessed surfaces and at least a single gear engaging tooth on the periphery of the other recessed surface, at least a given one of said digit wheels having weakened portions so that application of a force to separate said one wheel from an adjacent wheel causes said weakened portions of said given wheel to break;

a plurality of gear carrier plates each mounted on said shaft with each plate disposed between an adjacent pair of digit wheels and each engaging said shaft so as to be non-rotatable about said shaft;

a plurality of gears each mounted on one of said carrier plates for engaging both said teeth extending around the periphery of said one recessed surface of one of said pair of wheels and said at least one tooth on the periphery of the other recessed surface of the other of said pair of wheels so as to cause said other of said pair of wheels to advance a predetermined distance less than a complete rotation for each rotation of said one of said pair of wheels;

gear means fixedly mounted on said shaft engaging a digit wheel at one end of said group of digit wheels on said shaft for engaging and rotating that digit wheel so as to rotate each digit wheel a predetermined distance for each rotation of the digit wheel adjacent to it; and

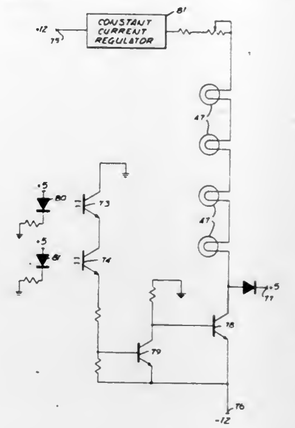
means fixedly attached to the ends of said shaft for preventing removal of said digit wheels.

4,267,439

DOCUMENT READER LAMP LIFE EXTENSION SYSTEM

Robert J. Thomas, Spokane, and Michael Piekarski, Otis Orchards, both of Wash., assignors to Key Tronic Corporation, Spokane, Wash.

Filed Dec. 12, 1979, Ser. No. 102,663
Int. Cl.[3] G06K *7/14, 7/10*
U.S. Cl. 235—454 **3 Claims**



1. In an apparatus adapted to read visual indicia from the face of a document across an optical scan line:

a frame;

guide means on said frame for slidably guiding a document relative to the frame;

a viewing slot on said frame arranged transversely across the path of the visual indicia on the document face;

lamp means on said frame adjacent the viewing slot for illuminating the document face;

sensing means on said frame longitudinally adjacent the viewing slot for detecting the presence of a document adjacent thereto, said sensing means being alternately shifted between an operational state when a document is adjacent it and a normal nonoperational state;

and electrical switch means on said frame operably connected to the sensing means and to said lamp means for applying a first voltage drop across the lamp means when said sensing means is in its operational state and for alternately applying a smaller voltage drop across the lamp means when said sensing means is in its nonoperational state.

4,267,440

FOCUS DETECTING SYSTEM

Kiyoshi Kitai; Shinji Nagaoka, and Yuzuru Takazawa, all of Shikawatashi, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 27, 1979, Ser. No. 24,440
Claims priority, application Japan, Apr. 12, 1978, 53-42997
Int. Cl.[3] G01J *1/20*
U.S. Cl. 250—201 **5 Claims**

1. A focus detecting system, comprising:

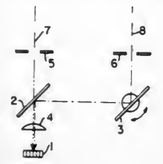
a plurality of light responsive elements arranged in a single array for generating a plurality of electrical output signals in response to light incident thereon;

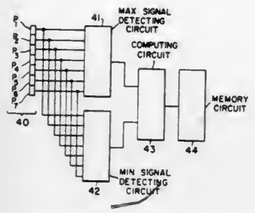
first image forming means having a light path for forming a light image on said array of light responsive elements;

second image forming means having an adjustable light path for forming a second light image on said array of light responsive elements, wherein the adjustable light path of said second image forming means is a different light path

than the light path of said first image forming means and is adjustable for changing the second light image formed on said array of light responsive elements; and

detecting means receptive of and responsive to the plurality





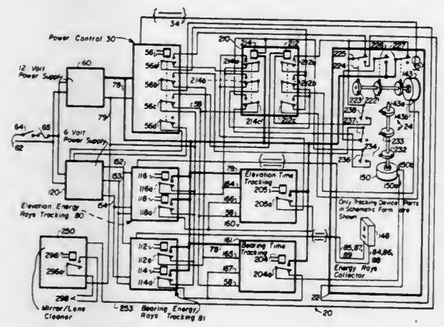
of electrical output signals from said array of light responsive elements for detecting when the first and second light images respectively formed by said first and second image forming means on said array of light responsive elements are the same.

4,267,441

ENERGY RAYS TRACKING DEVICE

Robert J. Monk, 4640 Country Creek Apt. 1255, Dallas, Tex. 75236

Filed Jul. 3, 1978, Ser. No. 921,198
Int. Cl.³ G01J *1/20*
U.S. Cl. 250—203 R **12 Claims**



1. An energy rays tracking device for automatic positioning control of a means for collecting energy rays having a geometric axis or plane, comprising:

a receiving means for receiving direct energy rays, said receiving means being rigidly attached to said energy rays collecting means;

a prime mover drivingly connected with said energy rays collecting means for maintaining alignment of direction of said geometric axis or plane with direction of said direct energy rays;

an energy rays tracking means responsive to said receiving means for automatically controlling power to the prime mover;

a timed tracking means responsive to said energy rays tracking means for controlling power to said prime mover for proximity tracking when said energy rays tracking means is not functioning due to energy rays being diffused, whereby said timed tracking means assures faster resumption of energy collection when direct energy rays again become receivable;

an energy rays sensitive element for automatically distinguishing when energy rays are substantially present or absent;

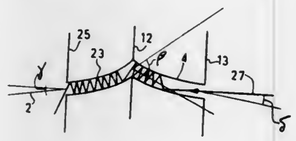
a power control means responsive to the energy rays sensitive element which automatically functions when energy rays are substantially absent to provide outputs which change over operations from an energy rays tracking sequence to a sequence whereby said energy rays collecting means is repositioned to be ready for the following period of tracking, wherein the presence of energy rays reverses the function of said power control means to initiate the following period of tracking.

4,267,442

ELECTRON MULTIPLIER DEVICE COMPRISING MICROCHANNEL PLATES WITH OPTICAL FEEDBACK SUPPRESSION FOR IMAGE INTENSIFIER TUBES

Jean-Claude Rosier, Paris, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 13, 1979, Ser. No. 66,136
Claims priority, application France, Aug. 21, 1978, 78 24255
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—207 **5 Claims**



1. An electron multiplier device of the type comprising two superposed microchannel plates exhibiting secondary electron emission, said plates each having a first end face and a second end face, the first end faces being adjacent each other, each of the microchannels defining an axis;

CHARACTERIZED IN THAT:

at least one plate comprises curved channels such that the angle between the axes of the channels of the two plates is at least approximately 25° at the first end faces of the plates, while the angle between the axes at the second end faces and a normal to the second end faces is at most 10°.

4,267,443

PHOTOELECTRIC INPUT APPARATUS

Arthur B. Carroll, St. Joseph; Vladeta D. Lazarevich, Bondville, and Mark R. Gardner, Champaign, all of Ill., assignors to Carroll Manufacturing Corporation, Champaign, Ill.

Filed Apr. 24, 1978, Ser. No. 899,260
Int. Cl.³ G01V *9/04*
U.S. Cl. 250—221 **27 Claims**

1. A photoelectric input device having a housing defining an opening,

a plurality of light sources supported by said housing in a row along one side of said opening,

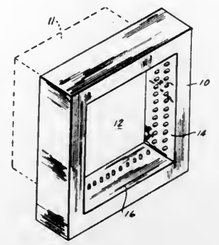
a plurality of light sources supported on said housing in a row along an adjacent side of said opening,

a plurality of photosensitive devices supported in a row along a third side of said opening, and

a second plurality of photosensitive devices supported on said housing in a row along the fourth side of said opening,

each of said light sources defining a beam with one of the photosensitive devices supported on the opposite wall of said opening, whereby said light sources and photosensitive devices define two sets of beams each defining a surface extending between different pairs of opposite sides of said opening,

means for mounting said light sources and said photosensitive device on said housing to produce said sets of beams in two separate surfaces, spaced apart along the direction



normal to the plane of said opening, counting means for each of said sets for counting a number of interrupted beams in each set, and means for producing output signals indicating the number counted by each counter,

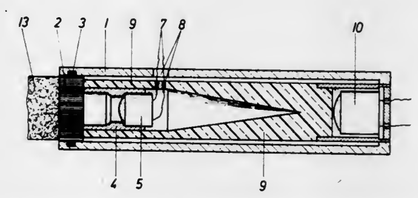
and means for sensing, independently, when each of said two sets of beams has one or more beams which is interrupted.

4,267,444

DEVICE FOR EXAMINING THE DEGREE OF FILLING OF A CIGARETTE

Hubert Bald, Gevelsberg, Fed. Rep. of Germany, assignor to Maschinenfabrik Alfred Schmermund GmbH & Co., Gevelsberg, Fed. Rep. of Germany

Filed Mar. 14, 1979, Ser. No. 20,396
Claims priority, application Fed. Rep. of Germany, Mar. 31, 1978, 2813866
Int. Cl.³ G02B *5/16*
U.S. Cl. 250—227 **6 Claims**



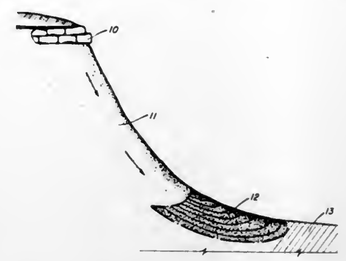
1. A device for examining the degree of filling of an end zone of a cigarette, comprising a light source, light transmitting means having an emitting surface adapted to be disposed in co-planar relationship to and to be brought into direct contact with an end of said cigarette to be examined and to apply light from said source thereto, light receiving means adapted to be brought into direct contact with the cigarette and having a receiving surface co-planar with said emitting surface and laterally spaced therefrom by a region substantially impermeable to said light, the light being reflected transversely across the end of the cigarette over the impermeable region from the emitting surface to the receiving surface, and evaluating means coupled to said receiving means and responsive to the reflectance of said end zone.

4,267,445

URANIUM PROSPECTING METHOD

Dale K. Cabbiness; Alfred B. Carel, and W. Dean Leslie, all of Ponca City, Okla., assignors to Conoco, Inc., Ponca City, Okla.

Filed Dec. 4, 1978, Ser. No. 966,536
Int. Cl.³ G01V *5/00;* **G01T** *1/11*
U.S. Cl. 250—255 **5 Claims**



1. A method of prospecting for radioactive material comprising:

(a) obtaining a plurality of samples from a prospective formation in a predetermined pattern;

(b) determining the natural thermoluminescent activity of said samples;

(c) irradiating said samples at a plurality of known levels;

(d) determining the thermoluminescent activity of said samples after each of said irradiations; and

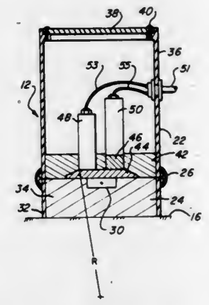
(e) comparing the natural thermoluminescence of said samples against the thermoluminescence after said plurality of irradiations at known levels to determine the actual level of natural irradiation to which said samples have been exposed.

4,267,446

DUAL SCINTILLATION DETECTOR FOR DETERMINING GRADE OF URANIUM ORE

Robert Brown, Arvada, and Paul A. Proulx, Golden, both of Colo., assignors to Geoco, Inc., Denver, Colo.

Filed Apr. 3, 1979, Ser. No. 26,721
Int. Cl.³ G01V *5/00;* **G01T** *1/20, 1/00*
U.S. Cl. 250—255 **30 Claims**



1. A scintillation radiation detector comprising:

(a) a body means;

(b) a first scintillation radiation detector material, said material being sensitized to produce light energy whose intensity is directly proportional to the intensity of beta radiation;

(c) a second scintillation radiation detector material sensitized to produce light energy in direct proportion to the intensity of gamma radiation which has higher energy levels than said beta radiation, said second radiation scin-

tillation detector material being positioned on the opposite side of said first scintillation radiation material from a source of unknown radiation;

(d) said first scintillation material being configured in a thin cross section whereby the path traveled by said second radiation through said first material is relatively short;

(e) sensing means positioned adjacent each of said beta and gamma scintillation detector materials on the opposite side of said materials from the source of said unknown radiation whereby the light energy generated by the passage of the radiation through each of the detector materials will be converted from light energy to a separate electrical output signal directly proportional to the intensity of the energy produced by the radiation as it passes through its respective scintillation detector materials, and

(f) said beta radiation detector material being generally transparent to said gamma radiation so that only light energy is generated by said beta radiation with said gamma radiation only generated light energy within said gamma scintillation material whereby accurate readings of the intensity of said beta and gamma radiation can be determined so that the quantity of uranium ore present in an unknown sample can be determined.

4,267,447

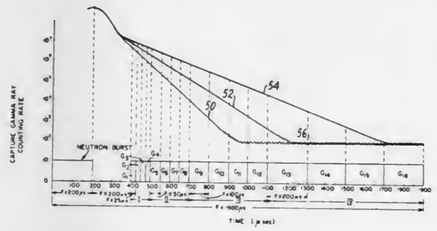
METHODS AND APPARATUS FOR MEASURING THERMAL NEUTRON DECAY CHARACTERISTICS OF EARTH FORMATIONS

Charles W. Johnstone, Houston, Tex., assignor to Schlumberger Technology Corp., Houston, Tex.

Division of Ser. No. 955,176, Oct. 26, 1978, Pat. No. 4,224,516. This application Mar. 14, 1980, Ser. No. 130,511

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—262 **21 Claims**



1. A method for providing a background-compensated measurement of radiation levels in an earth formation traversed by a borehole, comprising the steps of:

(a) irradiating an earth formation surrounding the borehole with a discrete burst of neturons during each of a succession of irradiation intervals;

(b) detecting, during a first detection time period within each irradiation interval, radiation resulting from a first type of interaction between said neutrons and earth formation elements to be measured and from background sources;

(c) detecting, during a second detection time period within each irradiation interval, radiation resulting from said background sources;

(d) measuring the average level of said first-detected radiation over a first measurement period encompassing a plurality of said irradiation intervals;

(e) measuring the average level of said background radiation over a second measurement period encompassing a greater plurality of said irradiation intervals than said first measurement period; and

(f) combining said first-detected radiation measurement and said background radiation measurement to compensate said first-detected radiation measurement for the presence within said first detection period of background radiation.

4,267,448

ION DETECTOR WITH BIPOLAR ACCELERATING ELECTRODE

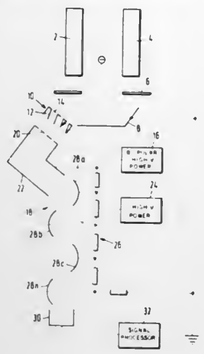
Karl Feser, Hamburg, and Curt Brunnee, Platjenwerbe, both of Fed. Rep. of Germany, assignors to Varian Mat GmbH, Bremen, Fed. Rep. of Germany

Filed Jun. 4, 1979, Ser. No. 45,144

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1978, 2825760

Int. Cl.³ B01D *59/44*

U.S. Cl. 250—281 **11 Claims**



1. An apparatus for detecting ions generated by mass spectrometers, comprising: a conversion element which the ions strike, a secondary electron multiplier disposed after the conversion element in the direction of ion travel, said electron multiplier having an output that approaches ground potential, a high voltage source for the secondary electron multiplier, said conversion element comprising an accelerating electrode (**10, 34, 38**) disposed before and adjacent to the input of the secondary electron multiplier (**18**), and a separate, selective bi-polarity high voltage source (**16**) connected to the accelerating electrode, said accelerating electrode being impressed with a potential more negative than a first dynode of the secondary electron multiplier when detecting positive ions, and being impressed with a potential more positive than said first dynode when detecting negative ions.

4,267,449

TESTING THE INTEGRITY OF LIQUID CONTAINING HERMETICALLY SEALED CONTAINERS BY THE USE OF RADIOACTIVE MARKERS

Patrick P. DeLuca, and L. David Butler, both of Lexington, Ky., assignors to The University of Kentucky Research Foundation, Lexington, Ky.

Filed Aug. 14, 1979, Ser. No. 66,390

Int. Cl.³ G01T *1/161;* **G09K** *3/00*

U.S. Cl. 250—303 **17 Claims**

1. A method of testing the integrity of a plurality of one piece hermetically sealed substantially transparent ampules containing a liquid therein for leakage comprising the steps of:

(a) immersing the ampules in an aqueous solution of a water soluble salt of a radionuclide and a dye,

(b) applying pressure or a vacuum to the top of the solution containing the radionuclide and dye to generate a pressure differential between said solution and the liquid within the ampules at least once, and releasing said pressure or vacuum,

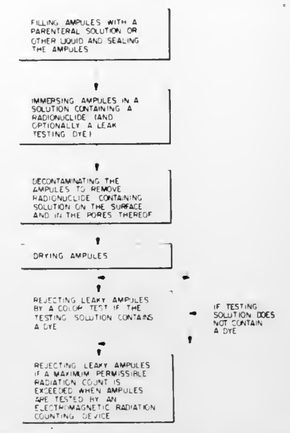
(c) removing the ampules from the solution or draining the solution from the container,

(d) decontaminating the ampules by removing any solution containing the radionuclide and dye adhering to the external surface thereof,

(e) color testing the ampules to detect faulty ampules into which dye has leaked,

(f) rejecting said faulty ampules, if any, and subsequently

(g) detecting electromagnetic radiation emanating from within the remaining ampules as a result of the presence therein of the radionuclide-containing solution which has leaked into the ampules, said radionuclide being selected



from the group consisting of ^{57}Co, ^{58}Co, ^{65}Zn, ^{85}Sr, ^{86}Rb, ^{59}Fe, ^{68}Ga, ^{188}Re, ^{68}Ge, ^{188}W and ^{99m}Tc, whereby the presence or absence of electromagnetic radiation from within the ampule respectively indicates a leak in said ampule or a satisfactory sealing of said ampule.

4,267,450

METHOD OF ELIMINATING BACKGROUND RESIDUAL CHARGE IN ELECTROPHOTOGRAPHIC IMAGE REPRODUCTION AND APPARATUS FOR CARRYING OUT SAID METHOD

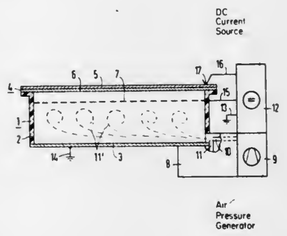
Gottfried Lange, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 30, 1977, Ser. No. 856,006

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1976, 2658280

Int. Cl.³ G03G *13/00, 15/00*

U.S. Cl. 250—315.2 **2 Claims**



1. Apparatus for carrying out a method of eliminating the residual charge of a charge-image produced on a photoconductive layer associated with a conductive backing, wherein the charge image is treated with powder of electrically opposite polarity, characterized in that a voltage is applied to the conductive backing for the photoconductive layer during treating of the layer with development powder, which voltage is of a polarity opposite to that of the charge image and of a magnitude for substantially compensating the residual charge remaining as a residue after an initial uniform charge is reduced according to the maximum reduction attained during the exposure process, said apparatus being characterized in that there is provided a development apparatus comprising a development chamber (**1**), a contact (**17**) via which a DC voltage is connected for supplying voltage to the conductive backing (**5**) of the photoconductive layer (**6**), and a device (**9** through **11**) producing powder clouds for supplying powder to the photoconductive layer (**6**), said contact (**17**) supplying a voltage which is electrically opposite to the background residual charge and approximating the latter in magnitude, said apparatus being characterized in that a grid (**7**) is arranged in the chamber (**1**) at a small distance in front of and parallel to layer (**6**), said grid (**7**) being connected during operation of the apparatus to a voltage of approximately 1000 volts.

4,267,451

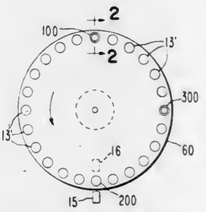
RADIOACTIVITY DETECTION IN HIGH-PRESSURE LIQUID CHROMATOGRAPHY

Alan C. Berick, Concord, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Dec. 4, 1978, Ser. No. 965,766

Int. Cl.³ G01T *1/00, 1/20*

U.S. Cl. 250—328 **5 Claims**



1. An apparatus for producing an on-line, real-time chromatogram of the concentrations of radioactive peaks present in a liquid sample separated on a liquid chromatographic column by using a scintillation material bonded to an inert substrate, comprising:

a carousel mechanism having a plurality of sample cells arranged thereon on a circumferential track thereof, said sample cells being packed with said scintillation material;

fluoresence detection means positioned adjacent said circumferential track so that as said carousel rotates, each of said sample cells is brought adjacent said detection means in stepwise fashion for detection of fluoresence produced by radiation in the portion of said sample in said cell;

means for filling said sample cells with said portion of said sample separated on said chromatographic column, said filling means being positioned adjacent said circumferential track upstream of said detection means; and

means for flushing said portion of said sample from said sample cells, said flushing means being positioned adjacent said circumferential track downstream of said detection means.

4,267,452

RADIOACTIVITY DISTRIBUTION DETECTION SYSTEM AND CRYSTAL DETECTOR ASSEMBLY

Johan A. Govaert, Peabody, Mass., assignor to Baird Corporation, Bedford, Mass.

Filed Jul. 30, 1979, Ser. No. 61,984

Int. Cl.³ G01T *1/20*

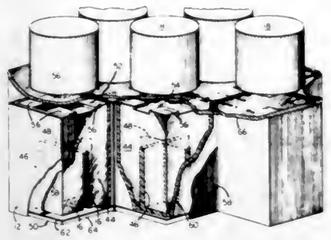
U.S. Cl. 250—366 **10 Claims**

4. A detector assembly comprising:

(a) a housing having opened ends;

(b) a unitary body composed of a scintillation material disposed within said housing, said body formed with inwardly extending, perpendicular slots which divide one end of said body into four sensing heads, a portion of an opposite end of said body cut away to form four exit windows at said opposite end of said body, one of each said sensing heads in registration with one of each said exit

windows in one quadrant of said body, each said sensing head defining a scintillator; and



(c) a reflective material disposed within said slots, in said cut away portion of said body between said exit windows, and in the space between said housing and said body.

4,267,453

RADIATION DETECTION DEVICE HAVING REFLECTIVE COVER LAYERS OF $BASO_4$ INCORPORATED IN ACRYLIC VARNISH

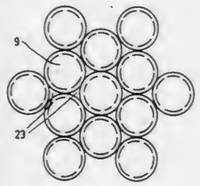
Arnoldus M. C. Kieboom, and Nicolaas P. Dedding, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 8, 1979, Ser. No. 18,495

Claims priority, application Netherlands, Mar. 17, 1978, 7802916

Int. Cl.³ G01T *1/20*

U.S. Cl. 250—368 **12 Claims**



1. A radiation detection device comprising scintillation means for providing scintillation radiation in a wavelength range between shortwave visible radiation and ultraviolet radiation, means for recording said scintillation radiation, and means for propagating said scintillation radiation having surface areas provided with a cover layer of $BaSO_4$ incorporated in acrylic varnish for reflecting said scintillation radiation.

4,267,454

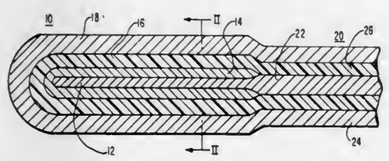
SELF-POWERED RADIATION DETECTOR WITH CONDUCTIVE EMITTER SUPPORT

Kerwin C. Playfoot; Richard F. Bauer, both of Horseheads, N.Y., and Norman P. Goldstein, Murrysville, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 27, 1978, Ser. No. 919,572

Int. Cl.³ G01T *1/24, 3/00*

U.S. Cl. 250—370 **6 Claims**



1. A swage-formed elongated, self-powered radiation detector of the type wherein an electrical signal is generated as a function of the incident radiation flux interacting with insulatingly spaced coaxial conductors having differing radiation interaction characteristics, with the more radiation interactive conductor comprising a central emitter electrode and the less radiation interactive conductor comprising a tubular coaxial collector electrode with highly compacted insulating material between the electrodes, the improvement wherein the emitter electrode is a tubular body, and a ductile conductive center wire is disposed along the longitudinal axis of the detector within the tubular emitter electrode and in intimate electrical contact with the tubular emitter electrode as a result of repetitive swaging of the detector which compressively reduces the detector diameter.

4,267,455

PURIFICATION APPARATUS

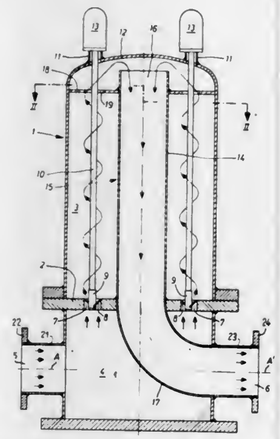
Hans U. Keller, Zürich, Switzerland, assignor to Katadyn Produkte AG, Switzerland

Filed Nov. 21, 1979, Ser. No. 96,601

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1978, 2851013

Int. Cl.³ C02F *1/32*

U.S. Cl. 250—431 **6 Claims**



1. In a purification apparatus comprising UV-tubes for the purification of a flowing medium such as water, which apparatus comprises a vessel provided with inlet and outlet openings for said medium and comprises further a centrally arranged tube, whereby said UV-tubes are arranged in an annular space of said vessel around said centrally arranged tube and extend parallel thereto, which centrally arranged tube extends through said vessel and is provided at one end with an outlet aperture and at the other end with an inflow aperture for said medium and is flowed through by said medium in a direction of flow prevailing in said annular space,

an improvement comprising the distribution of said UV-tubes along a plurality of concentric circular lines extending in said annular space, whereby each circular line has a different radius, whereby each said UV-tubes is supported by one of its ends in inlet ports for said medium in a wall of said vessel adjacent said inlet opening and by the other of its ends located adjacent to said inflow aperture in a wall of said vessel arranged at a distance from said inlet opening, and whereby said outflow aperture of said tube acting as discharge tube for the purified medium forms said outlet opening of said vessel,

said UV-tubes being supported by the agency of guide vanes in said inlet ports, which guide vanes generate a circulation of the inflowing medium around said respective UV-tubes,

there being provided means for a local controlling of the flow speed of said medium across the cross-section of said annular space adjacent said inlet opening of said discharge tube,

an intermediate plate being mounted to the end of said discharge tube and bridging the annular cross-section between the outer wall of said vessel and said discharge tube, which intermediate plate comprises through holes which are aligned with said inlet ports in said wall of said vessel adjacent said inlet opening, which said inlet ports and said through holes are peneterated by said UV-tubes and are, furthermore, groupwise arranged along coaxial circular lines having differing radiuses relative to the center of said vessel, and wherein each group of said through holes of said intermediate plate comprise a diameter differing from the other groups.

4,267,456

ELECTRON BEAM TYPE EXPOSURE APPARATUS

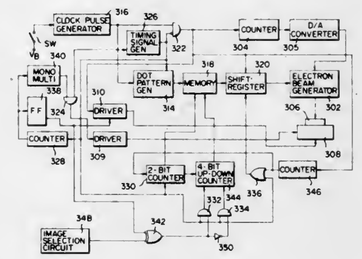
Yutaka Hidai, Kodaira, and Nobuo Okuda, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 30, 1979, Ser. No. 98,804

Claims priority, application Japan, Dec. 7, 1978, 53-150557

Int. Cl.³ H01J *37/00*

U.S. Cl. 250—492 A **5 Claims**



1. An electron beam type exposure apparatus comprising:

a table for carrying a workpiece;

memory means for storing dot pattern data corresponding to a dot pattern to be drawn on the workpiece in the unit of words, each of said words being formed of a plurality of dot data and an N number $N \geqq 2$) of words constituting dot pattern data corresponding to one scanning line;

read control means for reading the dot pattern data out of the memory means in the unit of words;

data conversion means for converting words read out of the memory means into serial dot data;

electron beam generator means for emitting electron beams modulated in accordance with the serial dot data delivered from the data conversion means;

first scanning means for scanning the workpiece in a first direction by electron beams issued from the electron beam generator;

second scanning means for moving the workpiece relatively to the electron beam generator in a direction perpendicular to the first direction;

scanning signal generator means for supplying the second scanning means with a signal instructing the direction in which the workpiece is moved relatively to the electron beam generator means;

image selection means for judging whether a pattern to be drawn on the workpiece represents a regular or mirror image and producing a signal corresponding to the selected one of the regular and mirror images; and

control signal generator means which, upon receipt of output signals from the image selection means and scanning signal generator means, supplies the read control means with a control signal having a first or second logic level, thereby changing the order in which words are read out of the memory means.

4,267,457

SAMPLE HOLDING ELEMENT FOR MASS SPECTROMETER

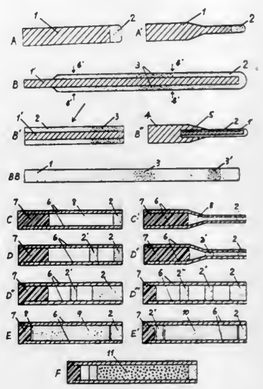
Yuzo Nakagawa, Suita; Kouji Iwatani, Amagasaki, and Tetsuro Kadono, Neyagawa, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Oct. 12, 1978, Ser. No. 950,697

Claims priority, application Japan, Oct. 20, 1977, 52-126455

Int. Cl.³ H01J *29/02*

U.S. Cl. 250—522 **21 Claims**



1. A sample holding element for use in mass spectrometry which comprises a porous and gas-permeable aggregate of at least one skeletal ingredient of finely divided inorganic substance having refractory and electrical-insulating properties selected from the group consisting of glass, ceramic material and chromatographically-active adsorbent with a void ratio ranging from 15% to 70%.

4,267,458

SYSTEM AND METHOD FOR STARTING, SYNCHRONIZING AND OPERATING A STEAM TURBINE WITH DIGITAL COMPUTER CONTROL

Robert Uram, East Pittsburgh, and Theodore C. Giras, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

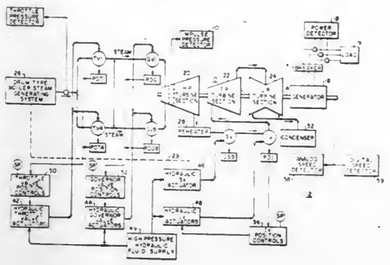
Continuation of Ser. No. 247,877, Apr. 26, 1972, abandoned, which is a continuation-in-part of Ser. No. 247,440, Apr. 25, 1972, abandoned, which is a continuation-in-part of Ser. No. 246,9 00, Apr. 24, 1972, abandoned. This application Oct. 23, 1973, Ser. No. 408,962

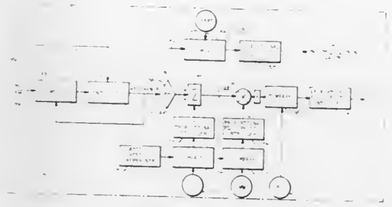
Int. Cl.² H02P *9/04*

U.S. Cl. 290—40 R **15 Claims**

1. A digital electrohydraulic control system for a steam turbine having at least two throttle valves and a plurality of downstream governor valves, said control system comprising an automatic digital control for generating valve position signals to operate the valves and control the turbine speed and load in response to predetermined input signals, a manual backup control for generating control signals to operate the valves for speed and load control when the automatic control is nonoperational, said automatic control including means for generating a throttle valve test select signal, means for digitally generating at least one test signal for closing the governor valve or valves downstream from a throttle valve selected for test, means for generating signals to close and reopen the test throttle valve when the downstream governor valves are closed, means for enabling the governor valves to be reopened

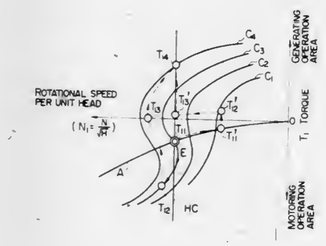
after the throttle valve test, and means for disabling said test closing signal generating means from operating if said backup





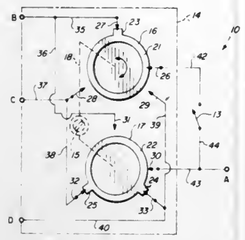
control is operating the valves when a throttle valve test selection is made.

4,267,459
METHOD OF OPERATING A HYDRAULIC TURBINE OR A PUMP-TURBINE
Toshiaki Yokoyama, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed May 25, 1979, Ser. No. 42,346
Claims priority, application Japan, May 26, 1978, 53-63732
Int. Cl.³ F02N *11/04*
U.S. Cl. 290—52 **7 Claims**



1. A method of operating a hydraulic turbine-generator machine in a power system in which, when the hydraulic turbine is operated so as to shift the load from the watered condition at guide vanes closed to the generating operation area in a condition that the runner rotates in the turbine rotating direction, the hydraulic machine is temporarily disconnected from the electric power system thereby to decrease the revolution per minute and to allow the load to smoothly shift from the motoring operation to the power generation operation at the decreased speed, and under this condition, the guide vane is gradually opened to increase the speed and set the revolution per minute to a fixed value, and then the hydraulic machine is recoupled with the electric power system for gaining the load.

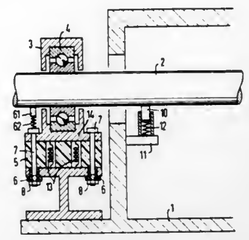
4,267,460
WALL SWITCH FOR CONVENIENCE OUTLETS
Harry D. Habighorst, 14601 N. 25th St., Phoenix, Ariz. 85032
Filed Dec. 17, 1979, Ser. No. 104,312
Int. Cl.³ H02J *4/00. 3/00*
U.S. Cl. 307—38 **7 Claims**



1. A switch assembly for connecting at least two spaced electrical outlets to a power source with one of them being selectively connected to the power source through an on-off switch comprising:
an on-off switch having a pair of terminals, one of which is connected to the power source,
a selector switch,
said selector switch comprising a pair of juxtapositioned axially aligned disc like members, each having an arcuate conductive path,
one of said members being conductively connectable to each of said electrical outlets at spaced rotative positions along its path and continuously along its path to said one of said terminals of said on-off switch,
the other of said members being conductively connectable to each of said electrical outlets at spaced relative positions along its path and continuously along its path to the other terminal of said on-off switch,
the other of said members at a given position connecting a selected one of the electrical outlets through said other terminal of said on-off switch and when in another given position connecting the other electrical outlet through said other terminal of said on-off switch while said one of said members selectively connects the non-selected outlet to said one of said terminals of said on-off switches, and
means for rotating said members in unison for selectively connecting one or another of said electrical outlets through said on-off switch to the power source.

4,267,461
ARRANGEMENT FOR SUPPRESSING HIGH FREQUENCY CURRENTS IN BEARINGS OF SHAFTS
Hans-Christian Grassmann, Igelsdorf, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Mar. 30, 1978, Ser. No. 891,895
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1977, 2717593
Int. Cl.³ H03H *1/00*
U.S. Cl. 307—105 **12 Claims**

1. An arrangement for suppressing high frequency currents in bearings of shafts in high frequency treating apparatus with operating frequencies above 10 kHz, the bearing being located outside the treatment apparatus housing and mechanically connected to the housing of the treatment apparatus, said bearing disposed in a housing and exhibiting a capacitive impedance between the shaft and its housing and the bearing shaft exhibiting an inductive impedance at said frequencies, comprising:
(a) a further impedance connected in series with the bearing impedance between the bearing housing and the housing of the treatment chamber, the sum of said further impedance and the impedance of said shaft being great in comparison to the bearing impedance; and
(b) an additional impedance inside the treatment chamber



connected between the shaft and the housing of the treatment chamber, the value of said additional impedance being low in comparison to said capacitive bearing impedance.

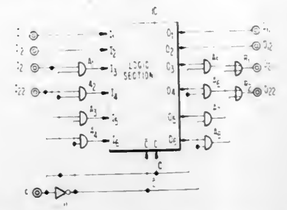
4,267,462
CONTROL CIRCUIT FOR A COMPACTOR
Richard N. Frisbie, Boyle County, Ky., assignor to Whirlpool Corporation, Benton Harbor, Mich.
Filed Dec. 26, 1978, Ser. No. 972,658
Int. Cl.³ H01N *35/00*
U.S. Cl. 307—119 **8 Claims**



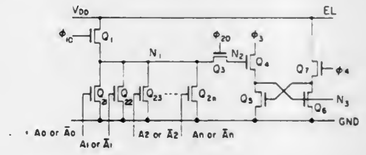
5. In a refuse compactor having a ram, a receptacle for holding refuse, means including a reversing electric motor for moving the ram from a retracted position into the receptacle to compress the refuse therein to apply thereto a maximum preselected pressure, and sensing means for sensing a tilted condition of the receptacle, the improvement comprising
means for plug reversing the motor as a result of said sensing means sensing a tilted condition of the receptacle prior to the compaction of the refuse to said maximum pressure for automatically returning the ram to the retracted position, said sensing means comprising a tilt-switch and said compactor further including a top limit switch in series with said tilt switch for preventing such plug reversal of the motor until the ram has moved from the retracted position.

4,267,463
DIGITAL INTEGRATED CIRCUIT
Hiroshi Mayumi, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan
Filed Dec. 15, 1978, Ser. No. 969,891
Claims priority, application Japan, Dec. 15, 1977, 52-151307
Int. Cl.³ H03K *19/20*
U.S. Cl. 307—445 **15 Claims**

1. A digital integrated circuit including a logic section having an operation mode and a test mode of operation, said logic section comprising a plurality of inputs and a plurality of outputs and at least one mode control input, the logical function of said logic section being switched between said operation mode and said test mode by application of a control signal to said control input, said integrated circuit further including a plurality of input terminals fewer in number than the number of inputs to said logic section, a plurality of output terminals fewer in number than the number of outputs from said logic section, at least one pair of first AND gates having corresponding inputs connected in common with one of said input terminals and respective outputs connected to different ones of said logic section inputs, at least one pair of second AND gates having corresponding inputs respectively connected to different ones of said logic section outputs, an OR gate connected to logically combine the outputs of said at least one pair of second AND gates and supply the output to one of said output terminals, and an inverter connected to receive said control signal and provide an inverted control signal output, said control signal being provided as an input to one of the AND gates of each of said first and second pairs of AND gates while said inverted control signal from said inverter being provided as an input to the other one of the AND gates of said first and second pairs of AND gates.



4,267,464
DECODER CIRCUIT
Yoshihiro Takemae, Kawasaki, and Masao Nakano, Tokyo, both of Japan, assignors to Fujitsu Fanuc Limited, Japan
Filed Dec. 13, 1978, Ser. No. 968,990
Claims priority, application Japan, Dec. 30, 1977, 52-158437
Int. Cl.³ H03K *19/017. 19/096:* **G11C** *8/00*
U.S. Cl. 307—463 **10 Claims**



1. A decoder circuit, connected to a power supply line having a power supply source voltage V_{DD}, comprising:
a charge-up transistor for maintaining the content of an input address signal;
a power supply switching transistor, operatively connected to said charge-up transistor, for controlling a charge-up current which is supplied to said charge-up transistor;
a predetermined number of selection transistors which are connected at a connection node between said charge-up transistor and said power supply switching transistor, said selection transistors enabling the selection of an output word line;
a bootstrap transistor which is connected at an opposite side of said connection node with respect to said charge-up transistor;
a first clock pulse generating circuit which generates first clock pulses for driving said power supply switching transistor, and;
a second clock pulse generating circuit which generates second clock pulses, having a maximum potential level higher than power supply source voltage V_{DD}, for driving said charge-up transistor.

4,267,465

CIRCUIT FOR RECHARGING THE OUTPUT NODES OF FIELD EFFECT TRANSISTOR CIRCUITS

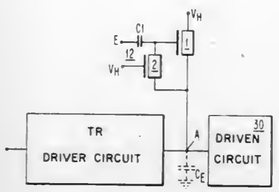
Werner Haug, Boeblingen; Joerg Gschwendtner, Esslingen, and Robert Schnadt, Boeblingen, all of Fed. Rep. of Germany, assignors to IBM Corporation, Armonk, N.Y.

Filed Jan. 15, 1979, Ser. No. 3,164

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824727

Int. Cl.³ H03K *5/00, 3/26*

U.S. Cl. 307—238.3 **4 Claims**



1. A circuit for recharging the input capacity of a circuit connected to the output of an FET driver circuit comprising:

a first FET having a source electrode for supplying current to recharge the input capacitance connected to the output node of the driver circuit, a drain electrode connected to an operating voltage source, and a gate electrode connected to one electrode of a capacitor whose other electrode is connected to a periodic pulse source,

a second FET having its source connected to said source of the first FET, a drain electrode connected to the gate of the first FET, and a gate electrode connected to the operating voltage source,

said second FET sensing the potential at the source electrode of the first FET and transferring said potential to the gate of said first FET when the output node of the driver circuit is at a low potential with respect to the operating voltage to prevent current flowing through the first FET.

4,267,466

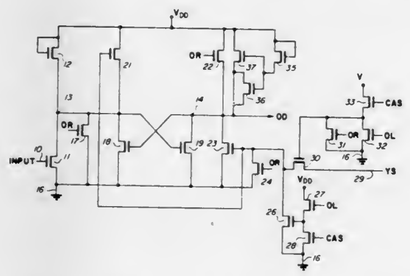
SIGNAL GENERATOR HAVING MINIMUM DELAY

Roger I. Kung, and Jerry D. Moench, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 5, 1979, Ser. No. 17,746

Int. Cl.³ H03K *3/26*

U.S. Cl. 307—279 **9 Claims**



1. A signal generating circuit to generate an output signal in response to an input signal and having a first and a second voltage terminal wherein the second terminal can serve as a reference for the first terminal, comprising: a first inverter for receiving the input signal; a cross coupled latch coupled to the first inverter and having an output for providing the output signal; a pull-up means coupled to the output to pull-up the output; a controllable load device coupled to an input of the cross coupled latch; a controllable discharging means for discharging the output upon command; and a control means for controlling the controllable load device and the controllable discharging means.

4,267,467

TIMER CIRCUIT

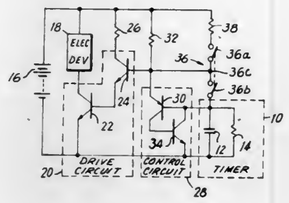
Keizo Tsukada, Kawaguchi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 23, 1979, Ser. No. 5,793

Claims priority, application Japan, Jan. 25, 1978, 53-6835

Int. Cl.³ H03K *17/292*

U.S. Cl. 307—597 **13 Claims**



1. A timing circuit for completing an electric circuit from a direct current source which generates a voltage of a potential level which may vary with time to an electric device comprising: drive means having an input and being responsive to a control voltage at said input thereof to complete said electric circuit, said drive means including maintaining means for maintaining said control voltage at a first predetermined value different from said generated voltage of said direct circuit source, timer means including storage means for storing said first predetermined value regardless of variations in the level of voltage from said direct current source, switch means for permitting a voltage stored in said timer means to discharge at a predetermined rate, and control circuit means controlled by said stored voltage and being operative, when said stored voltage has decreased to a second predetermined value lower than said first predetermined value, to change said control voltage to a value which causes said drive means to interrupt said electric circuit.

4,267,468

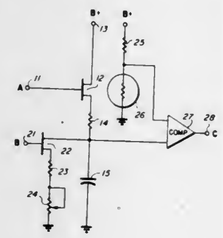
TEMPERATURE SENSING CIRCUIT

Stephen E. Hilliker, Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 23, 1979, Ser. No. 32,031

Int. Cl.³ H03K *3/26*

U.S. Cl. 307—310 **5 Claims**



1. In an electrical circuit for producing an output signal proportional to temperature and having four arms connected in a bridge configuration wherein a first arm comprises a non-linear temperature sensing element, a source of voltage is connected across one diagonal of said bridge, and a comparison means is connected across the other diagonal, the improvement comprising:

a second arm, not in series with said first arm, comprising capacitor means;

switch means in a third arm, in series with said second arm, for selectively charging said capacitor; and

said comparison means comprises voltage comparison means for producing an output signal indicative of the temperature of said sensing element.

4,267,469

SOLID-STATE IMAGING DEVICE HAVING A CLAMPING CIRCUIT FOR DRAWING OUT EXCESS CHARGE

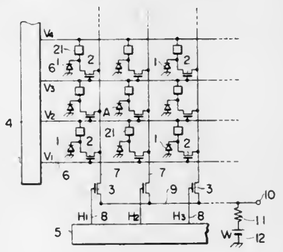
Shinya Ohba, Kokubunji; Iwao Takemoto, Kodaira; Masaaki Nakai, Hachioji; Haruhisa Ando, Kokubunji, and Masaharu Kubo, Hachioji, all of Japan, assignors to Hitachi, Ltd., Japan

Filed Aug. 16, 1979, Ser. No. 66,880

Claims priority, application Japan, Aug. 17, 1978, 53-111974[U]

Int. Cl.³ H03K *3/42;* **H01L** *29/78, 27/14, 31/00*

U.S. Cl. 307—311 **8 Claims**



1. In a solid-state imaging device having a plurality of photo elements which are arrayed in a horizontal (row) direction and a vertical (column) direction; vertical switching elements which correspond to the respective photo elements; a first line which connects in common, output terminals of the vertical switching elements existent on an indentical column; horizontal switching elements which are connected to the first lines; an output line which connects in common, output terminals of said horizontal switching elements; a second line which connects in common, control terminals of the vertical switching elements existent on an identical row; a horizontal scanning circuit which impresses horizontal scanning pulses on control terminals of said horizontal switching elements; and a vertical scanning circuit which impresses vertical scanning pulses on said control terminals of said vertical switching elements through the second lines; a solid-state imaging device comprising the fact that each of the photo elements is additionally provided with a clamping circuit for drawing out excess charges, an output terminal of which is connected to the second line of a succeeding stage.

4,267,470

ROTATIONAL ANGLE DETECTING APPARATUS

Kazuhiko Kawakami, and Noboru Sugiura, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 27, 1979, Ser. No. 15,651

Claims priority, application Japan, Mar. 1, 1978, 53/22121

Int. Cl.³ H03K *5/26*

U.S. Cl. 307—515 **9 Claims**

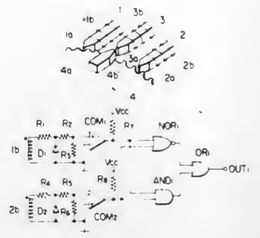
1. A rotational angle detecting apparatus comprising:

(a) a rotary disc having at least one protrusion provided at the periphery of the disc;

(b) a pick-up assembly for sensing a rotating position of the protrusion to produce an alternating signal in synchronism with the rotation of the disc;

(c) an integration circuit for producing an integration of the alternating signal with time;

(d) a level detector for sensing the integration signal thus obtained above a predetermined threshold level to produce a first rectangular wave signal occuring when the integration signal is over in level the predetermined threshold level;



(e) a polarity detector for sensing one of positive and negative polarities of the alternating signal to produce a second rectangular wave signal occuring when the alternating voltage is in the sensed polarity; and

(f) a logic circuit coupled to both the level detector and the polarity detector to receive the first and second rectangular wave signals for producing an AND logic signal therebetween.

4,267,471

LINEAR INDUCTION MOTOR

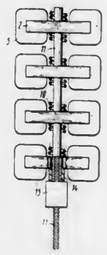
Alexandr D. Popov, pereulok Rynochny, 44; Vladimir A. Solomin, ulitsa Dachnaya, 14, kv. 31, both of Rostov-na-Donu, and Dmitry A. Zvezdunov, ulitsa Estonskaya, 248-b, Bataisk, all of U.S.S.R.

Filed Dec. 13, 1978, Ser. No. 968,726

Claims priority, application U.S.S.R., Mar. 1, 1978, 2584449

Int. Cl.³ H02K *41/02*

U.S. Cl. 310—13 **3 Claims**



1. A linear induction motor comprising:

an inductor;

a multiphase concentrated winding of said induction having a plurality of pole pairs;

a plurality of spaced transversely laminated cores comprising said plurality of pole pairs and defining a magnetic circuit of said inductor, each of said cores including a yoke provided with a hole and legs interconnected by said yoke;

a spring located between each pair of adjacent ones of said transversely laminated cores;

a rod passing through said holes and said springs;

means coupled to said rod for regulating the spacing between said cores such that the number of pole pairs of the multiphase concentrated winding is maintained constant;

a secondary element relative to which said inductor is moved;

a magnetically conductive base of said secondary element; and

an electrically conductive member disposed on said magnetically conductive base.

4,267,472

SINGLE PHASE STEPPING MOTOR, PARTICULARLY FOR CLOCKS

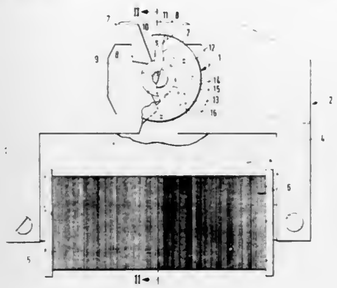
Roland Sudler, Frankfurt am Main, and Jean-Francois Schwab, Schwalbach, both of Fed. Rep. of Germany, assignors to Quarz-Zeit AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 21, 1978, Ser. No. 935,662

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1977, 2738299

Int. Cl.³ H02K *37/00*

U.S. Cl. 310—49 R **3 Claims**



1. A single phase stepping motor, particularly for clocks, comprising

a rotor having a disc-like axially magnetized permanent magnet having face sides facing in axial directions and with a number of rotor poles,

a stator made of at least two stator parts connected with one another via a bridge part carrying an excitation winding, each said stator part on its free end has a smaller number (in comparison to the number of rotor poles) of stator poles, said stator poles are axially spaced from, radially overlap and axially face toward one of the face sides of the permanent magnet,

said permanent magnet is rotatably mounted relative to said stator defining a direction of rotation,

said permanent magnet has asymmetrically magnetized pole areas on each said face side, each said areas is formed with a main part and an edge part,

in the rest condition of the rotor a rotor pole with said main part is located in the range of a stator pole and with said edge part in the range of the following stator pole in the direction of rotation of the rotor.

4,267,473

SUPERCONDUCTING GENERATOR THERMAL RADIATION SHIELD HAVING SUBSTANTIALLY UNIFORM TEMPERATURE

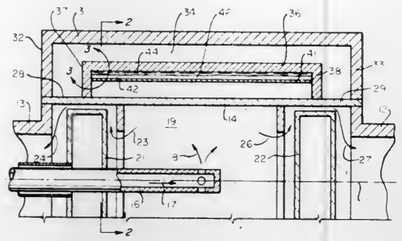
Bruce B. Gamble, Clifton Park, N.Y., assignor to Electric Power Research Institute, Palo Alto, Calif.

Continuation of Ser. No. 744,241, Nov. 23, 1976, abandoned. This application Dec. 26, 1978, Ser. No. 972,902

Int. Cl.³ H02K *9/00*

U.S. Cl. 310—52 **2 Claims**

1. A superconducting electrical generator of the type having a rotor including a field winding adapted to operate at superconducting temperatures, a torque tube surrounding said winding and defining a chamber for cooling said winding by the flow of a liquid coolant, said torque tube and said winding being at substantially the same temperature, an electromagnetic shield secured to said rotor and spaced from said windings, said electromagnetic sheild being substantially at the temperature of the surrounds, and a radiation shield disposed between the electromagnetic shield and the windings within said torque tube and having an outer surface serving to intercept thermal radiation from the electromagnetic shield and an inner surface to reradiate a lesser amount of thermal radiation to the torque tube, said radiation shield having its ends connected to the torque tube to be cooled thereby to maintain said radiation shield at a lower temperature than said electromagnetic shield, and heat transfer means in contact with said inner surface including a refrigerant having a liquid and a vapor phase at the operating temperature of the radiation shield serving to transfer heat from the inner surface of said radiation



shield to the cooled ends of the radiation shield by evaporation and condensation to thereby maintain the radiation shield at substantially uniform temperature, said heat transfer means including a plurality of passages having as one wall the inner surface of said radiation shield and having their ends in communication with the ends of the radiation shield whereby during operation of the rotor the liquid phase is in contact with the inner surface of the radiation shield to conduct heat therefrom, said heat vaporizing the liquid and the vapor condensing when it contacts the ends of the radiation shield to provide a continuous flow of vapor, and therefore heat, from the center of the radiation shield towards the ends.

4,267,474

COOLING ARRANGEMENT FOR THE ROTOR OF AN ELECTRIC MACHINE

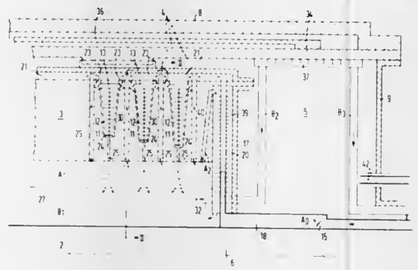
Dieter Kullmann, Langenzenn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,522

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830887

Int. Cl.³ H02K *9/00*

U.S. Cl. 310—52 **15 Claims**



1. In a cooling arrangement for the rotor of an electric machine having a superconducting field winding and a co-rotating mixing chamber near the axis, which, during operation, contains a phase mixture of a coolant supplied from the outside, liquid coolant for cooling the field winding being taken from the mixing chamber and returned to it after being

conducted through the field winding, and from which a discharge of gaseous coolant to the outside is provided, the improvement comprising:

(a) a coolant distribution system disposed at the outer circumference of the field winding;

(b) cooling canals and coolant connecting lines running between the coolant distribution system and the mixing chamber, said cooling canals running through the winding parts of the field winding and said coolant connecting lines running outside the winding parts;

(c) at least one coolant feed line connected to the coolant distribution system for supplying coolant from outside the rotor; and

(d) means for discharging the gaseous coolant at a pressure below 10^5 Pa.

4,267,475

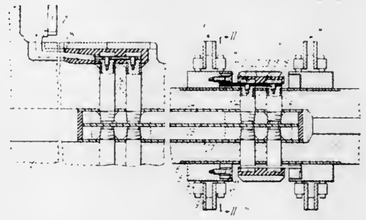
CURRENT SUPPLY ARRANGEMENT FOR ELECTRIC MACHINE ROTOR WINDING

Vladimir S. Vitchenko, Vitebsky prospekt, 29, korpus 2, kv. 142; Gennady K. Smirnov, ulitsa Prazhskaya, 20, kv. 132, and Vladimir G. Shalaev, Novo-Izmailovsky, 55, kv. 92, all of Leningrad, U.S.S.R.

Filed Dec. 22, 1978, Ser. No. 972,398

Int. Cl.³ H02K *39/08*

U.S. Cl. 310—232 **17 Claims**



1. A contact brush device used in an electric machine having a rotor with a shaft and a rotor winding, and including current collecting bars with a plurality of contact brushes and a current supply arrangement for said rotor winding, said arrangement comprising:

a slip ring fitted onto said rotor shaft with an electrically insulating layer therebetween and being engaged by said contact brushes;

a distributing ring mounted on the end face of said slip ring;

a current conducting bar secured to said distributing ring and electrically connected with said rotor winding;

an additional electrically conductive layer electrically connecting said distributing ring with said slip ring,

said additional electrically conductive layer being made of a homogeneous material possessing a resistivity lower than the resistivity of the slip ring material, and having a circumference with a cross-sectional area increasing as the distance along an arc starting from the point of junction of said current conducting bar with said distributing ring increases; whereby the electric current flowing through said slip ring between said current collecting bars and said current conducting bar is uniformly distributed around the circumference of said slip ring.

4,267,476

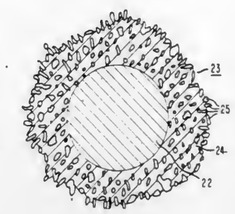
METAL-SOLID LUBRICANT BRUSHES FOR HIGH-CURRENT ROTATING ELECTRICAL MACHINERY

Pang-Kai Lee, Murrysville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 25, 1979, Ser. No. 51,914

Int. Cl.³ H02K *13/00;* **H01R** *39/24*

U.S. Cl. 310—251 **8 Claims**



1. A current transfer brush, for a high-current electrical machine, in frictional contact with a member of the machine, said brush comprising a plurality of metal fibers, each fiber plated with a metal-lubricant coating, the coating metal being selected from the group consisting of silver, nickel, copper and mixtures thereof, the metal forming a matrix for uniformly distributed lubricant particles having an average particle size of between about 0.5 micron and about 75 microns, said metal fiber and coating being annealed together and said coating being effective to provide a lubricating effect and minimize wear at the area of frictional brush contact.

4,267,477

ELECTROMOTOR

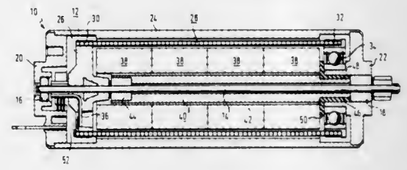
Fritz Faulhaber, Vernate, Switzerland, assignor to Retobobina Handelsanstalt, Fürstentum, Liechtenstein

Filed Mar. 5, 1979, Ser. No. 17,137

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1978, 2812937

Int. Cl.³ H02K *1/24*

U.S. Cl. 310—266 **7 Claims**



1. An electromotor comprising a hollow elongated housing; a motor shaft mounted within said housing for rotation relative thereto; electromagnetic means located within said housing and adapted for rotating said shaft; said electromagnetic means having at least one elongated magnet extending along the elongation of said housing and an elongated winding surrounding said magnet and adapted for rotation together with said shaft, said magnet having a first end portion and a second end portion; and means for supporting said magnet within said housing, said supporting means including a tubular elongated element supporting said magnet and surrounding said motor shaft and having a front end portion and a rear end portion, a supporting element mounted on said shaft and adapted for supporting said front end portion of said tubular element on said shaft so as to allow the rotation of said shaft relative to said tubular element, and an elastic supporting bush mounted within said housing and engaging said magnet and adapted to receive said rear end portion of said tubular element whereby said first end portion of said magnet is supported on said motor

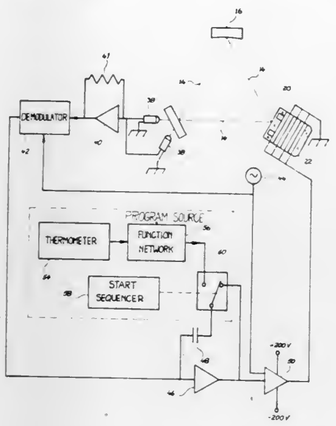
shaft whereas said second end portion of said magnet is supported on said housing.

4,267,478

PATHLENGTH CONTROLLER FOR A RING LASER GYROSCOPE

Bo H. G. Ljung, Wayne, N.J., and Charles J. Williams, Carmel, N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed Nov. 17, 1978, Ser. No. 961,572
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—315 **15 Claims**



1. Apparatus and circuitry for permitting the use of substantially the entire stroke of a piezoelectric actuator stack used in a closed loop servo controlled apparatus by presetting the stroke position of said actuator stack as a function of the startup temperature of said controlled apparatus prior to closed loop servo operation comprising:

temperature sensing means for determining the temperature of said controlled apparatus and for providing an output signal representative of said temperature;

a function network having a mathematical model of the thermal expansion and contraction characteristics of the material from which the controlled apparatus is manufactured stored therein for receiving said output signal and for providing a control signal which varies in accordance with both said mathematical model and said output signal; and

means for selectively applying and removing said control signal as an input to said closed loop servo controlled apparatus.

4,267,479

MOUNTING CLIPS FOR THICKNESS SHEAR PIEZOELECTRIC OSCILLATOR

Toshitake Kato, Tokyo, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Sep. 5, 1978, Ser. No. 939,866
Claims priority, application Japan, Sep. 16, 1977, 52-111371; Oct. 8, 1977, 52-121265; May 25, 1978, 53-62623
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—348 **9 Claims**

1. A thickness shear piezoelectric oscillator comprising:

(a) an insulating base plate;

(b) a lead terminal extending through said insulating base plate and secured thereto;

(c) a supporting means provided at that portion of said lead terminal which is extended through and projected from said insulating base plate;

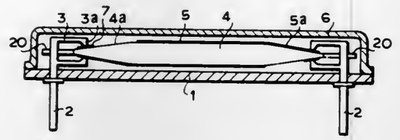
(d) an oscillation piece provided at its both ends with bevel portions and having a node point of bending oscillation of the upper and lower surfaces of said bevel portions, said node point being supported by said supporting means;

(e) an electrode provided at the center part of said oscillating piece;

(f) a lead portion formed on said oscillating piece and for electrically connecting said electrode to said lead terminal;

(g) a cap secured to said insulating base plate and hermetically covering said oscillating piece;

(h) the end surface of said bevel portion of said oscillating piece is supported by a horizontal position determining means for the purpose of determining the position of said oscillating piece in its horizontal direction;



(i) said horizontal position determining means is provided in a direction perpendicular to the direction of providing said supporting means;

(j) said horizontal position determining means is comprised of a thin plate having two legs terminating in opposed projections, said projections engaging the sides of the oscillating piece; and

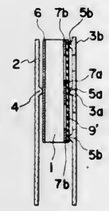
(k) the supporting means includes opposing supporting members for engaging the upper and lower surfaces of said bevel portions for vertically supporting the oscillating piece.

4,267,480

ELECTRO-CONDUCTIVE ELASTOMERIC PAD FOR PIEZOELECTRIC DEVICE

Tetsuo Kanematsu, Hakui, and Tsuneo Taki, Toyonaka, both of Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto, Japan

Filed May 23, 1979, Ser. No. 41,913
Claims priority, application Japan, Feb. 6, 1978, 53/67149
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—366 **8 Claims**



1. A piezoelectric resonator, comprising:

a piezoelectric substrate having first and second major opposed surfaces;

first and second electrode layers formed on said first surface of said substrate and being electrically isolated from each other;

a third electrode layer formed on said second surface of said substrate;

first and second electroconductive terminal members each having an inner face and a contact element protruding therefrom, said first and second electroconductive terminal members being electrically isolated from each other;

a third electroconductive terminal member having an inner face and a contact element protruding therefrom, said contact element of said third electroconductive terminal member being in electrical contact with said third electrode layer; said first, second and third electroconductive terminal members cooperating with each other to maintain said piezoelectric substrate in position therebetween;

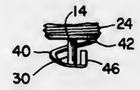
a unitary direction-oriented electroconductive plastic sheet disposed on and in electrical contact with said first and second electrode layers and between said first and second electrode layers and said contact elements of said first and second electroconductive terminal members, said electroconductive plastic sheet being conductive only in the direction perpendicular to said first major surface, and said first and second terminal members being so located that they are in electrical contact with said first and second electrode layers, respectively, through different, non-overlapping portions of said direction-oriented electroconductive plastic sheet, said electroconductive plastic sheet acting as a cushioning element interfacing said first and second terminal member and said first and second electrode layers, respectively.

4,267,481

SPARK PLUG WITH HOT/SHARP GROUND ELECTRODE

Larry D. Sauder, Rte. 2, Box 545, Lockport, La. 70374

Filed Apr. 12, 1979, Ser. No. 29,362
Int. Cl.³ H01T *13/32*
U.S. Cl. 313—139 **12 Claims**



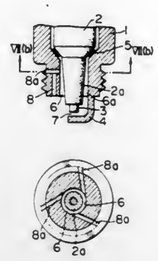
1. A spark plug comprising: an elongate central electrode; an insulating body around and embedding said central electrode; a conductive metal casing means coaxial on and rigidly carrying said insulating member with an externally threaded cylindrical end portion coaxial with and radially spaced apart from one end portion of said central electrode; a second electrode secured in conductive relationship on said cylindrical end portion; said one end portion of said central electrode having a terminal portion projecting beyond a plane through the terminal end surface of said cylindrical end portion; said second electrode consisting of a flat metal strip having its cross section width to thickness ratio essentially constant throughout and approaching 2:1 and having a fixed end and a free end, the fixed end being structurally integrally secured to the metal casing, the central portion of said electrode strip extending away from said threaded end portion a distance beyond the end of the projected end portion of said central electrode, passing at least partially around said central electrode in spaced relation thereto and configured so its free end has a reverse bend disposing a terminal portion of said free end of said electrode strip so that it projects back toward said insulating body, is parallel to, is spaced in a gapped relationship to and is disposed with its widest surfaces essentially radial to the axis of said central electrode; the entire second electrode being located in a space within the theoretical cylinder defined through the base of the threads on the said threaded end portion of the metal body.

4,267,482

IGNITION SPARK PLUG

Toshiharu Iwata, Aichi, and Tadashi Hattori, Okazaki, both of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Mar. 31, 1978, Ser. No. 892,137
Claims priority, application Japan, Apr. 7, 1977, 52-40128; Apr. 21, 1977, 52-46533; Aug. 5, 1977, 52-94426
Int. Cl.³ H01T *13/20*
U.S. Cl. 313—143 **3 Claims**



1. A spark plug for use with a spark ignition-type internal combustion engine which has a combustion chamber,

said spark plug comprising:

a tubular metal plug body having a longitudinal bore with an open end;

an insulator having a leg portion extending centrally within said plug body and out through said open end;

a ring of packing mounted in said plug body distally of said open end, said insulator leg portion extending through said ring of packing and being supported upon said plug body via said ring of packing material;

said plug body bore, axially outwardly of said ring of packing to said open end being radially oversize relative to said insulator leg portion axially outwardly of said ring of packing to said open end, thereby defining an annular space within said plug body bore, extending from said ring of packing to said open end;

a center electrode extending from within said insulator leg portion to axially outwardly of said open end so as to be directly exposed, in use, to said combustion chamber;

a ground electrode mounted on said plug body and extending therefrom axially outwardly of said open end and laterally into gapped adjacency with said center electrode; and

means defining at least one passageway formed in said plug body, said at least one passageway having one end thereof positioned for open communication, in use, with said engine combustion chamber and having another end thereof in open communication with said annular space adjacent said ring of packing, so that during the running of the engine, the velocity of fresh combustible gas mixture flowing into said annular space through said open end is decreased due to the opposing introduction of fresh combustible gas mixture into said annular space through said passageway, thus decreasing the propagation of flame and the production of incompletely burned gas within said space and thereby decreasing carbon fouling of said spark plug;

said at least one passageway including a first axially extending portion that is eccentrically located relative to the longitudinal axis of said plug body and a second portion that extends substantially transversally relative to said longitudinal axis;

said first portion having said passageway one end;

said second portion having said passageway other end and intersecting said annular space substantially tangentially of a circumference of said annular space; and

said first portion intersecting said second portion intermediate said one end and said other end of said passageway, so that

the burned gas including carbon particles entering said annular space via said passageway vortically whorls within said annular space and such of these carbon particles as become deposited on said spark plug within said annular space are caused by centrifugal force to non-foulingly deposit on the plug body, away from said leg portion of said insulator.

4,267,483

INSULATOR ON SPARK PLUG ELECTRODE COATED WITH ZIRCONIUM AND VANADIUM OXIDES

Koichi Nakajima, Nagoya; Tomoji Ishiguro, Aichi; Tokuhiko Okamoto; Minoru Konaka, both of Nagoya; Minoru Nagai, Kariya; Kanji Higuchi, Hekinan, and Kenji Sasaki, Kariya, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo and Nippondenso Co., Ltd., both of Aichi, Japan

Filed May 30, 1979, Ser. No. 43,843
Claims priority, application Japan, Jun. 5, 1978, 53-67925
Int. Cl.³ H01T *13/20*
U.S. Cl. 313—143 **16 Claims**



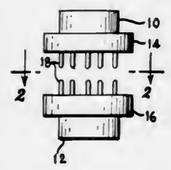
1. An insulator for electrically insulating an axially-disposed electrode from a surrounding casing of a spark plug and having a taper-nose portion on one end which is subject to exposure to combustion gas from an internal combustion engine, the taper-nose portion having an outer surface which is partially coated with a coating of a mixture of from 5 to 99 percent by weight of vanadium oxide, calculated as vanadium pentoxide, and from 1 to 95 percent by weight of zirconium oxide, calculated as zirconium dioxide, the coating having an average thickness within a range of from 0.1 to 10 microns.

4,267,484

PARALLEL MULTI-ELECTRODE SPARK GAP SWITCH

James P. O'Loughlin, Albuquerque, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 28, 1979, Ser. No. 70,383
Int. Cl.³ H01J *17/00, 21/00*
U.S. Cl. 313—325 **2 Claims**



1. A spark gap switching device comprising
first and second electrodes of conductive material, each said electrode being cylindrical in shape and terminating in a plurality of spaced juxtaposed rod shaped sub-electrodes of conductive material extending perpendicularly from an end surface thereof, said electrodes being positioned such that the ends of the sub-electrodes of each electrode are in close proximity and in register with the ends of corresponding sub-electrodes of the other electrode forming spark gaps therebetween, and
means for effecting substantial saturable mutual inductance between adjacent sub-electrodes.

4,267,485

FLUORESCENT LAMP WITH SHARP EMISSION PEAKS BETWEN 480 AND 490 NM AND BETWEEN 620 AND 640 NM

Katsuo Murakami; Yoshinori Anzai; Mitsuoki Otani, and Hiroshi Ito, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 25, 1978, Ser. No. 954,473
Claims priority, application Japan, Jan. 30, 1978, 53/9042
The portion of the term of this patent subsequent to Nov. 13, 1996, has been disclaimed.
Int. Cl.³ H01J *63/04, 1/62*
U.S. Cl. 313—486 **8 Claims**



1. A fluorescent lamp which comprises a luminous layer comprising mainly a first fluorescent material having the emission peak in a range of wavelength of 480 to 490 nm and a second fluorescent material having the emission peak in a range of wavelength of 620 to 640 nm and a band width (50%) of 120 to 160 nm, on an inner surface of a discharge tube wherein the first fluorescent material is an alkaline earth metal boron phosphate activated by a divalent europium compound having the formula

$$m(Sr_{1-x-y-p}Ba_xCa_yEu_pO)\cdot(1-n)P_2O_5\cdot nB_2O_3,$$

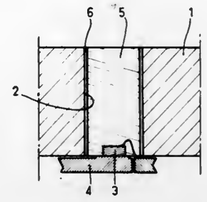
wherein the parameters x, y, p, m, and n are respectively in ranges of
$0 \leqq x \leqq 0.5$
$0 \leqq y \leqq 0.2$
$0.001 \leqq p \leqq 0.15$
$1.75 \leqq m \leqq 2.30$ and
$0.05 \leqq n \leqq 0.23$.

4,267,486

DEVICE FOR DISPLAYING ALPHANUMERICAL CHARACTERS

Jacques C. Thillays, Herouville St. Clair, France, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 870,246, Jan. 17, 1978, abandoned. This application Jun. 25, 1979, Ser. No. 51,489
Claims priority, application France, Jan. 20, 1977, 77 01566
Int. Cl.³ H05B *33/02, 33/20, 33/22*
U.S. Cl. 313—500 **13 Claims**



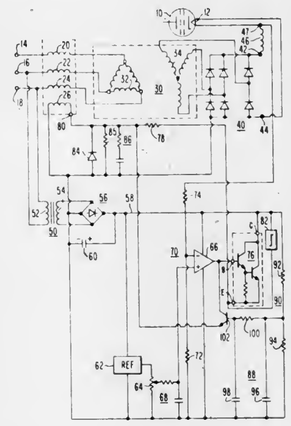
1. A device for displaying alphanumerical characters comprising a block of insulating material having a plurality of cavities extending into said block, at least one semiconductor electroluminescent diode being provided at each cavity, and a transparent resin filling said cavities and contacting the walls of said cavities over the entire extent of said cavities in said block, said transparent resin and said insulating material of said block being formed of respective different substances which do not adhere together for forming a reflecting interface between said cavity walls and said resin along said entire extent.

4,267,487

REGULATED FILAMENT SUPPLY FOR HIGH-POWER TUBES

Robert M. Unetich, Pittsburgh, and William Shibler, Bethel Park, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed Apr. 2, 1980, Ser. No. 136,697
Int. Cl.³ G05F *1/64*
U.S. Cl. 315—107 **7 Claims**



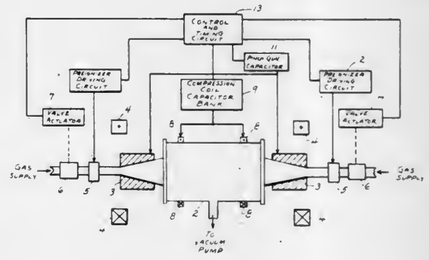
1. An improved tube arrangement comprising:
a high-power electron tube including a heating filament;
a source of alternating line voltage;
a transformer including a primary winding and a secondary winding;
coupling means coupling said primary winding to said source of alternating line voltage for causing a transformed line voltage to appear at said secondary winding;
rectifying means coupled to said secondary winding for rectifying said transformed line voltage to produce a pulsating direct voltage;
filtration means coupled to said filament and to said rectifying means for filtering said pulsating direct voltage to produce a filtered direct voltage and for applying said filtered direct voltage to said heating filament;
wherein the improvement lies in that:
said coupling means comprises saturable reactor means interposed between said source of alternating line voltage and said primary winding for presenting a controllable impedance to said alternating line voltage source for varying the current supplied to said primary; and
wherein the improvement further comprises:
saturable reactor control means coupled to said saturable reactor and to said filtration means for controlling said impedance in a feedback manner for regulating said filtered direct voltage applied to said filament.

4,267,488

CONTAINMENT OF PLASMAS AT THERMONUCLEAR TEMPERATURES

Daniel R. Wells, Miami, Fla., assignor to Trisops, Inc., Austin, Tex.

Filed Jan. 5, 1979, Ser. No. 1,276
The portion of the term of this patent subsequent to Jan. 10, 1995, has been disclaimed.
Int. Cl.³ G21B *1/00*
U.S. Cl. 315—111.7 **17 Claims**



1. A method of heating and compressing plasma comprising the steps of confining the plasma in a vacuum chamber, generating a primary containment magnetic field within and surrounding said vacuum chamber, inductively energizing said plasma to generate ringlike plasmoids moving toward collision with each other in the chamber along an axis extending in a direction parallel to said magnetic field, said primary magnetic field acting to constrain and guide said plasmoids along said axis, and additionally compressing said plasmoids as they approach collision.

4,267,489

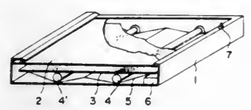
THIN SCHAUKASTEN

Hisao Morohashi, Yokohama, Japan, assignor to Ohno Research and Development Laboratories Company Limited, Yokohama, Japan

Filed Nov. 19, 1979, Ser. No. 95,303
Claims priority, application Japan, Dec. 1, 1978, 53/165653[U]; Apr. 3, 1979, 54/40171
Int. Cl.³ G02B *27/02*
U.S. Cl. 315—324 **8 Claims**

1. A thin schaukasten for observing an image forming film through utilization of rays of light passing through a light diffusing plane, comprising at least a diffusive transparent plate, a light homogenizing member, a fluorescent lamp, and a reflection member, the light homogenizing member being a

transparent support media having formed thereon a reflection pattern, wherein the distribution of transmission bearing sub-





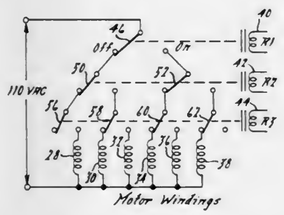
stantially opposite in its relationship to the distribution of luminous flux applied to the transparent support media is provided by the reflection pattern.

4,267,490

BINARY SWITCHING CONTROL CIRCUIT FOR AN ELECTRICALLY ADJUSTABLE PATIENT CHAIR

Paul G. Thiene, Laguna, Calif., assignor to SMR Corporation, St. Louis, Mo.

Filed Aug. 14, 1979, Ser. No. 66,457
Int. Cl.³ H02P *1/54*
U.S. Cl. 318—51 **1 Claim**



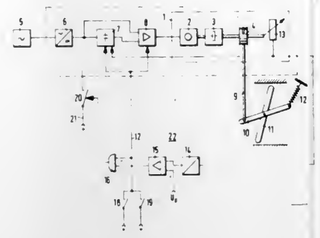
1. A switching control circuit for selectively controlling the energization of six motor windings for providing lift, tilt and head adjustments on an electrically adjustable patient chair, comprising three relays connected to said motor windings in a binary switching arrangement for separately controlling the energization of each of said motor windings, and six manually operable switch means connected between a power source and the relay coils of said relays for controlling energization of said relay coils, wherein a first of said switches comprises a single-pole single-throw switch that is connected to the relay coil of said first relay, a second of said switches comprises a double-pole single-throw switch that is connected to the relay coils of said first and second relays, a third of said switches comprises a single-pole single-throw switch that is connected to the relay coil of said second relay, a fourth of said switches comprises a double-pole single-throw switch that is connected to the relay coils of said second and third relays, a fifth of said switches comprises a single-pole single-throw switch that is connected to the relay coil of said third relay, and a sixth of said switches comprises a double-pole single-throw switch that is connected to the relay coils of said first and third relays.

4,267,491

ELECTRICAL REGULATING DEVICE FOR SPEED CONTROL DEVICES

Harald Collonia, Königstein, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,483
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1977, 2755338
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—311 **4 Claims**



1. In an electrical regulating device, particularly for a speed control device for motor vehicles with a servomotor, a rotatably mounted setting element which actuates an adjustment actuator, the setting element being in operative connection with the servomotor via an electromagnetic coupling, and a monitoring stage for the mechanical functioning of the coupling, the improvement wherein

the monitoring stage contains,

means for detecting the resetting speed of the setting element or the adjustment actuator,

means for comparing the actual resetting speed with a pre-given reference value, and

means for producing a signal upon an unsafe deviation of the actual resetting speed from the reference value,

said means for detecting the resetting speed constitutes an electrical position transmitter coupled with said setting element,

a differentiator stage is connected to and following said transmitter,

said comparing means comprises a comparator having one input connected to and following said differentiator stage,

said signal producing means includes an AND gate having two inputs,

said comparator has another input being applied with a reference voltage and an output connected to one of the inputs of said AND gate,

the other input of said AND gate is appliable with a signal which releases the resetting of the setting element,

a current supply line is connected to the speed control device,

a switch is connected in said current supply line,

the output of said AND gate is operatively connected to said switch, the latter constituting means for being opened to turn-off the control device when an output signal appears at the output of said AND gate.

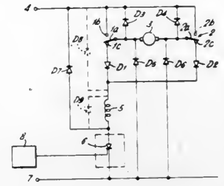
4,267,492

CONTROL CIRCUIT FOR A D.C. MOTOR

Frank Manners, Lightwater, England, assignor to Lansing Bagnall Limited, Basingstoke, England

Filed Oct. 31, 1978, Ser. No. 956,046
Claims priority, application United Kingdom, Nov. 3, 1977, 45818/77; May 31, 1978, 45818/78
Int. Cl.³ H02P *3/14*
U.S. Cl. 318—376 **14 Claims**

1. A direct current motor control circuit in which the armature is arranged for reversible connection in a main path for current to flow, in a drive mode of the circuit, from a first supply terminal to a second supply terminal through the armature and a current chopper, and in which switch means are provided for selectively switching the control circuit from said drive mode to a regenerative mode in which the armature is



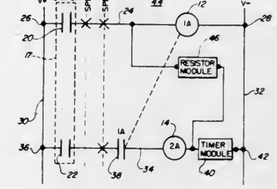
connected across a rectifier bridge to permit return current to flow from the second terminal, in either direction through the armature toward the chopper, means being provided for completing a return path for the return current to flow to the first terminal.

4,267,493

PRE-STEP TIMER CIRCUIT FOR DC MOTOR CONTROL

Richard W. Roof, West Columbia, S.C., assignor to Square D Company, Palatine, Ill.

Filed May 21, 1979, Ser. No. 40,806
Int. Cl.³ H02P *1/04*
U.S. Cl. 318—443 **6 Claims**



1. A pre-step timer circuit for a motor control system having at least two control step circuits, improvement comprising:

a source of potential;

means connected to said source of potential and forming part of said control step circuits for switching therebetween in a pre-selected sequence to control the operation of a motor and for switching said source of potential across said control step circuits;

means in series with said switching means in each of said control step circuits and forming a part thereof and responsive to the energization of each control step circuit for developing a signal proportional to the magnitude of the voltage thereacross;

means in series with said developing means in at least one of said control step circuits and forming a part thereof for delaying the operation thereof until a predetermined, fixed time period has elapsed; and

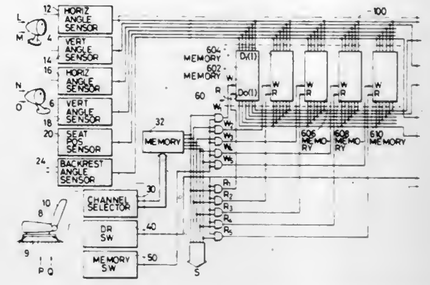
means connected between said switch means and said developing means of a preceding control step circuit to the input of said delaying means in the next control step circuit for sensing and transmitting said voltage signal to pre-time the next delaying means when the switching means is left in the previous control step long enough for the next delaying means to time out so that the next control step is actuated immediately when the swiching means is advance thereto.

4,267,494

APPARATUS FOR ADJUSTING THE POSITION AND/OR ANGLE OF EACH MOVABLE EQUIPMENT OF A MOTOR VEHICLE

Hideoki Matsuoka, Yokohama; Takashi Oka, Tokyo; Masanori Mizote, Yokosuka; Kiyoshi Yamaki, Yokohama; Hiroyuki Nomura, Yokohama; Takaaki Mogi, Yokohama, and Akitoshi Mimura, Tokorozawa, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 17, 1979, Ser. No. 4,205
Claims priority, application Japan, Jan. 30, 1978, 53/9523
Int. Cl.³ G05B *19/42*
U.S. Cl. 318—568 **12 Claims**



1. An apparatus for adjusting the position, including selectively the angular position, of at least one equipment movably installed in a motor vehicle such that each of said at least one equipment takes an optimal position for each of a plurality of predetermined persons expected to alternately drive the vehicle, the apparatus comprising:

(a) first means for sensing actual position of each of said at least one equipment and providing information indicative of the sensed position;

(b) second means having a WRITE-IN function for storing a plurality of sets of reference information each provided by said first means when each of said at least one equipment takes an optimal position for one of said persons and a READ-OUT function for selectively providing a specific set of reference information with respect to specific one of said persons;

(c) third means responsive to said first and second means for producing at least one control signal by comparing information which is provided by said first means and is indicative of actual position of each of said at least one equipment with said specific set of reference information; and

(d) fourth means for adjusting the position of each of said at least one equipment in accordance with said at least one control signal.

4,267,495

MACHINE SPEED CONTROLLER

Bernard W. Wilterdink, Claremont, N.H., assignor to Cone-Blanchard Machine Company, Windsor, Vt.

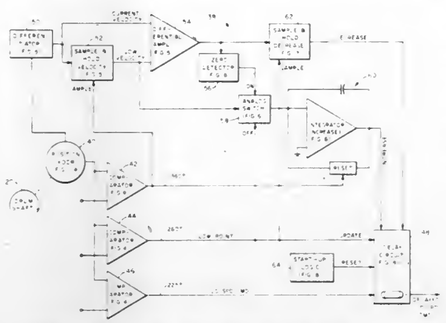
Filed Oct. 5, 1979, Ser. No. 82,413
Int. Cl.³ G05B *19/24*
U.S. Cl. 318—571 **12 Claims**

1. A control system for generating a speed change command to attain a nominal speed at a design point in the operating cycle of a machine, comprising

means for generating an early speed change signal at a predetermined point in advance of said design point in each cycle,

means for issuing said speed change command following a variable delay initiated by said early speed change signal including delay register means for storing a value indicative of the variable delay applied in the preceding cycle, and delay generate means for generating said variable

delay according to the value stored by said delay register means at the time of said early speed change signal, and update means for adjusting the value stored by said delay



register means after the design point in each cycle in accordance with the direction and extent of deviation from the design point of the point at which the speed in a given cycle reaches the nominal speed.

4,267,496

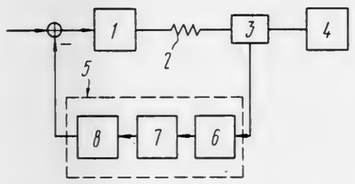
DEVICE FOR DAMPING OSCILLATIONS

Gely M. Ivanov, ulitsa 3 Tverskaya-Yamskaya, 42/8, kv. 45, Moscow; Vladislav I. Novikov, ulitsa Kosmonavtov, 44, kv. 18, and Vladimir V. Khmelev, 1 Pankovsky proezd, 21, kv. 24, both of Ljubertsy Moskovskoi oblasti, all of U.S.S.R.

Filed May 18, 1979, Ser. No. 40,434

Int. Cl.³ G05B *5/01, 6/02*

U.S. Cl. 318—615 **14 Claims**



1. A device for damping mechanical oscillations in a system comprising a controlled drive; a flexible member with a moment or force transducer, mechanically coupled to said drive; an actuator also coupled mechanically to said flexible member; a corrective assembly designed to shape a signal being in phase opposition with respect to the a-c component of oscillations within said system; included in said system for damping occurring oscillations and having a differentiating unit whose input is connected to said moment or force transducer, a net time lag time unit whose input is connected to the output of said differentiating unit, and an amplitude tuning unit, the input of which is connected to the output of said net time lag tuning unit and whose output is connected to the input of said drive.

4,267,497

RESOLVER INTERFACE FOR SERVO POSITION CONTROL

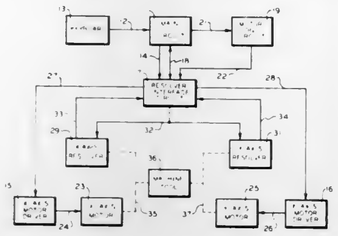
Lee E. Cannon, and Amos R. Mansfield, Jr., both of Bozeman, Mont., assignors to Dana Corporation, Toledo, Ohio

Filed Mar. 20, 1978, Ser. No. 888,482

Int. Cl.³ G05B *1/06*

U.S. Cl. 318—661 **16 Claims**

1. In an apparatus for controlling the movement of an object along a predetermined path from an initial position to a final position including a motor for moving the object along the path, drive means for controlling the motor in response to an error signal representing the difference between a selected position intermediate the initial and final positions along the path and an actual position of the object along the path, a control circuit for generating a control signal as a train of pulses proportional in number to the distance between the initial and final positions representing the selected position, a resolver coupled to the motor and responsive to an excitation signal for generating a feedback signal representing the actual position of the object along the path and a resolver interface circuit for generating the excitation signal and responsive to the control signal and the feedback signal for generating the error signal, the resolver interface circuit comprising:



means for generating a cyclic signal;

means responsive to the control signal for accumulating the pulses and generating an instantaneous count total output signal representing the selected position;

means responsive to said cyclic signal and said count total output signal for generating a phase signal having a phase relationship with said cyclic signal representing the selected position of the object;

means responsive to the feedback signal and said phase signal for generating the error signal; and

means responsive to said cyclic signal for generating the excitation signal.

4,267,498

DRIVE EQUIPMENT WITH TWO-PHASE SYNCHRONOUS MOTOR

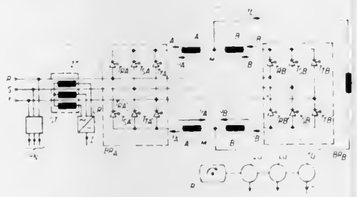
Vilmos Torok, Lidingo, Sweden, assignor to ASEA Aktiebolag, Vesteras, Sweden

Filed Dec. 28, 1979, Ser. No. 108,075

Claims priority, application Sweden, Dec. 12, 1978, 7813347

Int. Cl.³ H02P *5/34, 7/42;* **H02M** *5/458*

U.S. Cl. 318—723 **9 Claims**



1. In a drive apparatus of a type including a two-phase synchronous motor with two power windings and a frequency convertor for supplying power to said motor from an AC voltage network, an improved frequency convertor comprising:

two convertor bridges connected for receiving power from said AC voltage network;

first means for connecting each of said power windings between a DC terminal of one bridge and a DC terminal of the other bridge, each of said power windings having a center tap means; and

second means for connecting the center tap means of one of said power windings to the center tap means of the other power winding, where said improved convertor is operated as a direct convertor.

4,267,499

METHOD AND SYSTEM FOR CONTROLLING INDUCTION MOTORS

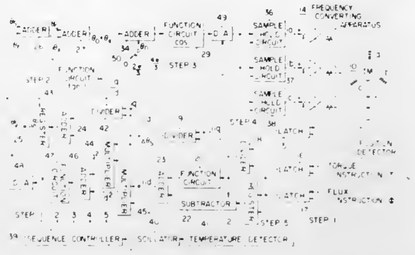
Ryoichi Kurosawa, Tokyo, Japan, assignor to Tokyo Shibaura Kenki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 18, 1978, Ser. No. 970,443

Claims priority, application Japan, Dec. 23, 1977, 52-154529

Int. Cl.³ H02P *5/34, 7/42, 5/28, 7/36*

U.S. Cl. 318—800 **10 Claims**



1. A method of controlling an induction motor comprising the steps of

sequentially adding digital quantities corresponding to a slip frequency of said induction motor at a predetermined time interval,

adding the sum of said sequentially added digital quantities to a digital quantity proportional to an angle of rotation of said motor to obtain a sum value,

computing a primary current vector of said induction motor from said sum value and a current component which influences only the torque of said motor, and

controlling the primary current of said induction motor based upon said primary current vector.

4,267,500

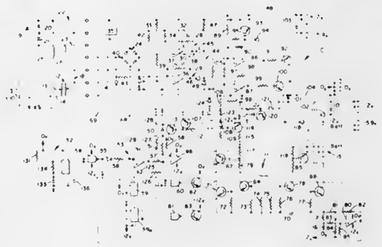
CONTROL COOLING MEANS

Robert F. Bourke, Kamiah, Id., and David K. Johansen, Lake-in-the Hills, Ill., assignors to Gould Inc., Rolling Meadows, Ill.

Filed Sep. 19, 1978, Ser. No. 943,628

Int. Cl.³ H02P *7/00*

U.S. Cl. 318—806 **20 Claims**



10. For use in an apparatus having a battery power supply, a control connected to said battery power supply and having variable means for providing direct current from said power supply to a variable load, and an air moving means for cooling the control, the improvement comprising:

an alternating current motor for driving the air moving means; and

circuit means including inverter means for providing from said battery power supply a variable duty cycle alternating current power supply to said motor for powering said air moving means, said circuit means including capacitor means for providing a direct current power supply to the control at a preselected control voltage, and means responsive to a sag in the direct current power supply voltage to the control to vary the duty cycle of the inverter means to regulate the control power supply voltage and effectively maintain a substantially constant volt-second output waveform of the inverter means, said circuit means including means responsive to a sag in said control power supply for varying the duty cycle of the inverter means and thereby causing the power developed by said motor to vary as a function of the load demand.

4,267,501

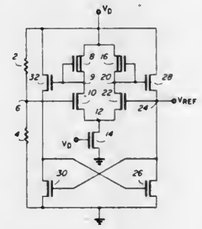
NMOS VOLTAGE REFERENCE GENERATOR

Stephen L. Smith, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 21, 1979, Ser. No. 50,729

Int. Cl.³ G05F *1/56*

U.S. Cl. 323—313 **9 Claims**



1. An MOS voltage regulating circuit for generating a stable reference voltage between ground and a source potential, comprising:

a voltage divider coupled to said source potential for dividing said source potential down to a first voltage;

a differential amplifier comprised of field effect transistors, said differential amplifier having inverting and non-inverting inputs and inverting and non-inverting outputs, and non-inverting input coupled to said voltage divider for receiving therefrom said first voltage, said stable reference voltage appearing at said inverting input;

feedback means coupled to said non-inverting output and to said inverting input for raising the voltage at said inverting input to said reference voltage; and

voltage pull-down means coupled to said feedback means and to said inverting input for reducing the voltage at said inverting input to said reference voltage, said voltage pull-down means comprising:

a first field effect transistor having source, drain and gate electrodes, the source electrode of said first transistor coupled to ground and the drain electrode of said first transistor coupled to said inverting input;

a second field effect transistor having source, drain and gate electrodes, the source electrode of said second field effect transistor coupled to ground, the drain electrode of said second transistor coupled to the gate electrode of said first transistor and the gate electrode of said second transistor coupled to the drain electrode of said first transistor; and

a third field effect transistor having source, drain and gate electrodes, the source electrode of said third transistor coupled to the gate electrode of said first transistor, the drain electrode of said third transistor coupled to said

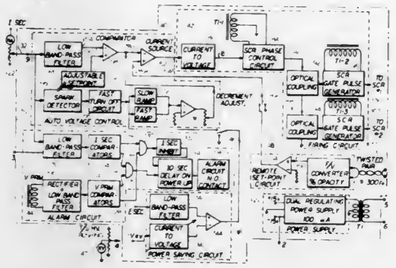
source potential and the gate electrode of said third transistor coupled to said inverting output.

4,267,502

PRECIPITATOR VOLTAGE CONTROL SYSTEM

Robert O. Reese, Lancaster; Karl R. Wieber, Middletown, and James T. Hartman, Reading, all of Pa., assignors to Envirotech Corporation, Menlo Park, Calif.

Filed May 23, 1979, Ser. No. 41,965
Int. Cl.[3] B03C *3/68*
U.S. Cl. 323—237 12 Claims



1. An improved precipitator voltage control system responsive to a power transformer secondary current feedback signal and operative to control first and second antiparallel SCR switching devices in the transformer primary circuit comprising:

an automatic voltage control circuit including

means for receiving said secondary current feedback signal and for developing a dc voltage signal corresponding thereto,

means for monitoring said dc voltage signal to insure that it does not exceed a predetermined set-point level,

means for converting said dc voltage signal to a corresponding drive current signal,

detector means for monitoring said secondary current feedback signal and for developing a triggering signal when a spark condition is sensed, and

means responsive to said triggering signal and operative to reduce said dc voltage signal to zero for a predetermined, relatively short period and then increase the magnitude of said dc voltage signal in a fast ramp mode to a level below said set-point level and thereafter increase said dc voltage in a slow ramp mode; and

an SCR firing circuit including

means for converting said drive current signal into a corresponding drive voltage signal,

phase control circuit means for comparing said drive voltage signal to an oscillatory reference signal in phase with the secondary current of said power transformer and for developing a pulsewidth modulated signal commensurate therewith,

optical isolator means responsive to said pulsewidth modulated signal and operative to develop first and second isolation signals, and

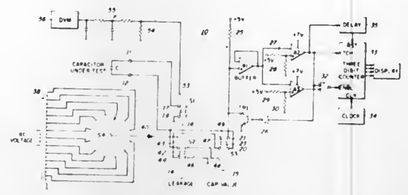
first and second SCR gating means responsive to said first and second isolation signals and operative to develop first and second gating signals 180° out of phase with each other for input to said first and second antiparallel SCR switching devices.

4,267,503

METHOD AND INSTRUMENT FOR TESTING THE OPERATING CHARACTERISTICS OF A CAPACITOR

Marlin D. Westra, 730 S. Summit, Sioux Falls, S. Dak. 57104

Filed Nov. 2, 1979, Ser. No. 90,554
Int. Cl.[3] G01R *11/52, 27/26*
U.S. Cl. 324—60 C 5 Claims



1. A method of determining if a capacitor has dielectric absorption, comprising the steps of

measuring the capacitance of said capacitor,

charging said capacitor to approximately its rated voltage, then

discharging said capacitor, then

again measuring the capacitance of said capacitor, and

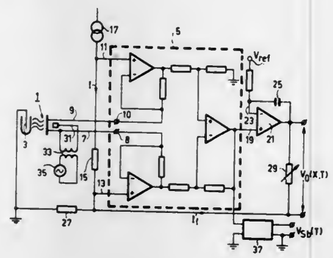
comparing the capacitance values indicated by said steps of measuring.

4,267,504

DEVICE FOR MEASURING A QUANTITY WHICH INFLUENCES A FIELD-EFFECT TRANSISTOR

Piet Bergveld, Enschede, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,922
Claims priority, application Netherlands, Nov. 6, 1978, 7811001
Int. Cl.[3] G01R *27/02*
U.S. Cl. 324—62 3 Claims



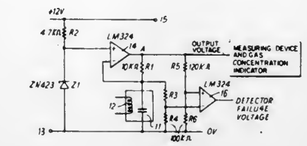
1. A device for measuring a quantity comprising, a field-effect transistor having a source and a drain electrode, said field-effect transistor being located so as to be influenced by said quantity to be measured, means connecting said electrodes to terminals of a measuring circuit so that changes in the resistance between said electrodes influence the output voltage of the measuring circuit, means for applying to the field-effect transistor an auxiliary signal the frequency of which is located outside the frequency range in which changes of the quantity to be measured occur, and wherein the measuring circuit comprises means for separating signals at the frequency of the auxiliary signal from signals within the said frequency range.

4,267,505

FAILURE SENSOR FOR A GAS DETECTOR

Timothy J. Biglin, Brislington, England, assignor to The Horstmann Gear Company Limited, Newbridge Works, England

Filed Aug. 8, 1978, Ser. No. 931,963
Claims priority, application United Kingdom, Aug. 11, 1977, 33810/77
Int. Cl.[3] G01R *31/08, 27/02*
U.S. Cl. 324—65 R 9 Claims



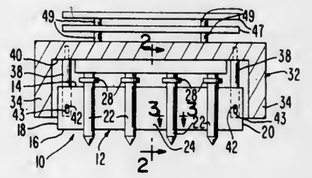
1. A gas detector combined with means for sensing failure of the detector comprising a direct current amplifier having an input and an output, at least one resistor connected between the input and the output to form a feed back path with a negative feed back factor, the gas detector being electrically connected between a reference potential and a point in the feed back path between the resistor and the input to the amplifier, there being in use a difference between the voltage at said point in the feed back path and the voltage at the output of the amplifier, first and second voltage dividers, the first voltage divider being connected between said point in the feed back path and the reference potential and the second voltage divider being connected between the output of the amplifier and the reference potential, and comparator means for sensing a value indicative of said voltage difference for providing an output signal indicative of failure of the detector when a predetermined voltage difference occurs, the voltage at said point in the feed back path and the voltage at the output of the amplifier being fed to said comparator means by respective ones of said voltage dividers.

4,267,506

COLLINEAR FOUR-POINT PROBE HEAD AND MOUNT FOR RESISTIVITY MEASUREMENTS

Thomas J. Shiell, P.O. Box 504, Menlo Park, Calif. 94025

Filed Jan. 2, 1979, Ser. No. 38
Int. Cl.[3] G01R *31/22*
U.S. Cl. 324—158 P 10 Claims



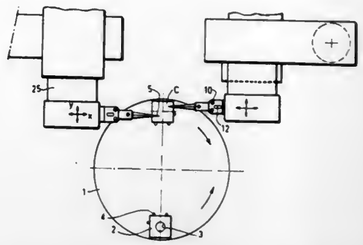
1. A resistivity probe comprising: a rigid, electrically, non-conducting strip having a pair of opposed side edges; and a number of metallic pins rigidly secured to one side of the strip and projecting laterally from said side edges, said strip adapted to be secured to a probe head with said pins being generally vertical, so that the lower ends of the pins can engage a workpiece whose resistivity is to be measured.

4,267,507

CIRCUIT PROBING APPARATUS

Maurice R. Guerpont, Malakoff, France, assignor to Société Anonyme de Telecommunications, Paris, France

Filed Feb. 23, 1979, Ser. No. 14,573
Claims priority, application France, Feb. 24, 1978, 78 05302
Int. Cl.[3] G01R *31/22*
U.S. Cl. 324—158 P 4 Claims



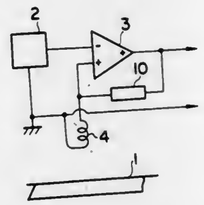
1. An apparatus for probing an electric circuit, comprising at least two probe tips, support arms respectively carrying the probe tips, means for displacing the support arms between a high position and a low position in which the probe tips are in contact with the circuit, and respective program-controlled displacement units to displace the support arms so that the probe tips may assume any desired position in a plane parallel to that of the circuit to be tested, each displacement unit comprising a lower plate, a first drive unit for displacing the lower plate in a first direction, an intermediate plate placed above the lower plate and movable with respect to said lower plate in a second direction at right angles to said first direction, the respective support arm being secured to the intermediate plate, an upper plate placed above the intermediate plate, a second drive unit for displacing the upper plate in said second direction, the intermediate plate being movable with respect to the upper plate in said first direction, and means for fixing the relative position of the two drive units according to each of said directions.

4,267,508

APPARATUS FOR NON-CONTACT MEASUREMENT OF DISTANCE FROM A METALLIC BODY USING A DETECTION COIL IN THE FEEDBACK CIRCUIT OF AN AMPLIFIER

Seigo Ando, Yokohama, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 6, 1979, Ser. No. 27,830
Claims priority, application Japan, Apr. 11, 1978, 53-41728
Int. Cl.[3] G01R *33/00;* G01N *27/72;* G01B *7/14;* H01F *15/16*
U.S. Cl. 324—225 4 Claims



1. In an apparatus comprising a feedback amplifier including a feedback circuit connected to a detection coil disposed opposite to a metallic body to be measured, and a reference oscillator for applying to said feedback amplifier a reference signal having a predetermined frequency and predetermined amplitude, wherein, in response to a change in the impedance of said

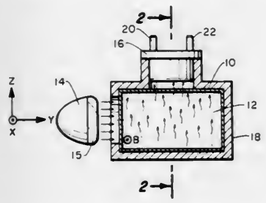
detection coil which impedance changes according to the distance between said detection coil and said metallic body, the amplification degree of said feedback amplifier is controlled to measure the distance between said detection coil and said metallic body disposed opposite thereto in accordance with the amplitude of an output signal of said amplifier, the improvement wherein said detection coil comprises a cylindrical coil having an inner bore of given radius, wherein a plurality of magnetic members each having a high permeability and being in rod form are disposed inside an inner bore of said detection coil so as to be arranged adjacent to the inner wall thereof along the direction of an axis of said detection coil, and wherein said plurality of magnetic members in rod form comprise a combination of some of said magnetic members having a positive temperature characteristic and the remainder of said magnetic members having a negative temperature characteristic, said plurality of magnetic rod members having a diameter smaller than the given radius of the inner bore of the cylindrical coil, whereby a change with temperature of the permeability of said magnetic members as a whole is practically reduced to zero.

4,267,509

MAGNETO-OPTICAL COLLOIDAL CELL AND DEVICE

W. Gordon Graham, 19133 Pala Mesa Pl., Northridge, Calif. 91326

Filed Nov. 1, 1978, Ser. No. 956,565
Int. Cl.³ G01R *33/02, 33/00;* **G01N** *21/00*
U.S. Cl. 324—244 **30 Claims**



1. A magneto-optical apparatus comprising:
a container having at least portions transparent;
a transparent liquid medium in said container;
a plurality of magnetic particles suspended in said liquid medium thereby forming a substantially transparent colloidal solution;
a light source positioned to illuminate said colloidal solution;
said magnetic particles in said colloidal solution adapted to produce a directional scattering of light under the influence of a magnetic field;
light-sensing means positioned at a predetermined angle with respect to the central axis of said light source;
said directional scattering of light produced by said magnetic particles being toward said light-sensing means;
whereby said light-sensing means senses variations in intensity of scattered light from said magnetic particles caused by the magnetic field.

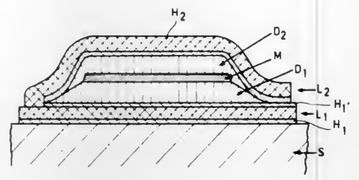
4,267,510

INTEGRATED THIN LAYER MAGNETIC FIELD SENSOR

Ursula Convertini, Borstel; Heinz Dimingen, Hamburg; Holger Lüthje, Halstenbek; Friedrich Küch, and Peter Tummoscheit, both of Bremen, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 14, 1978, Ser. No. 924,497
Int. Cl.³ G01R *33/02*
U.S. Cl. 324—249 **14 Claims**

1. A thin-layer magnetic field sensor in which a thin magnetic layer magnetized in a preferred direction is surrounded by a magnetic HF measuring coil with variable inductance and an external magnetic field and the coil axis are aligned so as to be parallel to a preferred direction of magnetization, the sensor comprising a sequence of superimposed structured layers disposed on a substrate with a first layer of said sequence of layers comprising a structurized metal layer in the form of a row of parallel narrow metal stripes with bevelled sides, a first insulat-



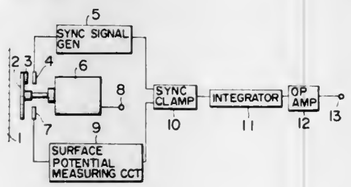
ing layer which covers the metal stripes with the exception of the ends of the metal stripes, a magnetic layer covering the first insulating layer, a second insulating layer which completely covers the magnetic layer, and a second structurized metal layer comprising a row of parallel narrow metal stripes with bevelled sides which covers the second insulating layer as well as the ends of the first metal layer.

4,267,511

SURFACE POTENTIOMETER

Koji Suzuki, Yokohama, and Takehiko Shibata, Kokubunji, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 31, 1978, Ser. No. 956,331
Claims priority, application Japan, Nov. 9, 1977, 52-133592; Nov. 9, 1977, 52-133593
Int. Cl.³ G01R *29/12*
U.S. Cl. 324—458 **5 Claims**



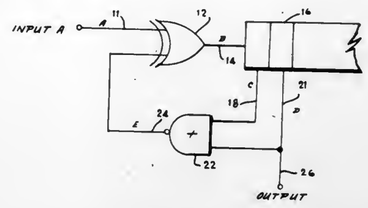
1. A surface potentiometer for measuring the surface potential of a surface, comprising:
a measuring electrode provided at a predetermined distance from the surface to be measured;
chopper means for intermittently interrupting the space between the surface to be measured and said measuring electrode to convert into an AC signal the electrostatic field based on the surface potential of the surface to be measured and to cause said electrode to sense an AC signal;
pulse generating means for sensing a relative position of said electrode with respect to said chopper means, without touching said electrode or chopper means, and for providing an output pulse synchronously with said sensing;
a synchronizing clamp circuit operative in response to the synchronus pulses for clamping the AC signal induced in said measuring electrode; and
an integrator circuit for integrating outputs from said clamp circuit to convert said outputs into a DC signal.

4,267,512

DIGITAL FREQUENCY DIVIDER

William C. Rustenburg, 12 Washington Ave., Burlington, Mass. 01803

Filed Jan. 22, 1979, Ser. No. 5,112
Int. Cl.³ H03K *21/36, 21/06*
U.S. Cl. 328—48 **1 Claim**



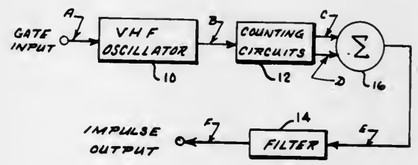
1. A circuit for dividing an electronic signal having a frequency by an odd number and producing an output that is synchronous with the input comprising: an EXOR gate having first and second inputs and an output, means for applying an input signal to the first input of said EXOR gate; a two stage register means the first stage thereof connected to receive the output of the EXOR gate; a NAND gate having first and second inputs and an output; means connecting the first stage output of the register to the first input of the NAND gate; means connecting the second stage output of the register to the second input of the NAND gate; means connecting the output of the NAND gate to the second input of the EXOR gate, and means for taking output from the register which has a frequency less than said input signal to the EXOR gate.

4,267,513

IMPULSE GENERATOR APPARATUS

Michael M. Driscoll, Ellicott, and Thomas K. Lisle, Jr., Baltimore, both of Md., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 7, 1979, Ser. No. 73,479
Int. Cl.³ H03K *3/01*
U.S. Cl. 328—60 **7 Claims**



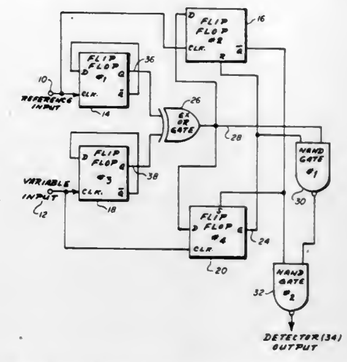
1. An impulse generator apparatus comprising in combination:
an oscillator means, said oscillator means receiving a gate input signal, said oscillator means providing a clock frequency signal, said oscillator means having a fast settling time,
a digital counting means receiving said clock frequency signal from said oscillator means, said digital counting means receiving said gate input signal, said gate input signal enabling said digital counting means, said digital counting means counting the cycles in said clock frequency signal and after a predetermined length of time, generating a first and second signal, means combining said first and second signal to provide a digital waveform, and
an output filter to receive said digital waveform, said output filter having low phase distortion, said output filter removing impulse harmonics and high frequency components from said digital waveform, said output filter removing low frequency components due to non-exact DC offset cancellation, said output filter providing a pulsed sinusoidal output signal.

4,267,514

DIGITAL PHASE-FREQUENCY DETECTOR

Thomas H. Kimsey, Columbia, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 16, 1979, Ser. No. 12,697
Int. Cl.³ H03L *7/00;* **H03K** *5/26*
U.S. Cl. 328—133 **5 Claims**



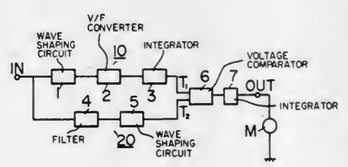
1. A digital phase-frequency detector for phase locked loops comprising: first and second signal input means; a first and second circuit means connected to the said first and second input means for determining a selected phase-frequency relationship between said input signals and producing an output; gate means for gating an output when the selected phase relationship exists connected to the first and second circuit means; third and fourth circuit means connected to the first and second input means for detecting unselected phase-frequency relationships, said third and fourth circuits being so interconnected as to disable said gate means and causing the circuit receiving the higher input frequency to change state preventing the circuit receiving the lower frequency from changing state until the selected phase-frequency relationship is achieved, and a first and second NAND gate connected to the third and fourth circuits and said gate means for allowing an output signal when said conditions are met.

4,267,515

DISTORTION FACTOR METER CIRCUIT

Nobuo Terui, Kodaira, and Kozo Kobayashi, Higashimurayama, both of Japan, assignors to Nakamichi Research Inc., Tokyo, Japan

Filed Feb. 2, 1979, Ser. No. 8,880
Claims priority, application Japan, Feb. 16, 1978, 53-16900
Int. Cl.³ H03K *5/24*
U.S. Cl. 328—147 **4 Claims**



1. A distortion factor meter circuit comprising a first transmission line including means to shape a first signal having a harmonic component into a first DC signal, means to convert

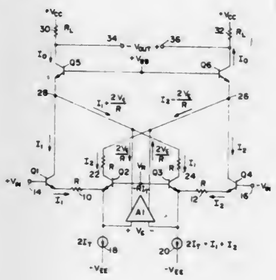
said first DC signal into a square wave signal having a width proportional to the level of said DC signal and a predetermined periodicity, and means to convert said square wave signal into a triangular wave signal having a level linearly increasing during the existence of the level of said square wave signal and linearly decreasing after the level of said square wave signal disappears; a second transmission line including means to produce a second signal formed by eliminating a fundamental from said first signal and means to shape said second signal into a second DC signal; a voltage comparator to compare the output signal of said first transmission line with that of said second transmission line so as to produce a digital signal of "1" when the level of the output signal of said first transmission line is lower than that of said second transmission line and a digital signal of "0" when the level of the output signal of said first transmission line is higher than that of said second transmission line; and means to integrate the output signal of said voltage comparator.

4,267,516

COMMON-EMITTER F_T DOUBLER AMPLIFIER EMPLOYING A FEED FORWARD AMPLIFIER TO REDUCE NON-LINEARITIES AND THERMAL DISTORTION

Einar O. Traa, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Aug. 3, 1979, Ser. No. 63,606
Int. Cl.³ H03F *1/26, 3/45*
U.S. Cl. 330—149 **2 Claims**



1. An improved amplifier circuit for producing enhanced current gain at high frequencies comprising a first pair of emitter-coupled transistors, the collectors of which are coupled respectively to first and second current nodes, a second pair of emitter-coupled transistors, the collectors of which are also coupled respectively to said first and second current nodes to provide an in-phase current output in parallel with the current-output of said first pair of transistors, wherein the improvement comprises:

a feed forward amplifier having a pair of input terminals coupled respectively to the emitters of said first and second pairs of transistors to sense the distortion produced thereby, and a pair of outputs coupled respectively to said first and second current nodes to inject a correction current into the output currents of said first and second pairs of transistors; and

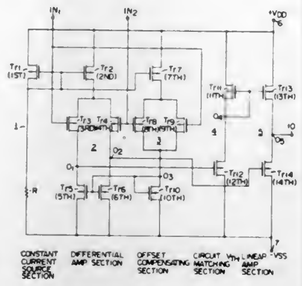
a pair of common-base transistors, the emitters of which are respectively coupled to said first and second current nodes to provide a substantially error free output current at the collectors thereof.

4,267,517

OPERATIONAL AMPLIFIER

Tetsuya Iida, Yokohama; Chikara Sato, Kawasaki, and Yasoji Suzuki, Ayase, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Dec. 1, 1978, Ser. No. 965,475
Claims priority, application Japan, Dec. 7, 1977, 52/146793; Dec. 7, 1977, 52/146794; Dec. 7, 1977, 52/146795; Feb. 13, 1978, 53/15238
Int. Cl.³ H03F *3/45, 3/30, 3/16*
U.S. Cl. 330—253 **10 Claims**



1. An operational amplifier comprising:

a constant current source circuit;

a differential amplifier circuit which is constructed by using MOS (metal oxide semiconducter) transistors, connected between a first potential supply terminal and a second potential supply terminal, coupled to said constant current source circuit and supplied with first and second inputs;

a linear amplifier circuit which is constructed by using MOS transistors, connected between said first and second potential supply terminals, and receives the output of said differential amplifier circuit to produce an output corresponding to said output received; and

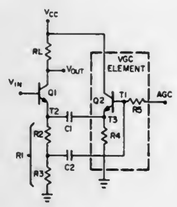
an offset compensating circuit which is connected between said first and second potential supply terminals, and to said differential amplifier circuit, for keeping the output DC level of said differential amplifier circuit substantially constant in response to change of the DC voltage levels of said first and second inputs of said differential amplifier circuit.

4,267,518

GAIN CONTROLLABLE AMPLIFIER STAGE

William W. Davis, Rosemount, Minn., assignor to Sperry Corporation, New York, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,851
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—254 **4 Claims**



1. A gain controlled amplifier, comprising:

a first transistor having a base, a collector and an emitter and a voltage gain dependent on the ratio of a collector impedance, coupled to said collector, to an emitter impedance, coupled to said emitter, said first transistor receiving input signals impressed on said base and producing output signals on said collector amplified in direct proportion to said voltage gain;

capacitor means coupled to said emitter for providing a low impedance, small signal current path;

voltage gain control means coupled to said capacitor means and responsive to small signal variations of said input signals for producing a variable output impedance, comprised of

a second transistor having a second base, a second collector, and a second emitter, said second base and second emitter coupled to said capacitor means, and

means for establishing a quiescent impedance for said second transistor, said variable output impedance varying about said quiescent impedance during said small signal variations,

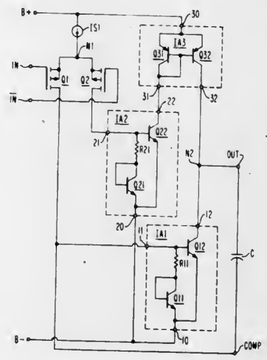
whereby the effective emitter impedance coupled to said first transistor during said small signal variations depends on the combined impedance of said voltage divider means and said variable output impedance, thus increasing said voltage gain.

4,267,519

OPERATIONAL TRANSCONDUCTANCE AMPLIFIERS WITH NON-LINEAR COMPONENT CURRENT AMPLIFIERS

Otto H. Schade, Jr., North Caldwell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 18, 1979, Ser. No. 76,674
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—255 **14 Claims**



1. An operational transconductance amplifier comprising:

first and second operating voltage terminals for receiving operating voltages of first and second opposite polarities respective to each other;

preliminary amplifier means for responding to an input signal to provide signal variations swinging in opposite senses and being superimposed on respective currents of said first polarity at first and second output connections thereof, respectively;

first and second current amplifiers having respective input connections respectively from the first and from the second output connections of said preliminary amplifier means, having respective common connections to said second operating voltage terminal, and having respective output connections for supplying respective output currents of said second polarity;

a third current amplifier having an input connection from the output connection of said second current amplifier, having a common connection to said first operating voltage terminal, and having an output connection for supplying an output current of said first polarity;

an output signal terminal to which the output connections of said first and third current amplifiers connect; and

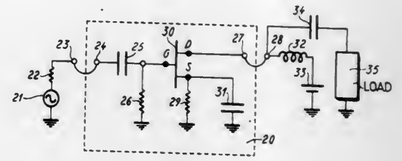
the improvement wherein at least one of said first, second, and third current amplifiers is of a type exhibiting a respective current gain as between its input and output connections which increases with increased current to its input connection.

4,267,520

HYBRID COMPONENT FOR VERY HIGH FREQUENCY AMPLIFICATION

Henri Derewonko; Michel Laviron, and Joel Lepage, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed May 2, 1979, Ser. No. 35,414
Claims priority, application France, May 3, 1978, 78 13092
Int. Cl.³ H03F *3/60*
U.S. Cl. 330—286 **8 Claims**



1. A hybrid component of the type wherein a field-effect transistor is mounted in a sealed housing and is destined to operate as a high frequency (1–20 Gc/s) amplifier, by insertion between a h.f. supply and a load cooperating with a d.c. supply and means for decoupling the load from said d.c. supply, said hybrid component comprising:

a metallic base, said base constituting a ground plane;

an insulating plate including a central aperture therein, said plate being mounted onto said metallic base;

first and second metallized lines deposited onto said insulating plate, said metallized lines constituting lines with distributed constants, said first metallized line being coupled between said h.f. supply and an input of said hybrid component, said second metallized line being coupled between an output of said hybrid component and said load and said d.c. supply;

a bare field-effect transistor chip including a first large face having a source terminal, a gate terminal, and a drain terminal located thereon and a second large face opposite to said first face, said second large face being welded onto said metallic base inside said aperture of said insulating plate;

a gate input capacitor coupled between said first metallized line and said gate terminal, said gate input capacitor being formed from a ceramic chip metallized on two of its faces, said ceramic chip being welded onto said first metallized line;

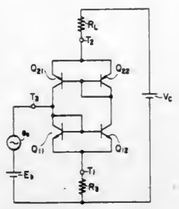
a first resistor coupled between said gate terminal and said metallic base, said first resistor being formed from a silicon chip metallized on two of its faces, said first resistor being welded onto said metallic base;

a self-biasing cell coupled between said source terminal and said metallic base, said self-biasing cell including a second silicon chip resistor coupled in parallel with a ceramic chip biasing capacitor, said second resistor and said biasing capacitor being welded onto said metallic base;

an output conductor coupling said drain terminal to said second metallized line; and

an hermetic closure cap covering said central aperture in said insulating plate.

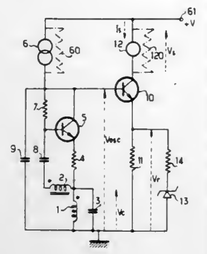
4,267,521
COMPOUND TRANSISTOR CIRCUITRY
Kenji Yokoyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan
Continuation of Ser. No. 859,192, Dec. 9, 1977, abandoned. This application Feb. 2, 1979, Ser. No. 9,087
Claims priority, application Japan, Dec. 27, 1976, 51-176316
Int. Cl.³ H03F *3/10*
U.S. Cl. 330—288 **12 Claims**



1. An amplifier having an improved high gain compound bipolar transistor arrangement, comprising:
first, second and third terminals,
a first compound bipolar transistor circuit having first and second like bipolar transistors both of which are of one conductivity type and each having a collector, emitter and base, said bases being connected to the collector of said first bipolar transistor, and means preventing emitter base potential differences including a direct connection of said emitters said first terminal,
a second compound bipolar transistor circuit having third and fourth like bipolar transistors both of which are of a conductivity type opposite to said one conductivity type and each having a collector, emitter and base, said bases being connected to the collector of said fourth bipolar transistor, and means preventing emitter base potential differences between said third and fourth transistors including a direct connection of the emitters thereof to said second terminal,
said first and third transistor collectors being connected to said third terminal,
said second and fourth transistor collectors being connected to each other,
means including the over-all current amplification factors of said first and second compound transistor circuits being substantially equal to each other for causing each of said compound transistor circuits to be current mirror circuits,
a dc voltage source connected between said first and second terminals,
a load connected in series with said dc voltage source,
a biasing voltage source connected across said first and third terminals for supplying a biasing voltage thereto, and
a variable input signal source connected in series with said biasing voltage for supplying a variable input signal to said third terminal for controlling the current across said first and second terminals for said load.

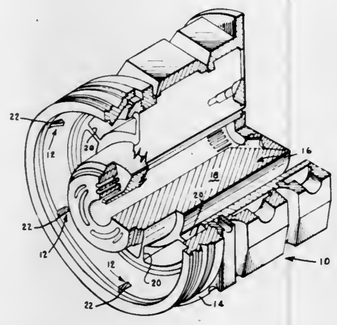
4,267,522
L.C. OSCILLATOR PROXIMITY DETECTOR
Jean-Marie Periot, Isle d'Espagnac, France, assignor to La Telemecanique Electrique, France
Filed Mar. 19, 1979, Ser. No. 22,027
Claims priority, application France, Mar. 17, 1978, 78 07758
Int. Cl.³ G01V *3/11;* **H03B** *5/12*
U.S. Cl. 331—65 **6 Claims**

1. A proximity detector comprising:
a parallel oscillatory circuit having an inductance with a grounded terminal, the quality factor and the inherent impedance of the said oscillatory circuit varying as a function of the distance of a metallic object with respect to the said inductance;
amplifier means having an input and an output;
constant current generating means connected to the input of the amplifier means;
feedback means connecting the output of the amplifier means to the input of the amplifier means, said feedback means including resistance means connecting the output of the amplifier means to the oscillatory circuit for feeding



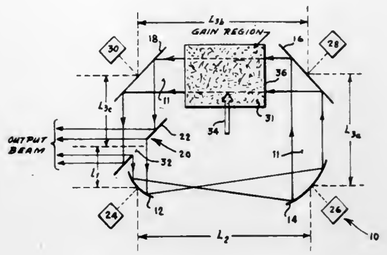
current thereto, wherein said resistance means have a resistance value which is sufficiently small to permit the sustenance of oscillations, as soon as the said object ceases to be in the immediate proximity of the oscillatory circuit, and output signal terminals consisting of the input of the amplifier means and the grounded terminal of the oscillatory circuit.

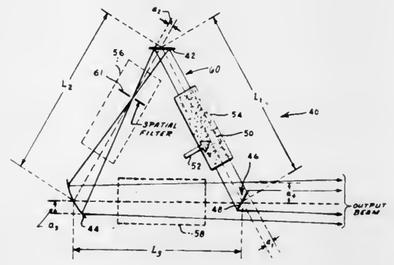
4,267,523
INCIDENT RADIATION ABSORBER
Donald G. Brown, Newbury Park, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Jan. 5, 1979, Ser. No. 1,334
Int. Cl.³ H01S *3/08*
U.S. Cl. 331—94.5 C **9 Claims**



1. An incident radiation absorber comprising a body having a plurality of sides, one of said sides being open to allow incident radiation to enter, the remaining sides being in the form of longitudinally extending panels, said panels being secured to each other at a predetermined angular relationship, said panels being made of a material capable of absorbing a substantial portion of said incident radiation and reflecting the remaining portion of said incident radiation to an adjacent panel and means connected to said body for adjusting the position of said body with respect to said incident radiation whereby substantially all of said incident radiation is absorbed by said absorber, at least one of said panels comprising an inner and an outer longitudinal extending plate, means located within one of said plates for allowing the passage of a cooling fluid therethrough and means located within said adjusting means connected to said fluid passage means for allowing said fluid to enter and exit from said fluid passage means.

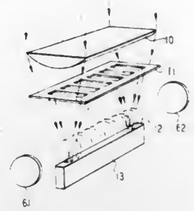
4,267,524
UNSTABLE OPTICAL RESONATOR WITH SELF-IMAGING APERTURE
Alan H. Paxton, 314 Cornell Dr., SE., Albuquerque, N. Mex. 87106, and Theodore C. Salvi, 19 Garden Park Cir., Albuquerque, N. Mex. 87107
Filed Mar. 8, 1979, Ser. No. 18,693
Int. Cl.³ H01S *3/05*
U.S. Cl. 331—94.5 C **10 Claims**





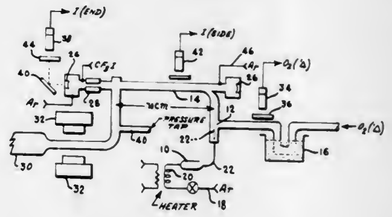
1. In a laser system having at least one gain region, a laser medium located within said gain region, and means for initiating a laser action within said medium thereby emitting a beam of coherent radiant energy, the improvement comprising means forming an unstable resonator for said laser system having a self-imaging aperture, said unstable resonator comprising at least two means in optical alignment with each other and said gain medium for directing said beam of radiant energy therebetween, means forming said aperture of said resonator in optical alignment with said directing means for outputting a portion of said beam of radiant energy from said laser system and feeding back the remainder of said beam of radiant energy to said pair of directing means, said pair of directing means and said outputting and feedback aperture means being spaced apart a predetermined distance from each other, respectively, thereby forming at least two propagation legs of said resonator therebetween and a self-imaging condition for said resonator being met when a single round trip pass of said radiant beam of energy through said resonator starting at said outputting and feedback aperture means produces an infinite Fresnel number, said Fresnel number for each of said propagation legs of said resonator being defined as $F_i = \pm a_1 a_2 / \lambda L$ where a_1 and a_2 are half the width of a geometric beam of radiant energy at the beginning and end of one of said propagation legs, λ is the wavelength and L is the length of each of said propagation legs, the total Fresnel number of said self-imaging condition being F_t where $1F_i = \Sigma 1/F_i = 1/\infty = 0$.

4,267,525
RECOMBINATION LASERS WITH SPATIAL VARIATIONS IN PUMPING
William T. Silfvast, Holmdel; Leo H. Szeto, Howell Township, Monmouth County, both of N.J., and Obert R. Wood, II, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 6, 1979, Ser. No. 27,672
Int. Cl.³ H01S *3/09*
U.S. Cl. 331—94.5 G **18 Claims**



1. A recombination laser comprising:
a resonant laser cavity including means for extracting laser radiation;
a laser amplifying medium;
excitation means for producing an ionized laser amplifying medium in said resonant laser cavity; and
a background gas in said resonant laser cavity for deenergizing electrons obtained from the ionization of said laser amplifying medium, whereby said electrons recombine with the ions of said laser amplifying medium to produce a population inversion in said laser amplifying medium;
characterized in that
said excitation means is a means for generating a plurality of localized regions of ionized laser amplifying medium, each one of which localized regions is separated from the other regions.

4,267,526
CONTINUOUS WAVE CHEMICALLY PUMPED ATOMIC IODINE LASER
William E. McDermott; David J. Benard; Nicholas R. Pchelkin, and Ronald R. Bousek, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Apr. 13, 1979, Ser. No. 29,947
Int. Cl.³ H01S *3/095*
U.S. Cl. 331—94.5 G **2 Claims**



1. A method for producing a continuous wave, chemically pumped lasing action which comprises:
A. providing a resonant cavity having oppositely disposed reflecting means;
B. continuously introducing a stream of gaseous molecular oxygen in the singlet-delta electronic state into said cavity;
C. admixing a continuous flow of gaseous molecular iodine with said stream of oxygen to form an electronically excited, continuously flowing, gaseous mixture;
D. passing said flowing, excited gaseous mixture through

said resonant cavity to produce a beam of coherent electromagnetic radiation; and

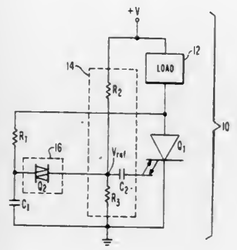
E. continuously exhausting said oxygen and iodine gasses at the end of said resonant cavity subsequent to their mixing.

4,267,527

RELAXATION OSCILLATOR

Cesare J. Petrizio, Flanders, N.J., and Robert H. Isham, Wilkes Barre, Pa., assignors to RCA Corporation, New York, N.Y.

Filed May 11, 1979, Ser. No. 38,210
Int. Cl.³ H03K *3/35*
U.S. Cl. 331—111 **6 Claims**



1. A low power consuming oscillator circuit for maintaining a substantially constant output frequency across a load as a D.C. supply voltage applied to the oscillator circuit fluctuates, comprising:

a GTO device having a main conduction path and a control electrode, said main conduction path being series connected with the load across the D.C. supply voltage and being rendered conductive or non-conductive respectively when positive or negative current is applied to said control electrode;

a resistor and a capacitor connected in series across said main conduction path to produce a charge voltage level at a common connection therebetween, said charge voltage level being exponentially varied in response to voltage changes across said main conduction path;

bias means for producing a reference voltage level at an interconnection thereof in proportion to the D.C. supply voltage, and for applying said reference voltage level to said control electrode; and

threshold means for conducting either positive or negative current respectively to said control electrode when the differential between said reference voltage level and said charge voltage level reaches positive or negative trigger levels;

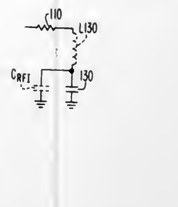
said charge voltage level being recurrently increased toward the D.C. supply voltage level until its differential from said reference voltage level reaches said positive trigger level to render said main conduction path conductive by applying positive current at said control electrode and then being decreased away from the D.C. supply voltage until its differential from said reference voltage level reaches said negative trigger level to render said main conduction path non-conductive by applying negative current at said control electrode, an oscillating voltage level being thereby developed across the load of substantially a constant frequency in accordance with the reference voltage level, the trigger levels of said threshold means and the time constant resulting from said resistor and capacitor combination.

4,267,528

RADIO FREQUENCY INTERFERENCE SUPPRESSION APPARATUS

Gerald E. Thornberry, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed May 11, 1979, Ser. No. 38,101
Int. Cl.³ H03H *7/01;* **H04B** *1/10;* **H04N** *5/21*
U.S. Cl. 333—12 **8 Claims**



1. Apparatus for suppressing radio frequency interference radiation from a circuit connection point comprising:

a metallic surface coupled to a point of radio frequency reference potential; and

a first capacitor having a substantially planar first plate and a second plate, a first terminal coupled to said first plate and a second terminal coupled to said second plate, said first terminal being coupled to said circuit connection point and said second terminal being coupled to a point of radio frequency reference potential, said first capacitor acting to conduct a first portion of radio frequency interference energy from said circuit connection point to said point of radio frequency reference potential,

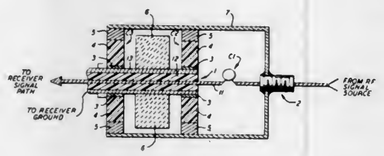
wherein said first capacitor is located in close proximity to said metallic surface with said substantially planar first plate oriented between said metallic surface and said second plate so as to oppose said metallic surface in a substantially parallel relationship, thereby forming a second capacitor including said first plate and said metallic surface with an air dielectric therebetween, said second capacitor exhibiting a capacitance of at least ten picofarads and acting to conduct a further portion of radio frequency interference energy from said circuit connection point and said first terminal to said metallic surface.

4,267,529

TV ANTENNA ISOLATION SYSTEM

Craig W. Brun, Honeoye Falls, and Wilfred L. Hand, Clarence, both of N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Filed Feb. 11, 1980, Ser. No. 120,182
Int. Cl.³ H01P *5/00*
U.S. Cl. 333—12 **11 Claims**



1. An apparatus for coupling a source of RF signals to a receiver and for isolating said receiver from ambient interfering signals, said apparatus comprising:

a transmission line having a first conductive element coupled at a first end to the signal path of the source of RF signals and coupled at a second end to the signal path of the receiver and having a second conductive element coupled to the return path of the receiver;

a first capacitive element coupling the second conductive element to the return path of the source of RF signals, and

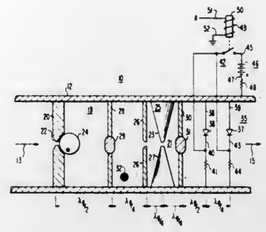
a ferrite element surrounding the transmission line.

4,267,530

IRIS FOR RECEIVER PROTECTOR

William D. Cherry, Beltsville, and Harry Goldie, Randallstown, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 26, 1979, Ser. No. 61,129
Int. Cl.³ H01P *1/14, 1/08*
U.S. Cl. 333—13 **3 Claims**



2. An iris for providing at times a gas plasma discharge in a stage of a receiver protector comprising:

a metal plate having a first and second side and two spaced apart circular openings connected by a slot opening;

said slot opening having a predetermined gap formed by a first and second edge;

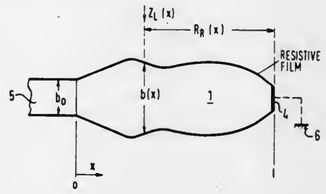
said first and second edges having flat areas positioned opposite one another and tapered surface areas contiguous to said flat areas to enhance the electric field in the area of said gap.

4,267,531

HIGH-FREQUENCY TERMINATING IMPEDANCE

Georg Spinner, 8152 Feldkirchen-Westerham 1, Am Eichberg 12, and Manfred Lang, 80 21 Taufkirchen, Veilchenweg 63, both of Fed. Rep. of Germany

Continuation-in-part of Ser. No. 821,407, Aug. 3, 1977, abandoned. This application May 18, 1979, Ser. No. 40,479
Claims priority, application Fed. Rep. of Germany, Aug. 3, 1976, 2634812
Int. Cl.³ H01P *1/26*
U.S. Cl. 333—22 R **8 Claims**



1. A high-frequency terminating impedance comprising a resistive layer of constant thickness which is disposed on a dielectric support and the lateral edge lines of which extend such that the condition

$$Z_L(x) = Z_L - \int_0^x R\,dx \text{ is fulfilled,}$$

wherein

Z_L: characteristic impedance of the line

$Z_L(x)$: characteristic impedance into the resistive layer at the point (x)

R: remaining resistance between the point (x) and the end of the resistive layer,

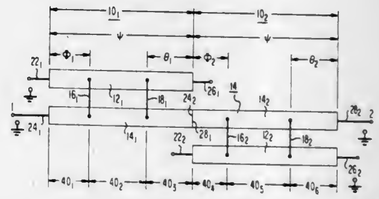
an axially resilient contact of the inner conductor of a coaxial terminal bearing at the end face on a contact which is disposed on the end face of the dielectric support, the resistive layer being disposed between two ceramic plates forming the dielectric and the ceramic plates in turn being in intimate contact with and clamped by metal plates which are in electrical contact with the end of the resistive layer, the ceramic plates having the same thickness, and the terminating impedance including a soft metal foil inserted between the metallic clamping plates and said ceramic plates, the impedance further including a pair of fitting pieces inserted between the ceramic plates and the metallic clamping plates, one of said fitting pieces being made as a plane plate and the other fitting piece forming a wedge member, the two wedge-shaped ceramic plates with the resistive layer disposed therebetween being arranged inclined with respect to the conductor axis of the coaxial conductor, and the soft metal foil being traversed by a metallic grating which prevents a lateral cold flowing of the soft metal.

4,267,532

ADJUSTABLE MICROSTRIP AND STRIPLINE TUNERS

Adel A. M. Saleh, Holmdel, N.J., assignor to W. L. Keefauver, Bell Laboratories, Murray Hill, N.J.

Filed Oct. 11, 1979, Ser. No. 83,591
Int. Cl.³ H01P *5/00*
U.S. Cl. 333—33 **2 Claims**



1. A strip transmission line circuit comprising

a pair of tuning elements (10_1, 10_2) disposed over a round plane, each tuning element comprising

a first strip of conductive material (**12**) comprising first and second terminals disposed at separate ends of said first strip;

a second strip of conductive material (**14**) comprising first and second terminals disposed at separate ends of said second strip, said second strip equal in length to, and positioned in a parallel spaced-apart relationship with, said first strip to form a tuning element;

characterized in that

the strip transmission line circuit further comprises

the second terminal of the first strip of one of the pairs of tuning elements being connected to a first terminal of the first strip of the other of the pairs of tuning elements;

said connection defining a complementary interconnection of the pair of tuning elements, each tuning element further comprising

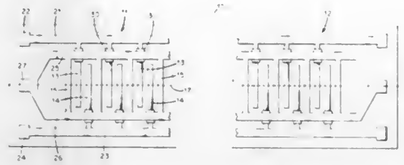
at least one movable bridging wire (**19**) connecting the first and second strips, providing a shunt interconnection between said strips, said wire capable of moving along the entire length of said tuning element to provide a variable output impedance of said strip transmission line circuit.

4,267,533

ACOUSTIC SURFACE WAVE DEVICE

Martin E. Dempsey, Acton, and Ching W. Lee, Lexington, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Feb. 1, 1980, Ser. No. 117,707
Int. Cl.³ H03H *9/42, 9/145, 9/64*
U.S. Cl. 333—151 **9 Claims**



1. An acoustic surface wave device including an acoustic surface wave propagating medium and a transducer on a surface of said medium, said transducer comprising:

first, second, and third sets of interdigitated electrodes of conductive material on the surface of the acoustic surface wave propagating medium with the electrodes extending transversely to the central axis of the transducer;

a first bus bar of conductive material on one side of the central axis extending generally along the direction of the central axis and connected to the end of each electrode of the first set on the one side of the central axis;

a second bus bar of conductive material on the other side of the central axis extending generally along the direction of the central axis and connected to the end of each electrode of the second set on the other side of the central axis;

a third bus bar of conductive material on the one side of the central axis extending generally along the direction of the central axis and connected to the end of each electrode of the third set on the one side of the central axis;

a fourth bus bar of conductive material on the other side of the central axis extending generally along the direction of the central axis and connected to the end of each electrode of the third set on the other side of the central axis;

the electrodes of each set and the bus bars connected thereto being electrically isolated from the electrodes of the other sets and the bus bars connected thereto.

4,267,534

SURFACE ACOUSTIC WAVE REFLECTORS WITH WEIGHTED ARRAYS OF SEGMENTED AND NON-SEGMENTED LINEAL ELEMENTS

William J. Tanski, Maynard, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed May 23, 1980, Ser. No. 152,463
Int. Cl.³ H03H *9/02, 9/64, 9/68*
U.S. Cl. 333—153 **14 Claims**

1. Apparatus for reflecting an acoustic surface wave comprising:

a substrate for supporting a surface acoustic wave at a surface thereof,

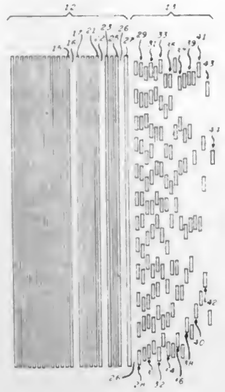
first and second reflector sections in side-by-side parallel cooperative relation affixed at said surface,

said first reflector section including a plurality of lineal reflector elements extending in spaced parallel relation across the path of said acoustic surface wave for reflecting a first portion thereof,

said second reflector section including a plurality of segmented reflector elements extending normal to said path, each in parallel relation with said lineal reflector elements, for cooperatively reflecting substantially the total of the remainder of said surface wave,

said first reflector section being modified according to a predetermined reflectivity function by the absence of predetermined ones of said lineal reflector elements at predetermined locations therein,

the number of segments in said segmented reflector elements progressing from a predetermined maximum in the segmented reflector element adjacent said first reflector section to a single segment element most remote from said first reflector section according to said predetermined reflectivity function.



4,267,535

SWITCHING CIRCUIT CONSISTING OF CTD LINES

Hermann Betzl; Friedrich Kuenemund, both of Munich, and Roland Schreiber, Riemerling, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 22, 1979, Ser. No. 14,138
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1978, 2808604
Int. Cl.³ H03H *17/06;* **G11C** *27/00, 21/00*
U.S. Cl. 333—165 **20 Claims**

$$C_3 = C_1 + C_1' + C_2$$

$$VC_3 = y(C_1 + C_1') + xC_2$$

$$UC_3 = z(C_1 + C_1') + wC_2$$

1. A switching circuit including CTD lines each of which can transfer charge unidirectionally and each of which has a characteristic transfer capacitance which determines the reciprocal of the characteristic impedance of the line comprising:

a first and a second semiconductor means for unidirectional transfer of charge, each including a CTD line;

a third and a fourth semiconductor means for unidirectional transfer of charge, each including a CTD line;

a fifth and a sixth semiconductor means for unidirectional transfer of charge, each including a CTD line;

said CTD lines in said first and second semiconductor means being interconnected at a first end by a first, cross-connected CTD line to form a first line-pair capable of conducting selected quantities of charge inwardly through said CTD line of said first semiconductor means, across said first, cross-connected CTD line and outwardly through said CTD line of said second semiconductor means;

said CTD lines in said third and fourth semiconductor means being interconnected at a first end by a second cross-connected CTD line to form a second line-pair capable of conducting selected quantities of charge inwardly through said CTD line of said third semiconductor means, across said second cross-connected CTD line and outwardly through said CTD line of said fourth semiconductor means;

said CTD lines in said fifth and sixth semiconductor means being interconnected at a first end by a third, cross-connected CTD line to form a third line-pair capable of conducting selected quantities of charge inwardly through said CTD line of said fifth semiconductor means across said third, cross-connected, CTD line and outwardly through said CTD line of said sixth semiconductor means;

said first end of said CTD line of said first semiconductor means being connected to said first end of said CTD line of said fourth semiconductor means and to said first end of said CTD line of said sixth semiconductor means through a first means for conduction;

said first end of said CTD line of said third semiconductor means being connected to said first end of said CTD line of said second semiconductor means and to said first and of said CTD line of said sixth semiconductor means through a second means for conduction;

said first end of said CTD line of said fifth semiconductor means being connected to said first end of said CTD line of said second semiconductor means and said first end of said CTD line of said fourth semiconductor means by a third means for conduction;

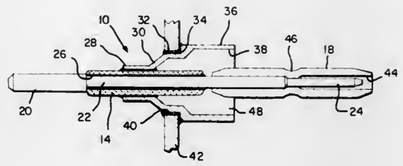
said line-pairs and said means for conduction forming a three terminal-pair network.

4,267,536

STEPPED PIN POTTED FILTER ASSEMBLY

Robert D. Hollyday, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 838,189, Sep. 30, 1977, abandoned. This application Mar. 16, 1979, Ser. No. 21,059
Int. Cl.³ H03H *7/01, 1/00;* **H01R** *19/22*
U.S. Cl. 333—186 **5 Claims**



1. A stepped pin potted filter assembly comprising:

a pin having a stepped profile along the length thereof starting with a first mating end portion of a large diameter, a filter mounting portion of an intermediate diameter joined to said first mating end portion by a first annular step, and a rear end portion of small diameter joined to said filter mounting portion by a second annular step;

a cylindrical filter member having a bore receiving therein said intermediate diameter portion of said pin with an end of said filter member abutting against said first annular step;

a profiled cylindrical eyelet having a first portion closely fitting over said filter member and an enlarged second portion to the rear thereof defining a blind cavity;

a sleeve having a bore receiving therein said rear end portion of said pin and extending at least partially into said blind cavity, said sleeve having an outer diameter greater than said first mating end portion of said pin; and

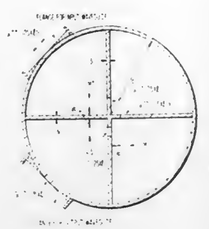
potting material filling said blind cavity defined by said eyelet.

4,267,537

RIGHT CIRCULAR CYLINDRICAL SECTOR CAVITY FILTER

Paul R. Karmel, Potomac, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Apr. 30, 1979, Ser. No. 34,697
Int. Cl.³ H01P *7/06, 1/20, 3/12*
U.S. Cl. 333—231 **2 Claims**



1. A multiple-coupled cavity waveguide bandpass filter comprising

(a) a plurality of resonant sectorial cavities, each comprising a sector of a circular cylinder and being defined by two planar conductive members of length d and width a which intersect at one end at an angle ϕ to form a pair of radial walls, each of said planar conductive members having one or more apertures which couple energy between adjacent resonant sectorial cavities, and

(b) an outer conductive surface of length d and radius of curvature a connecting the other ends of said planar conductive members to form a circumferential wall, and

(c) a pair of conductive end plates separated by length d and enclosing either end of said sectorial cavity,

wherein the respective sectorial cavities, by apertures in said conductive members, are selectively coupled electrically to provide negative mutual coupling and magnetically to provide positive mutual coupling one of said sectorial cavities being coupled at its circumferential wall to an input waveguide and another of said sectorial cavities being coupled at its circumferential wall to an output waveguide.

4,267,538

RESISTIVELY MATCHED MICROWAVE PIN DIODE SWITCH

Francois T. Assal, Bethesda; Arnold L. Berman, Kensington, and Khodadad Betaharon, Rockville, all of Md., assignors to Communications Satellite Corporation, Washington, D.C.

Filed Dec. 3, 1979, Ser. No. 99,814
Int. Cl.³ H01P *1/15, 3/08, 1/26*
U.S. Cl. 333—262 **5 Claims**



1. A microwave PIN diode switch of the type having an input port comprising first and second input terminals, an output port comprising first and second output terminals, a first reflecting PIN diode coupled between said first and second input terminals and means for supplying a controllable bias

signal to said first reflective PIN diode to switch said diode between conductive and nonconductive states, said switch receiving a RF signal from first and second RF transmission conductors of a RF transmission path of impedance Z_0 and either passing said RF signal to said output port or reflecting said output signal in accordance with the applied bias, the improvement comprising:

impedance matching means connected between said RF transmission path and said first reflective PIN diode for presenting an impedance of substantially Z_0 to said transmission path regardless of the conductive state of said first reflective PIN diode,

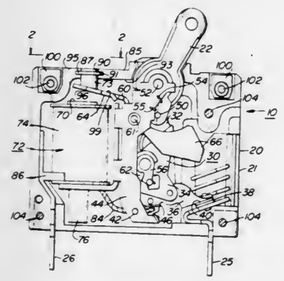
said impedance matching means comprising a first impedance matching PIN diode and a first impedance matching resistor connected in series between said first and second input terminals, said resistor having a resistance value R_0 substantially equal to the impedance Z_0.

4,267,539

CIRCUIT BREAKER HAVING A CAM FOR EXTERNAL ADJUSTMENT OF ITS TRIP POINT

Thomas Guinan, Hamilton Township, Mercer County, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

Filed Aug. 2, 1979, Ser. No. 63,270
Int. Cl.³ H01H *71/74*
U.S. Cl. 335—42 **5 Claims**



1. A circuit breaker comprising

a case incuding two abutting half-cases

a solenoid coil,

a pivotal armature actuatable by said coil,

a pole piece at one end of said coil,

said armature having an unlatching portion and an attractable portion movable toward said pole piece upon predetermined energization of said coil,

a linkage mechanism including a latch engaged by said unlatching portion of said armature to trip said linkage mechanism on predetermined energization of said coil,

a rotatable cam engaging said attractable portion, and

a spring for biasing said attractable portion toward said cam,

said cam being carried by said half-cases,

said cam being accessible from the exterior of said case for rotating said cam and varying the air gap between said attractable portion of said armature and said pole piece, whereby the trip point of the circuit breaker may be varied,

said cam including a cylindrical portion and a circular flange,

said half-cases including semi-circular openings jointly defining a circular opening,

said cylindrical portion being received within said circular opening, and

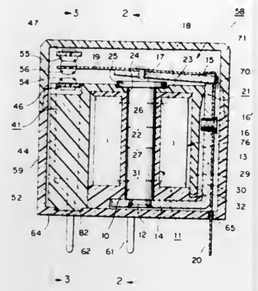
said circular opening being undercut to receive said flange, whereby said cam is carried by said half-cases, but may be rotated within said opening to move said armature attractable portion toward or away from said pole piece.

4,267,540

HINGE-TYPE ELECTROMAGNETIC RELAY

Hiroshi Iketani, Nagaokakyo, Japan, assignor to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Sep. 12, 1979, Ser. No. 74,827
Claims priority, application Japan, Nov. 1, 1978, 53-135222
Int. Cl.³ H01H *67/02*
U.S. Cl. 335—128 **6 Claims**



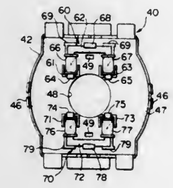
1. In a hinge-type electromagentic relay including a spool member having first and second flanges which is wound with a coil, a core member which extends through a hole formed in the spool member, an armature member which upon energization of the coil is attracted by said core member, a yoke member which is connected between the core member and the armature member, a movable contact member carried by the armature member, and a stationary contact member corresponding to the movable contact member, the improvement comprising an electrically non-conductive molded plastic cover unit with its bottom side open for housing said spool member, said cover unit supporting a stationary contact terminal member carrying said stationary contact member, said bottom side of cover member being closed by said second flange, and said second flange being provided with a plurality of coil terminal members to be connected to said coil.

4,267,541

DEFLECTION YOKE APPARATUS WITH CONVERGENCE DEVICE FOR IN-LINE COLOR TELEVISION CATHODE-RAY TUBE

Tatsuichi Narikiyo, Yokohama, Japan, assignor to Denki Onkyo Co., Ltd., Tokyo, Japan

Filed Dec. 15, 1978, Ser. No. 969,677
Int. Cl.³ H01F *3/00*
U.S. Cl. 335—212 **5 Claims**



1. A deflection yoke apparatus for color television cathode-ray tubes having three in-line electron beams, said apparatus comprising:

(a) a deflection core;

(b) a pair of horizontal and vertical deflection coils each having conductors extending along the surface of said core for deflecting said three electron beams in the horizontal and vertical directions;

(c) a coil separator means positioned between said deflection coils to electrically insulate said deflection coils;

(d) a pair of movable convergence coil means for converging said three electron beams onto the screen of said cathode-ray tube, each convergence coil means having a U-shaped core and a convergence coil mounted on each leg of said U-shaped core, each said U-shaped core being positioned with respect to said electron beams such that the legs of said U-shaped core are perpendicular to the direction of in-line alignment of said electron beams and wherein the direction of movement of said convergence coil means is perpendicular to the direction of in-line alignment of said electron beams;

(e) mounting means for mounting said convergence coil means on said coil separator means; and

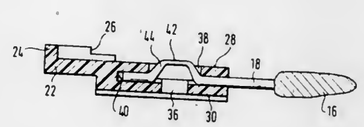
(f) means for moving said convergence coil means in a direction perpendicular to the direction of in-line alignment of said electron beams for adjusting the convergence of said electron beams.

4,267,542

THERMAL FUSE FOR ELECTRICAL APPARATUS

Norbert Weiner, 5275 Bergneustadt 2, Fed. Rep. of Germany

Filed Jun. 11, 1979, Ser. No. 47,261
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1978, 2841114
Int. Cl.³ H01H *85/14*
U.S. Cl. 337—227 **13 Claims**



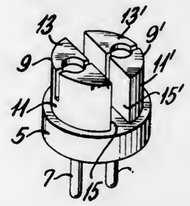
1. A thermal fuse for electrical apparatus, said fuse being insertable, in use, in a holder formed in the apparatus or capable of being fitted therein, and comprising a thermally influenceable fuse element with connecting wires and an insulating body for holding the fuse element, said fuse element being securable to the insulating body by means of its connecting wires in such manner that the connecting wires are contactable by by countercontacts of the holder, the insulating body being provided with insertion passages for receiving the connecting wires and having in a center portion of the length of the insertion passages, at least one opening extending substantially perpendicularly to the axis of the passage, so that the connecting wire introduced into the said at least one insertion passage is located at least partially free in a center portion of its length.

4,267,543

MINIATURE ELECTRIC FUSE

Hiroo Arikawa, Tokyo, Japan, assignor to San-O Industrial Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,378
Int. Cl.³ H01H *85/48*
U.S. Cl. 337—255 **6 Claims**



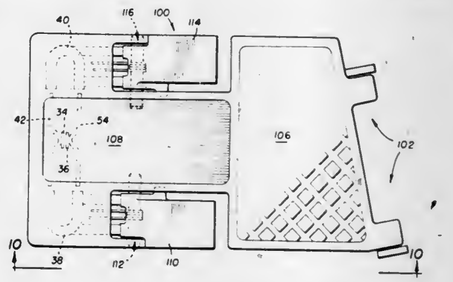
1. A miniature electric fuse comprising a fuse base and body, a fuse cover and a pair of electrically conductive lead wires protruding from said base and partially embedded into said fuse base and body, said fuse body comprising a pair of opposed, spaced apart, generally crescent-shaped members, each of said members being defined by an outwardly curved surface, generally flat top and bottom surfaces and a generally perpendicular inner walls, wherein said inner walls are spaced apart and in facing relation to one another, and wherein each of said electrically conductive lead wires protrude from said base and is partially embedded in one of said crescent-shaped members, a groove cut perpendicularly from the top surfaces of each of said crescent-shaped members a finite distance therein corresponding to the ends of said electrically conductive lead wires and thereafter horizontally in said crescent-shaped member in perpendicular relation to said inner walls, a fusible element stretched between said ends of said electrically conductive lead wires, said fusible element being securely positioned on the bottom of said groove and soldered thereto.

4,267,544

MAGNETIC CONTROL APPARATUS

Wayne T. Wiblin, Ashtabula, Ohio, assignor to Towmotor Corporation, Mentor, Ohio

Filed Nov. 8, 1979, Ser. No. 131,728
Int. Cl.³ H01L *43/04, 43/06*
U.S. Cl. 338—32 H **8 Claims**



1. In an apparatus (**32**) having a pair (**34, 36**) of control members being actuatable in response to respective control fields, and a pair (**38, 40**) of means for respectively producing said control fields, said pair (**38, 40**) of producing means being selectively movable in relation to said pair (**34, 36**) of control members between a first position at which respective control field paths are open and a second position at which said respective control field paths are closed to actuate respectively said pair (**34, 36**) of control members, the improvement comprising:

means (**41**) for bypassing said control fields from said pair (**34, 36**) of control members in response to said pair (**38, 40**) of producing means being simultaneously at said second position.

4,267,545

HYDRAULIC VEHICLE PERFORMANCE SENSOR AND SHIFT POINT INDICATOR

Gary A. Drone, Springfield, Ill., and Harvey W. Rockwell, Port Charlotte, Fla., assignors to Fiat-Allis Construction Machinery, Inc., Deerfield, Ill.

Filed Aug. 17, 1979, Ser. No. 67,623
Int. Cl.³ B60K *23/00;* **G08B** *21/00*
U.S. Cl. 340—52 R **13 Claims**

1. A vehicle performance monitoring system for instructing a vehicle operator when and into which gear a vehicle transmission, having a plurality of gear ranges, should be shifted in order to maintain the vehicle operating within a desired range of performance for each gear range in which the transmission is operated, comprising

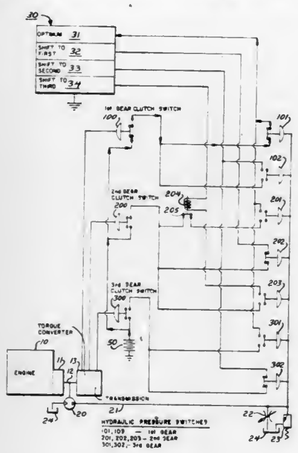
a first plurality of switching means actuated upon placing a vehicle transmission in a gear range for enabling an electrical circuit to be established for each gear range in which the vehicle transmission is operated,

each one of said first plurality of switching means being mutually exclusively actuated upon the shifting of the vehicle transmission into one of the gear ranges in which the transmission is operated,

a source of electrical power adapted to be mutually exclusively coupled through each one of said first plurality of switching means when the vehicle transmission is shifted into each one of the gear ranges in which the transmission is operated,

indicator means actuable to convey information for informing a vehicle operator when and into which gear range the vehicle transmission should be shifted,

an electrical circuit coupled between said first plurality of



switching means and said indicator means for actuating said indicator means in response to the coupling of electrical power thereto,

monitoring means operatively coupled to a vehicle torque converter for providing a source of pressurized hydraulic fluid at a pressure determined by the rotational speed of the torque converter,

a second plurality of switching means operatively connected in fluid communication to said source of hydraulic fluid for actuation thereby in response to the hydraulic pressure coupled thereto,

said second plurality of switching means being interposed in said electrical circuit between said first plurality of switching means and said indicator means for coupling said source of electrical power to said indicator means in response to the actuation of said second plurality of switching means to inform the vehicle operator when and into which gear the vehicle transmission should be shifted.

4,267,546

ALARM DEVICE FOR INFORMING REDUCTION OF PNEUMATIC PRESSURE OF VEHICLE TIRES

Akira Matsuda, Higashimurayama; Norio Goshima, Musashino; Shigeo Yasuda, Musashino; Motoaki Iwasaki, Musashino, and Hiroshi Nishino, Musashino, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo and Mitaka Instrument Company Limited, Musashino, both of, Japan

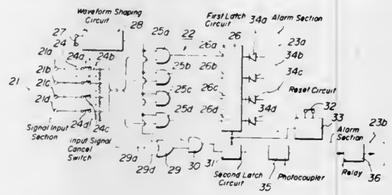
Filed Jun. 18, 1979, Ser. No. 49,829

Claims priority, application Japan, Jun. 20, 1978, 53/75034

Int. Cl.³ B60C *23/04;* **G08B** *21/00*

U.S. Cl. 340—58 **3 Claims**

1. In an alarm device for signalling a reduction of pneumatic pressure of vehicle tires including an oscillator (6) having an oscillation coil secured to a chassis of a vehicle; a resonator (1) secured to a peripheral portion of a wheel having a tire adjacent to the oscillation coil and including a pressure sensing switch (4) responsive to an abnormal change of the pneumatic pressure of said vehicle tire, a resonant coil and a capacitor (5) which are tuned to an electromagnetic wave radiated from the oscillation coil; a signal processing device (3) containing means for sensing a change in an oscillation condition generated in the oscillator due to a resonant condition in the resonator switched on and off in accordance with abnormal internal pressure of the tire and for processing a signal sensed by the sensing means; and an alarm means for generating a warning signal in accordance with the output of the signal processing device; the improvements characterized by: the signal processing device including a signal input section (21) having a desired number of input terminals, a signal processing section (22) having an arithmetic circuit connected to the signal input section and comprising a plurality of first parallel arranged AND gates (25) each having an input terminal connected to an output of the signal input section and equal in number to the output terminals of the signal input section, an OR gate (29) having a



plurality of input terminals equal in number to the output terminals of the signal input section, a second AND gate (30) having an input terminal connected to an output terminal of the OR gate, a wave shaping circuit (28) including at an input side a switch (27) and having an output terminal connected to another input terminal of the second AND gate and to another input terminal of each first AND gate, respectively, said wave shaping circuit having an ON and OFF output controlled at a prescribed threshold speed of a speed meter, a first latch circuit (26) provided at an output side of the first AND gates and having a plurality of latch elements equal in number to the first AND gates, a second latch circuit (31) connected to an output of the second AND gate and consisting of a single latch element, and an alarm reset circuit (33) having an input terminal connected to an alarm signal reset switch (32) and an output terminal connected to a second input terminal of each of the first and the second latch circuits, and an alarm section operated by outputs of the first and second latch circuits, whereby an alarm signal is not generated when the speed of the vehicle becomes lower than the prescribed threshold value at normal internal pressure.

4,267,547

THEFT PREVENTION APPARATUS FOR VEHICLES

Kazuo Sugiyama, Mitaka, Japan, assignor to Dentan Co., Ltd., Tokyo, Japan

Filed Mar. 14, 1979, Ser. No. 20,342

Claims priority, application Japan, Mar. 14, 1978, 53/28831

Int. Cl.³ B60R *25/10*

U.S. Cl. 340—65 **11 Claims**

1. A theft prevention apparatus for a vehicle, comprising:

a movement detector provided with a pointer;

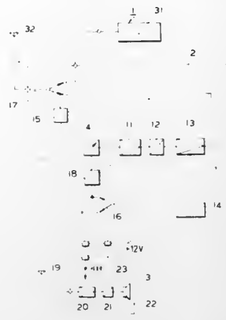
said movement detector including means for generating an electric potential when said pointer is moved;

said means for generating an electric potential including a coil mounted on a base portion of said pointer of said movement detector, and magnet poles disposed on each side, in the vertical direction, of said coil at a proper distance from said coil;

a transmitter connected to said movement detector;

a receiver provided with a loudspeaker and adapted for receiving an alarm signal from said transmitter;

said transmitter transmitting said alarm signal to said receiver in response to a predetermined amount of electric



potential when said pointer of said movement detector is moved a predetermined degree; and

said pointer of said movement detector being switchable to its fixed condition against movements by applying an electric potential to said movement detector.

4,267,548

FORMAT-INFORMATION SYNTHESIZING SYSTEM

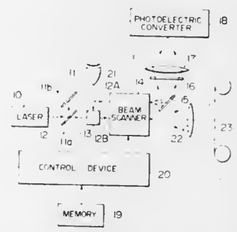
Tsutomu Kimura, and Masahiro Ohnishi, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 20, 1978, Ser. No. 971,408

Claims priority, application Japan, Dec. 23, 1977, 52-155250

Int. Cl.³ G06K *9/00;* **B41B** *13/00;* **G01D** *15/04*

U.S. Cl. 340—146.3 AH **2 Claims**



1. A format-information synthesizing system comprising a character pattern signal generating means which generates a character pattern signal in accordance with the information to be recorded, a format pattern signal generating means which generates a format pattern signal by converting a format optically recorded on a format transparency into an electric signal, an "exclusive-or" circuit which receives the character pattern signal and the format pattern signal which are inputted thereinto in synchronization with each other, a laser source, an on-off modulator which modulates a laser beam emitted from the laser source in accordance with the output of the "exclusive-or" circuit, and a beam scanner which deflects the modulated laser beam to scan the surface of a recording medium to record the synthesized pattern of the information and the format on the recording medium.

4,267,549

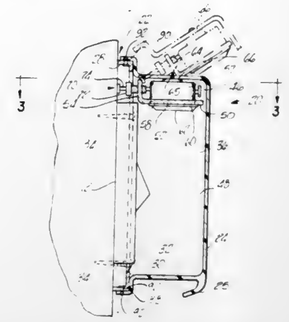
PULL STATION PROTECTOR

John D. Taylor, 3951 Lotus Dr., Waterford, Mich. 48095

Filed Jan. 31, 1980, Ser. No. 117,365

Int. Cl.³ G08B *25/00*

U.S. Cl. 340—302 **7 Claims**



1. A protector for enclosing wall mounted fire alarm pull stations comprising:

a centrally open mounting frame secured against the wall and surrounding the pull station mounted in the flat wall;

a cover defining an open ended chamber wherein the side of the cover adjacent the open end is dimensioned to abuttingly engage substantially the entire periphery of said mounting frame;

a hinge means for pivotally securing said cover to said mounting frame, said cover being pivotable between and a first position in which said cover abuttingly engages substantially the entire periphery of said mounting frame such that the pull station is enclosed behind said cover, and a second position in which said pull station is uncovered;

engagement means for holding said cover in said first position;

a support plate secured to said cover and dividing said chamber into first and second chamber portions, said first chamber portion being disposed aside the pull station when said cover is in said first pivotal position;

an alarm and an electrical power source for said alarm secured in said first chamber portion; and

means for activating said alarm when said cover is moved from said first pivotal position toward said second pivotal position, said activating means being disposed adjacent said first chamber portion,

and wherein said cover includes a substantially transparent portion covering said second chamber portion and a handle, and further wherein said hinge means is secured to said cover adjacent said first chamber portion.

4,267,550

DIGITAL TO ANALOG CONVERSION CIRCUIT INCLUDING COMPENSATION FET'S

James B. Cecil, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jan. 25, 1980, Ser. No. 115,203

Int. Cl.² H03K *13/02*

U.S. Cl. 340—347 DA **10 Claims**

1. An integrated circuit for performing digital to analog conversions with improved accuracy, said circuit being comprised of:

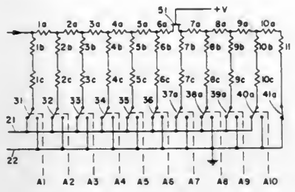
a plurality of resistors interconnected as an R−2R ladder network having N states with output legs for carrying currents $I, I\,2^1, \ldots I\,2^{N-1}$ respectively, where N is any integer;

a pair of conductive output buses: and

a total of N transistorized switch means coupled respectively

to said N output legs of said ladder for switching said current received therefrom to a selectable one of said buses in response to externally generated digital signals;

wherein the K switch means which couple the K most significant currents from said output legs to said buses have scaled resistances R, $R\times2^1$, . . . $R\times2^{K-1}$ respectively



where K is any integer less than N and R is any predetermined resistance;

each of the remaining N-K switch means have unscaled resistances of $R\times2^{K-1}$; and

a compensating resistive means having a resistance of approximately two-thirds $R\times2^{K-1}$ is included in the serial leg of stage K.

4,267,551

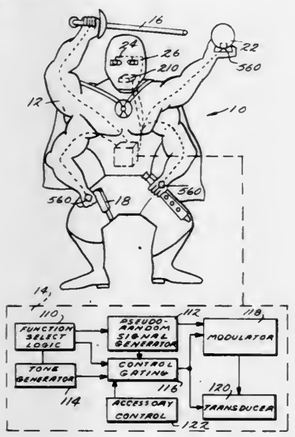
MULTI-MODE DOLL

Scott Dankman; Richard C. Levy, and Bryan L. McCoy, all of 1001 Spring St., Suite 724, Silver Spring, Md. 20910

Filed Dec. 7, 1978, Ser. No. 967,865

Int. Cl.³ G08B *3/00*

U.S. Cl. 340—384 E **62 Claims**



1. An electronic doll comprising:

a body;

function select means, disposed on said body, for selectively generating respective mode control signals;

electronic signal generator means, disposed in said body and responsive to said mode control signals, including:

means for generating a wind simulation signal representative of the sounds of wind;

means for generating a breathing simulation signal representative of the sounds of breathing;

means for generating a weapons simulation signal representative of weapons fire;

means for generating pseudo-random musical notes; and

means for generating one of a predetermined number of responses to an actuation signal, said one response being determined in a random manner;

transducer means for generating audible output signals representative of electrical input signals applied thereto; and

means, responsive to said mode control signals, for selectively applying said respective electrical simulation signals as input signals to said transducer means.

4,267,552

ELECTROMAGNETIC SOUND GENERATOR FOR AUTOMATIVE VEHICLES AND THE LIKE

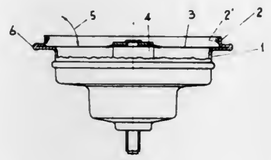
Domenico Frigo, Olmo, Italy, assignor to F.I.A.M.M. S.p.A. Fabbrica Italiana Accumulatori Motocarri Montecchio, Montecchio Maggiore, Italy

Filed Nov. 20, 1978, Ser. No. 962,156

Claims priority, application Italy, Nov. 25, 1977, 41717 A/77; Jun. 20, 1978, 41599 A/78

Int. Cl.² G08B *3/10*; G10K *11/10*

U.S. Cl. 340—388 **13 Claims**



1. In an electromagnetic sound generator including a generally cup-shaped housing of ferromagnetic sheet metal for an electromagnetic coil, a generally circular ferromagnetic membrane carrying an armature coacting with said coil, said housing having a rim bent back upon itself and supporting said membrane, and resonator means overlying said membrane, said resonator means having a generally disk-shaped structure coaxial with said housing,

the combination therewith of a coupling ring resting on said rim above said membrane and having a rabbeted upper face which forms an annular shoulder engaged by at least one deformed portion of said rim from above with freedom of relative radial expansion, said upper face being provided with an annular land projecting above said shoulder, said structure being supported on said annular land and defining a plenum chamber open toward said membrane within the confines of said coupling ring.

4,267,553

METHOD AND APPARATUS FOR SECURING ATTACHE CASES

Rolf Vogelsanger, Habuhlstrasse 11, 8704 Herrliberg, and Anton Wicki, Auwiesenstrasse 17, 8050 Zurich, both of Switzerland

Continuation of Ser. No. 927,548, Jul. 24, 1978, abandoned. This application Jan. 5, 1979, Ser. No. 1,286

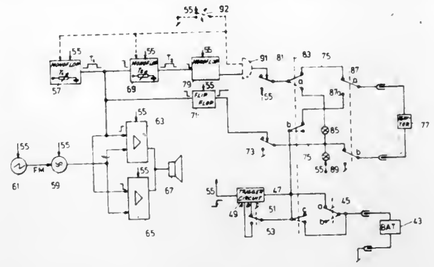
Claims priority, application Switzerland, Jul. 25, 1977, 9169/77

Int. Cl.³ G08B *13/14*

U.S. Cl. 340—571 **34 Claims**

1. A method for securing a transport container such as an attache case against unauthorized handling comprising the steps of providing an alarm and at least one sensor capable of sensing at least two conditions relative to the forces on said attache case, each of said at least two conditions being selectable as a safety state, placing said attache case under a selected force, and selecting one of said at least two conditions to correspond to said selected force as the safety state, the other or others of said sensed conditions corresponding to a force or forces on said case deviating from said selected safety state

condition by a predetermined value and connecting said at least one sensor to said alarm so that said alarm is inactive



during the selected safety state condition and activated on the occurence of the other or others of said sensed conditions.

4,267,554

ELECTRONIC DEVICE FOR MONITORING A PLURALITY OF RUNNING THREADS ON A TEXTILE MACHINE

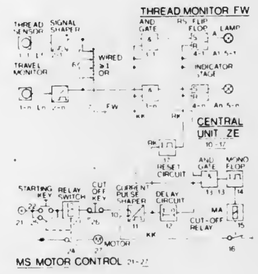
Erich Loepfe, Pfaffhausen; Erich Weidmann, Wetzikon, and Walter Graf, Greifensee, all of Switzerland, assignors to Gebrueder Loepfe AG, Wetzikon, Switzerland

Filed Jun. 8, 1979, Ser. No. 46,852

Claims priority, application Switzerland, Jun. 19, 1978, 6632/78

Int. Cl.³ G08B *21/00*

U.S. Cl. 340—677 **4 Claims**



1. In an electronic device for monitoring a plurality of threads on a textile machine having a drive unit common to all thread travel positions, drive unit control means and a plurality of travel monitors, one being allocated to each thread for generating signals indicating a thread breakage, the outputs of the travel monitors being connected via a common line to a cut-off device, the improvement which comprises:

a circuit activated by said drive unit control means for generating a D.C. control signal within the time interval for which the drive unit is switched on;

a plurality of indicator-devices, one operatively associated with each travel monitor,

each said indicator device comprising a storage element and an indicator connected thereto, for permanent indication of a thread breakage; and

a plurality of switching elements, one operatively associated with each travel monitor,

each said switching element ensuring that a signal, indicating a thread breakage, of the related travel monitor, can set the related storage element only over the duration of the D.C. control signal.

4,267,555

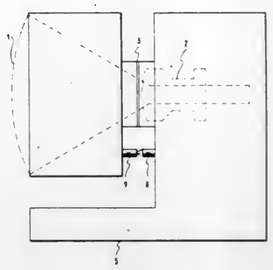
ROTATABLE RASTER SCAN DISPLAY

Clay E. Boyd, Austin; John C. Jones, Georgetown, and Joanne L. Mumola, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,483

Int. Cl.³ G08B *5/36*

U.S. Cl. 340—748 **3 Claims**



1. In apparatus displaying text material having a format with a longer dimension along a first axis and a shorter dimension along a second axis on a CRT having a longer dimension along one axis and a shorter dimension along the other axis, means for switching the apparatus to display text material having a format with a shorter dimension along said first axis and a longer dimension along said second axis comprising:

means for effecting rotation of said CRT substantially 90 degrees with respect to its yoke;

means for altering the length of each scan line of said CRT in response to said rotation; and

means for altering the length of the sweep of said CRT through successive scan lines in the opposite sense to the alteration in scan line length in response to said rotation.

4,267,556

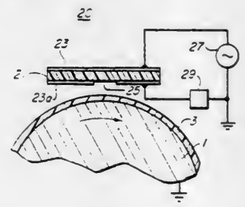
ELECTROSTATIC TRANSFER PRINTING EMPLOYING ION EMITTING PRINT HEAD

Richard A. Fotland, and Jeffrey J. Carrish, both of Holliston, Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Continuation-in-part of Ser. No. 844,913, Oct. 25, 1977, abandoned. This application Dec. 14, 1978, Ser. No. 969,517

Int. Cl.³ B41M *1/22*

U.S. Cl. 346—153.1 **8 Claims**



1. Electrostatic printing apparatus comprising:

a cylindrical dielectric member having a conductive core and a dielectric surface layer;

means for generating ions comprising:

a solid dielectric member, a first electrode substantially in contact with one side of said solid dielectric member, a second electrode substantially in contact with an opposite side of said solid dielectric member, with an edge surface of said second electrode disposed opposite said first electrode to define an air region at the junction of said edge surface and said solid dielectric member, and means for

applying an alternating potential between said first and second electrodes of sufficient magnitude to induce ion producing electrical discharges in said air region between the dielectric member and the edge surface of said second electrode;

an externally applied field between said first electrode and the conductive core of the cylindrical dielectric member, whereby ions are extracted from said generating means to form a latent electrostatic image on said cylindrical dielectric member;

means for toning said latent electrostatic image to form a visible counterpart thereof; and

a pressure transfer roller which contacts said cylindrical dielectric member with an image receptor fed therebetween.

4,267,557

SEMICONDUCTOR DEVICE

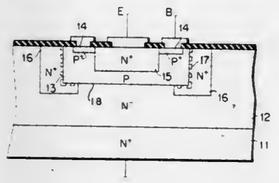
Ken-ichi Muramoto, Kawasaki; Keizo Tani, Tokyo; Yutaka Tomisawa, Yokohama, and Makoto Hideshima, Tokyo, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jun. 1, 1979, Ser. No. 44,402

Claims priority, application Japan, Jun. 8, 1978, 53-68317; Jun. 8, 1978, 53-68318; Jun. 8, 1978, 53-68319

Int. Cl.³ H01L *29/06*

U.S. Cl. 357—20 **8 Claims**



1. A junction-type semiconductor device comprising:

a collector region of one conductivity type forming the substrate of said device and having a main surface;

a base region of opposite conductivity type extending from said surface of said collector region into said collector region;

an emitter region of said one conductivity type extending from the surface of said base region into said base region, said base region and said collector region forming a first junction which is reversed biased upon conduction of said device; and

protection means for forming a second junction in said semiconductor device having a lower breakdown voltage than the breakdown voltage of said first junction, with said second junction electrically coupled in parallel with said first junction and reverse biased upon conduction of said device.

4,267,558

ELECTRICALLY ERASABLE MEMORY WITH SELF-LIMITING ERASE

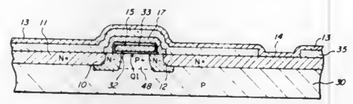
Daniel C. Guterman, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 5, 1979, Ser. No. 1,095

Int. Cl.³ H01L *27/02*

U.S. Cl. 357—41 **18 Claims**

1. An electrically erasable insulated gate field effect transistor memory device comprising source and drain regions defined in a face of a body of semiconductor material, a floating gate on said face between the source and drain regions insulated from the semiconductor material by a gate insulator, a control gate overlying the floating gate insulated therefrom by an interlevel insulator, conductive means overlying said face and insulated therefrom by an insulating layer with a portion of the conductive means overlying a segment of the floating gate, an insulating coating on said segment separating the portion of the conductive means from said segment but permitting the



floating gate to discharge electrons into the conductive means upon application of high voltage thereto and means to prevent the conductive means from discharging the floating gate in excess of a selected level.

4,267,559

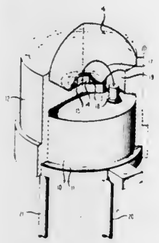
LOW THERMAL IMPEDANCE LIGHT-EMITTING DIODE PACKAGE

Bertrand H. Johnson, New Providence, and Carl R. Paola, Westfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 24, 1979, Ser. No. 77,988

Int. Cl.³ H01L *23/02*

U.S. Cl. 357—81 **13 Claims**



1. A light-emitting semiconductor assembly comprising

(a) a header;

(b) a heat coupler composed of material having a room-temperature electrical conductivity greater than $2.0 \cdot 10^4 \Omega^{-1} \cdot cm^{-1}$, and a room-temperature thermal conductivity greater than 0.17 watts $cm/cm^2 \cdot °C.$, the coupler having at least an external coupling surface adapted to contacting heat-dissipating means, an upper surface, and a lower surface, the header being bonded to the heat coupler at the lower surface;

(c) a light-emitting semiconductor device, having a bonding surface of area not larger than 1/10 of the area of the external coupling surface of the coupler, being bonded at the bonding surface in thermally and electrically conducting relationship to the heat coupler; and

(d) light transmitting means covering the light-emitting device, adapted to transmit light from the device.

4,267,560

COLOR TELEVISION RECEIVER FOR SIMULTANEOUS DISPLAY OF PLURAL PROGRAMS

Toshiro Ishikawa, Hirakata; Teruo Kitani, Takatsuki, and Takaaki Baba, Nishinomiya, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 29, 1978, Ser. No. 974,548

Claims priority, application Japan, Dec. 29, 1977, 52-157701

Int. Cl.³ H04N *9/535*

U.S. Cl. 358—22 **9 Claims**

1. A color television receiver including means for receiving a first television signal and a second television signal of different channels, means for writing the second television signal in

a memory means, means for reading out the second television signal from said memory means in the form of a television signal compressed in its time axis, and means for inserting said compressed second television signal in a portion of the first television signal to simultaneously display the pictures of the two channels on the same display screen, said receiver comprising:

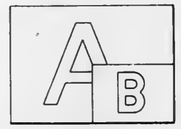
means for deriving a first corresponding luminance signal and a second corresponding luminance signal from said first and second television signals respectively;

means for deriving a first corresponding chrominance signal and a second corresponding chrominance signal from said first and second television signals respectively;

means for demodulating said first and second chrominance signals;

means for separating a first corresponding synchronizing signal and a second corresponding synchronizing signal from said first and second television signals respectively;

means responsive to said second synchronizing signal for generating a writing clock pulse signal for signal writing said memory means;



means responsive to said first synchronizing signal for generating a reading clock pulse signal for signal reading from said memory means, the frequency of said reading clock pulse signal being higher than that of said writing clock pulse signal;

means for separately writing said second luminance signal and said demodulated second chrominance signal in said memory means in response to the application of said writing clock pulse signal;

means for reading out said second luminance signal and said second chrominance signal from said memory means in a relation compressed in the time axis in response to the application of said reading clock pulse signal;

means for adjusting the signal levels of said demodulated first chrominance signal and said demodulated compressed second chrominance signal to maintain a predetermined relationship therebetween; and

signal selecting means for replacing a portion of said first luminance signal and said first chrominance signal by said second luminance signal and said second chrominance signal read out from said memory means.

4,267,561

COLOR VIDEO DISPLAY FOR AUDIO SIGNALS

John R. Karpinsky, 1280 Boynton, #5, Glendale, Calif. 91205, and Thomas G. Moore, 931 Alta Pine Dr., Altadena, Calif. 91001

Filed Nov. 2, 1977, Ser. No. 847,708

Int. Cl.³ H04N *9/02*

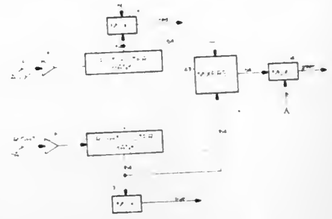
U.S. Cl. 358—82 **17 Claims**

1. Apparatus for producing a visual display audio comprising:

input means for receiving a pair of input audio signals;

means for generating a third audio signal from said pair of input audio signals;

means for selecting from each audio signal a narrow band of frequencies;



means for converting said three selected narrow band signals into signals representative of a colored dot; and

display means for displaying said dot.

4,267,562

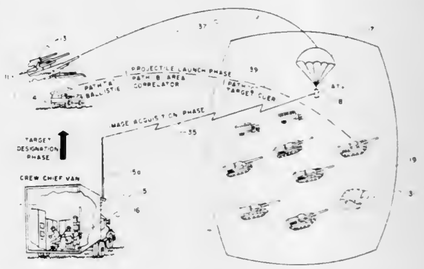
METHOD OF AUTONOMOUS TARGET ACQUISITION

Peter K. Raimondi, Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 843,295, Oct. 18, 1977, abandoned. This application Mar. 9, 1979, Ser. No. 19,069

Int. Cl.³ H04N *7/18*

U.S. Cl. 358—109 **10 Claims**



1. A method of autonomous target acquisition for an imaging self guided explosive canister launched by a millitary battery, comprising the steps of:

exposing an active sensor imaging system on a sensor platform to a direct view of an enemy area of a battlefield to obtain a sensed image and transmitting said sensed image therefrom;

receiving said sensed image in a TV receiver of an image processing computer system and converting the sensed TV image from analog to digital while performing enhancement and target cueing algorithms on said sensed TV image and displaying the enhanced targets in digital form on a light sensitive screen of a cathode ray tube;

performing a manipulation of the digitized information on the light sensitive screen by a crew chief man-in-the-loop viewing the sensed TV image display and annotating selected targets to be hit by said military battery imaging self guided explosive canister by a light pen light beam means and manipulation of said image processing computer system which is electrically connected with an on-board microcomputer system within each of a plurality of imaging self guided explosive canisters to assign a specific imaging self guided explosive canister to a specific target wherein said image processing computer system automatically provides said microcomputer with a digital target map of the sensed TV image including the crew chief manipulated annotated target;

launching said imaging self guided explosive canister toward the battlefield enemy area while unshielding a canister active imaging system wherein said canister active imaging system provides said microcomputer system with a continuous sensed image picture of said enemy area; and

automatically sequencing a program stored within said microcomputer system for matching said digital target map to said continuous sensed image by rotating said digital target map using mathematical algorithms to match said annotated target to its spatial position of said continuous sensed image picture of said enemy area and after the matching step is complete activating a terminal guidance system for autonomous guidance of said canister to said annotated target.

4,267,563

CHANNEL SELECTING APPARATUS FOR USE WITH SIGNAL RECEIVER AND SIGNAL RECORDER

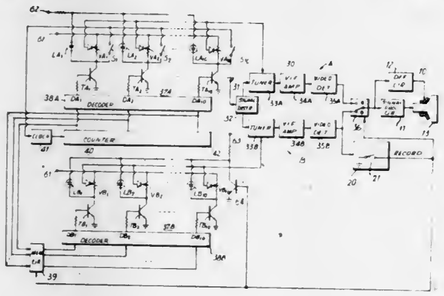
Masaru Sato, Asaka, and Toshio Amano, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 20, 1978, Ser. No. 971,553

Claims priority, application Japan, Dec. 21, 1977, 52-154066; Dec. 24, 1977, 52-155887

Int. Cl.³ H04N *5/78*

U.S. Cl. 358—127 **12 Claims**



1. Channel selecting apparatus for use with a signal receiver coupled to a first tuning means and a signal recorder coupled to a second tuning means, said channel selecting apparatus being operable to tune said first and second tuning means to preselected channels for receiving information transmitted via selected broadcast frequencies, and comprising:

selectively operable channel selecting means common to said first and second tuning means for generating and supplying channel selector signals to said first and second tuning means to determine the tuning condition of both said tuning means;

locking means operative in response to the actuation of said signal recorder to lock said second tuning means to the tuning condition determined by the channel selector signal generated by said channel selecting means immediately prior to said actuation of said signal recorder regardless of the subsequent generation of different channel selector signals by said channel selecting means, said locking means being operative in response to the non-actuation of said signal recorder to permit said channel selector signals generated by said channel selecting means to control the tuning condition of both said first and second tuning means together; and

switch means having first and second inputs coupled to said first and second tuning means, respectively, to receive the information contained in the channels to which said first and second tuning means are tuned, and an output coupled to said signal receiver, said switch means being operative when said signal recorder is not actuated to connect said output thereof to said second input and being operative when said signal recorder is actuated to connect said output thereof to said first input; whereby the information transmitted via the broadcast frequency received by said second tuning means is supplied to said signal receiver when said signal recorder is not actuated and the information transmitted via the broadcast frequency received by said first tuning means is supplied to said signal receiver when said signal recorder is actuated.

4,267,564

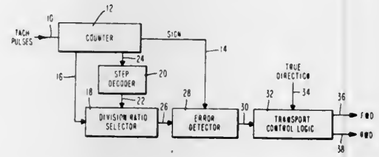
APPARATUS FOR CONTROLLING AND STOPPING A TRANSPORT MECHANISM AT A PREDETERMINED CUE POINT

Charles A. Flores, Fremont, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed May 9, 1979, Ser. No. 37,262

Int. Cl.³ G11B *15/48, 19/06*

U.S. Cl. 360—72.3 **14 Claims**



1. Apparatus for controlling a medium transport mechanism for stopping the medium at a predetermined cue location, comprising:

tachometer means for providing an electrical pulse for each predetermined incremental distance moved by said medium;

means for counting said pulses, the difference between the accumulated count and the count corresponding to said cue point location providing a measurement of the distance to the cue point location, wherein said counting means has a number of outputs extending to said command signal generating means, each of said output lines having a signal frequency that is a different integral division of the tachometer signal frequency;

means responsive to said instantaneous count and to the medium velocity for selectively generating deceleration and acceleration command signals, said generating means generating a deceleration command signal in response to said velocity exceeding predetermined values at selected predetermined counts and generating an acceleration command signal when said velocity is below the predetermined values corresponding to predetermined counts, as said medium approaches said cue point location, said predetermined values successively decreasing in a stepped manner as said predetermined counts approach said cue point location;

said means for selectively generating including means for selecting one of said division frequency output signals and applying the same to means for detecting an overspeed condition, said selecting means successively applying a lesser division frequency output signal at said selected predetermined counts as the cue point location is approached; and

said means for detecting an overspeed condition comprising means for measuring the period of said division frequency output signal applied thereto and providing an overspeed indication signal when said measured period exceeds a first predetermined time duration.

4,267,565

COPPER ENCASED FLAT ELECTROLYTIC CAPACITOR MANUFACTURE AND CAPACITOR

Henry F. Puppolo, North Adams, and Mark Markarian, Williamstown, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Apr. 2, 1979, Ser. No. 26,467

Int. Cl.³ H01G *9/00;* **B01J** *17/00*

U.S. Cl. 361—433 **7 Claims**



1. A copper-encased sealed flat capacitor comprising a flat impregnated capacitor section with associated spacers and electrode tabs, said section being housed between two layers of an insulating heat-sealable polymer-copper laminate, the polymer portion of both of said layers being adjacent said section and sealed together around the periphery thereof, one of said electrode tabs contacting the copper portion of one of said layers and the other of said electrode tabs contacting the copper portion of the other of said layers.

4,267,566

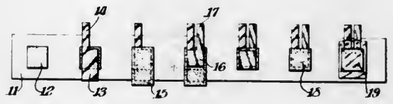
SEALED FLAT ELECTROLYTIC CAPACITOR AND METHOD

Joseph A. Moresi, Jr., Oak Ridge, Tenn., assignor to Sprague Electric Company, North Adams, Mass.

Filed Apr. 2, 1979, Ser. No. 26,469

Int. Cl.³ H01G *9/00;* **B01J** *17/00*

U.S. Cl. 361—433 **3 Claims**



1. A flat electrolytic capacitor comprising an etched and anodized foil anode bearing an electrode tab, an etched foil cathode bearing an electrode tab, said anode foil being of substantially the same width and approximately one-half the length of said cathode foil, said anode foil being within a fold of a first spacer, said cathode foil being folded once to overlie both sides of said anode and said first spacer and to cover both sides of said anode, said folded cathode being within a fold of a second spacer, said first and said second spacers being impregnated with an electrolyte, thereby providing said electrolyte in contact with both sides of said anode and both sides of said cathode, said tabs being laterally spaced from each other and extending beyond the edges of said spacers; said foils, said spacers, and a portion of said tabs being heat-sealed between layers of polymer.

4,267,567

ELECTRIC IGNITER

Kurt Nygaard; Kjell Mattsson, and Sven-Erik Bratt, all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Apr. 10, 1978, Ser. No. 895,181

Claims priority, application Sweden, Apr. 19, 1977, 7704435

Int. Cl.³ F42B *9/08*

U.S. Cl. 362—46 **16 Claims**

1. An improved electric igniter, comprising:

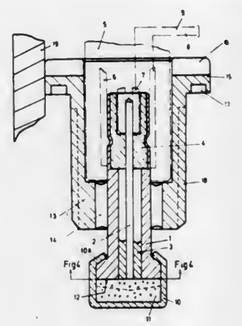
a first electrically conductive element having a first end surface;

a second electrically conductive element have a second end surface;

an electrically insulating body having a third end surface, said body joining and electrically isolating said first and second electrically conductive elements, the coefficients of thermal expansion of said body and said electrically conductive elements being such that the joints between said elements and said body remain tight independent of temperature variations in the range of $-40°$ C. to $+60°$ C., and that said body is clamped between said first and second elements in said temperature range, said first and second elements being formed from a material which has a good wetting effect when contacted by the molten materials of said body;

a flat surface extending across and including said end surfaces of said elements and said body;

at least one electrically conductive bridge element compris-



ing a layer of electrically conductive material having a thickness of up to 12×10^{-8} m., said layer being deposited directly on said flat surface to extend between said end surfaces of said first and second conductive elements and across said end surface of said body and being divided, by grooves extending through said layer to said flat surface, into at least one bar-shaped portion joining a first portion of said layer, said first portion being electrically connected to said first electrically conductive element, to a separate, second portion of said layer, said second portion being electrically connected to said second electrically conductive element; and

a pyrotechnical composition directly contacting said bridge element under pressure,

whereby when current is passed through said bridge element via said first and second electrically conductive elements, said bridge element generates sufficient heat to ignite said pyrotechnical composition.

4,267,568

INFORMATION STORAGE AND RETRIEVAL SYSTEM

Thomas E. Dechant, Bainbridge, Ohio; Edward L. Glaser; Paul E. Pitt, both of Santa Monica, Calif., and Frederick Way, Cleveland Heights, Ohio, assignors to System Development Corporation, Santa Monica, Calif.

Continuation of Ser. No. 637,511, Dec. 3, 1975, Pat. No. 4,068,298. This application Nov. 1, 1977, Ser. No. 847,561

The portion of the term of this patent subsequent to Jan. 10, 1995, has been disclaimed.

Int. Cl.³ G06F *15/40*

U.S. Cl. 364—200 **36 Claims**

1. A method utilizing digital data processing means for creating a multi-layer data base in a store and for reproducing the data base comprising the steps of:

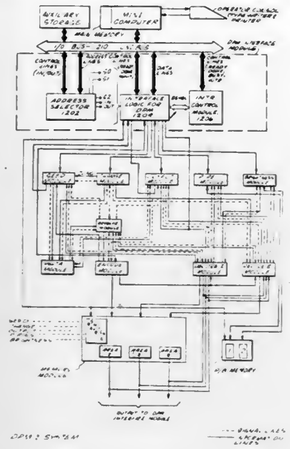
(a) receiving as input a sequence of first level events which represent a sequence of first level entries, the first level

entries forming a sequence of second level events within a plurality of second level entries;

(b) utilizing the events and entries, received as input, for creating a multi-layer data base in the store including the steps of:

(1). forming digitally coded signals in a first data base layer representing the order of occurrence of first level events in each of a plurality of first level entries, and

(2). forming digitally coded signals in a second data base layer representing the order of occurrence of second



level events in each of a plurality of second level entries, each of a plurality of second level events represented in the second layer having a corresponding first level entry represented in the first layer, such first level entry being represented by the order of occurrence of first level events within such first level entry; and

(c) reproducing events and entries in the same order received as input utilizing the first data base layer to order first level events and utilizing the second data base layer to order first level entries within second level entries.

4,267,569

MICRO-COMPUTER SYSTEM FOR CONTROL AND DIAGNOSIS OF MOTOR VEHICLE FUNCTIONS

Heinrich Baumann, Schwieberdingen, and Günther Schmidt, Ludwigsburg, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 25, 1979, Ser. No. 42,359

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1978. 2824190

Int. Cl.[3] **G06F** *15/20;* **G05B** *15/02;* **F02D** *5/02*

U.S. Cl. 364—431 **9 Claims**

1. In a motor vehicle, the combination of

apparatus forming part of the motor vehicle for electronically controlling functional elements of the vehicle and their operating functions including at least one of: ignition firing; fuel injection,

wherein the apparatus includes

an on-board microcomputer system (**62**) comprising a microprocessor unit (**10**), at least one fixed value memory unit (**12**-ROM, PROM, EPROM) storing operating and function data of the vehicle, a working memory unit (**11**-RAM), an input/output unit (**13**), a data bus (**14**) and an address bus (**15**), said buses interconnecting said units;

at least one signal source (U, T, L, **30-39**) coupled to a functional element of the motor vehicle and a signal processing circuit (**29**) connected to the respective signal source and providing one or more vehicle function parameter-dependent signals to the input/output unit (**13**);

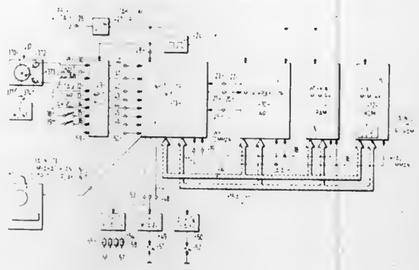
and at least one output element (**47-58**) connected to and controlled by said input/output unit, coupled to a functional element of the motor vehicle and controlling an operating function of the vehicle;

with

a monitoring and supervisory apparatus connectable to receive at least one vehicle function parameter-dependent signal derived from at least one of said signal sources, including

a diagnostic equipment unit (**61**) connected to the input/output unit (**13**) and having a comparison diagnostic unit (**61**);

means (**12***a*, **12**b) forming part of said fixed value memory unit (**12**) of the on-board microcomputer system (**62**) for storing data representative of a diagnostic program in-



cluding data representative of predetermined operating functions and diagnosis test command data, and connection means (**14,15**) for selectively connecting (a) data representative of the diagnostic program into said microcomputer system (**62**) for processing in accordance with the diagnosis test command data; and (b) data representative of predetermined operating functions to said input/output unit (**13**) and connection of at least one output element to the diagnostic equipment unit (**66**) to permit control of the respective output element from the stored data representative of said functions upon failure or malfunction of or in said microcomputer system (**62**) or in one of said signal sources.

4,267,570

CONTROL UNIT FOR MULTI-PHASE STATIC CONVERTER

Rüdiger Braun, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 31, 1979, Ser. No. 62,304

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1978, 2836573

Int. Cl.[3] **H02M** *7/515*

U.S. Cl. 364—480 **4 Claims**

1. A control unit for a multiphase static converter comprising:

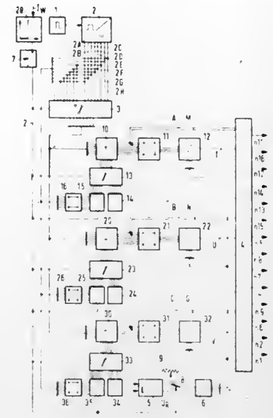
an oscillator;

a number of adders having summation outputs and first and second addend inputs;

a binary coded counter driven by the oscillator and having counter outputs which are coupled to the first addend inputs of the adders;

means for supplying phase angle inputs to the second addend inputs of the adders; and

a logic circuit coupled to the summation outputs of the adders for deriving timing pulses and interlinking them to



form firing pulses for the controlled valves of the converters.

4,267,571

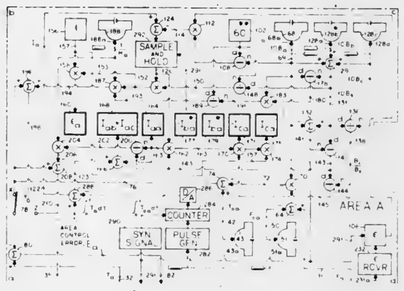
ENERGY CONSERVATION BY IMPROVED CONTROL OF BULK POWER TRANSFERS ON INTERCONNECTED SYSTEMS

Nathan Cohn, Jenkintown, Pa., assignor to Network Systems Development Associates, Jenkintown, Pa.

Filed May 16, 1979, Ser. No. 39,459

Int. Cl.[3] **G06G** *7/635*

U.S. Cl. 364—493 **64 Claims**



1. In an interconnected electric power system including a plurality of control areas, each of said areas including at least one turbine-generator unit, said system operating under a set frequency schedule and a selected net interchange power transfer schedule for each of its constituent control areas, and wherein each of said constituent control areas utilizes a frequency-biased net interchange control system to fulfill its operating objective of maintaining a zero-error summation of its regulating states by automatically adjusting area generation in order

to match changes in area load,

to maintain area net interchange power transfers at a preset schedule when system frequency is on schedule,

to deviate from said area net interchange power transfer schedule as a function of system frequency deviation when system frequency deviates from schedule,

to participate in control of system frequency,

to participate in correction of accumulations in the system memory parameter representing system time deviation, and

to correct for accumulations in the area memory parameter representing area inadvertent interchange,

and wherein the system time deviation is a total measure of the algebraic summation during a designated time span of the regulating states in all areas of the interconnected system, and consists of and is equal to the algebraic sum of area-caused components of varying magnitudes and signs including zero, in number equal to the number of constituent control areas, and each of which is an area memory parameter totally representative of the algebraic summation of the regulating states of said area during said designated time span, and each of which is separable from all other components independently of their respective magnitudes and algebraic signs, and the magnitude and sign of each is determinable utilizing known or measurable area and system parameters, the improvement comprising the method of measuring and utilizing said area-caused component of system time deviation for a particular area, including the following steps:

generating first signals corresponding to selected parameters of said particular area including the area frequency-bias setting and the area memory parameter representing the measured total inadvertent interchange accumulated during said designated time span;

combining said first signals with second signals corresponding to selected system parameters common to all areas including the measured system time deviation accumulated during said designated time span and the sum of the frequency-bias settings for all areas, to separate and measure the magnitude and sign of a new area memory parameter representing the component of system time deviation caused by the algebraic summation of regulating states in said particular area during said designated time span, and which is a total measure in units of time deviation, of the control performance of said particular area during said designated time span, and

generating control signals for controlling the area generation through adjustment of the energy input to one or more area turbine-generator units so as to create an area regulating state that will simultaneously reduce toward zero said new area memory parameter as well as the primary component of the total inadvertent interchange of the area representing the portion of area total inadvertent interchange self-caused by regulating deficiencies of the area, and the secondary component of total inadvertent interchange of each remote area representing the portion of total inadvertent interchange of each said remote area caused by said regulating deficiencies of said particular area, by offsetting the frequency schedule of the frequency biased net interchange control system of said particular area to an extent that is a function of said new area parameter.

17. In an interconnected electric power system including a plurality of control areas, each of said areas including at least one turbine-generator unit, said system operating under a set frequency schedule and a selected net interchange power transfer schedule for each of its constituent control areas, and wherein each of said constituent control areas utilizes a frequency-biased net interchange control system to fulfill its operating objective of maintaining a zero-error summation of its regulating states by automatically adjusting area generation in order

to match changes in area load,

to maintain area net interchange power transfers at a preset schedule when system frequency is on schedule,

to deviate from said area net interchange power transfer schedule as a function of system frequency deviation when system frequency deviates from schedule,

to participate in control of system frequency,

to participate in correction of accumulations in the system memory parameter representing system time deviation, and

to correct for accumulations in the area memory parameter representing area inadvertent interchange,

and wherein the system time deviation is a total measure of the algebraic summation during a designated time span of the regulating states in all areas of the interconnected system, and consists of and is equal to the algebraic sum of area-caused components of varing magnitudes and signs including zero, in number equal to the number of constituent control areas, and each of which is an area memory parameter totally representative of the algebraic summation of the regulating states of said area during said designated time span, and each of which is separable from all other components independently of their respective magnitudes and algebraic signs, and the magnitude and sign of each is determinable utilizing known or measurable area and system parameters, the improvement comprising means for measuring and utilizing said area-caused component of system time deviation for a particular area, including:

first means for identifying the particular area by selecting the area parameters related thereto including the area frequency-bias setting and the area memory parameter representing the measured total inadvertent interchange accumulated during said designted time span;

second means coupled to said first means for utilizing the selected area parameters in combination with system parameters common to all areas including the measured system time deviation accumulated during said designated time span and the sum of the frequency-bias settings for all areas, to separate and measure the magnitude and sign of a new area memory parameter representing the component of system time deviation caused by the algebraic summation of regulating states in said particular area during said designated time span, and which is a total measure in units of time deviation, of the control performance of said particular area during said designated time span, and

third means coupled to said second means for controlling the area generation through adjustment of the energy input to one or more area turbine-generator units so as to create an area regulating state that will simultaneously reduce toward zero said new area memory parameter as well as the primary component of the total inadvertent interchange of the area representing the portion of area total inadvertent interchange self-caused by regulating deficiencies of the area, and the secondary component of total inadvertent interchange of each remote area representing the portion of total inadvertent interchange of each said remote area caused by said regulating deficiencies of said particular area, by offsetting the frequency schedule of the frequency biased net interchange control system of said particular area to an extent that is a function of said new area parameter.

4,267,572

APPARATUS FOR DETERMINING THE CONCENTRATION OF THE COMPONENTS OF A SAMPLE

Wolfgang Witte, Uberlingen, Fed. Rep. of Germany, assignor to Bodenseewerk Perkin-Elmer & Co., Uberlingen, Fed. Rep. of Germany

Filed Apr. 3, 1979, Ser. No. 26,710

Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815284

Int. Cl.³ G06F *15/20*

U.S. Cl. 364—498 **4 Claims**

1. Apparatus for determining the concentration of the various components of a sample comprising, in combination,

a spectrophotometer for receiving a sample to be analyzed and performing a fixed number of extinctions of the sample at fixed wavelengths to form a sample spectrum;

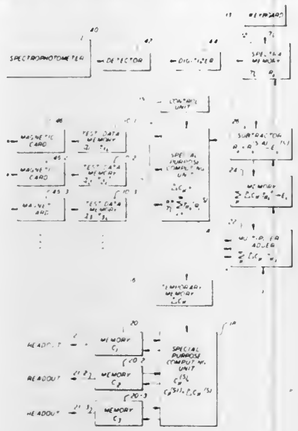
means for forming and storing spectra in standardized form of each of the individual components, by the extinction of standard solutions of the components being looked for, having said fixed number of extinction values measured at said fixed wavelengths;

means for weighting the sample spectrum at different wavelengths in conformity with each of the standard spectra and providing estimated values of the concentrations of the components from the sample spectra thus weighted;

means for reconstructing the sample spectrum as a linear combination of the estimated values of the concentrations and the standard spectra;

means for forming a difference spectrum from the sample spectrum and the reconstructed sample spectrum;

means for weighting the difference spectrum at different wavelengths in conformity with each of the standard



spectra and providing corrective values of the concentrations of the components from the difference spectrum thus weighted;

means for reconstructing the difference spectrum as a linear combination of the corrective values of the concentrations and the standard spectra;

means for forming a second difference spectrum from the first difference spectrum and the reconstructed difference spectrum;

means for correcting the estimated values by the corrective values; and

means for reading out the corrected values of the concentration of the components.

4,267,573

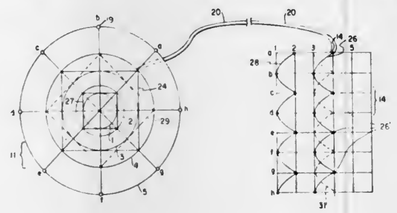
IMAGE PROCESSING SYSTEM

George M. Chaikin, New York, N.Y., and Carl F. R. Weiman, Norfolk, Va., assignors to Old Dominion University Research Foundation, Norfolk, Va.

Filed Jun. 14, 1978, Ser. No. 915,453

Int. Cl.³ G06F *3/14*

U.S. Cl. 364—515 **50 Claims**



1. An image processing system comprising: means for converting the image to be processed into a plurality of representative image cells; and

means for concurrently arranging representations of said cells in accordance with a predetermined pattern to produce a geometrically transformed representation of the image, successive geometric transformations of the image being congruent irrespective of changes in scale or angular orientation of the image.

4,267,574

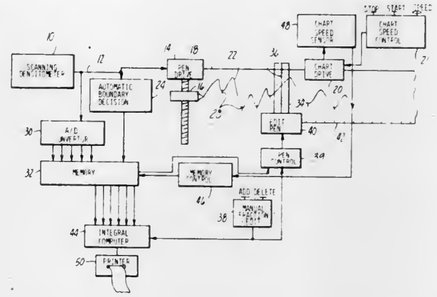
DISPLAY AND PROCESSOR FOR TIME-VARYING ELECTRIC SIGNAL

Jan A. Vanden Broek, Ann Arbor, Mich., assignor to Transidyne General Corporation, Ann Arbor, Mich.

Filed Feb. 12, 1979, Ser. No. 11,295

Int. Cl.³ G06K *1/18*

U.S. Cl. 364—520 **14 Claims**



1. In an electronic system including means for forming a visually readable graphic record of a time varying electric signal, a recording device, means for relatively moving a recording medium with respect to said recording device, said recording device including means creating said visually readable record on said recording medium; cursor reference means providing a visual reference point on said graphic record displaced from said recording device along the direction of relative motion of said recording medium and said recording device; a memory receiving and storing values of said time varying signal; signal processing means processing said stored time varying signal values after a delay corresponding to said time required for motion of said recording medium from said recording device to said cursor reference means reference point; the improvement comprising: synchronizing means for synchronizing the processing of said stored time varying signal values with the movement of the graphic record of said values to said reference point, said means including means generating a control signal corresponding to the relative movement of said recording medium and also including means causing execution of said processing of said stored signal values upon generation of the control signal corresponding to movement of said graphic record corresponding to said stored signal values to said reference point.

4,267,575

WHEEL SPEED SIGNAL-PRODUCING SYSTEM FOR SKID CONTROL

Peter Bounds, Simi Valley, Calif., assignor to The Bendix Corporation, North Hollywood, Calif.

Filed Jul. 9, 1979, Ser. No. 55,730

Int. Cl.³ G01P *3/48*

U.S. Cl. 364—565 **6 Claims**

1. In a skid control system for a vehicle having at least one wheel including a brake on said wheel and brake-actuating means, operator-operated means for operating said actuating means, a control element for overriding said operator-operated means, and an electronic control system including a microprocessor having means generating a series of uniform sample pulses and means producing a signal in response to decelerations in excess of a desired value for operating said control element, said deceleration-responsive means including means generating a digital signal responsive to rotational speed of said wheel:

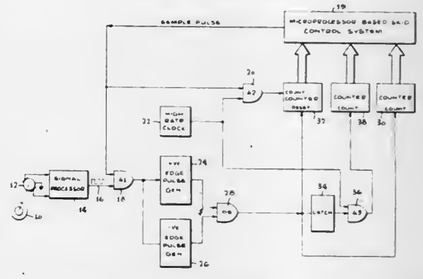
characterized in that said rotational wheel speed signal-generating means comprises

sensor means including signal-processing means generating a series of pulses whose frequency varies with the rotational speed of said wheel,

a digital clock producing clock pulses at a rate substantially greater than the pulse frequency of said sensor means and the frequency of said sample pulses,

a first AND gate connected to receive said sample pulses and said sensor pulses to enable said sensor pulses during the period of said sample pulses,

pulse-generating means receiving said sensor pulses from said first AND gate producing narrow marker pulses whenever the leading edge or the trailing edge of said sensor pulses occurs within the period of a sample pulse,



a second AND gate connected to receive said sample pulses and said clock pulses and conducting said clock pulses during the period said sample pulses are present, first counter means having reset means connected to receive said marker pulses and receiving said clock pulses from said second AND gate such that said first counter means is reset with each marker pulse and said first counter means counts said clock pulses during the period of said sample pulse subsequent to receipt of the last of said marker pulses,

a third AND gate connected to receive said narrow marker pulses and said clock pulses to enable clock pulses during the period of said sample pulse subsequent to receipt of said first marker pulse and a second counter connected to count said clock pulses from said third AND gate,

a third counter connected to count said marker pulses, and means connecting the counts of said first, second and third counters to said microprocessor at the end of each sample period.

4,267,576

INTERCONNECTION SYSTEM FOR A BIOLOGICAL WAVEFORM SIMULATOR DEVICE

Joseph S. Power, Fraser, and Frederick B. Ruszala, Sterling Heights, both of Mich., assignors to The Valeron Corporation, Troy, Mich.

Filed Nov. 9, 1979, Ser. No. 93,086

Int. Cl.³ H01R *13/11*

U.S. Cl. 364—578 **10 Claims**

1. An interconnection system for a simulator device for testing the operability of a biological waveform sensing machine, said system comprising:

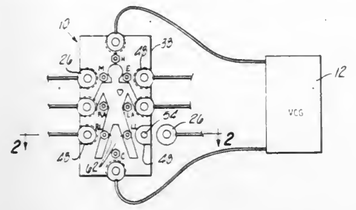
a housing having a major surface;

a circuit board within the housing and containing electrical circuitry for generating an output signal for testing the operability of a biological waveform sensing machine;

a plate affixed to the major surface of the housing, said plate

having an undercut slot adapted to receive a disc-shaped electrode from the machine; and

first connector means disposed in the slot for electrically



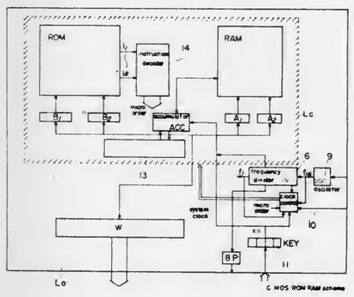
connecting said electrode when engaged in said slot with the circuitry whereby said electrode may be removably inserted into said slot to couple the output signal to said machine for testing its operability.

4,267,577

LOW POWER CONSUMPTION INTEGRATED CIRCUIT FOR A COMBINED TIMEPIECE AND CALCULATOR

Shintaro Hashimoto, Nara, and Toshio Nishimura, Jyoyo, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 26, 1979, Ser. No. 33,711
Claims priority, application Japan, Apr. 28, 1978, 53-53139
Int. Cl.³ G06F *15/02*; G04B *47/00*
U.S. Cl. 364—707 **9 Claims**



1. An integrated circuit device having at least a timekeeping function comprising:

generator stage means for generating basic clock signals and system clock signals, the system clock signals being obtainable by modifying the basic clock signals;

processor stage means responsive to a supply of the system clock signals for executing operation required for the timekeeping function and for generating a command signal to indicate the completion of the operations associated with the timekeeping function;

key input means for introducing information into the processor stage and generating key input signals indicative of said information; and

clock control means for permitting said supply of the system clock signals to energize the processor stage in response to the rising and trailing edges of said key input signals and for preventing the supply of the system clock signals from energizing the processor stage means in response to the command signal from the processor stage means.

4,267,578

CALCULATOR SYSTEM WITH ANTI-THEFT FEATURE

Edward O. Vetter, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 26, 1974, Ser. No. 500,420
Int. Cl.³ G06F *7/00*
U.S. Cl. 364—709 **24 Claims**



1. A portable, hand-held, electronic calculator which includes:

keyboard input means including a plurality of keys for entering data and functions into the calculator;

output means for displaying numerical data which is entered in the calculator via the keys or produced as the result of calculation;

manually operable switching means having on and off positions through which power is supplied to said electronic calculator;

calculating circuit means operably coupled to the keyboard input means and the output means to perform the normal calculation functions of the calculator; the improvement comprising:

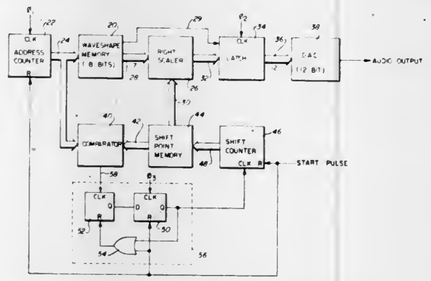
code-responsive means coupled to the keyboard input means and to the calculating circuit means to render the calculator unable to perform normal calculation functions after the switching means is switched from off to on until an anti-theft code is properly entered to said code responsive means from said keyboard input means.

4,267,579

DIGITAL WAVEFORM GENERATOR HAVING CONSTANT SIGNAL TO NOISE RATIO

Glenn M. Gross, Chicago, Ill., assignor to Norlin Industries, Inc., Deerfield, Ill.

Filed Jul. 13, 1979, Ser. No. 57,187
Int. Cl.³ G06F *1/02, 15/34*
U.S. Cl. 364—718 **14 Claims**



1. The method of forming a binary representation of an analog waveform of the type having a gradually decaying or increasing envelope comprising the steps of:

sampling said waveform for producing a sequence of n-bit binary samples representative thereof;

sequentially storing in a memory a predetermined number of the resolution contributing bits of each of said n-bit samples, said predetermined number being less than n;

sequentially recalling said stored samples from said memory; and

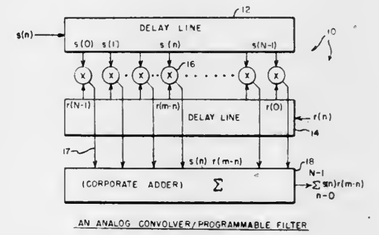
scaling each of said recalled samples for conversion to an n-bit signal having a magnitude corresponding to the magnitude of the associated n-bit sample.

4,267,580

CCD ANALOG AND DIGITAL CORRELATORS

James W. Bond; James M. Alsup; Jeffrey M. Speiser; Harper J. Whitehouse, and Isaac Lagnado, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 8, 1979, Ser. No. 1,516
Int. Cl.³ G06G *7/19*; G06J *1/00*
U.S. Cl. 364—824 **12 Claims**



1. A convolver comprising:

a first, multi-tap, delay line at one end of which, for example the left end, is applied a signal s(n), the signals at the outputs of the various taps, starting from the left end, being s(0), s(1), . . . , s(N−1);

a second N-tap delay line, at the right end of which is applied a signal r(n), the outputs of this delay line, from the right end of the delay line, being r(0), r(1), . . . , r(N−1);

a plurality of N means for multiplying having two inputs, one input from each of the two delay lines, being paired as follows: the s(0)th tap of the first delay line and the r(N−1)th output of the second delay line being connected to the left most means for multiplying, the s(1)th output of the first delay line and the r(N−2)th output of the second delay line being connected to the second means for multiplying, etc.; each means for multiplying comprising:

a means for generating the signal corresponding to the square of the signal [s(n)+r(m−n)];

a means for generating the signal $s^2(n)$;

a means for generating the signal $r^2(m-n)$; and

a means for taking the difference between the first-named signal and the other two signals to result in a remainder signal [2s(n)r(n−m).]2s(m)r(m−n); the convolver further comprising:

a means for adding the N outputs of the multipling means the output of the adding means being the summation from n=0 to N−1 of the quantity s(n)r(m−n); wherein:

all of the signals involved, including s(n), r(n) and s(n) r(m−n), are modulo numbers; and wherein

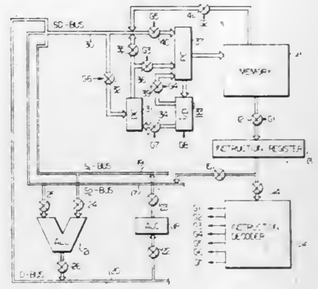
the first and second delay lines, the multiplying means and the means for adding are implemented as charge-coupled devices.

4,267,581

MEMORY ADDRESS DESIGNATING SYSTEM

Ichiro Kobayashi, Kawasaki; Yoshiaki Moriya, Inagi, and Yukio Kitagawa, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Mar. 5, 1979, Ser. No. 17,572
Claims priority, application Japan, Mar. 6, 1978, 53-25280
Int. Cl.³ G06F *9/36*
U.S. Cl. 364—900 **8 Claims**



1. A memory address designating system comprising:

a memory for addressably storing program data and non-program data;

a first register coupled to said memory for storing a first address designating a first location in said memory;

a second register for storing a second address designating a second location in said memory;

an address modifying circuit coupled to said first register for selectively modifying said first address stored in said first register;

a first loop transfer path including a first gate circuit coupling the output of said address modifying circuit to said first register to enable a selective transfer of an address in said first loop transfer path comprising said first register, said address modifying circuit, and said first gate circuit;

a second loop transfer path including a second gate circuit coupling the output of said address modifying circuit to said second register and a third gate circuit coupling said second register to said first register to enable a selective transfer of an address in said second loop transfer path comprising said first register, said address modifying circuit, said second gate circuit, said second register, and said third gate circuit; and

a transfer path controlling means coupled to said memory and responsive to said stored program data and non-program data for controlling said first, second, and third gate circuits, said first register, said second register, and said address modifying circuit to (1) enable the transfer of a said address from said first register to said address modifying circuit to generate a modified first loop address and control said first gate circuit to enable the transfer of said modified first loop address back to said first register, and (2) enable the simultaneous transfer of said address from said first register to said address modifying circuit to generate a modified second loop address and the transfer of said modified second loop address to said second register, and said address from said second register through said first register to said third gate circuit.

4,267,582

CIRCUIT ARRANGEMENT FOR STORING A TEXT

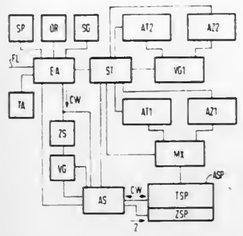
Gerd Thomanek, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 17, 1978, Ser. No. 925,276

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1977, 2748859

Int. Cl.³ G06F *7/06*

U.S. Cl. 364—900 **5 Claims**



1. A circuit arrangement for storing a text which comprises characters and combination characters composed of a plurality of characters, the characters being assigned code words, the arrangement comprising:

memory means including a text memory for storing in primary group code words of individual first characters and of second characters which are portions of combination characters, and for storing in hierarchically classified subsidiary groups code words of third characters which are portions of combination characters, and an assignment memory for storing assignment data associated with the respective primary and subsidiary groups and which indicate the position and number of character positions of each primary and subsidiary group; and

control means for generating assignment code connected to said memory means for inputting the code words and the assignment data into said text and assignment memories, said control means comprising

code word generating means, and

a comparator connected between said code word generating means and said text memory for comparing in accordance with predetermined criteria, code words to be input and code words already stored, and which is operable in response to the comparison in a first time to store the input code words and in a second time to exchange code words already stored in primary and subsidiary groups with code words stored in the particular next lower subsidiary group,

said comparator comprising means for comparing the code words in accordance with the values of the sequence of their binary characters considered as binary numbers as the predetermined criteria.

4,267,583

MEMORY TEST DEVICE WITH WRITE AND PSEUDO WRITE SIGNALS

Masao Suzuki, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Nov. 27, 1979, Ser. No. 97,625

Claims priority, application Japan, Nov. 27, 1978, 53-146176

Int. Cl.³ G11C *29/00*

U.S. Cl. 365—201 **17 Claims**

1. A memory device comprising a plurality of memory cells, selection means for selecting one of said memory cells, first write control means which operates in a normal write mode, and second write control means which operates in a pseudo write mode to supply a signal lower than a threshold value at



which the content of the normal memory cell is changed, to the memory cell to be tested.

4,267,584

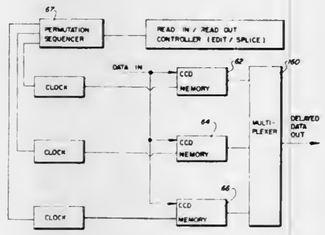
PERMUTATING ANALOG SHIFT REGISTER VARIABLE DELAY SYSTEM

Ronald E. McKeighen, Hoffman Estates, Ill., and Michael P. Buchin, Palo Alto, Calif., assignors to Siemens Gammasonics, Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 812,109, Jul. 1, 1977, Pat. No. 4,173,007. This application Jun. 18, 1979, Ser. No. 50,002

Int. Cl.³ G01S *15/89*

U.S. Cl. 367—11 **5 Claims**



1. In an ultrasonic imaging system having a plurality of electro-acoustic transducer elements, disposed in a predetermined arrangement and positionable relative to a patient anatomy, and means for energizing said transducer elements and processing echo signals returning thereto in a predetermined sequence thereby launching and receiving a scanned dynamically focused acoustic beam; variable delay means comprising:

a plurality of analog shift register memory devices;

permutation means for sequencing and permutating information storage and retrieval to and from said memory device such that said information storage and retrieval may be independently operated; and

edit/splice means altering the time interval between the operations of said information storage and said information retrieval to produce dynamic variation of system delay.

4,267,585

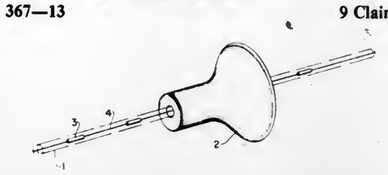
DEVICE FOR DETERMINING THE CONFIGURATION AND CALIBRATING LONG, TOWED UNDERWATER STRUCTURES

Peter C. Georgallis, Herndon, Va., assignor to Ramcor, Inc., Vienna, Va.

Filed Oct. 15, 1979, Ser. No. 84,660

Int. Cl.³ H04R *29/00*

U.S. Cl. 367—13 **9 Claims**



1. A device for determining the configuration of elongated, underwater structures as they are drawn through the water, which comprises a collar adapted to fit around a portion of said underwater structure and possessing sufficient hydrodynamic drag to remain substantially stationary in the water relative to the linear movement of the structure as the structure is drawn through the collar; said device being further adapted to assume the horizontal and vertical position in the water of that portion of said underwater structure being drawn through it; said device further comprising means for registering said horizontal and vertical displacement and communicating this information to an external location or recording it.

4,267,586

ELECTROPHONIC MUSICAL INSTRUMENT

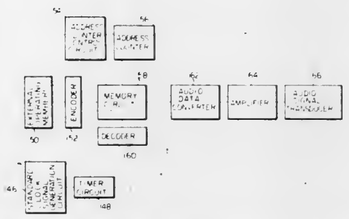
Misao Uchino, and Minoru Watanabe, both of Tokorozawa, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Feb. 21, 1979, Ser. No. 13,119

Claims priority, application Japan, Feb. 22, 1978, 53-19392

Int. Cl.³ G04C *21/28*; G10H *1/26*

U.S. Cl. 368—73 **4 Claims**



1. An electronic timepiece in combination with an electrophonic musical instrument, comprising:

a source of a standard high frequency signal;

frequency divider means responsive to said standard high frequency signal for generating a standard frequency signal and a standard time signal;

time display means;

drive means responsive to said standard time signal for driving said time display means to provide a display of time;

memory circuit means having a plurality of addresses for storage of data;

address counter means coupled to said memory circuit means for providing an output signal to select an address of said memory circuit means;

a first control switch coupled to circuit means for selectively enabling writing of data into and reading of data out of an address of said memory circuit means selected by said output signal from said address counter means;

a plurality of data input switches coupled to circuit means for selectively generating data specifying at least the pitch and the duration of a musical note;

a second control switch coupled to circuit means for causing said data generated by said data input switches to be written into an address of said memory circuit means selected by said output signal from said address counter means when writing of data into said memory circuit means is enabled by said first control switch;

a third control switch coupled to circuit means for resetting said address counter to a count of zero;

timing counter circuit means having a count input terminal coupled to receive said standard frequency signal, said timing counter circuit means being responsive to a signal produced by said third control switch for being reset to a count of zero simultaneously with said address counter being reset to zero, and being responsive to said standard frequency signal for counting after having been reset to a count of zero;

comparator circuit means coupled to output terminals of said timing counter circuit and coupled to receive data read out from said memory circuit means indicating the duration of a musical note, said comparator circuit means producing an output signal which is applied to said address counter to thereby advance the contents thereof by a count of one when coincidence is detected by said comparator circuit means between a count of said timing counter circuit and said data read out from said memory circuit means;

circuit means for resetting said timing counter circuit to a count of zero when said coincidence is detected;

audio signal conversion circuit means coupled to receive data read out of said memory circuit means specifying the pitch of a musical note, and for converting said data into an alternating electrical signal having a frequency corresponding to said specified pitch; and

piezo-electric transducer means responsive to said alternating electrical signal for producing an audible signal.

4,267,587

ELECTRONIC TIMEPIECE CIRCUIT

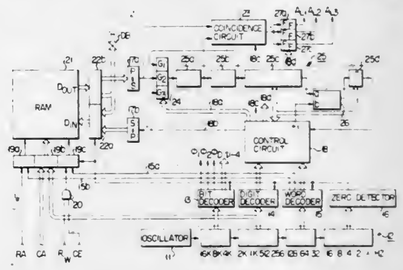
Mamoru Mizuno, Yamanashi, and Hanzou Tsuzuki, Yamato, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jan. 26, 1979, Ser. No. 6,925

Claims priority, application Japan, Feb. 17, 1978, 53/17337; Feb. 17, 1978, 53/17338; Feb. 20, 1978, 53/18389

Int. Cl.³ G04C *19/00*

U.S. Cl. 368—85 **10 Claims**



1. An electronic timepiece circuit comprising:

an oscillator (**11**) for generating a reference signal;

a frequency dividing circuit means (**12**) coupled to said oscillator (**11**) and having a plurality of frequency dividing stages for dividing the frequency of the reference signal to thereby produce signals at given time intervals;

a RAM (**21**) (random access memory) for storing clock data representing the time, said RAM (**21**) having address positions each of which stores clock data representing a unit of time, which are designated by address signals and which undergoes read-write control achieved by read-write signals;

a shift register (**25**) coupled to said RAM (**21**) for temporarily storing the clock data, said shift register (**25**) having a memory capacity large enough to store all the clock data stored in said RAM (**21**) in order to update the clock data;

a gate circuit means (**19***b*, **19***c*) coupled to said frequency dividing circuit means (**12**) for supplying an address signal and a read-write signal to said RAM (**21**) upon receipt of a signal produced by said frequency dividing circuit means (**12**) at said time intervals; and

a control circuit means (**18**) for updating the clock data by writing all the clock data from said RAM (**21**) into said shift register (**25**) at the start of the read period of the read-write signal and for writing the updated clock data into said RAM (**21**) at the start of the write period of the read-write signal.

4,267,588

HOURGLASS CONSTRUCTION

Alexander Daniels, 56 Oxcycocus Rd., Manahawkin, N.J. 08050

Filed Dec. 7, 1978, Ser. No. 967,298
Int. Cl.³ G04F *1/04*
U.S. Cl. 368—93 **1 Claim**



1. An hourglass construction comprising a pair of identical light permeable bottles each having an externally threaded mouth, a pair of identical threaded cap closures each having a circular flat top wall extending transversely across a respective bottle mouth and a skirt threadedly circumposed about the mouth of a respective bottle, said bottles being arranged in opposed aligned relation with said cap closures having their top walls in facing engagement with each other, securing means securing said cap closures in their engaging relation, a center hole in the top wall of each of said cap closures, said holes being in registry with each other and each axially aligned with and spaced inwardly of the mouth of the associated bottle to define an orifice communicating through said secured engaging cap top walls directly between the interiors of said bottles, and a fluent material contained in at least one of said bottles and flowable through said orifice into the other of said bottles.

4,267,589

ELECTRONIC WATCHES

Tetsuo Yamaguchi, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Sep. 26, 1979, Ser. No. 79,058
Claims priority, application Japan, Oct. 18, 1978, 53-127292
Int. Cl.³ G04F *8/00*; **G04C** *17/00, 21/16*; **G08B** *3/00*
U.S. Cl. 368—109 **6 Claims**

1. An electronic watch comprising:

an oscillator for generating a timing reference signal;

frequency dividing means for dividing the frequency of the reference signal produced by said oscillator;

counter means connected to said frequency dividing means for counting the number of the outputs of said frequency dividing means;

announcing time setting means for setting a time to be announced;

first memory means connected to said announcing time setting means for storing the time to be announced set by said announcing time setting means;

character input means comprising a plurality of types of characters;

character input control means connected to said character input means for encoding characters supplied by said character input means;

comparator means for detecting coincidence of a time counted by said counter means and a preset time stored in said first memory means, and for producing a signal in response to the detection of such coincidence;

second memory means connected to said character input control means for storing said encoded characters, said second memory means comprising decoder means for decoding the encoded characters produced by said second memory means, a first gate circuit group for producing the output signals produced by said decoder means in



accordance with the coincidence detection signal produced by said comparator means, a second gate circuit group for effecting DC-AC conversion of the output signals produced by said first gate circuit group, and a character drive out circuit comprising a group of buffer amplifiers for amplifying the output signals from said second gate circuit group;

display means connected to said counter means and to said second memory means for displaying the contents of the characters stored in said counter means, said preset time and said second memory means; and

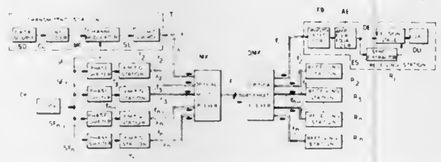
time announcing means, connected to said comparator means for generating an alarm signal in accordance with the coincidence detection signal generated by said comparator means, whereby when the time to be announced and stored in said first memory means coincides with the time counted by said counter means, the alarm is generated by said time announcing means while at the same time the characters stored in said second memory means are displayed.

4,267,590

FIBER-OPTICAL DATA-COMMUNICATION SYSTEM USING CARRIERS OF DIFFERENT WAVELENGTHS

Luciano Bosotti, Turin, Italy, assignor to CSELT, Centro Studi e Laboratori Telecomunicazioni S.P.A., Turin, Italy

Filed Jun. 18, 1979, Ser. No. 49,507
Claims priority, application Italy, Jun. 20, 1978, 68431 A/78
Int. Cl.³ H04B *9/00*
U.S. Cl. 370—3 **11 Claims**



1. In a data-communication system in which data streams are

modulated independently of one another but with cadences based on a common clock frequency upon a plurality of optical carriers of different wavelengths and the carriers so modulated pass between transmitters and receivers over respective channels sharing a common light guide between two terminals, each transmitter including a modulator establishing a predetermined signal period related to said clock frequency for symbols constituting its outgoing data stream,

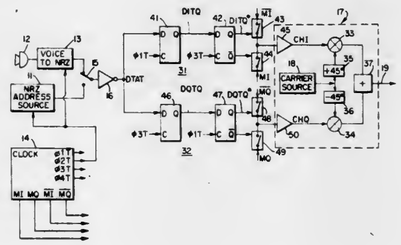
the combination therewith of synchronizing means connected to the modulator of at least one transmitter for staggering the signal period of its outgoing data stream with reference to that of the data stream of at least one other channel, as observed at one of said terminals, by substantially half the signal period of each of said data streams in the case of like signal periods and of the data stream of higher cadence in the case of harmonically related signal periods.

4,267,591

QPSK SUPPRESSED CARRIER WITH ROTATING REFERENCE PHASE

F. A. Wissel, and D. A. Kiliman, both of Cincinnati, Ohio, assignors to Cincinnati Electronics Corporation, Cincinnati, Ohio

Filed Apr. 17, 1979, Ser. No. 30,905
Int. Cl.³ H04J *11/00*
U.S. Cl. 370—11 **40 Claims**



3. A method of transmitting binary coded serial data synchronized to a clock source having a predetermined frequency, said data being capable of tolerating long term polarity ambiguity without performance loss, such as coded voice and address signals, comprising phase modulating a suppressed carrier offset quadrature phase shift key signal having a constant amplitude envelope at the rate of the clock frequency so that the reference carrier phase for successive bits is sequentially phase rotated 90° in the same selected direction in synchronism with the clock source, said reference phase being additionally bi-phase modulated in response to sequential bits of the binary data.

4,267,592

ANTI-JAM RADIO

Robert L. Craiglow, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Mar. 30, 1979, Ser. No. 25,527
Int. Cl.³ H04L *5/14*
U.S. Cl. 370—29 **8 Claims**

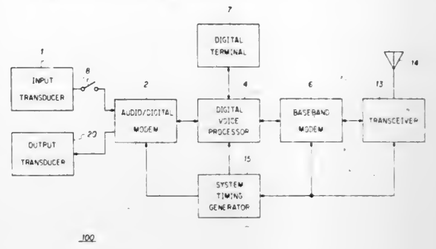
1. An apparatus providing full duplex anti-jam communications with a half duplex transceiver, comprising:

means for storing digital signals into digital packets of a predetermined number of symbols;

means for transmitting each digital packet at a different transmission frequency during a transmission period that is preceded by a preceding guard band and followed by a following guard band;

means for pseudorandomly changing the carrier frequency after the expiration of the following guard band if no digital packet is being received;

means for pseudorandomly changing the carrier frequency after the completion of the reception of a digital packet during the preceding guard band;



means for demodulating a received radio signal obtaining the digital packets therefrom; and

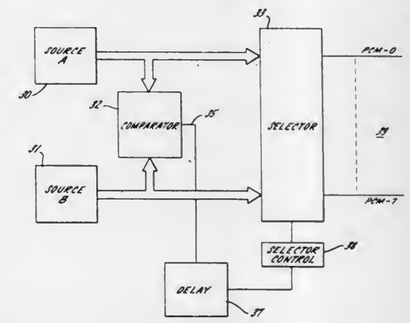
means for converting the digital packet into a received digital signal.

4,267,593

METHOD AND MEANS FOR DIGITAL CONFERENCING

John F. Regan, Lombard, and Bakulesh A. Mehta, Bollingbrook, both of Ill., assignors to Wescom Switching, Inc., Downers Grove, Ill.

Filed Jun. 15, 1979, Ser. No. 48,830
Int. Cl.³ H04M *3/56*
U.S. Cl. 370—62 **8 Claims**



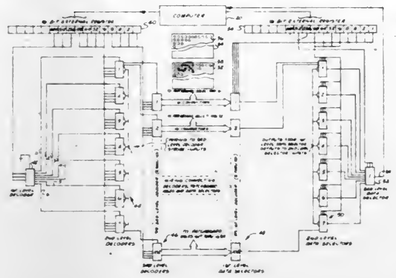
1. In a conference circuit for a digital telecommunications switching system having a comparator for comparing digital samples of conferees and producing an output signal identifying the largest sample, and means for identifying a present speaker and outputting his sample to the conferees during each frame, the improvement comprising, delay means for initiating a delay following detection of a proposed new speaker by said comparator having a sample larger than that of the present speaker, logic means responsive to the comparator and operative during the delay for determining if the proposed new speaker has the largest analog signal during the delay, and means responsive to a positive determination by said logic means and operative upon the identifying means for updating the identity of the present speaker to that of the proposed new speaker.

4,267,594

DECOMMUTATOR PATCHBOARD VERIFIER

John W. Brunson, Titusville, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 22, 1979, Ser. No. 51,271
Int. Cl.³ G01R *31/28;* **G06F** *11/00*
U.S. Cl. 371—20 **6 Claims**



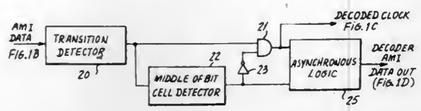
1. A system for verifying the connections between terminals of a patchboard comprising:
(a) a back plane;
(b) a plurality of plugs provided in said back plane corresponding in number and position to said terminals of said patchboard so that said patchboard that is to be verified can be plugged therein;
(c) a plurality of decoders connected to said plugs of said back plane;
(d) a control circuit means;
(e) memory means connected to said control circuit means, means for storing information in said memory means representing the correct patching program of said patchboard which is being verified;
(f) first stepping register means connected between said control circuit means and said plurality of decoders for selectively supplying signals through said decoders to said plugs of said back plane under control of said control circuit means;
(g) a plurality of data selector means connected to said plugs of said back plane;
(h) an output circuit;
(i) second stepping register means connected between said control circuit means and said plurality of data selector means for selectively making connection between said plugs through said data selector means to said output circuit causing a signal to be produced at said output circuit identifying the connections between the terminals of said patchboard,
(j) comparator means connected to said memory means and output circuit for comparing signals produced at said output circuit with said information in said memory for verifying said connections between terminals of said patchboard; and
(k) said plurality of decoders including:
(i) first, second and third level decoders;
(ii) each of said decoders having input and output terminals;
(iii) means for connecting predetermined input terminals of said decoders to said first stepping register means;
(iv) means for connecting said output terminals of said first level decoders to predetermined input terminals of said second level decoders;
(v) means for connecting said output terminals of said second level decoders to predetermined input terminals of said third level decoders; and
(vi) means for connecting said output terminals of said third level decoders to predetermined plugs of said back frame.

4,267,595

AMI DECODER APPARATUS

Victor M. Hernandez, Roanoke, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,035
Int. Cl.³ G11B *5/09*
U.S. Cl. 375—95 **11 Claims**



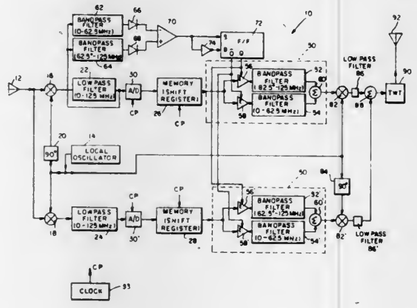
1. A decoder apparatus for use in a data transmission system in which information is conveyed in a bit stream consisting of a plurality of sequential bit cells, said stream of the type employing an alternate mark inversion (AMI) code, wherein the start of each bit cell is manifested by a first transition, each bit cell having a given duration T, with those bits indicative of a first binary value further possessing a transition at the center of said bit duration (T/2) to distinguish this first binary value from a second binary bit value with those bits of said second value having no transition at said center, said decoder comprising:
transition detector means responsive to said AMI bit stream for providing at an output, a plurality of pulses indicative of each transition in said AMI bit stream, whereby said plurality of pulses has at least a separate pulse for the start of each bit and a pulse indicative of a transition at the center of those bits of said first value,
center bit cell detector means responsive to said plurality of pulses at the output of said transition detector for responding to only those pulses indicative of said center transition, and therefore of said first binary value,
logic means responsive to said plurality of pulses from said transition detector means and said detected pulses to provide at an output, a digital signal indicative of the information conveyed by said AMI code, by outputting a first binary level during a next succeeding start pulse when a transition was detected at the center of a previous pulse, and outputting a second binary level when a transition was not detected, whereby said output digital signal manifests the original information encoded within said AMI bit stream.

4,267,596

DIGITAL MEMORY SYSTEM

Oscar Lowenschuss, Goleta, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 30, 1978, Ser. No. 891,794
Int. Cl.³ H04B *15/00*
U.S. Cl. 455—18 **4 Claims**



1. A digital memory system, comprising:

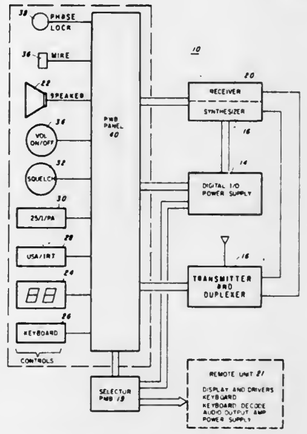
(a) means, fed by an input signal having a frequency within a predetermined band of frequencies, for producing a control signal indicative of the particular one of a plurality of different portions of the band of frequencies which includes the frequency of the input signal;
(b) means, fed by the input signal, for storing a sequence of one bit digital words, each one of such bits being representative of the amplitude of the input signal and for producing such sequence of stored digital words at an output of the storage means, such sequence of one bit digital words being produced as a train of pulses having a bandwidth greater than the predetermined band of frequencies; and
(c) means, fed by the control signals and the train of pulses produced at the output of the storing means, for coupling to an output of the memory system a selected portion of the bandwidth of the train of pulses, comprising:
(i) a plurality of filters, each one being tuned to a corresponding one of the portions of the predetermined band of frequencies; and
(ii) gating means, responsive to the control signal for passing the sequence of stored digital words produced at the output of the storing means to an output of the system through a selected one of the plurality of filters such selected one of the plurality of filters being the one of such filters which is tuned to the portion of the band of frequencies which includes the frequency of the input signal.

4,267,597

MARINE TELEPHONE RADIO

John P. Volpi, Garland, and Robert R. Kyle, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jul. 5, 1979, Ser. No. 55,108
Int. Cl.³ H04B *1/40*
U.S. Cl. 455—76 **10 Claims**



1. A communication device comprising:
(a) a plurality of operational controls, said controls including a data entry means for multiple channel number selections for incoming call monitoring, and operational status selecting means for selecting operational functions;
(b) a multiplexer connected to the plurality of operations controls for producing in sequence signals indicative of operator selected channel numbers and operational functions;
(c) a plurality of circuits including logic gates with first input terminals connected selectively to the multiplexer for receiving the electrical signals indicative of selected channel numbers and operational controls, second input terminals for receiving data loading signals, and output terminals;
(d) an encoder selectively connected to the logic gates' outputs for encoding the output signals;
(e) a microcomputer having input terminals connected to the encoder's output terminals for receiving the coded output thereof, said microcomputer operative to produce: loading signals, transmitter inhibiting signals responsively to selected operational function signals, alternately signals indicative of selected channel numbers for receiver scanning, and operational signals, said microcomputer having output terminals including a portion thereof connected to the second input terminals of the logic gates for loading the microcomputer with the logic gates' information responsively to receipt of the microcomputer's loading signals;
(f) a plurality of shift registers connected to selected outputs of the microcomputer, said shift registers operatively responsive to data outputs of the microcomputer for producing display activating signals and, alternatively bit words during receive each bit word comprising a synthesizer frequency address, a synthesizer enable signal and a power output selection signal, and a bit word during transmission including a carrier frequency address for a selected channel frequency;
(g) a display connected to the selected shift registers for displaying selected functional information;
(h) a microphone for producing audio frequencies;
(i) a frequency synthesizer selectively connected to the plurality of shift registers and microphone for producing frequencies responsively to the frequency synthesizer enable signals and frequency addresses of the bit words during receive, and a modulated signal by modulating the RF frequency of the frequency address and the audio frequency of the microphone during transmit; and
(j) a transceiver including a receiver/transmitter inhibiting means, a receiver and a transmitter, said inhibiting means connected to the microcomputer and said receiver and transmitter connected to the frequency synthesizer, said receiver/transmitter inhibiter means responsively to the microcomputers' transmitter inhibiting signals to inhibit the transmitter during receive, said receiver operative to receive the RF frequencies for the selected channels from the frequency synthesizer during receive and to produce any audio frequency present, and said transmitter operative to transmit the modulated frequencies of the frequency synthesizer during transmit.

4,267,598

NOISE-MEMORY REGULATED SQUELCH COMPENSATOR

Arthur J. Palmer, 2036 Coronet Dr., Largo, Fla. 33540

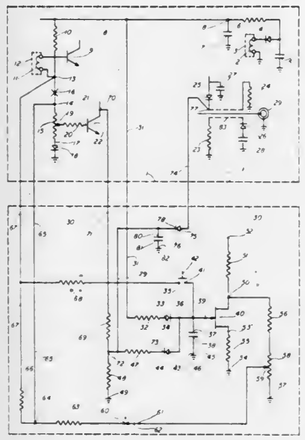
Filed Feb. 22, 1979, Ser. No. 14,125
Int. Cl.³ H04B *1/44, 1/10*
U.S. Cl. 455—78 **1 Claim**

1. In a transceiver having
a 13.8 volt positive supply point,
a capability of being switched from one channel to any of a multiplicity of channels,
a source of transmitter r.f. output energy at a directional coupler,
a receiver section which includes an audio detector diode to supply audio signal to the audio amplifier stages of said transceiver, said audio detector diode also providing a signal-proportional negative voltage contribution through a resistor to a positive voltage line which is the AGC voltage line of said transceiver, and thence through a second resistor to an AGC voltage component source, said AGC voltage component source providing AGC voltage component and AGC voltage component change through a connection to the high side of a squelch control, the low side of said squelch control being returned through a diode to circuit common, and the wiper of said squelch control being connected through a resistor to the input of a squelch amplifier transistor arrangement allow-

ing the conduction point of said squelch amplifier transistor and the squelching of said audio signal to be determined by the level of said AGC voltage component and by the setting of said squelch control of said receiver section of said transceiver,

the improvement thereof being: a noise-memory regulated squelch compensating circuit for squelch circuits controlled by AGC voltage, said compensating circuit utilizing the introduction of an approximately equal and opposite offset voltage change, determined by a periodically updated noise memory circuit, to cancel said AGC voltage component change at said squelch control that is due to the gradual, diurnal rise and decay of noise level at the input of said receiver section of said transceiver, thereby eliminating the need for readjustment of said squelch control, once said control is satisfactorily set, said compensating circuit comprising:

a. means for detecting and storage of the peak values of AGC voltage excursions representative of said noise level, which includes a noise level detector diode, the anode of said detector diode being connected through an isolating resistor to said positive voltage line which is the AGC voltage line of said transceiver; and which means also include a memory capacitor being connected between the cathode of said detector diode and



circuit common, this arrangement resulting in the charging of said memory capacitor to a voltage level representative of the average peak level of said excursions through said noise level detector diode and said isolating resistor, said voltage level being updated by recharge when necessary or being retained for a time in storage by said memory capacitor due to its relatively long time constant dischage rates;

b. means for quick correction of the voltage level in storage when switching from said one channel to any of a higher or lower noise level, which includes a normally open "noise reset" switch which can series connect the high side of said memory capacitor through a resistor to a reset voltage source, which in said transceiver is said AGC voltage component source for said squelch control of said receiver section, thereby providing a relatively short time constant charge or discharge path for said quick correction of said voltage level in storage;

c. means for producing an amplified and inverted replica of the gradual changes of said voltage level in storage, which includes a junction field effect transistor with its gate connected to said high side of said memory capacitor and its drain being connected through a resistor to said 13.8 volt positive supply point of said transceiver, and the source of said field effect transistor being returned through a resistor to circuit common, these connections resulting in a linearly amplified and inverted change in voltage at said drain as said voltage level in storage across said memory capacitor is altered;

d. means for attenuating said amplified and inverted replica of said gradual changes of said voltage level in storage to the compensation level required to offset or cancel the noise level produced AGC voltage component change at said squelch control, which includes a series connected resistor and "compensation gain" potentiometer respectively connected between said drain of said junction field effect transistor and circuit common, said potentiometer being factory or servicer adjustable for said compensation level required at the wiper of said potentiometer;

e. means for coupling the voltage of said compensation level required to offset or cancel said noise level produced AGC voltage component change at said squelch control, which includes a connection from said wiper of said "compensation gain" potentiometer through the normally closed contacts of a "squelch disable" switch and first series resistor to a junction point connected to said high side of said squelch control, with a second series resistor being connected between said junction point and said AGC voltage component source for said squelch control, this arrangement producing a summing junction at said junction point where the voltage is held essentially constant by said voltage of said compensation level during no-signal intervals throughout the diurnal range of rise and decay of said noise level at said input of said receiver section of said transceiver;

f. means to inhibit the gradual loss of said voltage in storage when said audio signal of said receiver section of said transceiver is not squelched, which includes a divider formed by two series connected resistors added between the collector of said squelch amplified transistor of said receiver section and circuit common, the junction of said resistors being then connected through a third resistor to the cathode of an inhibit diode, the anode of which connects to said high side of said memory capacitor, the primary discharge path of said memory capacitor being through said inhibit diode and said third resistor to said junction of said series connected resistors, and through the lower of said series connected resistors to circuit common, this arrangement resulting in a positive voltage at said junction when said squelch amplifier transistor is in its cutoff state, said positive voltage being applied through said third resistor to said cathode of said inhibit diode, removing forward bias or applying reverse bias to said inhibit diode, blocking said primary discharge path for said memory capacitor and preventing said loss of said voltage in storage whenever said squelch amplifier transistor is cut off and said audio signal of said receiver section is not squelched;

g. means to inhibit the gradual loss of said voltage in storage when said transceiver is in "transmit" mode, which includes a diode detector, the anode of which connects to said source of transmitter r.f. output energy at said directional coupler of said transceiver, the cathode of said diode detector being connected to said junction of said series connected resistors of said divider added between said collector of said squelch amplifier transistor and circuit common, and said cathode of said diode detector also being connected through a capacitor to said circuit common, the positive voltage appearing across said capacitor at transmit time due to the detection of said transmitter r.f. output energy by said diode detector being applied through said junction of said series connected resistors and said third resistor to said cathode of said inhibit diode, reverse biasing said inhibit diode, thereby blocking said primary discharge path for said memory capacitor for the duration of said "transmit" mode preventing said gradual loss of said voltage in storage;

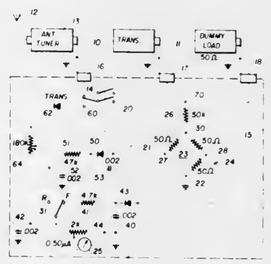
h. means to produce an unsquelched condition without disturbing said setting of said squelch control of said transceiver, which includes a normally closed "squelch disable" switch connected between said wiper of said "compensation gain" potentiometer and said resistor connecting said compensation voltage to said summing junction and said high side of said squelch control, said "squelch disable" switch making possible the interruption of said compensation voltage to said summing junction, causing the voltage at said junction to swing less positive, in turn causing the cutoff of said squelch amplifier transistor and the production of an unsquelched condition without disturbing said setting of said squelch control of said receiver section of said transceiver.

4,267,599

ANTENNA TUNING SYSTEM

William Vissers, Cocoa Beach, Fla., assignor to Gregory R. Ginn, Hermosa Beach, Calif.

Filed Nov. 28, 1979, Ser. No. 98,248
Int. Cl.³ H04B *17/00*
U.S. Cl. 455—115 **8 Claims**



1. An antenna impedance matching system operable to eliminate standing waves caused by impedance mismatch comprising in combination,

a transmitter,

an antenna,

a dummy load of known impedance,

antenna tuning means adjustable to determine the antenna impedance coupled to the antenna,

switching means connecting the transmitter, dummy load and antenna tuning means to the matching system,

said switching means connecting the antenna tuning means, transmitter and dummy load respectively in transmitting and tuning positions by connecting the transmitter to the antenna tuning means in the transmitting position and to the dummy load in the tuning position to deliver transmitter power thereto,

a bridge circuit having at least one impedance arm of the same impedance as the dummy load connected to the transmitter in said tuning position,

circuit means connecting the antenna and tuning means in said tuning position as a variable impedance branch of the bridge circuit compared with the impedance of said impedance arm,

means coupling power to said bridge circuit derived from the transmitter power delivered to the dummy load in said tuning position, and

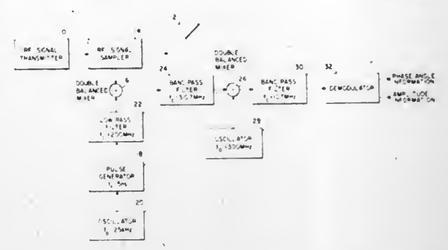
current monitoring means connected in the bridge circuit to indicate a null current when the antenna impedance matches the impedance of said impedance arm.

4,267,600

MODULATION MONITORING APPARATUS

Kenneth J. Campbell, Solana Beach, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 6, 1979, Ser. No. 101,029
Int. Cl.³ H04B *1/02*
U.S. Cl. 455—115 **6 Claims**



1. Monitoring apparatus for generating an output signal useful for evaluating the modulation quality and adequacy of an RF signal from a transmitter having a plurality of equally spaced channels, without regard to the selection of a channel, comprising:

first combining means for combining said RF signal with a first reference signal having a PRF equal to the transmitter channel spacing to produce a first signal of a predetermined frequency,

second combining means coupled to said first combining means for combining said first signal with a second reference signal to produce a second signal of a predetermined frequency, and

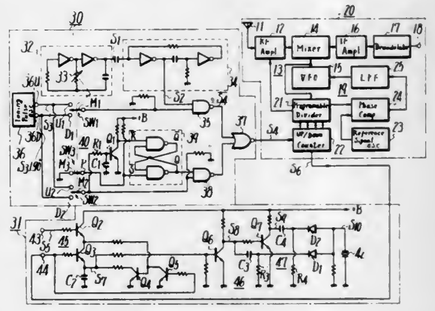
demodulating means coupled to said second combining means to produce said output signal having components proportional to the modulation of the transmitted RF signal.

4,267,601

TUNING CONTROL APPARATUS FOR A FREQUENCY SYNTHESIZER TUNER

Kaoru Umeda, Kawasaki, and Hideo Harada, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 14, 1979, Ser. No. 66,382
Claims priority, application Japan, Aug. 16, 1978, 53-99848; Aug. 16, 1978, 53-99849
Int. Cl.³ H04B *1/26;* **H03J** *7/28*
U.S. Cl. 455—165 **23 Claims**



1. Tuning control apparatus for use with a frequency synthesizer tuner of the type having a phaselocked loop including a reference oscillator, a variable frequency oscillator to produce a local oscillating signal, a programmable frequency divider coupled to the variable frequency oscillator for dividing the

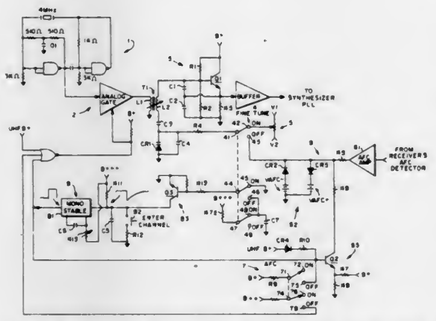
frequency of said local oscillating signal by a variable dividing ratio to produce a frequency-divided oscillating signal, a phase comparator for comparing the frequency-divided oscillating signal to the output of the reference oscillator to produce an error signal, and means for feeding back the error signal from the phase comparator to the variable frequency oscillator to adjust the frequency of the local oscillating signal and thereby establish a tuning condition of the tuner, said apparatus comprising counter means for counting control pulses supplied thereto, the count of said counter means determining the dividing ratio of said programmable frequency divider; control pulse generating means for supplying control pulses to said counter means; and adjusting means operable to adjust the rate at which said control pulses are supplied to said counter means for adjusting the speed at which the count of said counter means and the dividing ratio of said programmable frequency divider changes said adjusting means comprising gate pulse generating means for generating periodic gating pulses of substantially constant duration, means for controllably varying the period of said constant duration gating pulses; and gate means conditioned by said periodic gating pulses for gating a predetermined number of said control pulses to said counter means, the number of gated control pulses being determined by the duration of said gating pulses, and the rate at which said control pulses are gated being determined by the period of said gating pulses.

4,267,602

ACQUISITION DELAY CIRCUIT FOR A PLL REFERENCE OSCILLATOR

Craig W. Brun, Honeoye Falls, and Wilfred L. Hand, Clarence, both of N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 956,954, Nov. 2, 1978, abandoned. This application Oct. 4, 1979, Ser. No. 81,751
Int. Cl.³ H03B *3/06*
U.S. Cl. 455—182 **18 Claims**



1. In a PLL synthesizer tuning system for generating frequencies according to the desired channel of operation, said system having a reference oscillator selectively operable either in a crystal-controlled, injection-locked mode or in a voltage-controlled, mode, wherein the reference oscillator operating frequency is determined by a tuning voltage applied to a tuning voltage control terminal of said oscillator, alternatively supplied said toning voltage either by a manually-variable fine tuning circuit or by an AFC control circuit, and having a control circuit for determining the mode of operation of the reference oscillator, an acquisition delay circuit for assuring PLL acquisition in the voltage-conrolled mode, said delay circuit comprising:

a monostable having a trigger input responsive to edges of trigger pulses of a particular polarity and an output coupled to the control circuit, and

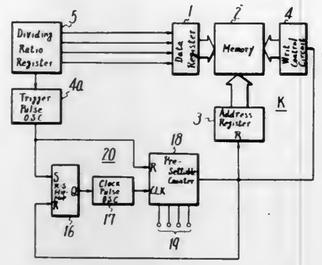
a trigger network coupled to the trigger input, said network including means for triggering the monstable in response to a change in the synthesizer's channel of operation.

4,267,603

MEMORY CONTROL CIRCUIT

Yoshio Osakabe, and Hiroshi Yasuda, both of Yokohama, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 21, 1979, Ser. No. 68,421
Claims priority, application Japan, Aug. 22, 1978, 53-102049
Int. Cl.³ H04B *1/26*; G11C *7/00*
U.S. Cl. 455—186 **13 Claims**



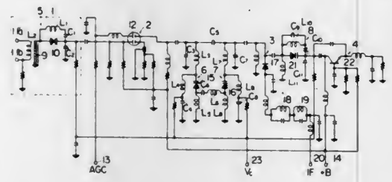
10. A memory control circuit for controlling a write-in operation of an addressable memory circuit whereby a digital signal that is changeable over time is written into an addressed location in said memory circuit, comprising addressing means for selecting the addressed location in said memory circuit into which a digital signal is to be written; and control signal generating means for sensing when a digital signal to be written into said memory circuit remains unchanged for a predetermined time interval so as to generate a control signal, said control signal being supplied to said addressing means for selecting said addressed location, and said control signal being supplied to said memory circuit to initiate a write-in operation.

4,267,604

UHF ELECTRONIC TUNER

Akira Sato, Hiratsuka, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 5,020
Claims priority, application Japan, Feb. 1, 1978, 53-10175
Int. Cl.³ H04B *1/18*
U.S. Cl. 455—193 **2 Claims**



2. An ultra high frequency electronic tuner for tuning and heterodyning a desired radio frequency signal from among a possible plurality of radio frequency signals received from an antenna, said tuner comprising: a circuit board, a conductive tuner case surrounding said circuit board, a slender metallic bar mounted on said circuit board and electromagnetically coupled to said antenna, said metallic bar forming a resonant cavity between itself and a wall of said tuner case, said resonant cavity being a resonant cavity radio frequency input circuit, and at least one other resonant circuit disposed on said circuit board for tuning an output of said resonant cavity and being of a type other than a resonant cavity circuit.

4,267,605

INTERFERENCE ELIMINATOR IN COMMUNICATION RECEIVER

Mitsuo Matsuzawa, and Hajime Yashita, both of Tokyo, Japan, assignors to Trio Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1979, Ser. No. 15,058
Int. Cl.³ H04B *1/26, 1/10*
U.S. Cl. 455—266 **9 Claims**



1. An interference eliminator for use in a communication receiver for eliminating interference from a high frequency input signal applied to the receiver, the high frequency input signal extending over a first range of frequencies, said interference eliminator comprising

a first mixing circuit responsive to the high frequency input signal for providing a first intermediate frequency signal,

a first band-pass filter responsive to the first intermediate frequency signal,

a second mixing circuit responsive to the output of said first band-pass filter for providing a second intermediate frequency signal,

a second band-pass filter having a center frequency different from the center frequency of said first band-pass filter and responsive to the second intermediate frequency signal,

a first local oscillator connected to said first mixing circuit for applying a first local oscillator signal thereto,

a second local oscillator connected to said second mixing circuit for applying a second local oscillator signal thereto, the relationships between the frequency of said first local oscillator signal to the center frequency and band-pass of the first band-pass filter and the frequency of said second local oscillator signal to the center frequency and band-pass of the second band-pass filter normally being such that the range of frequencies of said high frequency input signal effectively passed by said first and second band-pass filters after conversion by said first and second mixing circuits is such that (a) at least all of said first range of frequencies of the high frequency input signal are effectively passed by the first and second band-pass filters and (b) the center frequency of the range of frequencies effectively passed by the filters is substantially equal to the center frequency of the first range of frequencies,

first control means for simultaneously changing said first and second local oscillator frequencies only when said second local oscillator is controlled to change said second local oscillator frequency so that the ratio of the amount of frequency change in said first local oscillator frequency to that in said second local oscillator frequency is 1:2 thereby (a) a reduced range of frequencies of the high frequency input signal is effectively passed by the filters which is less than said first range of frequencies and (b) the center frequency of the reduced range of frequencies effectively passed by the filters is substantially equal to the center frequency of the first range of frequencies,

second control means for changing said first local oscillator frequency without changing the frequency of said second local oscillator so that the center frequency of the reduced range of frequencies effectively passed by the filters is shifted with respect to the center frequency of the first range of frequencies, and

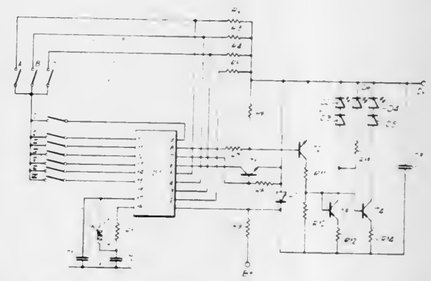
a third mixing circuit responsive to the output of said second band-pass filter, a notch filter having a fixed notch frequency responsive to the output of said third mixing circuit and a third local oscillator connected to said third mixing circuit and means for changing the output frequency of said third local oscillator to thereby vary the frequency of the output signal of said third mixing circuit so that an undesired signal can be eliminated by the notch of said notch filter whereby the notch frequency of said notch filter is effectively varied.

4,267,606

WIRELESS, MULTI-CHANNEL REMOTE CONTROL UNIT FOR TOYS

Heino Stelter, 2 Hasenstrasse, 851 Fuerth; Manfred Preiss, Nuernberger Str. 59, 8501 Rosstal, and Udo Polka, Gemuenderstr. 10, 7118 Ingelfingen, all of Fed. Rep. of Germany

Filed May 24, 1979, Ser. No. 42,100
Int. Cl.³ H04B *9/00*
U.S. Cl. 455—603 **6 Claims**



1. A wireless, multi-channel remote control unit for toys, said remote control unit comprising

an infrared transmitter including a coding device for correlating a coded series pulse train to each of a plurality of channels; and

at least one infrared receiver including a decoding device for decoding the coded series pulse trains received from the transmitter, said decoding device including a plurality of outputs one of which is correlated with at least one of the channels of the transmitter, the channels of said transmitter being divided into groups, each group having the same number of channels, and switch means interacting in a matrix manner for selecting said channels, said switch means comprising a first group of switches for selecting a group of said groups of channels and a second group of switches for selecting a channel from a selected group of channels.

DESIGN PATENTS

GRANTED MAY 12, 1981

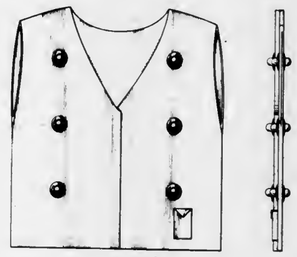
ERRATA

For CLASS	See PATENT NO.
D99-049	259,174
D09-370	259,213

259,145
PANTS
Ryoichi Inoue, Ashiya, Japan, assignor to Descente Ltd., Osaka, Japan
Filed Apr. 21, 1978, Ser. No. 899,019
Claims priority, application Japan, Feb. 1, 1978, 53-3144
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—28



259,146
COMBINED VEST AND BLINKER LIGHTS
Jay B. Carr, Jr., 945 S. Osage Ave., Inglewood, Calif. 90301
Filed Nov. 25, 1977, Ser. No. 854,987
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—184



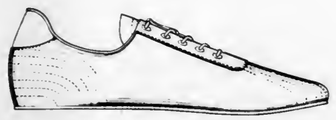
259,147
NURSE'S HEADWEAR
Catherine C. Evans, Milwaukee, Wis., assignor to Will Ross, Inc., Milwaukee, Wis.
Filed Apr. 19, 1979, Ser. No. 31,698
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—237



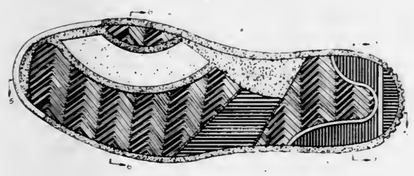
259,148
NURSE'S HEADWEAR
Catherine C. Evans, Milwaukee, Wis., assignor to Will Ross, Inc., Milwaukee, Wis.
Filed Apr. 19, 1979, Ser. No. 31,696
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—240



259,149
SOCCER SHOE BODY
Jonathan Werman, Hampton Beach, N.H., assignor to W. H. Brine Company, Milford, Mass.
Filed Apr. 9, 1979, Ser. No. 28,565
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—309



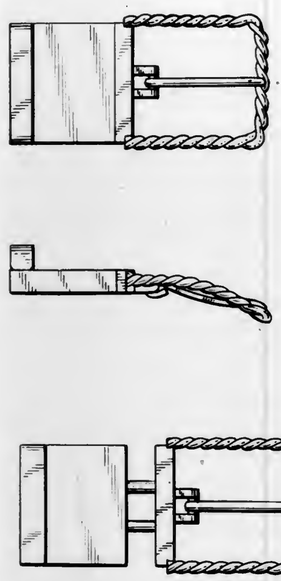
259,150
SOLE FOR A SHOE
Frank C. Cesare, Woodbury; James H. Flood, Watertown, and Anthony J. Urcinas, Waterbury, all of Conn., assignors to The Keds Corporation, Cambridge, Mass.
Filed Mar. 16, 1979, Ser. No. 21,285
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



259,151
JOGGER'S BELT
John E. Kishbaugh, and Gordon Storholm, both of P.O. Box 671, Haddonfield, N.J. 08033
Filed Oct. 20, 1978, Ser. No. 953,086
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—383



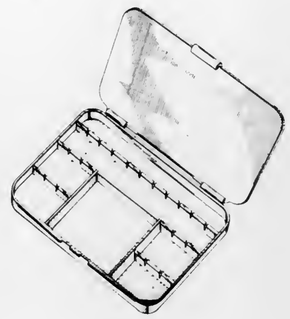
259,152
EXPANSIBLE BELT BUCKLE
Barry Heuser, Torrington, Conn., assignor to Manhattan Industries, Inc., New York, N.Y.
Filed May 30, 1978, Ser. No. 910,598
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—427



259,153
JEWELRY BOX
Domenic R. Valente, 116 Harding Ter., Dedham, Mass. 02026
Filed May 8, 1978, Ser. No. 903,967
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—66



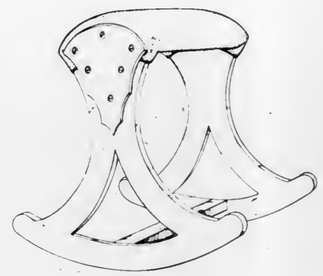
259,154
JEWELRY CASE
Lee C. White, Jr., and Warren E. Persky, both of Dallas, Tex., assignors to Item House, Inc., Dallas, Tex.
Filed Mar. 5, 1979, Ser. No. 17,495
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—75



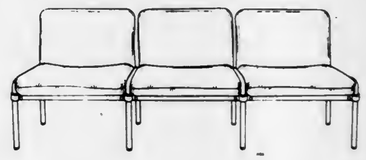
259,155
ARMCHAIR
Randall P. Buhk, Wyoming, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed May 22, 1978, Ser. No. 908,145
The portion of the term of this patent subsequent to Oct. 23, 1993, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—31



259,156
ROCKABLE FOOTSTOOL
Frank A. Massow, Volcano, Hi., assignor to Marjorie M. Corley and Christina C. Corley, both of Volcano, Hi.
Filed Jun. 28, 1979, Ser. No. 53,179
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—36



259,157
COUCH
Karl Lübke, Rheda, Fed. Rep. of Germany, assignor to Lübke KG, Rheda, Fed. Rep. of Germany
Filed Sep. 9, 1977, Ser. No. 831,799
Claims priority, application Fed. Rep. of Germany, May 13, 1977, 982
The portion of the term of this patent subsequent to Dec. 18, 1993, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—61



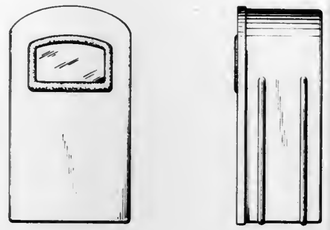
259,158
SECTION CONSOLE FOR USE WITH COSMETIC DISPLAYS
Evelyna C. Dyson, New York, N.Y., assignor to Revlon, Inc., New York, N.Y.
Filed Nov. 13, 1978, Ser. No. 960,291
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—85



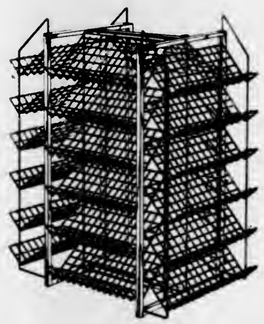
259,159
LETTER HOLDER
John Graybill, Lot #9, Rte. 2 Columbia, Dover, Ohio 44622
Filed Oct. 19, 1978, Ser. No. 952,623
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—114



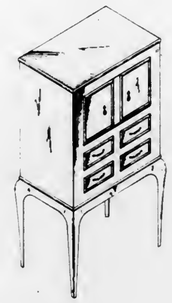
259,160
STORAGE CABINET FOR SAFETY EQUIPMENT OR THE LIKE
William D. Crosbie, Sr., 5966 Satinwood Dr., Baton Rouge, La. 70812
Filed Dec. 22, 1978, Ser. No. 973,232
Term of patent 14 years
Int. Cl. D6—*04*; D29—*01*
U.S. Cl. D6—127



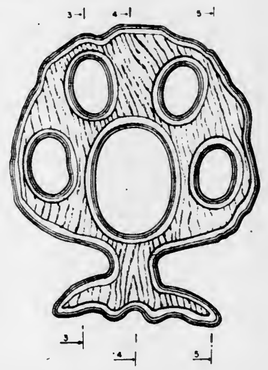
259,161
PLACEMAT DISPLAY RACK
William R. Thauer, Centerville, Mass., assignor to General Housewares Corp., Hyannis, Mass.
Filed Sep. 10, 1979, Ser. No. 73,949
Term of patent 14 years
Int. Cl. D20—*02*; D6—*04*
U.S. Cl. D6—157



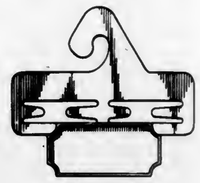
259,162
JEWELRY CABINET
Vittoria A. D'Alessandro, 4710 University Way NE., Seattle, Wash. 98105
Filed Jun. 14, 1978, Ser. No. 916,003
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—164



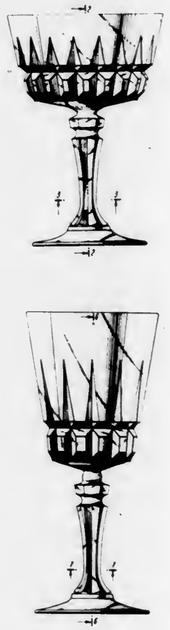
259,163
PICTURE FRAME
Anon G. Leard, and Dorothy M. Leard, both of 4322 Charles St., Amarillo, Tex. 79106
Filed Nov. 14, 1978, Ser. No. 960,620
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—234



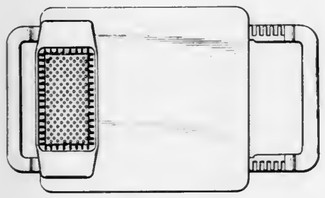
259,164
TIE HOLDER
Lorne Abramowitz, 628 Roslyn Ave., Westmount, Quebec, Canada
Division of Ser. No. 921,352, Jul. 3, 1978, Pat. No. Des. 254,644.
This application Aug. 7, 1979, Ser. No. 65,191
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—251

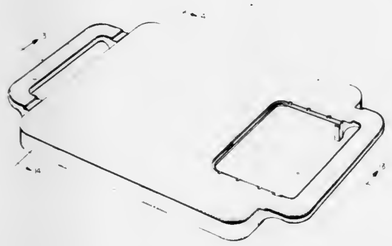


259,165
GOBLET OR SIMILAR ARTICLE
Jean-Jacques Durand, 62510 Arques, LaGarenne, France
Filed May 25, 1979, Ser. No. 42,428
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—13

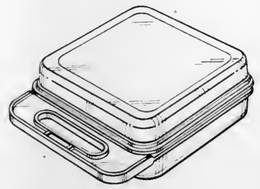


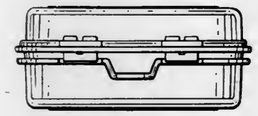
259,166
WORKING AND SERVING BOARD WITH A REMOVABLE STRAINER
Kurt Krusche, Frankfurt, Fed. Rep. of Germany, assignor to Allstar Verbrauchsguter GmbH & Co. KG, Frankfurt, Fed. Rep. of Germany
Filed Nov. 22, 1978, Ser. No. 962,998
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 73MR8711
Term of patent 14 years
Int. Cl. D07—*04, 99*
U.S. Cl. D7—21



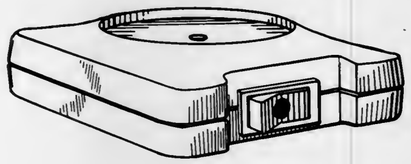


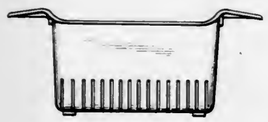
259,167
LUNCH BOX
Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Apr. 23, 1979, Ser. No. 32,065
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—76



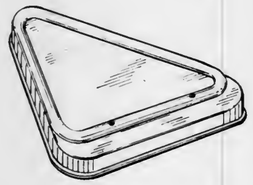


259,168
CUP WARMER
Ross J. Petrie, Fort Lauderdale, Fla., assignor to Jerry Wayne Simmons, Ash, N.C.
Filed May 15, 1978, Ser. No. 906,134
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—123

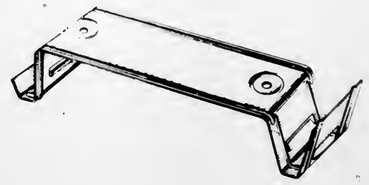




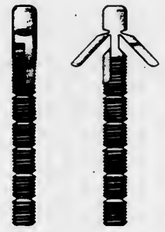
259,169
COVER FOR HAMPERS
Paul Bogner, 8952 Faust Cir., Huntington Beach, Calif. 92646
Filed Mar. 30, 1978, Ser. No. 891,937
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D7—194



259,170
FIXING CLIP FOR ROOFING OR SIDING MATERIAL OR SIMILAR ARTICLE
Mervyn C. Emms, Valentine, Australia, assignor to John Lysaght (Australia) Limited, Sydney, Australia
Filed Dec. 21, 1978, Ser. No. 971,759
Claims priority, application Australia, Jun. 23, 1978, 75132
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—382



259,171
EXPANSION LOCK
Robert S. Wallace, 823 S. Longwood Ave., Los Angeles, Calif. 90005
Filed Aug. 31, 1978, Ser. No. 938,400
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—385



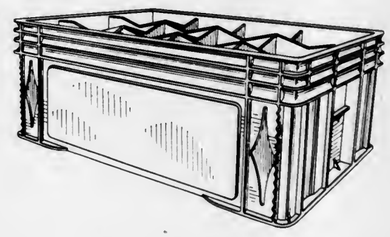
259,172
BOTTLE
Billy E. Ross, Elkhart, Ind., assignor to The Selmer Company, Elkart, Ind.
Filed May 26, 1978, Ser. No. 910,041
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—389



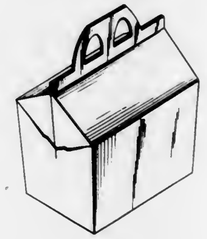
259,173
COLOGNE BOTTLE
Ralph Lauren, New York, N.Y., assignor to Warner/Lauren Ltd., New York, N.Y.
Filed Jul. 10, 1978, Ser. No. 923,413
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—401



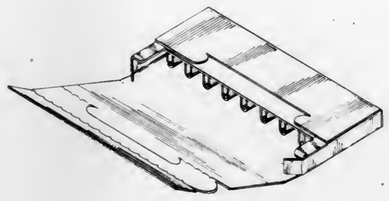
259,174
BEVERAGE CASE
Theodor M. Box, 1108 Aileen Rd., Brielle, N.J. 08730
Filed Nov. 14, 1978, Ser. No. 960,582
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D99—49



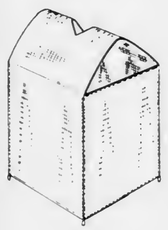
259,175
LUNCH BOX CARTON
John J. Austin, Jr., Hinsdale, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Feb. 1, 1979, Ser. No. 8,684
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—431



259,176
PACKAGE FOR AMPOULES
Otto Hofer, Schaan, Liechtenstein, assignor to Interondo AG, St. Gall, Switzerland
Filed Jun. 16, 1978, Ser. No. 917,013
Claims priority, application Netherlands, Apr. 13, 1978, 7866760
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—346



259,177
CONTAINER FOR BULK MATERIALS
Frank Nattrass, Knaresborough, England, assignor to Lolift Limited, Yorkshire, England
Filed Sep. 8, 1977, Ser. No. 831,694
Claims priority, application United Kingdom, Jul. 4, 1977, 980768/77
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—432



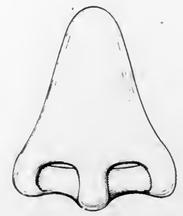
259,178
CONTAINER FOR BULK MATERIALS
Frank Nattrass, Knaresborough, England, assignor to Lolift Limited, Yorkshire, England
Filed Sep. 8, 1977, Ser. No. 831,696
Claims priority, application United Kingdom, Jul. 14, 1977, 980767/77
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—246



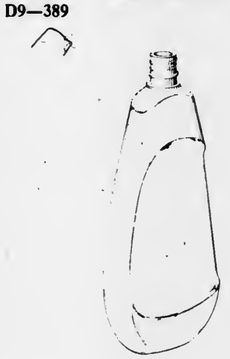
259,179
KNURLED CLOSURE
Bing Welch, Richmond, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Sep. 25, 1978, Ser. No. 945,580
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—453



259,180
DISPENSING FIGURINE FOR A BOX OF TISSUE
Judith R. Zeiger, 167 Pond Brook Rd., Chestnut Hill, Mass. 02167
Filed Dec. 5, 1977, Ser. No. 857,362
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—451



259,181
BOTTLE
Henry Saenz, Pittsburgh, Pa., assignor to J. L. Prescott Co., Passaic, N.J.
Filed Dec. 26, 1978, Ser. No. 973,127
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—389



259,182
SHAVING LATHER APPLICATOR
Orie M. Polkingharn, 3101 Snyder Ave., Cheyenne, Wyo. 82001
Filed Feb. 14, 1979, Ser. No. 11,806
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—435



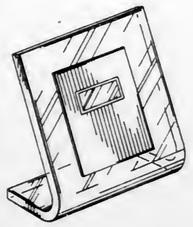


259,183
CAP FOR DISPENSING DISINFECTANTS
Clayton N. Hirtle, 44332 Balch Park Dr., Springville, Calif. 93265
Filed Apr. 3, 1980, Ser. No. 136,809
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—450





259,184
DIGITAL CLOCK
Gladys M. Francis, and David H. Francis, both of Scottsdale, Ariz., assignors to Microtime, Incorporated, Scottsdale, Ariz.
Filed Mar. 22, 1979, Ser. No. 22,928
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—15



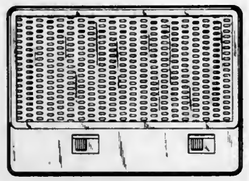
259,185
ALARM CLOCK
Robert Hocq, Boulogne-Billiancourt, France, assignor to Cartier International B.V., Amsterdam, Netherlands
Filed Jul. 5, 1978, Ser. No. 922,159
Claims priority, application France, Jan. 4, 1978, 78 40916
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—26



259,186
WRIST WATCH
Alain D. Perrin, Rueil-Malmaison, France, assignor to Interdica S.A., Switzerland
Filed Dec. 11, 1978, Ser. No. 968,169
Claims priority, application France, Jun. 12, 1978, 78 76645; Sep. 27, 1978, 78 76885
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—32



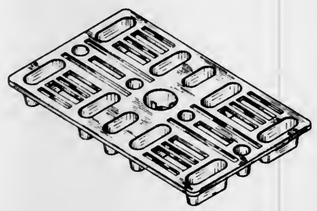
259,187
INTRUSION ALARM
Francesco Collura, New York, N.Y., assignor to CEGA, Inc., Cambridge, Mass.
Filed Sep. 1, 1978, Ser. No. 939,072
Term of patent 7 years
Int. Cl. D10—*05*
U.S. Cl. D10—106



259,188
FINGER RING
Josef J. Barr, 125 Worth Ave., Palm Beach, Fla. 33480
Division of Ser. No. 841,747, Oct. 13, 1977, Pat. No. Des. 252,744. This application Mar. 15, 1979, Ser. No. 21,421
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—27



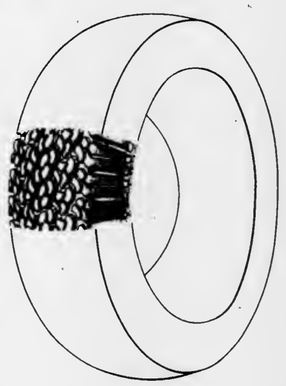
259,189
PALLET
William H. Wilson, Fort Smith, Ark., and Joy D. Cole, Muskogee, Okla., assignors to Cole Grain Company, Muskogee, Okla.
Filed Dec. 6, 1978, Ser. No. 966,961
Term of patent 14 years
Int. Cl. D9—*08*
U.S. Cl. D12—53



259,190
CAMPER VEHICLE
David E. Rowe, 2890 W. 62nd Ave., Denver, Colo. 80221
Filed Dec. 18, 1978, Ser. No. 970,566
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—100



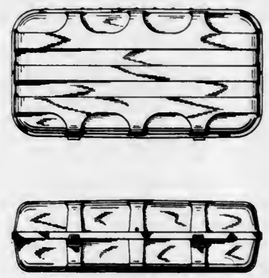
259,191
PNEUMATIC TIRE TREAD AND BUTTRESS
Gerassimos C. Candiliotis, Grosse Pointe Farms, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed Apr. 3, 1979, Ser. No. 26,635
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



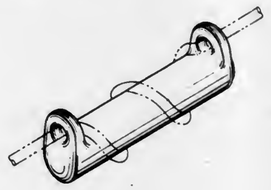
259,192
LUGGAGE SADDLE BAG
Thomas S. Beaubien, Rancho Palos Verdes; Dennis C. Rich, Long Beach, and Robert E. Oehring, Norwalk, all of Calif., assignors to Bates Industries, Inc., Long Beach, Calif.
Filed Sep. 17, 1979, Ser. No. 76,420
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—158



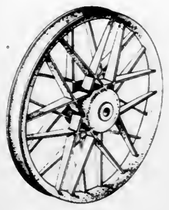
259,193
VEHICLE LUGGAGE CARRIER
Virgil E. Sellers, 3219 Midway Dr., Cedar Falls, Iowa 50613; Donald E. Lowman, 3652 Burton Ave., and Ronald L. Hovick, 275 Martin Rd., both of Waterloo, Iowa 50701
Filed Nov. 14, 1978, Ser. No. 960,695
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—157



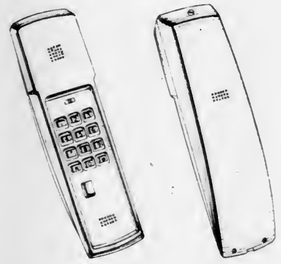
259,194
RESILIENT SHOCK ABSORBER FOR BOAT DOCKING LINES OR THE LIKE
Walter L. Koughan, 18011 NE. 196th St., Woodinville, Wash. 98072
Filed Dec. 8, 1978, Ser. No. 967,680
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D12—159



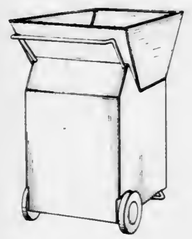
259,195
WHEEL
Bruce N. Smith, Seabrook, N.H., assignor to Spherex, Incorporated, Seabrook, N.H.
Filed Feb. 21, 1979, Ser. No. 13,085
The portion of the term of this patent subsequent to Sep. 26, 1992, has been disclaimed.
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



259,196
HAND-HELD TELEPHONE
John Pardo, Yonkers, N.Y., assignor to Leisurecraft Products Ltd., Plainview, N.Y.
Filed Aug. 10, 1979, Ser. No. 65,599
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—64



259,197
HOUSING FOR INSULATION BLOWING MACHINE
Robert R. Gibbons, Westminster, Colo., assignor to Insulation Technology Corporation, Northglenn, Colo.
Filed Feb. 27, 1978, Ser. No. 881,832
Term of patent 14 years
Int. Cl. D15—*09*; D12—*02*
U.S. Cl. D15—122



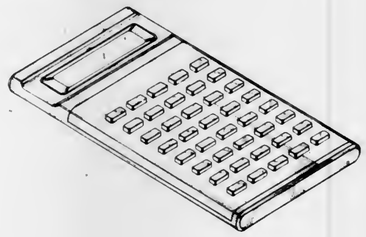
259,198
DIGITAL EXPOSURE METER
Darwin E. Chapman, Palo Alto, Calif., assignor to Creative Phototronics, Inc., Mountain View, Calif.
Filed Mar. 31, 1978, Ser. No. 892,463
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D16—39



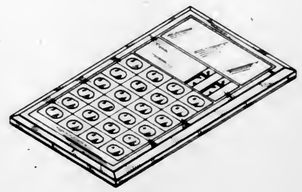
259,199
ELECTRIC GUITAR
Lawrence J. Kelly, Cincinnati, Ohio, and Thomas E. Kimble, Covington, Ky., assignors to Baldwin Piano & Organ Company, Cincinnati, Ohio
Filed Sep. 10, 1979, Ser. No. 73,890
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—14



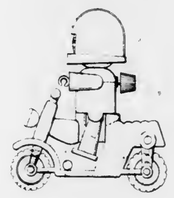
259,200
CASE FOR AN ELECTRONIC CALCULATOR
Robert A. Welch, and Shinpei Ichikawa, both of Lubbock, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Jul. 12, 1978, Ser. No. 924,038
The portion of the term of this patent subsequent to Aug. 12, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—7



259,201
ELECTRONIC CALCULATING MACHINE
Masaji Sawada, and Harumi Tatsugami, both of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed May 4, 1979, Ser. No. 36,177
Claims priority, application Japan, Nov. 14, 1978, 53-48462
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—7



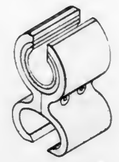
259,202
COMBINED TOY SCOOTER AND FIGURE THEREFOR
Naoharu Yamashina, Tokyo, Japan, assignor to Kabushiki Kaisha Bandai Overseas, Tokyo, Japan
Filed Feb. 5, 1979, Ser. No. 9,057
Claims priority, application Japan, Aug. 10, 1978, 53-33919
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—134



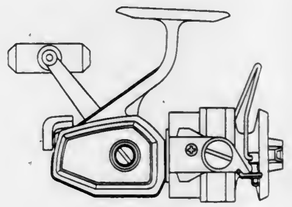
259,203
DOLL FIGURE
Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91345, and Elonne Dantzer, Redondo Beach, Calif., assignors to Adolph E. Goldfarb, Northridge, Calif.
Filed Feb. 9, 1979, Ser. No. 10,922
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—184



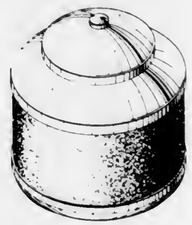
259,204
TELESCOPIC SIGHT MOUNT FOR 22 CALIBER RIFLE
Gerald T. Weast, 20821 Grand River, Detroit, Mich. 48226
Filed Aug. 24, 1978, Ser. No. 936,341
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—7



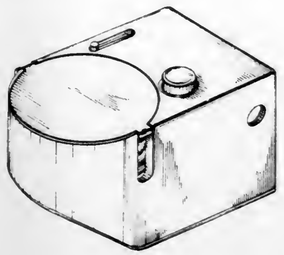
259,205
FISHING SPINNING REEL
Tetsuyuki Doi, and Takeshi Shohoji, both of Fukuyama, Japan, assignors to Ryobi Limited, Japan
Filed Jun. 23, 1978, Ser. No. 918,622
Claims priority, application Japan, Jan. 31, 1978, 53-3097
Term of patent 14 years
Int. Cl. D22—*25*
U.S. Cl. D22—25



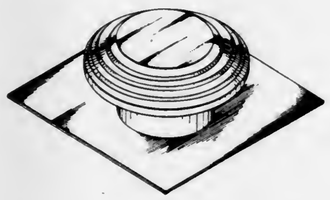
259,206
EVAPORATIVE COOLER
Joseph R. Parren, 4601 W. Dailey, Glendale, Ariz. 85306
Filed Dec. 4, 1978, Ser. No. 966,464
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139



259,207
FACIAL SAUNA HOUSING
Michael A. Cousins, Huntington, N.Y., assignor to The Gillette Company, Boston, Mass.
Filed Dec. 18, 1978, Ser. No. 970,744
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D23—148



259,208
ROOF VENT
John R. McCullough, 23891 Madison St., Torrance, Calif. 90505
Filed Apr. 23, 1979, Ser. No. 32,716
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—153



259,209
TONGUE CLEANER
Anil K. Gautama, 1707 Grandin Ave., Rockville, Md. 20851
Filed Oct. 11, 1978, Ser. No. 950,528
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—10



259,210
BLOOD VESSEL TRAP
Patrick C. Ayer, P.O. Box 6, Eau Claire, Wis. 54701
Filed Nov. 13, 1978, Ser. No. 959,653
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—23



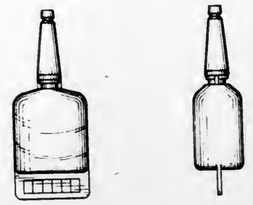
259,211
DISPOSABLE DIAPER
Christine I. E. Larkö, Hovas, Sweden, assignor to Molnlycke Aktiebolag, Gothenburg, Sweden
Filed Aug. 21, 1978, Ser. No. 935,380
Claims priority, application Sweden, Apr. 12, 1978, 7810230
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—50



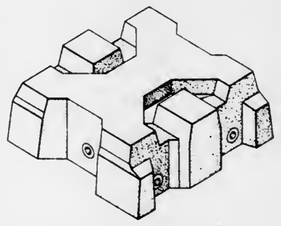
259,212
BASE FOR A TELEPHONE SET
Donald Foggia, Ocean, N.J., and Roman Pomponi, Norwalk, Conn., assignors to TIE/Communications, Inc., Shelton, Conn.
Filed Aug. 24, 1978, Ser. No. 936,336
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D24—53



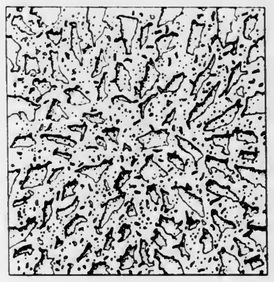
259,213
VIAL SUITABLE FOR PHARMACEUTICALS
Louis T. Pagels, Hanover Park, Ill., assignor to Automatic Liquid Packaging, Inc., Arlington Heights, Ill.
Filed Mar. 13, 1978, Ser. No. 886,088
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D9—370



259,214
SOIL EROSION PREVENTION BLOCK
Kossuth J. Landry, Jr., P.O. Box 599 Channelview, TX
Filed Nov. 29, 1978, Ser. No. 964,600
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91



259,215
CEILING PANEL OR SIMILAR ARTICLE
Miner H. Hendrickson, Minneapolis, Minn., assignor to Conwed Corporation, St. Paul, Minn.
Filed Nov. 9, 1978, Ser. No. 959,198
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97



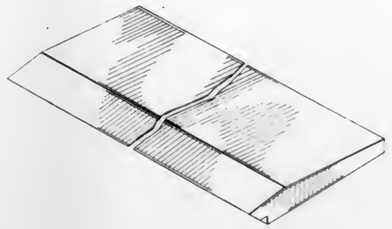
259,216
DECORATIVE NIGHT LIGHT DIFFUSER
Robert L. Martin, Cranston, and Joan K. Creamer, East Greenwich, both of R.I., assignors to General Electric Company, New York, N.Y.
Filed Dec. 26, 1978, Ser. No. 973,652
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—118



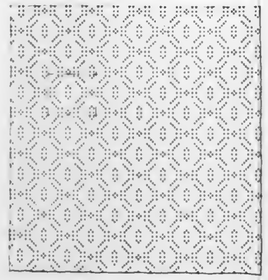
259,217
CIGARETTE AND CIGAR EXTINGUISHER
Douglas J. Smith, 159 Chisholm St., Oakville, Ontario, Canada
Filed Oct. 16, 1978, Ser. No. 951,671
Term of patent 14 years
Int. Cl. D27—*99*
U.S. Cl. D27—09



259,218
BRIDGING PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 10, 1979, Ser. No. 65,714
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—02



259,219
PAPER TOWELING
Gregory A. Bates, Cincinnati; Ralph R. Emenaker, Hamilton, both of Ohio, and Louis M. Henderson, Morningview, Ky., assignors to The Proctor & Gamble Company, Cincinnati, Ohio
Filed Oct. 10, 1978, Ser. No. 949,825
Term of patent 14 years
Int. Cl. D5—*06*
U.S. Cl. D59—2 B



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF MAY, 1981

NOTE —Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A & B Industries, Inc.: *See*—
Atkins, John H., 4,266,297, Cl. 2-2.500.
A/S Blehr & Tenvig: *See*—
Carlsen, Ove, 4,266,496, Cl. 114-126.000.
AB Motala Verkstad: *See*—
Book, deceased; Nils E. E., 4,266,925, Cl. 425-387.100.
Aceto Chemical Co, Inc.: *See*—
Mann, Seymour, 4,267,396, Cl. 568-851.000.
ACF Industries, Incorporated: *See*—
Kacal, Gary W.; and Partridge, Charles C., 4,266,566, Cl. 137-316.000.
Ruth, Harvey L.; Schneider, Michael H.; and Phelan, Michael B., 4,267,129, Cl. 261-72.00R.
Achelpohl, Fritz; Feldkaper, Richard; and Blom, Friedrich, to Windmoller & Holscher. Method and apparatus for separating groups of workpieces being conveyed in superposed overlapping formation. 4,266,654, Cl. 198-425.000.
Ackeret, Peter, to Licinvest AG. Filing arrangement. 4,266,834, Cl. 312-8.000.
Ackley, E. Michael. Material orientation and printing apparatus and method. 4,266,478, Cl. 101-40.000.
Ackley, Michael. Material orientation apparatus and method. 4,266,477, Cl. 101-40.000.
Aerni-Leuch AG: *See*—
Baumann, Niklaus, 4,267,249, Cl. 430-187.000.
Agaisse, Michel, to Les Cables De Lyon. Method for end to end connection of mineral-insulated electric cable and assembly for same. 4,266,992, Cl. 156-49.000.
AGFA-Gevaert, A.G.: *See*—
Kunitz, Friedrich-Wilhelm; Wolff, Erich; and Frank, Karl, 4,267,263, Cl. 430-469.000.
Lohmann, Joachim W.; Lapp, Otto; and Ranz, Erwin, 4,267,264, Cl. 430-505.000.
Ago, Hitoshi, to Shin Meiwa Industry Co., Ltd. Long-sized wire transfer apparatus. 4,266,455, Cl. 83-84.000.
Aikens, Paul W., to Du Pont de Nemours, E. I., and Company. Zero insertion force toggle link connector. 4,266,839, Cl. 339-75.0MP.
Air-Flo Manufacturing Co., Inc.: *See*—
Musso, Charles S., Jr., 4,266,731, Cl. 239-676.000.
Air Pollution Technology, Inc.: *See*—
Calvert, Seymour, 4,266,951, Cl. 55-84.000.
Air Preheater Company, Inc., The: *See*—
Oare, Arthur A.; and Wonderling, Harold J., 4,266,954, Cl. 55-341.00R.
Airco, Inc.: *See*—
Braatz, Robert E., 4,266,573, Cl. 137-630.180.
Aizawa, Tatsuo: *See*—
Nishibayashi, Katsumi; Amagai, Yoshimi; Hikake, Norio; Kouchi, Toshihiro; and Aizawa, Tatsuo, 4,267,246, Cl. 430-98.000.
Akashi, Goro: *See*—
Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, 4,267,207, Cl. 427-129.000.
Akashi, Teruo: *See*—
Hayashi, Shinjiro; Taniyama, Kiyoshi; Kikuchi, Kenichi; and Akashi, Teruo, 4,266,439, Cl. 74-501.00R.
Akatsuka, Masaki: *See*—
Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, 4,266,324, Cl. 19-239.000.
Akhavi, David S., to American Hospital Supply Corporation. Method of collecting and dispensing a blood sample. 4,266,558, Cl. 128-766.000.
Akhavi, David S., to American Hospital Supply Corporation. Blood sampler. 4,266,559, Cl. 128-766.000.
Akhavi, David S., to American Hospital Supply Corporation. Stripper clamp. 4,266,751, Cl. 251-6.000.
Aktiebolaget Bofors: *See*—
Nygaard, Kurt; Mattsson, Kjell; and Bratt, Sven-Erik, 4,267,567, Cl. 362-46.000.
Saltin, Malte, 4,266,463, Cl. 89-41.0AA.
Akzo N.V. of Arnhem/Nederland: *See*—
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, 4,267,047, Cl. 210-490.000.
Albany International Corp.: *See*—
Schiher, Stanley C.; and Renjilian, Armen, 4,267,227, Cl. 428-234.000.
Albrecht, Paul R.: *See*—
Stradling, John H.; and Albrecht, Paul R., 4,266,643, Cl. 192-51.000.
Alco Foodservice Equipment Company: *See*—
Brown, Wade R.; and Mannhardt, Werner, 4,266,726, Cl. 239-406.000.
Alderman, James. Axe sharpening device. 4,266,448, Cl. 76-82.000.
Alex, Wayne E. Long line hook arranging apparatus. 4,266,359, Cl. 43-6.500.
Alice, Martin B.; and Grass, John W., to Bendix Corporation, The. Measurement indicators for a measuring machine. 4,266,345, Cl. 33-169.00R.
Allen Group, Inc., The: *See*—
Barber, Ivan J., 4,266,482, Cl. 104-172.00B.
Allen, Russell E.: *See*—
Trueblood, Troy M.; and Moulton, Robert H., 4,267,118, Cl. 260-428.000.
Allied Chemical Corporation: *See*—
Thomas, Rudy V.; and Stephenson, Robert L., 4,266,810, Cl. 280-802.000.
Allis-Chalmers Corporation: *See*—
Wheeler, Keith A.; and Hastings, Dawson W., 4,266,618, Cl. 172-314.000.
Allport, John J., to Zikonix Corporation. Method for continuously determining the composition and mass flow of butter and similar substances from a manufacturing process. 4,266,425, Cl. 73-61.00R.
Alsup, James M.: *See*—
Bond, James W.; Alsup, James M.; Speiser, Jeffrey M.; Whitehouse, Harper J.; and Lagnado, Isaac, 4,267,580, Cl. 364-824.000.
Alterman, Israel: *See*—
Rom, Josef; Alterman, Israel; and Shwartz, Josef, 4,266,609, Cl. 166-251.000.
Alterman, Isreal: *See*—
Rom, Josef; Alterman, Israel; and Shwartz, Josef, 4,266,609, Cl. 166-251.000.
Aluminum Company of America: *See*—
Hager, Donald G.; and Rubel, Frederick, Jr., 4,267,057, Cl. 210-678.000.
Alyabiev, Vitaly K.: *See*—
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.
Amagai, Yoshimi: *See*—
Nishibayashi, Katsumi; Amagai, Yoshimi; Hikake, Norio; Kouchi, Toshihiro; and Aizawa, Tatsuo, 4,267,246, Cl. 430-98.000.
Amano, Toshio: *See*—
Sato, Masaru; and Amano, Toshio, 4,267,563, Cl. 358-127.000.
Ambac Industries, Incorporated: *See*—
Voss, James R.; and Vanderpoel, Richard E., 4,266,728, Cl. 239-533.800.
American Air Filter Company, Inc.: *See*—
Revell, Alan, 4,266,956, Cl. 55-478.000.
American Can Company: *See*—
Kuchenbecker, Morris W., 4,266,666, Cl. 206-461.000.
Maroszek, Raymond V., 4,266,713, Cl. 229-33.000.
American Cyanamid Company: *See*—
Baker, Pamela K.; Asato, Goro; and Dusza, John, 4,267,191, Cl. 424-285.000.
Floyd, Middleton B., Jr., 4,267,361, Cl. 560-118.000.
Rothenberg, Alan S.; and Desmond, Michael N., 4,267,372, Cl. 564-205.000.
American Home Products Corporation: *See*—
Lippmann, Wilbur, 4,267,189, Cl. 424-274.000.
Wolf, Milton, 4,267,192, Cl. 424-308.000.
American Hospital Supply Corporation: *See*—
Akhavi, David S., 4,266,558, Cl. 128-766.000.
Akhavi, David S., 4,266,559, Cl. 128-766.000.
Akhavi, David S., 4,266,751, Cl. 251-6.000.
American Seating Company: *See*—
Barecki, Chester J.; and Wilkerson, Larry A., 4,266,822, Cl. 296-65.00R.
Ameron, Inc.: *See*—
Seneker, James A., 4,267,081, Cl. 260-22.0TN.
Ammco Tools, Inc.: *See*—
Mitchell, Wallace F.; and Kamin, Arthur, 4,266,454, Cl. 82-1.00C.
Amouroux, Jacques; Rapakoulias, Demetre; and Cavadias, Simeon, to Electricite de France (Service National). Process and apparatus for the preparation of nitrogen oxides. 4,267,027, Cl. 204-179.000.
AMP Incorporated: *See*—
Hollyday, Robert D., 4,267,536, Cl. 333-186.000.
Janssen, Theodorus M.; Gilissen, Hermanus P. J.; Soes, Lucas; Van Der Sanden, Ludovicus C.; and Van Dijk, Petrus R. M., 4,267,412, Cl. 200-6.00B.
Rohde, Carl W., 4,267,404, Cl. 178-46.000.
Ampex Corporation: *See*—
Flores, Charles A., 4,267,564, Cl. 360-72.300.

Anderson, Bert O.: *See—*
Wilhelmi, Julius B.; and Anderson, Bert O., 4,266,882, Cl. 403-14.000.

Anderson, Carl E.: *See—*
Matthys, Bernard A.; Schoen, Donald W.; and Anderson, Carl E., 4,266,953, Cl. 55-294.000.

Anderson, Dale L., to Datafile Limited. Label position sensor for labeller. 4,267,004, Cl. 156-361.000.

Anderson, Nigel I. Tensioning of metal wires. 4,266,756, Cl. 256-47.000.

Anderson, Richard J.; and Henrick, Clive A., to Zoecon Corporation. Novel carboxylic acid esters. 4,267,359, Cl. 560-104.000.

Anderson, Richard J.; and Henrick, Clive A., to Zoecon Corporation. Intermediates for a sex pheramone for yellow scale. 4,267,363, Cl. 560-183.000.

Anderson, Ronald B.; Svendsen, Walter W.; Beckley, Gary H.; and Caneer, Clifford, Jr., to Longyear Company. High-low speed rotary drive mechanism. 4,266,444, Cl. 74-661.000.

Andersson, Curt E. Conveyor belt arrangement having an endless path. 4,266,661, Cl. 198-822.000.

Ando, Haruhisa: *See—*
Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, 4,267,469, Cl. 307-311.000.

Ando, Keikichi: *See—*
Ohta, Norio; Ishida, Fumihiko; Ikeda, Tadashi; Ando, Keikichi; and Sugita, Yutaka, 4,267,230, Cl. 428-336.000.

Ando, Koichi: *See—*
Kobayashi, Yoshio; Ando, Koichi; and Hyodo, Susumu, 4,267,155, Cl. 423-235.000.

Ando, Seigo, to Nippon Kokan Kabushiki Kaisha. Apparatus for non-contact measurement of distance from a metallic body using a detection coil in the feedback circuit of an amplifier. 4,267,508, Cl. 324-225.000.

Angelucci, Romano: *See—*
Cozzi, Paolo; Magni, Osvaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., 4,267,327, Cl. 544-336.000.

Annis, Myron C., to Hooker Chemicals & Plastics Corp. Phenolic resins with improved low temperature processing stability. 4,267,141, Cl. 264-328.100.

Anzai, Shigeo: *See—*
Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.

Anzai, Yoshinori: *See—*
Murakami, Katsuo; Anzai, Yoshinori; Otani, Mitsuoki; and Ito, Hiroshi, 4,267,485, Cl. 313-486.000.

Appleton Machine Company: *See—*
Lamon, David E.; and Klemmer, Paul J., 4,266,475, Cl. 100-168.000.

Aquatain Partnership: *See—*
Van Leuven, James W., 4,267,168, Cl. 424-75.000.

Arai, Masatoshi: *See—*
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Arai, Masatoshi, 4,267,172, Cl. 424-184.000.

Arai, Takeo: *See—*
Ban, Keisuke; and Arai, Takeo, 4,266,596, Cl. 164-97.000.

Arakawa Kagaku Kogyo Kabushiki Kaisha: *See—*
Okumichi, Toshiharu; and Kawatani, Kimio, 4,267,099, Cl. 260-101.000.

Arbed S.A.: *See—*
Daldrup, Heinz G.; Nothhelfer, Gunther; Franke, Friedrich H.; and Limpach, Raymond, 4,266,968, Cl. 75-42.000.

Arcamone, Federico: *See—*
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,267,116, Cl. 260-376.000.

Archibald, Roy D.: *See—*
Weitzman, Stewart; and Archibald, Roy D., 4,267,167, Cl. 424-52.000.

Ardal Og Sunndal Verk A.S.: *See—*
Schneider, Paul A.; and Eliassen, Carlo, 4,266,316, Cl. 15-304.000.

Argus Chemical Corporation: *See—*
Pastorino, Ronald L.; and Lewis, Roger N., 4,267,109, Cl. 260-338.000.

Arikawa, Hiroo, to San-O Industrial Co., Ltd. Miniature electric fuse. 4,267,543, Cl. 337-255.000.

Arimura, Iwao: *See—*
Takigawa, Hiroyoshi; Arimura, Iwao; Tanaka, Makoto; and Ohkuni, Shinichiro, 4,266,592, Cl. 152-209.00D.

Arlauskas, Alfonsas: *See—*
Pelchat, Paul F.; and Arlauskas, Alfonsas, 4,266,321, Cl. 16-145.000.

Arlt, Dieter: *See—*
Jautelat, Manfred; Stetter, Jorg; Arlt, Dieter; and Kramer, Wolfgang, 4,267,381, Cl. 568-419.000.

Armanet, Jean-Michel: *See—*
Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, 4,267,314, Cl. 536-53.000.

Armitage, Geoffrey D.: *See—*
Scott, Richard M.; and Armitage, Geoffrey D., 4,267,355, Cl. 560-43.000.

Arnold, Bernhard: *See—*
Lindner, Christian; Arnold, Bernhard; Kuhlmann, Dieter; Kowitz, Friedrich; and Ott, Karl-Heinz, 4,267,278, Cl. 525-2.000.

Arrow Converting Equipment, Inc.: *See—*
Mastriani, Elvin A., 4,266,737, Cl. 242-72.00B.

Asada, Hiroyuki: *See—*
Umemura, Sumio; Ohdan, Kyoji; and Asada, Hiroyuki, 4,267,385, Cl. 568-479.000.

Asahi, Akira: *See—*
Sato, Kazuo; Asahi, Akira; and Koyama, Takahiro, 4,267,198, Cl. 426-332.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Hashino, Yasuo; Hayano, Fusakazu; and Toyomoto, Kazuo, 4,267,053, Cl. 210-650.000.
Yokoyama, Takayuki; Nakayama, Yoshiaki; and Yasuda, Yasuo, 4,267,080, Cl. 260-4.00R.

Asahi Yukizai Kogyo Co., Ltd.: *See—*
Ninomiya, Youichi; Ogawa, Hirotoshi; Ueda, Tomoyuki; and Machida, Masataka, 4,266,754, Cl. 251-306.000.

Asama Chemical Co., Ltd.: *See—*
Yajima, Mizuo, 4,267,166, Cl. 424-48.000.

Asano, Hiroaki; Suzuki, Ikuo; and Enomoto, Minoru, to Toyoda-Koki Kabushiki-Kaisha. Grinding machine with truing apparatus for grinding wheel made of cubic boron nitride. 4,266,374, Cl. 51-165.870.

Asato, Goro: *See—*
Baker, Pamela K.; Asato, Goro; and Dusza, John, 4,267,191, Cl. 424-285.000.

Ascher, Gerd, to Sandoz Ltd. Cephalosporin derivatives. 4,267,321, Cl. 544-030.000.

ASEA Aktiebolag: *See—*
Torok, Vilmos, 4,267,498, Cl. 318-723.000.

Asher, Lance A., to Phillips Petroleum Company. Closure for top inside roll container. 4,266,689, Cl. 220-307.000.

Assal, Francois T.; Berman, Arnold L.; and Betaharon, Khodadad, to Communications Satellite Corporation. Resistively matched microwave PIN diode switch. 4,267,538, Cl. 333-262.000.

Atkins, John H., to A & B Industries, Inc. Bullet resistant ballistic panel carrier garment. 4,266,297, Cl. 2-2.500.

Atlantic Richfield Company: *See—*
Burk, Emmett H., Jr.; Yoo, Jin S.; Karch, John A.; and Sun, Jui-Yuan, 4,267,032, Cl. 208-113.000.

Atlas Copco Aktiebolag: *See—*
Lundstrom, Axel L., 4,266,749, Cl. 248-652.000.

Aubarede, Francis C.: *See—*
DiPalma, Hugo R.; and Aubarede, Francis C., 4,266,724, Cl. 239-195.000.

Audi NSU Auto Union Aktiengesellschaft: *See—*
Bauder, Armin, 4,266,571, Cl. 137-625.480.

Auer, Siegfried O., to Norlin Industries, Inc. Apparatus for measurement of soil moisture content. 4,266,878, Cl. 356-419.000.

Austin, John J., to Champion International Corporation. Carton with pyramid-shaped bottom and blank for forming same. 4,266,716, Cl. 229-39.00R.

Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Decomposition of cumene hydroperoxide and recovery of boron trifluoride catalyst. 4,267,379, Cl. 568-385.000.

Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Decomposition of cumene hydroperoxide using a Lewis acid catalyst. 4,267,380, Cl. 568-385.000.

Autoliv AB: *See—*
Ennerdal, Leif; and Berg, Lars E., 4,266,325, Cl. 24-230.00A.

Automobiles Peugeot: *See—*
Perez, Jean; and Carnus, Jean-Claude, 4,266,524, Cl. 123-568.000.

Avicola, Kenneth, to Jersey Nuclear-Avco Isotopes, Inc. System for increasing laser pulse rate. 4,266,854, Cl. 350-171.000.

Ayers, David L.: *See—*
White, Dale; Ayers, David L.; and Hribar, Allan E., 4,266,602, Cl. 165-124.000.

B. F. Goodrich Company, The: *See—*
Cohen, Louis, 4,267,103, Cl. 260-17.4UC.
Jones, Richard A.; and Witenhafer, Donald E., 4,267,291, Cl. 526-62.000.

Baatrup, Johannes V.; Christensen, Thorkild; Christiansen, Tage; and Thomsen, Svend E., to Danfoss A/S. Hydraulic control apparatus for servo-motor particularly for vehicle steering. 4,266,464, Cl. 91-29.000.

Baba, Takaaki: *See—*
Ishikawa, Toshiro; Kitani, Teruo; and Baba, Takaaki, 4,267,560, Cl. 358-22.000.

Babcock & Wilcox Company, The: *See—*
Hoof, Robert G., 4,267,045, Cl. 210-322.000.

Bacher, Micher, to Societe Anonyme Francaise de Ferodo. Crown-type caliper brake. 4,266,636, Cl. 188-76.000.

Backx, Leo J. J.: *See—*
Heeres, Jan; and Backx, Leo J. J., 4,267,179, Cl. 424-25.00D.

Bacus, James W., to Rush-Presbyterian-St. Luke Medical Center. Apparatus for the preparation of blood samples for automated analysis. 4,266,505, Cl. 118-699.000.

Bader, Henry: *See—*
Sparks, John W.; and Bader, Henry, 4,267,324, Cl. 544-262.000.

Bahr, Albert. Chamber type filter press for de-watering sludges and similar substances. 4,266,474, Cl. 100-118.000.

Baier, Robert E., to Calspan Corporation. Catheter for long-term emplacement. 4,266,999, Cl. 156-227.000.

Bains, Gurdip S., to Westinghouse Electric Corp. Panel joint for assembling panel members. 4,266,386, Cl. 52-584.000.

Baird Corporation: *See—*
Govaert, Johan A., 4,267,452, Cl. 250-366.000.

Baker, Pamela K.; Asato, Goro; and Dusza, John, to American Cyanamid Company. Process for enhancing growth promotion in animals. 4,267,191, Cl. 424-285.000.

Balch, Robert A.; and Kerr, Charles E., to Balch, Robert A. Cope cutter. 4,266,457, Cl. 83-745.000.

Bald, Hubert, to Maschinenfabrik Alfred Schmermund GmbH & Co. Apparatus for conveying articles. 4,266,652, Cl. 198-347.000.

Bald, Hubert, to Maschinenfabrik Alfred Schmermund GmbH & Co. Device for examining the degree of filling of a cigarette. 4,267,444, Cl. 250-227.000.

Baldoni, Carlo. Keyboard decade digital dial. 4,267,409, Cl. 179-90.00B.

Ball Corporation: *See—*
Wood, Charles L., 4,266,961, Cl. 65-29.000.

Bals, Hans G. Two-wheeled vehicle. 4,266,794, Cl. 280-227.000.

Bambi Incorporated, The: *See—*
Tabata, Kazutaka, 4,266,400, Cl. 59-35.00R.

Ban, Keisuke; and Arai, Takeo, to Honda Giken Kogyo Kabushiki Kaisha. Method of producing a unidirectional fiber-reinforced composite material. 4,266,596, Cl. 164-97.000.

Bandag Incorporated: *See—*
Ho, Morris D., 4,266,428, Cl. 73-146.000.

Barabino, William A.; and Cook, Edward J., to Safety Research & Engineering Corporation. Brake wear warning system. 4,266,633, Cl. 188-1.00A.

Barber, Ivan J., to Allen Group, Inc., The. Vehicle conveyor system having double chain drive and selectable dolly. 4,266,482, Cl. 104-172.00B.

Barecki, Chester J.; and Wilkerson, Larry A., to American Seating Company. Foldable transportation seat. 4,266,822, Cl. 296-65.00R.

Barlow, Wayne K.; and Gibbons, Wallace A., to Wescor, Inc. Electrically heated sweat collection device and method. 4,266,556, Cl. 128-760.000.

Barnaby, Roland E. Heat sealing apparatus. 4,267,005, Cl. 156-380.000.

Barnard, Walter C.; and Dahlstrom, Kenneth J., to Whirlpool Corporation. Ice maker mounting. 4,266,837, Cl. 312-351.000.

Barnhart, David A.; Britt, Ronald L.; Kroger, John E.; and Walters, David A., to Celotex Corporation, The. Ducted/ductless range hood. 4,266,528, Cl. 126-299.00D.

Barton, Derek H. R.: *See—*
Willis, Brian J.; Christenson, Philip A.; and Barton, Derek H. R., 4,267,111, Cl. 260-343.210.

Barwise, Robert D.; Sturos, John A.; and Brumm, Douglas B., to United States of America, Agriculture. Optical wood-bark segregator. 4,266,675, Cl. 209-540.000.

BASF Aktiengesellschaft: *See—*
Brand, Uwe; Fuchs, Hugo; and Schmitz, Ruediger, 4,267,105, Cl. 260-239.30A.
Buerstinghaus, Rainer; Koenig, Karl-Heinz; and Kiehs, Karl, 4,267,121, Cl. 260-465.400.
Degen, Hans-Juergen, 4,267,319, Cl. 542-434.000.
Diessel, Paul; Perner, Johannes; Leutner, Bernd; and Schlimper, Hans-Ulrich, 4,267,068, Cl. 252-179.000.
Frickel, Fritz-Frieder; Franke, Albrecht; Koenig, Horst; Lenke, Hans-Dieter; and Gries, Josef, 4,267,187, Cl. 424-274.000.
Geelhaar, Hans J.; Penzel, Erich; and Ley, Gregor, 4,267,091, Cl. 260-29.6TA.
Hagen, Helmut; and Kohler, Rolf-Dieter, 4,267,349, Cl. 548-339.000.
Motz, Herbert; Schaefer, Dieter; Huebner, Werner; and Mayer, Dieter, 4,267,203, Cl. 427-48.000.
Muenstedt, Helmut, 4,266,424, Cl. 73-15.600.
Thil, Lucien; Fischer, Martin; and Kindscher, Wolfgang, 4,267,122, Cl. 260-501.120.

Basham, Carl G., to Basham, Thomas W., a part interest. Apparatus to permit and control tilting of the header portion of a combine relative to the throat portion thereof about the axis of forward travel of the combine. 4,266,395, Cl. 56-209.000.

Basham, Thomas W.: *See—*
Basham, Carl G., 4,266,395, Cl. 56-209.000.

Bates, Herbert E.; and Strzepek, Stanley W., to Mobil Tyco Solar Energy Corporation. Guidance mechanism. 4,267,010, Cl. 156-608.000.

Battelle Memorial Institute: *See—*
Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, 4,267,314, Cl. 536-53.000.

Bauder, Armin, to Audi NSU Auto Union Aktiengesellschaft. Fuel metering valve. 4,266,571, Cl. 137-625.480.

Bauer, Richard F.: *See—*
Playfoot, Kerwin C.; Bauer, Richard F.; and Goldstein, Norman P., 4,267,454, Cl. 250-370.000.

Baumann, Heinrich; and Schmidt, Gunther, to Robert Bosch GmbH. Micro-computer system for control and diagnosis of motor vehicle functions. 4,267,569, Cl. 364-431.000.

Baumann, Niklaus, to Aerni-Leuch AG. Benzene diazonium salts and diazotype material utilizing same. 4,267,249, Cl. 430-187.000.

Bausch & Lomb Incorporated: *See—*
Clark, James A., 4,266,692, Cl. 222-94.000.

Baxter, Andrew J. G., to Beecham Group Limited. β-Lactam anti-bacterials, compositions containing them, a process for their preparation, and methods of use thereof. 4,267,177, Cl. 424-246.000.

Baxter Travenol Laboratories, Inc.: *See—*
Becker, Lawrence F.; Czuba, Leonard F.; and Laurin, Dean G., 4,266,542, Cl. 128-214.00R.
Gilbert, Robert W.; and Torau, Gunther W., 4,266,927, Cl. 425-526.000.
Grode, Gerald A.; and Miripol, Jeffrey E., 4,267,269, Cl. 435-2.000.
Jennings, C. Michael; Kitchenham, Albert; and Lamadrid, Rene, 4,266,717, Cl. 233-26.000.
Josephson, Lee, 4,267,272, Cl. 435-7.000.
Zissimopoulos, Nicholas, 4,266,697, Cl. 222-450.000.

Bayer Aktiengesellschaft: *See—*
Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, 4,267,030, Cl. 204-278.000.
Dhein, Rolf; Poetter, Gerswid; and Rudolph, Hans, 4,267,082, Cl. 260-23.0AR.
Findeisen, Kurt, 4,267,365, Cl. 560-205.000.
Groll, Manfred; and Wunderlich, Klaus, 4,267,107, Cl. 260-242.200.
Huhn, Helmut; and Karstens, Werner, 4,267,094, Cl. 260-29.6RW.
Jautelat, Manfred; Stetter, Jorg; Arlt, Dieter; and Kramer, Wolfgang, 4,267,381, Cl. 568-419.000.
Kaiser, Reinhard; and Steffan, Guido, 4,267,346, Cl. 548-262.000.
Kersting, Elmar; and Niessen, Heinz J., 4,266,962, Cl. 71-90.000.
Knops, Hans-Joachim; Heine, Hans-Georg; Draber, Wilfried; and Brandes, Wilhelm, 4,267,186, Cl. 424-272.000.
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, 4,267,303, Cl. 528-171.000.
Kyri, Hans; and Dobbers, Jurgen, 4,267,058, Cl. 210-716.000.
Lindner, Christian; Arnold, Bernhard; Kuhlmann, Dieter; Kowitz, Friedrich; and Ott, Karl-Heinz, 4,267,278, Cl. 525-2.000.
Scholl, Hans-Joachim; and Zenner, Armin, 4,267,353, Cl. 560-24.000.
Selbeck, Harald; Wulff, Claus; Hucks, Uwe; Tresper, Erhard; and Vernaleken, Hugo, 4,267,127, Cl. 260-973.000.
Stetter, Jorg; Draber, Wilfried; Thomas, Rudolf; and Lunkenheimer, Winfried, 4,267,338, Cl. 548-143.000.

Bayer, Karl; Butt, Heinz G.; and Salewski, Jurgen, to Gutehoffnungshutte Sterkrade AG; and Fa. Bilfinger & Berger. Spherical joint for connecting a concrete tower supporting a water surface foundation to a sea foundation. 4,266,888, Cl. 405-202.000.

Bayerische Motoren Werke Aktiengesellschaft: *See—*
Martin, Harry, 4,266,648, Cl. 192-85.0AA.

BBC Brown, Boveri & Co., Ltd.: *See—*
Germann, Willy, 4,266,603, Cl. 165-171.000.

Beal, Geraldine F. Protective garment. 4,266,299, Cl. 2-46.000.

Beaune, Daniel. Process for smooth cut printing. 4,267,028, Cl. 204-181.00R.

Beck, Boyd R.; Sher, Frank T.; and Tiers, George V. D., to Minnesota Mining & Manufacturing Company. Sulfonato-organosilanol compounds and aqueous solutions thereof. 4,267,213, Cl. 427-292.000.

Beck, Hans-Joachim: *See—*
Schmidt, Karl; Hansch, Ferdinand; Rombrecht, Hans-Malte; and Beck, Hans-Joachim, 4,267,232, Cl. 428-379.000.

Becker, Lawrence F.; Czuba, Leonard F.; and Laurin, Dean G., to Baxter Travenol Laboratories, Inc. EVA Formulation having improved properties. 4,266,542, Cl. 128-214.00R.

Becker, Wolf-Jurgen: *See—*
Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, 4,267,030, Cl. 204-278.000.

Beckley, Gary H.: *See—*
Anderson, Ronald B.; Svendsen, Walter W.; Beckley, Gary H.; and Caneer, Clifford, Jr., 4,266,444, Cl. 74-661.000.

Beecham Group Limited: *See—*
Baxter, Andrew J. G., 4,267,177, Cl. 424-246.000.
Luk, Kong; Clayton, John P.; and Rogers, Norman H., 4,267,316, Cl. 542-427.000.
Smith, Richard A. G., 4,267,273, Cl. 435-44.000.
Watts, Eric A., 4,267,175, Cl. 424-244.000.

Behn, Rudolf; Hoppe, Lutz; and Bohmer, Branislav, to Wolff Walsrode Aktiengesellschaft. Auxiliary for improving retention, dewatering and working up, particularly in the manufacture of paper. 4,267,059, Cl. 210-736.000.

Behrendt, Bruce O.; Cisneros, Ignacio L.; Stephenson, Ronald B.; and Stephenson, Donald R., to Solar Southwest. Rooftop solar energy collector panel. 4,266,531, Cl. 126-449.000.

Beier, Kurt W.: *See—*
Ruckstuhl, Konrad; Silvano, Serafin L.; and Beier, Kurt W., 4,266,676, Cl. 209-672.000.

Beler, Lloyd A. Camper unit for use with a dump truck. 4,266,823, Cl. 296-164.000.

Bell, John L.: *See—*
Perkey, Conrad G.; and Bell, John L., 4,266,595, Cl. 164-41.000.

Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., to Colt Industries Operating Corp. Power supply circuit of the high voltage type for electrical discharge machining apparatus. 4,267,422, Cl. 219-69.00C.

Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., to Colt Industries Operating Corp. Protection circuit for electrical discharge machining power supply. 4,267,423, Cl. 219-69.00S.

Bell, Richard P.; Rill, Karl F.; and Butler, John C., to Richard Equipment Company, Inc. Optoelectronic device for automatically inspecting a group of cigarettes or the like. 4,266,674, Cl. 209-536.000.

Bell Telephone Laboratories, Incorporated: *See—*
Benton, Janet L.; Doherty, Charles J.; Kimerling, Lionel C.; and Leamy, Harry J., 4,266,986, Cl. 148-1.500.
Johnson, Bertrand H.; and Paola, Carl R., 4,267,559, Cl. 357-81.000.
Johnson, David W., Jr.; and Vogel, Eva M., 4,267,065, Cl. 252-62.620.
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,267,525, Cl. 331-94.50G.

Beloit Corporation: *See—*
North, Merle W., 4,267,017, Cl. 162-190.000.

Belousov, Anatoly V.: *See*—
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.

Belyaev, Nikolai A.: *See*—
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.

Benard, David J.: *See*—
McDermott, William E.; Benard, David J.; Pehelkin, Nicholas R.; and Bousek, Ronald R., 4,267,526, Cl. 331-94.50G.

Bendall, Wilfrid. H. Segmental roller drive chain. 4,266,435, Cl. 474-227.000.

Bender, Hans; Graf, Rupprecht; Unkelbach, Karl-Heinz; and Zabel, Wolf, to Klockner-Humboldt-Deutz AG. Method and apparatus for cleaning a matrix of a wet magnetic separator. 4,266,982, Cl. 134-18.000.

Bendix Corporation, The: *See*—
Alice, Martin B.; and Grass, John W., 4,266,345, Cl. 33-169.00R.
Bounds, Peter, 4,267,575, Cl. 364-565.000.
Lewis, David L., 4,266,895, Cl. 409-232.000.
Marsh, Edward K.; and Nelson, Dean R., 4,266,843, Cl. 339-97.00R.
Sherwood, Cy E., 4,266,841, Cl. 339-89.00C.
Woo, Ji Y., 4,266,640, Cl. 188-363.000.

Benedick, Edward H., to Regenerative Environmental Equipment Co., Inc. Anti-pollution thermal regeneration apparatus. 4,267,152, Cl. 422-111.000.

Benson, Robert A., to Seapower, Inc. Immiscible liquid separating. 4,267,043, Cl. 210-241.000.

Benton, Janet L.; Doherty, Charles J.; Kimerling, Lionel C.; and Leamy, Harry J., to Bell Telephone Laboratories, Incorporated. Passivation of defects in laser annealed semiconductors. 4,266,986, Cl. 148-1.500.

Benton, Kenneth C.; White, James F.; Uebele, Curtis E.; and Weinert, Raymond J., Jr., to Standard Oil Company, The. Addition of chlorine compound to Ziegler polymerization process. 4,267,292, Cl. 526-79.000.

Berens, Mathew, to Nippon Cable System Inc. Steering unit. 4,266,440, Cl. 74-501.00R.

Berg, Lars E.: *See*—
Ennerdal, Leif; and Berg, Lars E., 4,266,325, Cl. 24-230.00A.

Berger, Herbert; Gall, Rudi; Kampe, Wolfgang; Bicker, Uwe; and Kuhn, Rolf, to Boehringer Mannheim, GmbH. Immune-stimulating and cancerostatic 1-acyl-2-cyanoaziridines. 4,267,174, Cl. 424-244.000.

Bergman, Lawrence J., to Crown Controls Corporation. Cable and hose guide. 4,266,744, Cl. 248-49.000.

Bergstrom, Donald E.; and Ruth, Jerry L., to University of California, The Regents of the. C-5 Substituted cytosine nucleosides. 4,267,171, Cl. 424-180.000.

Bergveld, Piet, to U.S. Philips Corporation. Device for measuring a quantity which influences a field-effect transistor. 4,267,504, Cl. 324-62.000.

Berick, Alan C., to Varian Associates, Inc. Radioactivity detection in high-pressure liquid chromatography. 4,267,451, Cl. 250-328.000.

Berman, Arnold L.: *See*—
Assal, Francois T.; Berman, Arnold L.; and Betaharon, Khodadad, 4,267,538, Cl. 333-262.000.

Bernardi, Luigi: *See*—
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,267,116, Cl. 260-376.000.

Bertone, Leone: *See*—
Cozzi, Paolo; Magni, Osvaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., 4,267,327, Cl. 544-336.000.

Best, Albert B., to Kanthal Corporation, The. Electric resistance heating element. 4,267,435, Cl. 219-552.000.

Betaharon, Khodadad: *See*—
Assal, Francois T.; Berman, Arnold L.; and Betaharon, Khodadad, 4,267,538, Cl. 333-262.000.

Bethlehem Steel Corporation: *See*—
Weiskopf, Daniel A., 4,267,024, Cl. 204-15.000.

Betzl, Hermann; Kuenemund, Friedrich; and Schreiber, Roland, to Siemens Aktiengesellschaft. Switching circuit consisting of CTD lines. 4,267,535, Cl. 333-165.000.

Bianchi, Giuseppe: *See*—
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,267,025, Cl. 204-82.000.

Bicker, Uwe: *See*—
Berger, Herbert; Gall, Rudi; Kampe, Wolfgang; Bicker, Uwe; and Kuhn, Rolf, 4,267,174, Cl. 424-244.000.

Bieberbach, George, to Westinghouse Electric Corp. Heat exchanger with double walled tubes. 4,266,600, Cl. 165-76.000.

Bielby, Robert A. Method for making a cutting tool. 4,266,449, Cl. 76-101.00A.

Bielomatick Leuze GmbH & Co.: *See*—
Buck, Hermann, 4,266,761, Cl. 270-58.000.

Bienz, Edward F., to General Electric Company. Lacing machine needle guard. 4,266,492, Cl. 112-121.200.

Bigazzi, Mario, to Serono Laboratories Inc. Process for obtaining human relaxin from fetal membranes. 4,267,101, Cl. 260-112.00R.

Biggs, Paul G. Control cylinder with removable piston. 4,266,468, Cl. 92-63.000.

Biglin, Timothy J., to Horstmann Gear Company Limited, The. Failure sensor for a gas detector. 4,267,505, Cl. 324-65.00R.

Bijen, Jan M. J. M., to Stamicarbon, B.V. Production of thin, plastic-reinforced, hydraulically bound boards. 4,267,136, Cl. 264-87.000.

Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, to Kulicke and Soffa Industries Inc. Wire bonding apparatus. 4,266,710, Cl. 228-4.500.

Biocarn Limited: *See*—
De Felice, Stephen L., 4,267,163, Cl. 424-9.000.

Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y. Mold for manufacturing abrasive segments. 4,266,922, Cl. 425-182.000.

Birk, John R.; Kelley, Robert B.; and Tella, Richard P., to State of Rhode Island, Board of Regents for Education of the. Apparatus for acquiring workpieces from a storage bin or the like. 4,266,905, Cl. 414-627.000.

Black Clawson Company, The: *See*—
Martin, Andrew C., 4,267,035, Cl. 209-273.000.

Black & Decker Inc.: *See*—
Overy, Colin, 4,266,376, Cl. 51-170.00R.

Black, Raymond C.: *See*—
Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., 4,267,410, Cl. 179-107.0BC.

Black, Robin M., to Cadbury-Schweppes Limited. Bleaching agents. 4,267,325, Cl. 544-285.000.

Blackburn, David; and Wild, Malcolm S., to Yorkshire Chemicals Limited. Method for dyeing acrylonitrile polymer and copolymer fibres. 4,266,940, Cl. 8-538.000.

Blakeslee, Theodore R., III: *See*—
Kurtz, Stuart J.; Blakeslee, Theodore R., III; and Scarola, Leonard S., 4,267,146, Cl. 264-564.000.

Bliss & Laughlin Industries Incorporated: *See*—
Patel, Ravin J.; and Petro, John, 4,266,650, Cl. 193-35.0TE.

Block Drug Company Inc.: *See*—
Yeh, Kuo-Chen; and Mazzella, Frank, 4,267,164, Cl. 424-44.000.

Blom, Friedrich: *See*—
Achelpohl, Fritz; Feldkaper, Richard; and Blom, Friedrich, 4,266,654, Cl. 198-425.000.

Bloom, Arlene N., executrix: *See*—
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,254, Cl. 430-245.000.
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,256, Cl. 430-251.000.

Bloom, Stanley M., deceased (by Bloom, Arlene N., executrix); and Sachdev, Krishna G., to Polaroid Corporation. Photographic process. 4,267,254, Cl. 430-245.000.

Bloom, Stanley M., deceased (by Bloom, Arlene N., executrix); and Sachdev, Krishna G., to Polaroid Corporation. Novel silver complexing agents. 4,267,256, Cl. 430-251.000.

Blue, Walter L. Resilient rotatable toy. 4,266,781, Cl. 273-420.000.

Bluestein, Ben A., to General Electric Company. Process for preparing M-stopped silicone fluids from silanol fluids. 4,267,298, Cl. 528-34.000.

Blum, Alvin S. Hypodermic needle protection means. 4,266,543, Cl. 128-218.00N.

Blum, Helmut; Hempel, Hans-Ulrich; and Worms, Karl-Heinz, to Henkel Kommanditgesellschaft auf Aktien. Hydroxyalkane diphosphonic acids. 4,267,108, Cl. 260-326.610.

Bobst, S.A.: *See*—
Moyroud, Louis M.; Morgan, Grant T.; and Casanova, Bernard A., 4,266,864, Cl. 354-15.000.

Bodart, Detlef, to Merck Patent Gesellschaft mit beschrankter Haftung. Photometer with interchangeable calibration cards. 4,266,877, Cl. 356-414.000.

Boddenberg, Klaus; Waldmann, Jurgen; and Demmer, Manfred, to Mannesmann Demag AG. Method for protecting power connected machine part pairs from friction corrosion. 4,267,216, Cl. 427-397.800.

Bodenseewerk Perkin-Elmer & Co.: *See*—
Witte, Wolfgang, 4,267,572, Cl. 364-498.000.

Bodine, Albert G. Down hole cycloidal drill drive. 4,266,619, Cl. 175-55.000.

Bodlaj, Viktor, to Siemens Aktiengesellschaft. Method and device for contact-free interval or thickness measurement by control of the direction of a light ray beam. 4,266,875, Cl. 356-381.000.

Boehringer Mannheim, GmbH: *See*—
Berger, Herbert; Gall, Rudi; Kampe, Wolfgang; Bicker, Uwe; and Kuhn, Rolf, 4,267,174, Cl. 424-244.000.

Boeing Company, The: *See*—
Murphy, Patrick, 4,266,741, Cl. 244-54.000.

Bohlen, Harald; Greschner, Johann; Kulcke, Werner; and Nehmiz, Peter, to International Business Machines Corporation. Exposure process. 4,267,259, Cl. 430-296.000.

Bohm, Leslie E.: *See*—
Jackson, W. Shaun; and Bohm, Leslie E., 4,266,702, Cl. 224-31.000.

Bohmer, Branislav: *See*—
Behn, Rudolf; Hoppe, Lutz; and Bohmer, Branislav, 4,267,059, Cl. 210-736.000.

Bollag, Werner; Ruegg, Rudolf; and Ryser, Gottlieb, to Hoffmann-La Roche Inc. 2,6-Dichloro-4-methoxy-5-methyl-benzene aldehydes. 4,267,382, Cl. 568-442.000.

Bolliger, Frederic E.: *See*—
Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., 4,266,401, Cl. 60-39.16R.

Bolt Associates, Inc.: *See*—
Chelminski, Paul, 4,266,844, Cl. 339-218.00M.

Bond, James W.; Alsup, James M.; Speiser, Jeffrey M.; Whitehouse, Harper J.; and Lagnado, Isaac, to United States of America, Navy CCD Analog and digital correlators. 4,267,580, Cl. 364-824.000.

Bonin, Pete J., Jr.; Evans, Marion E.; and Bonin, Pete J., Sr., to IMC International Management Consultants, Inc. Portable progressive and intermittent traction machine. 4,266,537, Cl. 128-75.000.

Bonin, Pete J., Sr.: *See*—
Bonin, Pete J., Jr.; Evans, Marion E.; and Bonin, Pete J., Sr., 4,266,537, Cl. 128-75.000.

Bonnemann, Helmut; and Samson, Marc, to Studiengesellschaft Kohle GmbH. Process for preparation of 2-vinylpyridine from acetylene and acrylonitrile. 4,267,329, Cl. 546-4.000.

Book, deceased; Nils E. E., to AB Motala Verkstad. Apparatus for surface embossing man-made lignocellulosic board. 4,266,925, Cl. 425-387.100.

Boop, Gene T., to SIE, Inc. Arming device and method. 4,266,613, Cl. 166-299.000.

Booth, Frank B., to Celanese Corporation. Hydrocarbonylation. 4,267,383, Cl. 568-454.000.

Borg-Warner Corporation: *See*—
Hechenbleikner, Ingenuin; Enlow, William P.; and Weis, James H., 4,267,358, Cl. 560-75.000.
Wiese, Winfred J., 4,266,786, Cl. 277-40.000.

Bornefeld, Horst; Comberg, Gerd; Engel, Werner; and Neyer, Johannes, to Goetze AG. Apparatus for deburring edges. 4,266,373, Cl. 51-99.000.

Bosotti, Luciano, to CSELT, Centro Studi e Laboratori Telecomunicazioni S.P.A. Fiber-optical data-communication system using carriers of different wavelengths. 4,267,590, Cl. 370-3.000.

Bott, John A. Vehicle article carrier. 4,266,708, Cl. 224-326.000.

Boudet, Georges; and Desmoulins, Jean C., to SKF Compagnie d'Applications Mecaniques. Automatic device for screwing and handling bolts. 4,266,451, Cl. 81-57.350.

Boudreau, James C.; and White, Thomas D., to University of Texas. Dog food flavors. 4,267,195, Cl. 426-2.000.

Bounds, Peter, to Bendix Corporation, The. Wheel speed signal-producing system for skid control. 4,267,575, Cl. 364-565.000.

Bourke, Robert F.; and Johansen, David K., to Gould Inc. Control cooling means. 4,267,500, Cl. 318-806.000.

Bousaid, Issam S.; and Ho, Benny K-C, to Texaco Inc. Oil recovery method employing alternate slugs of surfactant and fresh water solution of polymer. 4,266,611, Cl. 166-273.000.

Bousek, Ronald R.: *See*—
McDermott, William E.; Benard, David J.; Pehelkin, Nicholas R.; and Bousek, Ronald R., 4,267,526, Cl. 331-94.50G.

Bowman, Peter, to Warner-Lambert Company. Razor handle for mounting pivotable razor blade cartridges. 4,266,340, Cl. 30-89.000.

Boyd, Clay E.; Jones, John C.; and Mumola, Joanne L., to International Business Machines Corporation. Rotatable raster scan display. 4,267,555, Cl. 340-748.000.

Boyer, Michel: *See*—
Delaunay, Antoine; and Ecolasse, Guy, 4,266,832, Cl. 301-48.000.

Boykin, Otis F.: *See*—
Holmes, Curtis L.; Faber, William M., Sr.; Francis, Gaylord L.; and Boykin, Otis F., 4,267,074, Cl. 252-514.000.

Braatz, Robert E., to Airco, Inc. Anesthesia machine having proportion limiting control system. 4,266,573, Cl. 137-630.180.

Bradford, Jay H., to Eaton Corporation. Flow control device in a protective housing. 4,266,576, Cl. 138-40.000.

Braitsch, Hans: *See*—
Ortwein, Hermann; and Braitsch, Hans, 4,266,719, Cl. 238-283.000.

Brambles Holdings Limited: *See*—
Daly, Geoffrey J., 4,266,678, Cl. 211-194.000.

Brand, Uwe; Fuchs, Hugo; and Schmitz, Ruediger, to BASF Aktiengesellschaft. Process for the rapid cooling of gases which contain caprolactam vapor. 4,267,105, Cl. 260-239.30A.

Brandes, Wilhelm: *See*—
Knops, Hans-Joachim; Heine, Hans-Georg; Draber, Wilfried; and Brandes, Wilhelm, 4,267,186, Cl. 424-272.000.

Brastad, William A., to General Mills, Inc. Packaged food item and method for achieving microwave browning thereof. 4,267,420, Cl. 219-10.55E.

Bratkowski, Walter V.: *See*—
Maier, Alfred E.; and Bratkowski, Walter V., 4,267,419, Cl. 200-288.000.

Bratt, Sven-Erik: *See*—
Nygaard, Kurt; Mattsson, Kjell; and Bratt, Sven-Erik, 4,267,567, Cl. 362-46.000.

Braun Aktiengesellschaft: *See*—
Milutzki, Udo; Gaus, Harry; Schotte, Dietwald; and Ramspeck, Klaus, 4,266,783, Cl. 369-41.000.

Braun, Rudiger, to Siemens Aktiengesellschaft. Control unit for multiphase static converter. 4,267,570, Cl. 364-480.000.

Breiter, Manfred W.: *See*—
Park, Dong-Sil; Breiter, Manfred W.; and King, Randall N., 4,266,712, Cl. 228-175.000.

Bresina, Larry J.; and Hipp, Richard D., to Minnesota Mining and Manufacturing Company. Multiple roll developing apparatus. 4,266,868, Cl. 355-3.0DD.

Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, to Bayer Aktiengesellschaft. Apparatus for checking gas analysis devices. 4,267,030, Cl. 204-278.000.

Bridgestone Tire Company Limited: *See*—
Kitazawa, Yoichi; Sato, Takeshi; and Tsuji, Hisao, 4,266,995, Cl. 156-123.00R.

Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,267,546, Cl. 340-58.000.
Takigawa, Hiroyoshi; Arimura, Iwao; Tanaka, Makoto; and Ohkuni, Shinichiro, 4,266,592, Cl. 152-209.00D.

Brieger, Emmett F.: *See*—
LaBorde, Russel G.; and Brieger, Emmett F., 4,266,605, Cl. 166-97.000.

Brinkman, Willem, to Holec N.V. Electromagnetically actuated pumps. 4,266,523, Cl. 123-499.000.

Bristol Marine, Inc.: *See*—
Greenleaf, John M., 4,266,357, Cl. 42-1.00Z.

Bristol-Myers Company: *See*—
Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,267,113, Cl. 260-345.200.

Britt, Ronald L.: *See*—
Barnhart, David A.; Britt, Ronald L.; Kroger, John E.; and Walters, David A., 4,266,528, Cl. 126-299.00D.

Brock, Kenneth A., to Christensen, Inc. Well casing window mill. 4,266,621, Cl. 175-329.000.

Brooker, Bernard F. Ball. 4,267,217, Cl. 428-11.000.

Brooks, Burton; and Brooks, Richard J., to Chemithon Corporation, The. Sulfonating method. 4,267,119, Cl. 260-458.00R.

Brooks, Richard J.: *See*—
Brooks, Burton; and Brooks, Richard J., 4,267,119, Cl. 260-458.00R.

Bross, Kenneth L., to Roper Corporation. Engine power pack assembly having anti-vibration features. 4,266,515, Cl. 123-198.00E.

Broutman, Lawrence J. Composites of polymeric material and thermosetting resinous fibers and particles and method. 4,267,285, Cl. 525-145.000.

Brovold, Thomas E. Selectable depth water retriever. 4,266,429, Cl. 73-425.40R.

Brown, Carl D.: *See*—
VanGinhoven, Robert M.; and Brown, Carl D., 4,266,394, Cl. 56-94.000.

Brown, Donald G., to United States of America, Air Force. Incident radiation absorber. 4,267,523, Cl. 331-94.50C.

Brown Group, Inc.: *See*—
Fleer, Thomas P.; and Hannebaum, Reed E., 4,267,429, Cl. 219-215.000.

Brown, Harold B. Plywood driving tool. 4,266,586, Cl. 145-1.00B.

Brown, Robert; and Proulx, Paul A., to Geoco, Inc. Dual scintillation detector for determining grade of uranium ore. 4,267,446, Cl. 250-255.000.

Brown, Ronald O. Electric switch device. 4,267,418, Cl. 200-163.000.

Brown & Root, Inc.: *See*—
Corder, Paul R., 4,266,887, Cl. 405-196.000.

Brown, Wade R.; and Mannhardt, Werner, to Alco Foodservice Equipment Company. Flow valve arrangement for beverage dispenser. 4,266,726, Cl. 239-406.000.

Brown, William F., to Weston Research Corporation. Adherent, flame-resistant acrylic decorative coating composition for wall board and the like. 4,267,089, Cl. 260-29.6MM.

Brown & Williamson Tobacco Corporation: *See*—
Litzinger, Elmer F., 4,266,561, Cl. 131-341.000.

Bruckner, Elmar; Gausmann, Hans; Schipper, Philipp; and Tausch, Walter, to Carl Zeiss-Stiftung. Evaluation instrument for automatic photometric analysis of liquid samples. 4,267,149, Cl. 422-65.000.

Brueggeman, Henry C.: *See*—
Brueggeman, Michael B., 4,267,414, Cl. 200-86.500.

Brueggeman, Michael B., to Brueggeman, Michael B.; and Brueggeman, Henry C. Foot control for snow plows. 4,267,414, Cl. 200-86.500.

Brugger, Robert, to Langbein-Pfanhauser Werke AG. Solar collector with blackened layer facing insulation. 4,267,218, Cl. 428-35.000.

Brumm, Douglas B.: *See*—
Barwise, Robert D.; Sturos, John A.; and Brumm, Douglas B., 4,266,675, Cl. 209-540.000.

Brun, Craig W.; and Hand, Wilfred L., to GTE Products Corporation. TV antenna isolation system. 4,267,529, Cl. 333-12.000.

Brun, Craig W.; and Hand, Wilfred L., to GTE Products Corporation. Acquisition delay circuit for a PLL reference oscillator. 4,267,602, Cl. 455-182.000.

Bruner, Frank D.; and Kuzela, Joseph, Jr., to Vapor Corporation. Control system for economic operation of multiple locomotive trains. 4,266,485, Cl. 105-61.000.

Bruner, James D. Pressure indicators for inflatable cuff-type catheters. 4,266,550, Cl. 128-349.00B.

Brunnee, Curt: *See*—
Feser, Karl; and Brunnee, Curt, 4,267,448, Cl. 250-281.000.

Bruns, Klaus: *See*—
Schaper, Ulf-Armin; Conrad, Jens; and Bruns, Klaus, 4,267,075, Cl. 252-522.00R.

Brunson, John W., to United States of America, National Aeronautics and Space Administration. Decommutator patchboard verifier. 4,267,594, Cl. 371-20.000.

Brunswick Corporation: *See*—
Stiner, Roy E., 4,266,739, Cl. 242-84.21R.
Tyner, Alfred E., 4,266,514, Cl. 123-55.00R.

Buchanan, James C., to International Business Machines Corporation. Paper insertion apparatus. 4,266,880, Cl. 400-550.000.

Buchholz, Fredric L.: *See*—
Tomalia, Donald A.; and Buchholz, Fredric L., 4,267,350, Cl. 548-354.000.

Buchin, Michael P.: *See—*
McKeighen, Ronald E.; and Buchin, Michael P., 4,267,584, Cl. 367-11.000.

Buck, Hermann, to Bielomatick Leuze GmbH & Co. Apparatus for placing terminal sheets or the like on to layers of sheets. 4,266,761, Cl. 270-58.000.

Buerstinghaus, Rainer; Koenig, Karl-Heinz; and Kiehs, Karl, to BASF Aktiengesellschaft. Preparation of 2,2-dimethyl-4-cyano-butyraldoxime N-methyl-carbamate. 4,267,121, Cl. 260-465.400.

Bundy, Gordon L., to Upjohn Company, The. 2-Decarboxy-2-aminomethyl-11a-methano-TXA_2 compounds. 4,267,315, Cl. 542-400.000.

Buning, Robert: *See—*
Hanisch, Horst; Rodder, Karl-Martin; Buning, Robert; and Hass, Hans-Jurgen, 4,267,093, Cl. 260-29.60H.

Bunker Ramo Corporation: *See—*
Jurca, Joseph A., 4,266,500, Cl. 114-333.000.

Bunkowski, Kenneth D.: *See—*
Jaisle, Richard F.; and Bunkowski, Kenneth D., 4,267,240, Cl. 428-484.000.

Bunya, Shinichi: *See—*
Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, 4,267,260, Cl. 430-302.000.

Burack, Robert D., to Westinghouse Electric Corp. Nuclear steam generator wrapper and shell assembly and method for assembling. 4,267,020, Cl. 176-87.000.

Burgess, James H. Boot pull. 4,266,701, Cl. 223-116.000.

Burk, Emmett H., Jr.; Yoo, Jin S.; Karch, John A.; and Sun, Jui-Yuan, to Atlantic Richfield Company. Demetallization process for a conversion catalyst. 4,267,032, Cl. 208-113.000.

Burkhart, Dean C.; Harper, Lee R.; and Sommerfeld, Eugene G., to Du Pont de Nemours, E. I., and Company. Epoxy-urethanes based on copolyesters. 4,267,288, Cl. 525-438.000.

Burns, David L. Rotating oscillatory motion power take-off. 4,266,434, Cl. 74-61.000.

Burns, Richard D., to General Electric Company. Methods for making dynamoelectric machine phase insulators. 4,266,994, Cl. 156-73.200.

Burns, William K., to United States of America, Navy. Integrated bias for waveguide amplitude modulator. 4,266,850, Cl. 350-96.140.

Burro-Badger Corporation: *See—*
Wuerflein, James G., 4,266,809, Cl. 280-766.000.

Burrus, Thomas W., to RCA Corporation. Stylus lifting/lowering actuator with improved electromagnetic motor. 4,266,785, Cl. 369-216.000.

Bussink, Jan; and Heuschen, Jean M. H., to General Electric Company. Composition of a selectively hydrogenated block copolymer of a vinyl aromatic compound and a diolefin, a polycarbonate and an amorphous polyester. 4,267,096, Cl. 260-40.00R.

Butler, John C.: *See—*
Bell, Richard P.; Rill, Karl F.; and Butler, John C., 4,266,674, Cl. 209-536.000.

Butler, L. David: *See—*
DeLuca, Patrick P.; and Butler, L. David, 4,267,449, Cl. 250-303.000.

Butler, William J. Replaceable liner for the discharge assembly of a rotary grinding mill or the like. 4,266,733, Cl. 241-171.000.

Butt, Heinz G.: *See—*
Bayer, Karl; Butt, Heinz G.; and Salewski, Jurgen, 4,266,888, Cl. 405-202.000.

Byerley, Thomas L., to NL Industries, Inc. Abandoned borehole compositions. 4,267,062, Cl. 252-8.55R.

C. A. Schroeder Inc.: *See—*
Schroeder, Clifford A.; Fogg, Ralph L.; Farason, Harry J.; and Voorhees, Robert E., 4,266,470, Cl. 98-40.00R.

C. Itoh & Co., Ltd.: *See—*
Uchiyama, Hiroshi, 4,267,110, Cl. 260-340.700.

C. L. Frost & Son, Inc.: *See—*
Frost, Charles C.; Gurney, Gerald W.; and Sytsma, Frederick R., 4,266,657, Cl. 198-687.000.
Frost, Charles C.; and Weis, Siegfried K., 4,266,658, Cl. 198-687.000.

C.P.G. Products Corp.: *See—*
Cummings, Charles A.; and Rodmaker, Gerald, 4,266,365, Cl. 46-33.000.

C-R-O, Inc.: *See—*
Ludwigson, Robert G., 4,266,989, Cl. 148-9.00R.

Cabbiness, Dale K.; Carel, Alfred B.; and Leslie, W. Dean, to Conoco, Inc. Uranium prospecting method. 4,267,445, Cl. 250-255.000.

Cable Belt, Ltd.: *See—*
Thomson, Ian M., 4,266,396, Cl. 57-221.000.

Cadbury-Schweppes Limited: *See—*
Black, Robin M., 4,267,325, Cl. 544-285.000.

Calderone, Michael P. Exercise device. 4,266,766, Cl. 272-117.000.

California Institute of Technology: *See—*
Rembaum, Alan, 4,267,234, Cl. 428-403.000.
Rembaum, Alan; and Margel, Shlomo, 4,267,235, Cl. 428-407.000.

Calspan Corporation: *See—*
Baier, Robert E., 4,266,999, Cl. 156-227.000.

Calvert, Seymour, to Air Pollution Technology, Inc. Particle scrubber and related method. 4,266,951, Cl. 55-84.000.

Cama, Lovji D.; and Christensen, Burton G., to Merck & Co., Inc. 5-Substituted-1-carba-pen-2-em-3-carboxylic acid. 4,267,188, Cl. 424-274.000.

Campbell, Delmer E.; and Gargis, John T. Animal trap locking mechanism. 4,266,362, Cl. 43-66.000.

Campbell, Henry F.: *See—*
Darkes, Paul R.; Campbell, Henry F.; and Douglas, George H., 4,267,388, Cl. 568-642.000.

Campbell, Kenneth J., to United States of America, Navy. Modulation monitoring apparatus. 4,267,600, Cl. 455-115.000.

Campbell, Richard W., to General Electric Company. Modified polyester compositions. 4,267,286, Cl. 525-176.000.

Canada Square Management Ltd.: *See—*
Rynyk, Douglas W., 4,266,900, Cl. 414-285.000.

Canadian Gas Research Institute: *See—*
Schaus, Orland O., 4,266,513, Cl. 122-155.00A.

Canda, William R., to United States of America, Air Force. Chemical-biological agent protective hood. 4,266,301, Cl. 2-410.000.

Caneer, Clifford, Jr.: *See—*
Anderson, Ronald B.; Svendsen, Walter W.; Beckley, Gary H.; and Caneer, Clifford, Jr., 4,266,444, Cl. 74-661.000.

Cannon, Lee E.; and Mansfield, Amos R., Jr., to Dana Corporation. Resolver interface for servo position control. 4,267,497, Cl. 318-661.000.

Canon Kabushiki Kaisha: *See—*
Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; Mashimo, Yukio; and Sakurada, Nobuaki, 4,267,437, Cl. 235-92.0PE.
Suzuki, Koji; and Shibata, Takehiko, 4,267,511, Cl. 324-458.000.

Canron Corporation: *See—*
Cox, Emmett W., 4,266,351, Cl. 37-104.000.
Newman, George R., 4,266,352, Cl. 37-105.000.
Newman, George R., 4,266,353, Cl. 37-105.000.

Carbone, Peter; and Spector, George. Flexible playing card display rack. 4,266,771, Cl. 273-150.000.

Carduck, Franz-Josef: *See—*
Christophliemk, Peter; Wust, Willi; and Carduck, Franz-Josef, 4,267,158, Cl. 423-329.000.

Carel, Alfred B.: *See—*
Cabbiness, Dale K.; Carel, Alfred B.; and Leslie, W. Dean, 4,267,445, Cl. 250-255.000.

Carl Freudenberg, Firma: *See—*
Scheibe, Joachim; and Kuhn, Helmut, 4,267,139, Cl. 264-229.000.

Carl Schenck AG: *See—*
Keller, Guenter; Pohl, Andreas; and Hintz, Gerhard, 4,266,467, Cl. 91-437.000.

Carl Zeiss, Inc.: *See—*
Geraci, James L., 4,266,663, Cl. 206-223.000.

Carl Zeiss-Stiftung: *See—*
Bruckner, Elmar; Gausmann, Hans; Schipper, Philipp; and Tausch, Walter, 4,267,149, Cl. 422-65.000.
Trotscher, Otto; and Wiedmann, Erwin, 4,266,862, Cl. 351-14.000.

Carlsen, Ove, to A/S Blehr & Tenvig. Stabilizer means for a surface vessel. 4,266,496, Cl. 114-126.000.

Carnus, Jean-Claude: *See—*
Perez, Jean; and Carnus, Jean-Claude, 4,266,524, Cl. 123-568.000.

Carrish, Jeffrey J.: *See—*
Fotland, Richard A.; and Carrish, Jeffrey J., 4,267,556, Cl. 346-153.100.

Carroll, Arthur B.; Lazarevich, Vladeta D.; and Gardner, Mark R., to Carroll Manufacturing Corporation. Photoelectric input apparatus. 4,267,443, Cl. 250-221.000.

Carroll Manufacturing Corporation: *See—*
Carroll, Arthur B.; Lazarevich, Vladeta D.; and Gardner, Mark R., 4,267,443, Cl. 250-221.000.

Carter, Cecil O., to Phillips Petroleum Company. Separating olefins from paraffins with dimethyl sulfoxide extractant. 4,267,034, Cl. 208-323.000.

Carter, Joseph F. Paint can attachment for holding brushes. 4,266,686, Cl. 220-90.000.

Carter, William R.; and Ellis, Larry G., to Western Gear Corporation. Airborne stores arming trigger unit. 4,266,462, Cl. 89-1.50D.

Casanova, Bernard A.: *See—*
Moyroud, Louis M.; Morgan, Grant T.; and Casanova, Bernard A., 4,266,864, Cl. 354-15.000.

Casares, Robert. Massaging device for backs. 4,266,536, Cl. 128-57.000.

Case, Barton C.: *See—*
Kroplinski, Thaddeus F.; and Case, Barton C., 4,267,044, Cl. 210-321.200.

Casio Computer Co., Ltd.: *See—*
Mizuno, Mamoru; and Tsuzuki, Hanzou, 4,267,587, Cl. 368-85.000.

Caterpillar Tractor Co.: *See—*
Dauwalder, Fred R., 4,266,318, Cl. 16-111.00R.
Fisher, George A.; and Mason, Gary E., 4,266,628, Cl. 180-54.00F.
Shuler, Lucien B., 4,266,626, Cl. 180-6.480.
Smith, Roger M., 4,266,798, Cl. 280-481.000.

Cavadias, Simeon: *See—*
Amouroux, Jacques; Rapakoulias, Demetre; and Cavadias, Simeon, 4,267,027, Cl. 204-179.000.

Cecil, James B., to National Semiconductor Corporation. Digital to analog conversion circuit including compensation FET'S. 4,267,550, Cl. 340-347.0DA.

Celanese Corporation: *See—*
Booth, Frank B., 4,267,383, Cl. 568-454.000.
Froix, Michael F., 4,267,289, Cl. 525-444.000.
Vanderspurt, Thomas H., 4,267,386, Cl. 568-480.000.

Celotex Corporation, The: *See—*
Barnhart, David A.; Britt, Ronald L.; Kroger, John E.; and Walters, David A., 4,266,528, Cl. 126-299.00D.
Flood, David N., 4,266,388, Cl. 52-748.000.

Central Glass Company, Limited: *See—*
Ozawa, Masahiro; Komatsu, Tadaaki; and Matsuoka, Kimiaki, 4,267,360, Cl. 560-111.000.

Ceraver: *See—*
Pargamin, Laurent, 4,267,403, Cl. 174-140.00S.

Ceskoslovenska akademie ved: *See—*
Sevcik, Stanislav; Trekoval, Jiri; Holata, Jan; and Stamberg, Jiri, 4,267,287, Cl. 525-271.000.

Chaikin, George M.; and Weiman, Carl F. R., to Old Dominion University Research Foundation. Image processing system. 4,267,573, Cl. 364-515.000.

Champion International Corporation: *See—*
Austin, John J., 4,266,716, Cl. 229-39.00R.
Roccaforte, Harry I., 4,266,671, Cl. 206-626.000.
Tellman, Stephen J., 4,266,382, Cl. 52-316.000.

Chance, Davey J.: *See—*
Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,422, Cl. 219-69.00C.
Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,423, Cl. 219-69.00S.

Chang, Pei K.; and Concilio-Nolan, Mary C., to Stauffer Chemical Company. Process for forming an egg white substitute. 4,267,100, Cl. 260-112.00R.

Chang, Shih-chih. Aeration method and apparatus. 4,267,052, Cl. 210-629.000.

Chelminski, Paul, to Bolt Associates, Inc. High strength submersible electrical cable and connector assembly. 4,266,844, Cl. 339-218.00M.

Chemisch-pharmazeutische Industrie KG, Apparatebau KG: *See—*
Schael, Wilfried, 4,267,041, Cl. 210-109.000.

Chemithon Corporation, The: *See—*
Brooks, Burton; and Brooks, Richard J., 4,267,119, Cl. 260-458.00R.

Chen, Catherine S. H.; Schmitt, Kirk D.; and Williams, Albert L., to Mobil Oil Corporation. Method of preparing propane sulfonates. 4,267,123, Cl. 260-501.120.

Chen, Chang C. Automatic trap for catching cockroach. 4,266,363, Cl. 43-73.000.

Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., to Grumman Aerospace; and Refac Electronics. Method of manufacturing photoelectrochemical cell. 4,266,338, Cl. 29-623.200.

Cheney, Alwyn H. Incompressible fluid type rock breaker. 4,266,827, Cl. 299-20.000.

Cherkofsky, Saul C., to Du Pont de Nemours, E. I., and Company. Antiinflammatory 4,5-diaryl-2-(substituted-thio)pyrroles and their corresponding sulfoxides and sulfones. 4,267,184, Cl. 424-263.000.

Cherkofsky, Saul C., to Du Pont de Nemours, E. I., and Company. Antiinflammatory 4,5-diaryl-α,α-bis(polyfluoromethyl)-1H-pyrrole-2-methanethiols. 4,267,190, Cl. 424-274.000.

Chernega, John G., to Minnesota Mining and Manufacturing Company. Flexible magnetic recording media lubricated with fluorinated telechelic polyether polymer. 4,267,238, Cl. 428-422.000.

Cherry, William D.; and Goldie, Harry, to Westinghouse Electric Corp. Iris for receiver protector. 4,267,530, Cl. 333-13.000.

Chevron Research Company: *See—*
Van Nordstrand, Robert A., 4,266,672, Cl. 208-120.000.

Chew, Remedios K.: *See—*
Pastor, Ricardo C.; Chew, Remedios K.; and Gorre, Luisa E., 4,267,205, Cl. 427-93.000.

Chicago Bridge & Iron Company: *See—*
Tam, William A., 4,266,499, Cl. 114-230.000.

Chimishkian, Alexandr L.: *See—*
Nefedov, Boris K.; Manov-Juvensky, Vladimir I.; Dergunov, Jury I.; Rysikhin, Anatoly I.; and Chimishkian, Alexandr L., 4,267,070, Cl. 252-429.00R.

Chinenov, Sergei P.: *See—*
Zuzanov, Georgy I.; Ignatov, Jury P.; and Chinenov, Sergei P., 4,266,894, Cl. 409-283.000.

Chitnis, Hema R.: *See—*
Chitnis, Raveendra V.; and Chitnis, Hema R., 4,266,775, Cl. 273-278.000.

Chitnis, Raveendra V.; and Chitnis, Hema R. Game involving the dealing in commodities. 4,266,775, Cl. 273-278.000.

Chou, Terry Y.: *See—*
Tsao, George T.; and Chou, Terry Y., 4,266,981, Cl. 127-37.000.

Christensen, Burton G.: *See—*
Cama, Lovji D.; and Christensen, Burton G., 4,267,188, Cl. 424-274.000.

Christensen, Inc.: *See—*
Brock, Kenneth A., 4,266,621, Cl. 175-329.000.

Christensen, Thorkild: *See—*
Baatrup, Johannes V.; Christensen, Thorkild; Christiansen, Tage; and Thomsen, Svend E., 4,266,464, Cl. 91-29.000.

Christenson, Philip A.: *See—*
Willis, Brian J.; Christenson, Philip A.; and Barton, Derek H. R., 4,267,111, Cl. 260-343.210.

Christian, John B.: *See—*
Tamborski, Christ; and Christian, John B., 4,267,348, Cl. 548-330.000.

Christiansen, Tage: *See—*
Baatrup, Johannes V.; Christensen, Thorkild; Christiansen, Tage; and Thomsen, Svend E., 4,266,464, Cl. 91-29.000.

Christophliemk, Peter; Wust, Willi; and Carduck, Franz-Josef, to Henkel Kommanditgesellschaft auf Aktien; and Deutsche Gold-und Silber-Scheideanstalt Vormals Roessler. Continuous process for the production of amorphouse sodium aluminosilicate. 4,267,158, Cl. 423-329.000.

Christou, Aristos: *See—*
Davey, John E.; Christou, Aristos; and Dietrich, Harry B., 4,267,014, Cl. 156-662.000.

Christy Concrete Products, Inc.: *See—*
Samolis, Alfonso A., 4,266,380, Cl. 52-19.000.

Chubb Industries Ltd.: *See—*
Markham, Michael H., 4,266,488, Cl. 109-59.00R.

Chudo, Akira; Sugi, Tomomitsu; and Kataoka, Kouji, to Osaka Cement Co., Ltd. Expansive solidifying material. 4,266,980, Cl. 106-97.000.

Ciba-Geigy Corporation: *See—*
Grieder, Alfred; Coers, Klaus-Jurgen; and Labuhn, Peter, 4,267,356, Cl. 560-43.000.
Guglielmetti, Leonardo, 4,267,343, Cl. 548-220.000.
Hildreth, John D.; Tschopp, Anton F.; and Evans, David G., 4,266,939, Cl. 8-437.000.
Mueller, Karl F., 4,267,087, Cl. 260-29.2EP.
Petree, Harris E.; Pociask, Joseph R.; and Gupton, John T., 4,267,347, Cl. 548-262.000.

Ciboit, Jacques J.; and Laguilharre, Pierre R. Process for cooling hot concentrated milk coming from an evaporator, by expansion by stages. 4,267,015, Cl. 159-47.00R.

Cieciuch, Ronald F.: *See—*
Locatell, Louis, Jr.; Zepp, Charles M.; and Cieciuch, Ronald F., 4,267,251, Cl. 430-224.000.

Cimarusti, Christopher M.: *See—*
Hauck, Frederic P.; Cimarusti, Christopher M.; and Sundeen, Joseph E., 4,267,373, Cl. 564-428.000.

Cincinnati Electronics Corporation: *See—*
Wissel, F. A.; and Kiliman, D. A., 4,267,591, Cl. 370-11.000.

Cisneros, Ignacio L.: *See—*
Behrendt, Bruce O.; Cisneros, Ignacio L.; Stephenson, Ronald B.; and Stephenson, Donald R., 4,266,531, Cl. 126-449.000.

Citizen Watch Co., Ltd.: *See—*
Kato, Toshitake, 4,267,479, Cl. 310-348.000.
Nomura, Hiroki; Mafune, Masao; and Koyanagi, Masaru, 4,267,427, Cl. 219-121.0LL.
Togashi, Seigo, 4,266,859, Cl. 350-338.000.
Uchino, Misao; and Watanabe, Minoru, 4,267,586, Cl. 368-73.000.

CIVAG AG Institut fur Verpackungsforschung: *See—*
Weidner, Richard; and Hahn, Ortwin, 4,266,928, Cl. 425-584.000.

Claas OGH, The: *See—*
Ziems, Horst, 4,266,466, Cl. 91-420.000.

Claassens, Antonius P. J. A., to U.S. Philips Corporation. Hair trimming apparatus. 4,266,341, Cl. 30-195.000.

Clark Equipment Company: *See—*
Fassett, Nyle W., 4,266,808, Cl. 280-756.000.

Clark, Graeme M.: *See—*
Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., 4,267,410, Cl. 179-107.0BC.

Clark, James A., to Bausch & Lomb Incorporated. Sealed container having a deformable elongate member in the seal area. 4,266,692, Cl. 222-94.000.

Clark, James R. Rope securing device. 4,266,498, Cl. 114-218.000.

Clarke, Walter W. H. Pneumatic door locks. 4,266,415, Cl. 70-264.000.

Clayton, John P.: *See—*
Luk, Kong; Clayton, John P.; and Rogers, Norman H., 4,267,316, Cl. 542-427.000.

Clemson University: *See—*
Park, Joon B., 4,266,303, Cl. 3-1.910.

Clouth Gummiwerke Aktiengesellschaft: *See—*
Ortwein, Hermann; and Braitsch, Hans, 4,266,719, Cl. 238-283.000.

Coal Industry (Patents) Limited: *See—*
Parfitt, Norman L. C., 4,266,637, Cl. 188-196.00P.

Coburn, C. David; and Maloy, Rex M., to Coburn, Orin W. Coin release assembly. 4,266,564, Cl. 133-5.00R.

Coburn, Orin W.: *See—*
Coburn, C. David; and Maloy, Rex M., 4,266,564, Cl. 133-5.00R.

Cochran, Clifford E. Lightweight golf bag. 4,266,589, Cl. 150-1.50B.

Coers, Klaus-Jurgen: *See—*
Grieder, Alfred; Coers, Klaus-Jurgen; and Labuhn, Peter, 4,267,356, Cl. 560-43.000.

Coetzer, Johan; and Thackeray, Michael M., to South African Inventions Development Corp. Electrochemical cell. 4,267,242, Cl. 429-104.000.

Cohen, Louis, to B. F. Goodrich Company, The. Solvent polymerization of carboxyl containing monomers. 4,267,103, Cl. 260-17.5UC.

Cohn, Nathan, to Network Systems Development Associates. Energy conservation by improved control of bulk power transfers on interconnected systems. 4,267,571, Cl. 364-493.000.

Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., to Continental Group, Inc., The. Process of reducing blowing cycle for blow molded containers. 4,267,144, Cl. 264-523.000.

Collins, Andrew P. Recreational basketball apparatus with moving backboards. 4,266,763, Cl. 272-3.000.

Collins, Andrew P. Recreational basketball apparatus with moving goal. 4,266,764, Cl. 272-3.000.

Collins, Ellsworth H.: *See—*
Meyer, Louis H.; and Collins, Ellsworth H., 4,266,659, Cl. 198-781.000.

Collonia, Harald, to VDO Adolf Schindling AG. Electrical regulating device for speed control devices. 4,267,491, Cl. 318-311.000.

Colt Industries Operating Corp: *See—*
Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,422, Cl. 219-69.00C.

Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,423, Cl. 219-69.00S.
Comaco, Inc.: *See*—
Godbersen, Harold W., 4,266,917, Cl. 425-64.000.
Comberg, Gerd: *See*—
Bornefeld, Horst; Comberg, Gerd; Engel, Werner; and Neyer, Johannes, 4,266,373, Cl. 51-99.000.
Communications Satellite Corporation: *See*—
Assal, Francois T.; Berman, Arnold L.; and Betaharon, Khodadad, 4,267,538, Cl. 333-262.000.
Karmel, Paul R., 4,267,537, Cl. 333-231.000.
Concilio-Nolan, Mary C.: *See*—
Chang, Pei K.; and Concilio-Nolan, Mary C., 4,267,100, Cl. 260-112.00R.
Cone-Blanchard Machine Company: *See*—
Wilterdink, Bernard W., 4,267,495, Cl. 318-571.000.
Conoco, Inc.: *See*—
Cabbiness, Dale K.; Carel, Alfred B.; and Leslie, W. Dean, 4,267,445, Cl. 250-255.000.
Ziegenhain, William C., 4,267,161, Cl. 423-462.000.
Conrad, Jens: *See*—
Schaper, Ulf-Armin; Conrad, Jens; and Bruns, Klaus, 4,267,075, Cl. 252-522.00R.
Conte, Laurino. Securement of couplings to lengths of hose. 4,266,330, Cl. 29-267.000.
Contemporary, Inc.: *See*—
Kanzelberger, James C., 4,267,224, Cl. 428-216.000.
Continental Group, Inc., The: *See*—
Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., 4,267,144, Cl. 264-523.000.
Reid, Jeremy T., 4,266,688, Cl. 220-273.000.
Convertini, Ursula; Dimingen, Heinz; Luthje, Holger; Kuch, Friedrich; and Tummoscheit, Peter, to U.S. Philips Corporation. Integrated thin layer magnetic field sensor. 4,267,510, Cl. 324-249.000.
Conway, Richard A.; and Nelson, Robert F., to Union Carbide Corporation. High solubility gas flotation in liquid-solid separation. 4,267,050, Cl. 210-608.000.
Cook, Edward J.: *See*—
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Cooper Care, Inc.: *See*—
Weitzman, Stewart; and Archibald, Roy D., 4,267,167, Cl. 424-52.000.
Corder, Paul R., to Brown & Root, Inc. Self-elevating fixed platform. 4,266,887, Cl. 405-196.000.
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Dix, James F.; Ford, Clarence E., Jr.; Forker, Ray B., Jr.; and Johnson, Ronald E., 4,267,000, Cl. 156-235.000.
Sullivan, Kevin J., 4,266,941, Cl. 23-230.00B.
Cors, Bernard E., deceased; and Cors, Bette M., executrix. Supporting assembly for an alignment line. 4,266,342, Cl. 33-1.00Q.
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Cors, Bernard E., deceased; and Cors, Bette M., executrix, 4,266,342, Cl. 33-1.00Q.
Coulter Systems Corporation: *See*—
Kuehnle, Manfred R.; Cox, Richard E.; Harris, George B., Jr.; Forrest, Jess; and Hardy, Carl D., 4,266,869, Cl. 355-8.000.
Courtaulds Limited: *See*—
Laszlo, Akos; and Merriman, Horace B., 4,266,983, Cl. 134-21.000.
Cox, Emmett W., to Canron Corporation. Center plow for railroad ballast. 4,266,351, Cl. 37-104.000.
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Cozzi, Paolo; Magni, Oswaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., to Farmitalia Carlo Erba S.p.A. 2-Hydroxymethyl-pyrazine derivatives and process for their preparation. 4,267,327, Cl. 544-336.000.
CPC International Inc.: *See*—
Ledding, Willard E., 4,266,348, Cl. 34-10.000.
CPS Industries: *See*—
Stone, Arnold F.; and Kinnard, William D., 4,267,228, Cl. 428-297.000.
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Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., 4,267,341, Cl. 548-206.000.
Craiglow, Robert L., to Rockwell International Corporation. Anti-jam radio. 4,267,592, Cl. 370-29.000.
Crane Co.: *See*—
Crits, George J., 4,267,159, Cl. 423-371.000.
Crane, Walton B., to Industrial Designs & Services. Boxes with column-forming inserts. 4,266,714, Cl. 229-34.0HW.
Crawford, Andrew B., Jr.; and Wade, Gerald J., to Honeywell Inc. Medical specimen culture bottle. 4,267,276, Cl. 435-291.000.
Creative Tool Company: *See*—
Wesley, William M., 4,266,427, Cl. 73-119.00A.
Crist, Robert M. Oil filter wrench. 4,266,452, Cl. 81-121.00R.
Critelli, Frank W. Waterbed foundation construction. 4,266,307, Cl. 5-451.000.
Crits, George J., to Crane Co. Cyanide recovery. 4,267,159, Cl. 423-371.000.
Crooks, James W., to Wallace-Murray Corporation. Fluid shear coupling. 4,266,645, Cl. 192-58.00B.
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DuBois, Grant E.; Stephenson, Rebecca A. G.; and Crosby, Guy A., 4,267,165, Cl. 424-48.000.
Cross, David E., to Smiths Industries Limited. Connectors. 4,266,815, Cl. 285-330.000.
Crown Controls Corporation: *See*—
Bergman, Lawrence J., 4,266,744, Cl. 248-49.000.
CSELT, Centro Studi e Laboratori Telecomunicazioni S.P.A.: *See*—
Bosotti, Luciano, 4,267,590, Cl. 370-3.000.
CTS Corporation: *See*—
Holmes, Curtis L.; Faber, William M., Sr.; Francis, Gaylord L.; and Boykin, Otis F., 4,267,074, Cl. 252-514.000.
Cuccolo, Sergio: *See*—
Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, 4,267,314, Cl. 536-53.000.
Cummings, Charles A.; and Rodmaker, Gerald, to C.P.G. Products Corp. Ringing toy telephone. 4,266,365, Cl. 46-33.000.
Cummings, Donald R., to Dut Pty Limited. Simultaneous cooling and removal of water from hydrocarbon gas mixtures. 4,266,958, Cl. 62-20.000.
Cummings, Robert, to U.S. Clinical Products, Inc. Sealing cover and method for resealing an intravenous container. 4,266,687, Cl. 220-257.000.
Curnes, John J. Means of support for the rollers of a press. 4,266,923, Cl. 425-356.000.
Curten, Jean L.: *See*—
Sandoval, Narciso; and Curten, Jean L., 4,266,765, Cl. 272-70.300.
Curtis, Harold D. Portable auxiliary cooling tower. 4,267,130, Cl. 261-112.000.
Cuscurida, Michael; and Speranza, George P., to Texaco Development Corp. Polyester polycarbonates. 4,267,120, Cl. 260-463.000.
Czerepinski, Ralph G.: *See*—
Garrett, Walter L.; and Czerepinski, Ralph G., 4,266,481, Cl. 101-456.000.
Czuba, Leonard F.: *See*—
Becker, Lawrence F.; Czuba, Leonard F.; and Laurin, Dean G., 4,266,542, Cl. 128-214.00R.
Dabbs, Joseph C.: *See*—
Dauerman, Leonard; Rao, Krishna K.; Dabbs, Joseph C.; and Delaney, Brian, 4,267,156, Cl. 423-242.000.
Daenen, Robert H. C. M., to Dart Industries Inc. Luggage marker. 4,266,354, Cl. 40-21.00R.
Dague, Harold F., to Pic Disc, Inc. Method for making picture records. 4,267,001, Cl. 156-245.000.
Dahlstrom, Kenneth J.: *See*—
Barnard, Walter C.; and Dahlstrom, Kenneth J., 4,266,837, Cl. 312-351.000.
Dai Nippon Insatsu Kabushiki Kaisha: *See*—
Mitsuhashi, Yuuji, 4,266,872, Cl. 356-51.000.
Daicel Ltd.: *See*—
Sato, Kazuo; Asahi, Akira; and Koyama, Takahiro, 4,267,198, Cl. 426-332.000.
Daido Kogyo Co., Ltd.: *See*—
Imamura, Kazuo; and Minamoto, Toshio, 4,266,417, Cl. 72-168.000.
Daiello, Cosimo D.: *See*—
Rick, Randy L.; Mazzotta, Paul F.; and Daiello, Cosimo D., 4,267,431, Cl. 219-225.000.
Daikin Kogyo Co., Ltd.: *See*—
Ohmori, Akira, 4,267,302, Cl. 528-103.000.
Daimler-Benz Aktiengesellschaft: *See*—
Happel, Robert; and Haepp, Hans J., 4,266,727, Cl. 239-409.000.
Dainichiseika Color & Chemicals Mfg. Co. Ltd.: *See*—
Sannan, Takanori; and Horiguchi, Shojiro, 4,267,313, Cl. 536-18.000.
Daldrup, Heinz G.; Nothhelfer, Gunther; Franke, Friedrich H.; and Limpach, Raymond, to Rheinische Braunkohlenwerke A.G.; and Arbed S.A. Process for injecting brown coal into a blast furnace. 4,266,968, Cl. 75-42.000.
Dalton, Thomas P. Portable swivel hunter's stool. 4,266,748, Cl. 248-425.000.
Daly, Geoffrey J., to Brambles Holdings Limited. Nesting units. 4,266,678, Cl. 211-194.000.
Dana Corporation: *See*—
Cannon, Lee E.; and Mansfield, Amos R., Jr., 4,267,497, Cl. 318-661.000.
Kessmar, Leo R., 4,266,438, Cl. 74-473.00R.
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Baatrup, Johannes V.; Christensen, Thorkild; Christiansen, Tage; and Thomsen, Svend E., 4,266,464, Cl. 91-29.000.
Daniels, Alexander. Hourglass construction. 4,267,588, Cl. 368-93.000.
Danielsson, Joel L.: *See*—
Nilsson, Dan L.; and Danielsson, Joel L., 4,266,630, Cl. 180-291.000.
Dankman, Scott; Levy, Richard C.; and McCoy, Bryan L. Multi-mode doll. 4,267,551, Cl. 340-384.00E.
Danzin, Charles: *See*—
Metcalf, Brian W.; Jung, Michel; and Danzin, Charles, 4,267,374, Cl. 564-509.000.
Darkes, Paul R.; Campbell, Henry F.; and Douglas, George H., to William H. Rorer, Inc. Process for producing ethynylbenzenes. 4,267,388, Cl. 568-642.000.
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Daenen, Robert H. C. M., 4,266,354, Cl. 40-21.00R.
Datafile Limited: *See*—
Anderson, Dale L., 4,267,004, Cl. 156-361.000.
Dauerman, Leonard; Rao, Krishna K.; Dabbs, Joseph C.; and Delaney, Brian, to Foundation at New Jersey Institute of Technology, The. Method using lime slurry for regenerating sodium sulfite in double alkali flue gas desulfurization process. 4,267,156, Cl. 423-242.000.

Dauwalder, Fred R., to Caterpillar Tractor Co. Hand rail assembly. 4,266,318, Cl. 16-111.00R.
Davey, John E.; Christou, Aristos; and Dietrich, Harry B., to United States of America, Navy. Semiconductor encapsulant for annealing ion-implanted GaAs. 4,267,014, Cl. 156-662.000.
Davi, S. K. Apparatus for and method of utilizing energy to excise pathological tissue. 4,266,548, Cl. 128-303.100.
Davidson, Raymond J.; and Veronese, Vittorio. Regeneration of activated carbon to increase its gold adsorption capacity. 4,267,069, Cl. 252-412.000.
Davis, James A.; and Koch, Robert C., to Firestone Tire & Rubber Company, The. Cured rubber skim compositions exhibiting better humidity aged metal adhesion and metal adhesion retention. 4,267,079, Cl. 260-3.500.
Davis, Thomas G.; and Weaver, Max A., to Eastman Kodak Company. Polyester polymers containing residues of anthroquinone dyes. 4,267,306, Cl. 528-226.000.
Davis, William W., to Sperry Corporation. Gain controllable amplifier stage. 4,267,518, Cl. 330-254.000.
Day, James L.: *See*—
Whaley, Robert L.; and Day, James L., 4,266,820, Cl. 296-35.300.
Dayco Corporation: *See*—
Deiss, Richard, 4,266,579, Cl. 138-127.000.
Deb, Satyendra K.: *See*—
Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., 4,266,338, Cl. 29-623.200.
Debenham, Colin H.: *See*—
Mesch, Hans G.; Debenham, Colin H.; and Yasui, Robert K., 4,267,003, Cl. 156-356.000.
Dechant, Thomas E.; Glaser, Edward L.; Pitt, Paul E.; and Way, Frederick, to System Development Corporation. Information storage and retrieval system. 4,267,568, Cl. 364-200.000.
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Kieboom, Arnoldus M. C.; and Dedding, Nicolaas P., 4,267,453, Cl. 250-368.000.
Deere & Company: *See*—
Roesner, Keith G., 4,266,504, Cl. 118-663.000.
De Felice, Stephen L., to Biocarn Limited. Carnitine and its use in reducing cardiac toxicity. 4,267,163, Cl. 424-9.000.
Degen, Hans-Juergen, to BASF Aktiengesellschaft. Colored polymeric compounds. 4,267,319, Cl. 542-434.000.
Deiss, Richard, to Dayco Corporation. Hose and method of making same. 4,266,579, Cl. 138-127.000.
Delaney, Brian: *See*—
Dauerman, Leonard; Rao, Krishna K.; Dabbs, Joseph C.; and Delaney, Brian, 4,267,156, Cl. 423-242.000.
Delaunay, Antoine; and Ecolasse, Guy, to Boyer, Michel. Vehicle wheel anti-slip device. 4,266,832, Cl. 301-48.000.
Dell'Ara, Michael E.: *See*—
Ramos, Gary A.; and Dell'Ara, Michael E., 4,266,740, Cl. 242-86.520.
Deller, Robert J., to Pullman Incorporated. Extruded nonskid treadway. 4,266,381, Cl. 52-177.000.
DeLuca, Patrick P.; and Butler, L. David, to University of Kentucky Research Foundation, The. Testing the integrity of liquid containing hermetically sealed containers by the use of radioactive markers. 4,267,449, Cl. 250-303.000.
del Valle, Clara J., to Dow Chemical Company, The. Resin composition. 4,267,095, Cl. 260-40.00R.
Demmer, Manfred: *See*—
Boddenberg, Klaus; Waldmann, Jurgen; and Demmer, Manfred, 4,267,216, Cl. 427-397.800.
Dempsey, Martin E.; and Lee, Ching W., to GTE Laboratories Incorporated. Acoustic surface wave device. 4,267,533, Cl. 333-151.000.
de Neufville, John P.: *See*—
Hallman, Robert W.; Ovshinsky, Stanford R.; and de Neufville, John P., 4,267,261, Cl. 430-322.000.
Denki Onkyo Co., Ltd.: *See*—
Narikiyo, Tatsuichi, 4,267,541, Cl. 335-212.000.
Dennison Manufacturing Company: *See*—
Fotland, Richard A.; and Carrish, Jeffrey J., 4,267,556, Cl. 346-153.100.
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, to Diamond Shamrock Technologies, S.A. Electrodes for electrolytic processes, especially perchlorate production. 4,267,025, Cl. 204-82.000.
Dentan Co., Ltd.: *See*—
Sugiyama, Kazuo, 4,267,547, Cl. 340-65.000.
Denzer, Ronald W. Vehicle mounted log splitter. 4,266,585, Cl. 144-193.00A.
Deprez, Jacques: *See*—
Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, 4,267,030, Cl. 204-278.000.
Derewonko, Henri; Laviron, Michel; and Lepage, Joel, to Thomson-CSF. Hybrid component for very high frequency amplification. 4,267,520, Cl. 330-286.000.
Dergunov, Jury I.: *See*—
Nefedov, Boris K.; Manov-Juvensky, Vladimir I.; Dergunov, Jury I.; Rysikhin, Anatoly I.; and Chimishkian, Alexandr L., 4,267,070, Cl. 252-429.00R.
Desai, Nitin V.: *See*—
Poliniak, Eugene S.; and Desai, Nitin V., 4,267,257, Cl. 430-270.000.
Desmond, Michael N.: *See*—
Rothenberg, Alan S.; and Desmond, Michael N., 4,267,372, Cl. 564-205.000.
Desmoulins, Jean C.: *See*—
Boudet, Georges; and Desmoulins, Jean C., 4,266,451, Cl. 81-57.350.
Detrick, Jeffrey C. Fastener extracting apparatus. 4,266,755, Cl. 254-18.000.
Deutsche Gold-und Silber-Scheideanstalt Vormals Roessler: *See*—
Christophliemk, Peter; Wust, Willi; and Carduck, Franz-Josef, 4,267,158, Cl. 423-329.000.
Dewsnap, Paul D., to Donaldson Display Company, Inc. Samples clamp. 4,266,677, Cl. 211-45.000.
Dezawa, Shinichiro: *See*—
Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, 4,267,207, Cl. 427-129.000.
Dhein, Rolf; Poetter, Gerswid; and Rudolph, Hans, to Bayer Aktiengesellschaft. Air-cross-linkable polyacrylate lacquer binders containing chemically fixed wood preservatives. 4,267,082, Cl. 260-23.0AR.
Diamond Shamrock Corporation: *See*—
Higashiyama, Takao; and Nishikawa, Toshio, 4,266,975, Cl. 106-1.120.
Diamond Shamrock Technologies, S.A.: *See*—
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,267,025, Cl. 204-82.000.
Diaz-Nogueira, Eduardo: *See*—
Redondo-Abad, Angel L.; Diaz-Nogueira, Eduardo; Gerez-Pascual, Martin; and Regife-Vega, Jose M., 4,266,972, Cl. 75-101.00R.
Dickinson, David G. Magnetic drive laboratory pump. 4,266,914, Cl. 417-63.000.
Dickson, Leon L.; and Ellison, Bart T., to Shell Oil Company. Corrosion monitoring and testing system. 4,267,148, Cl. 422-53.000.
Dielectric Systems International, Inc.: *See*—
Kalt, Charles G., 4,266,339, Cl. 29-829.000.
Diesel Kiki Co., Ltd.: *See*—
Nomura, Hiroshi, 4,266,913, Cl. 417-269.000.
Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, 4,266,604, Cl. 165-176.000.
Diessel, Paul; Perner, Johannes; Leutner, Bernd; and Schlimper, Hans-Ulrich, to BASF Aktiengesellschaft. Storage-stable, pourable silicate suspensions. 4,267,068, Cl. 252-179.000.
Dietrich, Harry B.: *See*—
Davey, John E.; Christou, Aristos; and Dietrich, Harry B., 4,267,014, Cl. 156-662.000.
DiGiacomo, Peter M.: *See*—
Parziale, Victor E.; Dines, Martin B.; and DiGiacomo, Peter M., 4,267,308, Cl. 528-395.000.
Dillon, Benny N.: *See*—
Nordstrom, Kjell H.; Dillon, Benny N.; and Susor, William C., 4,266,624, Cl. 177-253.000.
Dillon, Robert F., Jr.; Hall, James J.; and Zamfirescu, Leon N., to Zerox Corporation. Transmission line active coaxial tap. 4,266,842, Cl. 339-97.00P.
Dimingen, Heinz: *See*—
Convertini, Ursula; Dimingen, Heinz; Luthje, Holger; Kuch, Friedrich; and Tummoscheit, Peter, 4,267,510, Cl. 324-249.000.
Dines, Martin B.: *See*—
Parziale, Victor E.; Dines, Martin B.; and DiGiacomo, Peter M., 4,267,308, Cl. 528-395.000.
DiPalma, Hugo R.; and Aubarede, Francis C., to DiPalma, Hugo R. Mobile spraying apparatus with an axial pipe-carrier drum. 4,266,724, Cl. 239-195.000.
Divers, Edward F., to United States of America, Interior. Combined rotating bed scrubber and water eliminator. 4,266,829, Cl. 299-64.000.
Dix, James F.; Ford, Clarence E., Jr.; Forker, Ray B., Jr.; and Johnson, Ronald E., to Corning Glass Works. Method for masking glass, glass-ceramic and ceramic surfaces. 4,267,000, Cl. 156-235.000.
Dixon, Frank O. Loading and unloading system for tank car trains. 4,266,580, Cl. 141-35.000.
Dixon, Roy P.; and Kelly, John F. Packaging for safety razors. 4,266,664, Cl. 206-349.000.
Dobbers, Jurgen: *See*—
Kyri, Hans; and Dobbers, Jurgen, 4,267,058, Cl. 210-716.000.
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, to Richter Gedeon Vegyeszeti Gyar Rt. Coating ensuring a controlled release of active ingredients of biologically active compositions, particularly pharmaceutical compositions and a process for preparation of biologically active compositions ensuring controlled release of active ingredients. 4,267,138, Cl. 264-117.000.
Dr. Beck & Co. Aktiengesellschaft: *See*—
Schmidt, Karl; Hansch, Ferdinand; Rombrecht, Hans-Malte; and Beck, Hans-Joachim, 4,267,232, Cl. 428-379.000.
Dr. Edward Fresenuis, Chemischpharmazeutische Industrie KG, Apparatebau KG: *See*—
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Dodge, Dennis; Matwey, Paul; Madigan, Thomas M.; and Powers, Robert H., to Itek Corporation. Diffusion transfer camera processor. 4,266,866, Cl. 354-84.000.
Dodt, Jurgen: *See*—
Plevak, Lubomir; and Dodt, Jurgen, 4,266,891, Cl. 405-291.000.
Doherty, Charles J.: *See*—
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Dolphin, David H.: *See*—
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Donaldson Display Company, Inc.: *See—*
Dewsnap, Paul D., 4,266,677, Cl. 211-45.000.

Donmez, Atilla; and Igel, Wolfgang, to Zinser Textilmaschinen. Method and apparatus for restarting individual winding units of a ring spinning or twisting frame. 4,266,397, Cl. 57-261.000.

Doss, Richard C.: *See—*
Louthan, Rector P.; and Doss, Richard C., 4,267,307, Cl. 528-293.000.

Douglas, George H.: *See—*
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Dow Chemical Company, The: *See—*
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Garrett, Walter L.; and Czerepinski, Ralph G., 4,266,481, Cl. 101-456.000.
Holmsen, Theodore W.; Kurihara, Norman H.; and Thomas, Paul A., 4,266,964, Cl. 71-94.000.
Tomalia, Donald A.; and Buchholz, Fredric L., 4,267,350, Cl. 548-354.000.

Dow Corning Corporation: *See—*
Homan, Gary R., 4,267,296, Cl. 528-15.000.

Downey, John H. Dual-voltage electric hair curling apparatus and vanity case therefore. 4,267,430, Cl. 219-222.000.

Doyle, Terrence W.: *See—*
Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,267,113, Cl. 260-345.200.

Draber, Wilfried: *See—*
Knops, Hans-Joachim; Heine, Hans-Georg; Draber, Wilfried; and Brandes, Wilhelm, 4,267,186, Cl. 424-272.000.
Stetter, Jorg; Draber, Wilfried; Thomas, Rudolf; and Lunkenheimer, Winfried, 4,267,338, Cl. 548-143.000.

Draper, Richard W., to Schering Corporation. Use of 6β-fluoro-7α-halogenocorticoids as topical anti-inflammatories and pharmaceutical formulations useful therefor. 4,267,173, Cl. 424-243.000.

Driscoll, Michael M.; and Lisle, Thomas K., Jr., to United States of America, Air Force. Impulse generator apparatus. 4,267,513, Cl. 328-60.000.

Drone, Gary A.; and Rockwell, Harvey W., to Fiat-Allis Construction Machinery, Inc. Hydraulic vehicle performance sensor and shift point indicator. 4,267,545, Cl. 340-52.00R.

Drope, Eckard: *See—*
Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, 4,267,030, Cl. 204-278.000.

DuBois, Grant E.; Stephenson, Rebecca A. G.; and Crosby, Guy A., to Dynapol. Comestibles sweetened with alpha amino acid dihydrochalcones. 4,267,165, Cl. 424-48.000.

Duda, John. Vacuum cleaning apparatus. 4,266,317, Cl. 15-322.000.

Dulog, Lothar G.: *See—*
Maasbol, Alfred G.; and Dulog, Lothar G., 4,267,375, Cl. 568-57.000.

Dumitrescu, Elena: *See—*
Van Winckel, Carl E.; Dolphin, David H.; Dumitrescu, Elena; and Van Winckel, Kent F., 4,267,378, Cl. 568-376.000.

Dunnington, Gordon B.; and Manwiller, Carl H., to Du Pont de Nemours, E. I., and Company. Ram-extrusion apparatus for non-melt fabricable polymeric resins. 4,266,919, Cl. 425-102.000.

Dunweg, Gustav: *See—*
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, 4,267,047, Cl. 210-490.000.

Duperray, Gilbert; Monnet, Andre A.; and Tournut, Claude, to Produits Chimiques Ugine Kuhlmann. Molded preformed polytetrafluoroethylene structures. 4,267,237, Cl. 428-422.000.

Du Pont de Nemours, E. I., and Company: *See—*
Aikens, Paul W., 4,266,839, Cl. 339-75.0MP.
Burkhart, Dean C.; Harper, Lee R.; and Sommerfeld, Eugene G., 4,267,288, Cl. 525-438.000.
Cherkofsky, Saul C., 4,267,184, Cl. 424-263.000.
Cherkofsky, Saul C., 4,267,190, Cl. 424-274.000.
Dunnington, Gordon B.; and Manwiller, Carl H., 4,266,919, Cl. 425-102.000.
Finizio, Michael, 4,267,185, Cl. 424-267.000.
Grot, Walther G.; Molnar, Charles J.; and Resnick, Paul R., 4,267,364, Cl. 560-183.000.
Kutsch, Howard J., 4,266,409, Cl. 64-12.000.
Segrott, Leslie, 4,266,838, Cl. 339-17.00C.
Wysong, Robert D., 4,267,145, Cl. 264-563.000.

Durlach, Jean P., to Les Laboratories Meram. Calcium derivatives of taurine having reinforced neuro-muscular activity. 4,267,194, Cl. 424-315.000.

Dursch, Walter; and Kleiner, Hans-Jerg, to Hoechst Aktiengesellschaft. Process for the manufacture of phosphinic and phosphonic acid anhydrides. 4,267,125, Cl. 260-545.00P.

Duskin Franchise Co., Ltd.: *See—*
Yagi, Akira; Miyoshi, Ichiro; and Nogami, Nobusue, 4,267,220, Cl. 428-96.000.

Dusza, John: *See—*
Baker, Pamela K.; Asato, Goro; and Dusza, John, 4,267,191, Cl. 424-285.000.

Dut Pty Limited: *See—*
Cummings, Donald R., 4,266,958, Cl. 62-20.000.

Dutcher, Robert G.; and O'Neill, Edward G., to Medtronic, Inc. Lead anchoring bobbin. 4,266,552, Cl. 128-419.00P.

Dynamit Nobel Aktiengesellschaft: *See—*
Hanisch, Horst; Rodder, Karl-Martin; Buning, Robert; and Hass, Hans-Jurgen, 4,267,093, Cl. 260-29.60H.

Dynapac Maskin AB: *See—*
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Hauck, Frederic P.; Cimarusti, Christopher M.; and Sundeen, Joseph E., 4,267,373, Cl. 564-428.000.
Krapcho, John; and Turk, Chester F., 4,267,354, Cl. 560-39.000.

Eastern Container Corporation: *See—*
Owens, James J., 4,267,008, Cl. 156-462.000.

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Davis, Thomas G.; and Weaver, Max A., 4,267,306, Cl. 528-226.000.
Giles, Ralph R.; and Weaver, Max A., 4,267,104, Cl. 260-207.300.
Olsen, Eric G.; and Jackson, Winston J., Jr., 4,267,301, Cl. 528-93.000.
Sloan, Cephas H.; Wright, Jerry A.; and Morie, Gerald P., 4,267,002, Cl. 156-276.000.

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Bradford, Jay H., 4,266,576, Cl. 138-40.000.
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Kasey, Michael K., 4,266,336, Cl. 29-596.000.

Ecodyne Corporation: *See—*
Ryan, Leo F., 4,267,039, Cl. 210-767.000.

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Delaunay, Antoine; and Ecolasse, Guy, 4,266,832, Cl. 301-48.000.

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Gamble, Bruce B., 4,267,473, Cl. 310-52.000.
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Park, Dong-Sil;; Breiter, Manfred W.; and King, Randall N., 4,266,712, Cl. 228-175.000.

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Amouroux, Jacques; Rapakoulias, Demetre; and Cavadias, Simeon, 4,267,027, Cl. 204-179.000.

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Ryaby, John P.; and Pilla, Arthur A., 4,266,532, Cl. 128-1.500.
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Dickson, Leon L.; and Ellison, Bart T., 4,267,148, Cl. 422-53.000.

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Gedeon, George C., 4,266,337, Cl. 29-614.000.

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Nakagima, Shigeo; Takahashi, Ken; and Endo, Hajime, 4,266,828, Cl. 299-53.000.

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Hallman, Robert W.; Ovshinsky, Stanford R.; and de Neufville, John P., 4,267,261, Cl. 430-322.000.

Engel, Werner: *See—*
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Yli-Vakkuri, Erkki, 4,266,413, Cl. 68-158.000.

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Reese, Robert O.; Wieber, Karl R.; and Hartman, James T., 4,267,502, Cl. 323-237.000.
Teague, Richard K.; and Yu, Henry H. S., 4,266,948, Cl. 55-126.000.

Enzyme Technology, Inc.: *See—*
Stout, Robert L., 4,267,270, Cl. 435-7.000.

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Erdman, Arthur G.; and Peterson, Jeffory A., to Truth Incorporated. Operator for a casement-type window. 4,266,371, Cl. 49-252.000.

Erickson, Lennart G.; and Worne, Howard E. Biological sludge-energy recycling method. 4,267,049, Cl. 210-606.000.

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Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,267,113, Cl. 260-345.200.

Estan Manufacturing Company: *See—*
Richardson, Mason E., 4,266,344, Cl. 33-126.70R.

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Garbe, Reinhold F.; Esterl, Leo A.; and Koltun, Ronald E., 4,266,996, Cl. 156-154.000.

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Salomon, Georges P. J., 4,266,801, Cl. 280-605.000.

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Tornier, Alain, 4,266,302, Cl. 3-1.912.

Ethyl Corporation: *See—*
Niebylski, Leonard M., 4,266,946, Cl. 44-68.000.

Evans, David G.: *See—*
Hildreth, John D.; Tschopp, Anton F.; and Evans, David G., 4,266,939, Cl. 8-437.000.

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Bonin, Pete J., Jr.; Evans, Marion E.; and Bonin, Pete J., Sr., 4,266,537, Cl. 128-75.000.

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Mullet, David L.; Rilling, Raymond J.; and Voth, Elmer D., 4,266,617, Cl. 172-76.000.

Exxon Research and Engineering Company: *See—*
Maas, Edward T., Jr.; and Steger, John J., 4,267,157, Cl. 423-303.000.
Wronski, Christopher R.; and Myers, Bruce P., 4,266,984, Cl. 136-255.000.

F.I.A.M.M. S.p.A. Fabbrica Italiana Accumulatori Motocarri Montecchio: *See—*
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Fa. Bilfinger & Berger: *See—*
Bayer, Karl; Butt, Heinz G.; and Salewski, Jurgen, 4,266,888, Cl. 405-202.000.

Faber, William M., Sr.: *See—*
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Faden, Alan I.: *See—*
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Fadness, Quinten K., to RayGo, Inc. Adjustable load lifting spreader frame. 4,266,904, Cl. 414-460.000.

Fahey, Darryl R., to Phillips Petroleum Company. Method for producing ethylene polymers using treated catalysts containing titanium and vanadium. 4,267,293, Cl. 526-116.000.

Faiella, Joseph V. Footgear embodying podiatric sole. 4,266,553, Cl. 128-585.000.

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Pierce, John M.; Lehrer, William I.; and Radigan, Kenneth J., 4,267,012, Cl. 156-643.000.

Falzoni, Gianluigi, to Fiat Auto S.p.A. Automatic play compensation device for motor vehicle clutches. 4,266,649, Cl. 192-111.00A.

Farason, Harry J.: *See—*
Schroeder, Clifford A.; Fogg, Ralph L.; Farason, Harry J.; and Voorhees, Robert E., 4,266,470, Cl. 98-40.00R.

Farley, D. Gray. Socket retaining ring. 4,266,453, Cl. 81-177.00G.

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Cozzi, Paolo; Magni, Osvaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., 4,267,327, Cl. 544-336.000.
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,267,116, Cl. 260-376.000.

Farr, Garth M.; and McCoy, Terence D., to Farr Oil Tool, Inc. Power tong assembly. 4,266,450, Cl. 81-57.330.

Farr Oil Tool, Inc.: *See—*
Farr, Garth M.; and McCoy, Terence D., 4,266,450, Cl. 81-57.330.

Farsan Enterprises Limited: *See—*
Lo, Shih H., 4,266,943, Cl. 44-51.000.

Fassett, Nyle W., to Clark Equipment Company. Overhead guard for lift truck. 4,266,808, Cl. 280-756.000.

Faulhaber, Fritz, to Retobobina Handelsanstalt. Electromotor. 4,267,477, Cl. 310-266.000.

Feasey, Ronald G.; and Griffin, Brian P., to Imperial Chemical Industries Limited. Aromatic copolyesters capable of forming an anisotropic melt. 4,267,304, Cl. 528-193.000.

Feldkamper, Richard, to Windmoller & Holscher. Method for making sacks provided with cross-bottoms. 4,266,469, Cl. 493-219.000.

Feldkaper, Richard: *See—*
Achelpohl, Fritz; Feldkaper, Richard; and Blom, Friedrich, 4,266,654, Cl. 198-425.000.

Feller, Otto; Skrobek, Alois; and Schmitz, Wilfried, to Goetze AG. Apparatus for positioning out-of-round workpieces particularly piston rings. 4,266,329, Cl. 29-222.000.

Ferranti Limited: *See—*
Liebing, Alan P., 4,266,431, Cl. 74-5.100.

Feser, Karl; and Brunnee, Curt, to Varian Mat GmbH. Ion detector with bipolar accelerating electrode. 4,267,448, Cl. 250-281.000.

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F'Geppert, Erwin, to United States of America, Army. Locking connector. 4,266,591, Cl. 411-167.000.

Fiat-Allis Construction Machinery, Inc.: *See—*
Drone, Gary A.; and Rockwell, Harvey W., 4,267,545, Cl. 340-52.00R.

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Findeisen, Kurt, to Bayer Aktiengesellschaft. Process for the preparation of oligomeric acrylic acids. 4,267,365, Cl. 560-205.000.

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Davis, James A.; and Koch, Robert C., 4,267,079, Cl. 260-3.500.
Elefritz, Robert A., Jr., 4,267,311, Cl. 528-499.000.

First National Packaging Co., Inc.: *See—*
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Fischer, Martin: *See—*
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Fischer, Peter: *See—*
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Fisher, George A.; and Mason, Gary E., to Caterpillar Tractor Co. Differential case and push-frame assembly. 4,266,628, Cl. 180-54.00F.

Flanagan, Joseph E., to Rockwell International Corporation. Chlorinefluoride solid gas generator. 4,266,991, Cl. 149-42.000.

Fleer, Thomas P.; and Hannebaum, Reed E., to Brown Group, Inc. Apparatus for activating shoe assembly cement. 4,267,429, Cl. 219-215.000.

Flood, David N., to Celotex Corporation, The. Shingling template and method. 4,266,388, Cl. 52-748.000.

Flores, Charles A., to Ampex Corporation. Apparatus for controlling and stopping a transport mechanism at a predetermined cue point. 4,267,564, Cl. 360-72.300.

Floyd, Middleton B., Jr., to American Cyanamid Company. 1-Descarboxy-1-ketoester (ketoacid) prostaglandins. 4,267,361, Cl. 560-118.000.

Fluid Data Systems, Inc.: *See—*
Glassey, Gene, 4,266,430, Cl. 73-701.000.

Fogg, Ralph L.: *See—*
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Ford, Clarence E., Jr.: *See—*
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Perkey, Conrad G.; and Bell, John L., 4,266,595, Cl. 164-41.000.
Petersen, Larry D.; and Squires, Stanley C., 4,266,638, Cl. 188-218.00R.
Pett, Robert A.; Qaderi, S. Burhan A.; and Tabar, Ronald J., 4,267,086, Cl. 260-28.50R.

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Formica Corporation: *See—*
Jaisle, Richard F.; and Bunkowski, Kenneth D., 4,267,240, Cl. 428-484.000.

Forrest, Jess: *See—*
Kuehnle, Manfred R.; Cox, Richard E.; Harris, George B., Jr.; Forrest, Jess; and Hardy, Carl D., 4,266,869, Cl. 355-8.000.

Forsberg, Georg L. K. Transport container. 4,266,902, Cl. 414-332.000.

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Troger, Johannes; Lauter, Gernot; and Sporl, Heinrich, 4,266,893, Cl. 409-206.000.

Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., to University of Melbourne, The. Prosthesis. 4,267,410, Cl. 179-107.0BC.

Foster, Edwin E.; and Foster, Thomas E., to Ladney, Michael, Jr. Wheel cover. 4,266,831, Cl. 301-37.0PB.
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Fotland, Richard A.; and Carrish, Jeffrey J., to Dennison Manufacturing Company. Electrostatic transfer printing employing ion emitting print head. 4,267,556, Cl. 346-153.100.
Foundation at New Jersey Institute of Technology, The: *See*—
Dauerman, Leonard; Rao, Krishna K.; Dabbs, Joseph C.; and Delaney, Brian, 4,267,156, Cl. 423-242.000.
Foundation: The Research Institute for Special Inorganic Materials, The: *See*—
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,210, Cl. 427-226.000.
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Fox, Merlin D.: *See*—
Souder, James J., Jr.; Scarborough, Edward D., Jr.; and Fox, Merlin D., 4,266,747, Cl. 248-280.100.
Fram, Jerry R. Transmission drive with cyclic speed variations and uses thereof in compaction systems using dual wire-mesh belts. 4,266,924, Cl. 425-372.000.
Francis, Gaylord L.: *See*—
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Frangatos, Gerassimos, to Mobil Oil Corporation. Amine derivatives of dialkylphosphonate-alkImaleate ester reaction products as antiwear/-load carrying additives and lubricants containing same. 4,267,063, Cl. 252-49.900.
Frank, Karl: *See*—
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Frant, Martin S.; and Soderberg, Jon, to Orion Research Incorporated. Chemically integrating dosimeter and gas analysis methods. 4,267,023, Cl. 204-1.00T.
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Theurer, Josef; and Oellerer, Friedrich, 4,266,615, Cl. 171-16.000.
Fredd, John V., to Otis Engineering Corporation. Valve. 4,266,614, Cl. 166-332.000.
Fredericks, Alan D., to Oceanography International Corporation. Multiple breakpoint resealable ampoule. 4,266,681, Cl. 215-32.000.
Freitag, Dieter: *See*—
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, 4,267,303, Cl. 528-171.000.
French, Gordon B., to Occidental Oil Shale, Inc. In situ recovery of shale oil. 4,266,612, Cl. 166-299.000.
French, Gordon B., to Occidental Oil Shale, Inc. In-situ recovery of constituents from fragmented ore. 4,266,826, Cl. 299-2.000.
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Schael, Wilfried, 4,267,041, Cl. 210-109.000.
Frey, Wolfgang; and Schoenauer, Wolfgang, to Sandoz Ltd. Anthraquinone compounds. 4,267,115, Cl. 260-373.000.
Frickel, Fritz-Frieder; Franke, Albrecht; Koenig, Horst; Lenke, Hans-Dieter; and Gries, Josef, to BASF Aktiengesellschaft. Aminopropanol derivatives of 2-(0-hydroxyphenyl)-pyrrole. 4,267,187, Cl. 424-274.000.
Friedrich, Karl, to Kramer-Werke GmbH. Motor vehicle with axle pivot steering. 4,266,629, Cl. 180-252.000.
Frigo, Domenico, to F.I.A.M.M. S.p.A. Fabbrica Italiana Accumulatori Motocarri Montecchio. Electromagnetic sound generator for automative vehicles and the like. 4,267,552, Cl. 340-388.000.
Frisbie, Richard N., to Whirlpool Corporation. Control circuit for a compactor. 4,267,462, Cl. 307-119.000.
Fritsch, Joseph E., to Massey-Ferguson Inc. High torque infinitely variable traction drive transmission. 4,266,446, Cl. 74-796.000.
Fritzsche Dodge & Olcott Inc.: *See*—
Willis, Brian J.; Christenson, Philip A.; and Barton, Derek H. R., 4,267,111, Cl. 260-343.210.
Froix, Michael F., to Celanese Corporation. Blend of wholly aromatic polyesters. 4,267,289, Cl. 525-444.000.
Frost, Charles C.; Gurney, Gerald W.; and Sytsma, Frederick R., to C. L. Frost & Son, Inc. Chain bracket with strengthened chain supports. 4,266,657, Cl. 198-687.000.
Frost, Charles C.; and Weis, Siegfried K., to C. L. Frost & Son, Inc. Chain bracket with strengthened chain supports. 4,266,658, Cl. 198-687.000.
Fuchs, Hugo: *See*—
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Karino, Yukio; Sakaguchi, Shinji; and Sakakibara, Yoshio, 4,267,262, Cl. 430-463.000.
Kimura, Tsutomu; and Ohnishi, Masahiro, 4,267,548, Cl. 340-146.3AH.
Sakanoue, Seiki; Waki, Kokichi; Tsubota, Motohiko; Takahashi, Osamu; and Nakatsuka, Asao, 4,267,250, Cl. 430-214.000.
Sakawaki, Shinichi, 4,267,212, Cl. 427-240.000.
Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, 4,267,207, Cl. 427-129.000.
Sugimoto, Naohiko; Horie, Ikutaro; Nagao, Kameji; Yoneyama, Masakazu; Nakayama, Yasuhiro; and Yamamoto, Nobuo, 4,267,265, Cl. 430-523.000.
Fujii, Akio; Fukuoka, Takeyo; Muraoka, Yasuhiko; Takita, Tomohisa; and Umezawa, Hamao, to Nippon Kayaku Kabushiki Kaisha. Bleomycin group antibiotics. 4,267,102, Cl. 260-112.50R.
Fujikawa, Kanichi: *See*—
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Fujisawa Pharmaceutical Co., Ltd.: *See*—
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Takemae, Yoshihiro; and Nakano, Masao, 4,267,464, Cl. 307-463.000.
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Yoneda, Yasuhiro; Kitamura, Kenro; Naito, Jiro; and Kitakohji, Toshisuke, 4,267,258, Cl. 430-270.000.
Fukuhara, Toru, to Nippon Kogaku K.K. Diaphragm correcting means of an objective lens mounted on a single lens reflex camera of the TTL full aperture exposure measurement type. 4,266,865, Cl. 354-46.000.
Fukui, Takeo, to Honda Giken Kogyo Kabushiki Kaisha. Piston ring. 4,266,787, Cl. 277-160.000.
Fukuoka, Takeyo: *See*—
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Gallagher, Stephen F., to VFP Corporation. Plastic tube adapter. 4,266,814, Cl. 285-319.000.
Gallizia, Achille, to Industrie Pirelli S.p.A. Device for manufacturing boots and the like of elastomeric material. 4,266,750, Cl. 249-65.000.
Gallop, Paul M.; and Korb, Donald R., to Syntex (U.S.A.) Inc. Polymeric compositions and hydrogels formed therefrom. 4,267,295, Cl. 526-264.000.
Gamble, Bruce B., to Electric Power Research Institute. Superconducting generator thermal radiation shield having substantially uniform temperature. 4,267,473, Cl. 310-52.000.
Gandini, Roberto, to Officine Meccaniche Odolini Catullo s.a.s. di Roberto Gandini & C. Apparatus for calibrating the rate of delivery of injection pumps for diesel engines. 4,266,426, Cl. 73-119.00A.
Garbe, Reinhold F.; Esterl, Leo A.; and Koltun, Ronald E., to Spectra-Physics, Inc. Method and tool for producing centered parts having spherical surfaces. 4,266,996, Cl. 156-154.000.
Gardner, Mark R.: *See*—
Carroll, Arthur B.; Lazarevich, Vladeta D.; and Gardner, Mark R., 4,267,443, Cl. 250-221.000.
Gargis, John T.: *See*—
Campbell, Delmer E.; and Gargis, John T., 4,266,362, Cl. 43-66.000.
Garner, Fay T.; and Joubert, Jerauld D., to Melroe Multi-Wheel. Traction vehicle. 4,266,625, Cl. 180-6.480.
Garrett Corporation, The: *See*—
Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., 4,266,401, Cl. 60-39.16R.
Garrett, Walter L.; and Czerepinski, Ralph G., to Dow Chemical Company, The. Image-bearing lithographic plates with desensitizing coating. 4,266,481, Cl. 101-456.000.
Garrison, Earl G., to Thacker Container Company. Carton. 4,266,715, Cl. 229-37.00E.
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E. Percussion mechanism. 4,266,465, Cl. 91-234.000.
Gaus, Harry: *See*—
Milutzki, Udo; Gaus, Harry; Schotte, Dietwald; and Ramspeck, Klaus, 4,266,783, Cl. 369-41.000.
Gausmann, Hans: *See*—
Bruckner, Elmar; Gausmann, Hans; Schipper, Philipp; and Tausch, Walter, 4,267,149, Cl. 422-65.000.
Gaylord, Edson C., to Gaylord Industries, Inc. Kitchen ventilator with removable grease extractor. 4,266,529, Cl. 126-299.00D.
Gaylord Industries, Inc.: *See*—
Gaylord, Edson C., 4,266,529, Cl. 126-299.00D.
Gebrueder Loepfe AG: *See*—
Loepfe, Erich; Weidmann, Erich; and Graf, Walter, 4,267,554, Cl. 340-677.000.

Gedeon, George C., to Emerson Electric Co. Electric heating elements. 4,266,337, Cl. 29-614.000.
Geelhaar, Hans J.; Penzel, Erich; and Ley, Gregor, to BASF Aktiengesellschaft. Binders for paints. 4,267,091, Cl. 260-29.6TA.
Gem Instruments Corporation: *See*—
Ritzi, Thomas F., 4,266,871, Cl. 356-30.000.
General Atomic Company: *See*—
Kaae, James L.; Reynolds, George H.; Sterling, Stewart A.; and Yang, Ling, 4,267,019, Cl. 176-82.000.
General Battery Corporation: *See*—
Eberle, William J., 4,266,597, Cl. 164-109.000.
General Binding Corporation: *See*—
Staats, Henry N., 4,266,812, Cl. 281-29.000.
General Diving Corporation: *See*—
Ruchti, Heinz, 4,266,538, Cl. 128-204.260.
General Electric Company: *See*—
Bienz, Edward F., 4,266,492, Cl. 112-121.200.
Bluestein, Ben A., 4,267,298, Cl. 528-34.000.
Burns, Richard D., 4,266,994, Cl. 156-73.200.
Bussink, Jan; and Heuschen, Jean M. H., 4,267,096, Cl. 260-40.00R.
Campbell, Richard W., 4,267,286, Cl. 525-176.000.
Mark, Victor, 4,267,305, Cl. 528-199.000.
Prochazka, Svante, 4,266,978, Cl. 106-39.500.
Sahm, William H., III, 4,267,433, Cl. 219-491.000.
Zamek, Otto S., 4,267,231, Cl. 428-379.000.
Zorzi, Edward S., 4,266,442, Cl. 74-572.000.
General Mills, Inc.: *See*—
Brastad, William A., 4,267,420, Cl. 219-10.55E.
General Motors Corporation: *See*—
Pelchat, Paul F.; and Arlauskas, Alfonsas, 4,266,321, Cl. 16-145.000.
Geoco, Inc.: *See*—
Brown, Robert; and Proulx, Paul A., 4,267,446, Cl. 250-255.000.
Georgallis, Peter C., to Rameor, Inc. Device for determining the configuration and calibrating long, towed underwater structures. 4,267,585, Cl. 367-13.000.
Georgie, Wolfgang: *See*—
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.
Geraci, James L., to Carl Zeiss, Inc. Surgical drape for an operating microscope. 4,266,663, Cl. 206-223.000.
Gerald T. Colwell: *See*—
Ramos, Gary A.; and Dell'Ara, Michael E., 4,266,740, Cl. 242-86.520.
Gerez-Pascual, Martin: *See*—
Redondo-Abad, Angel L.; Diaz-Nogueira, Eduardo; Gerez-Pascual, Martin; and Regife-Vega, Jose M., 4,266,972, Cl. 75-101.00R.
Germann, Willy, to BBC Brown, Boveri & Co., Ltd. Heat exchangers and method. 4,266,603, Cl. 165-171.000.
Gero Industries, Inc.: *See*—
Wolwowicz, Casimir S., 4,266,691, Cl. 222-77.000.
Gewerkschaft Eisenhutte Westfalia: *See*—
Plevak, Lubomir; and Dodt, Jurgen, 4,266,891, Cl. 405-291.000.
Gibbons, Wallace A.: *See*—
Barlow, Wayne K.; and Gibbons, Wallace A., 4,266,556, Cl. 128-760.000.
Gibson, David E. Portable cooler. 4,266,407, Cl. 62-371.000.
Gieseker, Donald R.: *See*—
Klien, Caren A.; and Gieseker, Donald R., 4,267,200, Cl. 426-595.000.
Gilbert, Robert W.; and Torau, Gunther W., to Baxter Travenol Laboratories, Inc. Apparatus for molding a plastic article. 4,266,927, Cl. 425-526.000.
Giles, Ralph R.; and Weaver, Max A., to Eastman Kodak Company. Dyes from selected substituted aniline diazo components and aniline couplers containing sulfate ester groups. 4,267,104, Cl. 260-207.300.
Gilissen, Hermanus P. J.: *See*—
Janssen, Theodorus M.; Gilissen, Hermanus P. J.; Soes, Lucas; Van Der Sanden, Ludovicus C.; and Van Dijk, Petrus R. M., 4,267,412, Cl. 200-6.00B.
Gilleland, Randall C.: *See*—
Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,422, Cl. 219-69.00C.
Bell, Oliver A., Jr.; Gilleland, Randall C.; and Chance, Davey J., 4,267,423, Cl. 219-69.00S.
Gillet, Louis M. Combined tail gate and toolbox. 4,266,821, Cl. 296-37.600.
Ginn, Gregory R.: *See*—
Vissers, William, 4,267,599, Cl. 455-115.000.
Giras, Theodore C.: *See*—
Uram, Robert; and Giras, Theodore C., 4,267,458, Cl. 290-40.00R.
Gist Brocades N.V.: *See*—
Marx, Arthur F.; Smid, Peter M.; and Vellekoop, Pieter, 4,267,106, Cl. 260-239.570.
GKN-Stenman AB: *See*—
Tranberg, Erik R.; and Widen, Bo G., 4,266,711, Cl. 228-135.000.
Glaser, Denis V.; and Heeley, Norman, to Polycell Products Limited. Filler composition comprising a filler and an aqueous binder resin emulsion comprising a quick drying polymer emulsion and a flexible polymer emulsion. 4,267,092, Cl. 260-29.6RB.
Glaser, Edward L.: *See*—
Dechant, Thomas E.; Glaser, Edward L.; Pitt, Paul E.; and Way, Frederick, 4,267,568, Cl. 364-200.000.
Glassey, Gene, to Fluid Data Systems, Inc. Precision pressure-responsive fluid gauge. 4,266,430, Cl. 73-701.000.
Glaxo Laboratories Limited: *See*—
Gregson, Michael; and Sykes, Richard B., 4,267,320, Cl. 544-22.000.
Globus, Seymour: *See*—
Kohrn, Edward L.; and Globus, Seymour, 4,266,304, Cl. 4-415.000.
Godbersen, Harold W., to Comaco, Inc. Method and machine for slip forming median barrier walls for highways. 4,266,917, Cl. 425-64.000.
Goeke, George L.; and Karol, Frederick J., to Union Carbide Corporation. Process for preparing olefin oxide polymerization catalysts. 4,267,309, Cl. 528-413.000.
Goetze AG: *See*—
Bornefeld, Horst; Comberg, Gerd; Engel, Werner; and Neyer, Johannes, 4,266,373, Cl. 51-99.000.
Feller, Otto; Skrobek, Alois; and Schmitz, Wilfried, 4,266,329, Cl. 29-222.000.
Gohler, Wolfgang: *See*—
Schneider, Manfred; Kahmann, Gottfried; Gohler, Wolfgang; and Kircheiss, Andreas, 4,266,410, Cl. 66-84.00R.
Gold, Elijah H.: *See*—
Neustadt, Bernard R.; and Gold, Elijah H., 4,267,193, Cl. 424-309.000.
Goldfarb, Adolph E. Competitive game apparatus. 4,266,774, Cl. 273-275.000.
Goldfarb, Adolph E. Multi target-shooter game apparatus. 4,266,776, Cl. 273-310.000.
Goldie, Harry: *See*—
Cherry, William D.; and Goldie, Harry, 4,267,530, Cl. 333-13.000.
Goldsmith, Jeff M.: *See*—
Yates, Douglas A.; Hatch, Arthur E.; and Goldsmith, Jeff M., 4,267,151, Cl. 422-105.000.
Goldstein, Norman P.: *See*—
Playfoot, Kerwin C.; Bauer, Richard F.; and Goldstein, Norman P., 4,267,454, Cl. 250-370.000.
Gollott, Edgar R.; and Gollott, Thomas A. Method and apparatus for offshore depurating habitat for shellfish. 4,266,509, Cl. 119-2.000.
Gollott, Thomas A.: *See*—
Gollott, Edgar R.; and Gollott, Thomas A., 4,266,509, Cl. 119-2.000.
Gordon, John H. Pipe belling with external fluid pressure. 4,266,926, Cl. 425-387.100.
Gorelik, Roman. Spring loaded clamping device for drafting parallel lines. 4,266,343, Cl. 33-41.00D.
Gorre, Luisa E.: *See*—
Pastor, Ricardo C.; Chew, Remedios K.; and Gorre, Luisa E., 4,267,205, Cl. 427-93.000.
Goscenski, Edward J., Jr., to Eaton Corporation. Locking differential. 4,266,445, Cl. 74-711.000.
Goshima, Norio: *See*—
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,267,546, Cl. 340-58.000.
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Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,267,176, Cl. 424-246.000.
Goto, Ryuji: *See*—
Yamashita, Keitaro; and Goto, Ryuji, 4,267,248, Cl. 430-122.000.
Gould, Arthur. Belt support for cameras. 4,266,706, Cl. 224-253.000.
Gould Inc.: *See*—
Bourke, Robert F.; and Johansen, David K., 4,267,500, Cl. 318-806.000.
Reighter, David H., 4,267,402, Cl. 174-137.00R.
Govaert, Johan A., to Baird Corporation. Radioactivity distribution detection system and crystal detector assembly. 4,267,452, Cl. 250-366.000.
Grady, Mark P.: *See*—
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Graf, Rupprecht: *See*—
Bender, Hans; Graf, Rupprecht; Unkelbach, Karl-Heinz; and Zabel, Wolf, 4,266,982, Cl. 134-18.000.
Graf, Walter: *See*—
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Graham Magnetics, Inc.: *See*—
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Graham, W. Gordon. Magneto-optical colloidal cell and device. 4,267,509, Cl. 324-244.000.
Granda, Edward J.: *See*—
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,066, Cl. 252-174.110.
Grant, Cary E. Faucet extender. 4,266,320, Cl. 16-114.00R.
Grass, John W.: *See*—
Alice, Martin B.; and Grass, John W., 4,266,345, Cl. 33-169.00R.
Grassin, Jerome; Thouvenin, Maurice; and Epie, Jean-Claude, to Saint-Gobain Industries. Method of making a mirror. 4,266,331, Cl 29-449.000.
Grassmann, Hans-Christian, to Siemens Aktiengesellschaft. Arrangement for suppressing high frequency currents in bearings of shafts. 4,267,461, Cl. 307-105.000.
Graubner, Brigitte: *See*—
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.
Graziano, Joseph L., to Mindey, Marlene S. Inflatable heel protector. 4,266,298, Cl. 2-22.000.
Greenleaf, John M., to Bristol Marine, Inc. Multiple unit flare launcher. 4,266,357, Cl. 42-1.00Z.

Gregorian, Razmic S.; and Namboodri, Chettoor G., to United Merchants and Manufacturers, Inc. Fabric treating compositions. 4,266,976, Cl. 106-2.000.
Gregson, Michael; and Sykes, Richard B., to Glaxo Laboratories Limited. Cephalosporin antibiotics. 4,267,320, Cl. 544-22.000.
Greschner, Johann: *See—*
Bohlen, Harald; Greschner, Johann; Kulcke, Werner; and Nehmiz, Peter, 4,267,259, Cl. 430-296.000.
Greune, Christian: *See—*
Schweikl, Ludwig; Greune, Christian; and Lottes, Paul, 4,266,725, Cl. 239-265.190.
Grieder, Alfred; Coers, Klaus-Jurgen; and Labuhn, Peter, to Ciba-Geigy Corporation. Process for the preparation of N-(1'-alkoxycarbonylethyl)-2,6-dialkylanilines. 4,267,356, Cl. 560-43.000.
Gries, Josef: *See—*
Frickel, Fritz-Frieder; Franke, Albrecht; Koenig, Horst; Lenke, Hans-Dieter; and Gries, Josef, 4,267,187, Cl. 424-274.000.
Griffin, Brian P.: *See—*
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Griffin, Peter G. Collapsible frame structure for a child's push chair. 4,266,807, Cl. 280-650.000.
Grode, Gerald A.; and Miripol, Jeffrey E., to Baxter Travenol Laboratories, Inc. Red cell storage solution. 4,267,269, Cl. 435-2.000.
Groepl, Edmund: *See—*
Haidlen, Goetz; and Groepl, Edmund, 4,266,673, Cl. 209-139.00R.
Gröhe, Klaus, to Hans Grohe GmbH & Co. KG. Spray device. 4,266,730, Cl. 239-587.000.
Groll, Manfred; and Wunderlich, Klaus, to Bayer Aktiengesellschaft. Reactive dyestuffs. 4,267,107, Cl. 260-242.200.
Gross, Glenn M., to Norlin Industries, Inc. Digital waveform generator having constant signal to noise ratio. 4,267,579, Cl. 364-718.000.
Grot, Walther G.; Molnar, Charles J.; and Resnick, Paul R., to Du Pont de Nemours, E. I., and Company. Fluorinated ion exchange polymer containing carboxylic groups, process for making same, and film and membrane thereof. 4,267,364, Cl. 560-183.000.
Grumman Aerospace: *See—*
Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., 4,266,338, Cl. 29-623 200.
Grundfest, Michael A., to Thomas & Betts Corporation. Compression tool. 4,266,419, Cl. 72-410.000.
Gruppo Lepetit S.p.A.: *See—*
White, Richard J.; and Lancini, Giancarlo, 4,267,274, Cl. 435-253.000.
Gschwendtner, Joerg: *See—*
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GTE Laboratories Incorporated: *See—*
Dempsey, Martin E.; and Lee, Ching W., 4,267,533, Cl. 333-151.000.
GTE Products Corporation: *See—*
Brun, Craig W.; and Hand, Wilfred L., 4,267,529, Cl. 333-12.000.
Brun, Craig W.; and Hand, Wilfred L., 4,267,602, Cl. 455-182.000.
Guerpont, Maurice R., to Societe Anonyme de Telecommunications. Circuit probing apparatus. 4,267,507, Cl. 324-158.00P.
Guglielmetti, Leonardo, to Ciba-Geigy Corporation. Process for the manufacture of 2,5-bis-(benzoxazolyl)-thiophene compounds. 4,267,343, Cl. 548-220.000.
Guilbert, Curtis R., to Minnesota Mining and Manufacturing Company. Epoxy resin powder for applying electrical-insulating coating to wire. 4,267,300, Cl. 528-92.000.
Guinan, Thomas, to Heinemann Electric Company. Circuit breaker having a cam for external adjustment of its trip point. 4,267,539, Cl. 335-42.000.
Gulf Research & Development Company: *See—*
Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., 4,267,379, Cl. 568-385.000.
Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., 4,267,380, Cl. 568-385.000.
Hartle, Robert J.; and Singerman, Gary M., 4,266,947, Cl. 44-68.000.
Gunn, Robert D. Safety storm window. 4,266,594, Cl. 160-354.000.
Gupton, John T.: *See—*
Petree, Harris E.; Pociask, Joseph R.; and Gupton, John T., 4,267,347, Cl. 548-262.000.
Gurney, Gerald W.: *See—*
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Gurubatham, Vincent P., to Whirpool Corporation. Dishwasher spray arm mounting. 4,266,565, Cl. 134-144.000.
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Guterman, Daniel C., to Texas Instruments Incorporated. Electrically erasable memory with self-limiting erase. 4,267,558, Cl. 357-41.000.
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Guzowski, Matthew M.: Schaffer, Stephen P.; and Wright, David C., to J. M. Ney Company, The. Tarnish-resistant gold color alloy and dental restorations employing same. 4,266,973, Cl. 75-134.00N.
H & J Sales: *See—*
Jacobsen, Merlin D.; Jacobsen, David O.; and Harrison, Claude E., 4,266,898, Cl. 414-24.500.
Habegger, Willy: *See—*
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Habighorst, Harry D. Wall switch for convenience outlets. 4,267,460, Cl. 307-38.000.
Hackney, Stanley, to United Kingdom Atomic Energy Authority. Particle-in-gas filtration. 4,266,955, Cl. 55-412.000.
Hacskaylo, John J.; and Hacskaylo, Michael, to United States of America, Army. Collinear aiming light image viewer. 4,266,873, Cl. 356-251.000.
Hacskaylo, Michael: *See—*
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Hadden, James P., to Hobart Corporation. Use of acid as an analysis aid in salted meat samples. 4,266,423, Cl. 73-15.00B.
Haepp, Hans J.: *See—*
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Haga, Takahiro: *See—*
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Hagen, Helmut; and Kohler, Rolf-Dieter, to BASF Aktiengesellschaft. Process for the preparation of 2-substituted-alkyl-1-alkyl-nitroimidazoles. 4,267,349, Cl. 548-339.000.
Hager, Donald G.; and Rubel, Frederick, Jr., to Aluminum Company of America. Water treatment for selective removal of nitrates. 4,267,057, Cl. 210-678.000.
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Haidlen, Goetz; and Groepl, Edmund, to Wibau Maschinenfabrik Hartmann AG. Apparatus for classifying dust materials. 4,266,673, Cl. 209-139.00R.
Haines, Rolf; and Reid, Robert M., to Massey-Ferguson Services N.V. Sugar cane planter. 4,266,490, Cl. 111-3.000.
Hakner, Robert. Internal combustion rotary engine. 4,266,516, Cl. 123-241.000.
Hale, Thomas K.: *See—*
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Halen-Elliot do Brazil Industria e Comercio Equipamentos de Precisao Ltda.: *See—*
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Hall, Dennis S., to USM Corporation. Apparatus for use in laminating a workpiece. 4,266,312, Cl. 12-52.000.
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Hall, James J.: *See—*
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Hall, John R., to Hall, J. R.; and Hall, R. J. Prefabricated fireplace foundation. 4,266,525, Cl. 126-121.000.
Hall, R. J.: *See—*
Hall, John R., 4,266,525, Cl. 126-121.000.
Hall, Roger E. Breakaway safety base. 4,266,768, Cl. 273-25.000.
Hallman, Robert W.; Ovshinsky, Stanford R.; and de Neufville, John P., to Energy Conversion Devices, Inc. Method for full format imaging. 4,267,261, Cl. 430-322.000.
Halstead, Louis N., to Mobil Oil Corporation. Method for protecting a carbon dioxide production well from corrosion. 4,266,607, Cl. 166-244.00C.
Halstrom, John B.; and Kovacs, Karoly G., to Proteinkemisk Institut. tilknyttet Akademiet for de tekniske Videnskaber. N-Substituted N-carboxyanhydrides of α-amino acids and their application in the preparation of peptides. 4,267,344, Cl. 548-227.000.
Haltsonen, Eino J.; and Oksanen, Martti T., to Valmet Oy. Method for changing fabrics in paper manufacturing machines. 4,267,018, Cl. 162-200.000.
Hamaguri, Kenji, to Minolta Camera Kabushiki Kaisha. Digital oximeter. 4,266,554, Cl. 128-633.000.
Hanada, Tsuneo; and Mikami, Ryuzo, to Toray Silicone Company, Ltd. Room temperature curable silicone resins. 4,267,297, Cl. 528-18.000.
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Hanisch, Horst; Rodder, Karl-Martin; Buning, Robert; and Hass, Hans-Jurgen, to Dynamit Nobel Aktiengesellschaft. Aqueous suspension of inorganic oxidic material. 4,267,093, Cl. 260-29.60H.
Hannebaum, Reed E.: *See—*
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Hans Grohe GmbH & Co. KG: *See—*
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Hanson, Martin B., to Interpace Corporation. Method of decorating a surface of a ceramic article. 4,267,209, Cl. 427-199.000.
Hanyu, Susumu; and Tonomura, Yoshinobu, to Janome Sewing Machine Co., Ltd. Electronic pattern stitching sewing machine. 4,266,493, Cl. 112-158.00E.
Happel, Robert; and Haepp, Hans J., to Daimler-Benz Aktiengesellschaft. Double-needle injection-valve. 4,266,727, Cl. 239-409.000.
Harada, Hideki; Yamashita, Keitaro; and Yamamoto, Katsunobu, to Hitachi Metals, Ltd. Developing roll for use in electrostatic developing apparatus employing magnetic particles. 4,266,328, Cl. 29-116.00R.

Harada, Hideo: *See—*
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Hardy, Carl D.: *See—*
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Hardy, Nicolas; Lerot, Luc; and Walraevens, Rene, to Propylox. Process for the manufacture of carboxylic peracids. 4,267,124, Cl. 260-502.00R.
Harmsen, John L., to Stedef S.A. Rail fastener. 4,266,720, Cl. 238-349.000.
Harnischfeger Corporation: *See—*
Juergens, Dieter C., 4,266,679, Cl. 212-181.000.
Harper, Lee R.: *See—*
Burkhart, Dean C.; Harper, Lee R.; and Sommerfeld, Eugene G., 4,267,288, Cl. 525-438.000.
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Kuehnle, Manfred R.; Cox, Richard E.; Harris, George B., Jr.; Forrest, Jess; and Hardy, Carl D., 4,266,869, Cl. 355-8.000.
Harrison, Claude E.: *See—*
Jacobsen, Merlin D.; Jacobsen, David O.; and Harrison, Claude E., 4,266,898, Cl. 414-24.500.
Hartle, Robert J.; and Singerman, Gary M., to Gulf Research & Development Company. Gasoline composition containing aryl o-aminoazides. 4,266,947, Cl. 44-68.000.
Hartman, James T.: *See—*
Reese, Robert O.; Wieber, Karl R.; and Hartman, James T., 4,267,502, Cl. 323-237.000.
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Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, to Kabushiki Kaisha Toyota Chuo Kenkyusho; and Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Silver weight unevenness correcting apparatus. 4,266,324, Cl. 19-239.000.
Hasegawa, Yoshio: *See—*
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,210, Cl. 427-226.000.
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,211, Cl. 427-228.000.
Hashimoto, Isao: *See—*
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Hashimoto, Nobuyuki: *See—*
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Hashimoto, Shintaro; and Nishimura, Toshio, to Sharp Kabushiki Kaisha. Low power consumption integrated circuit for a combined timepiece and calculator. 4,267,577, Cl. 364-707.000.
Hashino, Yasuo; Hayano, Fusakazu; and Toyomoto, Kazuo, to Asahi Kasei Kogyo Kabushiki Kaisha; and Morishita Pharm. Inline intravenous final filter unit. 4,267,053, Cl. 210-650.000.
Haskell, Theodore H.; Hutt, Marland P., Jr.; and Nicolaides, Ernest D., to Warner-Lambert Company. Novel antibacterial amide compounds and process means for producing the same. 4,267,180, Cl. 424-251.000.
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Hanisch, Horst; Rodder, Karl-Martin; Buning, Robert; and Hass, Hans-Jurgen, 4,267,093, Cl. 260-29.60H.
Hastings, Dawson W.: *See—*
Wheeler, Keith A.; and Hastings, Dawson W., 4,266,618, Cl. 172-314.000.
Hatch, Arthur E.: *See—*
Yates, Douglas A.; Hatch, Arthur E.; and Goldsmith, Jeff M., 4,267,151, Cl. 422-105.000.
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Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., 4,266,401, Cl. 60-39.16R.
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Haug, Werner; Gschwendtner, Joerg; and Schnadt, Robert, to International Business Machines Corporation. Circuit for recharging the output nodes of field effect transistor circuits. 4,267,465, Cl. 307-238.300.
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Jochums, Peter; Stratmann, Klaus; Henkel, Egon; and Wildfurster, Heinrich, 4,266,484, Cl. 105-29.00R.
Hauser, Manfred: *See—*
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Hawkins, Wallace H. Tow bar apparatus. 4,266,800, Cl. 280-491.00D.
Hayano, Fusakazu: *See—*
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Hayashi, Kiyoshi, to Nippon Kogaku K.K. Wide angle zoom lens system having shortened closeup focal length. 4,266,860, Cl. 350-426.000.
Hayashi, Michio. Slip-prevention device for vehicle tires. 4,266,593, Cl. 152-218.000.
Hayashi, Mishio. Interval-expanding timer compensated for drift and nonlinearity. 4,267,436, Cl. 235-92.00T.
Hayashi, Shigeyuki: *See—*
Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, 4,267,085, Cl. 260-28.5AS.
Hayashi, Shinjiro; Taniyama, Kiyoshi; Kikuchi, Kenichi; and Akashi, Teruo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Vibration damping device for a mechanical clutch release system. 4,266,439, Cl. 74-501.00R.
Hayashi, Torahiko; Kageyama, Minoru; and Morikawa, Michio, to Rheon Automatic Machinery Co., Ltd. Apparatus for continuously manufacturing multi-layered dough materials. 4,266,920, Cl. 425-133.100.
Haynes, Harvey H.: *See—*
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Heberlei, Joachim V. R.: *See—*
Holmes, Francis A.; Kimblin, Clive W.; and Heberlei, Joachim V. R., 4,267,415, Cl. 200-144.00B.
Hechenbleikner, Ingenuin; Enlow, William P.; and Weis, James H., to Borg-Warner Corporation. Phenolic ester inhibitor. 4,267,358, Cl. 560-75.000.
Heck, Roland H.; Oleck, Stephen M.; Shih, Stuart S.; and Wilson, Robert C., to Mobil Oil Corporation. Upgrading of aromatic liquids. 4,267,033, Cl. 208-216.0PP.
Heeley, Norman: *See—*
Glaser, Denis V.; and Heeley, Norman, 4,267,092, Cl. 260-29.6RB.
Heeres, Jan; and Backx, Leo J. J., to Janssen Pharmaceutica, N.V. Heterocyclic derivatives of (4-phenylpiperazin-1-yl-aryloxymethyl-1,3-dioxolan-2-yl)methyl-1H-imidazoles and 1H-1,2,4-triazoles. 4,267,179, Cl. 424-25.00D.
Heess, Gerhard; Schwab, Manfred; and Stroh, Walter, to Robert Bosch GmbH. Apparatus and method for improving the jolt control in a motor vehicle drive system. 4,266,447, Cl. 74-858.000.
Hehl, Karl. Convertible hopper mounting for injection molding machine. 4,266,694, Cl. 222-167.000.
Heimberg, Manfred; and Rekers, Louis J., to National Distillers and Chemical Corp. Process for preparing vinyl acetate-ethylene copolymer latices. 4,267,090, Cl. 260-29.60R.
Heine, Hans-Georg: *See—*
Knops, Hans-Joachim; Heine, Hans-Georg; Draber, Wilfried; and Brandes, Wilhelm, 4,267,186, Cl. 424-272.000.
Heinemann Electric Company: *See—*
Guinan, Thomas, 4,267,539, Cl. 335-42.000.
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Setala, Pekka T.; Makipirtti, Simo A. I.; and Heino, Heimo J., 4,266,512, Cl. 122-5.50R.
Hellin, Michel: *See—*
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Helm, Siegfried; and Sprang, Peter, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Wind power plant and method of erecting it. 4,266,911, Cl. 416-9.000.
Hempel, Hans-Ulrich: *See—*
Blum, Helmut; Hempel, Hans-Ulrich; and Worms, Karl-Heinz, 4,267,108, Cl. 260-326.610.
Henderson, Larry D.; and Johnson, Craig E., to United States of America, Navy. Method for high strength double base solventless gun propellant. 4,267,132, Cl. 264-3.00B.
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Jochums, Peter; Stratmann, Klaus; Henkel, Egon; and Wildfurster, Heinrich, 4,266,484, Cl. 105-29.00R.
Henkel Kommanditgesellschaft auf Aktien: *See—*
Blum, Helmut; Hempel, Hans-Ulrich; and Worms, Karl-Heinz, 4,267,108, Cl. 260-326.610.
Christophliemk, Peter; Wust, Willi; and Carduck, Franz-Josef, 4,267,158, Cl. 423-329.000.
Schaper, Ulf-Armin; Conrad, Jens; and Bruns, Klaus, 4,267,075, Cl. 252-522.00R.
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, to Akzo N.V. of Arnhem/Nederland. Dialyzing membrane with adsorbent layer. 4,267,047, Cl. 210-490.000.
Henrick, Clive A.: *See—*
Anderson, Richard J.; and Henrick, Clive A., 4,267,359, Cl. 560-104.000.
Anderson, Richard J.; and Henrick, Clive A., 4,267,363, Cl. 560-183.000.
Heppe, Karl-Julius, to Meyer, Roth & Pastor. Apparatus for the successive welding of C-shaped, pre-bent, interlinked chain links. 4,267,421, Cl. 219-51.000.
Hercules Incorporated: *See—*
Landoll, Leo M., 4,267,310, Cl. 260-40.00R.
Long, Wendell P., 4,267,294, Cl. 526-125.000.
Herman, Donald G., to Smock Material Handling Company, Inc. Accumulating-type powered roller conveyor. 4,266,660, Cl. 198-781.000.
Hermann Hemscheidt Maschinenfabrik GmbH & Co.: *See—*
Maykemper, Alfred, 4,266,892, Cl. 405-293.000.
Hernandez, Victor M., to International Telephone and Telegraph Corporation. AMI Decoder apparatus. 4,267,595, Cl. 375-95.000.
Hersh, John R.: *See—*
Trueblood, Troy M.; and Moulton, Robert H., 4,267,118, Cl. 260-428.000.
Hershenson, Fred M., to G. D. Searle & Co. 1-(Diarylmethyl)-4-piperidinamine and derivatives thereof. 4,267,318, Cl. 542-422.000.

Heuschen, Jean M. H.: *See—*
Bussink, Jan; and Heuschen, Jean M. H., 4,267,096, Cl. 260-40.00R.
Hidai, Yutaka; and Okuda, Nobuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Electron beam type exposure apparatus. 4,267,456, Cl. 250-492.00A.
Hideshima, Makoto: *See—*
Muramoto, Ken-ichi; Tani, Keizo; Tomisawa, Yutaka; and Hideshima, Makoto, 4,267,557, Cl. 357-20.000.
Higaki, Kazuhiko: *See—*
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Higashiyama, Takao; and Nishikawa, Toshio, to Diamond Shamrock Corporation. Anticorrosive coating composition. 4,266,975, Cl. 106-1.120.
Higgins, Robert W.; and Robichaud, Roger E., to United States of America, Energy. Fiber optics welder having movable aligning mirror. 4,266,852, Cl. 350-96.200.
Hightower, John H., to Holmes, Tommy Lee. Safety bumper for trucks. 4,266,818, Cl. 293-150.000.
Higuchi, Kanji: *See—*
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.
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Hikake, Norio: *See—*
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Hildreth, John D.; Tschopp, Anton F.; and Evans, David G., to Ciba-Geigy Corporation. Composition of 4-amino-4'-nitrostilbene-2,2'-disulphonic acid diazo compounds and coloring process. 4,266,939, Cl. 8-437.000.
Hilfiker, William K., to Reinforced Earth Company, The. Retaining wall and connector therefor. 4,266,890, Cl. 405-286.000.
Hilliker, Stephen E., to Motorola, Inc. Temperature sensing circuit. 4,267,468, Cl. 307-310.000.
Himmetsberger, Alois, to TMC Corporation. Ski brake. 4,266,803, Cl. 280-605.000.
Hintz, Gerhard: *See—*
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Hirabayashi, Hideo; Yamaguchi, Hiroshi; and Uemura, Masahiko, to Toa Nenryo Kogyo Kabushiki Kaisha. Coking process. 4,267,031, Cl. 208-106.000.
Hirbod, Farrokh. Wind and wave energy generator. 4,266,403, Cl. 60-698.000.
Hishida, Tadashi, to V.I.V. Engineering Co., Ltd. Braking device. 4,266,634, Cl. 188-75.000.
Hitachi, Ltd.: *See—*
Iida, Shinya; Ueki, Kazuyoshi; Komatsu, Hideo; and Mitzutani, Tatsumi, 4,267,013, Cl. 156-643.000.
Kawakami, Kazuhiko; and Sugiura, Noboru, 4,267,470, Cl. 307-515.000.
Miyoshi, Tadahiko; and Yamazaki, Takeo, 4,266,979, Cl. 106-57.000.
Momma, Naohiro; and Taniguchi, Hiroyuki, 4,266,990, Cl. 148-189.000.
Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, 4,267,469, Cl. 307-311.000.
Ohta, Norio; Ishida, Fumihiko; Ikeda, Tadashi; Ando, Keikichi; and Sugita, Yutaka, 4,267,230, Cl. 428-336.000.
Tomita, Yoshifumi; Nishizawa, Masahiro; and Fujimura, Takashi, 4,267,204, Cl. 427-68.000.
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Hitachi Metals, Ltd.: *See—*
Harada, Hideki; Yamashita, Keitaro; and Yamamoto, Katsunobu, 4,266,328, Cl. 29-116.00R.
Yamashita, Keitaro; and Goto, Ryuji, 4,267,248, Cl. 430-122.000.
Ho, Benny K-C: *See—*
Bousaid, Issam S.; and Ho, Benny K-C, 4,266,611, Cl. 166-273.000.
Ho, Morris D., to Bandag Incorporated. Method and apparatus for non-destructive inspection of tires. 4,266,428, Cl. 73-146.000.
Hobart Corporation: *See—*
Hadden, James P., 4,266,423, Cl. 73-15.00B.
Hoechst Aktiengesellschaft: *See—*
Dursch, Walter; and Kleiner, Hans-Jerg, 4,267,125, Cl. 260-545.00P.
Hartwimmer, Robert; and Kuhls, Jurgen, 4,267,098, Cl. 260-45.75W.
Kuxdorf, Bernhard; Wissel, Kurt; and Kaiser, Karl, 4,266,949, Cl. 55-186.000.
Wiezer, Hartmut, 4,267,322, Cl. 544-180.000.
Hoffmann-La Roche Inc.: *See—*
Bollag, Werner; Ruegg, Rudolf; and Ryser, Gottlieb, 4,267,382, Cl. 568-442.000.
Hoffmann nee Vas, Katalin: *See—*
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, 4,267,138, Cl. 264-117.000.
Hofmann, Kurt H. Water filter, in particular for aquarium water. 4,267,042, Cl. 210-169.000.
Holaday, John W.; and Faden, Alan I., to United States of America, Army. Narcotic antagonists in the therapy of shock. 4,267,182, Cl. 424-260.000.
Holata, Jan: *See—*
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Holec N.V.: *See—*
Brinkman, Willem, 4,266,523, Cl. 123-499.000.
Holland, Beecher J. Solar concentrator of wide-angle capability. 4,266,858, Cl. 350-296.000.
Hollingsworth, Elmont E.; Shea, Wm. M.; and Spitzer, Daniel M., Jr., to Minnesota Mining and Manufacturing Company. Device for forming graphics. 4,266,863, Cl. 354-5.000.
Hollyday, Robert D., to AMP Incorporated. Stepped pin potted filter assembly. 4,267,536, Cl. 333-186.000.
Holmes, Curtis L.; Faber, William M., Sr.; Francis, Gaylord L.; and Boykin, Otis F., to CTS Corporation. Self supporting electrical resistor composed of glass, refractory materials and noble metal oxide. 4,267,074, Cl. 252-514.000.
Holmes, Francis A.; Kimblin, Clive W.; and Heberlei, Joachim V. R., to Electric Power Research Institute. Current limiter vacuum envelope. 4,267,415, Cl. 200-144.00B.
Holmes, Gordon W.; and Marykuca, William, to Red-D-Arc International Inc. Welding electrode dispenser. 4,266,690, Cl. 221-254.000.
Holmes, Tommy Lee: *See—*
Hightower, John H., 4,266,818, Cl. 293-150.000.
Holmsen, Theodore W.; Kurihara, Norman H.; and Thomas, Paul A., to Dow Chemical Company, The. Herbicide antidote compounds and method of use. 4,266,964, Cl. 71-94.000.
Homan, Gary R., to Dow Corning Corporation. Oxygen-curable mercapto-functional organosilicon-organic compound compositions possessing rapid surface reaction and method of forming higher molecular weight products therefrom. 4,267,296, Cl. 528-15.000.
Hommen, Winfried: *See—*
Schuttenberg, Eckard; Hauser, Manfred; Hommen, Winfried; and Sopha, Klaus, 4,266,572, Cl. 137-625.630.
Honda Giken Kogyo Kabushiki Kaisha: *See—*
Ban, Keisuke; and Arai, Takeo, 4,266,596, Cl. 164-97.000.
Fukui, Takeo, 4,266,787, Cl. 277-160.000.
Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, 4,266,833, Cl. 303-106.000.
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Honeywell Inc.: *See—*
Crawford, Andrew B., Jr.; and Wade, Gerald J., 4,267,276, Cl. 435-291.000.
Simpson, Gary R., 4,267,434, Cl. 219-499.000.
Hong, Lai F. Watchband connector. 4,266,326, Cl. 24-265.0WS.
Hood, Ralph S. Apparatus for supporting a sail. 4,266,495, Cl. 114-106.000.
Hoof, Robert G., to Babcock & Wilcox Company, The. Labyrinth disk stack having disks with integral filter screens. 4,267,045, Cl. 210-322.000.
Hooker Chemicals & Plastics Corp.: *See—*
Annis, Myron C., 4,267,141, Cl. 264-328.100.
Hope Co., Ltd.: *See—*
Murata, Masahiro, 4,266,804, Cl. 280-605.000.
Hoppe, Gert. Protective sleeve for the handle of a dental instrument. 4,266,935, Cl. 433-116.000.
Hoppe, Lutz: *See—*
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Horie, Ikutaro: *See—*
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Horiguchi, Shojiro: *See—*
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Horstmann Gear Company Limited, The: *See—*
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Hortobagyi, Gyozo: *See—*
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, 4,267,138, Cl. 264-117.000.
Hosoi, Hidetoshi: *See—*
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House Food Industrial Company Limited: *See—*
Koshida, Daikichi; Sugisawa, Ko; Matsumura, Yasushi; and Taga, Kazumitsu, 4,267,199, Cl. 426-589.000.
Howell, Hilda, to Koppers Company, Inc. Polyester composition stabilized against gel-time drift with amine salt and method for making same. 4,267,279, Cl. 525-17.000.
Hribar, Allan E.: *See—*
White, Dale; Ayers, David L.; and Hribar, Allan E., 4,266,602, Cl. 165-124.000.
Hucks, Uwe: *See—*
Selbeck, Harald; Wulff, Claus; Hucks, Uwe; Tresper, Erhard; and Vernaleken, Hugo, 4,267,127, Cl. 260-973.000.
Huebner, Werner: *See—*
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Hughes Aircraft Company: *See—*
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Huhn, Helmut; and Karstens, Werner, to Bayer Aktiengesellschaft. Aqueous polymer mixture, process for its preparation and its use as substrate anchoring, blocking resistant one-coat sealing lacquer on sheet products. 4,267,094, Cl. 260-29.6RW.
Hunt, Arthur J.; and Hunt, Arthur J., Jr. Screw press with continuous slope feed screw. 4,266,473, Cl. 100-117.000.
Hunt, Arthur J., Jr.: *See—*
Hunt, Arthur J.; and Hunt, Arthur J., Jr., 4,266,473, Cl. 100-117.000.
Hunt, Harold R.: *See—*
Kraus, Gerard; and Hunt, Harold R., 4,267,160, Cl. 423-456.000.
Hutchins, Terence N.; and Meunier, Francois C., to Northern Telecom Limited. Device for organizing optical fibers and the like. 4,266,853, Cl. 350-96.200.
Hutt, Marland P., Jr.: *See—*
Haskell, Theodore H.; Hutt, Marland P., Jr.; and Nicolaides, Ernest D., 4,267,180, Cl. 424-251.000.
Hyodo, Susumu: *See—*
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Idelson, Elbert M., to Polaroid Corporation. Chrome complexed magenta dye developers. 4,267,252, Cl. 430-225.000.
Idelson, Elbert M., to Polaroid Corporation. Chrome complexed magenta dye developers. 4,267,253, Cl. 430-225.000.
Igel, Wolfgang: *See—*
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Ignatov, Jury P.: *See—*
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Ih, Charles S., to University of Delaware. Two-dimensional scanners. 4,266,846, Cl. 350-3.710.
Ihara Chemical Industry Co., Ltd.: *See—*
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Iida, Shinya; Ueki, Kazuyoshi; Komatsu, Hideo; and Mitzutani, Tatsumi, to Hitachi, Ltd. Method for dry-etching aluminum and aluminum alloys. 4,267,013, Cl. 156-643.000.
Iida, Tetsuya; Sato, Chikara; and Suzuki, Yasoji, to Tokyo Shibaura Denki Kabushiki Kaisha. Operational amplifier. 4,267,517, Cl. 330-253.000.
Iizuka Electric Industry Company Limited: *See—*
Ishikawa, Kazuhiro, 4,266,845, Cl. 339-258.00R.
Iizuka, Hisakazu: *See—*
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Ike, Yoshimasa: *See—*
Ozaki, Shoichiro; Ike, Yoshimasa; Ishikawa, Katsutoshi; and Mori, Haruki, 4,267,326, Cl. 544-313.000.
Ikeda, Masaki, to Tomy Kogyo Co., Inc. Target apparatus for ejecting articles. 4,266,777, Cl. 273-310.000.
Ikeda, Tadashi: *See—*
Ohta, Norio; Ishida, Fumihiko; Ikeda, Tadashi; Ando, Keikichi; and Sugita, Yutaka, 4,267,230, Cl. 428-336.000.
Ikenoue, Shinpei; and Masuda, Takao, to Fuji Photo Film Co., Ltd. Thermally-developable light-sensitive elements. 4,267,267, Cl. 430-533.000.
Iketani, Hiroshi, to Omron Tateisi Electronics Co. Hinge-type electromagnetic relay. 4,267,540, Cl. 335-128.000.
Illgen, Lester. Holder for a plumb bob. 4,266,347, Cl. 33-393.000.
Illinois Railway Equipment Company: *See—*
Jensen, Finn, 4,266,897, Cl. 410-113.000.
Illinois Tool Works Inc.: *See—*
Koepke, John A., 4,267,417, Cl. 200-159.00B.
Imai, Chikara: *See—*
Eda, Tadahiro; Tatsumi, Susumu; and Imai, Chikara, 4,266,870, Cl. 355-14.00D.
Imai, Ichiro; Hashimoto, Isao; Suzuki, Keiji; and Nakagawa, Hiroaki, to Mitsui Petrochemical Industries Ltd. Process for preparation of aromatic hydroperoxides. 4,267,387, Cl. 568-568.000.
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Schmidt, Robert J.; and Imai, Tamotsu, 4,267,397, Cl. 568-899.000.
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Nishiyama, Ryuzo; Kimura, Fumio; Haga, Takahiro; Sakashita, Nobuyuki; and Nishikawa, Tetsuji, 4,266,963, Cl. 71-92.000.
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Thankachan, Chacko; Ritchie, John G.; Sahayada, Eugene; and Sengupta, Asok, 4,267,239, Cl. 428-425.100.

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Stradling, John H.; and Albrecht, Paul R., 4,266,643, Cl. 192-51.000.

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Skahill, Richard J., 4,266,315, Cl. 15-250.160.

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Krippes, William D., 4,266,988, Cl. 148-6.210.

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Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., 4,266,401, Cl. 60-39.16R.

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Heeres, Jan; and Backx, Leo J. J., 4,267,179, Cl. 424-25.00D.

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Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, 4,267,085, Cl. 260-28.5AS.

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Nielsen, Robert P.; and Jecminek, Albert A., 4,267,073, Cl. 252-455.00R.

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Jensen, Finn, to Illinois Railway Equipment Company. Lading tie anchor. 4,266,897, Cl. 410-113.000.

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Avicola, Kenneth, 4,266,854, Cl. 350-171.000.

Jezorek, Leigh; Pitel, Irving; and Silverman, Richard, to Kelleigh Corporation. Method and apparatus for brominating tacky surfaces of a photopolymer article. 4,267,214, Cl. 427-341.000.

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Bourke, Robert F.; and Johansen, David K., 4,267,500, Cl. 318-806.000.

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Johnson, Robert A., to Graham Magnetics, Inc. Process of making high-temperature magnetic tape. 4,267,206, Cl. 427-128.000.

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Johnstone, Charles W., to Schlumberger Technology Corp. Methods and apparatus for measuring thermal neutron decay characteristics of earth formations. 4,267,447, Cl. 250-262.000.

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Joubert, Jerauld D.: *See—*
Garner, Fay T.; and Joubert, Jerauld D., 4,266,625, Cl. 180-6.480.

Juergens, Dieter C., to Harnischfeger Corporation. Convertible boom machine having modular bottom portion. 4,266,679, Cl. 212-181.000.

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Metcalf, Brian W.; Jung, Michel; and Danzin, Charles, 4,267,374, Cl. 564-509.000.

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Matsui, Takahiro; and Saito, Yoshio, 4,266,760, Cl. 269-323.000.

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Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, 4,266,324, Cl. 19-239.000.

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Yamada, Yasuteru; and Kadota, Kenji, 4,266,967, Cl. 75-36.000.

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Schneider, Manfred; Kahmann, Gottfried; Gohler, Wolfgang; and Kircheiss, Andreas, 4,266,410, Cl. 66-84.00R.

Kaiser, Karl: *See—*
Kuxdorf, Bernhard; Wissel, Kurt; and Kaiser, Karl, 4,266,949, Cl. 55-186.000.

Kaiser, Reinhard; and Steffan, Guido, to Bayer Aktiengesellschaft. Process for the preparation of 1,2,4-triazole. 4,267,346, Cl. 548-262.000.

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Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.

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Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, 4,267,085, Cl. 260-28.5AS.

Kalinichev, Alexandr E.: *See—*
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

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Mitchell, Wallace F.; and Kamin, Arthur, 4,266,454, Cl. 82-1.00C.

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Kamishita, Takuzo; and Kamishita, Kazuhiko, 4,267,169, Cl. 424-78.000.

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Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, to Fujisawa Pharmaceutical Co., Ltd. Amino or acylamino-substituted pyrimidinyl cephalosporanic acid derivatives and pharmaceutical compositions thereof. 4,267,176, Cl. 424-246.000.

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Berger, Herbert; Gall, Rudi; Kampe, Wolfgang; Bicker, Uwe; and Kuhn, Rolf, 4,267,174, Cl. 424-244.000.

Kane, Bernard J.; and Von Genk, Richard A., to SCM Corporation. Cyclic terpenoid amines, their preparation and uses. 4,267,366, Cl. 560-231.000.

Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., to Bristol-Myers Company. Antitumor agents. 4,267,113, Cl. 260-345.200.

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Nakayama, Hiroyuki; and Nezu, Tsuguo, 4,267,202, Cl. 427-40.000.

Kanthal Corporation, The: *See—*
Best, Albert B., 4,267,435, Cl. 219-552.000.

Kanzelberger, James C., to Contemporary, Inc. Plastic material for simulating engraved metal plates. 4,267,224, Cl. 428-216.000.

Kao Soap Co., Ltd.: *See—*
Niimi, Yukihisa; and Saegusa, Katsumi, 4,267,077, Cl. 252-545.000.

Karch, John A.: *See—*
Burk, Emmett H., Jr.; Yoo, Jin S.; Karch, John A.; and Sun, Jui-Yuan, 4,267,032, Cl. 208-113.000.

Karg Corporation: *See—*
Molitors, Thomas J., 4,266,461, Cl. 87-29.000.

Karino, Yukio; Sakaguchi, Shinji; and Sakakibara, Yoshio, to Fuji Photo Film Co., Ltd. Color diffusion transfer photographic elements comprising a neutralizing system timing layer. 4,267,262, Cl. 430-463.000.

Karl Merz Maschinenfabrik: *See—*
Merz, Karlheinz; and Ulrich, Roland, 4,267,037, Cl. 209-481.000.

Karlsson, Jon. Constructional member for buildings. 4,266,387, Cl. 52-731.000.

Karmel, Paul R., to Communications Satellite Corporation. Right circular cylindrical sector cavity filter. 4,267,537, Cl. 333-231.000.

Karn, Donald L.; and Makley, James A., to Monarch Marking Systems, Inc. Label printing apparatus. 4,267,006, Cl. 156-384.000.

Karn, Jack L., to Lubrizol Corporation, The. Molybdenum-containing compositions and lubricants and fuels containing them. 4,266,945, Cl. 44-68.000.

Karol, Frederick J.: *See—*
Goeke, George L.; and Karol, Frederick J., 4,267,309, Cl. 528-413.000.

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Kasey, Michael K., to Echlin Manufacturing Company, The. Fixtures and methods for dynamo servicing. 4,266,336, Cl. 29-596.000.

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Keller, Hans U., 4,267,455, Cl. 250-431.000.

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Chudo, Akira; Sugi, Tomomitsu; and Kataoka, Kouji, 4,266,980, Cl. 106-97.000.

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Kato, Kyosuke. Device for preventing oil splashing and fire occurrence in frying pan. 4,266,527, Cl. 126-299.00C.

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Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, to Japanese National Railways; and Nippon Oil Company, Ltd. Injection materials for railroad track beds. 4,267,085, Cl. 260-28.5AS.

Katzman, Allison W.: *See—*
Kuna, Wayne A.; Katzman, Allison W.; and Terzian, Rouben T., 4,266,367, Cl. 46-149.000.

Kaufmann, Karl-Heinz: *See—*
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Kavaloski, Peter P.; and Hale, Thomas K., to Lockheed Corporation. Wheelchair for transportation vehicles. 4,266,305, Cl. 4-480.000.

Kawabata, Susumu: *See—*
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Kawasaki Steel Corporation: *See—*
Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.
Nitta, Minoru; Kajinaga, Yoshihiro; Sakurada, Ichio; Ogura, Kuniaki; and Ito, Shunji, 4,266,974, Cl. 75-251.000.
Shinohara, Yoshiaki, 4,266,932, Cl. 432-194.000.

Kawatani, Kimio: *See—*
Okumichi, Toshiharu; and Kawatani, Kimio, 4,267,099, Cl. 260-101.000.

Keene Corporation: *See—*
Sellinger, Martin S., 4,266,683, Cl. 220-3.200.

Kelleigh Corporation: *See—*
Jezorek, Leigh; Pitel, Irving; and Silverman, Richard, 4,267,214, Cl. 427-341.000.

Keller, Guenter; Pohl, Andreas; and Hintz, Gerhard, to Carl Schenck AG. Differential pressure limiting valve. 4,266,467, Cl. 91-437.000.

Keller, Hans U., to Katadyn Produkte AG. Purification apparatus. 4,267,455, Cl. 250-431.000.

Kelley, Robert B.: *See—*
Birk, John R.; Kelley, Robert B.; and Tella, Richard P., 4,266,905, Cl. 414-627.000.

Kelley, Wendell W., to United States of America, National Aeronautics and Space Administration. Pitch attitude stabilization system utilizing engine pressure ratio feedback signals. 4,266,743, Cl. 244-182.000.

Kellogg, Charles W. Winding apparatus for the manufacture of filament-wound, reinforced resinous products. 4,267,007, Cl. 156-425.000.

Kelly, John F.: *See—*
Dixon, Roy P.; and Kelly, John F., 4,266,664, Cl. 206-349.000.

Kempf, Paul S., to Kempf, Paul S., Trustee or Successor Trustee. Solvent resistant inks and coatings. 4,267,088, Cl. 260-29.2EP.

Kempf, Paul S., Trustee or Successor Trustee: *See—*
Kempf, Paul S., 4,267,088, Cl. 260-29.2EP.

Kendall Company, The: *See—*
Merry, Jack D., 4,266,557, Cl. 128-763.000.

Kennecott Copper Corporation: *See—*
Wang, Chih-Chung, 4,266,987, Cl. 148-6.300.

Kennedy, George S. Contoured welding rod. 4,267,428, Cl. 219-145.100.

Kerr, Charles E.: *See—*
Balch, Robert A.; and Kerr, Charles E., 4,266,457, Cl. 83-745.000.

Kersting, Elmar; and Niessen, Heinz J., to Bayer Aktiengesellschaft. Drift reducing agricultural compositions. 4,266,962, Cl. 71-90.000.

Kessmar, Leo R., to Dana Corporation. Transmission shift control. 4,266,438, Cl. 74-473.00R.

Ketterer, Stanley J., to Singer Company, The. Anti-haloing throat plate. 4,266,494, Cl. 112-184.000.

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Thomas, Robert J.; and Piekarski, Michael, 4,267,439, Cl. 235-454.000.

Kezuka, Teruo: *See—*
Yoritomi, Kenzaburo; Kezuka, Teruo; and Moriya, Mitsumasa, 4,267,054, Cl. 210-659.000.

Khmelev, Vladimir V.: *See—*
Ivanov, Gely M.; Novikov, Vladislav I.; and Khmelev, Vladimir V., 4,267,496, Cl. 318-615.000.

Kieboom, Arnoldus M. C.; and Dedding, Nicolaas P., to U.S. Philips Corporation. Radiation detection device having reflective cover layers of $BaSO_4$ incorporated in acrylic varnish. 4,267,453, Cl. 250-368.000.

Kiehs, Karl: *See—*
Buerstinghaus, Rainer; Koenig, Karl-Heinz; and Kiehs, Karl, 4,267,121, Cl. 260-465.400.

Kiepe, Paul E. Installation circuitry for electric water heaters. 4,267,432, Cl. 219-328.000.

Kikuchi, Kenichi: *See—*
Hayashi, Shinjiro; Taniyama, Kiyoshi; Kikuchi, Kenichi; and Akashi, Teruo, 4,266,439, Cl. 74-501.00R.

Kikuchi, Makoto; and Ohtsu, Ikuo, to Toyoda-Koki Kabushiki Kaisha. Tailstock device. 4,266,377, Cl. 51-262.00T.

Kiliman, D. A.: *See*—
Wissel, F. A.; and Kiliman, D. A., 4,267,591, Cl. 370-11.000.
Kimberly-Clark Corporation: *See*—
Roland, David R.; and Wollangk, Edward G., 4,266,546, Cl. 128-285.000.
Kimblin, Clive W.: *See*—
Holmes, Francis A.; Kimblin, Clive W.; and Heberlei, Joachim V. R., 4,267,415, Cl. 200-144.00B.
Kimerling, Lionel C.: *See*—
Benton, Janet L.; Doherty, Charles J.; Kimerling, Lionel C.; and Leamy, Harry J., 4,266,986, Cl. 148-1.500.
Kimsey, Thomas H., to United States of America, Air Force. Digital phase-frequency detector. 4,267,514, Cl. 328-133.000.
Kimura, Fumio: *See*—
Nishiyama, Ryuzo; Kimura, Fumio; Haga, Takahiro; Sakashita, Nobuyuki; and Nishikawa, Tetsuji, 4,266,963, Cl. 71-92.000.
Kimura, Hiroaki. Laser scalpel. 4,266,549, Cl. 128-303.100.
Kimura, Tsutomu; and Ohnishi, Masahiro, to Fuji Photo Film Co., Ltd. Format-information synthesizing system. 4,267,548, Cl. 340-146.3AH.
Kindscher, Wolfgang: *See*—
Thil, Lucien; Fischer, Martin; and Kindscher, Wolfgang, 4,267,122, Cl. 260-501.120.
King, Randall N.: *See*—
Park, Dong-Sil;; Breiter, Manfred W.; and King, Randall N., 4,266,712, Cl. 228-175.000.
Kinnard, William D.: *See*—
Stone, Arnold F.; and Kinnard, William D., 4,267,228, Cl. 428-297.000.
Kircheiss, Andreas: *See*—
Schneider, Manfred; Kahmann, Gottfried; Gohler, Wolfgang; and Kircheiss, Andreas, 4,266,410, Cl. 66-84.00R.
Kirk, Chester E.; and Raab, Owen E. Spindle turning tool. 4,266,583, Cl. 142-56.000.
Kirkwood, Robert E. Corner fence post clip. 4,266,757, Cl. 256-65.000.
Kishida, Mitsuhiro, to Mitsubishi Denki Kabushiki Kaisha. Seismic bushing. 4,267,400, Cl. 174-31.00R.
Kitagawa, Yukio: *See*—
Kobayashi, Ichiro; Moriya, Yoshiaki; and Kitagawa, Yukio, 4,267,581, Cl. 364-900.000.
Kitai, Kiyoshi; Nagaoka, Shinji; and Takazawa, Yuzuru, to Seiko Koki Kabushiki Kaisha. Focus detecting system. 4,267,440, Cl. 250-201.000.
Kitakohji, Toshisuke: *See*—
Yoneda, Yasuhiro; Kitamura, Kenro; Naito, Jiro; and Kitakohji, Toshisuke, 4,267,258, Cl. 430-270.000.
Kitamoto, Tatsuji: *See*—
Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, 4,267,207, Cl. 427-129.000.
Kitamura, Kenro: *See*—
Yoneda, Yasuhiro; Kitamura, Kenro; Naito, Jiro; and Kitakohji, Toshisuke, 4,267,258, Cl. 430-270.000.
Kitani, Teruo: *See*—
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Kitazawa, Yoichi; Sato, Takeshi; and Tsuji, Hisao, to Bridgestone Tire Company Limited. Light weight pneumatic tire having a thin side wall rubber. 4,266,995, Cl. 156-123.00R.
Kitchen, Alonzo G., to Phillips Petroleum Company. Tough, transparent articles from styrene polymers blended with certain block-random copolymers. 4,267,284, Cl. 525-99.000.
Kitchenham, Albert: *See*—
Jennings, C. Michael; Kitchenham, Albert; and Lamadrid, Rene, 4,266,717, Cl. 233-26.000.
Kite, George F.: *See*—
Merritt, Henry B.; and Kite, George F., 4,266,562, Cl. 131-293.000.
Kiwala, Jacob: *See*—
Mookherjee, Braja D.; Mussinan, Cynthia J.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,267,076, Cl. 252-522.00R.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,066, Cl. 252-174.110.
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,067, Cl. 252-174.110.
Klaiber, William C. Paint brush, pad and roller holder and can carrier. 4,266,746, Cl. 248-113.000.
Kleiner, Hans-Jerg: *See*—
Dursch, Walter; and Kleiner, Hans-Jerg, 4,267,125, Cl. 260-545.00P.
Klemmer, Paul J.: *See*—
Lamon, David E.; and Klemmer, Paul J., 4,266,475, Cl. 100-168.000.
Kleven, Jonny H. Apparatus and method for separating free metal from ore. 4,267,036, Cl. 209-444.000.
Klien, Caren A.; and Gieseker, Donald R., to Procter & Gamble Company, The. Aggregated mixed-moisture flaked coffee of high aroma. 4,267,200, Cl. 426-595.000.
Klimowicz, Jerome R. Multiple piece bolt-type fastener. 4,266,460, Cl. 85-9.00R.
Klockner-Humboldt-Deutz AG: *See*—
Bender, Hans; Graf, Rupprecht; Unkelbach, Karl-Heinz; and Zabel, Wolf, 4,266,982, Cl. 134-18.000.
Knepper, Larimer J.; McDuffie, James W.; and Wagstaff, Robert A., to Sperry Corporation. Header cutting angle adjustment mechanism. 4,266,392, Cl. 56-14.500.
Knepper, Larimer J.: *See*—
McDuffie, James W.; Knepper, Larimer J.; and Knipper, Larimer J., 4,266,391, Cl. 56-14.500.
Knight, Peter A.; and Tilley, Janet P., to Imperial Chemical Industries Limited. Decorative acrylic sheets and articles formed therefrom. 4,267,229, Cl. 428-324.000.
Knipper, Larimer J.: *See*—
McDuffie, James W.; Knepper, Larimer J.; and Knipper, Larimer J., 4,266,391, Cl. 56-14.500.
Knis, Stephen A.: *See*—
Kolakowski, Richard A.; and Knis, Stephen A., 4,267,134, Cl. 264-46.200.
Knops, Hans-Joachim; Heine, Hans-Georg; Draber, Wilfried; and Brandes, Wilhelm, to Bayer Aktiengesellschaft. Combating fungi with substituted spiro-derivatives of 3-(3,5-dihalogenophenyl)-oxazolidine-2,4-diones (thione-ones). 4,267,186, Cl. 424-272.000.
Knupp, Mary R.; and Tymkewicz, John, to Knupp, Mary R. Cake trimming and icing levelling and smoothing means. 4,266,501, Cl. 118-15.000.
Kobayashi, Ichiro; Moriya, Yoshiaki; and Kitagawa, Yukio, to Tokyo Shibaura Denki Kabushiki Kaisha. Memory address designating system. 4,267,581, Cl. 364-900.000.
Kobayashi, Kozo: *See*—
Terui, Nobuo; and Kobayashi, Kozo, 4,267,515, Cl. 328-147.000.
Kobayashi, Tatuo; and Yamada, Nobuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Variable venturi type carburetor. 4,267,128, Cl. 261-44.00C.
Kobayashi, Yoshio; Ando, Koichi; and Hyodo, Susumu, to Mitsubishi Kakoki Kaisha Ltd. Process for cleaning flue gas. 4,267,155, Cl. 423-235.000.
Kobylinski, Thaddeus P.: *See*—
Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., 4,267,379, Cl. 568-385.000.
Austin, Richard G.; Pretzer, Wayne R.; and Kobylinski, Thaddeus P., 4,267,380, Cl. 568-385.000.
Koch, Robert C.: *See*—
Davis, James A.; and Koch, Robert C., 4,267,079, Cl. 260-3.500.
Kodama, Yoshiki: *See*—
Uemura, Tamio; and Kodama, Yoshiki, 4,266,790, Cl. 280-6.100.
Kodera, Yoshiaki; Watanabe, Kiyoyuki; and Kusu, Takayuki, to Sekisui Kagaku Kogyo Kabushiki Kaisha. Agricultural covering film or sheet and method for thermal insulation. 4,266,370, Cl. 47-29.000.
Koenig, Horst: *See*—
Frickel, Fritz-Frieder; Franke, Albrecht; Koenig, Horst; Lenke, Hans-Dieter; and Gries, Josef, 4,267,187, Cl. 424-274.000.
Koenig, Karl-Heinz: *See*—
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Koepke, John A., to Illinois Tool Works Inc. Membrane keyswitch. 4,267,417, Cl. 200-159.00B.
Kohler, Ernst; and Moninger, Friedrich, to Wurttembergische Filztuchfabrik. Fabric web and a method of making a fabric web for a dewatering machine. 4,267,226, Cl. 428-223.000.
Kohler, Rolf-Dieter: *See*—
Hagen, Helmut; and Kohler, Rolf-Dieter, 4,267,349, Cl. 548-339.000.
Kohmura, Tamotsu; and Yoshimine, Jun-ichi, to Sankin Industry Co., Ltd. Manufacture of denture base. 4,267,133, Cl. 264-18.000.
Kohrn, Edward L.; and Globus, Seymour. Flush tank water saver. 4,266,304, Cl. 4-415.000.
Koike, Wataro; Sasuga, Tadashi; and Yazawa, Chihiro, to Ihara Chemical Industry Co., Ltd. Process for producing phenoxyalkene derivative. 4,267,317, Cl. 542-416.000.
Kolakowski, Richard A.; and Knis, Stephen A., to Upjohn Company, The. Method and apparatus for smoothing foamed plastic core panelboard surface. 4,267,134, Cl. 264-46.200.
Kolakowski, Richard A.: *See*—
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Kolbe, Ilona: *See*—
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Kollmeier, Hans-Joachim: *See*—
Lidy, Werner; Rossmy, Gerd; and Kollmeier, Hans-Joachim, 4,267,078, Cl. 260-2.300.
Koltun, Ronald E.: *See*—
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Komatsu, Hideo: *See*—
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Komatsu, Tadaaki: *See*—
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Komiya, Osamu, to Olympus Optical Co., Ltd. Laser knife. 4,266,547, Cl. 128-303.100.
Konaka, Minoru: *See*—
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.
Kondo, Masahiko, to V.I.V. Engineering Co., Ltd. Braking device. 4,266,635, Cl. 188-82.840.
Kondo, Yoshiteru, to USM Corporation. Stud welding apparatus. 4,267,425, Cl. 219-98.000.

Kongo Co., Ltd.: *See*—
Taniwaki, Genshi, 4,266,372, Cl. 49-358.000.
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, to Bayer Aktiengesellschaft. Process for the preparation of polymers with diphenol carbonate end groups. 4,267,303, Cl. 528-171.000.
Konishiroku Photo Industry Co., Ltd.: *See*—
Shibue, Toshiaki; and Nagayasu, Koichi, 4,267,266, Cl. 430-530.000.
Koppers Company, Inc.: *See*—
Howell, Hilda, 4,267,279, Cl. 525-17.000.
Leston, Gerd, 4,267,389, Cl. 568-750.000.
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Leston, Gerd, 4,267,391, Cl. 568-751.000.
Leston, Gerd, 4,267,392, Cl. 568-751.000.
Korb, Donald R.: *See*—
Gallop, Paul M.; and Korb, Donald R., 4,267,295, Cl. 526-264.000.
Korf, Heinz L., to Rapco Foam, Inc. Method of producing urea-formaldehyde resin and foam having reduced formaldehyde emission. 4,267,277, Cl. 521-103.000.
Koros, Peter J. M., to Jones & Laughlin Steel Corporation. Desulfurization process. 4,266,969, Cl. 75-58.000.
Koshida, Daikichi; Sugisawa, Ko; Matsumura, Yasushi; and Taga, Kazumitsu, to House Food Industrial Company Limited. Noodle soup mix. 4,267,199, Cl. 426-589.000.
Kouchi, Toshihiro: *See*—
Nishibayashi, Katsumi; Amagai, Yoshimi; Hikake, Norio; Kouchi, Toshihiro; and Aizawa, Tatsuo, 4,267,246, Cl. 430-98.000.
Kovacs, Karoly G.: *See*—
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Kowitz, Friedrich: *See*—
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Koyama, Takahiro: *See*—
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Koyanagi, Masaru: *See*—
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Kramer-Werke GmbH: *See*—
Friedrich, Karl, 4,266,629, Cl. 180-252.000.
Kramer, William E.; and Malinowski, Frank P., to Xerox Corporation. Sheet alignment and feeding apparatus. 4,266,762, Cl. 271-225.000.
Kramer, Wolfgang: *See*—
Jautelat, Manfred; Stetter, Jorg; Arlt, Dieter; and Kramer, Wolfgang, 4,267,381, Cl. 568-419.000.
Kranzler, Ernst: *See*—
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Krapcho, John; and Turk, Chester F., to E. R. Squibb & Sons, Inc. Substituted amides having antiinflammatory activity and intermediates. 4,267,354, Cl. 560-39.000.
Kraus, Gerard; and Hunt, Harold R., to Phillips Petroleum Company. Carbon black for low-hysteresis rubber compositions. 4,267,160, Cl. 423-456.000.
Krause, Walter O., to Parker-Hannifin Corporation. Filter block and method of making the same. 4,266,408, Cl. 62-474.000.
Krippes, William D., to J. M. Eltzroth & Associates, Inc. Composition and process for inhibiting corrosion of ferrous or non-ferrous metal surfaced articles and providing receptive surface for synthetic resin coating compositions. 4,266,988, Cl. 148-6.210.
Krishnakumar, Suppayan M.: *See*—
Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., 4,267,144, Cl. 264-523.000.
Krocker, Robert E.: *See*—
Saunders, James F.; and Krocker, Robert E., 4,266,599, Cl. 165-2.000.
Kroger, John E.: *See*—
Barnhart, David A.; Britt, Ronald L.; Kroger, John E.; and Walters, David A., 4,266,528, Cl. 126-299.00D.
Kroplinski, Thaddeus F.; and Case, Barton C., to NL Industries, Inc. Thixotropic polyurethane compositions as sealants for membrane separatory devices. 4,267,044, Cl. 210-321.200.
Krueger, Wallace F.; and Shaw, Anthony R.; to Libbey-Owens-Ford Company. Solar energy collector. 4,266,383, Cl. 52-400.000.
Kruger, Burkhard, to Myers-Europe Pumpen GmbH. Advance drive means for a pipe snake. 4,266,709, Cl. 226-181.000.
Krupick, Walter J.: *See*—
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Kubo, Masaharu: *See*—
Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, 4,267,469, Cl. 307-311.000.
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Kuch, Friedrich: *See*—
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Kuchenbecker, Morris W., to American Can Company. Blister package. 4,266,666, Cl. 206-461.000.
Kuehne, Martin E., to Omnium Chimique Societe Anonyme. Process for the synthesis of vincadifformine and related derivatives. 4,267,330, Cl. 546-51.000.
Kuehnle, Manfred R.; Cox, Richard E.; Harris, George B., Jr.; Forrest, Jess; and Hardy, Carl D., to Coulter Systems Corporation. Apparatus and method for making lithographic printing plates. 4,266,869, Cl. 355-8.000.
Kuenemund, Friedrich: *See*—
Betzl, Hermann; Kuenemund, Friedrich; and Schreiber, Roland, 4,267,535, Cl. 333-165.000.
Kuhlmann, Dieter: *See*—
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Kuhlmann, Gerhard: *See*—
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Kuhn, Helmut: *See*—
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Kuhn, Rolf: *See*—
Berger, Herbert; Gall, Rudi; Kampe, Wolfgang; Bicker, Uwe; and Kuhn, Rolf, 4,267,174, Cl. 424-244.000.
Kulcke, Werner: *See*—
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Kulicke and Soffa Industries Inc.: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,266,710, Cl. 228-4.500.
Kulikov, Anatoly P.: *See*—
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.
Kulke, Gunther; and Hans, Waldemar, to Robert Bosch GmbH. Injection valve for fuel injection systems. 4,266,729, Cl. 239-533.120.
Kullmann, Dieter, to Siemens Aktiengesellschaft. Cooling arrangement for the rotor of an electric machine. 4,267,474, Cl. 310-52.000.
Kuna, Wayne A.; Katzman, Allison W.; and Terzian, Rouben T., to Marvin Glass & Associates. Sitting doll. 4,266,367, Cl. 46-149.000.
Kung, Roger I.; and Moench, Jerry D., to Motorola, Inc. Signal generator having minimum delay. 4,267,466, Cl. 307-279.000.
Kunitz, Friedrich-Wilhelm; Wolff, Erich; and Frank, Karl, to AGFA-Gevaert, A.G. Use of β-aminoethyl carbamic acid for producing photographic baths and developer compositions. 4,267,263, Cl. 430-469.000.
Kurihara, Norman H.: *See*—
Holmsen, Theodore W.; Kurihara, Norman H.; and Thomas, Paul A., 4,266,964, Cl. 71-94.000.
Kurosawa, Ryoichi, to Tokyo Shibaura Kenki Kabushiki Kaisha. Method and system for controlling induction motors. 4,267,499, Cl. 318-800.000.
Kurtz, Stuart J.; Blakeslee, Theodore R., III; and Scarola, Leonard S., to Union Carbide Corporation. Method for reducing melt fracture during extrusion of ethylene polymers. 4,267,146, Cl. 264-564.000.
Kusu, Takayuki: *See*—
Kodera, Yoshiaki; Watanabe, Kiyoyuki; and Kusu, Takayuki, 4,266,370, Cl. 47-29.000.
Kutsch, Howard J., to Du Pont de Nemours, E. I., and Company. Energy-absorbing torque transmitter. 4,266,409, Cl. 64-12.000.
Kuxdorf, Bernhard; Wissel, Kurt; and Kaiser, Karl, to Hoechst Aktiengesellschaft. Degassing column. 4,266,949, Cl. 55-186.000.
Kuykendall, John R. Vacuum breaker-pressure release device. 4,266,568, Cl. 137-493.800.
Kuzela, Joseph, Jr.: *See*—
Bruner, Frank D.; and Kuzela, Joseph, Jr., 4,266,485, Cl. 105-61.000.
Kyle, Robert R.: *See*—
Volpi, John P.; and Kyle, Robert R., 4,267,597, Cl. 455-76.000.
Kyri, Hans; and Dobbers, Jurgen, to Bayer Aktiengesellschaft. Precipitating agent for dephosphatizing effluent. 4,267,058, Cl. 210-716.000.
La Telemecanique Electrique: *See*—
Periot, Jean-Marie, 4,267,522, Cl. 331-65.000.
LaBorde, Russel G.; and Brieger, Emmett F. Wireline safety check valve. 4,266,605, Cl. 166-97.000.
Labuhn, Peter: *See*—
Grieder, Alfred; Coers, Klaus-Jurgen; and Labuhn, Peter, 4,267,356, Cl. 560-43.000.
Ladd, Harley G. F. Pleat forming means and method. 4,266,699, Cl. 223-34.000.
Ladney, Michael, Jr.: *See*—
Foster, Edwin E.; and Foster, Thomas E., 4,266,831, Cl. 301-37.0PB.
Laffoon, James D.: *See*—
Orals, David L.; and Laffoon, James D., 4,266,384, Cl. 52-410.000.
Lagnado, Isaac: *See*—
Bond, James W.; Alsup, James M.; Speiser, Jeffrey M.; Whitehouse, Harper J.; and Lagnado, Isaac, 4,267,580, Cl. 364-824.000.
Laguilharre, Pierre R.: *See*—
Ciboit, Jacques J.; and Laguilharre, Pierre R., 4,267,015, Cl. 159-47.00R.
Lakhno, Pavel E.: *See*—
Velikoselsky, Nikolai D.; Smirnov, Anatoly I.; Perets, Nikolai Y.; Vinogradov, Sergei S.; Podbeltsev, Viktor I.; and Lakhno, Pavel E., 4,266,680, Cl. 212-193.000.

Lamadrid, Rene: *See—*
Jennings, C. Michael; Kitchenham, Albert; and Lamadrid, Rene, 4,266,717, Cl. 233-26.000.

Lamon, David E.; and Klemmer, Paul J., to Appleton Machine Company. Positioning mechanism for calender rolls. 4,266,475, Cl. 100-168.000.

Lancini, Giancarlo: *See—*
White, Richard J.; and Lancini, Giancarlo, 4,267,274, Cl. 435-253.000.

Landau, Sergio, to Halen-Elliot do Brazil Industria e Comercio Equipamentos de Precisao Ltda. Pressure hypodermic injector for intermittent vaccination. 4,266,541, Cl. 128-207.230.

Landoll, Leo M., to Hercules Incorporated. Process for producing spherical particles of crystalline polymers. 4,267,310, Cl. 260-40.00R.

Lang, Manfred: *See—*
Spinner, Georg; and Lang, Manfred, 4,267,531, Cl. 333-22.00R.

Langbein-Pfanhauser Werke AG: *See—*
Brugger, Robert, 4,267,218, Cl. 428-35.000.

Lange, Gottfried, to Siemens Aktiengesellschaft. Method of eliminating background residual charge in electrophotographic image reproduction and apparatus for carrying out said method. 4,267,450, Cl. 250-315.200.

Langenfeld, Joseph W.; and Westendorf, Neal W., to Westendorf Manufacturing Co. Materials handling device and the method of mounting the same on a tractor. 4,266,906, Cl. 414-686.000.

Langenfeld, Joseph W.; and Westendorf, Neal W., to Westendorf Manufacturing Co. Means for hydraulic self-leveling of a loader bucket. 4,266,909, Cl. 414-700.000.

Lankheet, Jay A. Reinforced resin molding method and apparatus. 4,267,142, Cl. 264-510.000.

Lansing Bagnall Limited: *See—*
Manners, Frank, 4,267,492, Cl. 318-376.000.

Lapierre, Philippe. Prefabricated airplane model kit. 4,266,366, Cl. 46-76.00R.

Lapp, Otto: *See—*
Lohmann, Joachim W.; Lapp, Otto; and Ranz, Erwin, 4,267,264, Cl. 430-505.000.

Larson, Clayton E.; and Lemp, Edward H., to White Metal Rolling & Stamping Corp. Extension ladders with rotary hook locks. 4,266,631, Cl. 182-211.000.

Laszlo, Akos; and Merriman, Horace B., to Courtaulds Limited. Method of, and means for, reducing the liquid content of air-permeable material in tubular form. 4,266,983, Cl. 134-21.000.

Lauber, Ernst, to Habegger, Willy. Traveling assembly and wheel suspension for a rolling and stepping vehicle. 4,266,627, Cl. 180-8.00B.

Laubie, Michel: *See—*
Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,267,345, Cl. 548-233.000.
Regnier, Gilbert; Laubie, Michel; and Poignant, Jean-Claude, 4,267,178, Cl. 424-250.000.

Laurin, Dean G.: *See—*
Becker, Lawrence F.; Czuba, Leonard F.; and Laurin, Dean G., 4,266,542, Cl. 128-214.00R.

Lauter, Gernot: *See—*
Troger, Johannes; Lauter, Gernot; and Sporl, Heinrich, 4,266,893, Cl. 409-206.000.

Laux, Joseph J., to Ormid Company. Footwear insole. 4,266,350, Cl. 36-44.000.

Laviron, Michel: *See—*
Derewonko, Henri; Laviron, Michel; and Lepage, Joel, 4,267,520, Cl. 330-286.000.

Lawitzki, Friedrich: *See—*
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, 4,267,047, Cl. 210-490.000.

Lazarevich, Vladeta D.: *See—*
Carroll, Arthur B.; Lazarevich, Vladeta D.; and Gardner, Mark R., 4,267,443, Cl. 250-221.000.

Leamy, Harry J.: *See—*
Benton, Janet L.; Doherty, Charles J.; Kimerling, Lionel C.; and Leamy, Harry J., 4,266,986, Cl. 148-1.500.

Leanna, Dale D.; and Jorgensen, Allen R., to Magna-Graphics Corporation. Mandrel supports for automatic web rewinder. 4,266,735, Cl. 242-56.00A.

Ledding, Willard E., to CPC International Inc. Fluidized bed process. 4,266,348, Cl. 34-10.000.

Le Donne, Robert. Mounts for attachment of devices to wheelchairs. 4,266,825, Cl. 297-194.000.

Lee, Ching W.: *See—*
Dempsey, Martin E.; and Lee, Ching W., 4,267,533, Cl. 333-151.000.

Lee, Harry W., Jr., to Reynolds Metals Company. Can body and method for making same. 4,266,685, Cl. 220-74.000.

Lee, Pang-Kai, to Westinghouse Electric Corp. Metal-solid lubricant brushes for high-current rotating electrical machinery. 4,267,476, Cl. 310-251.000.

Lee, Seung B. Bath seat for babies. 4,266,306, Cl. 4-572.000.

Lehrer, William I.: *See—*
Pierce, John M.; Lehrer, William I.; and Radigan, Kenneth J., 4,267,012, Cl. 156-643.000.

Leiker, Donald G. Excavating apparatus. 4,266,908, Cl. 414-690.000.

Lemp, Edward H.: *See—*
Larson, Clayton E.; and Lemp, Edward H., 4,266,631, Cl. 182-211.000.

Lenke, Hans-Dieter: *See—*
Frickel, Fritz-Frieder; Franke, Albrecht; Koenig, Horst; Lenke, Hans-Dieter; and Gries, Josef, 4,267,187, Cl. 424-274.000.

Leonard, Murray; and Jugl, Herbert F., to Vernitron Corporation. Gas collector/spark igniter for gas burners. 4,266,930, Cl. 431-263.000.

Lepage, Joel: *See—*
Derewonko, Henri; Laviron, Michel; and Lepage, Joel, 4,267,520, Cl. 330-286.000.

Lerot, Luc: *See—*
Hardy, Nicolas; Lerot, Luc; and Walraevens, Rene, 4,267,124, Cl. 260-502.00R.

Les Cables De Lyon: *See—*
Agaisse, Michel, 4,266,992, Cl. 156-49.000.

Les Laboratories Meram: *See—*
Durlach, Jean P., 4,267,194, Cl. 424-315.000.

Les Produits Associes BPA SA: *See—*
Moret, Michel A., 4,266,535, Cl. 128-23.000.

Leslie, W. Dean: *See—*
Cabbiness, Dale K.; Carel, Alfred B.; and Leslie, W. Dean, 4,267,445, Cl. 250-255.000.

Leston, Gerd, to Koppers Company, Inc. Process for separating paracresol from a mixture of methylated and ethylated phenols. 4,267,389, Cl. 568-750.000.

Leston, Gerd, to Koppers Company, Inc. Process for obtaining paracresol and meta-cresol from a mixture of methylated and ethylated phenols characterized by selective complexation with calcium bromide and sodium acetate. 4,267,390, Cl. 568-751.000.

Leston, Gerd, to Koppers Company, Inc. Process for obtaining paracresol and meta-cresol from a mixture of methylated and ethylated phenols characterized by urea clathration of metal-cresol. 4,267,391, Cl. 568-751.000.

Leston, Gerd, to Koppers Company, Inc. Process for obtaining paracresol and meta-cresol from a mixture of methylated and ethylated phenols containing meta-para-cresol. 4,267,392, Cl. 568-751.000.

Leutner, Bernd: *See—*
Diessel, Paul; Perner, Johannes; Leutner, Bernd; and Schlimper, Hans-Ulrich, 4,267,068, Cl. 252-179.000.

Levy, Richard C.: *See—*
Dankman, Scott; Levy, Richard C.; and McCoy, Bryan L., 4,267,551, Cl. 340-384.00E.

Lewis, David L., to Bendix Corporation, The. High torque chuck assembly and collet. 4,266,895, Cl. 409-232.000.

Lewis, Eugene W.: *See—*
Warden, Fuller; and Lewis, Eugene W., 4,266,933, Cl. 433-82.000.

Lewis, Joseph J.; and Webb, Robert L., to SK&F Lab Co. Imidazolemethylphosphonium salts. 4,267,337, Cl. 548-119.000.

Lewis, Richard B.: *See—*
Ziolo, Ronald F.; and Lewis, Richard B., 4,267,247, Cl. 430-120.000.

Lewis, Roger N.: *See—*
Pastorino, Ronald L.; and Lewis, Roger N., 4,267,109, Cl. 260-338.000.

Ley, Gregor: *See—*
Geelhaar, Hans J.; Penzel, Erich; and Ley, Gregor, 4,267,091, Cl. 260-29.6TA.

Libbey-Owens-Ford Company: *See—*
Krueger, Wallace F.; and Shaw, Anthony R., 4,266,383, Cl. 52-400.000.
Meeker, James A., 4,267,140, Cl. 264-291.000.

Licinvest AG: *See—*
Ackeret, Peter, 4,266,834, Cl. 312-8.000.

Lidy, Werner; Rossmy, Gerd; and Kollmeier, Hans-Joachim, to Th. Goldschmidt AG. Process for easily degrading waste consisting of the reaction products of organic compounds containing isocyanate groups with alcohols and/or water. 4,267,078, Cl. 260-2.300.

Liebing, Alan P., to Ferranti Limited. Gyroscopic apparatus. 4,266,431, Cl. 74-5.100.

Liebman, Arno J. Cardiac patient support. 4,266,759, Cl. 269-323.000.

Limpach, Raymond: *See—*
Daldrup, Heinz G.; Nothhelfer, Gunther; Franke, Friedrich H.; and Limpach, Raymond, 4,266,968, Cl. 75-42.000.

Linde, Bjorn H.; and Reil, Wilhelm, to Tetra Pak International AB. Method and an arrangement for the advancing of a packing material web through a packing machine. 4,266,389, Cl. 53-396.000.

Lindner, Christian; Arnold, Bernhard; Kuhlmann, Dieter; Kowitz, Friedrich; and Ott, Karl-Heinz, to Bayer Aktiengesellschaft. ABS moulding compounds having improved surface. 4,267,278, Cl. 525-2.000.

Lindner, Christian: *See—*
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, 4,267,303, Cl. 528-171.000.

Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, to Veb Wirkmaschinenbau Karl-Marx-Stadt. Method and machine for forming plush-loop warp knit fabric. 4,266,411, Cl. 66-84.00R.

Linsay, Michael. Torque limiting and shock absorbing coupling. 4,266,644, Cl. 192-56.00R.

Lippera, Noel, to Pont-A-Mousson S.A. Method of coupling plastic pipes by welding. 4,266,997, Cl. 156-158.000.

Lippmann, Wilbur, to American Home Products Corporation. Method of use and composition for 1,3-dihydro-3-(2-hydroxy-2-methylpropyl)-2H-isoindol-1-one. 4,267,189, Cl. 424-274.000.

Lisle, Thomas K., Jr.: *See—*
Driscoll, Michael M.; and Lisle, Thomas K., Jr., 4,267,513, Cl. 328-60.000.

Litz, Reuben. Slide mount for motorcycle luggage box. 4,266,703, Cl. 224-32.00A.

Litzinger, Elmer F., to Brown & Williamson Tobacco Corporation. Tobacco smoke filtering compositions. 4,266,561, Cl. 131-341.000.

Ljung, Bo H. G.; and Williams, Charles J., to Singer Company, The. Pathlength controller for a ring laser gyroscope. 4,267,478, Cl. 310-315.000.

Lo, Shih H., to Farsan Enterprises Limited. Stabilizers for oil-water mixtures. 4,266,943, Cl. 44-51.000.

Locatell, Louis, Jr.; Zepp, Charles M.; and Cieciuch, Ronald F., to Polaroid Corporation. Novel image dye-providing materials, photographic products and processes. 4,267,251, Cl. 430-224.000.

Lockheed Corporation: *See—*
Kavaloski, Peter P.; and Hale, Thomas K., 4,266,305, Cl. 4-480.000.

Loepfe, Erich; Weidmann, Erich; and Graf, Walter, to Gebrueder Loepfe AG. Electronic device for monitoring a plurality of running threads on a textile machine. 4,267,554, Cl. 340-677.000.

Lohmann, Joachim W.; Lapp, Otto; and Ranz, Erwin, to AGFA-Gevaert, A.G. Color photographic recording material. 4,267,264, Cl. 430-505.000.

Lomnicki, Joseph J., to Mainland Industries, Inc. Edger saw combining chipper with circular saw blade. 4,266,584, Cl. 144-39.000.

Londner epouse Ours, Rosette. Method of manufacture of sports shoes, and shoes manufactured by said method. 4,266,314, Cl. 12-142.00P.

Long, Wendell P., to Hercules Incorporated. 1-Olefin polymerization catalyst. 4,267,294, Cl. 526-125.000.

Longyear Company: *See—*
Anderson, Ronald B.; Svendsen, Walter W.; Beckley, Gary H.; and Caneer, Clifford, Jr., 4,266,444, Cl. 74-661.000.

Lorenzo, John L., to Pitney Bowes Inc. Apparatus for controlling inking means. 4,266,480, Cl. 101-351.000.

Lottes, Paul: *See—*
Schweikl, Ludwig; Greune, Christian; and Lottes, Paul, 4,266,725, Cl. 239-265.190.

Louthan, Rector P.; and Doss, Richard C., to Phillips Petroleum Company. Sealant compositions. 4,267,307, Cl. 528-293.000.

Louzos, Demetrios V., to Union Carbide Corporation. Layered charge transfer complex cathodes or solid electrolyte cells. 4,267,244, Cl. 429-213.000.

Lovisolo, Pier P.: *See—*
Cozzi, Paolo; Magni, Osvaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., 4,267,327, Cl. 544-336.000.

Lowenschuss, Oscar, to Raytheon Company. Digital memory system. 4,267,596, Cl. 455-18.000.

Lubavs, Arnold A. Mobile block production plant. 4,266,916, Cl. 425-62.000.

Lubrizol Corporation, The: *See—*
Karn, Jack L., 4,266,945, Cl. 44-68.000.

Lucas Industries Limited: *See—*
Williams, Malcolm; Tingey, Albert R.; Southgate, John P.; and Russell, Steven J., 4,266,522, Cl. 123-492.000.

Ludwig, Lawrence P., to United States of America, Administrator, National Aeronautics and Space Administration. Circumferential shaft seal. 4,266,788, Cl. 277-193.000.

Ludwigson, Robert G., to C-R-O, Inc. Cutting tool guiding system for metal cutting machines. 4,266,989, Cl. 148-9.00R.

Luk, Kong; Clayton, John P.; and Rogers, Norman H., to Beecham Group Limited. Antibacterial compounds. 4,267,316, Cl. 542-427.000.

Lukesch, Norbert, to Voest-Alpine Aktiengesellschaft. Directional valve. 4,266,575, Cl. 137-872.000.

Lukyanov, Anatoly A.: *See—*
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

Lundstrom, Axel L., to Atlas Copco Aktiebolag. Drill boom arrangement. 4,266,749, Cl. 248-652.000.

Lunkenheimer, Winfried: *See—*
Stetter, Jorg; Draber, Wilfried; Thomas, Rudolf; and Lunkenheimer, Winfried, 4,267,338, Cl. 548-143.000.

Luthje, Holger: *See—*
Convertini, Ursula; Dimingen, Heinz; Luthje, Holger; Kuch, Friedrich; and Tummoscheit, Peter, 4,267,510, Cl. 324-249.000.

Lux, Robert J., Jr., to Thermodynamics Corporation. Transformer pad with cable protective sleeve. 4,267,399, Cl. 174-1.000.

Maag Gear-Wheel & Machine Co. Ltd.: *See—*
Staedeli, Otto, 4,266,647, Cl. 192-67.00A.

Maas, Edward T., Jr.; and Steger, John J., to Exxon Research and Engineering Company. Process of preparing metal phosphorus trisulfides. 4,267,157, Cl. 423-303.000.

Maasbol, Alfred G.; and Dulog, Lothar G., to s.a. Texaco Belgium n.v. Preparation of thioethers. 4,267,375, Cl. 568-57.000.

Maatschappij van Berkel's Patent N.V.: *See—*
Oostvogels, Johannes M., 4,266,456, Cl. 83-731.000.

Maccise, Yamil A. Jug with sugar bowl, coffee pot and cups. 4,266,684, Cl. 220-23.830.

Machida, Masataka: *See—*
Ninomiya, Youichi; Ogawa, Hirotoshi; Ueda, Tomoyuki; and Machida, Masataka, 4,266,754, Cl. 251-306.000.

Madigan, Thomas M.: *See—*
Dodge, Dennis; Matwey, Paul; Madigan, Thomas M.; and Powers, Robert H., 4,266,866, Cl. 354-84.000.

Maehara, Takashi: *See—*
Mizutani, Yukio; Mitani, Katsuo; and Maehara, Takashi, 4,267,084, Cl. 260-23.0XA.

Mafune, Masao: *See—*
Nomura, Hiroki; Mafune, Masao; and Koyanagi, Masaru, 4,267,427, Cl. 219-121.0LL.

Magna-Graphics Corporation: *See—*
Leanna, Dale D.; and Jorgensen, Allen R., 4,266,735, Cl. 242-56.00A.

Magni, Osvaldo: *See—*
Cozzi, Paolo; Magni, Osvaldo; Bertone, Leone; Angelucci, Romano; and Lovisolo, Pier P., 4,267,327, Cl. 544-336.000.

Mahajan, Gautam K.: *See—*
Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., 4,267,144, Cl. 264-523.000.

Mahan, John E.: *See—*
Vives, Van C.; and Mahan, John E., 4,267,351, Cl. 549-19.000.

Mahoney, Frank A., to Sperry Corporation. Multi-function mechanical printer drive means. 4,266,479, Cl. 101-93.090.

Mahrus, Duraid; and Paulos, Antonio C., to Metal Leve S.A. Industria e Comercio. Method of preparing steel-backed antifriction alloy, composite strips and products therefrom. 4,267,241, Cl. 428-645.000.

Maier, Alfred E.; and Bratkowski, Walter V., to Westinghouse Electric Corp. Circuit breaker structure with shock absorbers. 4,267,419, Cl. 200-288.000.

Maier, Franz, to Sud-Chemie Aktiengesellschaft. Process and apparatus for the exploitation of the sulfur compounds contained in gases containing oxygen and a high water vapor content. 4,267,162, Cl. 423-542.000.

Mailliet, Pierre, to Paul Wurth, S.A. Device for handling the various components of an installation for the injection of pre-heated air into a shaft furnace. 4,266,907, Cl. 414-687.000.

Mainland Industries, Inc.: *See—*
Lomnicki, Joseph J., 4,266,584, Cl. 144-39.000.

Makino, Yoshihiro; and Yoshihara, Toshihiko, to Mitsubishi Denki Kabushiki Kaisha. Bubbling type dissolved gas separator. 4,266,950, Cl. 55-196.000.

Makipirtti, Simo A. I.: *See—*
Setala, Pekka T.; Makipirtti, Simo A. I.; and Heino, Heimo J., 4,266,512, Cl. 122-5.50R.

Makley, James A.: *See—*
Karn, Donald L.; and Makley, James A., 4,267,006, Cl. 156-384.000.

Malen, Charles E.; Roger, Pierre; and Laubie, Michel, to Science Union et Cie. Aryltrifluoroethylamines. 4,267,345, Cl. 548-233.000.

Malinowski, Frank P.: *See—*
Kramer, William E.; and Malinowski, Frank P., 4,266,762, Cl. 271-225.000.

Mallett, Lawrence G., to USM Corporation. Automatic stud welding gun with perforated stud collet. 4,267,426, Cl. 219-98.000.

Maloof, Ferris A. Cap printing apparatus. 4,266,476, Cl. 101-35.000.

Maloy, Rex M.: *See—*
Coburn, C. David; and Maloy, Rex M., 4,266,564, Cl. 133-5.00R.

Manley, Rockliffe S., to Pulp and Paper Research Institute of Canada. Apparatus for electrostatic fibre spinning from polymeric fluids. 4,266,918, Cl. 425-66.000.

Mann, Seymour, to Aceto Chemical Co, Inc. Production of sodium and potassium alkoxides. 4,267,396, Cl. 568-851.000.

Manners, Frank, to Lansing Bagnall Limited. Control circuit for a D.C. motor. 4,267,492, Cl. 318-376.000.

Mannesmann Aktiengesellschaft: *See—*
Meier, Friedrich; and Philipp, Hugo, 4,266,896, Cl. 409-299.000.

Mannesmann Demag AG: *See—*
Boddenberg, Klaus; Waldmann, Jurgen; and Demmer, Manfred, 4,267,216, Cl. 427-397.800.
Schmitz, Gunter, 4,266,758, Cl. 266-244.000.

Mannhardt, Werner: *See—*
Brown, Wade R.; and Mannhardt, Werner, 4,266,726, Cl. 239-406.000.

Manoury, Philippe: *See—*
Najer, Henry; and Manoury, Philippe, 4,267,328, Cl. 544-394.000.

Manov-Juvensky, Vladimir I.: *See—*
Nefedov, Boris K.; Manov-Juvensky, Vladimir I.; Dergunov, Jury I.; Rysikhin, Anatoly I.; and Chimishkian, Alexandr L., 4,267,070, Cl. 252-429.00R.

Mansfield, Amos R., Jr.: *See—*
Cannon, Lee E.; and Mansfield, Amos R., Jr., 4,267,497, Cl. 318-661.000.

Manufacture de Machines du Haut-Rhin S.A.: *See—*
Richard, J. Richard, 4,266,656, Cl. 198-655.000.

Manwiller, Carl H.: *See—*
Dunnington, Gordon B.; and Manwiller, Carl H., 4,266,919, Cl. 425-102.000.

Margel, Shlomo: *See—*
Rembaum, Alan; and Margel, Shlomo, 4,267,235, Cl. 428-407.000.

Mark, Victor, to General Electric Company. Process for preparing polycarbonates using nitrogen crown-cyclic compounds as catalysts. 4,267,305, Cl. 528-199.000.

Markarian, Mark; and Puppolo, Henry F., to Sprague Electric Company. Thin electrolytic capacitor manufacture. 4,266,332, Cl. 29-570.000.

Markarian, Mark: *See—*
Puppolo, Henry F.; and Markarian, Mark, 4,267,565, Cl. 361-433.000.

Markham, Michael H., to Chubb Industries Ltd. Relocking device for safes and the like. 4,266,488, Cl. 109-59.00R.

Maroszek, Raymond V., to American Can Company. Unitary double cavity carton. 4,266,713, Cl. 229-33.000.

Marsh, Edward K.; and Nelson, Dean R., to Bendix Corporation, The. Insulation-displacing electrical contact and method of making same. 4,266,843, Cl. 339-97.00R.

Martin, Andrew C., to Black Clawson Company, The. Pressurized rotary screening apparatus. 4,267,035, Cl. 209-273.000.

Martin, Frank S.; Melvin, Terence; and Pieroni, Joseph K., to Uniroyal, Inc. Solid golf ball. 4,266,772, Cl. 273-218.000.

Martin, Harry, to Bayerische Motoren Werke Aktiengesellschaft. Hydraulically actuated friction clutch, especially lamellae clutch automatic transmissions of motor vehicles. 4,266,648, Cl. 192-85.0AA.

Marulic, Walter J.; and Gutrigde, Jack E., to Pullman Incorporated. Railway passenger car window framing construction. 4,266,487, Cl. 105-397.000.

Marvin Glass & Associates: *See*—
Kuna, Wayne A.; Katzman, Allison W.; and Terzian, Rouben T., 4,266,367, Cl. 46-149.000.

Marx, Arthur F.; Smid, Peter M.; and Vellekoop, Pieter, to Gist Brocades N.V. New process for the preparation 17β-hydroxy-3-oxo-17α-pregnene and pregnadiene-21-carboxylic acid γ-lactones. 4,267,106, Cl. 260-239.570.

Marykuca, William: *See*—
Holmes, Gordon W.; and Marykuca, William, 4,266,690, Cl. 221-254.000.

Masaki, Kouichi: *See*—
Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, 4,267,207, Cl. 427-129.000.

Maschinenfabrik Alfred Schmermund GmbH & Co.: *See*—
Bald, Hubert, 4,266,652, Cl. 198-347.000.
Bald, Hubert, 4,267,444, Cl. 250-227.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See*—
Helm, Siegfried; and Sprang, Peter, 4,266,911, Cl. 416-9.000.

Mashimo, Yukio: *See*—
Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; Mashimo, Yukio; and Sakurada, Nobuaki, 4,267,437, Cl. 235-92.0PE.

Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, to Farmitalia Carlo Erba S.p.A. Novel daunomycin derivatives, their aglycones and the use thereof. 4,267,116, Cl. 260-376.000.

Maslov, Gennady N.: *See*—
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

Mason, David R. Apparatus for facilitating attachment of a bag to a lawnmower. 4,266,319, Cl. 16-111.00A.

Mason, Gary E.: *See*—
Fisher, George A.; and Mason, Gary E., 4,266,628, Cl. 180-54.00F.

Mason, James L.; and Varjabedian, Steve, to Ford Motor Company. Rear step bumper. 4,266,817, Cl. 293-117.000.

Massarsky, Philip M., to Pennwalt Corporation. Anode for high resistivity cathodic protection systems. 4,267,029, Cl. 204-196.000.

Massey-Ferguson Inc.: *See*—
Fritsch, Joseph E., 4,266,446, Cl. 74-796.000.
Mueller, Otto, Jr., 4,266,616, Cl. 172-7.000.

Massey-Ferguson Services N.V.: *See*—
Haines, Rolf; and Reid, Robert M., 4,266,490, Cl. 111-3.000.

Masstron Scale, Inc.: *See*—
Nordstrom, Kjell H.; Dillon, Benny N.; and Susor, William C., 4,266,624, Cl. 177-253.000.

Mast, Aquila D., to Sperry Corporation. Method for collecting and recycling crop material particles in a roll forming machine. 4,266,390, Cl. 56-1.000.

Mastriani, Elvin A., to Arrow Converting Equipment, Inc. Air differential mandrel and method of differentially winding and rewinding tapes. 4,266,737, Cl. 242-72.00B.

Masuda, Takao: *See*—
Ikenoue, Shinpei; and Masuda, Takao, 4,267,267, Cl. 430-533.000.

Masudaya Toy Company Limited: *See*—
Saitoh, Shigeru, 4,266,769, Cl. 273-86.00B.

Mathis, Leroy: *See*—
Rowan, Robert A.; and Mathis, Leroy, 4,266,510, Cl. 119-51.00R.

Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, to Bridgestone Tire Company Limited; and Mitaka Instrument Company Limited. Alarm device for informing reduction of pneumatic pressure of vehicle tires. 4,267,546, Cl. 340-58.000.

Matsui, Takahiro; and Saito, Yoshio, to Kabushiki Kaisha Morita Seisakusho. Device for controlling tilting of headrest of treatment table. 4,266,760, Cl. 269-323.000.

Matsumoto, Shoichi; Kato, Hirohisa; and Wada, Yusuke, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of producing electrochromic display device. 4,266,335, Cl. 29-592.00R.

Matsumura, Yasushi: *See*—
Koshida, Daikichi; Sugisawa, Ko; Matsumura, Yasushi; and Taga, Kazumitsu, 4,267,199, Cl. 426-589.000.

Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, to Nissan Motor Company, Limited. Apparatus for adjusting the position and/or angle of each movable equipment of a motor vehicle. 4,267,494, Cl. 318-568.000.

Matsuoka, Kimiaki: *See*—
Ozawa, Masahiro; Komatsu, Tadaaki; and Matsuoka, Kimiaki, 4,267,360, Cl. 560-111.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Ishikawa, Toshiro; Kitani, Teruo; and Baba, Takaaki, 4,267,560, Cl. 358-22.000.
Nawa, Motoyuki; Takahashi, Yutaka; and Sugawara, Norio, 4,266,722, Cl. 239-590.500.
Sasaki, Umekichi; Tsunemi, Masaaki; Yamada, Kaichi; and Morikawa, Yoshiyuki, 4,267,064, Cl. 252-52.00A.

Matsushita Electric Industrial Co., Ltd: *See*—
Fujita, Niitaka, 4,266,563, Cl. 133-4.00A.

Matsuzawa, Mitsuo; and Yashita, Hajime, to Trio Kabushiki Kaisha. Interference eliminator in communication receiver. 4,267,605, Cl. 455-266.000.

Matthys, Bernard A.; Schoen, Donald W.; and Anderson, Carl E., to United States of America, Army. Mechanism for removing dust particles from an engine air cleaner. 4,266,953, Cl. 55-294.000.

Mattson, George B.: *See*—
Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., 4,266,401, Cl. 60-39.16R.

Mattsson, Kjell: *See*—
Nygaard, Kurt; Mattsson, Kjell; and Bratt, Sven-Erik, 4,267,567, Cl. 362-46.000.

Matwey, Paul: *See*—
Dodge, Dennis; Matwey, Paul; Madigan, Thomas M.; and Powers, Robert H., 4,266,866, Cl. 354-84.000.

Maxson Corporation, The: *See*—
Puariea, Douglas A., 4,266,486, Cl. 105-276.000.

Mayer, Dieter: *See*—
Motz, Herbert; Schaefer, Dieter; Huebner, Werner; and Mayer, Dieter, 4,267,203, Cl. 427-48.000.

Maykemper, Alfred, to Hermann Hemscheidt Maschinenfabrik GmbH & Co. Hydraulic roof-support frame. 4,266,892, Cl. 405-293.000.

Mayumi, Hiroshi, to Nippon Electric Co., Ltd. Digital integrated circuit. 4,267,463, Cl. 307-445.000.

Mazzella, Frank: *See*—
Yeh, Kuo-Chen; and Mazzella, Frank, 4,267,164, Cl. 424-44.000.

Mazzorana, Alfred B., to Societe de Paris et du Rhone. Free wheels. 4,266,642, Cl. 192-45.000.

Mazzotta, Paul F.: *See*—
Rick, Randy L.; Mazzotta, Paul F.; and Daiello, Cosimo D., 4,267,431, Cl. 219-225.000.

McBride, Roy T. Humane trap device. 4,266,364, Cl. 43-90.000.

McBurnett, James R.; and Eley, James M., to Tyrone Hydraulics Inc. Gear pumps and motors. 4,266,915, Cl. 418-126.000.

MCC Flowseal, a unit of Mark Controls Corporation: *See*—
Johnson, Stephen A., 4,266,752, Cl. 251-173.000.

McClure, Thomas D., to Johns-Manville Corporation. Sample preparation apparatus and process for the use thereof. 4,267,056, Cl. 210-678.000.

McCollum, John D., to Standard Oil Company (Indiana). Method for detecting underground conditions. 4,266,608, Cl. 166-250.000.

McCormick, Charles L. Controlled release pesticides and method of preparation. 4,267,280, Cl. 525-56.000.

McCormick, Charles L. Controlled release pesticides. 4,267,281, Cl. 525-61.000.

McCoy, Bryan L.: *See*—
Dankman, Scott; Levy, Richard C.; and McCoy, Bryan L., 4,267,551, Cl. 340-384.00E.

McCoy, Bryan L.: *See*—
Dankman, Scott; Levy, Richard C.; and McCoy, Bryan L., 4,267,551, Cl. 340-384.00E.

McCoy, Terence D.: *See*—
Farr, Garth M.; and McCoy, Terence D., 4,266,450, Cl. 81-57.330.

McDermott, William E.; Benard, David J.; Pchelkin, Nicholas R.; and Bousek, Ronald R., to United States of America, Air Force. Continuous wave chemically pumped atomic iodine laser. 4,267,526, Cl. 331-94.50G.

McDonough, Robert M., to Ford Aerospace & Communications Corp. Low profile pushbutton radio tuner. 4,266,433, Cl. 74-10.330.

McDougal, John A. Vibration sensors for internal combustion engines. 4,266,421, Cl. 73-1.0DV.

McDuffie, James W.; Knepper, Larimer J.; and Knipper, Larimer J., to Sperry Corporation. Header attachment mechanism for combines. 4,266,391, Cl. 56-14.500.

McDuffie, James W.: *See*—
Knepper, Larimer J.; McDuffie, James W.; and Wagstaff, Robert A., 4,266,392, Cl. 56-14.500.

McFall, Richard T. Fluid resonator. 4,266,879, Cl. 366-108.000.

McGill, Charles K., to Reilly Tar & Chemical Corporation. Substituted 2,2'-bipyridyl compounds and process for preparing same. 4,267,335, Cl. 546-257.000.

McIntosh Laboratory, Inc.: *See*—
Russell, Roger H., 4,267,405, Cl. 179-1.00E.

McKeighen, Ronald E.; and Buchin, Michael P., to Siemens Gammasonics, Inc. Permutating analog shift register variable delay system. 4,267,584, Cl. 367-11.000.

McKewan, Arthur J., to Microdot Inc. Prevailing torque nut. 4,266,590, Cl. 411-307.000.

McNulty, Robert A. Apparatus for simultaneously exercising a plurality of horses. 4,266,508, Cl. 119-29.000.

McQuary, Kenneth L., to Placo Products Company. Target with hit counter. 4,266,780, Cl. 273-387.000.

McWhorter, Edward M. Articulating guide spring. 4,266,443, Cl. 74-579.00E.

Medtronic, Inc.: *See*—
Dutcher, Robert G.; and O'Neill, Edward G., 4,266,552, Cl. 128-419.00P.
Stein, Marc T., 4,266,551, Cl. 128-419.0PG.

Meeker, James A., to Libbey-Owens-Ford Company. Method and apparatus for shaping thermoplastic sheets. 4,267,140, Cl. 264-291.000.

Mehta, Bakulesh A.: *See*—
Regan, John F.; and Mehta, Bakulesh A., 4,267,593, Cl. 370-62.000.

Meier, Friedrich; and Philipp, Hugo, to Mannesmann Aktiengesellschaft; and Rochlingburbach Weiterverarbeiting GmbH. Deburring tubes or pipes on the inside. 4,266,896, Cl. 409-299.000.

Meister, John J., to Phillips Petroleum Company. Sulfonate-cosurfactant mixtures for use in hard brines during oil recovery operations. 4,266,610, Cl. 166-273.000.

Melroe Multi-Wheel: *See*—
Garner, Fay T.; and Joubert, Jerauld D., 4,266,625, Cl. 180-6.480.

Melvin, Terence: *See*—
Martin, Frank S.; Melvin, Terence; and Pieroni, Joseph K., 4,266,772, Cl. 273-218.000.

Menke, Josef F., to ELECTRO-OPTIK GmbH & Co. KG. Apparatus for line-scanning of large image fields. 4,266,847, Cl. 350-6.600.

Merck & Co., Inc.: *See*—
Cama, Lovji D.; and Christensen, Burton G., 4,267,188, Cl. 424-274.000.
Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., 4,267,341, Cl. 548-206.000.

Merck Patent Gesellschaft mit beschrankter Haftung: *See*—
Bodart, Detlef, 4,266,877, Cl. 356-414.000.

Merenda, Rosario. Filtering device for dry cleaning. 4,266,412, Cl. 68-18.00F.

Mergl, Vernon F., to National Instrument Company, Inc. Stoppering machine. 4,266,653, Cl. 198-392.000.

Merrell Toraude et Compagnie: *See*—
Metcalf, Brian W.; Jung, Michel; and Danzin, Charles, 4,267,374, Cl. 564-509.000.

Merriman, Horace B.: *See*—
Laszlo, Akos; and Merriman, Horace B., 4,266,983, Cl. 134-21.000.

Merritt, Henry B.; and Kite, George F., to Philip Morris Incorporated. Process for puffing tobacco. 4,266,562, Cl. 131-293.000.

Merry, Jack D., to Kendall Company, The. Low friction syringe. 4,266,557, Cl. 128-763.000.

Merz, Karlheinz; and Ulrich, Roland, to Karl Merz Maschinenfabrik. Apparatus for separating waste material contained in a heap. 4,267,037, Cl. 209-481.000.

Mesch, Hans G.; Debenham, Colin H.; and Yasui, Robert K., to TRW Inc. Automatic solar cell glassing machine and method. 4,267,003, Cl. 156-356.000.

Messerschmit-Boelkow-Blohm GmbH: *See*—
Pogoda, Dieter; Petters, Claus; and Rost, Arno, 4,267,147, Cl. 264-571.000.

Metal Leve S.A. Industria e Comercio: *See*—
Mahrus, Duraid; and Paulos, Antonio C., 4,267,241, Cl. 428-645.000.

Metallgesellschaft Aktiengesellschaft: *See*—
Schwartz, Werner; Fischer, Peter; and Traulsen, Heinrich, 4,266,971, Cl. 75-69.000.
Simo, Thomas; and Rammler, Roland, 4,267,061, Cl. 210-772.000.

Metalweld, Inc.: *See*—
Oechsle, Sixtus J., III, 4,267,299, Cl. 528-48.000.

Metcalf, Brian W.; Jung, Michel; and Danzin, Charles, to Merrell Toraude et Compagnie. Derivatives of amines and amino acids. 4,267,374, Cl. 564-509.000.

Metil, Ignatius. Alloys of epoxy and homopolymers of furfuryl alcohol. 4,267,236, Cl. 428-413.000.

Meunier, Francois C.: *See*—
Hutchins, Terence N.; and Meunier, Francois C., 4,266,853, Cl. 350-96.200.

Meyer, Louis H.; and Collins, Ellsworth H., to Interlake, Inc. Accumulating roller conveyor. 4,266,659, Cl. 198-781.000.

Meyer, Peter J. N.; and Penders, Josef M., to Stamicarbon, B.V. Process for the preparation of delta keto-acids and derivatives thereof. 4,267,362, Cl. 560-174.000.

Meyer, Roth & Pastor: *See*—
Heppe, Karl-Julius, 4,267,421, Cl. 219-51.000.

Michl, Rudy; and Wollwage, Peter, to Perdent, GmbH. Material for dental purposes. 4,267,097, Cl. 260-42.150.

Micro-Mega, S.A.: *See*—
Pernot, Jacques, 4,266,934, Cl. 433-85.000.

Microdot Inc.: *See*—
McKewan, Arthur J., 4,266,590, Cl. 411-307.000.

Mikami, Ryuzo: *See*—
Hanada, Tsuneo; and Mikami, Ryuzo, 4,267,297, Cl. 528-18.000.

Miller, John R., to United States of America, Energy. Apparatus for producing cryogenic inertially driven fusion targets. 4,266,506, Cl. 118-725.000.

Miller, Peter A. Travelling sheet, flat-bed vacuum filter and method. 4,267,060, Cl. 210-741.000.

Mills, Stuart D.: *See*—
Johnson, Malcolm; Mills, Stuart D.; and Phillips, Paul J., 4,267,183, Cl. 424-263.000.

Milton, Alan, to Institut Francais du Petrole. Method and device for connecting a floating installation to an underwater installation through at least one flexible line. 4,266,886, Cl. 405-169.000.

Milutzki, Udo; Gaus, Harry; Schotte, Dietwald; and Ramspeck, Klaus, to Braun Aktiengesellschaft. Control mechanisms for pick-up arms of record players. 4,266,783, Cl. 369-41.000.

Mimura, Akitoshi: *See*—
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.

Mimura, Nobuyuki: *See*—
Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.

Minamoto, Toshio: *See*—
Imamura, Kazuo; and Minamoto, Toshio, 4,266,417, Cl. 72-168.000.

Mindey, Marlene S.: *See*—
Graziano, Joseph L., 4,266,298, Cl. 2-22.000.

Minnesota Mining & Manufacturing Company: *See*—
Beck, Boyd R.; Sher, Frank T.; and Tiers, George V. D., 4,267,213, Cl. 427-292.000.
Bresina, Larry J.; and Hipp, Richard D., 4,266,868, Cl. 355-3.0DD.
Chernega, John G., 4,267,238, Cl. 428-422.000.
Guilbert, Curtis R., 4,267,300, Cl. 528-92.000.
Hollingsworth, Elmont E.; Shea, Wm. M.; and Spitzer, Daniel M., Jr., 4,266,863, Cl. 354-5.000.

Minolta Camera Kabushiki Kaisha: *See*—
Hamaguri, Kenji, 4,266,554, Cl. 128-633.000.
Sawa, Seiji, 4,266,861, Cl. 351-7.000.
Wada, Kenichi, 4,267,245, Cl. 430-97.000.

Miripol, Jeffrey E.: *See*—
Grode, Gerald A.; and Miripol, Jeffrey E., 4,267,269, Cl. 435-2.000.

Mishina, Haruhiko: *See*—
Toda, Kashiku; Honda, Moriji; and Mishina, Haruhiko, 4,266,497, Cl. 114-144.00R.

Mita Industrial Company Limited: *See*—
Nishibayashi, Katsumi; Amagai, Yoshimi; Hikake, Norio; Kouchi, Toshihiro; and Aizawa, Tatsuo, 4,267,246, Cl. 430-98.000.

Mitaka Instrument Company Limited: *See*—
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,267,546, Cl. 340-58.000.

Mitani, Katsuo: *See*—
Mizutani, Yukio; Mitani, Katsuo; and Machara, Takashi, 4,267,084, Cl. 260-23.0XA.

Mitchell, Wallace F.; and Kamin, Arthur, to Ammco Tools, Inc. Method and apparatus for dampening vibrations during turning of a rotor. 4,266,454, Cl. 82-1.00C.

Mitsubishi Chemical Industries, Ltd.: *See*—
Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, 4,267,260, Cl. 430-302.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Kishida, Mitsuhiro, 4,267,400, Cl. 174-31.00R.
Makino, Yoshihiro; and Yoshihara, Toshihiko, 4,266,950, Cl. 55-196.000.
Murakami, Katsuo; Anzai, Yoshinori; Otani, Mitsuoki; and Ito, Hiroshi, 4,267,485, Cl. 313-486.000.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Toda, Kashiku; Honda, Moriji; and Mishina, Haruhiko, 4,266,497, Cl. 114-144.00R.

Mitsubishi Kakoki Kaisha Ltd.: *See*—
Kobayashi, Yoshio; Ando, Koichi; and Hyodo, Susumu, 4,267,155, Cl. 423-235.000.

Mitsuboshi Belting Ltd.: *See*—
Takano, Hiroshi, 4,266,937, Cl. 474-205.000.

Mitsuhashi, Yuuji, to Dai Nippon Insatsu Kabushiki Kaisha. Method of measuring the amount of reduction of a dot film, and device for practicing same. 4,266,872, Cl. 356-51.000.

Mitsui Petrochemical Industries Ltd.: *See*—
Imai, Ichiro; Hashimoto, Isao; Suzuki, Keiji; and Nakagawa, Hiroaki, 4,267,387, Cl. 568-568.000.

Mitsui Toatsu Chemicals, Incorporated: *See*—
Ozaki, Shoichiro; Ike, Yoshimasa; Ishikawa, Katsutoshi; and Mori, Haruki, 4,267,326, Cl. 544-313.000.

Mitzutani, Tatsumi: *See*—
Iida, Shinya; Ueki, Kazuyoshi; Komatsu, Hideo; and Mitzutani, Tatsumi, 4,267,013, Cl. 156-643.000.

Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, to Mitsubishi Chemical Industries, Ltd. Developer for lithographic printing plate. 4,267,260, Cl. 430-302.000.

Miyagi, Hideo: *See*—
Nakano, Jiro; and Miyagi, Hideo, 4,266,521, Cl. 123-491.000.

Miyoshi, Ichiro: *See*—
Yagi, Akira; Miyoshi, Ichiro; and Nogami, Nobusue, 4,267,220, Cl. 428-96.000.

Miyoshi, Tadahiko; and Yamazaki, Takeo, to Hitachi, Ltd. Oxygen sensor ceramic and process for preparing the same. 4,266,979, Cl. 106-57.000.

Miyosi, Juiti: *See*—
Ueno, Hideo; and Miyosi, Juiti, 4,267,219, Cl. 428-90.000.

Mizobe, Akio: *See*—
Okazaki, Masaki; and Mizobe, Akio, 4,267,016, Cl. 162-146.000.

Mizote, Masanori: *See*—
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.

Mizuno, Mamoru; and Tsuzuki, Hanzou, to Casio Computer Co., Ltd. Electronic timepiece circuit. 4,267,587, Cl. 368-85.000.

Mizutani, Yukio; Mitani, Katsuo; and Maehara, Takashi, to Tokuyama Soda Kabushiki Kaisha. Vinyl chloride polymer blend composition. 4,267,084, Cl. 260-23.0XA.

Mobil Oil Corporation: *See*—
Chen, Catherine S. H.; Schmitt, Kirk D.; and Williams, Albert L., 4,267,123, Cl. 260-501.120.
Frangatos, Gerassimos, 4,267,063, Cl. 252-49.900.

Halstead, Louis N., 4,266,607, Cl. 166-244.00C.
Heck, Roland H.; Oleck, Stephen M.; Shih, Stuart S.; and Wilson, Robert C., 4,267,033, Cl. 208-216.0PP.
Jaffe, Stephen B., 4,267,071, Cl. 252-439.000.

Mobil Tyco Solar Energy Corporation: *See—*
Bates, Herbert E.; and Strzepek, Stanley W., 4,267,010, Cl. 156-608.000.
Taylor, Aaron S., 4,267,153, Cl. 422-249.000.
Yates, Douglas A.; Hatch, Arthur E.; and Goldsmith, Jeff M., 4,267,151, Cl. 422-105.000.

Model A and Model T Car Reproduction Corporation, The: *See—*
Sanders, Earl; and Sanders, Daniel, 4,266,792, Cl. 280-153.00R.

Moench, Jerry D.: *See—*
Kung, Roger I.; and Moench, Jerry D., 4,267,466, Cl. 307-279.000.

Mogi, Takaaki: *See—*
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.

Mohr, Siegfried H., to Quantor Corporation. Quick change lens system. 4,266,855, Cl. 350-254.000.

Molitors, Thomas J., to Karg Corporation. Tandem braiding system and components thereof. 4,266,461, Cl. 87-29.000.

Molnar, Charles J.: *See—*
Grot, Walther G.; Molnar, Charles J.; and Resnick, Paul R., 4,267,364, Cl. 560-183.000.

Momma, Naohiro; and Taniguchi, Hiroyuki, to Hitachi, Ltd. Process for diffusion of aluminum into a semiconductor. 4,266,990, Cl. 148-189.000.

Monaco, George, to Stella D'oro Biscuit Co. Inc. Seed applying apparatus for food products. 4,266,502, Cl. 118-16.000.

Monarch Marking Systems, Inc.: *See—*
Karn, Donald L.; and Makley, James A., 4,267,006, Cl. 156-384.000.

Moninger, Friedrich: *See—*
Kohler, Ernst; and Moninger, Friedrich, 4,267,226, Cl. 428-223.000.

Monk, Robert J. Energy rays tracking device. 4,267,441, Cl. 250-203.00R.

Monnet, Andre A.: *See—*
Duperray, Gilbert; Monnet, Andre A.; and Tournut, Claude, 4,267,237, Cl. 428-422.000.

Monsanto Company: *See—*
Tokas, Edward F., 4,267,282, Cl. 525-86.000.

Mookherjee, Braja D.; Mussinan, Cynthia J.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. Preparation of a caryophyllene alcohol mixture in perfume compositions. 4,267,076, Cl. 252-522.00R.

Mookherjee, Braja D.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,066, Cl. 252-174.110.

Moore, Thomas G.: *See—*
Karpinsky, John R.; and Moore, Thomas G., 4,267,561, Cl. 358-82.000.

Moresi, Joseph A., Jr., to Sprague Electric Company. Sealed flat electrolytic capacitor and method. 4,267,566, Cl. 361-433.000.

Moret, Michel A., to Les Produits Associes BPA SA. Diagnostic lamp. 4,266,535, Cl. 128-23.000.

Morgan, Grant T.: *See—*
Moyroud, Louis M.; Morgan, Grant T.; and Casanova, Bernard A., 4,266,864, Cl. 354-15.000.

Mori, Haruki: *See—*
Ozaki, Shoichiro; Ike, Yoshimasa; Ishikawa, Katsutoshi; and Mori, Haruki, 4,267,326, Cl. 544-313.000.

Morie, Gerald P.: *See—*
Sloan, Cephas H.; Wright, Jerry A.; and Morie, Gerald P., 4,267,002, Cl. 156-276.000.

Morikawa, Michio: *See—*
Hayashi, Torahiko; Kageyama, Minoru; and Morikawa, Michio, 4,266,920, Cl. 425-133.100.

Morikawa, Yoshiyuki: *See—*
Sasaki, Umekichi; Tsunemi, Masaaki; Yamada, Kaichi; and Morikawa, Yoshiyuki, 4,267,064, Cl. 252-52.00A.

Morishita Pharm.: *See—*
Hashino, Yasuo; Hayano, Fusakazu; and Toyomoto, Kazuo, 4,267,053, Cl. 210-650.000.

Moriya, Mitsumasa: *See—*
Yoritomi, Kenzaburo; Kezuka, Teruo; and Moriya, Mitsumasa, 4,267,054, Cl. 210-659.000.

Moriya, Yoshiaki: *See—*
Kobayashi, Ichiro; Moriya, Yoshiaki; and Kitagawa, Yukio, 4,267,581, Cl. 364-900.000.

Morohashi, Hisao, to Ohno Research and Development Laboratories Company Limited. Thin schaukasten. 4,267,489, Cl. 315-324.000.

Moss, James P. Portable suction device for collecting fluids from a closed wound. 4,266,545, Cl. 128-278.000.

Moss, Jerome A. Shelf display. 4,266,355, Cl. 40-124.100.

Motoren-und Turbinen-Union Munchen GmbH: *See—*
Schweikl, Ludwig; Greune, Christian; and Lottes, Paul, 4,266,725, Cl. 239-265.190.

Motorola, Inc.: *See—*
Hilliker, Stephen E., 4,267,468, Cl. 307-310.000.
Kung, Roger I.; and Moench, Jerry D., 4,267,466, Cl. 307-279.000.
Smith, Stephen L., 4,267,501, Cl. 323-313.000.

Motta, Raimondo, to Oxon Italia S.p.A. Heterocyclic chemical compound 6-phenyl-[1,2,3]-oxadiazolo-(4,5 d)-pyridazine-7(6H)-one and process for producing it. 4,267,323, Cl. 544-236.000.

Motz, Herbert; Schaefer, Dieter; Huebner, Werner; and Mayer, Dieter, to BASF Aktiengesellschaft. Manufacture of magnetic recording media. 4,267,203, Cl. 427-48.000.

Moulton, Robert H.: *See—*
Trueblood, Troy M.; and Moulton, Robert H., 4,267,118, Cl. 260-428.000.

Moyroud, Louis M.; Morgan, Grant T.; and Casanova, Bernard A., to Bobst, S.A. Mask device for photocomposing machines. 4,266,864, Cl. 354-15.000.

Mueller, Georg; and Weiss, Herbert, to Mueller, Georg; and Weiss, Herbert. Apparatus for manufacturing high quality crystals. 4,267,154, Cl. 422-249.000.

Mueller, Karl F., to Ciba-Geigy Corporation. Perfluoroalkyl substituted anhydrides and polyacids, and derivatives thereof. 4,267,087, Cl. 260-29.2EP.

Mueller, Otto, Jr., to Massey-Ferguson Inc. Draft sensing apparatus wherein effect of vertical deflection reduced to insignificant levels compared to horizontal deflection. 4,266,616, Cl. 172-7.000.

Muench, Helen S. Ornamental and protective collar for an animal collar. 4,266,511, Cl. 119-106.000.

Muenstedt, Helmut, to BASF Aktiengesellschaft. Apparatus for determining the stress-strain properties of viscoelastic materials in the molten state. 4,266,424, Cl. 73-15.600.

Mukai, Tadao; and Takatani, Teruhika, to Toyo Kogyo Co., Ltd. Lock remote control. 4,266,816, Cl. 292-129.000.

Muller, Hans, to Muller, Ing Hans, Dr. Method of recovering products of high protein content from protein-polysaccharide complexes. 4,267,275, Cl. 435-272.000.

Muller, Hans-Jurgen, to Pierburg GmbH & Co. Kg. Fuel-air mixture arrangement with an air-compressing super-charger for a combustion engine. 4,266,520, Cl. 123-454.000.

Muller, Hans-Ueli: *See—*
Festag, Werner; and Muller, Hans-Ueli, 4,266,416, Cl. 72-60.000.

Muller, Ing Hans, Dr.: *See—*
Muller, Hans, 4,267,275, Cl. 435-272.000.

Muller, Lisbet: *See—*
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.

Mullet, David L.; Rilling, Raymond J.; and Voth, Elmer D., to Excel Industries, Inc. Tractor with full-floating tool bar. 4,266,617, Cl. 172-76.000.

Mumola, Joanne L.: *See—*
Boyd, Clay E.; Jones, John C.; and Mumola, Joanne L., 4,267,555, Cl. 340-748.000.

Murakami, Katsuo; Anzai, Yoshinori; Otani, Mitsuoki; and Ito, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Fluorescent lamp with sharp emission peaks betwen 480 and 490 nm and between 620 and 640 nm. 4,267,485, Cl. 313-486.000.

Muramoto, Ken-ichi; Tani, Keizo; Tomisawa, Yutaka; and Hideshima, Makoto, to Tokyo Shibaura Denki Kabushiki Kaisha. Semiconductor device. 4,267,557, Cl. 357-20.000.

Muraoka, Yasuhiko: *See—*
Fujii, Akio; Fukuoka, Takeyo; Muraoka, Yasuhiko; Takita, Tomohisa; and Umezawa, Hamao, 4,267,102, Cl. 260-112.50R.

Murata Manufacturing Co., Ltd.: *See—*
Kanematsu, Tetsuo; and Taki, Tsuneo, 4,267,480, Cl. 310-366.000.

Murata, Masahiro, to Hope Co., Ltd. Ski braking device. 4,266,804, Cl. 280-605.000.

Murphy, Patrick, to Boeing Company, The. Mounting apparatus for fan jet engine having mixed flow nozzle installation. 4,266,741, Cl. 244-54.000.

Murray, John A., to U.S. Terrazzo Panels, Inc. Method and apparatus for the manufacture of concrete and like products. 4,266,921, Cl. 425-158.000.

Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Process for augmenting or enhancing the aroma of detergent using derivatives of cis-3-hexenol. 4,267,066, Cl. 252-174.110.

Mussinan, Cynthia J.: *See—*
Mookherjee, Braja D.; Mussinan, Cynthia J.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,267,076, Cl. 252-522.00R.

Musso, Charles S., Jr., to Air-Flo Manufacturing Co., Inc. Dump spreader. 4,266,731, Cl. 239-676.000.

Mutti, Werner H. Method and apparatus for storing heat energy. 4,266,598, Cl. 165-1.000.

Myers, Bruce P.: *See—*
Wronski, Christopher R.; and Myers, Bruce P., 4,266,984, Cl. 136-255.000.

Myers-Europe Pumpen GmbH: *See—*
Kruger, Burkhard, 4,266,709, Cl. 226-181.000.

Myers, June L. Collapsible and carryable cart. 4,266,791, Cl. 280-37.000.

Mykleby, Laurie G., to First National Packaging Co., Inc. Collapsible reinforced container. 4,266,670, Cl. 206-600.000.

N.B.E. Corporation: *See—*
Olschefski, Robert D., 4,266,346, Cl. 33-174.00Q.

Nagai, Minoru: *See—*
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.

Nagao, Kameji: *See—*
Sugimoto, Naohiko; Horie, Ikutaro; Nagao, Kameji; Yoneyama, Masakazu; Nakayama, Yasuhiro; and Yamamoto, Nobuo, 4,267,265, Cl. 430-523.000.

Nagaoka, Shinji: *See—*
Kitai, Kiyoshi; Nagaoka, Shinji; and Takazawa, Yuzuru, 4,267,440, Cl. 250-201.000.

Nagayasu, Koichi: *See—*
Shibue, Toshiaki; and Nagayasu, Koichi, 4,267,266, Cl. 430-530.000.

Naito, Jiro: *See—*
Yoneda, Yasuhiro; Kitamura, Kenro; Naito, Jiro; and Kitakohji, Toshisuke, 4,267,258, Cl. 430-270.000.

Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, to Ohbayashi-Gumi Ltd.; and Nichireki Chemical Industry Co., Ltd. Method of constructing a continuous cut-off wall and a core of a fill-type dam. 4,266,885, Cl. 405-109.000.

Najer, Henry; and Manoury, Philippe, to Synthelabo. 1-Phenylpiperazines. 4,267,328, Cl. 544-394.000.

Nakagawa, Akira, to Nifco Inc. Tape reel. 4,266,738, Cl. 242-74.100.

Nakagawa, Hiroaki: *See—*
Imai, Ichiro; Hashimoto, Isao; Suzuki, Keiji; and Nakagawa, Hiroaki, 4,267,387, Cl. 568-568.000.

Nakagawa, Toshiharu: *See—*
Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, 4,266,503, Cl. 118-657.000.

Nakagawa, Yuzo; Iwatani, Kouji; and Kadono, Tetsuro, to Shionogi & Co., Ltd. Sample holding element for mass spectrometer. 4,267,457, Cl. 250-522.000.

Nakagima, Shigeo; Takahashi, Ken; and Endo, Hajime, to Taiheiyo Engineering Inc. Apparatus on drum shearer for cutting through safety wall in long wall mining. 4,266,828, Cl. 299-53.000.

Nakaguti, Osamu: *See—*
Kamiya, Takashi; Saito, Yoshihisa; Teraji, Tsutomu; Nakaguti, Osamu; and Oku, Teruo, 4,267,340, Cl. 548-187.000.

Nakahara, Tosio; Yano, Hidetoshi; and Kasahara, Nobuo, to Ricoh Company, Ltd. Magnetic brush development apparatus and method. 4,267,201, Cl. 427-27.000.

Nakai, Masaaki: *See—*
Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, 4,267,469, Cl. 307-311.000.

Nakai, Yoshiharu: *See—*
Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,267,176, Cl. 424-246.000.

Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, to Kabushiki Kaisha Toyota Chuo; and Nippondenso Co., Ltd. Insulator on spark plug electrode coated with zirconium and vanadium oxides. 4,267,483, Cl. 313-143.000.

Nakamichi Research Inc.: *See—*
Terui, Nobuo; and Kobayashi, Kozo, 4,267,515, Cl. 328-147.000.

Nakano, Jiro; and Miyagi, Hideo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of fuel injection control during starting. 4,266,521, Cl. 123-491.000.

Nakano, Masao: *See—*
Takemae, Yoshihiro; and Nakano, Masao, 4,267,464, Cl. 307-463.000.

Nakatsuka, Asao: *See—*
Sakanoue, Seiki; Waki, Kokichi; Tsubota, Motohiko; Takahashi, Osamu; and Nakatsuka, Asao, 4,267,250, Cl. 430-214.000.

Nakayama, Hiroyuki; and Nezu, Tsuguo, to Kansai Paint Co., Ltd. Method for modifying the surface properties of polymer substrates. 4,267,202, Cl. 427-40.000.

Nakayama, Yasuhiro: *See—*
Sugimoto, Naohiko; Horie, Ikutaro; Nagao, Kameji; Yoneyama, Masakazu; Nakayama, Yasuhiro; and Yamamoto, Nobuo, 4,267,265, Cl. 430-523.000.

Nakayama, Yoshiaki: *See—*
Yokoyama, Takayuki; Nakayama, Yoshiaki; and Yasuda, Yasuo, 4,267,080, Cl. 260-4.00R.

Nakazato, Masao: *See—*
Yoneda, Kanji; Yuminaka, Takeo; and Nakazato, Masao, 4,266,632, Cl. 187-29.00R.

Nakazawa, Kiwao; and Tanimoto, Akikazu, to Nippon Kogaku K.K. Automatic alignment apparatus. 4,266,876, Cl. 356-400.000.

Namboodri, Chettoor G.: *See—*
Gregorian, Razmic S.; and Namboodri, Chettoor G., 4,266,976, Cl. 106-2.000.

Nara, Ryuichi: *See—*
Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, 4,267,424, Cl. 219-86.410.

Narikiyo, Tatsuichi, to Denki Onkyo Co., Ltd. Deflection yoke apparatus with convergence device for in-line color television cathode-ray tube. 4,267,541, Cl. 335-212.000.

Nasu, Rikuo: *See—*
Nishiyama, Ryuzo; Fujikawa, Kanichi; Nasu, Rikuo; and Shigehara, Itaru, 4,267,336, Cl. 546-302.000.

National Distillers and Chemical Corp.: *See—*
Heimberg, Manfred; and Rekers, Louis J., 4,267,090, Cl. 260-29.60R.
Smith, David W., 4,267,384, Cl. 568-462.000.

National Instrument Company, Inc.: *See—*
Mergl, Vernon F., 4,266,653, Cl. 198-392.000.

National Semiconductor Corporation: *See—*
Cecil, James B., 4,267,550, Cl. 340-347.0DA.

Nawa, Motoyuki; Takahashi, Yutaka; and Sugawara, Norio, to Matsushita Electric Industrial Co., Ltd. Fluid deflecting assembly. 4,266,722, Cl. 239-590.500.

Neely, James W., to Rohm and Haas Company. Separation of more planar molecules from less planar molecules. 4,267,055, Cl. 210-670.000.

Nefedov, Boris K.; Manov-Juvensky, Vladimir I.; Dergunov, Jury I.; Rysikhin, Anatoly I.; and Chimishkian, Alexandr L. Catalyst for the synthesis of aromatic monoisocyanates. 4,267,070, Cl. 252-429.00R.

Nehmiz, Peter: *See—*
Bohlen, Harald; Greschner, Johann; Kulcke, Werner; and Nehmiz, Peter, 4,267,259, Cl. 430-296.000.

Nelson, Dean R.: *See—*
Marsh, Edward K.; and Nelson, Dean R., 4,266,843, Cl. 339-97.00R.

Nelson, John R., to Research, Development & Marketing, Inc. Dispenser for cup-shaped filters. 4,266,665, Cl. 206-445.000.

Nelson, Robert A., Jr. Spermatozoa extenders. 4,267,268, Cl. 435-2.000.

Nelson, Robert F.: *See—*
Conway, Richard A.; and Nelson, Robert F., 4,267,050, Cl. 210-608.000.

Network Systems Development Associates: *See—*
Cohn, Nathan, 4,267,571, Cl. 364-493.000.

Neustadt, Bernard R.; and Gold, Elijah H., to Schering Corporation. N-substituted-4-(polyfluoro-2-hydroxy-2-propyl)anilines and compounds related thereto. 4,267,193, Cl. 424-309.000.

Newman, George R., to Canron Corporation. Ballast side plow. 4,266,352, Cl. 37-105.000.

Newman, George R., to Canron Corporation. Device for plowing ballast. 4,266,353, Cl. 37-105.000.

Neyer, Johannes: *See—*
Bornefeld, Horst; Comberg, Gerd; Engel, Werner; and Neyer, Johannes, 4,266,373, Cl. 51-99.000.

Nezu, Tsuguo: *See—*
Nakayama, Hiroyuki; and Nezu, Tsuguo, 4,267,202, Cl. 427-40.000.

NHK Spring Co., Ltd.: *See—*
Sakai, Yoshihiro; and Takahashi, Jun, 4,266,418, Cl. 72-197.000.

Nichireki Chemical Industry Co., Ltd.: *See—*
Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, 4,266,885, Cl. 405-109.000.

Nicolaides, Ernest D.: *See—*
Haskell, Theodore H.; Hutt, Marland P., Jr.; and Nicolaides, Ernest D., 4,267,180, Cl. 424-251.000.

Nidola, Antonio: *See—*
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,267,025, Cl. 204-82.000.

Niebylski, Leonard M., to Ethyl Corporation. Gasoline containing exhaust emission reducing additives. 4,266,946, Cl. 44-68.000.

Nielsen, Robert P.; and Jecminek, Albert A., to Shell Oil Company. Ethylene oxide catalyst. 4,267,073, Cl. 252-455.00R.

Niessen, Heinz J.: *See—*
Kersting, Elmar; and Niessen, Heinz J., 4,266,962, Cl. 71-90.000.

Nifco Inc.: *See—*
Nakagawa, Akira, 4,266,738, Cl. 242-74.100.

Niimi, Hiroshi: *See—*
Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, 4,266,324, Cl. 19-239.000.

Niimi, Yukihisa; and Saegusa, Katsumi, to Kao Soap Co., Ltd. Detergent composition for dry cleaning. 4,267,077, Cl. 252-545.000.

Niizuma, Hiroshi: *See—*
Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, 4,266,604, Cl. 165-176.000.

Nilsson, Dan L.; and Danielsson, Joel L., to Saab-Scania Aktiebolag. Power unit suspension in motor vehicles. 4,266,630, Cl. 180-291.000.

Ninomiya, Youichi; Ogawa, Hirotoshi; Ueda, Tomoyuki; and Machida, Masataka, to Asahi Yukizai Kogyo Co., Ltd. Butterfly valve assembly. 4,266,754, Cl. 251-306.000.

Nippon Cable System Inc.: *See—*
Berens, Mathew, 4,266,440, Cl. 74-501.00R.

Nippon Electric Co., Ltd.: *See—*
Mayumi, Hiroshi, 4,267,463, Cl. 307-445.000.
Suzuki, Masao, 4,267,583, Cl. 365-201.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Yokoyama, Kenji, 4,267,521, Cl. 330-288.000.

Nippon Kayaku Kabushiki Kaisha: *See—*
Fujii, Akio; Fukuoka, Takeyo; Muraoka, Yasuhiko; Takita, Tomohisa; and Umezawa, Hamao, 4,267,102, Cl. 260-112.50R.

Nippon Kogaku K.K.: *See—*
Fukuhara, Toru, 4,266,865, Cl. 354-46.000.
Hayashi, Kiyoshi, 4,266,860, Cl. 350-426.000.
Nakazawa, Kiwao; and Tanimoto, Akikazu, 4,266,876, Cl. 356-400.000.

Nippon Kokan Kabushiki Kaisha: *See—*
Ando, Seigo, 4,267,508, Cl. 324-225.000.

Nippon Oil Company, Ltd.: *See—*
Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, 4,267,085, Cl. 260-28.5AS.
Sasaki, Umekichi; Tsunemi, Masaaki; Yamada, Kaichi; and Morikawa, Yoshiyuki, 4,267,064, Cl. 252-52.00A.

Nippon Soken, Inc.: *See—*
Iwata, Toshiharu; and Hattori, Tadashi, 4,267,482, Cl. 313-143.000.
Nishida, Minoru; Hattori, Tadashi; and Yamaguchi, Hiroaki, 4,266,518, Cl. 123-416.000.

Nippondenso Co., Ltd.: *See—*
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.
Norimatsu, Hideaki; and Furuta, Koichi, 4,266,519, Cl. 123-440.000.

Nishibayashi, Katsumi; Amagai, Yoshimi; Hikake, Norio; Kouchi, Toshihiro; and Aizawa, Tatsuo, to Mita Industrial Company Limited. Pressure or heated roller electrophoto image fixing uses halogen or nitrile containing polymer dispersed within resin binder as offset prevent toner. 4,267,246, Cl. 430-98.000.

Nishida, Minoru; Hattori, Tadashi; and Yamaguchi, Hiroaki, to Nippon Soken, Inc. Method of controlling ignition timing for internal combustion engines and apparatus for carrying out the same. 4,266,518, Cl. 123-416.000.

Nishikawa, Tetsuji: *See—*
Nishiyama, Ryuzo; Kimura, Fumio; Haga, Takahiro; Sakashita, Nobuyuki; and Nishikawa, Tetsuji, 4,266,963, Cl. 71-92.000.

Nishikawa, Toshio: *See—*
Higashiyama, Takao; and Nishikawa, Toshio, 4,266,975, Cl. 106-1.120.

Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, to Toyoda-Koki Kabushiki-Kaisha. Feed control apparatus for a machine tool carriage. 4,266,375, Cl. 51-165.710.

Nishimura, Toshio: *See—*
Hashimoto, Shintaro; and Nishimura, Toshio, 4,267,577, Cl. 364-707.000.

Nishino, Hiroshi: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,267,546, Cl. 340-58.000.

Nishiyama, Ryuzo; Kimura, Fumio; Haga, Takahiro; Sakashita, Nobuyuki; and Nishikawa, Tetsuji, to Ishihara Sangyo Kaisha Ltd. Pyrazole derivatives, herbicidal compositions containing the same, and a process for the preparation of the same. 4,266,963, Cl. 71-92.000.

Nishiyama, Ryuzo; Fujikawa, Kanichi; Nasu, Rikuo; and Shigehara, Itaru, to Ishihara Sangyo Kaisha Ltd. Process for producing 4-(pyridyl-2-oxy)-phenoxyalkanecarboxylic acid or its derivatives. 4,267,336, Cl. 546-302.000.

Nishizawa, Masahiro: *See—*
Tomita, Yoshifumi; Nishizawa, Masahiro; and Fujimura, Takashi, 4,267,204, Cl. 427-68.000.

Nissan Motor Company, Limited: *See—*
Inamoto, Hiroshi, 4,266,824, Cl. 296-210.000.
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.
Sato, Fumiyoshi, 4,266,836, Cl. 312-246.000.
Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, 4,267,424, Cl. 219-86.410.
Sunohara, Yoshio, 4,266,641, Cl. 192-3.280.

Nitta, Minoru; Kajinaga, Yoshihiro; Sakurada, Ichio; Ogura, Kuniaki; and Ito, Shunji, to Kawasaki Steel Corporation. Alloy steel powder having excellent compressibility, moldability and heat-treatment property. 4,266,974, Cl. 75-251.000.

NL Industries, Inc.: *See—*
Byerley, Thomas L., 4,267,062, Cl. 252-8.55R.
Kroplinski, Thaddeus F.; and Case, Barton C., 4,267,044, Cl. 210-321.200.

Nobel, Michael D.: *See—*
Phillips, John C.; and Nobel, Michael D., 4,266,358, Cl. 42-39.500.

Nogami, Nobusue: *See—*
Yagi, Akira; Miyoshi, Ichiro; and Nogami, Nobusue, 4,267,220, Cl. 428-96.000.

Nohara, Akira; Ishiguro, Toshihiro; and Ukawa, Kiyoshi, to Takeda Chemical Industries, Ltd. 3-(Tetrazol-5-yl)-1-azaxanthones. 4,267,332, Cl. 546-89.000.

Nomura, Hiroki; Mafune, Masao; and Koyanagi, Masaru, to Citizen Watch Co., Ltd. Method of boring a hole through a magnet made of an intermetallic compound. 4,267,427, Cl. 219-121.0LL.

Nomura, Hiroshi, to Diesel Kiki Co., Ltd. Swash-plate type compressor. 4,266,913, Cl. 417-269.000.

Nomura, Hiroyuki: *See—*
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.

Nordstrom, Kjell H.; Dillon, Benny N.; and Susor, William C., to Masstron Scale, Inc. Weighing apparatus. 4,266,624, Cl. 177-253.000.

Norimatsu, Hideaki; and Furuta, Koichi, to Nippondenso Co., Ltd. System for controlling an oxygen concentration in exhaust gases. 4,266,519, Cl. 123-440.000.

Norlin Industries, Inc.: *See—*
Auer, Siegfried O., 4,266,878, Cl. 356-419.000.
Gross, Glenn M., 4,267,579, Cl. 364-718.000.

North, Merle W., to Beloit Corporation. Drainage roof for twin wire roll former. 4,267,017, Cl. 162-190.000.

Northern Telecom Limited: *See—*
Hutchins, Terence N.; and Meunier, Francois C., 4,266,853, Cl. 350-96.200.

Nothhelfer, Gunther: *See—*
Daldrup, Heinz G.; Nothhelfer, Gunther; Franke, Friedrich H.; and Limpach, Raymond, 4,266,968, Cl. 75-42.000.

Novikov, Vladislav I.: *See—*
Ivanov, Gely M.; Novikov, Vladislav I.; and Khmelev, Vladimir V., 4,267,496, Cl. 318-615.000.

Nygaard, Kurt; Mattsson, Kjell; and Bratt, Sven-Erik, to Aktiebolaget Bofors. Electric igniter. 4,267,567, Cl. 362-46.000.

Nyman, Alice: *See—*
Nyman, Bo, 4,266,368, Cl. 46-232.000.

Nyman, Bo, to Nyman, Alice. Device for generating a synchronous sound referring to a model railway engine. 4,266,368, Cl. 46-232.000.

Oare, Arthur A.; and Wonderling, Harold J., to Air Preheater Company, Inc., The. Holder for bag filter. 4,266,954, Cl. 55-341.00R.

Obergfell, Bruno, to Warner Electric Brake & Clutch Company. Ball screw and nut assembly. 4,266,437, Cl. 74-424.80R.

Occidental Oil Shale, Inc.: *See—*
French, Gordon B., 4,266,612, Cl. 166-299.000.
French, Gordon B., 4,266,826, Cl. 299-2.000.

Occidental Research Corporation: *See—*
Parziale, Victor E.; Dines, Martin B.; and DiGiacomo, Peter M., 4,267,308, Cl. 528-395.000.

Oceanography International Corporation: *See—*
Fredericks, Alan D., 4,266,681, Cl. 215-32.000.

Oechsle, Sixtus J., III, to Metalweld, Inc. Method of curing isocyanate-terminated polyurethane prepolymers for use in solventless spray applications. 4,267,299, Cl. 528-48.000.

Oehlert, James A. Interlocking building panel construction. 4,266,385, Cl. 52-521.000.

Oehm, Werner: *See—*
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.

Oellerer, Friedrich: *See—*
Theurer, Josef; and Oellerer, Friedrich, 4,266,615, Cl. 171-16.000.

Officine Meccaniche Odolini Catullo s.a.s. di Roberto Gandini & C.: *See—*
Gandini, Roberto, 4,266,426, Cl. 73-119.00A.

Offset Newspaper Equipment Inc.: *See—*
Surbrook, Louis M., 4,266,903, Cl. 414-428.000.

Ogawa, Hirotoshi: *See—*
Ninomiya, Youichi; Ogawa, Hirotoshi; Ueda, Tomoyuki; and Machida, Masataka, 4,266,754, Cl. 251-306.000.

Ogawa, Mototugu, to Olympus Optical Co., Ltd. Illumination unit for endoscope. 4,266,534, Cl. 128-6.000.

Ogawa, Shuichi: *See—*
Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, 4,267,424, Cl. 219-86.410.

Oguchi, Toshihiko: *See—*
Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, 4,266,503, Cl. 118-657.000.

Ogura, Kuniaki: *See—*
Nitta, Minoru; Kajinaga, Yoshihiro; Sakurada, Ichio; Ogura, Kuniaki; and Ito, Shunji, 4,266,974, Cl. 75-251.000.

Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, to Hitachi, Ltd. Solid-state imaging device having a clamping circuit for drawing out excess charge. 4,267,469, Cl. 307-311.000.

Ohbayashi-Gumi Ltd.: *See—*
Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, 4,266,885, Cl. 405-109.000.

Ohdan, Kyoji: *See—*
Umemura, Sumio; Ohdan, Kyoji; and Asada, Hiroyuki, 4,267,385, Cl. 568-479.000.

Ohishi, Saburo, to Oishikikai Mfg. Co., Ltd. Equipment for separating foreign matter from liquid papermaking materials. 4,267,048, Cl. 210-512.200.

Ohkuni, Shinichiro: *See—*
Takigawa, Hiroyoshi; Arimura, Iwao; Tanaka, Makoto; and Ohkuni, Shinichiro, 4,266,592, Cl. 152-209.00D.

Ohmori, Akira, to Daikin Kogyo Co., Ltd. Epoxy resin composition containing perfluoroalkyl epoxide. 4,267,302, Cl. 528-103.000.

Ohmori, Taiji: *See—*
Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, 4,266,833, Cl. 303-106.000.

Ohmura, Haruo: *See—*
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.

Ohnishi, Masahiro: *See—*
Kimura, Tsutomu; and Ohnishi, Masahiro, 4,267,548, Cl. 340-146.3AH.

Ohno Research and Development Laboratories Company Limited: *See—*
Morohashi, Hisao, 4,267,489, Cl. 315-324.000.

Ohta, Norio; Ishida, Fumihiko; Ikeda, Tadashi; Ando, Keikichi; and Sugita, Yutaka, to Hitachi, Ltd. Film for a magnetic bubble domain device. 4,267,230, Cl. 428-336.000.

Ohtsu, Ikuo: *See—*
Kikuchi, Makoto; and Ohtsu, Ikuo, 4,266,377, Cl. 51-262.00T.

Oishikikai Mfg. Co., Ltd.: *See—*
Ohishi, Saburo, 4,267,048, Cl. 210-512.200.

Oka, Takashi: *See—*
Matsuoka, Hideoki; Oka, Takashi; Mizote, Masanori; Yamaki, Kiyoshi; Nomura, Hiroyuki; Mogi, Takaaki; and Mimura, Akitoshi, 4,267,494, Cl. 318-568.000.

Okada, Yoshitsugu, to Kubota, Ltd. Butterfly valve. 4,266,753, Cl. 251-305.000.

Okamoto, Tokuhiko: *See—*
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.

Okamura, Kiyohito: *See—*
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,210, Cl. 427-226.000.
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,211, Cl. 427-228.000.

Okazaki, Masaki; and Mizobe, Akio. Polyvinyl alcohol fiber for binding a fibrous sheet and a process for the preparation thereof. 4,267,016, Cl. 162-146.000.

Oki, Toshikazu; Yoshimoto, Akihiro; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, to Sanraku-Ocean Co., Ltd. Anthracycline derivatives and process for preparing the same. 4,267,312, Cl. 536-17.00A.

Oksanen, Martti T.: *See—*
Haltsonen, Eino J.; and Oksanen, Martti T., 4,267,018, Cl. 162-200.000.

Oku, Teruo: *See—*
Kamiya, Takashi; Saito, Yoshihisa; Teraji, Tsutomu; Nakaguti, Osamu; and Oku, Teruo, 4,267,340, Cl. 548-187.000.

Okuda, Nobuo: *See—*
Hidai, Yutaka; and Okuda, Nobuo, 4,267,456, Cl. 250-492.00A.

Okumichi, Toshiharu; and Kawatani, Kimio, to Arakawa Kagaku Kogyo Kabushiki Kaisha. Process for preparing aqueous dispersion of rosin-base materials. 4,267,099, Cl. 260-101.000.

Old Dominion University Research Foundation: *See—*
Chaikin, George M.; and Weiman, Carl F. R., 4,267,573, Cl. 364-515.000.

Ole Joergensen: *See—*
Joergensen, Ole, 4,266,361, Cl. 43-42.460.

Oleck, Stephen M.: *See—*
Heck, Roland H.; Oleck, Stephen M.; Shih, Stuart S.; and Wilson, Robert C., 4,267,033, Cl. 208-216.0PP.

Olin Corporation: *See—*
Patel, Harshad M., 4,267,026, Cl. 204-98.000.

Oliver, Robert D. Universal coupler. 4,266,813, Cl. 285-12.000.

O'Loughlin, James P., to United States of America, Air Force. Parallel multi-electrode spark gap switch. 4,267,484, Cl. 313-325.000.

Olschefski, Robert D., to N.B.E. Corporation. Method and apparatus for gaging. 4,266,346, Cl. 33-174.00Q.

Olsen, Eric G.; and Jackson, Winston J., Jr., to Eastman Kodak Company. Linear hydroquinone phenoxy polymers and process. 4,267,301, Cl. 528-93.000.

Olsen, Jan-Erik, to Tetra Pak International AB. Method for the sealing of a cover strip onto packing containers. 4,266,993, Cl. 156-69.000.

Olympus Optical Co., Ltd.: *See—*
Komiya, Osamu, 4,266,547, Cl. 128-303.100.
Ogawa, Mototugu, 4,266,534, Cl. 128-6.000.

Omnium Chimique Societe Anonyme: *See—*
Kuehne, Martin E., 4,267,330, Cl. 546-51.000.

Omron Tateisi Electronics Co.: *See—*
Iketani, Hiroshi, 4,267,540, Cl. 335-128.000.

O'Neill, Edward G.: *See—*
Dutcher, Robert G.; and O'Neill, Edward G., 4,266,552, Cl. 128-419.00P.

Oostvogels, Johannes M., to Maatschappij van Berkel's Patent N.V. Drive mechanism for the reciprocating meat supporting carriage of a meat slicing machine. 4,266,456, Cl. 83-731.000.

Optische Werke G. Rodenstock: *See—*
Schlegel, Franz, 4,266,848, Cl. 350-8.000.

Orals, David L.; and Laffoon, James D., to United States Gypsum Company. Fire resistant ceiling furring system. 4,266,384, Cl. 52-410.000.

Orion Research Incorporated: *See—*
Frant, Martin S.; and Soderberg, Jon, 4,267,023, Cl. 204-1.00T.

Ormid Company: *See—*
Laux, Joseph J., 4,266,350, Cl. 36-44.000.

Ortwein, Hermann; and Braitsch, Hans, to Clouth Gummiwerke Aktiengesellschaft. Track mounting assembly and sound-damping system therefore. 4,266,719, Cl. 238-283.000.

Ory, Jean-Marie: *See—*
Janin, Gerard; and Ory, Jean-Marie, 4,266,874, Cl. 356-335.000.

Osaka Cement Co., Ltd.: *See—*
Chudo, Akira; Sugi, Tomomitsu; and Kataoka, Kouji, 4,266,980, Cl. 106-97.000.

Osakabe, Yoshio; and Yasuda, Hiroshi, to Sony Corporation. Memory control circuit. 4,267,603, Cl. 455-186.000.

Oshima, Akinobu: *See—*
Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, 4,267,260, Cl. 430-302.000.

Osuna-Diaz, Jesus M., to Incoe Corporation. Nozzle for injection molding machines. 4,266,723, Cl. 239-132.000.

Otani, Mitsuoki: *See—*
Murakami, Katsuo; Anzai, Yoshinori; Otani, Mitsuoki; and Ito, Hiroshi, 4,267,485, Cl. 313-486.000.

Otis Engineering Corporation: *See—*
Fredd, John V., 4,266,614, Cl. 166-332.000.

Ott, Karl-Heinz: *See—*
Lindner, Christian; Arnold, Bernhard; Kuhlmann, Dieter; Kowitz, Friedrich; and Ott, Karl-Heinz, 4,267,278, Cl. 525-2.000.

Outokumpu Oy: *See—*
Setala, Pekka T.; Makipirtti, Simo A. I.; and Heino, Heimo J., 4,266,512, Cl. 122-5.50R.

Overy, Colin, to Black & Decker Inc. Portable electrically energized surface finishing tool. 4,266,376, Cl. 51-170.00R.

Ovshinsky, Stanford R.: *See—*
Hallman, Robert W.; Ovshinsky, Stanford R.; and de Neufville, John P., 4,267,261, Cl. 430-322.000.

Owens-Corning Fiberglas Corporation: *See—*
Scott, James W.; and Rising, Robert, 4,266,960, Cl. 65-4.00R.
Waugh, John A., 4,266,323, Cl. 19-0.560.

Owens, James J., to Eastern Container Corporation. Corrugating machine. 4,267,008, Cl. 156-462.000.

Oxon Italia S.p.A.: *See—*
Motta, Raimondo, 4,267,323, Cl. 544-236.000.

Ozaki, Shoichiro; Ike, Yoshimasa; Ishikawa, Katsutoshi; and Mori, Haruki, to Mitsui Toatsu Chemicals, Incorporated. Uracil derivatives. 4,267,326, Cl. 544-313.000.

Ozawa, Masahiro; Komatsu, Tadaaki; and Matsuoka, Kimiaki, to Central Glass Company, Limited. Novel derivatives of hexafluoropropene dimer and process for preparing same. 4,267,360, Cl. 560-111.000.

Pacific Kenyon Corporation: *See—*
Sawhill, James W., 4,267,197, Cl. 426-69.000.

Paek, Yong K. Telescoping sliced bread dispenser. 4,266,668, Cl. 206-557.000.

Palmer, Arthur J. Noise-memory regulated squelch compensator. 4,267,598, Cl. 455-78.000.

Panzik, Donald; and Smith, David. Nasal oxygen therapy mask. 4,266,540, Cl. 128-207.130.

Paola, Carl R.: *See—*
Johnson, Bertrand H.; and Paola, Carl R., 4,267,559, Cl. 357-81.000.

Papadatos, Dionysios D.: *See—*
Riester, William C.; and Papadatos, Dionysios D., 4,266,883, Cl. 403-134.000.

Parfitt, Norman L. C., to Coal Industry (Patents) Limited. Non-return device. 4,266,637, Cl. 188-196.00P.

Pargamin, Laurent, to Ceraver. Electric line insulator made of organic material and having an inner semi-conductive part extending between end anchor fittings. 4,267,403, Cl. 174-140.00S.

Park, Dong-Sil; Breiter, Manfred W.; and King, Randall N., to Electric Power Research Institute, Inc. Method of making a sulfur electrode container. 4,266,712, Cl. 228-175.000.

Park, Joon B., to Clemson University. Method of orthopedic implantation and implant product. 4,266,303, Cl. 3-1.910.

Park, Robert H.; and Waage, Clark A. Bipolar storage battery of extended surface electrode type. 4,267,243, Cl. 429-136.000.

Parker, Frederick A.; and Grady, Mark P., to Rexnord Inc. Carbon dioxide scrubber and gas regenerator unit for a closed circuit rebreathing apparatus. 4,266,539, Cl. 128-204.260.

Parker-Hannifin Corporation: *See—*
Krause, Walter O., 4,266,408, Cl. 62-474.000.
Tilling, Basil B., 4,266,574, Cl. 137-630.190.

Parlman, Robert M., to Phillips Petroleum Company. Phenol alkylation. 4,267,394, Cl. 568-792.000.

Parramore, Emmett W. Double crop planter, sprayer and topper. 4,266,489, Cl. 111-1.000.

Partridge, Aileen A. Attachable and detachable pocket for a garment. 4,266,300, Cl. 2-247.000.

Partridge, Charles C.: *See—*
Kacal, Gary W.; and Partridge, Charles C., 4,266,566, Cl. 137-316.000.

Parziale, Victor E.; Dines, Martin B.; and DiGiacomo, Peter M., to Occidental Research Corporation. Layered zirconium bis(benzenephosphonate) inorganic polymers. 4,267,308, Cl. 528-395.000.

Pastor, Ricardo C.; Chew, Remedios K.; and Gorre, Luisa E., to Hughes Aircraft Company. Process for low-temperature surface layer oxidation of a semiconductor substrate. 4,267,205, Cl. 427-93.000.

Pastorino, Ronald L.; and Lewis, Roger N., to Argus Chemical Corporation. Cyclic perketals and their use for cross-linking high density polyethylene. 4,267,109, Cl. 260-338.000.

Patel, Harshad M., to Olin Corporation. Spent brine concentration using microwave energy. 4,267,026, Cl. 204-98.000.

Patel, Ravin J.; and Petro, John, to Bliss & Laughlin Industries Incorporated. Coupling hinge for two conveyors. 4,266,650, Cl. 193-35.0TE.

Patrick, James F.: *See—*
Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., 4,267,410, Cl. 179-107.0BC.

Patterson, Michael J. Hunting arrow. 4,266,782, Cl. 273-423.000.

Paul Wurth, S.A.: *See—*
Mailliet, Pierre, 4,266,907, Cl. 414-687.000.

Paulos, Antonio C.: *See—*
Mahrus, Duraid; and Paulos, Antonio C., 4,267,241, Cl. 428-645.000.

Paulus, Irmo, to Siemens Aktiengesellschaft. Contact arrangement for vacuum switch. 4,267,416, Cl. 200-144.00B.

Paxton, Alan H.; and Salvi, Theodore C. Unstable optical resonator with self-imaging aperture. 4,267,524, Cl. 331-94.50C.

Payne, Leslie E., to R. J. Reynolds Tobacco Company. Apparatus for phasing and transferring rod-shaped articles. 4,266,655, Cl. 198-461.000.

Pchelkin, Nicholas R.: *See—*
McDermott, William E.; Benard, David J.; Pchelkin, Nicholas R.; and Bousek, Ronald R., 4,267,526, Cl. 331-94.50G.

Pease, James F. Fluid control valve and support assembly. 4,266,567, Cl. 137-343.000.

Pelchat, Paul F.; and Arlauskas, Alfonsas, to General Motors Corporation. Hinge and hold-open assembly. 4,266,321, Cl. 16-145.000.

Pemberton, W. Bruce. Grapple apparatus. 4,266,819, Cl. 294-88.000.
Penders, Josef M.: *See—*
Meyer, Peter J. N.; and Penders, Josef M., 4,267,362, Cl. 560-174.000.
Pennwalt Corporation: *See—*
Massarsky, Philip M., 4,267,029, Cl. 204-196.000.
Pennypacker, Ronald S.: *See—*
Edwards, Thomas W.; and Pennypacker, Ronald S., 4,266,334, Cl. 29-583.000.
Penzel, Erich: *See—*
Geelhaar, Hans J.; Penzel, Erich; and Ley, Gregor, 4,267,091, Cl. 260-29.6TA.
Perdent, GmbH.: *See—*
Michl, Rudy; and Wollwage, Peter, 4,267,097, Cl. 260-42.150.
Perets, Nikolai Y.: *See—*
Velikoselsky, Nikolai D.; Smirnov, Anatoly I.; Perets, Nikolai Y.; Vinogradov, Sergei S.; Podbeltsev, Viktor I.; and Lakhno, Pavel E., 4,266,680, Cl. 212-193.000.
Perez, David J.; and Schwartz, Kenneth P., to United States of America, Air Force. Ram wing aircraft launch platform system. 4,266,742, Cl. 244-63.000.
Perez, Jean; and Carnus, Jean-Claude, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Device for regulating the amount of exhaust gases recycled to a diesel engine. 4,266,524, Cl. 123-568.000.
Periot, Jean-Marie, to La Telemecanique Electrique. L.C. oscillator proximity detector. 4,267,522, Cl. 331-65.000.
Perkey, Conrad G.; and Bell, John L., to Ford Motor Company. Use of mold venting practices in green sand molding for odor reduction. 4,266,595, Cl. 164-41.000.
Perner, Johannes: *See—*
Diessel, Paul; Perner, Johannes; Leutner, Bernd; and Schlimper, Hans-Ulrich, 4,267,068, Cl. 252-179.000.
Pernot, Jacques, to Micro-Mega, S.A. Dental handpiece with fluid delivery control. 4,266,934, Cl. 433-85.000.
Perrault, Frederick; and Perrault, Raymond E. Arrangement for forming metal parts. 4,266,310, Cl. 10-86.00R.
Perrault, Raymond E.: *See—*
Perrault, Frederick; and Perrault, Raymond E., 4,266,310, Cl. 10-86.00R.
Perry, James E. Apparatus utilizing portions of a conventional telephone installation for selectively controlling electrically operated, temperature regulating equipment. 4,267,406, Cl. 179-2.00A.
Petersen, Larry D.; and Squires, Stanley C., to Ford Motor Company. Composite brake drum. 4,266,638, Cl. 188-218.00R.
Peterson, Jeffory A.: *See—*
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Petit & Cie: *See—*
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Petree, Harris E.; Pociask, Joseph R.; and Gupton, John T., to Ciba-Geigy Corporation. Method for direct preparation for 1,2,4-triazole from hydrazine and formamide. 4,267,347, Cl. 548-262.000.
Petrizio, Cesare J.; and Isham, Robert H., to RCA Corporation. Relaxation oscillator. 4,267,527, Cl. 331-111.000.
Petro, John: *See—*
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Petrocarbon Development Limited: *See—*
Isalski, Wieslaw H., 4,266,957, Cl. 62-18.000.
Pett, Robert A.; Qaderi, S. Burhan A.; and Tabar, Ronald J., to Ford Motor Company. Sacraficial binders for molding particulate solids. 4,267,086, Cl. 260-28.50R.
Petters, Claus: *See—*
Pogoda, Dieter; Petters, Claus; and Rost, Arno, 4,267,147, Cl. 264-571.000.
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Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.
Pfeiffer, N. Leonard. Portable fuel and oil dispenser. 4,266,693, Cl. 222-135.000.
Pfizer Inc.: *See—*
Schnur, Rodney C., 4,267,342, Cl. 548-216.000.
Welch, Willard M., Jr., 4,267,331, Cl. 546-85.000.
Phelan, Michael B.: *See—*
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Philip Morris Incorporated: *See—*
Merritt, Henry B.; and Kite, George F., 4,266,562, Cl. 131-293.000.
Philipp, Hugo: *See—*
Meier, Friedrich; and Philipp, Hugo, 4,266,896, Cl. 409-299.000.
Phillips, John C.; and Nobel, Michael D. Underwater firearm. 4,266,358, Cl. 42-39.500.
Phillips, Paul J.: *See—*
Johnson, Malcolm; Mills, Stuart D.; and Phillips, Paul J., 4,267,183, Cl. 424-263.000.
Phillips Petroleum Company: *See—*
Asher, Lance A., 4,266,689, Cl. 220-307.000.
Carter, Cecil O., 4,267,034, Cl. 208-323.000.
Eddy, William R., 4,267,009, Cl. 156-538.000.
Fahey, Darryl R., 4,267,293, Cl. 526-116.000.
Kitchen, Alonzo G., 4,267,284, Cl. 525-99.000.
Kraus, Gerard; and Hunt, Harold R., 4,267,160, Cl. 423-456.000.
Louthan, Rector P.; and Doss, Richard C., 4,267,307, Cl. 528-293.000.
Meister, John J., 4,266,610, Cl. 166-273.000.
Parlman, Robert M., 4,267,394, Cl. 568-792.000.
Vives, Van C.; and Mahan, John E., 4,267,351, Cl. 549-19.000.
Pic Disc, Inc.: *See—*
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Pickard Equipment, Inc.: *See—*
Pickard, Kenneth L., 4,266,910, Cl. 414-735.000.
Pickard, Kenneth L., to Pickard Equipment, Inc. Pipe positioner boom and head assembly for pipe laying frame. 4,266,910, Cl. 414-735.000.
Piekarski, Michael: *See—*
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Pierburg GmbH & Co. Kg: *See—*
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Pierce, John M.; Lehrer, William I.; and Radigan, Kenneth J., to Fairchild Camera & Instrument Corp. Process for patterning metal connections on a semiconductor structure by using a tungsten-titanium etch resistant layer. 4,267,012, Cl. 156-643.000.
Pieroni, Joseph K.: *See—*
Martin, Frank S.; Melvin, Terence; and Pieroni, Joseph K., 4,266,772, Cl. 273-218.000.
Pilla, Arthur A.: *See—*
Ryaby, John P.; and Pilla, Arthur A., 4,266,532, Cl. 128-1.500.
Ryaby, John P.; and Pilla, Arthur A., 4,266,533, Cl. 128-1.500.
Pitcher, Frederick L. Energy efficient process and apparatus for desalinizing water. 4,267,022, Cl. 203-11.000.
Pitel, Irving: *See—*
Jezorek, Leigh; Pitel, Irving; and Silverman, Richard, 4,267,214, Cl. 427-341.000.
Pitney Bowes Inc.: *See—*
Lorenzo, John L., 4,266,480, Cl. 101-351.000.
Pitt, Paul E.: *See—*
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Placo Products Company: *See—*
McQuary, Kenneth L., 4,266,780, Cl. 273-387.000.
Plantex Ltd.: *See—*
Tedeschi, Enzo, 4,267,339, Cl. 548-154.000.
Platmanufaktur Aktiebolaget: *See—*
Strom, Holger, 4,266,651, Cl. 198-345.000.
Playfoot, Kerwin C.; Bauer, Richard F.; and Goldstein, Norman P., to Westinghouse Electric Corp. Self-powered radiation detector with conductive emitter support. 4,267,454, Cl. 250-370.000.
Plevak, Lubomir; and Dodt, Jurgen, to Gewerkschaft Eisenhutte Westfalia. Support assemblies for mine workings. 4,266,891, Cl. 405-291.000.
Pociask, Joseph R.: *See—*
Petree, Harris E.; Pociask, Joseph R.; and Gupton, John T., 4,267,347, Cl. 548-262.000.
Podbeltsev, Viktor I.: *See—*
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Poetter, Gerswid: *See—*
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Pogoda, Dieter; Petters, Claus; and Rost, Arno, to Messerschmit-Boelkow-Blohm GmbH. Method for producing fiber reinforced structure components. 4,267,147, Cl. 264-571.000.
Pohl, Andreas: *See—*
Keller, Guenter; Pohl, Andreas; and Hintz, Gerhard, 4,266,467, Cl. 91-437.000.
Pohle, Raimund: *See—*
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, 4,267,047, Cl. 210-490.000.
Poignant, Jean-Claude: *See—*
Regnier, Gilbert; Laubie, Michel; and Poignant, Jean-Claude, 4,267,178, Cl. 424-250.000.
Polaroid Corporation: *See—*
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,254, Cl. 430-245.000.
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,256, Cl. 430-251.000.
Idelson, Elbert M., 4,267,252, Cl. 430-225.000.
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Locatell, Louis, Jr.; Zepp, Charles M.; and Cieciuch, Ronald F., 4,267,251, Cl. 430-224.000.
Schreiber, Karl J., 4,267,255, Cl. 430-245.000.
Sparks, John W.; and Bader, Henry, 4,267,324, Cl. 544-262.000.
Poliniak, Eugene S.; and Desai, Nitin V., to RCA Corporation. Method for forming a shallow surface relief pattern in a poly(olefin sulfone) layer. 4,267,257, Cl. 430-270.000.
Polka, Udo: *See—*
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Polyair Produkt Design Gesellschaft m.b.h.: *See—*
Weigl, Erwin, 4,266,805, Cl. 280-615.000.
Polycell Products Limited: *See—*
Glaser, Denis V.; and Heeley, Norman, 4,267,092, Cl. 260-29.6RB.
Pont-A-Mousson S.A.: *See—*
Lippera, Noel, 4,266,997, Cl. 156-158.000.
Popov, Alexandr D.; Solomin, Vladimir A.; and Zvezdunov, Dmitry A. Linear induction motor. 4,267,471, Cl. 310-13.000.
Positioning Devices, Incorporated: *See—*
Souder, James J., Jr.; Scarborough, Edward D., Jr.; and Fox, Merlin D., 4,266,747, Cl. 248-280.100.

Powell, Thomas E.; and Ito, Shiro T., to White Motor Corporation of Canada, Limited. Rotor for an axial flow combine. 4,266,560, Cl. 130-27.00T.
Power, Joseph S.; and Ruszala, Frederick B., to Valeron Corporation, The. Interconnection system for a biological waveform simulator device. 4,267,576, Cl. 364-578.000.
Powers, Robert H.: *See—*
Dodge, Dennis; Matwey, Paul; Madigan, Thomas M.; and Powers, Robert H., 4,266,866, Cl. 354-84.000.
PPG Industries, Inc.: *See—*
Sickles, James E., 4,266,721, Cl. 239-3.000.
Steiger, Roger A., 4,266,977, Cl. 106-43.000.
Preiss, Manfred: *See—*
Stelter, Heino; Preiss, Manfred; and Polka, Udo, 4,267,606, Cl. 455-603.000.
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Prichard, Richard J., to Spencer Wright Industries, Inc. Tufting machines and knife blocks therefor. 4,266,491, Cl. 112-79.00R.
Prochazka, Svante, to General Electric Company. Synthesis of mixed oxide composition. 4,266,978, Cl. 106-39.500.
Procter & Gamble Company, The: *See—*
Klien, Caren A.; and Gieseker, Donald R., 4,267,200, Cl. 426-595.000.
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Produits Chimiques Ugine Kuhlmann: *See—*
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Propylox: *See—*
Hardy, Nicolas; Lerot, Luc; and Walraevens, Rene, 4,267,124, Cl. 260-502.00R.
Proteinkemisk Institut. tilknyttet Akademiet for de tekniske Videnskaber: *See—*
Halstrom, John B.; and Kovacs, Karoly G., 4,267,344, Cl. 548-227.000.
Proulx, Paul A.: *See—*
Brown, Robert; and Proulx, Paul A., 4,267,446, Cl. 250-255.000.
Prudhon, Francois; and Scicluna, Augustin, to Rhone-Poulenc Industries. Method for intimate contacting of plural phases and phase contactor apparatus therefor. 4,267,131, Cl. 261-153.000.
Pruett, Robert L. Recirculating submersible turbine. 4,266,402, Cl. 60-496.000.
Pryor, Larry A. Bicycle hitch device. 4,266,793, Cl. 280-204.000.
Puarica, Douglas A., to Maxson Corporation, The. Rail car door linkage. 4,266,486, Cl. 105-276.000.
Pullman Incorporated: *See—*
Deller, Robert J., 4,266,381, Cl. 52-177.000.
Marulic, Walter J.; and Gutrigde, Jack E., 4,266,487, Cl. 105-397.000.
Whaley, Robert L.; and Day, James L., 4,266,820, Cl. 296-35.300.
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Manley, Rockliffe S., 4,266,918, Cl. 425-66.000.
Puppolo, Henry F.; and Markarian, Mark, to Sprague Electric Company. Copper encased flat electrolytic capacitor manufacture and capacitor. 4,267,565, Cl. 361-433.000.
Puppolo, Henry F.: *See—*
Markarian, Mark; and Puppolo, Henry F., 4,266,332, Cl. 29-570.000.
Purdue Research Corporation: *See—*
Tsao, George T.; and Chou, Terry Y., 4,266,981, Cl. 127-37.000.
Qaderi, S. Burhan A.: *See—*
Pett, Robert A.; Qaderi, S. Burhan A.; and Tabar, Ronald J., 4,267,086, Cl. 260-28.50R.
Quantor Corporation: *See—*
Mohr, Siegfried H., 4,266,855, Cl. 350-254.000.
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Sudler, Roland; and Schwab, Jean-Francois, 4,267,472, Cl. 310-49.00R.
R. J. Reynolds Tobacco Company: *See—*
Payne, Leslie E., 4,266,655, Cl. 198-461.000.
Raab, Owen E.: *See—*
Kirk, Chester E.; and Raab, Owen E., 4,266,583, Cl. 142-56.000.
Raasch, Hans, to W. Schlafhorst & Co. Winding device. 4,266,734, Cl. 242-18.0DD.
Radigan, Kenneth J.: *See—*
Pierce, John M.; Lehrer, William I.; and Radigan, Kenneth J., 4,267,012, Cl. 156-643.000.
Rail, Robert D.; and Haynes, Harvey H., to United States of America, Navy. System for placing freshly mixed concrete on the seafloor. 4,266,889, Cl. 405-223.000.
Raimondi, Peter K., to United States of America, Army. Method of autonomous target acquisition. 4,267,562, Cl. 358-109.000.
Raines, Joyce Anita: *See—*
Raines, Vernon R., 4,267,411, Cl. 179-184.000.
Raines, Vernon R., to Raines, Joyce Anita, a part interest. Public telephone security bracket. 4,267,411, Cl. 179-184.000.
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Georgallis, Peter C., 4,267,585, Cl. 367-13.000.
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Ramos, Gary A.; and Dell'Ara, Michael E., to Gerald T. Colwell, a part interest. Strap winding device. 4,266,740, Cl. 242-86.520.
Ramspeck, Klaus: *See—*
Milutzki, Udo; Gaus, Harry; Schotte, Dietwald; and Ramspeck, Klaus, 4,266,783, Cl. 369-41.000.
Rannanmaki, Tapio M., to Vaino Tapio Saalasti. Convertible rail-highway car moving vehicle. 4,266,483, Cl. 105-26.00R.
Ranz, Erwin: *See—*
Lohmann, Joachim W.; Lapp, Otto; and Ranz, Erwin, 4,267,264, Cl. 430-505.000.
Rao, Krishna K.: *See—*
Dauerman, Leonard; Rao, Krishna K.; Dabbs, Joseph C.; and Delaney, Brian, 4,267,156, Cl. 423-242.000.
Rapakoulias, Demetre: *See—*
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Rapco Foam, Inc.: *See—*
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Rassomakhin, Klimenty E.: *See—*
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.
Rausing, Anders R., to Tetra Pak Developpement SA. Opening arrangement for packing containers of thin plastic film together with a packing container provided with the opening arrangement. 4,266,698, Cl. 222-528.000.
RayGo, Inc.: *See—*
Fadness, Quinten K., 4,266,904, Cl. 414-460.000.
Raytheon Company: *See—*
Lowenschuss, Oscar, 4,267,596, Cl. 455-18.000.
RCA Corporation: *See—*
Burrus, Thomas W., 4,266,785, Cl. 369-216.000.
Edwards, Thomas W.; and Pennypacker, Ronald S., 4,266,334, Cl. 29-583.000.
Petrizio, Cesare J.; and Isham, Robert H., 4,267,527, Cl. 331-111.000.
Poliniak, Eugene S.; and Desai, Nitin V., 4,267,257, Cl. 430-270.000.
Reichert, Walter F., 4,266,333, Cl. 29-571.000.
Schade, Otto H., Jr., 4,267,519, Cl. 330-255.000.
Thornberry, Gerald E., 4,267,528, Cl. 333-12.000.
Torrington, Leslie A., 4,266,784, Cl. 369-77.000.
Unetich, Robert M.; and Shibler, William, 4,267,487, Cl. 315-107.000.
Reale, Lucio. Fruit preparation. 4,266,472, Cl. 99-483.000.
Red-D-Arc International Inc.: *See—*
Holmes, Gordon W.; and Marykuca, William, 4,266,690, Cl. 221-254.000.
Redondo-Abad, Angel L.; Diaz-Nogueira, Eduardo; Gerez-Pascual, Martin; and Regife-Vega, Jose M. Process for non-ferrous metals production from complex sulphide ores containing copper, lead, zinc, silver and/or gold. 4,266,972, Cl. 75-101.00R.
Reeberg, Christiaan. Hold steady straps. 4,266,867, Cl. 354-293.000.
Reese, Robert O.; Wieber, Karl R.; and Hartman, James T., to Envirotech Corporation. Precipitator voltage control system. 4,267,502, Cl. 323-237.000.
Refac Electronics: *See—*
Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., 4,266,338, Cl. 29-623.200.
Regal Tool & Rubber Co., Inc.: *See—*
Swain, Jack W.; Thomerson, Clarence T.; and Waldrop, Tom C., 4,266,578, Cl. 138-110.000.
Regan, John F.; and Mehta, Bakulesh A., to Wescom Switching, Inc. Method and means for digital conferencing. 4,267,593, Cl. 370-62.000.
Regan, Thomas D. Tamper-proof odometer. 4,267,438, Cl. 235-96.000.
Regenerative Environmental Equipment Co., Inc.: *See—*
Benedick, Edward H., 4,267,152, Cl. 422-111.000.
Regife-Vega, Jose M.: *See—*
Redondo-Abad, Angel L.; Diaz-Nogueira, Eduardo; Gerez-Pascual, Martin; and Regife-Vega, Jose M., 4,266,972, Cl. 75-101.00R.
Regnault, Alain: *See—*
Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, 4,267,314, Cl. 536-53.000.
Regnier, Gilbert; Laubie, Michel; and Poignant, Jean-Claude, to Science Union et Cie, Societe Francaise de Recherche Med. Disubstituted piperazines. 4,267,178, Cl. 424-250.000.
Reichert, Walter F., to RCA Corporation. Method of making a Schottky barrier field effect transistor. 4,266,333, Cl. 29-571.000.
Reichman, Joseph: *See—*
Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., 4,266,338, Cl. 29-623.200.
Reid, Jeremy T., to Continental Group, Inc., The. Easy access tab for vacuum packed products. 4,266,688, Cl. 220-273.000.
Reid, Robert M.: *See—*
Haines, Rolf; and Reid, Robert M., 4,266,490, Cl. 111-3.000.
Reid, Rod B. Trough roller assembly. 4,266,662, Cl. 198-829.000.
Reighter, David H., to Gould Inc. Polymer concrete body with vibration molded threads, method of making same, and electrical insulator provided with the same. 4,267,402, Cl. 174-137.00R.
Reil, Wilhelm: *See—*
Linde, Bjorn H.; and Reil, Wilhelm, 4,266,389, Cl. 53-396.000.
Reilly Tar & Chemical Corporation: *See—*
McGill, Charles K., 4,267,335, Cl. 546-257.000.
Reinforced Earth Company, The: *See—*
Hilfiker, William K., 4,266,890, Cl. 405-286.000.

Reis, Robert D., to United Electric Controls Company. Temperature compensated pressure control. 4,267,413, Cl. 200-81.400.

Rekers, Louis J.: *See*—
Heimberg, Manfred; and Rekers, Louis J., 4,267,090, Cl. 260-29.60R.

Rembaum, Alan, to California Institute of Technology. Polyglutaraldehyde synthesis and protein bonding substrates. 4,267,234, Cl. 428-403.000.

Rembaum, Alan; and Margel, Shlomo, to California Institute of Technology. Polyglutaraldehyde microspheres. 4,267,235, Cl. 428-407.000.

Rengo Co., Ltd.: *See*—
Tokuno, Masateru, 4,266,998, Cl. 156-159.000.

Renjilian, Armen: *See*—
Schiher, Stanley C.; and Renjilian, Armen, 4,267,227, Cl. 428-234.000.

Reppert, Rudi, to WGW Westdeutsche Getriebe- und Kupplungswerke GmbH. Torque division gearing. 4,266,436, Cl. 74-395.000.

Research, Development & Marketing, Inc.: *See*—
Nelson, John R., 4,266,665, Cl. 206-445.000.

Resnick, Paul R.: *See*—
Grot, Walther G.; Molnar, Charles J.; and Resnick, Paul R., 4,267,364, Cl. 560-183.000.

Retka, Thomas J.; and Schoen, Donald W., to United States of America, Interior. Auger construction providing reduced noise. 4,266,830, Cl. 299-87.000.

Retobobina Handelsanstalt: *See*—
Faulhaber, Fritz, 4,267,477, Cl. 310-266.000.

Reusser, Fritz; and Slechta, Libor, to Upjohn Company, The. Antibiotic U-58,431. 4,267,112, Cl. 260-345.200.

Revell, Alan, to American Air Filter Company, Inc. Filter clamping device. 4,266,956, Cl. 55-478.000.

Rexnord Inc.: *See*—
Parker, Frederick A.; and Grady, Mark P., 4,266,539, Cl. 128-204.260.

Reynolds, George H.: *See*—
Kaae, James L.; Reynolds, George H.; Sterling, Stewart A.; and Yang, Ling, 4,267,019, Cl. 176-82.000.

Reynolds Metals Company: *See*—
Lee, Harry W., Jr., 4,266,685, Cl. 220-74.000.

Rheinische Braunkohlenwerke A.G.: *See*—
Daldrup, Heinz G.; Nothhelfer, Gunther; Franke, Friedrich H.; and Limpach, Raymond, 4,266,968, Cl. 75-42.000.

Rheintechnik Weiland & Kaspar KG: *See*—
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Rheon Automatic Machinery Co., Ltd.: *See*—
Hayashi, Torahiko; Kageyama, Minoru; and Morikawa, Michio, 4,266,920, Cl. 425-133.100.

Rhodes, Charles D. Safety hitch catch. 4,266,797, Cl. 280-423.00R.

Rhone-Poulenc Industries: *See*—
Prudhon, Francois; and Scicluna, Augustin, 4,267,131, Cl. 261-153.000.
Roullet, Gilbert, 4,267,143, Cl. 264-516.000.
Torloting, Jean-Claude, 4,267,083, Cl. 260-23.0XA.

Richard Equipment Company, Inc.: *See*—
Bell, Richard P.; Rill, Karl F.; and Butler, John C., 4,266,674, Cl. 209-536.000.

Richard, J. Richard, to Manufacture de Machines du Haut-Rhin S.A. Endless chain for installations treating continuously moving articles. 4,266,656, Cl. 198-655.000.

Richardson, Mason E., to Estan Manufacturing Company. Dipstick alignment guide. 4,266,344, Cl. 33-126.70R.

Richter Gedeon Vegyeszeti Gyar Rt.: *See*—
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, 4,267,138, Cl. 264-117.000.

Rick, Randy L.; Mazzotta, Paul F.; and Daiello, Cosimo D., to Shearpower International Corporation. Electric hair curling apparatus having a motor-driven rotatable hair wrapping member. 4,267,431, Cl. 219-225.000.

Ricoh Company, Ltd.: *See*—
Eda, Tadahiro; Tatsumi, Susumu; and Imai, Chikara, 4,266,870, Cl. 355-14.00D.
Nakahara, Tosio; Yano, Hidetoshi; and Kasahara, Nobuo, 4,267,201, Cl. 427-27.000.

Riester, William C.; and Papadatos, Dionysios D., to Trico Products Corporation. Windshield wiper linkage. 4,266,883, Cl. 403-134.000.

Riggs, Aubrey F., to Imperial Chemical Industries Limited. Process for coating a web using reverse applicator roll. 4,267,215, Cl. 427-372.200.

Riggs, Howard: *See*—
Riggs, Robert L.; and Riggs, Howard, 4,266,796, Cl. 280-414.00R.

Riggs, Robert L.; and Riggs, Howard. Trailer tongue wheel. 4,266,796, Cl. 280-414.00R.

Rill, Karl F.: *See*—
Bell, Richard P.; Rill, Karl F.; and Butler, John C., 4,266,674, Cl. 209-536.000.

Rilling, Raymond J.: *See*—
Mullet, David L.; Rilling, Raymond J.; and Voth, Elmer D., 4,266,617, Cl. 172-76.000.

Rising, Robert: *See*—
Scott, James W.; and Rising, Robert, 4,266,960, Cl. 65-4.00R.

Ritchie, John G.: *See*—
Thankachan, Chacko; Ritchie, John G.; Sahayada, Eugene; and Sengupta, Asok, 4,267,239, Cl. 428-425.100.

Ritzi, Thomas F., to Gem Instruments Corporation. Apparatus for visually duplicating gemstones. 4,266,871, Cl. 356-30.000.

Robert Bosch GmbH: *See*—
Baumann, Heinrich; and Schmidt, Gunther, 4,267,569, Cl. 364-431.000.
Heess, Gerhard; Schwab, Manfred; and Stroh, Walter, 4,266,447, Cl. 74-858.000.
Kulke, Gunther; and Hans, Waldemar, 4,266,729, Cl. 239-533.120.
Schuttenberg, Eckard; Hauser, Manfred; Hommen, Winfried; and Sopha, Klaus, 4,266,572, Cl. 137-625.630.
Wahl, Gunter; Kuhlmann, Gerhard; and Kranzler, Ernst, 4,266,789, Cl. 279-60.000.

Roberts, Robert, to Washington University. Radioimmunoassay for isoenzymes of creative kinase having a B-subunit and reagents therefor. 4,267,271, Cl. 435-7.000.

Robichaud, Roger E.: *See*—
Higgins, Robert W.; and Robichaud, Roger E., 4,266,852, Cl. 350-96.200.

Roccaforte, Harry L., to Champion International Corporation. Carton hanger-opener. 4,266,671, Cl. 206-626.000.

Rochlingburbach Weiterverarbeiting GmbH: *See*—
Meier, Friedrich; and Philipp, Hugo, 4,266,896, Cl. 409-299.000.

Rockwell, Harvey W.: *See*—
Drone, Gary A.; and Rockwell, Harvey W., 4,267,545, Cl. 340-52.00R.

Rockwell International Corporation: *See*—
Craiglow, Robert L., 4,267,592, Cl. 370-29.000.
Flanagan, Joseph E., 4,266,991, Cl. 149-42.000.

Rodder, Karl-Martin: *See*—
Hanisch, Horst; Rodder, Karl-Martin; Buning, Robert; and Hass, Hans-Jurgen, 4,267,093, Cl. 260-29.60H.

Rodmaker, Gerald: *See*—
Cummings, Charles A.; and Rodmaker, Gerald, 4,266,365, Cl. 46-33.000.

Roesner, Keith G., to Deere & Company. Paint spraying assembly. 4,266,504, Cl. 118-663.000.

Roger, Pierre: *See*—
Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,267,345, Cl. 548-233.000.

Rogers, John W. Slitting cutter for partially slitting sheet metal web. 4,266,458, Cl. 83-864.000.

Rogers, Norman H.: *See*—
Luk, Kong; Clayton, John P.; and Rogers, Norman H., 4,267,316, Cl. 542-427.000.

Rohde, Carl W., to AMP Incorporated. Supporting device for toroidal coil having integral terminal housings. 4,267,404, Cl. 178-46.000.

Rohm and Haas Company: *See*—
Neely, James W., 4,267,055, Cl. 210-670.000.

Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., to Merck & Co., Inc. Process for preparing 2,3-substituted-1,2,-isothiazolium salt antimicrobials. 4,267,341, Cl. 548-206.000.

Roland, David R.; and Wollangk, Edward G., to Kimberly-Clark Corporation. Wrapped folded tampons. 4,266,546, Cl. 128-285.000.

Rom, Josef; Alterman, Israel; and Shwartz, Josef, to Technion Research & Development Foundation Ltd.; and Alterman, Isreal. Method of extracting liquid and gaseous fuel from oil shale and tar sand. 4,266,609, Cl. 166-251.000.

Roman, Stephan. Rotor blade support setup for rotary wing aircraft. 4,266,912, Cl. 416-141.000.

Rombrecht, Hans-Malte: *See*—
Schmidt, Karl; Hansch, Ferdinand; Rombrecht, Hans-Malte; and Beck, Hans-Joachim, 4,267,232, Cl. 428-379.000.

Roof, Richard W., to Square D Company. Pre-step timer circuit for DC motor control. 4,267,493, Cl. 318-443.000.

Rooney, Clarence S.: *See*—
Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., 4,267,341, Cl. 548-206.000.

Roper Corporation: *See*—
Bross, Kenneth L., 4,266,515, Cl. 123-198.00E.

Rose, Leonard; and Rose, Stanley E., to Rose, Leonard; and Rose, Stanley. Braille display reader. 4,266,936, Cl. 434-114.000.

Rose, Stanley: *See*—
Rose, Leonard; and Rose, Stanley E., 4,266,936, Cl. 434-114.000.

Rose, Stanley E.: *See*—
Rose, Leonard; and Rose, Stanley E., 4,266,936, Cl. 434-114.000.

Rosengren, Lars O. Tea maker. 4,266,471, Cl. 99-305.000.

Rosier, Jean-Claude, to U.S. Philips Corporation. Electron multiplier device comprising microchannel plates with optical feedback suppression for image intensifier tubes. 4,267,442, Cl. 250-207.000.

Rossman, Dale W. Boat seat tackle box. 4,266,707, Cl. 224-275.000.

Rossmy, Gerd: *See*—
Lidy, Werner; Rossmy, Gerd; and Kollmeier, Hans-Joachim, 4,267,078, Cl. 260-2.300.

Rost, Arno: *See*—
Pogoda, Dieter; Petters, Claus; and Rost, Arno, 4,267,147, Cl. 264-571.000.

Rothenberg, Alan S.; and Desmond, Michael N., to American Cyanamid Company. Preparation of N-substituted acrylamide monomers having cationic substituents. 4,267,372, Cl. 564-205.000.

Rothwarf, Allen, to University of Delaware. Thin film photovoltaic cells. 4,267,398, Cl. 136-256.000.

Roullet, Gilbert, to Rhone-Poulenc Industries. Process for the manufacturing of bioriented hollow bodies. 4,267,143, Cl. 264-516.000.

Rowan, Robert A.; and Mathis, Leroy. Portable silo. 4,266,510, Cl. 119-51.00R.

Rubel, Frederick, Jr.: *See*—
Hager, Donald G.; and Rubel, Frederick, Jr., 4,267,057, Cl. 210-678.000.

Rubens, Harry E., to Institute of Applied Biology Charitable Research Trust. Pen with retractable point. 4,266,881, Cl. 401-32.000.

Rubin, Lawrence M.: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,266,710, Cl. 228-4.500.

Ruchti, Heinz, to General Diving Corporation. Pressure regulator. 4,266,538, Cl. 128-204.260.

Ruckstuhl, Konrad; Silvano, Serafin L.; and Beier, Kurt W., to SPM Group, Inc. Apparatus for separation of material of heterogeneous character. 4,266,676, Cl. 209-672.000.

Rudolph, Hans: *See*—
Dhein, Rolf; Poetter, Gerswid; and Rudolph, Hans, 4,267,082, Cl. 260-23.0AR.

Ruegg, Rudolf: *See*—
Bollag, Werner; Ruegg, Rudolf; and Ryser, Gottlieb, 4,267,382, Cl. 568-442.000.

Ruperez, Armando. Sugar dispenser. 4,266,695, Cl. 222-185.000.

Rush-Presbyterian-St. Luke Medical Center: *See*—
Bacus, James W., 4,266,505, Cl. 118-699.000.

Russak, Michael A.: *See*—
Chen, Schoen-nan; Russak, Michael A.; Witzke, Horst; Reichman, Joseph; and Deb, Satyendra K., 4,266,338, Cl. 29-623.200.

Russell, Roger H., to McIntosh Laboratory, Inc. Stereo speaker system for creating stereo images. 4,267,405, Cl. 179-1.00E.

Russell, Steven J.: *See*—
Williams, Malcolm; Tingey, Albert R.; Southgate, John P.; and Russell, Steven J., 4,266,522, Cl. 123-492.000.

Rustenburg, William C. Digital frequency divider. 4,267,512, Cl. 328-48.000.

Ruszala, Frederick B.: *See*—
Power, Joseph S.; and Ruszala, Frederick B., 4,267,576, Cl. 364-578.000.

Ruth, Harvey L.; Schneider, Michael H.; and Phelan, Michael B., to ACF Industries, Incorporated. Carburetor bowl vent. 4,267,129, Cl. 261-72.00R.

Ruth, Jerry L.: *See*—
Bergstrom, Donald E.; and Ruth, Jerry L., 4,267,171, Cl. 424-180.000.

Ryaby, John P.; and Pilla, Arthur A., to Electro-Biology, Inc. Modification of the growth, repair and maintenance behavior of living tissues and cells by a specific and selective change in electrical environment. 4,266,532, Cl. 128-1.500.

Ryaby, John P.; and Pilla, Arthur A., to Electro-Biology, Inc. Modification of the growth, repair and maintenance behavior of living tissues and cells by a specific and selective change in electrical environment. 4,266,533, Cl. 128-1.500.

Ryan, Leo F., to Ecodyne Corporation. Fluid filtration method and apparatus. 4,267,039, Cl. 210-767.000.

Rynyk, Douglas W., to Canada Square Management Ltd. Material handling apparatus. 4,266,900, Cl. 414-285.000.

Ryser, Gottlieb: *See*—
Bollag, Werner; Ruegg, Rudolf; and Ryser, Gottlieb, 4,267,382, Cl. 568-442.000.

Rysikhin, Anatoly I.: *See*—
Nefedov, Boris K.; Manov-Juvensky, Vladimir I.; Dergunov, Jury I.; Rysikhin, Anatoly I.; and Chimishkian, Alexandr L., 4,267,070, Cl. 252-429.00R.

Saab-Scania Aktiebolag: *See*—
Nilsson, Dan L.; and Danielsson, Joel L., 4,266,630, Cl. 180-291.000.

Sachdev, Krishna G.: *See*—
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,254, Cl. 430-245.000.
Bloom, Stanley M., deceased; and Sachdev, Krishna G., 4,267,256, Cl. 430-251.000.

Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, to Battelle Memorial Institute. Process for the preparation of lactosylurea, its purification and its conversion to the corresponding N-hydroxymethylated derivative. 4,267,314, Cl. 536-53.000.

Saegusa, Katsumi: *See*—
Niimi, Yukihisa; and Saegusa, Katsumi, 4,267,077, Cl. 252-545.000.

Safety Research & Engineering Corporation: *See*—
Barabino, William A.; and Cook, Edward J., 4,266,633, Cl. 188-1.00A.

Sage, David M.; and Sage, George E. Variable reactance alignment detector and control. 4,266,732, Cl. 239-720.000.

Sage, George E.: *See*—
Sage, David M.; and Sage, George E., 4,266,732, Cl. 239-720.000.

Sahayada, Eugene: *See*—
Thankachan, Chacko; Ritchie, John G.; Sahayada, Eugene; and Sengupta, Asok, 4,267,239, Cl. 428-425.100.

Sahm, William H., III, to General Electric Company. Electrically heatable windshield heater control circuit. 4,267,433, Cl. 219-491.000.

Saint-Gobain Industries: *See*—
Grassin, Jerome; Thouvenin, Maurice; and Epie, Jean-Claude, 4,266,331, Cl. 29-449.000.

Saito, Ichiyoshi: *See*—
Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, 4,266,503, Cl. 118-657.000.

Saito, Yoshihisa: *See*—
Kamiya, Takashi; Saito, Yoshihisa; Teraji, Tsutomu; Nakaguti, Osamu; and Oku, Teruo, 4,267,340, Cl. 548-187.000.

Saito, Yoshio: *See*—
Matsui, Takahiro; and Saito, Yoshio, 4,266,760, Cl. 269-323.000.

Saitoh, Shigeru, to Masudaya Toy Company Limited. Toy racing car and circuit. 4,266,769, Cl. 273-86.00B.

Sakaguchi, Shinji: *See*—
Karino, Yukio; Sakaguchi, Shinji; and Sakakibara, Yoshio, 4,267,262, Cl. 430-463.000.

Sakai, Yoshihiro; and Takahashi, Jun, to NHK Spring Co., Ltd. Method for manufacturing a taper spring. 4,266,418, Cl. 72-197.000.

Sakakibara, Naoji; and Hashimoto, Nobuyuki. Differential pressure switch device responsive to differential pressure and temperature change. 4,266,517, Cl. 123-333.000.

Sakakibara, Yoshio: *See*—
Karino, Yukio; Sakaguchi, Shinji; and Sakakibara, Yoshio, 4,267,262, Cl. 430-463.000.

Sakane, Kazuo: *See*—
Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,267,176, Cl. 424-246.000.

Sakanoue, Seiki; Waki, Kokichi; Tsubota, Motohiko; Takahashi, Osamu; and Nakatsuka, Asao, to Fuji Photo Film Co., Ltd. Color diffusion transfer photographic element. 4,267,250, Cl. 430-214.000.

Sakashita, Nobuyuki: *See*—
Nishiyama, Ryuzo; Kimura, Fumio; Haga, Takahiro; Sakashita, Nobuyuki; and Nishikawa, Tetsuji, 4,266,963, Cl. 71-92.000.

Sakawaki, Shinichi, to Fuji Photo Film Co., Ltd. Spin coating process. 4,267,212, Cl. 427-240.000.

Sakura Color Products Corporation: *See*—
Ishigaki, Kazumi, 4,266,667, Cl. 206-469.000.

Sakurada, Ichio: *See*—
Nitta, Minoru; Kajinaga, Yoshihiro; Sakurada, Ichio; Ogura, Kuniaki; and Ito, Shunji, 4,266,974, Cl. 75-251.000.

Sakurada, Nobuaki: *See*—
Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; Mashimo, Yukio; and Sakurada, Nobuaki, 4,267,437, Cl. 235-92.0PE.

Sakurazawa, Hatsuo. Conveyor device for supplying bulk foods in a measured manner. 4,266,696, Cl. 222-197.000.

Saleh, Adel A. M., to W. L. Keefauver, Bell Laboratories. Adjustable microstrip and stripline tuners. 4,267,532, Cl. 333-33.000.

Salewski, Jurgen: *See*—
Bayer, Karl; Butt, Heinz G.; and Salewski, Jurgen, 4,266,888, Cl. 405-202.000.

Salisbury, Glenn C., to International Telephone and Telegraph Corporation. Coupler for a concentric core optical fiber. 4,266,851, Cl. 350-96.150.

Salmond, William G., to Upjohn Company, The. Compounds and process. 4,267,117, Cl. 260-397.200.

Salomon, Georges P. J., to Etablissements Francois Salomon et Fils. Braking device for skis. 4,266,801, Cl. 280-605.000.

Saltin, Malte, to Aktiebolaget Bofors. Fire control device. 4,266,463, Cl. 89-41.0AA.

Salvi, Theodore C.: *See*—
Paxton, Alan H.; and Salvi, Theodore C., 4,267,524, Cl. 331-94.50C.

Samolis, Alfonso A., to Christy Concrete Products, Inc. High strength cover for underground utility box. 4,266,380, Cl. 52-19.000.

Samson, Marc: *See*—
Bonnemann, Helmut; and Samson, Marc, 4,267,329, Cl. 546-4.000.

San-O Industrial Co., Ltd.: *See*—
Arikawa, Hiroo, 4,267,543, Cl. 337-255.000.

Sanders, Daniel: *See*—
Sanders, Earl; and Sanders, Daniel, 4,266,792, Cl. 280-153.00R.

Sanders, Earl; and Sanders, Daniel, to Model A and Model T Car Reproduction Corporation, The. Vehicle fender and running board support. 4,266,792, Cl. 280-153.00R.

Sanders, Eugene D. Composite panel and process of its manufacture. 4,267,222, Cl. 428-150.000.

Sandoval, Narciso; and Curten, Jean L. Apparatus for aiding patients to ambulate. 4,266,765, Cl. 272-70.300.

Sandoz Ltd.: *See*—
Ascher, Gerd, 4,267,321, Cl. 544-030.000.
Frey, Wolfgang; and Schoenauer, Wolfgang, 4,267,115, Cl. 260-373.000.

Sankin Industry Co., Ltd.: *See*—
Kohmura, Tamotsu; and Yoshimine, Jun-ichi, 4,267,133, Cl. 264-18.000.

Sanmatsu Kogyo Co., Ltd.: *See*—
Yoritomi, Kenzaburo; Kezuka, Teruo; and Moriya, Mitsumasa, 4,267,054, Cl. 210-659.000.

Sannan, Takanori; and Horiguchi, Shojiro, to Dainichiseika Color & Chemicals Mfg. Co. Ltd. Saccharide derivative having ureido group. 4,267,313, Cl. 536-18.000.

Sanraku-Ocean Co., Ltd.: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,267,312, Cl. 536-17.00A.

Sapunarov, Ivan M.: *See*—
Stoev, Stoycho M.; Sapunarov, Ivan M.; and Ivanov, Vladimir K., 4,267,046, Cl. 210-780.000.

Sasaki, Kenji: *See*—
Nakajima, Koichi; Ishiguro, Tomoji; Okamoto, Tokuhiko; Konaka, Minoru; Nagai, Minoru; Higuchi, Kanji; and Sasaki, Kenji, 4,267,483, Cl. 313-143.000.

Sasaki, Umekichi; Tsunemi, Masaaki; Yamada, Kaichi; and Morikawa, Yoshiyuki, to Nippon Oil Company, Ltd.; and Matsushita Electric

Industrial Co., Ltd. Refrigeration lubricating oil compositions. 4,267,064, Cl. 252-52.00A.

Sasazawa, Koji; Kitamoto, Tatsuji; Akashi, Goro; Masaki, Kouichi; and Dezawa, Shinichiro, to Fuji Photo Film Co., Ltd. Process for producing cobalt-containing ferromagnetic iron oxide powder. 4,267,207, Cl. 427-129.000.

Sasuga, Tadashi: *See*—
Koike, Wataro; Sasuga, Tadashi; and Yazawa, Chihiro, 4,267,317, Cl. 542-416.000.

Sato, Akira, to Sony Corporation. UHF electronic tuner. 4,267,604, Cl. 455-193.000.

Sato, Chikara: *See*—
Iida, Tetsuya; Sato, Chikara; and Suzuki, Yasoji, 4,267,517, Cl. 330-253.000.

Sato, Fumiyoshi, to Nissan Motor Company, Limited. Automotive ash tray assembly. 4,266,836, Cl. 312-246.000.

Sato, Kazuo; Asahi, Akira; and Koyama, Takahiro, to Daicel Ltd Melt-coated preparation containing sorbic acid. 4,267,198, Cl. 426-332.000.

Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, to Honda Giken Kogyo Kabushiki Kaisha. Method of preventing skid of wheels of a vehicle. 4,266,833, Cl. 303-106.000.

Sato, Masaru; and Amano, Toshio, to Sony Corporation. Channel selecting apparatus for use with signal receiver and signal recorder. 4,267,563, Cl. 358-127.000.

Sato, Ryuichi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Arai, Masatoshi, 4,267,172, Cl. 424-184.000.

Sato, Takeshi: *See*—
Kitazawa, Yoichi; Sato, Takeshi; and Tsuji, Hisao, 4,266,995, Cl. 156-123.00R.

Satoh, Ryozo, to Tel-Thermco Engineering Co., Ltd. Cap-mounting mechanism for apparatus for thermal treatment of semiconductors. 4,266,507, Cl. 118-733.000.

Sauder, Larry D Spark plug with hot/sharp ground electrode. 4,267,481, Cl. 313-139.000.

Saunders, James F.; and Krocker, Robert E., to Trane Company, The. Method and apparatus for controlling comfort conditions including setback. 4,266,599, Cl. 165-2.000.

Sawa, Seiji, to Minolta Camera Kabushiki Kaisha. Eye fundus camera. 4,266,861, Cl. 351-7.000.

Sawhill, James W., to Pacific Kenyon Corporation. Animal feed supplement as a thixotropic stable suspension. 4,267,197, Cl. 426-69.000.

Scarborough, Edward D., Jr.: *See*—
Souder, James J., Jr.; Scarborough, Edward D., Jr.; and Fox, Merlin D., 4,266,747, Cl. 248-280.100.

Scarola, Leonard S.: *See*—
Kurtz, Stuart J.; Blakeslee, Theodore R., III; and Scarola, Leonard S., 4,267,146, Cl. 264-564.000.

Schade, Otto H., Jr., to RCA Corporation. Operational transconductance amplifiers with non-linear component current amplifiers. 4,267,519, Cl. 330-255.000.

Schaefer, Dieter: *See*—
Motz, Herbert; Schaefer, Dieter; Huebner, Werner; and Mayer, Dieter, 4,267,203, Cl. 427-48.000.

Schael, Wilfried, to Fresenius, Eduard; and Chemisch-pharmazeutische Industrie KG, Apparatebau KG. Apparatus for the ultrafiltration control in connection with the hemodialysis. 4,267,041, Cl. 210-109.000.

Schaffer, Stephen P.: *See*—
Guzowski, Matthew M.; Schaffer, Stephen P.; and Wright, David C., 4,266,973, Cl. 75-134.00N.

Schal, Wilfried, to Dr. Edward Fresenuis, Chemischpharmazeutische Industrie KG, Apparatebau KG. Hemodialysis apparatus. 4,267,040, Cl. 210-104.000.

Schaper, Ulf-Armin; Conrad, Jens; and Bruns, Klaus, to Henkel Kommanditgesellschaft auf Aktien. Perfume compositions containing esters of 3,5,5-trimethylhexanoic acid. 4,267,075, Cl. 252-522.00R.

Schaus, Orland O., to Canadian Gas Research Institute. Flue heat exchanger. 4,266,513, Cl. 122-155.00A.

Scheibe, Joachim; and Kuhn, Helmut, to Carl Freudenberg, Firma. Reinforced plastic belt loop. 4,267,139, Cl. 264-229.000.

Schering Corporation: *See*—
Draper, Richard W., 4,267,173, Cl. 424-243.000.
Neustadt, Bernard R.; and Gold, Elijah H., 4,267,193, Cl. 424-309.000.

Schiher, Stanley C.; and Renjilian, Armen, to Albany International Corp. Press fabric resistant to wad burning. 4,267,227, Cl. 428-234.000.

Schindler, Hans R.; and Vettiger, Peter, to International Business Machines Corporation. Method and apparatus for the transmission of speech signals. 4,267,407, Cl. 179-15.55R.

Schipper, Philipp: *See*—
Bruckner, Elmar; Gausmann, Hans; Schipper, Philipp; and Tausch, Walter, 4,267,149, Cl. 422-65.000.

Schlegel, Franz, to Optische Werke G. Rodenstock. Optical system for night-vision glasses. 4,266,848, Cl. 350-8.000.

Schlimper, Hans-Ulrich: *See*—
Diessel, Paul; Perner, Johannes; Leutner, Bernd; and Schlimper, Hans-Ulrich, 4,267,068, Cl. 252-179.000.

Schloth, Arthur P., to International Telephone and Telegraph Corporation. Quick response hydraulic shock suppressor for piping systems. 4,266,639, Cl. 188-311.000.

Schlumberger Technology Corp.: *See*—
Johnstone, Charles W., 4,267,447, Cl. 250-262.000.

Schmidt, Gunther: *See*—
Baumann, Heinrich; and Schmidt, Gunther, 4,267,569, Cl. 364-431.000.

Schmidt, Karl; Hansch, Ferdinand; Rombrecht, Hans-Malte; and Beck, Hans-Joachim, to Dr. Beck & Co. Aktiengesellschaft. Conductors having insulation of polyester imide resin. 4,267,232, Cl. 428-379.000.

Schmidt, LaVern. Compact position lock tool box. 4,266,835, Cl. 312-244.000.

Schmidt, Robert J.; and Imai, Tamotsu, to UOP Inc. Hydration of olefinic compounds with dilute sulfuric acid and cobalt sulfate. 4,267,397, Cl. 568-899.000.

Schmitt, Frederick L.: *See*—
Mookherjee, Braja D.; Mussinan, Cynthia J.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,267,076, Cl. 252-522.00R.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,066, Cl. 252-174.110.
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,267,067, Cl. 252-174.110.

Schmitt, Kirk D.: *See*—
Chen, Catherine S. H.; Schmitt, Kirk D.; and Williams, Albert L., 4,267,123, Cl. 260-501.120.

Schmitz, Gunter, to Mannesmann Demag AG. Support for a metallurgical vessel. 4,266,758, Cl. 266-244.000.

Schmitz, Henry: *See*—
Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,267,113, Cl. 260-345.200.

Schmitz, Ruediger: *See*—
Brand, Uwe; Fuchs, Hugo; and Schmitz, Ruediger, 4,267,105, Cl. 260-239.30A.

Schmitz, Werner: *See*—
Henne, Werner; Dunweg, Gustav; Schmitz, Werner; Pohle, Raimund; and Lawitzki, Friedrich, 4,267,047, Cl. 210-490.000.

Schmitz, Wilfried: *See*—
Feller, Otto; Skrobek, Alois; and Schmitz, Wilfried, 4,266,329, Cl. 29-222.000.

Schmohl, Michael W., to Uniroyal GmbH. Continuous sole for sports shoe. 4,266,349, Cl. 36-32.00R.

Schnadt, Robert: *See*—
Haug, Werner; Gschwendtner, Joerg; and Schnadt, Robert, 4,267,465, Cl. 307-238.300.

Schneider, Manfred; Kahmann, Gottfried; Gohler, Wolfgang; and Kircheiss, Andreas, to Textima, VEB Wirkmaschinenbau-Karl-Marx Stadt. Method and warp knitting machine for the manufacture of a looped pile warp knit fabric having a pile pattern. 4,266,410, Cl. 66-84.00R.

Schneider, Michael H.: *See*—
Ruth, Harvey L.; Schneider, Michael H.; and Phelan, Michael B., 4,267,129, Cl. 261-72.00R.

Schneider, Paul A.; and Eliassen, Carlo, to Ardal Og Sunndal Verk A.S. Suction tube assembly for ring furnace. 4,266,316, Cl. 15-304.000.

Schnur, Rodney C., to Pfizer Inc. Spiro-oxazolidindiones. 4,267,342, Cl. 548-216.000.

Schoen, Donald W.: *See*—
Matthys, Bernard A.; Schoen, Donald W.; and Anderson, Carl E., 4,266,953, Cl. 55-294.000.
Retka, Thomas J.; and Schoen, Donald W., 4,266,830, Cl. 299-87.000.

Schoenauer, Wolfgang: *See*—
Frey, Wolfgang; and Schoenauer, Wolfgang, 4,267,115, Cl. 260-373.000.

Scholl, Hans-Joachim; and Zenner, Armin, to Bayer Aktiengesellschaft. Preparation of aromatic urethanes. 4,267,353, Cl. 560-24.000.

Schon & Cie GmbH Maschinenfabrik: *See*—
Winter, Gerhard, 4,266,311, Cl. 12-10.100.

Schonmeier, Herbert, to Jagenberg Werke AG. Method and apparatus for the modulated raising of the carriages of a wind-up roll in the centerless winding of webs. 4,266,736, Cl. 242-66.000.

Schoofs, Franciscus A. C. M., to U.S. Philips Corporation. Arrangement for applying a signal to a transmission line. 4,267,408, Cl. 179-77.000.

Schotte, Dietwald: *See*—
Milutzki, Udo; Gaus, Harry; Schotte, Dietwald; and Ramspeck, Klaus, 4,266,783, Cl. 369-41.000.

Schreckenberg, Manfred: *See*—
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, 4,267,303, Cl. 528-171.000.

Schreckling, Kurt: *See*—
Breuer, Wolfram; Becker, Wolf-Jurgen; Deprez, Jacques; Drope, Eckard; Kaufmann, Karl-Heinz; and Schreckling, Kurt, 4,267,030, Cl. 204-278.000.

Schreiber, Karl J., to Polaroid Corporation. Novel photographic processing composition. 4,267,255, Cl. 430-245.000.

Schreiber, Roland: *See*—
Betzl, Hermann; Kuenemund, Friedrich; and Schreiber, Roland, 4,267,535, Cl. 333-165.000.

Schroeder, Clifford A.; Fogg, Ralph L.; Farason, Harry J.; and Voorhees, Robert E., to C. A. Schroeder Inc. Universal air diffuser. 4,266,470, Cl. 98-40.00R.

Schroeder, George F.; and Krupick, Walter J., to Singer Company, The. Gyro motor control. 4,266,432, Cl. 74-5.700.

Schuette, Henry W., to Wellons, Inc. Storage bin having driven agitator. 4,266,901, Cl. 414-305.000.

Schultz, Robert J.; and Starks, Fred W., to Starks Associates, Inc. N-(Phosphonoacetyl)-L-aspartic acid compounds. 4,267,126, Cl. 260-942.000.

Schuttenberg, Eckard; Hauser, Manfred; Hommen, Winfried; and Sopha, Klaus, to Robert Bosch GmbH. Electrohydraulic directional control valve system. 4,266,572, Cl. 137-625.630.

Schwab, Jean-Francois: *See*—
Sudler, Roland; and Schwab, Jean-Francois, 4,267,472, Cl. 310-49.00R.

Schwab, Manfred: *See*—
Heess, Gerhard; Schwab, Manfred; and Stroh, Walter, 4,266,447, Cl. 74-858.000.

Schwartz, Kenneth P.: *See*—
Perez, David J.; and Schwartz, Kenneth P., 4,266,742, Cl. 244-63.000.

Schwartz, Werner; Fischer, Peter; and Traulsen, Heinrich, to Metallgesellschaft Aktiengesellschaft. Continuous process of converting non-ferrous metal sulfide concentrates. 4,266,971, Cl. 75-69.000.

Schweikl, Ludwig; Greune, Christian; and Lottes, Paul, to Motoren- und Turbinen-Union Munchen GmbH. Exhaust section of a reaction engine. 4,266,725, Cl. 239-265.190.

Scicluna, Augustin: *See*—
Prudhon, Francois; and Scicluna, Augustin, 4,267,131, Cl. 261-153.000.

Science Union et Cie: *See*—
Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,267,345, Cl. 548-233.000.

Science Union et Cie, Societe Francaise de Recherche Med.: *See*—
Regnier, Gilbert; Laubie, Michel; and Poignant, Jean-Claude, 4,267,178, Cl. 424-250.000.

SCM Corporation: *See*—
Kane, Bernard J.; and Von Genk, Richard A., 4,267,366, Cl. 560-231.000.

Scott, James W.; and Rising, Robert, to Owens-Corning Fiberglas Corporation. Method and apparatus for producing fibrous wool packs. 4,266,960, Cl. 65-4.00R.

Scott, Richard M.; and Armitage, Geoffrey D., to Shell Oil Company. Production of herbicidally-active derivatives of alanine. 4,267,355, Cl. 560-43.000.

Seapower, Inc.: *See*—
Benson, Robert A., 4,267,043, Cl. 210-241.000.

Seawell, Albert C. Methods of using chlamydia vaccine for preventing and treating bovine diseases. 4,267,170, Cl. 424-88.000.

Segrott, Leslie, to Du Pont de Nemours, E. I., and Company. Pin socket. 4,266,838, Cl. 339-17.00C.

Seidler, Jack. Circuit holder. 4,266,840, Cl. 339-75.00M.

Seiko Koki Kabushiki Kaisha: *See*—
Kitai, Kiyoshi; Nagaoka, Shinji; and Takazawa, Yuzuru, 4,267,440, Cl. 250-201.000.

Sekisui Kagaku Kogyo Kabushiki Kaisha: *See*—
Kodera, Yoshiaki; Watanabe, Kiyoyuki; and Kusu, Takayuki, 4,266,370, Cl. 47-29.000.

Selbeck, Harald; Wulff, Claus; Hucks, Uwe; Tresper, Erhard; and Vernaleken, Hugo, to Bayer Aktiengesellschaft. Process for the production of phosphoric acid triesters. 4,267,127, Cl. 260-973.000.

Sellinger, Martin S., to Keene Corporation. Outdoor junction box. 4,266,683, Cl. 220-3.200.

Seneker, James A., to Ameron, Inc. High solids polyurethane coatings. 4,267,081, Cl. 260-22.0TN.

Sengupta, Asok: *See*—
Thankachan, Chacko; Ritchie, John G.; Sahayada, Eugene; and Sengupta, Asok, 4,267,239, Cl. 428-425.100.

Seregely, Daniel W. Asynchronous slapping musical instrument. 4,266,459, Cl. 84-402.000.

Sergent, Andre, to Petit & Cie. Tank filling limiter. 4,266,582, Cl. 141-198.000.

Serono Laboratories Inc.: *See*—
Bigazzi, Mario, 4,267,101, Cl. 260-112.00R.

Setala, Pekka T.; Makipirtti, Simo A. I.; and Heino, Heimo J., to Outokumpu Oy. Apparatus for the vaporization of elemental sulfur by means of carrier gas. 4,266,512, Cl. 122-5.50R.

Sevcik, Stanislav; Trekoval, Jiri; Holata, Jan; and Stamberg, Jiri, to Ceskoslovenska akademie ved. Polymers of pivaloyloxyalkyl methacrylates, method for their preparation and modification. 4,267,287, Cl. 525-271.000.

Shalaev, Vladimir G.: *See*—
Vitchenko, Vladimir S.; Smirnov, Gennady K.; and Shalaev, Vladimir G., 4,267,475, Cl. 310-232.000.

Sharp Kabushiki Kaisha: *See*—
Hashimoto, Shintaro; and Nishimura, Toshio, 4,267,577, Cl. 364-707.000.

Shatz, Mark F. Bed covering. 4,266,308, Cl. 5-494.000.

Shaw, Anthony R.: *See*—
Krueger, Wallace F.; and Shaw, Anthony R., 4,266,383, Cl. 52-400.000.

Shea, Wm. M.: *See*—
Hollingsworth, Elmont E.; Shea, Wm. M.; and Spitzer, Daniel M., Jr., 4,266,863, Cl. 354-5.000.

Shearpower International Corporation: *See*—
Rick, Randy L.; Mazzotta, Paul F.; and Daiello, Cosimo D., 4,267,431, Cl. 219-225.000.

Shell Oil Company: *See*—
Dickson, Leon L.; and Ellison, Bart T., 4,267,148, Cl. 422-53.000.
Nielsen, Robert P.; and Jecminek, Albert A., 4,267,073, Cl. 252-455.00R.
Scott, Richard M.; and Armitage, Geoffrey D., 4,267,355, Cl. 560-43.000.
Whitehead, Richard O., 4,267,283, Cl. 525-89.000.

Sher, Frank T.: *See*—
Beck, Boyd R.; Sher, Frank T.; and Tiers, George V. D., 4,267,213, Cl. 427-292.000.

Sherman, William F. Method of binding a phenol-based thermoplastic resin to a cured and molded-thermoset phenolic plastic. 4,267,290, Cl. 525-465.000.

Sherwood, Cy E., to Bendix Corporation, The. High voltage cable terminal. 4,266,841, Cl. 339-89.00C.

Shibata, Tadashi; and Iizuka, Hisakazu, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for manufacturing a semiconductor device. 4,267,011, Cl. 156-628.000.

Shibata, Takehiko: *See*—
Suzuki, Koji; and Shibata, Takehiko, 4,267,511, Cl. 324-458.000.

Shibler, William: *See*—
Unetich, Robert M.; and Shibler, William, 4,267,487, Cl. 315-107.000.

Shibue, Toshiaki; and Nagayasu, Koichi, to Konishiroku Photo Industry Co., Ltd. Photographic films. 4,267,266, Cl. 430-530.000.

Shiell, Thomas J. Collinear four-point probe head and mount for resistivity measurements. 4,267,506, Cl. 324-158.00P.

Shigehara, Itaru: *See*—
Nishiyama, Ryuzo; Fujikawa, Kanichi; Nasu, Rikuo; and Shigehara, Itaru, 4,267,336, Cl. 546-302.000.

Shih, Stuart S.: *See*—
Heck, Roland H.; Oleck, Stephen M.; Shih, Stuart S.; and Wilson, Robert C., 4,267,033, Cl. 208-216.0PP.

Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, to Nissan Motor Company, Limited. Spot welding machine for heavy-duty operations on surface contoured workpieces. 4,267,424, Cl. 219-86.410.

Shimizu, Norihiko: *See*—
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.

Shin-Etsu Chemical Co. Ltd.: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Arai, Masatoshi, 4,267,172, Cl. 424-184.000.

Shin Meiwa Industry Co., Ltd.: *See*—
Ago, Hitoshi, 4,266,455, Cl. 83-84.000.

Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; Mashimo, Yukio; and Sakurada, Nobuaki, to Canon Kabushiki Kaisha. Exposure control device for a camera. 4,267,437, Cl. 235-92.0PE.

Shinohara, Toshio: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Arai, Masatoshi, 4,267,172, Cl. 424-184.000.

Shinohara, Yoshiaki, to Kawasaki Steel Corporation. Heating furnace. 4,266,932, Cl. 432-194.000.

Shionogi & Co., Ltd.: *See*—
Nakagawa, Yuzo; Iwatani, Kouji; and Kadono, Tetsuro, 4,267,457, Cl. 250-522.000.

Shishido, Toetsu: *See*—
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,267,210, Cl. 427-226.000.
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Shuler, Lucien B., to Caterpillar Tractor Co. Steering system with interlock valves. 4,266,626, Cl. 180-6.480.

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Rom, Josef; Alterman, Israel; and Shwartz, Josef, 4,266,609, Cl. 166-251.000.

Sickles, James E., to PPG Industries, Inc. Spray application of coating compositions utilizing induction and corona charging means. 4,266,721, Cl. 239-3.000.

SIE, Inc.: *See*—
Boop, Gene T., 4,266,613, Cl. 166-299.000.

Sieglitz, Manfred, to Gustav F. Gerdts KG. Angle valve. 4,266,570, Cl. 137-613.000.

Siemens Aktiengesellschaft: *See*—
Betzl, Hermann; Kuenemund, Friedrich; and Schreiber, Roland, 4,267,535, Cl. 333-165.000.
Bodlaj, Viktor, 4,266,875, Cl. 356-381.000.
Braun, Rudiger, 4,267,570, Cl. 364-480.000.
Grassmann, Hans-Christian, 4,267,461, Cl. 307-105.000.
Kullmann, Dieter, 4,267,474, Cl. 310-52.000.
Lange, Gottfried, 4,267,450, Cl. 250-315.200.
Paulus, Irmo, 4,267,416, Cl. 200-144.00B.
Thomanek, Gerd, 4,267,582, Cl. 364-900.000.
Vandenbossche, Chris; and Vanhumbeeck, Jacky, 4,266,942, Cl. 23-230.00R.
Vogelsberg, Dieter, 4,266,398, Cl. 57-293.000.

Siemens Gammasonics, Inc.: *See*—
McKeighen, Ronald E.; and Buchin, Michael P., 4,267,584, Cl. 367-11.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-6,9α-epoxymethano-PGF compounds. 4,267,114, Cl. 260-345.200.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-6-oxo-PGF_1 sulfonylamides. 4,267,352, Cl. 560-12.000.

Sih, John C., to Upjohn Company, The. 13,14-Dihydro-inter-phenylene-11-deoxy-11-hydroxymethyl-19-oxo-PGE_1 compounds. 4,267,357, Cl. 560-53.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-trans-2,3-didehydro-PG_1 compounds. 4,267,367, Cl. 562-503.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-cis-4,5-didehydro-13,14-dihydro-PG_1 compounds. 4,267,368, Cl. 562-503.000.

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Sih, John C., to Upjohn Company, The. 19-Hydroxy-6a-carba-PGI_2 amides. 4,267,371, Cl. 564-188.000.

Sih, John C., to Upjohn Company, The. 2-Decarboxy-2-hydroxymethyl-19-hydroxy-19-methyl-6A-carba-PGI_2 compounds. 4,267,395, Cl. 568-819.000.

Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, to Bell Telephone Laboratories, Incorporated. Recombination lasers with spatial variations in pumping. 4,267,525, Cl. 331-94.50G.

Silvano, Serafin L.: *See*—
Ruckstuhl, Konrad; Silvano, Serafin L.; and Beier, Kurt W., 4,266,676, Cl. 209-672.000.

Silverman, Richard: *See*—
Jezorek, Leigh; Pitel, Irving; and Silverman, Richard, 4,267,214, Cl. 427-341.000.

Simo, Thomas; and Rammler, Roland, to Metallgesellschaft Aktiengesellschaft. Process and separating and recovering solids and clear liquid phase from dispersions. 4,267,061, Cl. 210-772.000.

Simons, Richard W., to Stauffer Chemical Company. 2-(α-naphthoxy)-N,N-diethyl propionamide as an aqueous flowable concentrate. 4,266,965, Cl. 71-118.000.

Simpson, Gary R., to Honeywell Inc. Method of and apparatus for heat processing photosensitive material. 4,267,434, Cl. 219-499.000.

Sine, William A. Ball projecting and catching apparatus. 4,266,778, Cl. 273-324.000.

Singer Company, The: *See*—
Ketterer, Stanley J., 4,266,494, Cl. 112-184.000.
Ljung, Bo H. G.; and Williams, Charles J., 4,267,478, Cl. 310-315.000.
Schroeder, George F.; and Krupick, Walter J., 4,266,432, Cl. 74-5.700.

Singerman, Gary M.: *See*—
Hartle, Robert J.; and Singerman, Gary M., 4,266,947, Cl. 44-68.000.

Sivon, Robert L., to True Temper Corporation. Modularized railway crossing grade and modules therefor. 4,266,718, Cl. 238-9.000.

SK&F Lab Co.: *See*—
Lewis, Joseph J.; and Webb, Robert L., 4,267,337, Cl. 548-119.000.

Skahill, Richard J., to J.I. Case Company. Window wiper storage system. 4,266,315, Cl. 15-250.160.

Skeem, Wayne B. Round bale feeder. 4,266,899, Cl. 414-24.600.

SKF Compagnie d'Applications Mecaniques: *See*—
Boudet, Georges; and Desmoulins, Jean C., 4,266,451, Cl. 81-57.350.

Skrobek, Alois: *See*—
Feller, Otto; Skrobek, Alois; and Schmitz, Wilfried, 4,266,329, Cl. 29-222.000.

Skvorecz nee Hajnoczy, Marianne: *See*—
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, 4,267,138, Cl. 264-117.000.

Slechta, Libor: *See*—
Reusser, Fritz; and Slechta, Libor, 4,267,112, Cl. 260-345.200.

Sloan, Cephas H.; Wright, Jerry A.; and Morie, Gerald P., to Eastman Kodak Company. Melt blowing process. 4,267,002, Cl. 156-276.000.

Smid, Peter M.: *See*—
Marx, Arthur F.; Smid, Peter M.; and Vellekoop, Pieter, 4,267,106, Cl. 260-239.570.

Smirnov, Anatoly I.: *See*—
Velikoselsky, Nikolai D.; Smirnov, Anatoly I.; Perets, Nikolai Y.; Vinogradov, Sergei S.; Podbeltsev, Viktor I.; and Lakhno, Pavel E., 4,266,680, Cl. 212-193.000.

Smirnov, Gennady K.: *See*—
Vitchenko, Vladimir S.; Smirnov, Gennady K.; and Shalaev, Vladimir G., 4,267,475, Cl. 310-232.000.

Smith, Brian F. Artifical bait. 4,266,360, Cl. 43-42.090.

Smith, David: *See*—
Panzik, Donald; and Smith, David, 4,266,540, Cl. 128-207.130.

Smith, David W., to National Distillers and Chemical Corp. Ruthenium catalyzed process for acetaldehyde and ethanol. 4,267,384, Cl. 568-462.000.

Smith International, Inc.: *See*—
Vezirian, Edward, 4,266,622, Cl. 175-366.000.

Smith, J. Harold, to United Technologies Corporation. Method for molding sheet material with parallel ribs on one side. 4,267,137, Cl. 264-113.000.

Smith, Richard A. G., to Beecham Group Limited. Enzyme preparation having affinity for water-immiscible liquids. 4,267,273, Cl. 435-44.000.

Smith, Roger M., to Caterpillar Tractor Co. Push-pull coupling for power scrapers. 4,266,798, Cl. 280-481.000.

Smith, Stephen L., to Motorola, Inc. NMOS Voltage reference generator. 4,267,501, Cl. 323-313.000.

Smiths Industries Limited: *See*—
Cross, David E., 4,266,815, Cl. 285-330.000.

Smock Material Handling Company, Inc.: *See*—
Herman, Donald G., 4,266,660, Cl. 198-781.000.

Smorodinnikov, Vladimir P.: *See*—
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

SMR Corporation: *See*—
Thiene, Paul G., 4,267,490, Cl. 318-51.000.

Societe Anonyme Automobiles Citroen: *See*—
Perez, Jean; and Carnus, Jean-Claude, 4,266,524, Cl. 123-568.000.

Societe Anonyme de Telecommunications: *See*—
Guerpont, Maurice R., 4,267,507, Cl. 324-158.00P.

Societe Anonyme Francaise de Ferodo: *See*—
Bacher, Micher, 4,266,636, Cl. 188-76.000.

Societe Anonyme Francaise du Ferodo: *See*—
Stordeur, Yves A. H., 4,266,441, Cl. 74-523.000.

s.a. Texaco Belgium n.v.: *See*—
Maasbol, Alfred G.; and Dulog, Lothar G., 4,267,375, Cl. 568-57.000.

Societe de Paris et du Rhone: *See*—
Mazzorana, Alfred B., 4,266,642, Cl. 192-45.000.

Societe d'Etudes de Produits Chimiques: *See*—
Esanu, Andre, 4,267,181, Cl. 424-251.000.

Soderberg, Jon: *See*—
Frant, Martin S.; and Soderberg, Jon, 4,267,023, Cl. 204-1.00T.

Soes, Lucas: *See*—
Janssen, Theodorus M.; Gilissen, Hermanus P. J.; Soes, Lucas; Van Der Sanden, Ludovicus C.; and Van Dijk, Petrus R. M., 4,267,412, Cl. 200-6.00B.

Soffa, Albert: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,266,710, Cl. 228-4.500.

Sogo, Shigeyuki: *See*—
Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, 4,266,885, Cl. 405-109.000.

Solar Southwest: *See*—
Behrendt, Bruce O.; Cisneros, Ignacio L.; Stephenson, Ronald B.; and Stephenson, Donald R., 4,266,531, Cl. 126-449.000.

Solomin, Vladimir A.: *See*—
Popov, Alexandr D.; Solomin, Vladimir A.; and Zvezdunov, Dmitry A., 4,267,471, Cl. 310-13.000.

Sommerfeld, Eugene G.: *See*—
Burkhart, Dean C.; Harper, Lee R.; and Sommerfeld, Eugene G., 4,267,288, Cl. 525-438.000.

Sony Corporation: *See*—
Osakabe, Yoshio; and Yasuda, Hiroshi, 4,267,603, Cl. 455-186.000.
Sato, Akira, 4,267,604, Cl. 455-193.000.
Sato, Masaru; and Amano, Toshio, 4,267,563, Cl. 358-127.000.
Tsukada, Keizo, 4,267,467, Cl. 307-597.000.
Umeda, Kaoru; and Harada, Hideo, 4,267,601, Cl. 455-165.000.

Sopha, Klaus: *See*—
Schuttenberg, Eckard; Hauser, Manfred; Hommen, Winfried; and Sopha, Klaus, 4,266,572, Cl. 137-625.630.

Souder, James J., Jr.; Scarborough, Edward D., Jr.; and Fox, Merlin D., to Positioning Devices, Incorporated. Equipoised articulated support arm. 4,266,747, Cl. 248-280.100.

South African Inventions Development Corp.: *See*—
Coetzer, Johan; and Thackeray, Michael M., 4,267,242, Cl. 429-104.000.

Southgate, John P.: *See*—
Williams, Malcolm; Tingey, Albert R.; Southgate, John P.; and Russell, Steven J., 4,266,522, Cl. 123-492.000.

Sparks, John W.; and Bader, Henry, to Polaroid Corporation. Process for preparing 4-aminopyrazolo-(3,4-d)pyrimidine. 4,267,324, Cl. 544-262.000.

Spaziante, Placido M.: *See*—
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,267,025, Cl. 204-82.000.

Spector, Donald. Toy cableway. 4,266,369, Cl. 46-260.000.

Spector, George: *See*—
Carbone, Peter; and Spector, George, 4,266,771, Cl. 273-150.000.

Spectra-Physics, Inc.: *See*—
Garbe, Reinhold F.; Esterl, Leo A.; and Koltun, Ronald E., 4,266,996, Cl. 156-154.000.

Speiser, Jeffrey M.: *See*—
Bond, James W.; Alsup, James M.; Speiser, Jeffrey M.; Whitehouse, Harper J.; and Lagnado, Isaac, 4,267,580, Cl. 364-824.000.

Speitel, Francois; and Speitel, Robert, to Teleplastics Industries S.A. Stopping device for a threaded neck container. 4,266,682, Cl. 215-331.000.

Speitel, Robert: *See*—
Speitel, Francois; and Speitel, Robert, 4,266,682, Cl. 215-331.000.

Spencer Wright Industries, Inc.: *See*—
Prichard, Richard J., 4,266,491, Cl. 112-79.00R.

Speranza, George P.: *See*—
Cuscurida, Michael; and Speranza, George P., 4,267,120, Cl. 260-463.000.

Speros, Dimitrios M.; and Speros, Philip C. Method and apparatus for solar distillation. 4,267,021, Cl. 202-176.000.

Speros, Philip C.: *See*—
Speros, Dimitrios M.; and Speros, Philip C., 4,267,021, Cl. 202-176.000.

Sperry Corporation: *See*—
Davis, William W., 4,267,518, Cl. 330-254.000.
Knepper, Larimer J.; McDuffie, James W.; and Wagstaff, Robert A., 4,266,392, Cl. 56-14.500.
Mahoney, Frank A., 4,266,479, Cl. 101-93.090.
Mast, Aquila D., 4,266,390, Cl. 56-1.000.

McDuffie, James W.; Knepper, Larimer J.; and Knipper, Larimer J., 4,266,391, Cl. 56-14.500.
Tanski, William J., 4,267,534, Cl. 333-153.000.
VanGinhoven, Robert M.; and Brown, Carl D., 4,266,394, Cl. 56-94.000.

Spinner, Georg; and Lang, Manfred. High-frequency terminating impedance. 4,267,531, Cl. 333-22.00R.

Spitzer, Daniel M., Jr.: *See*—
Hollingsworth, Elmont E.; Shea, Wm. M.; and Spitzer, Daniel M., Jr., 4,266,863, Cl. 354-5.000.

SPM Group, Inc.: *See*—
Ruckstuhl, Konrad; Silvano, Serafin L.; and Beier, Kurt W., 4,266,676, Cl. 209-672.000.

Sporl, Heinrich: *See*—
Troger, Johannes; Lauter, Gernot; and Sporl, Heinrich, 4,266,893, Cl. 409-206.000.

Sprague Electric Company: *See*—
Markarian, Mark; and Puppolo, Henry F., 4,266,332, Cl. 29-570.000.
Moresi, Joseph A., Jr., 4,267,566, Cl. 361-433.000.
Puppolo, Henry F.; and Markarian, Mark, 4,267,565, Cl. 361-433.000.

Sprang, Peter: *See*—
Helm, Siegfried; and Sprang, Peter, 4,266,911, Cl. 416-9.000.

Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Process for augmenting or enhancing the aroma of a detergent using 2-oxabicyclooctane derivative. 4,267,067, Cl. 252-174.110.

Spring, Gorden W., to Tomy Kogyo Co., Inc. Competitive capture game. 4,266,767, Cl. 273-1.00R.

Square D Company: *See*—
Roof, Richard W., 4,267,493, Cl. 318-443.000.

Squires, Stanley C.: *See*—
Petersen, Larry D.; and Squires, Stanley C., 4,266,638, Cl. 188-218.00R.

Staats, Henry N., to General Binding Corporation. Heat reactivatible adhesive book binding. 4,266,812, Cl. 281-29.000.

Staedeli, Otto, to Maag Gear-Wheel & Machine Co. Ltd. Automatically engageable jaw clutch or the like. 4,266,647, Cl. 192-67.00A.

Staedtler & Uhl: *See*—
Egerer, Josef, 4,266,327, Cl. 28-299.000.

Stamberg, Jiri: *See*—
Sevcik, Stanislav; Trekoval, Jiri; Holata, Jan; and Stamberg, Jiri, 4,267,287, Cl. 525-271.000.

Stamicarbon, B.V.: *See*—
Bijen, Jan M. J. M., 4,267,136, Cl. 264-87.000.
Meyer, Peter J. N.; and Penders, Josef M., 4,267,362, Cl. 560-174.000.

Standard Oil Company, The: *See*—
Benton, Kenneth C.; White, James F.; Uebele, Curtis E.; and Weinert, Raymond J., Jr., 4,267,292, Cl. 526-79.000.

Standard Oil Company (Indiana): *See*—
McCollum, John D., 4,266,608, Cl. 166-250.000.
Swartz, Henry D., 4,267,223, Cl. 428-172.000.
Vasalos, Iacovos A., 4,267,072, Cl. 252-455.00Z.

Stanley, Glen L., to Jefferson Industries Company, The. Method and apparatus for separating honey from honeycombs. 4,266,309, Cl. 6-12.00R.

Starks Associates, Inc.: *See*—
Schultz, Robert J.; and Starks, Fred W., 4,267,126, Cl. 260-942.000.

Starks, Fred W.: *See*—
Schultz, Robert J.; and Starks, Fred W., 4,267,126, Cl. 260-942.000.

State of Rhode Island, Board of Regents for Education of the: *See*—
Birk, John R.; Kelley, Robert B.; and Tella, Richard P., 4,266,905, Cl. 414-627.000.

Stauffer Chemical Company: *See*—
Chang, Pei K.; and Concilio-Nolan, Mary C., 4,267,100, Cl. 260-112.00R.
Simons, Richard W., 4,266,965, Cl. 71-118.000.

Steadman, Robert W. Sun ray tracker. 4,266,530, Cl. 126-424.000.

Stedef S.A.: *See*—
Harmsen, John L., 4,266,720, Cl. 238-349.000.

Steffan, Guido: *See*—
Kaiser, Reinhard; and Steffan, Guido, 4,267,346, Cl. 548-262.000.

Steger, John J.: *See*—
Maas, Edward T., Jr.; and Steger, John J., 4,267,157, Cl. 423-303.000.

Steiger, Roger A., to PPG Industries, Inc. Submicron carbon-containing titanium boride powder and method for preparing same. 4,266,977, Cl. 106-43.000.

Stein, Marc T., to Medtronic, Inc. Sense amplifier for demand cardiac pacemaker. 4,266,551, Cl. 128-419.0PG.

Stella D'oro Biscuit Co. Inc.: *See*—
Monaco, George, 4,266,502, Cl. 118-16.000.

Stelter, Heino; Preiss, Manfred; and Polka, Udo. Wireless, multi-channel remote control unit for toys. 4,267,606, Cl. 455-603.000.

Stephenson, Donald R.: *See*—
Behrendt, Bruce O.; Cisneros, Ignacio L.; Stephenson, Ronald B.; and Stephenson, Donald R., 4,266,531, Cl. 126-449.000.

Stephenson, Rebecca A. G.: *See*—
DuBois, Grant E.; Stephenson, Rebecca A. G.; and Crosby, Guy A., 4,267,165, Cl. 424-48.000.

Stephenson, Robert L.: *See*—
Thomas, Rudy V.; and Stephenson, Robert L., 4,266,810, Cl. 280-802.000.

Stephenson, Ronald B.: *See*—
Behrendt, Bruce O.; Cisneros, Ignacio L.; Stephenson, Ronald B.; and Stephenson, Donald R., 4,266,531, Cl. 126-449.000.

Sterling, Stewart A.: *See*—
Kaae, James L.; Reynolds, George H.; Sterling, Stewart A.; and Yang, Ling, 4,267,019, Cl. 176-82.000.

Stetter, Jorg; Draber, Wilfried; Thomas, Rudolf; and Lunkenheimer, Winfried, to Bayer Aktiengesellschaft. N-Azolylalkyl-anilines. 4,267,338, Cl. 548-143.000.

Stetter, Jorg: *See*—
Jautelat, Manfred; Stetter, Jorg; Arlt, Dieter; and Kramer, Wolfgang, 4,267,381, Cl. 568-419.000.

Stiner, Roy E., to Brunswick Corporation. Clip for fishing reel. 4,266,739, Cl. 242-84.21R.

Stirling, Harold T. Dust treatment. 4,266,966, Cl. 75-25.000.

Stoev, Stoycho M.; Sapunarov, Ivan M.; and Ivanov, Vladimir K. Method and apparatus for dewatering of fine-grained materials. 4,267,046, Cl. 210-780.000.

Stone, Arnold F.; and Kinnard, William D., to CPS Industries. Method for producing tear tape and seal and tear line for packaging. 4,267,228, Cl. 428-297.000.

Stone, Frederick A., to Teleco Oilfield Services Inc. Hydraulic circuit for borehole telemetry apparatus. 4,266,606, Cl. 166-113.000.

Stopp, Fritz: *See*—
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.

Stordeur, Yves A. H., to Societe Anonyme Francaise du Ferodo. Positioning device with a pivotable positioning member. 4,266,441, Cl. 74-523.000.

Stork PMT B.V.: *See*—
van Mil, Martinus P. G., 4,266,322, Cl. 17-11.000.

Stout, Robert L., to Enzyme Technology, Inc. Method for the determination of antigens and antibodies using site-deactivating media. 4,267,270, Cl. 435-7.000.

Stradling, John H.; and Albrecht, Paul R., to J. H. Stradling, Inc. Reversing transmission. 4,266,643, Cl. 192-51.000.

Stratmann, Klaus: *See*—
Jochums, Peter; Stratmann, Klaus; Henkel, Egon; and Wildfurster, Heinrich, 4,266,484, Cl. 105-29.00R.

Stritzl, Karl: *See*—
Weigl, Erwin; and Stritzl, Karl, 4,266,806, Cl. 280-618.000.

Stroh, Walter: *See*—
Heess, Gerhard; Schwab, Manfred; and Stroh, Walter, 4,266,447, Cl. 74-858.000.

Strom, Holger, to Platmanufaktur Aktiebolaget. Transport device. 4,266,651, Cl. 198-345.000.

Stroud, Richard M.; and Kolakowski, Richard A., to Upjohn Company, The. Process and apparatus for the continuous molding of polymer foam bunstock having a substantially rectangular cross-section. 4,267,135, Cl. 264-51.000.

Struckmann, Holger. Apparatus and method of heating particulate material. 4,266,931, Cl. 432-105.000.

Strzepek, Stanley W.: *See*—
Bates, Herbert E.; and Strzepek, Stanley W., 4,267,010, Cl. 156-608.000.

Studiengesellschaft Kohle GmbH: *See*—
Bonnemann, Helmut; and Samson, Marc, 4,267,329, Cl. 546-4.000.

Sturos, John A.: *See*—
Barwise, Robert D.; Sturos, John A.; and Brumm, Douglas B., 4,266,675, Cl. 209-540.000.

Suarato, Antonino: *See*—
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,267,116, Cl. 260-376.000.

Sud-Chemie Aktiengesellschaft: *See*—
Maier, Franz, 4,267,162, Cl. 423-542.000.

Sudler, Roland; and Schwab, Jean-Francois, to Quarz-Zeit AG. Single phase stepping motor, particularly for clocks. 4,267,472, Cl. 310-49.00R.

Sugawara, Norio: *See*—
Nawa, Motoyuki; Takahashi, Yutaka; and Sugawara, Norio, 4,266,722, Cl. 239-590.500.

Sugi, Tomomitsu: *See*—
Chudo, Akira; Sugi, Tomomitsu; and Kataoka, Kouji, 4,266,980, Cl. 106-97.000.

Sugimoto, Naohiko; Horie, Ikutaro; Nagao, Kameji; Yoneyama, Masakazu; Nakayama, Yasuhiro; and Yamamoto, Nobuo, to Fuji Photo Film Co., Ltd. Photographic light-sensitive material. 4,267,265, Cl. 430-523.000.

Sugisawa, Ko: *See*—
Koshida, Daikichi; Sugisawa, Ko; Matsumura, Yasushi; and Taga, Kazumitsu, 4,267,199, Cl. 426-589.000.

Sugita, Yutaka: *See*—
Ohta, Norio; Ishida, Fumihiko; Ikeda, Tadashi; Ando, Keikichi; and Sugita, Yutaka, 4,267,230, Cl. 428-336.000.

Sugiura, Noboru: *See*—
Kawakami, Kazuhiko; and Sugiura, Noboru, 4,267,470, Cl. 307-515.000.

Sugiyama, Kazuo, to Dentan Co., Ltd. Theft prevention apparatus for vehicles. 4,267,547, Cl. 340-65.000.

Suling, Carlhans: *See*—
Konig, Klaus; Schreckenberg, Manfred; Lindner, Christian; Suling, Carlhans; and Freitag, Dieter, 4,267,303, Cl. 528-171.000.

Sullivan, Kevin J., to Corning Glass Works. Method of assuring the quality of the results obtained from a blood gas analyzer. 4,266,941, Cl. 23-230.00B.

Sumegi, Robert B.; Woodhouse, Geoffrey D.; Mattson, George B.; Jansen, Harvey B.; Bolliger, Frederic E.; and Hatch, Robert A., to Garrett Corporation, The. Gas turbine engine fuel control. 4,266,401, Cl. 60-39.16R.

Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, to Diesel Kiki Co., Ltd. Heat exchanger with fluid tanks made of synthetic resin. 4,266,604, Cl. 165-176.000.

Sumitomo Heavy Industries, Ltd.: *See*—
Yamada, Yasuteru; and Kadota, Kenji, 4,266,967, Cl. 75-36.000.

Sumitomo Metal Industries, Ltd.: *See*—
Yamada, Yasuteru; and Kadota, Kenji, 4,266,967, Cl. 75-36.000.

Sun, Jui-Yuan: *See*—
Burk, Emmett H., Jr.; Yoo, Jin S.; Karch, John A.; and Sun, Jui-Yuan, 4,267,032, Cl. 208-113.000.

Sundeen, Joseph E.: *See*—
Hauck, Frederic P.; Cimarusti, Christopher M.; and Sundeen, Joseph E., 4,267,373, Cl. 564-428.000.

Sung, Rodney L., to Texaco Inc. Fuel compositions containing acyl glycine oxazolines. 4,266,944, Cl. 44-63.000.

Sunohara, Yoshio, to Nissan Motor Company, Limited. Look-up torque converter with compact arrangement of damper. 4,266,641, Cl. 192-3.280.

Surbrook, Louis M., to Offset Newspaper Equipment Inc. Lifting dollie. 4,266,903, Cl. 414-428.000.

Susor, William C.: *See*—
Nordstrom, Kjell H.; Dillon, Benny N.; and Susor, William C., 4,266,624, Cl. 177-253.000.

Suxov, Gennady I.: *See*—
Gaun, Viktor A.; Belousov, Anatoly V.; Petukhov, Vadim D.; Suxov, Gennady I.; Belyaev, Nikolai A.; Alyabiev, Vitaly K.; and Rassomakhin, Klimenty E., 4,266,465, Cl. 91-234.000.

Suzuki, Ikuo: *See*—
Asano, Hiroaki; Suzuki, Ikuo; and Enomoto, Minoru, 4,266,374, Cl. 51-165.870.

Suzuki, Keiji: *See*—
Imai, Ichiro; Hashimoto, Isao; Suzuki, Keiji; and Nakagawa, Hiroaki, 4,267,387, Cl. 568-568.000.

Suzuki, Koji; and Shibata, Takehiko, to Canon Kabushiki Kaisha. Surface potentiometer. 4,267,511, Cl. 324-458.000.

Suzuki, Masao, to Nippon Electric Co., Ltd. Memory test device with write and pseudo write signals. 4,267,583, Cl. 365-201.000.

Suzuki, Yasoji: *See*—
Iida, Tetsuya; Sato, Chikara; and Suzuki, Yasoji, 4,267,517, Cl. 330-253.000.

Suzuki, Yasuhiko: *See*—
Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, 4,266,324, Cl. 19-239.000.

Suzuki, Yukio: *See*—
Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, 4,266,503, Cl. 118-657.000.

Svendsen, Walter W.: *See*—
Anderson, Ronald B.; Svendsen, Walter W.; Beckley, Gary H.; and Caneer, Clifford, Jr., 4,266,444, Cl. 74-661.000.

Svenson, Hardy C., to United States of America, Treasury. Liquid or gas cooled flexible beam-compensating adjustable cylindrical mirror. 4,266,857, Cl. 350-295.000.

Svoboda, Josef, to TMC Corporation. Ski brake. 4,266,802, Cl. 280-605.000.

Swain, Jack W.; Thomerson, Clarence T.; and Waldrop, Tom C., to Regal Tool & Rubber Co., Inc. Drill pipe protector. 4,266,578, Cl. 138-110.000.

Swanson, Otto W. Shaped storage bag. 4,266,704, Cl. 224-42.46A.

Swartz, Henry D., to Standard Oil Company (Indiana). Corrugated plasticboard. 4,267,223, Cl. 428-172.000.

Swenson, Paul F. Fluid actuated damper control apparatus. 4,266,929, Cl. 431-20.000.

Swiss Aluminium Ltd.: *See*—
Festag, Werner; and Muller, Hans-Ueli, 4,266,416, Cl. 72-60.000.

Sykes, Richard B.: *See*—
Gregson, Michael; and Sykes, Richard B., 4,267,320, Cl. 544-22.000.

Syntex (U.S.A.) Inc.: *See*—
Gallop, Paul M.; and Korb, Donald R., 4,267,295, Cl. 526-264.000.

Synthelabo: *See*—
Najer, Henry; and Manoury, Philippe, 4,267,328, Cl. 544-394.000.

System Development Corporation: *See*—
Dechant, Thomas E.; Glaser, Edward L.; Pitt, Paul E.; and Way, Frederick, 4,267,568, Cl. 364-200.000.

Sytsma, Frederick R.: *See*—
Frost, Charles C.; Gurney, Gerald W.; and Sytsma, Frederick R., 4,266,657, Cl. 198-687.000.

Szeto, Leo H.: *See*—
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,267,525, Cl. 331-94.50G.

Tabar, Ronald J.: *See*—
Pett, Robert A.; Qaderi, S. Burhan A.; and Tabar, Ronald J., 4,267,086, Cl. 260-28.50R.

Tabata, Kazutaka, to Bambi Incorporated, The. Wrist watch band and manufacturing method therefor. 4,266,400, Cl. 59-35.00R.

Taga, Kazumitsu: *See*—
Koshida, Daikichi; Sugisawa, Ko; Matsumura, Yasushi; and Taga, Kazumitsu, 4,267,199, Cl. 426-589.000.

Taiheiyo Engineering Inc.: *See*—
Nakagima, Shigeo; Takahashi, Ken; and Endo, Hajime, 4,266,828, Cl. 299-53.000.

Takacs, Erzsebet: *See*—
Dobo, Janos; Takacs, Erzsebet; Hortobagyi, Gyozo; Skvorecz nee Hajnoczy, Marianne; Kolbe, Ilona; and Hoffmann nee Vas, Katalin, 4,267,138, Cl. 264-117.000.

Takada, Juichiro. Passive vehicle passenger restraint belt system. 4,266,811, Cl. 280-803.000.

Takagishi, Haruyoshi: *See*—
Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, 4,267,424, Cl. 219-86.410.

Takahashi, Jun: *See*—
Sakai, Yoshihiro; and Takahashi, Jun, 4,266,418, Cl. 72-197.000.

Takahashi, Ken: *See*—
Nakagima, Shigeo; Takahashi, Ken; and Endo, Hajime, 4,266,828, Cl. 299-53.000.

Takahashi, Osamu: *See*—
Sakanoue, Seiki; Waki, Kokichi; Tsubota, Motohiko; Takahashi, Osamu; and Nakatsuka, Asao, 4,267,250, Cl. 430-214.000.

Takahashi, Yoshihiro: *See*—
Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, 4,267,260, Cl. 430-302.000.

Takahashi, Yutaka: *See*—
Nawa, Motoyuki; Takahashi, Yutaka; and Sugawara, Norio, 4,266,722, Cl. 239-590.500.

Takano, Hiroshi, to Mitsuboshi Belting Ltd. Adjustless V-belt and method of manufacture. 4,266,937, Cl. 474-205.000.

Takashima, Norio: *See*—
Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, 4,266,604, Cl. 165-176.000.

Takatani, Teruhika: *See*—
Mukai, Tadao; and Takatani, Teruhika, 4,266,816, Cl. 292-129.000.

Takazawa, Yuzuru: *See*—
Kitai, Kiyoshi; Nagaoka, Shinji; and Takazawa, Yuzuru, 4,267,440, Cl. 250-201.000.

Takeda Chemical Industries, Ltd.: *See*—
Nohara, Akira; Ishiguro, Toshihiro; and Ukawa, Kiyoshi, 4,267,332, Cl. 546-89.000.
Tsuji, Jiro, 4,267,376, Cl. 568-344.000.
Tsuji, Jiro, 4,267,377, Cl. 568-374.000.
Ueno, Hideo; and Miyosi, Juiti, 4,267,219, Cl. 428-90.000.

Takemae, Yoshihiro; and Nakano, Masao, to Fujitsu Fanuc Limited. Decoder circuit. 4,267,464, Cl. 307-463.000.

Takemoto, Iwao: *See*—
Ohba, Shinya; Takemoto, Iwao; Nakai, Masaaki; Ando, Haruhisa; and Kubo, Masaharu, 4,267,469, Cl. 307-311.000.

Takeuchi, Tomio: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,267,312, Cl. 536-17.00A.

Taki, Tsuneo: *See*—
Kanematsu, Tetsuo; and Taki, Tsuneo, 4,267,480, Cl. 310-366.000.

Takigawa, Hiroyoshi; Arimura, Iwao; Tanaka, Makoto; and Ohkuni, Shinichiro, to Bridgestone Tire Company Limited. Pneumatic tire for a heavy duty vehicle. 4,266,592, Cl. 152-209.00D.

Takita, Tomohisa: *See*—
Fujii, Akio; Fukuoka, Takeyo; Muraoka, Yasuhiko; Takita, Tomohisa; and Umezawa, Hamao, 4,267,102, Cl. 260-112.50R.

Tam, William A., to Chicago Bridge & Iron Company. Offshore column with mooring hawser system. 4,266,499, Cl. 114-230.000.

Tamborski, Christ; and Christian, John B., to United States of America, Air Force. Fluorine-containing benzimidazoles. 4,267,348, Cl. 548-330.000.

Tanaka, Hiroaki; and Tsunawaki, Kiyokazu, to Teijin Limited. Electrically conductive fiber and method for producing the same. 4,267,233, Cl. 428-389.000.

Tanaka, Makoto: *See*—
Takigawa, Hiroyoshi; Arimura, Iwao; Tanaka, Makoto; and Ohkuni, Shinichiro, 4,266,592, Cl. 152-209.00D.

Tani, Keizo: *See*—
Muramoto, Ken-ichi; Tani, Keizo; Tomisawa, Yutaka; and Hideshima, Makoto, 4,267,557, Cl. 357-20.000.

Taniguchi, Hiroyuki: *See*—
Momma, Naohiro; and Taniguchi, Hiroyuki, 4,266,990, Cl. 148-189.000.

Tanimoto, Akikazu: *See*—
Nakazawa, Kiwao; and Tanimoto, Akikazu, 4,266,876, Cl. 356-400.000.

Taniwaki, Genshi, to Kongo Co., Ltd. Sliding door. 4,266,372, Cl. 49-358.000.

Taniyama, Kiyoshi: *See*—
Hayashi, Shinjiro; Taniyama, Kiyoshi; Kikuchi, Kenichi; and Akashi, Teruo, 4,266,439, Cl. 74-501.00R.

Tanski, William J., to Sperry Corporation. Surface acoustic wave reflectors with weighted arrays of segmented and non-segmented lineal elements. 4,267,534, Cl. 333-153.000.

Tatsumi, Susumu: *See*—
Eda, Tadahiro; Tatsumi, Susumu; and Imai, Chikara, 4,266,870, Cl. 355-14.00D.

Tausch, Walter: *See*—
Bruckner, Elmar; Gausmann, Hans; Schipper, Philipp; and Tausch, Walter, 4,267,149, Cl. 422-65.000.

Taylor, Aaron S., to Mobil Tyco Solar Energy Corporation. Gravity dampened guidance system. 4,267,153, Cl. 422-249.000.

Taylor, Clyde L. Sesame seed harvester. 4,266,393, Cl. 56-14.600.

Taylor, John D. Pull station protector. 4,267,549, Cl. 340-302.000.

Teague, Richard K.; and Yu, Henry H. S., to Envirotech Corporation. Fiber-rejecting corona discharge electrode and a filtering system employing the discharge electrode. 4,266,948, Cl. 55-126.000.

Technion Research & Development Foundation Ltd.: *See*—
Rom, Josef; Alterman, Israel; and Shwartz, Josef, 4,266,609, Cl. 166-251.000.

Tedeschi, Enzo, to Plantex Ltd. Imidazo(2,1-B)thiazoles. 4,267,339, Cl. 548-154.000.

Teijin Limited: *See*—
Tanaka, Hiroaki; and Tsunawaki, Kiyokazu, 4,267,233, Cl. 428-389.000.

Tektronix, Inc.: *See*—
Traa, Einar O., 4,267,516, Cl. 330-149.000.

Tel-Thermco Engineering Co., Ltd.: *See*—
Satoh, Ryozo, 4,266,507, Cl. 118-733.000.

Teleco Oilfield Services Inc.: *See*—
Stone, Frederick A., 4,266,606, Cl. 166-113.000.

Teleplastics Industries S.A.: *See*—
Speitel, Francois; and Speitel, Robert, 4,266,682, Cl. 215-331.000.

Telford, Thomas M., to Warn Industries, Inc. Wheel stud mounted locking clutch. 4,266,646, Cl. 192-67.00R.

Tella, Richard P.: *See*—
Birk, John R.; Kelley, Robert B.; and Tella, Richard P., 4,266,905, Cl. 414-627.000.

Tellman, Stephen J., to Champion International Corporation. Hardboard panel siding. 4,266,382, Cl. 52-316.000.

Teraji, Tsutomu: *See*—
Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,267,176, Cl. 424-246.000.
Kamiya, Takashi; Saito, Yoshihisa; Teraji, Tsutomu; Nakaguti, Osamu; and Oku, Teruo, 4,267,340, Cl. 548-187.000.

Terui, Nobuo; and Kobayashi, Kozo, to Nakamichi Research Inc. Distortion factor meter circuit. 4,267,515, Cl. 328-147.000.

Terzian, Rouben T.: *See*—
Kuna, Wayne A.; Katzman, Allison W.; and Terzian, Rouben T., 4,266,367, Cl. 46-149.000.

Tetekawa, Takaiki: *See*—
Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, 4,266,885, Cl. 405-109.000.

Tetra Pak Developpement SA: *See*—
Rausing, Anders R., 4,266,698, Cl. 222-528.000.

Tetra Pak International AB: *See*—
Linde, Bjorn H.; and Reil, Wilhelm, 4,266,389, Cl. 53-396.000.
Olsen, Jan-Erik, 4,266,993, Cl. 156-69.000.

Texaco Development Corp.: *See*—
Cuscurida, Michael; and Speranza, George P., 4,267,120, Cl. 260-463.000.

Texaco Inc.: *See*—
Bousaid, Issam S.; and Ho, Benny K-C, 4,266,611, Cl. 166-273.000.
Sung, Rodney L., 4,266,944, Cl. 44-63.000.

Texas Instruments Incorporated: *See*—
Guterman, Daniel C., 4,267,558, Cl. 357-41.000.
Vetter, Edward O., 4,267,578, Cl. 364-709.000.
Volpi, John P.; and Kyle, Robert R., 4,267,597, Cl. 455-76.000.

Textima, VEB Wirkmaschinenbau-Karl-Marx Stadt: *See*—
Schneider, Manfred; Kahmann, Gottfried; Gohler, Wolfgang; and Kircheiss, Andreas, 4,266,410, Cl. 66-84.00R.

Th. Goldschmidt AG: *See*—
Lidy, Werner; Rossmy, Gerd; and Kollmeier, Hans-Joachim, 4,267,078, Cl. 260-2.300.

Thacker Container Company: *See*—
Garrison, Earl G., 4,266,715, Cl. 229-37.00E.

Thackeray, Michael M.: *See*—
Coetzer, Johan; and Thackeray, Michael M., 4,267,242, Cl. 429-104.000.

Thankachan, Chacko; Ritchie, John G.; Sahayada, Eugene; and Sengupta, Asok, to J.G.L. Chemicals Ltd. Vapor permeation curable coatings based on alkyd resins. 4,267,239, Cl. 428-425.100.

Thermodynamics Corporation: *See*—
Lux, Robert J., Jr., 4,267,399, Cl. 174-1.000.

Theurer, Josef; and Oellerer, Friedrich, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Self-propelled ballast cleaning machine. 4,266,615, Cl. 171-16.000.

Thiene, Paul G., to SMR Corporation. Binary switching control circuit for an electrically adjustable patient chair. 4,267,490, Cl. 318-51.000.

Thil, Lucien; Fischer, Martin; and Kindscher, Wolfgang, to BASF Aktiengesellschaft. Aminosulfonylcarboxylic acids and their substituted ammonium salts. 4,267,122, Cl. 260-501.120.

Thillays, Jacques C., to U.S. Philips Corporation. Device for displaying alphanumerical characters. 4,267,486, Cl. 313-500.000.

Thomanek, Gerd, to Siemens Aktiengesellschaft. Circuit arrangement for storing a text. 4,267,582, Cl. 364-900.000.

Thomas & Betts Corporation: *See*—
Grundfest, Michael A., 4,266,419, Cl. 72-410.000.

Thomas, Paul A.: *See*—
Holmsen, Theodore W.; Kurihara, Norman H.; and Thomas, Paul A., 4,266,964, Cl. 71-94.000.

Thomas, Robert J.; and Piekarski, Michael, to Key Tronic Corporation. Document reader lamp life extension system. 4,267,439, Cl. 235-454.000.

Thomas, Rudolf: *See*—
Stetter, Jorg; Draher, Wilfried; Thomas, Rudolf; and Lunkenheimer, Winfried, 4,267,338, Cl. 548-143.000.

Thomas, Rudy V.; and Stephenson, Robert L., to Allied Chemical Corporation. Passive seat belt system with guide clip. 4,266,810, Cl. 280-802.000.

Thomerson, Clarence T.: *See*—
Swain, Jack W.; Thomerson, Clarence T.; and Waldrop, Tom C., 4,266,578, Cl. 138-110.000.

Thompson, Worthington J. Controlled natural purification system for advanced wastewater treatment and protein conversion and recovery. 4,267,038, Cl. 210-602.000.

Thomsen, Svend E.: *See*—
Baatrup, Johannes V.; Christensen, Thorkild; Christiansen, Tage; and Thomsen, Svend E., 4,266,464, Cl. 91-29.000.

Thomson-CSF: *See*—
Derewonko, Henri; Laviron, Michel; and Lepage, Joel, 4,267,520, Cl. 330-286.000.

Thomson, Ian M., to Cable Belt, Ltd. Improvements in and relating to ropes. 4,266,396, Cl. 57-221.000.

Thornberry, Gerald E., to RCA Corporation. Radio frequency interference suppression apparatus. 4,267,528, Cl. 333-12.000.

Thouvenin, Maurice: *See*—
Grassin, Jerome; Thouvenin, Maurice; and Epie, Jean-Claude, 4,266,331, Cl. 29-449.000.

Tiers, George V. D.: *See*—
Beck, Boyd R.; Sher, Frank T.; and Tiers, George V. D., 4,267,213, Cl. 427-292.000.

Tikico Ltd.: *See*—
Uemura, Tamio; and Kodama, Yoshiki, 4,266,790, Cl. 280-6.100.

Tilley, Janet P.: *See*—
Knight, Peter A.; and Tilley, Janet P., 4,267,229, Cl. 428-324.000.

Tilling, Basil B., to Parker-Hannifin Corporation. Vent valve. 4,266,574, Cl. 137-630.190.

Tingey, Albert R.: *See*—
Williams, Malcolm; Tingey, Albert R.; Southgate, John P.; and Russell, Steven J., 4,266,522, Cl. 123-492.000.

TMC Corporation: *See*—
Himmetsberger, Alois, 4,266,803, Cl. 280-605.000.
Svoboda, Josef, 4,266,802, Cl. 280-605.000.
Weigl, Erwin; and Stritzl, Karl, 4,266,806, Cl. 280-618.000.

Toa Nenryo Kogyo Kabushiki Kaisha: *See*—
Hirabayashi, Hideo; Yamaguchi, Hiroshi; and Uemura, Masahiko, 4,267,031, Cl. 208-106.000.

Toda, Kashiku; Honda, Moriji; and Mishina, Haruhiko, to Mitsubishi Jukogyo Kabushiki Kaisha. Marine steering arrangement. 4,266,497, Cl. 114-144.00R.

Togashi, Seigo, to Citizen Watch Co., Ltd. Liquid crystal display device. 4,266,859, Cl. 350-338.000.

Tokas, Edward F., to Monsanto Company. Minimizing feed problems and reducing residual acrylonitrile monomer in processing nitrile polymers. 4,267,282, Cl. 525-86.000.

Toko Yakuhin Kogyo Kabushiki Kaisha: *See*—
Kamishita, Takuzo; and Kamishita, Kazuhiko, 4,267,169, Cl. 424-78.000.

Tokuno, Masateru, to Rengo Co., Ltd. Method for producing double-faced corrugated boards. 4,266,998, Cl. 156-159.000.

Tokura, Yasufumi: *See*—
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.

Tokuyama Soda Kabushiki Kaisha: *See*—
Mizutani, Yukio; Mitani, Katsuo; and Maehara, Takashi, 4,267,084, Cl. 260-23.0XA.

Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Hidai, Yutaka; and Okuda, Nobuo, 4,267,456, Cl. 250-492.00A.
Iida, Tetsuya; Sato, Chikara; and Suzuki, Yasoji, 4,267,517, Cl. 330-253.000.
Kobayashi, Ichiro; Moriya, Yoshiaki; and Kitagawa, Yukio, 4,267,581, Cl. 364-900.000.
Matsumoto, Shoichi; Kato, Hirohisa; and Wada, Yusuke, 4,266,335, Cl. 29-592.00R.
Muramoto, Ken-ichi; Tani, Keizo; Tomisawa, Yutaka; and Hideshima, Makoto, 4,267,557, Cl. 357-20.000.
Shibata, Tadashi; and Iizuka, Hisakazu, 4,267,011, Cl. 156-628.000.
Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, 4,266,503, Cl. 118-657.000.
Yamaguchi, Tetsuo, 4,267,589, Cl. 368-109.000.

Tokyo Shibaura Kenki Kabushiki Kaisha: *See*—
Kurosawa, Ryoichi, 4,267,499, Cl. 318-800.000.

Tokyo Yogyo Kabushiki Kaisha: *See*—
Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.

Tolotti, Gregory. Fireplace heater. 4,266,526, Cl. 126-123.000.

Tolstopyatov, Konstantin S.: *See*—
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

Tomalia, Donald A.; and Buchholz, Fredric L., to Dow Chemical Company, The. Imidazolinium compounds. 4,267,350, Cl. 548-354.000.

Tomisawa, Yutaka: *See*—
Muramoto, Ken-ichi; Tani, Keizo; Tomisawa, Yutaka; and Hideshima, Makoto, 4,267,557, Cl. 357-20.000.

Tomita, Yoshifumi; Nishizawa, Masahiro; and Fujimura, Takashi, to Hitachi, Ltd. Method of manufacturing striped phosphor screen for black matrix type color picture tube. 4,267,204, Cl. 427-68.000.

Tomy Kogyo Co., Inc.: *See—*
Ikeda, Masaki, 4,266,777, Cl. 273-310.000.
Spring, Gorden W., 4,266,767, Cl. 273-1.00R.

Tonegawa, Hiromichi: *See—*
Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, 4,266,604, Cl. 165-176.000.

Tong, Yit C.: *See—*
Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., 4,267,410, Cl. 179-107.0BC.

Tonomura, Yoshinobu: *See—*
Hanyu, Susumu; and Tonomura, Yoshinobu, 4,266,493, Cl. 112-158.00E.

Torau, Gunther W.: *See—*
Gilbert, Robert W.; and Torau, Gunther W., 4,266,927, Cl. 425-526.000.

Toray Silicone Company, Ltd.: *See—*
Hanada, Tsuneo; and Mikami, Ryuzo, 4,267,297, Cl. 528-18.000.

Torck, Bernard; Van Landeghem, Hugo; Vu, Quang D.; and Hellin, Michel, to Institut Francais du Petrole. Process for producing ethers by reacting olefins with alcohols. 4,267,393, Cl. 568-697.000.

Torige, Kazuo: *See—*
Miura, Konoe; Eguchi, Chihiro; Takahashi, Yoshihiro; Oshima, Akinobu; Torige, Kazuo; and Bunya, Shinichi, 4,267,260, Cl. 430-302.000.

Torizuka, Tsuneo: *See—*
Sumikawa, Seiji; Niizuma, Hiroshi; Tonegawa, Hiromichi; Torizuka, Tsuneo; Furuya, Yoichiro; and Takashima, Norio, 4,266,604, Cl. 165-176.000.

Torloting, Jean-Claude, to Rhone-Poulenc Industries. Heat-stabilized vinyl chloride polymers. 4,267,083, Cl. 260-23.0XA.

Tornier, Alain, to Etablissements Tornier. Femoral pin for hip prosthesis. 4,266,302, Cl. 3-1.912.

Torok, Vilmos, to ASEA Aktiebolag. Drive equipment with two-phase synchronous motor. 4,267,498, Cl. 318-723.000.

Torrington, Leslie A., to RCA Corporation. Video disc caddy having disc entrapment. 4,266,784, Cl. 369-77.000.

Tournier, Herve: *See—*
Sachetto, Jean-Pierre; Regnault, Alain; Cuccolo, Sergio; Tournier, Herve; and Armanet, Jean-Michel, 4,267,314, Cl. 536-53.000.

Tournut, Claude: *See—*
Duperray, Gilbert; Monnet, Andre A.; and Tournut, Claude, 4,267,237, Cl. 428-422.000.

Towmotor Corporation: *See—*
Wiblin, Wayne T., 4,267,544, Cl. 338-32.00H.

Toyo Kogyo Co., Ltd.: *See—*
Mukai, Tadao; and Takatani, Teruhika, 4,266,816, Cl. 292-129.000.

Toyoda-Koki Kabushiki-Kaisha: *See—*
Asano, Hiroaki; Suzuki, Ikuo; and Enomoto, Minoru, 4,266,374, Cl. 51-165.870.
Kikuchi, Makoto; and Ohtsu, Ikuo, 4,266,377, Cl. 51-262.00T.
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.

Toyomoto, Kazuo: *See—*
Hashino, Yasuo; Hayano, Fusakazu; and Toyomoto, Kazuo, 4,267,053, Cl. 210-650.000.

Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Arai, Masatoshi, to Shin-Etsu Chemical Co. Ltd. Bis(triorganosilylalkyl) phosphites. 4,267,172, Cl. 424-184.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Hayashi, Shinjiro; Taniyama, Kiyoshi; Kikuchi, Kenichi; and Akashi, Teruo, 4,266,439, Cl. 74-501.00R.
Kobayashi, Tatuo; and Yamada, Nobuo, 4,267,128, Cl. 261-44.00C.
Nakano, Jiro; and Miyagi, Hideo, 4,266,521, Cl. 123-491.000.

Traa, Einar O., to Tektronix, Inc. Common-emitter f_T-doubler amplifier employing a feed forward amplifier to reduce non-linearities and thermal distortion. 4,267,516, Cl. 330-149.000.

Tranberg, Erik R.; and Widen, Bo G., to GKN-Stenman AB. Method of manufacturing a lock cylinder follower. 4,266,711, Cl. 228-135.000.

Trane Company, The: *See—*
Saunders, James F.; and Krocker, Robert E., 4,266,599, Cl. 165-2.000.

Transidyne General Corporation: *See—*
Vanden Broek, Jan A., 4,267,574, Cl. 364-520.000.

Trask, Allen. Heat pump refrigerant circuit. 4,266,405, Cl. 62-160.000.

Traulsen, Heinrich: *See—*
Schwartz, Werner; Fischer, Peter; and Traulsen, Heinrich, 4,266,971, Cl. 75-69.000.

Treadwell, William H. Golf ball. 4,266,773, Cl. 273-232.000.

Trekoval, Jiri: *See—*
Sevcik, Stanislav; Trekoval, Jiri; Holata, Jan; and Stamberg, Jiri, 4,267,287, Cl. 525-271.000.

Tremix AB: *See—*
Wenander, Harald S., 4,266,581, Cl. 141-65.000.

Tresper, Erhard: *See—*
Selbeck, Harald; Wulff, Claus; Hucks, Uwe; Tresper, Erhard; and Vernaleken, Hugo, 4,267,127, Cl. 260-973.000.

Trico Products Corporation: *See—*
Riester, William C.; and Papadatos, Dionysios D., 4,266,883, Cl. 403-134.000.

Trio Kabushiki Kaisha: *See—*
Matsuzawa, Mitsuo; and Yashita, Hajime, 4,267,605, Cl. 455-266.000.

Trisops, Inc.: *See—*
Wells, Daniel R., 4,267,488, Cl. 315-111.700.

Troger, Johannes; Lauter, Gernot; and Sporl, Heinrich, to Forschungsinstitut fur Holztechnologie. Positioner for rotary tool. 4,266,893, Cl. 409-206.000.

Trotscher, Otto; and Wiedmann, Erwin, to Carl Zeiss-Stiftung. Refractometer for the automatic objective determination of the refractive condition of an eye. 4,266,862, Cl. 351-14.000.

True Temper Corporation: *See—*
Sivon, Robert L., 4,266,718, Cl. 238-9.000.

Trueblood, Troy M.; and Moulton, Robert H., to Hersh, John R.; and Allen, Russell E. Process for producing food grade soybean oil. 4,267,118, Cl. 260-428.000.

Truth Incorporated: *See—*
Erdman, Arthur G.; and Peterson, Jeffory A., 4,266,371, Cl. 49-252.000.

TRW Inc.: *See—*
Mesch, Hans G.; Debenham, Colin H.; and Yasui, Robert K., 4,267,003, Cl. 156-356.000.

Tsao, George T.; and Chou, Terry Y., to Purdue Research Corporation. Process for recovering and utilizing cellulose using sulfuric acid. 4,266,981, Cl. 127-37.000.

Tsao, Hsiang-Wei, to Union Carbide Agricultural Products Company, Inc. Preparation of 2-trifluoromethyl cinchoninic acids. 4,267,333, Cl. 546-170.000.

Tschopp, Anton F.: *See—*
Hildreth, John D.; Tschopp, Anton F.; and Evans, David G., 4,266,939, Cl. 8-437.000.

Tsubota, Motohiko: *See—*
Sakanoue, Seiki; Waki, Kokichi; Tsubota, Motohiko; Takahashi, Osamu; and Nakatsuka, Asao, 4,267,250, Cl. 430-214.000.

Tsuchiya, Yoshikazu: *See—*
Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, 4,266,833, Cl. 303-106.000.

Tsuji, Hisao: *See—*
Kitazawa, Yoichi; Sato, Takeshi; and Tsuji, Hisao, 4,266,995, Cl. 156-123.00R.

Tsuji, Jiro, to Takeda Chemical Industries, Ltd. Steroid synthesis. 4,267,376, Cl. 568-344.000.

Tsuji, Jiro, to Takeda Chemical Industries, Ltd. Intermediates for steroid synthesis. 4,267,377, Cl. 568-374.000.

Tsukada, Keizo, to Sony Corporation. Timer circuit. 4,267,467, Cl. 307-597.000.

Tsunawaki, Kiyokazu: *See—*
Tanaka, Hiroaki; and Tsunawaki, Kiyokazu, 4,267,233, Cl. 428-389.000.

Tsunekawa, Takahiko: *See—*
Hasegawa, Junzo; Kawabata, Susumu; Niimi, Hiroshi; Suzuki, Yasuhiko; Akatsuka, Masaki; and Tsunekawa, Takahiko, 4,266,324, Cl. 19-239.000.

Tsunemi, Masaaki: *See—*
Sasaki, Umekichi; Tsunemi, Masaaki; Yamada, Kaichi; and Morikawa, Yoshiyuki, 4,267,064, Cl. 252-52.00A.

Tsuzuki, Hanzou: *See—*
Mizuno, Mamoru; and Tsuzuki, Hanzou, 4,267,587, Cl. 368-85.000.

Tudisco, Vincent J., to White Development Corporation. Flexible handle for percussive tool with improved vertebra member. 4,266,588, Cl. 145-61.00D.

Tummoscheit, Peter: *See—*
Convertini, Ursula; Dimingen, Heinz; Luthje, Holger; Kuch, Friedrich; and Tummoscheit, Peter, 4,267,510, Cl. 324-249.000.

Tuneblom, Eskil, to Dynapac Maskin AB. Resiliently mounted steering yoke for road roller. 4,266,884, Cl. 404-122.000.

Turek, Klaus. Apparatus operating with an adsorbent substance for purifying air. 4,266,952, Cl. 55-179.000.

Turk, Chester F.: *See—*
Krapcho, John; and Turk, Chester F., 4,267,354, Cl. 560-39.000.

Tymkewicz, John: *See—*
Knupp, Mary R.; and Tymkewicz, John, 4,266,501, Cl. 118-15.000.

Tyner, Alfred E., to Brunswick Corporation. Intake manifold system for a two-cycle V-engine. 4,266,514, Cl. 123-55.00R.

Tyrone Hydraulics Inc.: *See—*
McBurnett, James R.; and Eley, James M., 4,266,915, Cl. 418-126.000.

UBE Industries, Ltd.: *See—*
Umemura, Sumio; Ohdan, Kyoji; and Asada, Hiroyuki, 4,267,385, Cl. 568-479.000.

Uchida, Shigeru: *See—*
Shimatake, Hirokazu; Ogawa, Shuichi; Uchida, Shigeru; Nara, Ryuichi; and Takagishi, Haruyoshi, 4,267,424, Cl. 219-86.410.

Uchino, Misao; and Watanabe, Minoru, to Citizen Watch Co., Ltd. Electrophonic musical instrument. 4,267,586, Cl. 368-73.000.

Uchiyama, Hiroshi, to E.C. Chemical Ind. Co., Ltd.; and C. Itoh & Co., Ltd. Process for preparing dibenzylidenesorbitol and composition containing the same. 4,267,110, Cl. 260-340.700.

Udilova, Ida G.: *See—*
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.

Uebele, Curtis E.: *See—*
Benton, Kenneth C.; White, James F.; Uebele, Curtis E.; and Weinert, Raymond J., Jr., 4,267,292, Cl. 526-79.000.

Ueda, Tomoyuki: *See—*
Ninomiya, Youichi; Ogawa, Hirotoshi; Ueda, Tomoyuki; and Machida, Masataka, 4,266,754, Cl. 251-306.000.

Uehara, Tsutomu; Oguchi, Toshihiko; Kubo, Tsutomu; Suzuki, Yukio; Nakagawa, Toshiharu; and Saito, Ichiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for forming a cloud of toner particles. 4,266,503, Cl. 118-657.000.

Ueki, Kazuyoshi: *See—*
Iida, Shinya; Ueki, Kazuyoshi; Komatsu, Hideo; and Mitzutani, Tatsumi, 4,267,013, Cl. 156-643.000.

Uemura, Masahiko: *See—*
Hirabayashi, Hideo; Yamaguchi, Hiroshi; and Uemura, Masahiko, 4,267,031, Cl. 208-106.000.

Uemura, Tamio; and Kodama, Yoshiki, to Tikico Ltd. Vehicle height adjusting apparatus. 4,266,790, Cl. 280-6.100.

Ueno, Hideo; and Miyosi, Juiti, to Takeda Chemical Industries, Ltd. Flocked laminates having adhesive containing hot-melt polymer particles. 4,267,219, Cl. 428-90.000.

Uhlmann, Georg, to Rheintechnik Weiland & Kaspar KG. Method and apparatus for aerating water. 4,267,051, Cl. 210-619.000.

Ukawa, Kiyoshi: *See—*
Nohara, Akira; Ishiguro, Toshihiro; and Ukawa, Kiyoshi, 4,267,332, Cl. 546-89.000.

Ullinger, Richard L. Overspeed device test disconnect device. 4,266,422, Cl. 73-2.000.

Ulrich, Roland: *See—*
Merz, Karlheinz; and Ulrich, Roland, 4,267,037, Cl. 209-481.000.

Umeda, Kaoru; and Harada, Hideo, to Sony Corporation. Tuning control apparatus for a frequency synthesizer tuner. 4,267,601, Cl. 455-165.000.

Umemura, Sumio; Ohdan, Kyoji; and Asada, Hiroyuki, to UBE Industries, Ltd. Process for the catalytic preparation of acrolein and methacrolein. 4,267,385, Cl. 568-479.000.

Umezawa, Hamao: *See—*
Fujii, Akio; Fukuoka, Takeyo; Muraoka, Yasuhiko; Takita, Tomohisa; and Umezawa, Hamao, 4,267,102, Cl. 260-112.50R.
Oki, Toshikazu; Yoshimoto, Akihiro; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,267,312, Cl. 536-17.00A.

Unetich, Robert M.; and Shibler, William, to RCA Corporation. Regulated filament supply for high-power tubes. 4,267,487, Cl. 315-107.000.

Union Carbide Agricultural Products Company, Inc.: *See—*
Tsao, Hsiang-Wei, 4,267,333, Cl. 546-170.000.

Union Carbide Corporation: *See—*
Conway, Richard A.; and Nelson, Robert F., 4,267,050, Cl. 210-608.000.
Goeke, George L.; and Karol, Frederick J., 4,267,309, Cl. 528-413.000.
Kurtz, Stuart J.; Blakeslee, Theodore R., III; and Scarola, Leonard S., 4,267,146, Cl. 264-564.000.
Louzos, Demetrios V., 4,267,244, Cl. 429-213.000.

Uniroyal GmbH: *See—*
Schmohl, Michael W., 4,266,349, Cl. 36-32.00R.

Uniroyal, Inc.: *See—*
Martin, Frank S.; Melvin, Terence; and Pieroni, Joseph K., 4,266,772, Cl. 273-218.000.

Unit Rig & Equipment Co.: *See—*
Walker, John A., 4,266,420, Cl. 72-416.000.

United Electric Controls Company: *See—*
Reis, Robert D., 4,267,413, Cl. 200-81.400.

United Kingdom Atomic Energy Authority: *See—*
Hackney, Stanley, 4,266,955, Cl. 55-412.000.

United Merchants and Manufacturers, Inc.: *See—*
Gregorian, Razmic S.; and Namboodri, Chettoor G., 4,266,976, Cl. 106-2.000.

U.S. Clinical Products, Inc.: *See—*
Cummings, Robert, 4,266,687, Cl. 220-257.000.

United States Gypsum Company: *See—*
Orals, David L.; and Laffoon, James D., 4,266,384, Cl. 52-410.000.

United States of America
Administrator, National Aeronautics and Space Administration: *See—*
Ludwig, Lawrence P., 4,266,788, Cl. 277-193.000.
Agriculture: *See—*
Barwise, Robert D.; Sturos, John A.; and Brumm, Douglas B., 4,266,675, Cl. 209-540.000.
Air Force: *See—*
Brown, Donald G., 4,267,523, Cl. 331-94.50C.
Canda, William R., 4,266,301, Cl. 2-410.000.
Driscoll, Michael M.; and Lisle, Thomas K., Jr., 4,267,513, Cl. 328-60.000.
Kimsey, Thomas H., 4,267,514, Cl. 328-133.000.
McDermott, William E.; Benard, David J.; Pchelkin, Nicholas R.; and Bousek, Ronald R., 4,267,526, Cl. 331-94.50G.
O'Loughlin, James P., 4,267,484, Cl. 313-325.000.
Perez, David J.; and Schwartz, Kenneth P., 4,266,742, Cl. 244-63.000.
Tamborski, Christ; and Christian, John B., 4,267,348, Cl. 548-330.000.
Army: *See—*
F'Geppert, Erwin, 4,266,591, Cl. 411-167.000.
Hacskaylo, John J.; and Hacskaylo, Michael, 4,266,873, Cl. 356-251.000.
Holaday, John W.; and Faden, Alan I., 4,267,182, Cl. 424-260.000.
Matthys, Bernard A.; Schoen, Donald W.; and Anderson, Carl E., 4,266,953, Cl. 55-294.000.
Raimondi, Peter K., 4,267,562, Cl. 358-109.000.
Energy: *See—*
Higgins, Robert W.; and Robichaud, Roger E., 4,266,852, Cl. 350-96.200.
Miller, John R., 4,266,506, Cl. 118-725.000.
Interior: *See—*
Divers, Edward F., 4,266,829, Cl. 299-64.000.
Retka, Thomas J.; and Schoen, Donald W., 4,266,830, Cl. 299-87.000.
National Aeronautics and Space Administration: *See—*
Brunson, John W., 4,267,594, Cl. 371-20.000.
Kelley, Wendell W., 4,266,743, Cl. 244-182.000.
Navy: *See—*
Bond, James W.; Alsup, James M.; Speiser, Jeffrey M.; Whitehouse, Harper J.; and Lagnado, Isaac, 4,267,580, Cl. 364-824.000.
Burns, William K., 4,266,850, Cl. 350-96.140.
Campbell, Kenneth J., 4,267,600, Cl. 455-115.000.
Davey, John E.; Christou, Aristos; and Dietrich, Harry B., 4,267,014, Cl. 156-662.000.
Henderson, Larry D.; and Johnson, Craig E., 4,267,132, Cl. 264-3.00B.
Jenkins, Jack L., 4,266,601, Cl. 165-94.000.
Rail, Robert D.; and Haynes, Harvey H., 4,266,889, Cl. 405-223.000.
Treasury: *See—*
Svenson, Hardy C., 4,266,857, Cl. 350-295.000.

U.S. Philips Corporation: *See—*
Bergveld, Piet, 4,267,504, Cl. 324-62.000.
Claassens, Antonius P. J. A., 4,266,341, Cl. 30-195.000.
Convertini, Ursula; Dimingen, Heinz; Luthje, Holger; Kuch, Friedrich; and Tummoscheit, Peter, 4,267,510, Cl. 324-249.000.
Kieboom, Arnoldus M. C.; and Dedding, Nicolaas P., 4,267,453, Cl. 250-368.000.
Rosier, Jean-Claude, 4,267,442, Cl. 250-207.000.
Schoofs, Franciscus A. C. M., 4,267,408, Cl. 179-77.000.
Thillays, Jacques C., 4,267,486, Cl. 313-500.000.

U.S. Terrazzo Panels, Inc.: *See—*
Murray, John A., 4,266,921, Cl. 425-158.000.

United Technologies Corporation: *See—*
Smith, J. Harold, 4,267,137, Cl. 264-113.000.

University of California, The Regents of the: *See—*
Bergstrom, Donald E.; and Ruth, Jerry L., 4,267,171, Cl. 424-180.000.

University of Delaware: *See—*
Ih, Charles S., 4,266,846, Cl. 350-3.710.
Rothwarf, Allen, 4,267,398, Cl. 136-256.000.

University of Kentucky Research Foundation, The: *See—*
DeLuca, Patrick P.; and Butler, L. David, 4,267,449, Cl. 250-303.000.

University of Melbourne, The: *See—*
Forster, Ian C.; Patrick, James F.; Tong, Yit C.; Black, Raymond C.; and Clark, Graeme M., 4,267,410, Cl. 179-107.0BC.

University of Texas: *See—*
Boudreau, James C.; and White, Thomas D., 4,267,195, Cl. 426-2.000.

Unkelbach, Karl-Heinz: *See—*
Bender, Hans; Graf, Rupprecht; Unkelbach, Karl-Heinz; and Zabel, Wolf, 4,266,982, Cl. 134-18.000.

Unno, Kunihiko: *See—*
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.

UOP Inc.: *See—*
Schmidt, Robert J.; and Imai, Tamotsu, 4,267,397, Cl. 568-899.000.

Upjohn Company, The: *See—*
Bundy, Gordon L., 4,267,315, Cl. 542-400.000.
Kolakowski, Richard A.; and Knis, Stephen A., 4,267,134, Cl. 264-46.200.
Reusser, Fritz; and Slechta, Libor, 4,267,112, Cl. 260-345.200.
Salmond, William G., 4,267,117, Cl. 260-397.200.
Sih, John C., 4,267,114, Cl. 260-345.200.
Sih, John C., 4,267,352, Cl. 560-12.000.
Sih, John C., 4,267,357, Cl. 560-53.000.
Sih, John C., 4,267,367, Cl. 562-503.000.
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Sih, John C., 4,267,371, Cl. 564-188.000.
Sih, John C., 4,267,395, Cl. 568-819.000.
Stroud, Richard M.; and Kolakowski, Richard A., 4,267,135, Cl. 264-51.000.

Uram, Robert; and Giras, Theodore C., to Westinghouse Electric Corp. System and method for starting, synchronizing and operating a steam turbine with digital computer control. 4,267,458, Cl. 290-40.00R.

Ushigome, Susumu: *See—*
Iwaoka, Shoji; Kaito, Hiroyuki; Anzai, Shigeo; Ushigome, Susumu; Watanabe, Yoshiaki; and Mimura, Nobuyuki, 4,266,970, Cl. 75-59.000.

USM Corporation: *See—*
Hall, Dennis S., 4,266,312, Cl. 12-52.000.
Kondo, Yoshiteru, 4,267,425, Cl. 219-98.000.
Mallett, Lawrence G., 4,267,426, Cl. 219-98.000.

Usui Kokusai Sangyo Kabushiki Kaisha: *See*—
Usui, Masayoshi, 4,266,577, Cl. 138-109.000.

Usui, Masayoshi, to Usui Kokusai Sangyo Kabushiki Kaisha. Collared fuel injection pipe for engines. 4,266,577, Cl. 138-109.000.

V.I.V. Engineering Co., Ltd.: *See*—
Hishida, Tadashi, 4,266,634, Cl. 188-75.000.
Kondo, Masahiko, 4,266,635, Cl. 188-82.840.

Vaino Tapio Saalasti: *See*—
Rannanmaki, Tapio M., 4,266,483, Cl. 105-26.00R.

Valencia Aguilar, Hector. Aseismic system for structure foundation. 4,266,379, Cl. 52-1.000.

Valeron Corporation, The: *See*—
Power, Joseph S.; and Ruszala, Frederick B., 4,267,576, Cl. 364-578.000.

Valmet Oy: *See*—
Haltsonen, Eino J.; and Oksanen, Martti T., 4,267,018, Cl. 162-200.000.

Vandenbossche, Chris; and Vanhumbeeck, Jacky, to Siemens Aktiengesellschaft. Method for the automatic electro-chemical determination of the end point of a titration. 4,266,942, Cl. 23-230.00R.

Vanden Broek, Jan A., to Transidyne General Corporation. Display and processor for time-varying electric signal. 4,267,574, Cl. 364-520.000.

Vanderpoel, Richard E.: *See*—
Voss, James R.; and Vanderpoel, Richard E., 4,266,728, Cl. 239-533.800.

Van Der Sanden, Ludovicus C.: *See*—
Janssen, Theodorus M.; Gilissen, Hermanus P. J.; Soes, Lucas; Van Der Sanden, Ludovicus C.; and Van Dijk, Petrus R. M., 4,267,412, Cl. 200-6.00B.

Vanderspurt, Thomas H., to Celanese Corporation. Olefin oxidation catalyst. 4,267,386, Cl. 568-480.000.

Van Dijk, Petrus R. M.: *See*—
Janssen, Theodorus M.; Gilissen, Hermanus P. J.; Soes, Lucas; Van Der Sanden, Ludovicus C.; and Van Dijk, Petrus R. M., 4,267,412, Cl. 200-6.00B.

VanGinhoven, Robert M.; and Brown, Carl D., to Sperry Corporation. Gathering means mounting assembly for row crop harvesters. 4,266,394, Cl. 56-94.000.

Vanhumbeeck, Jacky: *See*—
Vandenbossche, Chris; and Vanhumbeeck, Jacky, 4,266,942, Cl. 23-230.00R.

Van Landeghem, Hugo: *See*—
Torck, Bernard; Van Landeghem, Hugo; Vu, Quang D.; and Hellin, Michel, 4,267,393, Cl. 568-697.000.

Van Leuven, James W., to Aquatain Partnership. Method of reducing bacteria on human tissue using liquid biocidal compositions comprising a mixture of silver ions and sodium pectate. 4,267,168, Cl. 424-75.000.

van Mil, Martinus P. G., to Stork PMT B.V. Device for making a cut extending from the vent toward the breast in a slaughtered bird. 4,266,322, Cl. 17-11.000.

Van Nordstrand, Robert A., to Chevron Research Company. Catalytic cracking with sepiolite. 4,266,672, Cl. 208-120.000.

Van Winckel, Carl E.; Dolphin, David H.; Dumitrescu, Elena; and Van Winckel, Kent F., to Van Winckel, Carl E. 2,2-Dialkoxy-6-chlorocyclohexanones. 4,267,378, Cl. 568-376.000.

Van Winckel, Kent F.: *See*—
Van Winckel, Carl E.; Dolphin, David H.; Dumitrescu, Elena; and Van Winckel, Kent F., 4,267,378, Cl. 568-376.000.

Vapor Corporation: *See*—
Bruner, Frank D.; and Kuzela, Joseph, Jr., 4,266,485, Cl. 105-61.000.

Vari-O-Matic Machine Corporation: *See*—
Wakasono, Shinichi, 4,266,700, Cl. 223-34.000.

Varian Associates, Inc.: *See*—
Berick, Alan C., 4,267,451, Cl. 250-328.000.
Welch, Kimo M., 4,266,959, Cl. 62-55.500.

Varian Mat GmbH: *See*—
Feser, Karl; and Brunnee, Curt, 4,267,448, Cl. 250-281.000.

Varjabedian, Steve: *See*—
Mason, James L.; and Varjabedian, Steve, 4,266,817, Cl. 293-117.000.

Vasalos, Iacovos A., to Standard Oil Company (Indiana). Catalytic cracking catalyst with reduced emission of noxious gases. 4,267,072, Cl. 252-455.00Z.

VDO Adolf Schindling AG: *See*—
Collonia, Harald, 4,267,491, Cl. 318-311.000.

Veb Wirkmaschinenbau Karl-Marx-Stadt: *See*—
Lindner, Heinz; Stopp, Fritz; Georgie, Wolfgang; Oehm, Werner; Muller, Lisbet; and Graubner, Brigitte, 4,266,411, Cl. 66-84.00R.

Velikoselsky, Nikolai D.; Smirnov, Anatoly I.; Perets, Nikolai Y.; Vinogradov, Sergei S.; Podbeltsev, Viktor I.; and Lakhno, Pavel E. Floating crane with load reslinging device. 4,266,680, Cl. 212-193.000.

Vellekoop, Pieter: *See*—
Marx, Arthur F.; Smid, Peter M.; and Vellekoop, Pieter, 4,267,106, Cl. 260-239.570.

Vernaleken, Hugo: *See*—
Selbeck, Harald; Wulff, Claus; Hucks, Uwe; Tresper, Erhard; and Vernaleken, Hugo, 4,267,127, Cl. 260-973.000.

Vernitron Corporation: *See*—
Leonard, Murray; and Jugl, Herbert F., 4,266,930, Cl. 431-263.000.

Veronese, Vittorio: *See*—
Davidson, Raymond J.; and Veronese, Vittorio, 4,267,069, Cl. 252-412.000.

Vetter, Edward O., to Texas Instruments Incorporated. Calculator system with anti-theft feature. 4,267,578, Cl. 364-709.000.

Vettiger, Peter: *See*—
Schindler, Hans R.; and Vettiger, Peter, 4,267,407, Cl. 179-15.55R.

Vezirian, Edward, to Smith International, Inc. Rotary rock bit and method of making same. 4,266,622, Cl. 175-366.000.

VFP Corporation: *See*—
Gallagher, Stephen F., 4,266,814, Cl. 285-319.000.

Vilenski, Dan: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,266,710, Cl. 228-4.500.

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Haskell, Theodore H.; Hutt, Marland P., Jr.; and Nicolaides, Ernest D., 4,267,180, Cl. 424-251.000.

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Chaikin, George M.; and Weiman, Carl F. R., 4,267,573, Cl. 364-515.000.

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Bains, Gurdip S., 4,266,386, Cl. 52-584.000.
Bieberbach, George, 4,266,600, Cl. 165-76.000.
Burack, Robert D., 4,267,020, Cl. 176-87.000.
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Lee, Pang-Kai, 4,267,476, Cl. 310-251.000.
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Playfoot, Kerwin C.; Bauer, Richard F.; and Goldstein, Norman P., 4,267,454, Cl. 250-370.000.
Uram, Robert; and Giras, Theodore C., 4,267,458, Cl. 290-40.00R.
White, Dale; Ayers, David L.; and Hribar, Allan E., 4,266,602, Cl. 165-124.000.

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Wheeler, Keith A.; and Hastings, Dawson W., to Allis-Chalmers Corporation. Articulated plow with central support providing counter moment for rear section. 4,266,618, Cl. 172-314.000.

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White, James F.: *See*—
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White, Letcher T.: *See*—
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Wiese, Winfred J., to Borg-Warner Corporation. Mechanical seal assembly. 4,266,786, Cl. 277-40.000.
Wiezer, Hartmut, to Hoechst Aktiengesellschaft. Process for the manufacture of 7-nitro-1,3,5-triaza-adamantane. 4,267,322, Cl. 544-180.000.
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Williams, Malcolm; Tingey, Albert R.; Southgate, John P.; and Russell, Steven J., to Lucas Industries Limited. Fuel injection systems. 4,266,522, Cl. 123-492.000.
Willis, Brian J.; Christenson, Philip A.; and Barton, Derek H. R., to Fritzsche Dodge & Olcott Inc. Process for preparing β-(3-exo-hydroxy-endo-2,3-dimethyl-2-norbornyl)-propionic acid δ-lactone. 4,267,111, Cl. 260-343.210.
Wilson, Harold L. Check valve. 4,266,569, Cl. 137-527.800.
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Woo, Ji Y., to Bendix Corporation, The. Wheel cylinder. 4,266,640, Cl. 188-363.000.
Wood, Charles L., to Ball Corporation. Override system for glass forming machinery. 4,266,961, Cl. 65-29.000.
Wood, Leonard A. Adjustable trailer hitch device. 4,266,799, Cl. 280-490.00R.
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Yamanaka, Masami: *See—*
Kawanishi, Shozo; and Yamanaka, Masami, 4,266,623, Cl. 177-25.000.
Yamashita, Keitaro; and Goto, Ryuji, to Hitachi Metals, Ltd. Magnet-brush development process of electric pattern images. 4,267,248, Cl. 430-122.000.
Yamashita, Keitaro: *See—*
Harada, Hideki; Yamashita, Keitaro; and Yamamoto, Katsunobu, 4,266,328, Cl. 29-116.00R.
Yamashita, Tadakazu: *See—*
Katoh, Yasuo; Kakegawa, Hideo; Hayashi, Shigeyuki; and Yamashita, Tadakazu, 4,267,085, Cl. 260-28.5AS.

Yamato Scale Company, Limited: *See—*
Kawanishi, Shozo; and Yamanaka, Masami, 4,266,623, Cl. 177-25.000.
Yamazaki, Takeo: *See—*
Miyoshi, Tadahiko; and Yamazaki, Takeo, 4,266,979, Cl. 106-57.000.
Yang, Ling: *See—*
Kaae, James L.; Reynolds, George H.; Sterling, Stewart A.; and Yang, Ling, 4,267,019, Cl. 176-82.000.
Yano, Hidetoshi: *See—*
Nakahara, Tosio; Yano, Hidetoshi; and Kasahara, Nobuo, 4,267,201, Cl. 427-27.000.
Yashita, Hajime: *See—*
Matsuzawa, Mitsuo; and Yashita, Hajime, 4,267,605, Cl. 455-266.000.
Yasuda, Hiroshi: *See—*
Osakabe, Yoshio; and Yasuda, Hiroshi, 4,267,603, Cl. 455-186.000.
Yasuda, Shigeo: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,267,546, Cl. 340-58.000.
Yasuda, Yasuo: *See—*
Yokoyama, Takayuki; Nakayama, Yoshiaki; and Yasuda, Yasuo, 4,267,080, Cl. 260-4.00R.
Yasui, Robert K.: *See—*
Mesch, Hans G.; Debenham, Colin H.; and Yasui, Robert K., 4,267,003, Cl. 156-356.000.
Yasuoka, Tetu: *See—*
Naito, Kazuaki; Tetekawa, Takaiki; Sogo, Shigeyuki; Higaki, Kazuhiko; Yasuoka, Tetu; and Hosoi, Hidetoshi, 4,266,885, Cl. 405-109.000.
Yates, Douglas A.; Hatch, Arthur E.; and Goldsmith, Jeff M., to Mobil Tyco Solar Energy Corporation. Apparatus for crystal growth control. 4,267,151, Cl. 422-105.000.
Yazawa, Chihiro: *See—*
Koike, Wataro; Sasuga, Tadashi; and Yazawa, Chihiro, 4,267,317, Cl. 542-416.000.
Yeager, Charles A. Blackjack 21 computer. 4,266,770, Cl. 273-148.00R.
Yeh, Kuo-Chen; and Mazzella, Frank, to Block Drug Company Inc. Effervescent stannous fluoride tablet. 4,267,164, Cl. 424-44.000.
Yli-Vakkuri, Erkki, to Enso-Gutzeit Osakeyhto03. Means for washing cellulose pulp. 4,266,413, Cl. 68-158.000.
Yokoe, Isamu: *See—*
Nishimura, Hideo; Tokura, Yasufumi; Unno, Kunihiko; Enomoto, Minoru; Yokoe, Isamu; Shimizu, Norihiko; and Ohmura, Haruo, 4,266,375, Cl. 51-165.710.
Yokoyama, Kenji, to Nippon Gakki Seizo Kabushiki Kaisha. Compound transistor circuitry. 4,267,521, Cl. 330-288.000.
Yokoyama, Takayuki; Nakayama, Yoshiaki; and Yasuda, Yasuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Polyethylene composition for rotational molding. 4,267,080, Cl. 260-4.00R.
Yokoyama, Toshiaki, to Hitachi, Ltd. Method of operating a hydraulic turbine or a pump-turbine. 4,267,459, Cl. 290-52.000.
Yoneda, Kanji; Yuminaka, Takeo; and Nakazato, Masao, to Hitachi, Ltd. Elevator system. 4,266,632, Cl. 187-29.00R.
Yoneda, Yasuhiro; Kitamura, Kenro; Naito, Jiro; and Kitakohji, Toshisuke, to Fujitsu Limited. Negative type deep ultraviolet resist. 4,267,258, Cl. 430-270.000.
Yoneyama, Masakazu: *See—*
Sugimoto, Naohiko; Horie, Ikutaro; Nagao, Kameji; Yoneyama, Masakazu; Nakayama, Yasuhiro; and Yamamoto, Nobuo, 4,267,265, Cl. 430-523.000.
Yoo, Jin S.: *See—*
Burk, Emmett H., Jr.; Yoo, Jin S.; Karch, John A.; and Sun, Jui-Yuan, 4,267,032, Cl. 208-113.000.
Yoritomi, Kenzaburo; Kezuka, Teruo; and Moriya, Mitsumasa, to Sanmatsu Kogyo Co., Ltd. Method for the chromatographic separation of soluble components in feed solution. 4,267,054, Cl. 210-659.000.
Yorkshire Chemicals Limited: *See—*
Blackburn, David; and Wild, Malcolm S., 4,266,940, Cl. 8-538.000.
Yoshihara, Toshihiko: *See—*
Makino, Yoshihiro; and Yoshihara, Toshihiko, 4,266,950, Cl. 55-196.000.
Yoshimine, Jun-ichi: *See—*
Kohmura, Tamotsu; and Yoshimine, Jun-ichi, 4,267,133, Cl. 264-18.000.
Yoshimoto, Akihiro: *See—*
Oki, Toshikazu; Yoshimoto, Akihiro; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,267,312, Cl. 536-17.00A.
Yu, Henry H. S.: *See—*
Teague, Richard K.; and Yu, Henry H. S., 4,266,948, Cl. 55-126.000.
Yuminaka, Takeo: *See—*
Yoneda, Kanji; Yuminaka, Takeo; and Nakazato, Masao, 4,266,632, Cl. 187-29.00R.
Zabel, Wolf: *See—*
Bender, Hans; Graf, Rupprecht; Unkelbach, Karl-Heinz; and Zabel, Wolf, 4,266,982, Cl. 134-18.000.
Zamek, Otto S., to General Electric Company. Polyester imide wire enamels. 4,267,231, Cl. 428-379.000.
Zamfirescu, Leon N.: *See—*
Dillon, Robert F., Jr.; Hall, James J.; and Zamfirescu, Leon N., 4,266,842, Cl. 339-97.00P.
Zenner, Armin: *See—*
Scholl, Hans-Joachim; and Zenner, Armin, 4,267,353, Cl. 560-24.000.
Zepp, Charles M.: *See—*
Locatell, Louis, Jr.; Zepp, Charles M.; and Cieciuch, Ronald F., 4,267,251, Cl. 430-224.000.
Zerox Corporation: *See—*
Dillon, Robert F., Jr.; Hall, James J.; and Zamfirescu, Leon N., 4,266,842, Cl. 339-97.00P.
Zhabin, Ivan Y.: *See—*
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.
Ziegenhain, William C., to Conoco, Inc. Method of making aluminum chlorohydrate. 4,267,161, Cl. 423-462.000.
Ziems, Horst, to Claas OGH, The. Hydraulic valve device. 4,266,466, Cl. 91-420.000.
Zikonix Corporation: *See—*
Allport, John J., 4,266,425, Cl. 73-61.00R.
Zink, Gerald P.: *See—*
Wolgamott, John E.; and Zink, Gerald P., 4,266,620, Cl. 175-215.000.
Zinser Textilmaschinen: *See—*
Donmez, Atilla; and Igel, Wolfgang, 4,266,397, Cl. 57-261.000.
Ziolo, Ronald F.; and Lewis, Richard B., to Xerox Corporation. Low specific gravity magnetic carrier materials. 4,267,247, Cl. 430-120.000.
Zissimopoulos, Nicholas, to Baxter Travenol Laboratories, Inc. Controlled volume liquid meter defining improved plunger means. 4,266,697, Cl. 222-450.000.
Zoecon Corporation: *See—*
Anderson, Richard J.; and Henrick, Clive A., 4,267,359, Cl. 560-104.000.
Anderson, Richard J.; and Henrick, Clive A., 4,267,363, Cl. 560-183.000.
Zorzi, Edward S., to General Electric Company. Flywheel including a cross-ply composite core and a relatively thick composite rim. 4,266,442, Cl. 74-572.000.
Zuev, Vladimir K.: *See—*
Birjukov, Mikhail N.; Maslov, Gennady N.; Smorodinnikov, Vladimir P.; Kulikov, Anatoly P.; Udilova, Ida G.; Zuev, Vladimir K.; Lukyanov, Anatoly A.; Tolstopyatov, Konstantin S.; Kalinichev, Alexandr E.; and Zhabin, Ivan Y., 4,266,922, Cl. 425-182.000.
Zuzanov, Georgy I.; Ignatov, Jury P.; and Chinenov, Sergei P. Vertical broaching machine for internal broaching. 4,266,894, Cl. 409-283.000.
Zvezdunov, Dmitry A.: *See—*
Popov, Alexandr D.; Solomin, Vladimir A.; and Zvezdunov, Dmitry A., 4,267,471, Cl. 310-13.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF MAY, 1981

NOTE —Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Bopp, Warren G., to Eaton Corporation. Temperature responsive coupling. Re. 30,608, Cl. 192-58.00B.

Daly, Robert E.: *See—*
Gacki, Leonard W.; and Daly, Robert E., Re. 30,610, Cl. 366-153.000.

Eaton Corporation: *See—*
Bopp, Warren G., Re. 30,608, Cl. 192-58.00B.

Facet Enterprises, Inc.: *See—*
Miller, Donald L., Re. 30,609, Cl. 192-84.00C.

Gacki, Leonard W.; and Daly, Robert E., to Picker Corporation. Fluid mixing and dispensing system. Re. 30,610, Cl. 366-153.000.

Harris, Robert R.; and Pollack, Warren J., to International Minerals & Chemical Corp. Polyurethane-modified alkyd resin. Re. 30,612, Cl. 260-22.0TN.

International Minerals & Chemical Corp.: *See—*
Harris, Robert R.; and Pollack, Warren J., Re. 30,612, Cl. 260-22.0TN.

Manschot, James G.; Mather, Byron L.; and Salvadori, Larry A., to Plastronics, Inc. Combination urine meter and drainage receptacle Re. 30,607, Cl. 128-762.000.

Mather, Byron L.: *See—*
Manschot, James G.; Mather, Byron L.; and Salvadori, Larry A., Re. 30,607, Cl. 128-762.000.

Miller, Donald L., to Facet Enterprises, Inc. Resilient connection between inner and outer poles on electromagnetic clutch. Re. 30,609, Cl. 192-84.00C.

Picker Corporation: *See—*
Gacki, Leonard W.; and Daly, Robert E., Re. 30,610, Cl. 366-153.000.

Plastronics, Inc.: *See—*
Manschot, James G.; Mather, Byron L.; and Salvadori, Larry A., Re. 30,607, Cl. 128-762.000.

Pollack, Warren J.: *See—*
Harris, Robert R.; and Pollack, Warren J., Re. 30,612, Cl. 260-22.0TN.

Salvadori, Larry A.: *See—*
Manschot, James G.; Mather, Byron L.; and Salvadori, Larry A., Re. 30,607, Cl. 128-762.000.

Sharp, Everett H. Telescoping universal joints. Re. 30,606, Cl. 64-8.000.

Wappler, Joachim H. R. Truck mounted hoist. Re. 30,611, Cl. 414-542.000.

Witt, Gordon. Goose and duck blind. Re. 30,605, Cl. 43-1.000.

LIST OF DESIGN PATENTEES

Abramowitz, Lorne. Tie holder. 259,164, 5-12-81, Cl. D6-251.000.

Allstar Verbrauchsguter GmbH & Co. KG: *See—*
Krusche, Kurt, 259,166, Cl. D7-21.000.

Aluminum Company of America: *See—*
Welch, Bing, 259,179, Cl. D9-453.000.

Austin, John J., Jr., to Champion International Corporation. Lunch box carton. 259,175, 5-12-81, Cl. D9-431.000.

Automatic Liquid Packaging, Inc.: *See—*
Pagels, Louis T., 259,213, Cl. D9-370.000.

Ayer, Patrick C. Blood vessel trap. 259,210, 5-12-81, Cl. D24-23.000.

Baldwin Piano & Organ Company: *See—*
Kelly, Lawrence J.; and Kimble, Thomas E., 259,199, Cl. D17-14.000.

Barr, Josef J. Finger ring. 259,188, 5-12-81, Cl. D11-27.000.

Bates, Gregory A.; Emenaker, Ralph R.; and Henderson, Louis M., to Proctor & Gamble Company, The. Paper toweling. 259,219, 5-12-81, Cl. D59-2.00B.

Bates Industries, Inc.: *See—*
Beaubien, Thomas S.; Rich, Dennis C.; and Oehring, Robert E., 259,192, Cl. D12-158.000.

Beaubien, Thomas S.; Rich, Dennis C.; and Oehring, Robert E., to Bates Industries, Inc. Luggage saddle bag. 259,192, 5-12-81, Cl. D12-158.000.

Bogner, Paul. Cover for hampers. 259,169, 5-12-81, Cl. D7-194.000.

Box, Theodor M. Beverage case. 259,174, 5-12-81, Cl. D99-49.000.

Buhk, Randall P., to Steelcase Inc. Armchair. 259,155, 5-12-81, Cl. D6-31.000.

Bunger, Richard E. Bridging platform panel for animal confinement pens. 259,218, 5-12-81, Cl. D30-02.000.

Candiliotis, Gerassimos C., to Uniroyal, Inc. Pneumatic tire tread and buttress. 259,191, 5-12-81, Cl. D12-146.000.

Carr, Jay B., Jr. Combined vest and blinker lights. 259,146, 5-12-81, Cl. D2-184.000.

Cartier International B.V.: *See—*
Hocq, Robert, 259,185, Cl. D10-26.000.

CEGA, Inc.: *See—*
Collura, Francesco, 259,187, Cl. D10-106.000.

Cesare, Frank C.; Flood, James H.; and Urcinas, Anthony J., to Keds Corporation, The. Sole for a shoe. 259,150, 5-12-81, Cl. D2-320.000

Champion International Corporation: *See—*
Austin, John J., Jr., 259,175, Cl. D9-431.000

Chapman, Darwin E., to Creative Phototronics, Inc. Digital exposure meter. 259,198, 5-12-81, Cl. D16-39.000.

Cole Grain Company: *See—*
Wilson, William H.; and Cole, Joy D., 259,189, Cl. D12-53.000

Cole, Joy D.: *See—*
Wilson, William H.; and Cole, Joy D., 259,189, Cl. D12-53.000.

Collura, Francesco, to CEGA, Inc. Intrusion alarm. 259,187, 5-12-81, Cl. D10-106.000.

Conwed Corporation. *See—*
Hendrickson, Miner H., 259,215, Cl. D25-97.000.

Corley, Christina C.: *See—*
Massow, Frank A., 259,156, Cl. D6-36.000.

Corley, Marjorie M.: *See—*
Massow, Frank A., 259,156, Cl. D6-36.000.

Cousins, Michael A., to Gillette Company, The. Facial sauna housing. 259,207, 5-12-81, Cl. D23-148.000.

Creamer, Joan K.: *See—*
Martin, Robert L.; and Creamer, Joan K., 259,216, Cl. D26-118.000.

Creative Phototronics, Inc.: *See—*
Chapman, Darwin E., 259,198, Cl. D16-39.000.

Crosbie, William D., Sr. Storage cabinet for safety equipment or the like. 259,160, 5-12-81, Cl. D6-127.000.

Daenen, Robert H. C. M., to Dart Industries Inc. Lunch box. 259,167, 5-12-81, Cl. D7-76.000

D'Alessandro, Vittoria A. Jewelry cabinet. 259,162, 5-12-81, Cl. D6-164.000.

Dantzer, Elonne: *See—*
Goldfarb, Adolph E.; and Dantzer, Elonne, 259,203, Cl. D21-184.000.

Dart Industries Inc.: *See—*
Daenen, Robert H. C. M., 259,167, Cl. D7-76.000.

Descente Ltd.: *See—*
Inoue, Ryoichi, 259,145, Cl. D2-28.000.

Doi, Tetsuyuki; and Shohoji, Takeshi, to Ryobi Limited. Fishing spinning reel. 259,205, 5-12-81, Cl. D22-25.000.

Durand, Jean-Jacques. Goblet or similar article. 259,165, 5-12-81, Cl. D7-13.000.

Dyson, Evelyna C., to Revlon, Inc. Section console for use with cosmetic displays. 259,158, 5-12-81, Cl. D6-85.000.

Emenaker, Ralph R.: *See—*
Bates, Gregory A.; Emenaker, Ralph R.; and Henderson, Louis M., 259,219, Cl. D59-2.00B.

Emms, Mervyn C., to John Lysaght (Australia) Limited. Fixing clip for roofing or siding material or similar article. 259,170, 5-12-81, Cl. D8-382.000.

Evans, Catherine C., to Will Ross, Inc. Nurse's headwear. 259,147, 5-12-81, Cl. D2-237.000.

Evans, Catherine C., to Will Ross, Inc. Nurse's headwear. 259,148, 5-12-81, Cl. D2-240.000.

Flood, James H.: *See—*
Cesare, Frank C.; Flood, James H.; and Urcinas, Anthony J., 259,150, Cl. D2-320.000

Foggia, Donald; and Pomponi, Roman, to TIE/Communications, Inc. Base for a telephone set. 259,212, 5-12-81, Cl. D24-53.000.

Francis, David H.: *See—*
Francis, Gladys M.; and Francis, David H., 259,184, Cl. D10-15.000.

Francis, Gladys M.; and Francis, David H., to Microtime, Incorporated. Digital clock. 259,184, 5-12-81, Cl. D10-15.000.

Gautama, Anil K. Tongue cleaner. 259,209, 5-12-81, Cl. D24-10.000.

General Electric Company: *See—*
Martin, Robert L.; and Creamer, Joan K., 259,216, Cl. D26-118.000.

General Housewares Corp.: *See—*
Thauer, William R., 259,161, Cl. D6-157.000.

Gibbons, Robert R., to Insulation Technology Corporation. Housing for insulation blowing machine. 259,197, 5-12-81, Cl. D15-122.000.

Gillette Company, The: *See—*
Cousins, Michael A., 259,207, Cl. D23-148.000.

Goldfarb, Adolph E.; and Dantzer, Elonne, to Goldfarb, Adolph E. Doll figure. 259,203, 5-12-81, Cl. D21-184.000.

Graybill, John. Letter holder. 259,159, 5-12-81, Cl. D6-114.000.

Henderson, Louis M.: *See—*
Bates, Gregory A.; Emenaker, Ralph R.; and Henderson, Louis M., 259,219, Cl. D59-2.00B.

Hendrickson, Miner H., to Conwed Corporation. Ceiling panel or similar article. 259,215, 5-12-81, Cl. D25-97.000.

Heuser, Barry, to Manhattan Industries, Inc. Expansible belt buckle. 259,152, 5-12-81, Cl. D2-427.000.

Hirtle, Clayton N. Cap for dispensing disinfectants. 259,183, 5-12-81, Cl. D9-450.000.

Hocq, Robert, to Cartier International B.V. Alarm clock. 259,185, 5-12-81, Cl. D10-26.000.

Hofer, Otto, to Interondo AG. Package for ampoules. 259,176, 5-12-81, Cl. D9-346.000.

Hovick, Ronald L.: *See—*
Sellers, Virgil E.; Lowman, Donald E.; and Hovick, Ronald L., 259,193, Cl. D12-157.000.

Ichikawa, Shinpei: *See—*
Welch, Robert A.; and Ichikawa, Shinpei, 259,200, Cl. D18-7.000.

Inoue, Ryoichi, to Descente Ltd. Pants. 259,145, 5-12-81, Cl. D2-28.000.

Insulation Technology Corporation: *See—*
Gibbons, Robert R., 259,197, Cl. D15-122.000.

Interdica S.A.: *See—*
Perrin, Alain D., 259,186, Cl. D10-32.000.

Interondo AG: *See—*
Hofer, Otto, 259,176, Cl. D9-346.000.

Item House, Inc.: *See—*
White, Lee C., Jr.; and Persky, Warren E., 259,154, Cl. D3-75.000.

J. L. Prescott Co.: *See—*
Saenz, Henry, 259,181, Cl. D9-389.000.

John Lysaght (Australia) Limited: *See—*
Emms, Mervyn C., 259,170, Cl. D8-382.000.

Kabushiki Kaisha Bandai Overseas: *See—*
Yamashina, Naoharu, 259,202, Cl. D21-134.000.

Keds Corporation, The: *See—*
Cesare, Frank C.; Flood, James H.; and Urcinas, Anthony J., 259,150, Cl. D2-320.000.

Kelly, Lawrence J.; and Kimble, Thomas E., to Baldwin Piano & Organ Company. Electric guitar. 259,199, 5-12-81, Cl. D17-14.000.

Kimble, Thomas E.: *See—*
Kelly, Lawrence J.; and Kimble, Thomas E., 259,199, Cl. D17-14.000.

Kishbaugh, John E.; and Storholm, Gordon. Jogger's belt. 259,151, 5-12-81, Cl. D2-383.000.

Koughan, Walter L. Resilient shock absorber for boat docking lines or the like. 259,194, 5-12-81, Cl. D12-159.000.

Krusche, Kurt, to Allstar Verbrauchsguter GmbH & Co. KG. Working and serving board with a removable strainer. 259,166, 5-12-81, Cl. D7-21.000.

Landry, Kossuth J., Jr. Soil erosion prevention block. 259,214, 5-12-81, Cl. D25-91.000.

Larko, Christine I. E., to Molnlycke Aktiebolag. Disposable diaper. 259,211, 5-12-81, Cl. D24-50.000.

Lauren, Ralph, to Warner/Lauren Ltd. Cologne bottle. 259,173, 5-12-81, Cl. D9-401.000.

Leard, Anon G.; and Leard, Dorothy M. Picture frame. 259,163, 5-12-81, Cl. D6-234.000.

Leard, Dorothy M.: *See—*
Leard, Anon G.; and Leard, Dorothy M., 259,163, Cl. D6-234.000.

Leisurecraft Products Ltd.: *See—*
Pardo, John, 259,196, Cl. D14-64.000.

Lolift Limited: *See—*
Nattrass, Frank, 259,177, Cl. D9-432.000.
Nattrass, Frank, 259,178, Cl. D9-246.000.

Lowman, Donald E.: *See—*
Sellers, Virgil E.; Lowman, Donald E.; and Hovick, Ronald L., 259,193, Cl. D12-157.000.

Lubke, Karl, to Lubke KG. Couch. 259,157, 5-12-81, Cl. D6-61.000.

Lubke KG: *See—*
Lubke, Karl, 259,157, Cl. D6-61.000.

Manhattan Industries, Inc.: *See—*
Heuser, Barry, 259,152, Cl. D2-427.000.

Martin, Robert L.; and Creamer, Joan K., to General Electric Company. Decorative night light diffuser. 259,216, 5-12-81, Cl. D26-118.000.

Massow, Frank A., to Corley, Marjorie M.; and Corley, Christina C. Rockable footstool. 259,156, 5-12-81, Cl. D6-36.000.

McCullough, John R. Roof vent. 259,208, 5-12-81, Cl. D23-153.000.

Microtime, Incorporated: *See—*
Francis, Gladys M.; and Francis, David H., 259,184, Cl. D10-15.000.

Molnlycke Aktiebolag: *See—*
Larko, Christine I. E., 259,211, Cl. D24-50.000.

Nattrass, Frank, to Lolift Limited. Container for bulk materials. 259,177, 5-12-81, Cl. D9-432.000.

Nattrass, Frank, to Lolift Limited. Container for bulk materials. 259,178, 5-12-81, Cl. D9-246.000.

Oehring, Robert E.: *See—*
Beaubien, Thomas S.; Rich, Dennis C.; and Oehring, Robert E., 259,192, Cl. D12-158.000.

Pagels, Louis T., to Automatic Liquid Packaging, Inc. Vial suitable for pharmaceuticals. 259,213, 5-12-81, Cl. D9-370.000.

Pardo, John, to Leisurecraft Products Ltd. Hand-held telephone. 259,196, 5-12-81, Cl. D14-64.000.

Parren, Joseph R. Evaporative cooler. 259,206, 5-12-81, Cl. D23-139.000.

Perrin, Alain D., to Interdica S.A. Wrist watch. 259,186, 5-12-81, Cl. D10-32.000.

Persky, Warren E.: *See—*
White, Lee C., Jr.; and Persky, Warren E., 259,154, Cl. D3-75.000.

Petrie, Ross J., to Simmons, Jerry Wayne. Cup warmer. 259,168, 5-12-81, Cl. D7-123.000.

Polkingharn, Orie M. Shaving lather applicator. 259,182, 5-12-81, Cl. D9-435.000.

Pomponi, Roman: *See—*
Foggia, Donald; and Pomponi, Roman, 259,212, Cl. D24-53.000.

Proctor & Gamble Company, The: *See—*
Bates, Gregory A.; Emenaker, Ralph R.; and Henderson, Louis M., 259,219, Cl. D59-2.00B.

Revlon, Inc.: *See—*
Dyson, Evelyna C., 259,158, Cl. D6-85.000.

Rich, Dennis C.: *See—*
Beaubien, Thomas S.; Rich, Dennis C.; and Oehring, Robert E., 259,192, Cl. D12-158.000.

Ross, Billy E., to Selmer Company, The. Bottle. 259,172, 5-12-81, Cl. D9-389.000.

Rowe, David E. Camper vehicle. 259,190, 5-12-81, Cl. D12-100.000.

Ryobi Limited: *See—*
Doi, Tetsuyuki; and Shohoji, Takeshi, 259,205, Cl. D22-25.000.

Saenz, Henry, to J. L. Prescott Co. Bottle. 259,181, 5-12-81, Cl. D9-389.000.

Sawada, Masaji; and Tatsugami, Harumi, to Sharp Corporation. Electronic calculating machine. 259,201, 5-12-81, Cl. D18-7.000.

Sellers, Virgil E.; Lowman, Donald E.; and Hovick, Ronald L. Vehicle luggage carrier. 259,193, 5-12-81, Cl. D12-157.000.

Selmer Company, The: *See—*
Ross, Billy E., 259,172, Cl. D9-389.000.

Sharp Corporation: *See—*
Sawada, Masaji; and Tatsugami, Harumi, 259,201, Cl. D18-7.000.

Shohoji, Takeshi: *See—*
Doi, Tetsuyuki; and Shohoji, Takeshi, 259,205, Cl. D22-25.000.

Simmons, Jerry Wayne: *See—*
Petrie, Ross J., 259,168, Cl. D7-123.000.

Smith, Bruce N., to Spherex, Incorporated. Wheel. 259,195, 5-12-81, Cl. D12-205.000.

Smith, Douglas J. Cigarette and cigar extinguisher. 259,217, 5-12-81, Cl. D27-09.000.

Spherex, Incorporated: *See—*
Smith, Bruce N., 259,195, Cl. D12-205.000.

Steelcase Inc.: *See—*
Buhk, Randall P., 259,155, Cl. D6-31.000.

Storholm, Gordon: *See—*
Kishbaugh, John E.; and Storholm, Gordon, 259,151, Cl. D2-383.000.

Tatsugami, Harumi: *See—*
Sawada, Masaji; and Tatsugami, Harumi, 259,201, Cl. D18-7.000.

Texas Instruments Incorporated: *See—*
Welch, Robert A.; and Ichikawa, Shinpei, 259,200, Cl. D18-7.000.

Thauer, William R., to General Housewares Corp. Placemat display rack. 259,161, 5-12-81, Cl. D6-157.000.

TIE/Communications, Inc.: *See—*
Foggia, Donald; and Pomponi, Roman, 259,212, Cl. D24-53.000.

Uniroyal, Inc.: *See—*
Candiliotis, Gerassimos C., 259,191, Cl. D12-146.000.

Urcinas, Anthony J.: *See—*
Cesare, Frank C.; Flood, James H.; and Urcinas, Anthony J., 259,150, Cl. D2-320.000.

Valente, Domenic R. Jewelry box. 259,153, 5-12-81, Cl. D3-66.000.

W. H. Brine Company: *See—*
Werman, Jonathan, 259,149, Cl. D2-309.000.

Wallace, Robert S. Expansion lock. 259,171, 5-12-81, Cl. D8-385.000.

Warner/Lauren Ltd.: *See—*
Lauren, Ralph, 259,173, Cl. D9-401.000.

Weast, Gerald T. Telescopic sight mount for 22 caliber rifle. 259,204, 5-12-81, Cl. D22-7.000.

Welch, Bing, to Aluminum Company of America. Knurled closure. 259,179, 5-12-81, Cl. D9-453.000.

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Werman, Jonathan, to W. H. Brine Company. Soccer shoe body. 259,149, 5-12-81, Cl. D2-309.000.

White, Lee C., Jr.; and Persky, Warren E., to Item House, Inc. Jewelry case. 259,154, 5-12-81, Cl. D3-75.000.

Will Ross, Inc., *See*—
Evans, Catherine C., 259,147, Cl. D2-237.000.
Evans, Catherine C., 259,148, Cl. D2-240.000.

Wilson, William H.; and Cole, Joy D., to Cole Grain Company. Pallet 259,189, 5-12-81, Cl. D12-53.000.

Yamashina, Naoharu, to Kabushiki Kaisha Bandai Overseas. Combined toy scooter and figure therefor. 259,202, 5-12-81, Cl. D21-134.000.

Zeiger, Judith R. Dispensing figurine for a box of tissue. 259,180, 5-12-81, Cl. D9-451.000.

LIST OF PLANT PATENTEES

Duffett, William E.: *See*—
Meek, Jack M.; and Duffett, William E., 4,716, Cl. 74.000.

Guo, Shuh-Lth. Orchid plant: Golden King. 4,715, 5-12-81, Cl. 68.000

Meek, Jack M., and Duffett, William E., to Yoder Brothers, Inc. Chrysanthemum plant. 4,716, 5-12-81, Cl. 74.000.

Nor'East Miniature Roses, Inc. *See*—
Schwartz, Ernest, deceased, 4,711, Cl. 9.000.

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Weeks, O. L. Rose plant. 4,712, 5-12-81, Cl. 11.000

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Yoder Brothers, Inc. *See*—
Meek, Jack M., and Duffett, William E., 4,716, Cl. 74.000

CLASSIFICATION OF PATENTS

ISSUED MAY 12, 1981

NOTE.—First number, class; second number, subclass; third number, patent number

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	184	259,146		114	259,159	D9—	246	259,178		26	259,185	D15—	122	259,197	D24—	10	259,209
	237	259,147		127	259,160		346	259,176		32	259,186	D16—	39	259,198		23	259,210
	240	259,148		157	259,161		370	259,213		106	259,187	D17—	14	259,199		50	259,211
	309	259,149		164	259,162		389	259,172	D11—	27	259,188	D18—	7	259,200		53	259,212
	320	259,150		234	259,163			259,181	D12—	53	259,189			259,201	D25—	91	259,214
	383	259,151		251	259,164		401	259,173		100	259,190	D21—	134	259,202		97	259,215
	427	259,152	D7—	13	259,165		431	259,175		146	259,191		184	259,203	D26—	118	259,216
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	75	259,154		76	259,167		435	259,182		158	259,192		25	259,205	D30—	02	259,218
D6—	31	259,155		123	259,168		450	259,183		159	259,194	D23—	139	259,206	D59—	2 B	259,219
	36	259,156		194	259,169		451	259,180		205	259,195		148	259,207	D99—	49	259,174
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		4,266,959			4,266,855			4,266,612			4,266,510			4,267,418	24	:	4,266,304
01	:	4,266,406			4,266,889			4,266,620			4,266,586			4,267,443			4,266,548
02	:	4,266,359			4,266,890			4,266,625			4,266,589			4,267,545			4,266,653
04	:	4,266,350			4,266,914			4,266,676	16	:	4,266,448			4,267,579			4,266,669
		4,266,358			4,266,924			4,266,826			4,266,899			4,267,584			4,266,878
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		4,266,551			4,266,951			4,267,056			4,267,500	18	:	4,266,319			4,267,132
		4,266,781			4,266,964			4,267,276	17	:	Re.30,612			4,266,378			4,267,182
		4,267,057			4,266,965			4,267,434			4,266,298			4,266,487			4,267,513
		4,267,460			4,266,991			4,267,446			4,266,317			4,266,492			4,267,514
		4,267,468			4,266,996	09	:	4,266,340			4,266,318			4,266,587			4,267,530
		4,267,501			4,267,001			4,266,480			4,266,320			4,266,602			4,267,537
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		4,266,305			4,267,011			4,266,606			4,266,342			4,266,640			4,267,551
		4,266,307			4,267,012			4,266,844			4,266,347			4,266,645	25	:	4,266,299
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		4,266,430			4,267,088			4,267,435			4,266,454			4,267,240			4,266,728
		4,266,443			4,267,109	10	:	4,266,409			4,266,504			4,267,286			4,266,814
		4,266,453			4,267,165			4,266,498			4,266,505			4,267,305			4,266,849
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		4,266,468			4,267,171			4,266,919			4,266,542			4,267,528			4,266,882
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		4,266,619			4,267,289	12	:	4,266,388			4,266,697			4,266,917			4,267,137
		4,266,622			4,267,308			4,266,473			4,266,707			4,267,288			4,267,151
		4,266,672			4,267,359			4,266,495			4,266,716			4,267,592			4,267,153
		4,266,701			4,267,363			4,266,543			4,266,726	20	:	4,266,617			4,267,223
		4,266,714			4,267,383			4,266,600			4,266,798			4,266,693			4,267,251
		4,266,715			4,267,451			4,266,640			4,266,812			4,266,755			4,267,252
		4,266,740			4,267,490			4,266,759			4,266,825			4,266,835			4,267,253
		4,266,751			4,267,506			4,266,819			4,266,895			4,266,908			4,267,254
		4,266,752			4,267,509			4,266,864			4,266,897			4,267,270			4,267,255
		4,266,757			4,267,523			4,266,871			4,266,927	21	:	4,266,545			4,267,256
		4,266,765			4,267,550			4,266,881			4,266,988			4,266,561			4,267,272
		4,266,767			4,267,561			4,267,366			4,267,032			4,266,659			4,267,282
		4,266,770			4,267,564			4,267,428			4,267,072			4,266,808			4,267,290
		4,266,776			4,267,575			4,267,488			4,267,224			4,266,880			4,267,295
		4,266,780			4,267,580			4,267,594			4,267,243			4,266,956			4,267,324
		4,266,786			4,267,596			4,267,598			4,267,269			4,267,449			4,267,413
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		4,266,795	08	:	4,266,301	13	:	4,266,399			4,267,318	22	:	4,266,621			4,267,512
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Vol. 1006 Number 3

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

May 19, 1981

U.S.
DEPARTMENT
OF COMMERCE

Patent
and
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Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

May 19, 1981 Volume 1006 Number 3

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,414,928, Re. S.N. 213,181, Filed Dec. 4, 1980, Cl. 15/118, COMBINATION SPONGE AND SCOURER, Jerome H. Lemelson, Owner of Record: *Inventor,* Attorney or Agent: Kenneth J. Stempler, Ex. Gp.: 242

4,144,742, Re. S.N. 164,051, Filed June 30, 1980, Cl. 73/45.1, MACHINE FOR TESTING BOTTLES, Dieter K. Schmidt, et al., Owner of Record: *New Century Beverage Co., San Francisco, Calif.,* Attorney or Agent: Edward B. Gregg, Ex. Gp.: 244

4,148,237, Re. S.N. 228,306, Filed Jan. 26, 1981, Cl. 83/78 TERMINAL FORMING AND INSTALLING APPARATUS, Maurice H. Brown, Owner of Record: *Inventor,* Attorney or Agent: James B. Kinzer, et al., Ex. Gp.: 323

4,183,916, Re. S.N. 223,312, Filed Jan. 8, 1981, Cl. 424/54, ORAL COMPOSITIONS, Maria Rodon, Owner of Record: *Beecham Inc., Clifton, N.J.,* Attorney or Agent: Albert L. Jacobs, et al., Ex. Gp.: 125

4,184,400, Re. S.N. 230,348, Filed Jan. 30, 1981, Cl. 84/1.03, ELECTRONIC MUSICAL INSTRUMENT UTILIZING DATA PROCESSING SYSTEM, Kuji Niimi, Owner of Record: *Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan,* Attorney or Agent: W. Robert Spensley, et al., Ex. Gp.: 217

4,190,477, Re. S.N. 227,527, Filed Jan. 22, 1981, Cl. 156/244.11, POUCH, William F. Ossian, et al., Owner of Record: *American Can Co., Greenwich, Conn.,* Attorney or Agent: Robert P. Auber, et al., Ex. Gp.: 161

4,208,144, Re. S.N. 234,574 Filed Feb. 13, 1981, Cl. 401/192, COSMETIC APPLICATOR WITH TRANSPARENT CONTAINER PORTION, Eric J. Idec, et al., Owner of Record: *Eyelet Specialty Co., Inc., Wallingford, Conn,* Attorney or Agent: Roy C. Hopgood, et al., Ex. Gp.: 337

4,212,158, Re. S.N. 227,989, Filed Jan. 23, 1981, Cl. 368/80, ELECTRONIC TIMEPIECE, Munetaka Tamaru, Owner of Record: *Citizen Watch Co., Ltd., Tokyo, Japan,* Attorney or Agent: Terrell C. Birch, et al., Ex. Gp.: 217

PATENT NOTICES

Certificates of Correction for the Week of May 19, 1981

Re. 30,352	4,228,220	4,241,769	4,249,512
3,767,649	4,228,772	4,242,130	4,249,687
3,985,265	4,229,724	4,242,200	4,249,718
4,026,909	4,230,724	4,242,268	4,249,883
4,072,112	4,230,730	4,243,242	4,249,985
4,076,067	4,230,796	4,243,507	4,250,081
4,097,156	4,230,865	4,243,555	4,250,131
4,104,215	4,231,018	4,243,737	4,250,170
4,107,427	4,231,049	4,243,785	4,250,281
4,107,785	4,231,636	4,243,902	4,250,336
4,112,726	4,231,644	4,244,097	4,250,378
4,117,332	4,231,728	4,244,156	4,251,192
4,121,238	4,231,927	4,244,422	4,252,185
4,126,413	4,232,585	4,244,533	4,252,221
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4,161,367	4,236,991	4,245,478	4,252,901
4,166,273	4,237,110	4,245,925	4,252,954
4,187,547	4,237,129	4,246,144	4,253,096
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4,205,979	4,237,763	4,246,915	4,253,205
4,211,092	4,238,099	4,247,015	4,253,362
4,211,539	4,239,141	4,247,091	4,253,414
4,212,946	4,239,371	4,247,197	4,254,158
4,213,237	4,239,553	4,247,505	4,254,265
4,215,055	4,239,575	4,247,673	4,254,854
4,217,603	4,239,686	4,247,857	4,255,203
4,223,105	4,239,777	4,248,075	4,255,388
4,223,479	4,239,809	4,248,214	4,255,476
4,223,934	4,239,981	4,248,219	4,255,559
4,224,227	4,240,146	4,248,791	4,255,567
4,224,382	4,241,236	4,248,870	4,256,998
4,224,648	4,241,375	4,249,118	
4,228,154	4,241,618	4,249,416	

Disclaimers

3,379,612.—*George De Stevens,* and *Lincoln Harvey Werner,* Summit N.J. PHARMACEUTICAL COMPOSITIONS OF 6-CHLORO-7-SULFAMYL-3, 4-DIHYDRO-2H-[1,2,4]-BENZOTHIADIAZINE 1, 1-DIOXIDE AND AN INDOLE ALKALOID OF THE APOCYNACEAE FAMILY. Patent dated Apr. 23, 1968. Disclaimer filed Feb. 20, 1981, by the assignee, *Ciba-Geigy Corp.*

The term of this patent subsequent to Mar. 31, 1981, has been disclaimed.

3,499,082.—*George De Stevens,* Woodland Park, Summit, and *Lincoln Harvey Werner,* Summit, N.J. HYPOTENSIVE COMPOSITIONS CONTAINING A 3,4-DIHYDRO-1,2,4-BENZO—THIADIAZINE-1,1-DIOXIDE, A HYDRAZINO—PHTHALAZINE AND AN INDOLE ALKALOID OF THE APOCYNACEAE FAMILY. Patent dated Mar. 3, 1970. Disclaimer filed Feb. 20, 1981, by the assignee, *Ciba-Geigy Corp.*

The term of this patent subsequent to Mar. 31, 1981, has been disclaimed.

3,515,786.—*George De Stevens,* Woodland Park and *Lincoln Harvey Werner,* Summit, N.J. HYPOTENSIVE COMPOSITIONS CONTAINING A 3,4-DIHYDRO-1,2,4-BENZOTHIADIAZINE-1,1-DIOXIDE AND A HYDRAZINO PHTHALAZINE. Patent dated June 2, 1970. Disclaimer filed Feb. 20, 1981, by the assignee, *Ciba-Geigy Corp.*

The term of this patent subsequent to Mar. 31, 1981, has been disclaimed.

3,728,058.—*James E. Wheeler,* Roanoke, Va. PLASTIC MELT TEMPERATURE CONTROL. Patent dated Apr. 17, 1973. Disclaimer filed Feb. 26, 1981, by the inventor, the assignee, *General Electric Co.,* consenting

Hereby enters this disclaimer to claim 1 of said patent.

3,956,540.—*Albert J. Laliberte,* S. Woodstock, Conn. and *Armand DeAngelis,* Southbridge, Mass. METHOD OF COATING ARTICLES. Patent dated May 11, 1976. Disclaimer filed Feb. 25, 1981, by the assignee, *Omnitech Inc.*

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3,980,927.—*Peter Eduard Haferl,* Adliswil, Switzerland. DEFLECTION CIRCUIT. Patent dated Sept. 14, 1976. Disclaimer filed Feb. 24, 1981, by the assignee, *RCA Corp.*

Hereby enters this disclaimer to claims 1, 2, 3 and 4 of said patent.

3,987,414.—*Alois Vaclav Tuma,* Schlieren, Switzerland. DIGITAL REMOTE CONTROL FOR ELECTRONIC SIGNAL RECEIVERS. Patent dated Oct. 19, 1976. Disclaimer filed Mar. 27, 1981, by the assignee, *RCA Corp.*

Hereby enters this disclaimer to claims 1, 2, 3, 4 and 6 of said patent.

4,151,142.—*Frederick L. Herman,* Allentown and *Dale Davis Dixon,* Kutztown, Pa. WET ADHESION EMULSIONS OF POLYMER RESINS SYSTEMS EMPLOYED IN WATER-BASED PAINT AND COATING COMPOSITIONS COMPRISING AS A COMPONENT THEREOF MONOMER CONTAINING AN ETHYLENIC DOUBLE BOND AND A UREIDO GROUP POLYMERIZED THEREIN. Patent dated Apr. 24, 1979. Disclaimer filed Mar. 16, 1981, by the assignee, *Air Products and Chemicals, Inc.*

Hereby enters this disclaimer to claims 1, 2 and 11–14 of said patent.

4,216,108.—*Francis J. Sels,* Kontich; *Hendrik E. Kokelenberg, Merksem* and *George F. van Veelen,* Mortsel, Belgium. HARDNEING SOLUTION FOR PROTEINACEOUS MATERIALS. Patent dated Aug. 5, 1980. Disclaimer filed Mar. 18, 1981, by the assignee. *Agfa-Gevaert, N. V.*

Hereby enters this disclaimer to all claims of said patent.

Dedication

4,117,132.—Adolf Seebach, Zurich, Switzerland. PROCESS FOR THE PRODUCTION OF STABILIZED PURE THEOPHYLLINE IN NEUTRAL, AQUEOUS SOLUTION. Patent dated Sept. 26, 1978. Dedication filed Feb. 24, 1981, by the assignee, *Dr. Adolf Seebach, A. G.*

Hereby dedicates to the Public the remaining term of said patent.

National Technical Information Service

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DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE ARMY/OTJAG
Chief, Intellectual Property Division
Room 2D 444, Pentagon
Washington, D.C. 20310

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U.S. DEPARTMENT OF THE AIR FORCE
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U.S. DEPARTMENT OF AGRICULTURE
Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

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U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Council for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

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Patent application 6-195,223. Miniature Spectrally Selective Dosimeter. Filed Oct. 8, 1980.

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Service by Publication
Mikhail B. Serkh

In accordance with 37 CFR 1.47(a) (Rules of Practice in Patent cases), notice is hereby given of the filing on May 10, 1978, of an application for patent entitled "Apparatus for Continuous Temperature Measurement of the Dew Point of Flue Gases" on behalf on Mikhail B. Serkh whose last known address is in Moscow, U.S.S.R. The application was made in compliance with 37 CFR 1.47(a) and 35 U.S.C. 116, second paragraph by Mikhail Al Pozin without execution by the said Mikhail B. Serkh.

Any action to be taken by the said Mikhail B. Serkh in connection with the said application must be taken within thirty (30) days of the publication of this notice.

RENE D. TEGTMEYER
Acting Commissioner of
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Patent Suits

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3,318,545. (See 3,185,364.)

3,387,786, Robert Rynberk and Virginia Rynberk, doing business as Valley View Specialties, DIVIDER AND SPRINKLER COMBINATION, **filed** June 24, 1980, D.C., N.D. Ill. (Chicago), Doc. 80 C 3259, *Richco Plastic Co.* v. *Robert Rynberk and Virginia Rynberk, doing business as Valley View Specialties.* Plaintiff is restrained from infringing Defendant's patent. Oct. 17, 1980. **Same, filed** Nov. 25, 1980, D.C., E.D. Mich. (Bay City), Doc. 80-10185, *Robert and Virginia Rynberk, doing business as Valley View Specialties* v. *Richard Januszewski, et al., doing business as Commercial Products.*

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3,809,397, Bryan J. Grunewald, APPARATUS FOR DEVELOPING QUICKNESS IN SWINGING OF A BASEBALL, **filed** Nov. 15, 1979, D.C., S.D. Calif. (San Diego), Doc. 79-1846, *Bryan J. Grunewald* v. *Power Swing Partners, et al.* Dismissed without prejudice for want of prosecution. Filed Feb. 18, 1981.

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Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
California	Los Angeles Public Library	(213) 626-7555 Ext. 274
	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 223
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1458
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF Mar. 21, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	10-22-79
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	2-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-01-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	7-10-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-05-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240— A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	7-09-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	2-12-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-29-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-01-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-18-77
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	7-27-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during Feb. 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents . . . . . Numbers 3,122,749 to 3,127,613, inclusive

Plant Patents . . . . . Numbers 2,368 to 2,388, inclusive

REISSUES

MAY 19, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,613

SHEARING TOOL FOR SYNTHETIC RESIN TUBES

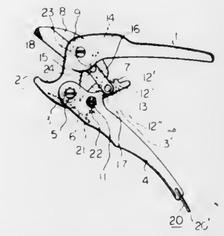
Masahiko Nakamura, Matsuzaka, and Hidehiko Itou, Hisai, both of Japan, assignors to Matsuzaka Iron Works, Inc., Tsu, Japan

Original No. 4,084,317, dated Apr. 18, 1978, Ser. No. 793,320, May 3, 1977. Application for reissue Apr. 6, 1979, Ser. No. 27,663

Claims priority, application Japan, Dec. 11, 1976, 51-166532[U]

Int. Cl.³ B23D *21/06*

U.S. Cl. 30—94 **26 Claims**



20. A shearing tool for cutting elongated stock and the like comprising:

first and second handles;

said first handle having a J-shaped jaw fixed to and projecting from the forward portion thereof and the second handle being pivotally connected to and projecting rearwardly from the bottom of the stem portion of the J;

an elongated cutting blade pivotally supported at the mid-length thereof near the top of said jaw stem portion;

a rock lever pivoted at one end to said second handle at a point spaced from the lower end of said jaw stem portion and extending crosswise of the adjacent end of said blade and having the free end thereof spring-biased toward engagement with said blade end; and

the free end of said rock lever and the adjacent and of said cutting blade being inter-engageable by a pawl and a series of ratchet teeth, said pawl and said teeth being relatively movable and sequentially interengageable at substantially the same distance from said blade pivot and cooperable with one another to provide the same mechanical advantage as said first and second handles are operated through successive opening and closing cycles.

Re. 30,614

SIMULTANEOUS MULTIPLE TWISTING APPARATUS

Sakujiro Matsumura; Tadashi Yamamura, both of 3, Shinmeiji, Kamiyada-cho, Nishio-shi, Aichi-ken; Akira Ogura, 3-49, Shinsakae-machi, Toyokawa-shi, Aichi-ken, and Masataka Hayashi, 3, Shinmeiji, Kamiyada-cho, Nishio-shi, Aichi-ken, all of Japan

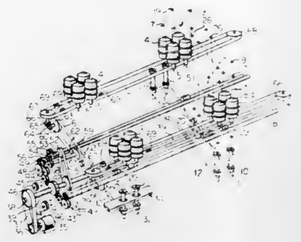
Original No. 3,918,245, dated Nov. 11, 1975, Ser. No. 505,000, Sep. 11, 1974. Continuation-in-part of Ser. No. 362,107, May 21, 1973, Pat. No. 3,846,965. Application for reissue Apr. 24, 1979, Ser. No. 33,018

Claims priority, application Japan, May 26, 1972, 47-51680

Int. Cl.² D01H *1/10, 1/28, 7/86*

U.S. Cl. 57—58.54 **45 Claims**

1. A multiple twisting apparatus having at least one twisting unit, comprising a first twisting device provided with at least two two-for-one twisting assemblies, each of said two-for-one twisting assemblies being provided with a first tension control means disposed therein, means for doubling first-twisted yarns withdrawn from said two-for-one twisting assemblies, a second twisting device disposed below said first twisting device for imparting a second twist to a doubled yarn carried from said means for doubling, means for positively feeding said doubled



yarn to said second twisting device, a plurality of yarn guides forming a yarn passage behind said first twisting device and forming a yarn passage to said feeding means, and means for driving said first twisting device, said second twisting device and said feeding means.

Re. 30,615

PNEUMATIC TIRE WITH REINFORCING BELT THAT MINIMIZES BELT END GYROSCOPIC EFFECT

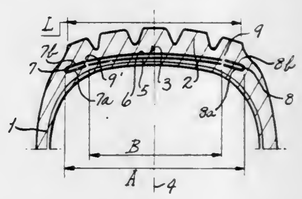
Henri J. Mirtain, Allee de Marteville, Compiegne, France

Original No. 4,034,791, dated Jul. 12, 1977, Ser. No. 694,276, Jun. 9, 1976. Application for reissue Nov. 24, 1978, Ser. No. 963,558

Claims priority, application France, Jun. 30, 1975, 75 20502

Int. Cl.³ B60C *9/18, 9/24*

U.S. Cl. 152—361 FP **34 Claims**



1. A pneumatic tire comprising an annular carcass having a radially outerlying crown portion, a tread constituting an annular cover surrounding the crown portion of said carcass, and an annular reinforcement belt interpositioned between the crown portion of said carcass and said tread, said reinforcement belt comprising, in cross-section, a pair of opposite, laterally disposed, crosswise spaced, first and second plies of a first cord material, each of said first and second plies being folded to form two respective flap portions having ends directed toward an equatorial plane of the tire and respective folded margins directed away from said equatorial plane, one of the flaps of each said first and second folded ply confronting at least a portion of the other said respective flap, a first ply of second cord material having opposite terminal ends being disposed between homologous ends of one of the pairs of corresponding opposite, laterally disposed flap portions such that said one pair of opposite, laterally disposed flap portions

extends laterally beyond corresponding terminal ends of said first ply of second cord material in substantial alignment with said corresponding opposite terminal ends, and a second ply of said second cord material having opposite terminal ends, said second ply of second cord material being disposed adjacent said first ply of second cord material such that said second ply of second cord material does not extend laterally beyond the folded margins or between the confronting flap portions of the first and second folded plies, whereby said first and second plies of the first cord material are positioned at the marginal ends of said reinforcement belt and said first and second plies of the second cord material are positioned at the median portion of the reinforcement belt.

Re. 30,616

BOX FOR AMPOULES HAVING A PACKAGING INSERT THAT PROVIDES A CLOSURE ARRANGEMENT AND REINFORCEMENT

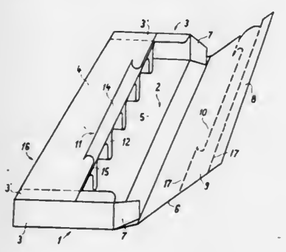
Otto Hofer, Schaan, Liechtenstein, assignor to Interondo AG, Buchs, Switzerland

Original No. 4,186,835, dated Feb. 5, 1980, Ser. No. 950,179, Oct. 10, 1978. Application for reissue May 13, 1980, Ser. No. 149,531

Claims priority, application Switzerland, May 26, 1978, 5771/78

Int. Cl.³ B65D *5/54, 83/04*

U.S. Cl. 206—443 **5 Claims**



1. A box for packaging elongate articles, such as ampoules, comprising a box body formed by folding and gluing operations and including a rear wall having two side edges, a bottom edge and a top edge, two side walls respectively extending forward from said side edges of said rear wall and having parallel front edges, a front wall extending between said front edges of said side walls, said front wall being of less area than said rear wall, thereby forming with said side walls an open area, a cover extending from said top edge of said rear wall and formed to cover said open area, means for detachably securing said cover to said front wall, and an insert for packaging the elongated articles and including firstly a support formed and secured to lie against the inside surface of said front wall for the purpose of strengthening said front wall and secondly a corrugated cardboard strip adhered to said support for receiving the elongated articles respectively in corrugations thereof, said front wall and said support being formed to provide a pocket open toward the top of the box, said means for detachably securing said cover to said front wall comprising a tongue portion formed on said cover for insertion into said pocket.

Re. 30,617

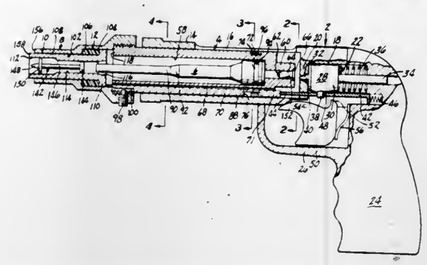
POWER ACTUATED TOOL

David F. Butler, Hamden, and Elmer R. Hodil, New Haven, both of Conn., assignors to Olin Mathieson Chemical Corporation, New Haven, Conn.

Original No. 3,341,101, dated Sep. 12, 1967, Ser. No. 484,592, Sep. 2, 1965. Application for reissue Aug. 10, 1979, Ser. No. 65,682

Int. Cl.³ B25C *1/14*

U.S. Cl. 227—8 **10 Claims**



1. A power-actuated tool including a receiver having a front and rear portion, barrel means slidably mounted within said front portion for movement between a breech open position and a breech closed position, said barrel means including a breech end and a muzzle end, firing pin means mounted in said rear portion for movement between a cocked position and a fired position, cocking means operably connected to said firing pin means to move said firing pin means from its fired position to its cocked position, sleeve means attached to the muzzle end of said barrel means, guide means mounted within said sleeve means for relative axial movement therewith, and sensing means mounted in said barrel means for relative movement therewith, said sensing means being in engagement with said cocking means and with said guide means when said barrel means is in its breech closed position with said guide means extending from the muzzle end of said sleeve means, whereby said guide means must be moved toward said rear portion of said [housing] *receiver* with respect to said sleeve means to move said firing pin means to its cocked position.

Re. 30,618

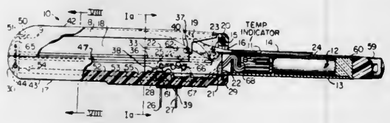
COLLAPSIBLE PORTABLE ELECTRIC HAIR CURLING IRON

Kenneth A. Van Dyck; James B. Wyatt, both of Westport; Charles F. Stephenson, Rowayton, and Scott W. Miller, Stratford, all of Conn., assignors to The Gillette Company, Boston, Mass.

Original No. 4,101,757, dated Jul. 18, 1978, Ser. No. 703,581, Jul. 8, 1976. Application for reissue Mar. 5, 1979, Ser. No. 17,338

Int. Cl.³ A45D *1/04;* **H05B** *3/06;* **H01R** *11/02*

U.S. Cl. 219—225 **26 Claims**



1. A curling iron comprising:

a hollow handle having an open end;

heat conducting means arranged in said handle for telescopic movement therein between a first position projecting from said *open end of said* handle and a second position substantially enclosed within said handle;

an electric heat generating element associated with said heat conducting means for heating said heat conducting means; and

electrical connector plug means *in said handle, said plug means being* electrically connected to said heat generating element and adapted to connect said heat generating element to an external source of power, said plug means being coupled to said heat conducting means for movement therewith and having bearing means projecting from said plug means for cooperating with means on said handle [for] *, said bearing means* moving said plug means between a first plug position projecting from said handle for [conducting electrical energy to said heat generating element] *connection to an external power source* when said heat conducting means is in said first position and a second plug position substantially entirely within said handle when said heat conducting means is in said second position in response to movement of said heat conducting means between said first and second positions.

Re. 30,619

CONTROL SYSTEM AND METHOD AND CONTROL DEVICE THEREFOR

Cloyd E. Decker, Indiana, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Original No. 4,110,601, dated Aug. 29, 1978, Ser. No. 795,403, May 9, 1977. Continuation of Ser. No. 550,456, Feb. 18, 1975, abandoned. Application for reissue Sep. 28, 1979, Ser. No. 80,110

Int. Cl.³ H05B *1/02*

U.S. Cl. 219—506 **17 Claims**



1. A control system comprising a source of energy means, heater means, indicator means, and thermostatically operated control means having selector means for setting said control means in a heater means non-temperature producing "off" setting or in a heater means temperature producing "on" setting, said control means having a single temperature responsive device operatively interconnected to said means to interconnect said heater means to said energy means when the output effect of said heater means is below a predetermined "on" setting of said control means and to disconnect said heater means from said energy means when the output effect of said heater means is above said predetermined "on" setting of said control means, said single temperature responsive device of said control means operating said indicating means to indicate that the output effect of said heater means is above a certain value *only* when said control means is in said "off" setting thereof.

Re. 30,620

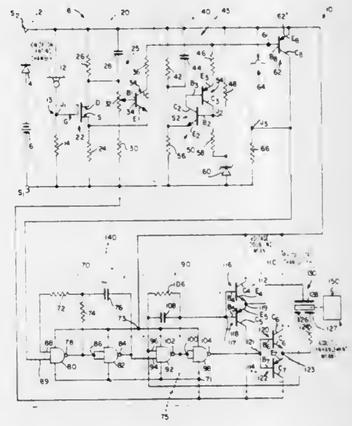
HIGH OUTPUT SMOKE AND HEAT DETECTOR ALARM SYSTEM UTILIZING A PIEZOELECTRIC TRANSDUCER AND A VOLTAGE DOUBLING MEANS

Louis P. Sweany, Carmel, and Michael T. Burk, Indianapolis, both of Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Original No. 4,096,473, dated Jun. 20, 1978, Ser. No. 749,024, Dec. 9, 1976. Application for reissue Jul. 3, 1978, Ser. No. 921,483

Int. Cl.³ G08B *17/10*

U.S. Cl. 340—629 **14 Claims**



7. A high output smoke [and heat] detector alarm system comprising, in combination, a smoke [and heat] detector which includes a low voltage power supply source, [an ambient temperature detecting means,] and at least one ionization sensing chamber; and a high output audible alarm means responsive to said smoke [and heat] detector *and* which includes a piezoelectric transducer and a voltage [double] *doubling* means whereby a voltage is supplied to said piezoelectric transducer which is double said power supply source voltage.

PLANT PATENTS

GRANTED MAY 19, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,717

CLIMBING MINIATURE ROSE PLANT

Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277

Filed Jan. 14, 1980, Ser. No. 111,842
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—6 **1 Claim**

1. A new and distinct variety of climbing miniature rose plant of hardy, spreading, much branched habit (rambler type), substantially as illustrated and described, characterized by flowers which are of a general deep red color, the buds and flowers resembling Orange Triumph (polyantha — not patented) in general shape but of smaller size, with an abundance of small glossy foliage; and further characterized by (A) ease of propagation by cuttings or by budding; the suppleness of the canes which leads this variety to use as a ground cover or (by budding) as a weeping standard (tree), and (B) the abundance of flowers borne, usually in clusters.

4,718

EVERGREEN AZALEA

Simon P. Meivogel, Perry, Ohio, assignor to The Cottage Gardens, Inc., Perry, Ohio

Filed Nov. 21, 1979, Ser. No. 96,472
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—57 **1 Claim**

1. The new and distinct variety of variegated evergreen azalea substantially as herein shown and described, characterized particularly by its unique variegated foliage, green leaves with white edges, which is different from any other known evergreen azalea.

4,719

IMPATIENS PLANT NAMED MOHAVE

John J. Ryan, 39877 Sundale Dr., Fremont, Calif. 94538

Filed Apr. 28, 1980, Ser. No. 144,161
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct form of Impatiens plant as described and illustrated, known by the cultivar name Mohave.

4,720

IMPATIENS PLANT NAMED PENOBSCOT

John J. Ryan, 39877 Sundale Dr., Fremont, Calif. 94538

Filed Apr. 28, 1980, Ser. No. 144,162
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct form of impatients plant as described and illustrated, known by the cultivar name Penobscot.

4,721

IMPATIENS PLANT NAMED DELAWARE

John J. Ryan, 39877 Sundale Dr., Fremont, Calif. 94538

Filed Apr. 28, 1980, Ser. No. 144,163
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct form of Impatiens plant as described and illustrated, known by the cultivar name Delaware.

4,722

CHRYSANTHEMUM PLANT

Jack M. Meek, and William E. Duffett, both of Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Jan. 8, 1979, Ser. No. 2,035
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—82 **1 Claim**

1. A new and distinct cultivar of *Chrysanthemum morifolium*, Ramat., plant known by the cultivar name Viva, as illustrated and described, and particularly characterized as to uniqueness by the combined characteristics of flat capitulum form; anemone capitulum type; red-bronze ray floret color, with minimal color oxidation; diameter across face of capitulum ranging from 45 to 60 mm. at maturity; uniform eight week flowering response; tall plant height, and upright branching pattern.

PATENTS

GRANTED MAY 19, 1981

ERRATA

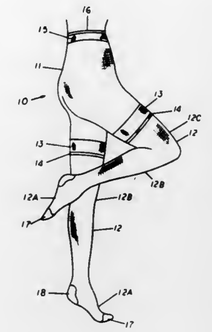
For CLASS	See PATENT NO.
434-111	4,267,646
434-301	4,267,647
052-657	4,267,652
493-203	4,267,768
157-017	4,267,867
411-098	4,267,870
250-226	4,267,961
249-165	4,267,998
369-220	4,268,039
525-193	4,268,433
564-305	4,268,458
528-502	4,268,470
008-685	4,268,668
369-007	4,268,724
369-044	4,268,745

PATENTS

GRANTED MAY 19, 1981

GENERAL AND MECHANICAL

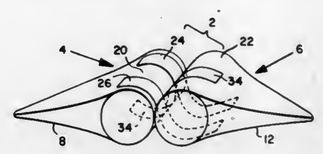
4,267,607
BODY GARMENT
Al Tino, 15 W. 38th St., New York, N.Y. 10018
Filed Jan. 10, 1980, Ser. No. 111,098
Int. Cl.³ A41B *9/04*
U.S. Cl. 2—409 **2 Claims**



1. A panty hose construction for facilitating the stretching and shaping of the panty hose so as to snuggly conform the panty hose to the shape of the wearer's body with a minimum of risk in snagging or running the panty hose when putting on said hose and for imparting a fashionable look to said hose when worn comprising a pants portion and a pair of connected leg portions integrally connected to said pants portion so as to define a smooth unitary and integrally formed panty hose, each of said leg portions including a foot section having a connected toe and heel portion and a leg section connected to said foot section; said leg section extending beyond the knee and to a substantially mid-portion of the thigh; a wide reinforcing thigh band of single ply defining the upper end of the leg section and which is arranged to circumscribe the said mid-thigh portion of the thigh; said reinforcing thigh band being integrally formed of a yarn having a denier greater than the denier of the yarn forming said leg section, said reinforcing wide thigh band providing an intermediate reinforced area for the wearer to grasp said thigh band without grasping said adjacent leg and pants portion for stretching and shaping the respective leg portion to the wearer's legs in the fitting of said hose to the wearer's body with a minimum of risk in snagging or running said hose, and said pants portion extending from the top of said reinforcing thigh band disposed at substantially the mid portion of the wearer's thigh to the waist of the wearer, and a reinforced waist band circumscribing the upper end of said pants portion.

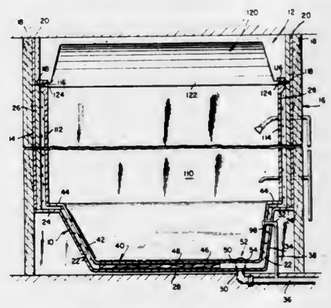
4,267,608
PROSTHETIC JOINT
F. William Bora, Jr., 404 Gulph Rd., Narberth, Pa. 19072
Filed Oct. 4, 1978, Ser. No. 948,387
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—1.91 **12 Claims**

1. A prosthetic joint for a finger, wrist or elbow comprising:
first and second implant members opposed to each other,
each implant member having a shank for implantation in a bone of a finger, wrist or elbow,
each implant member having opposed substantially cylindrical arcuate portions,
a first flexible band having one end secured to the first implant member and the other end secured to the second implant member with the band being wound in one direction on the arcuate portion of the first implant member and in the opposite direction on the arcuate portion of the second implant member, and
a second flexible band having one end secured to the first implant member and the other end secured to the second implant member, the second band being wound on the arcuate portion of the first implant member in the direction opposite to the direction of wind of the first band and being wound on the arcuate portion of the second implant



member in the direction opposite to the direction of wind of the first band,
said band being of resilient material and under tension to urge implant members together and being so tensioned that the extension position is the normal position of the joint,
said bands remaining in contact with said arcuate portions at all times during extension and flexion.

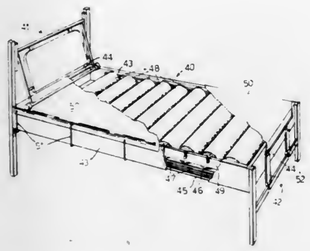
4,267,609
GASKET ASSEMBLY FOR COUPLING DRAINAGE OUTLET OPENINGS IN BATHTUB LINER INSTALLATIONS
Gilbert Altman, Bronx, N.Y., and Gerard Bellasalma, West Caldwell, N.J., assignors to Thermasol Ltd., Leonia, N.J.
Filed Dec. 18, 1978, Ser. No. 970,365
Int. Cl.² A47K *3/00*
U.S. Cl. 4—580 **14 Claims**



1. In a bathtub refurbishing installation in which a plastic bathtub liner is installed within the tub cavity of an existing bathtub with at least a portion of bottom wall of the liner spaced above the bottom wall of the bathtub and a outlet opening in the liner overlying a drainage outlet opening of the bathtub,
a gasket assembly for coupling the outlet openings of said liner and bathtub,
said gasket assembly including a hollow cylindrical gasket body sized to be inserted in the space between the bottom walls of said liner and said bathtub,
first sealing means at the upper end of said gasket body for mounting said upper end in sealed communication with the outlet opening of said plastic liner, and
second sealing means at the lower end of said gasket body

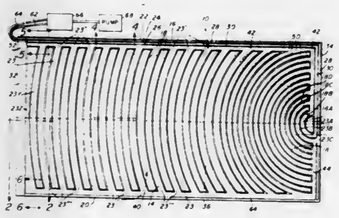
for mounting said lower end in sealed communication with the drainage outlet opening of said bathtub,
said gasket body having a side wall made of elastomeric material and being stretchable and compressible.

4,267,610
BODY SUPPORT
Richard S. Blakeway, 5 Yarrow Ct., Cleveland, Queensland, Australia (4163); Stanley R. Blakeway, Stafford, and Peter J. Olds, Maryborough, both of Australia, assignors to Richard S. Blakeway, Cleveland, Australia
Filed Jul. 6, 1979, Ser. No. 55,356
Int. Cl.³ A61H *7/00, 15/00;* **F01B** *0/00*
U.S. Cl. 5—60 **3 Claims**



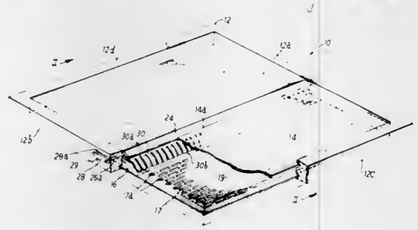
1. A body support including:
a base frame,
a substantially horizontal bearer member mounted on the base frame for reciprocal movement longitudinally with respect to said base frame,
a series of parallel resiliently deformable rollers arranged transversely on, and supported by, said bearer member,
a flexible top sheet secured on said base frame over and in contact with said rollers, and
means for reciprocating said bearer member to cause said rollers to rock back and forth in unison between said bearer member and said top sheet.

4,267,611
INFLATABLE MASSAGING AND COOLING MATTRESS
Arnold Agulnick, 33 Wales Ave., Avon, Mass. 02322
Filed Mar. 8, 1979, Ser. No. 18,720
Int. Cl.³ A61H *7/00;* **A47G** *27/08*
U.S. Cl. 5—453 **6 Claims**



1. An inflatable mattress comprising:
a top and a bottom sheet having head and foot ends and opposite sides, said sheets being heat-sealed together to form a plurality of inflatable ribs each extending from one side to the other and transversely of the body of the person lying on the mattress, said ribs being closed at one end and open at the other, alternate ribs having their open ends on one side of the mattress and the remaining ribs having their open ends on the other side of the mattress,
said sheets being made of a thin and flexible material so that the sheets collapse upon one another when the ribs are deflated, said ribs being arcuate in shape with the portion of each rib intermediate the sides lying closer to the head end of the mattress than the ends of the ribs so as to create in each rib a directional component perpendicular to the transverse direction of the mattress and toward the head end,
manifolds formed between the sheets by heat-sealed seams between them, one manifold extending along each side of the mattress,
said manifolds being connected to the open ends of the ribs on their respective sides of the mattress,
and means for introducing air under pressure alternately into first one manifold and then the other manifold and causing the ribs connected to each manifold to be inflated sequentially from one end of the mattress to the other.

4,267,612
BEEHIVES
Arthur E. Watts, Oakley House, Buckthorn Oak, Farnham, Surrey, and Alfred E. A. Green, Morris Lodge Hotel, Frensham Rd., Lower Bourne, Furnham, Surry, both of England
Continuation of Ser. No. 878,463, Feb. 16, 1978, abandoned.
This application Jan. 23, 1980, Ser. No. 114,564
Claims priority, application United Kingdom, Feb. 17, 1977, 6642/77
Int. Cl.³ A01K *47/06*
U.S. Cl. 6—4 B **24 Claims**

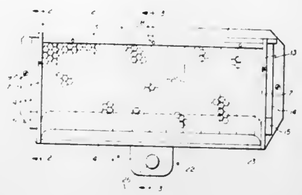


7. A bee escape comprising a shallow box-like structure having opposed first and second side walls,
a first cover member extending between corresponding portions of said first and second walls,
a second cover member extending between corresponding portions of said first and second walls,
the cover members being arranged in spaced relation with portions including an overlapping free edge of the first cover member and an overlapping boundary of the second cover member defining a tunnel between the internal surfaces of the overlapping portions of the cover members and common portions of the internal surfaces of the first and second walls, the tunnel communicating at one end with a first bee access and at the other end with a second bee access and gate means having a first operative position in which bees can move in either direction through the tunnel and a second operative position in which bees can move in only one direction through the tunnel.

4,267,613
BEE KEEPING APPARATUS
Dewey S. Hester, 878 Belanger St., Houma, La. 70360
Filed Aug. 31, 1979, Ser. No. 71,480
Int. Cl.³ A01K *47/02*
U.S. Cl. 6—10 **9 Claims**

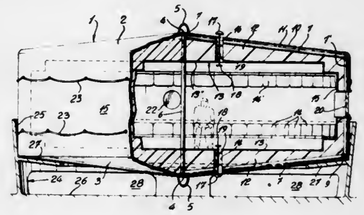
1. A bee keeping frame for forming a brooding area, said frame comprising in combination:
a pair of spaced parallel side rails interconnected by a back rail support which extends beyond terminal portions of said side rails and further interconnected by a split front rail support which terminates at ends of said side rails remote from said back rail support,

said back rail support having a ledge portion facing into said frame,
a wax brooding foundation extending from said ledge portion covering an inner area of said frame and terminating substantially along the length of and between outer faces of said split front rail support;
a guide for securing and orienting said wax brooding foundation to said frame defined by:



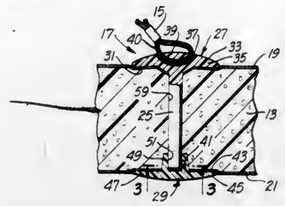
an elongate strip of substantially U-shaped configuration having a top guide portion and bottom guide portion interconnected by a curved bent portion between which said wax brooding foundation is interposed and wherein said guide has a handle extending from said bent portion away from the "U".

4,267,614
LIFE-SAVING APPARATUS
Axel Anderson, 5333 Sherbrooke St. East, Apt. 1013, B, Montreal Quebec, Canada (H1T 3W2)
Filed Nov. 2, 1979, Ser. No. 90,565
Int. Cl.³ B63C *9/06*
U.S. Cl. 9—4 R **2 Claims**



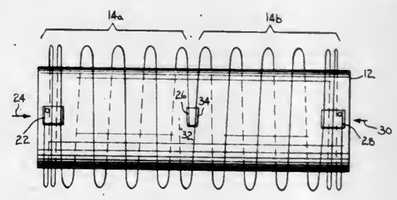
1. A life-saving apparatus consisting of a buoyant vessel generally in the shape of a hollow closed cylinder and of a rigid construction having a sidewall and two end walls, wherein said cylinder is provided with a hermetically-sealable door in its side wall, also provided with two ventilation apertures located in both end walls of said cylinder, further provided with a first rigidly-secured set of seats adjacent a first end wall, and a second rigidly secured set of seats adjacent said second end wall, said first set of seats being upside up and the second set of seats being upside down when said vessel is in a position such that said first end wall is the floor of said vessel, whereby said second set of seats assumes a lower upside-up position when said vessel is overturned in heavy seas, and said first row of seats assumes an upper, upside-down position, said cylinder being provided with a rigid skeletal structure consisting of a central pole, at least two radially-projecting members in each end wall of said cylinder and rigidly secured to said vertical pole, said radially-projecting members secured at their respective outer ends to a circular peripheral member located within the junction of the respective end walls with said side wall, and further consisting of additional poles, parallel to said central pole, extending within said side wall and interconnecting said circular peripheral members.

4,267,615
LEASH TO SURF MAT CONNECTOR
Robert B. Nealy, 129 Ladera La., San Clemente, Calif. 92672
Filed May 15, 1978, Ser. No. 906,402
Int. Cl.³ A63C *15/06*
U.S. Cl. 9—310 E **9 Claims**



1. A surfing device comprising:
a panel which is sufficiently buoyant to float in water, said panel having first and second faces;
a connector including a shank member and a head member coupled to one end of the shank member;
said head member having an inner surface which confronts said first face of said panel and an exposed smooth outer surface, said shank member projecting into said panel and extending toward said second face of said panel;
said connector including a coupling member having a passage therein which receives the other end of the shank member and means for attaching the coupling member to the shank member adjacent said other end thereof with said other end of said shank member being received by said passage;
said coupling member having an inner surface which confronts the second face of the panel whereby the head member and the coupling member are separated by said panel and the connector is attached to said panel, said coupling member having an exposed smooth outer surface;
a leash; and
means for attaching the leash to at least one of said members whereby the connector attaches the leash to the panel.

4,267,616
ROTARY SWEEPING BROOM
Frederick B. Hunt, Wauwatosa, Wis., assignor to Milwaukee Dustless Brush Co., Milwaukee, Wis.
Filed Sep. 15, 1978, Ser. No. 942,778
Int. Cl.³ A46B *7/10*
U.S. Cl. 15—182 **58 Claims**



1. A rotary sweeping broom comprising:
a central core extendable longitudinally along the axis of rotation of the broom;
a helically coiled sweeping brush means having a first end attached to said core and having the turns extending along the periphery of said core, the turns and second end of said

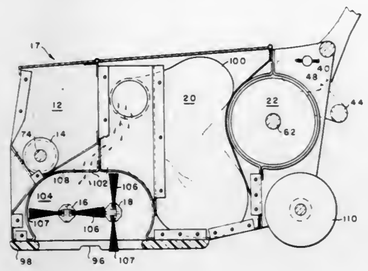
sweeping brush being free to move circumferentially about said core in an unrestrained manner in either direction of circumferential movement.

4,267,617

CARPET SCRUBBER WITH IMPROVED BRUSH

Robert S. Brown, Spartanburg, and Larry S. Satterfield, Moore, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Jul. 16, 1979, Ser. No. 57,864
Int. Cl.[3] A47L *5/30*
U.S. Cl. 15—320 **1 Claim**



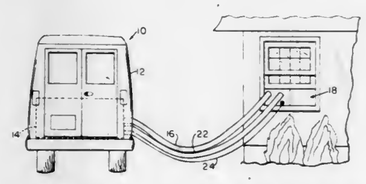
1. A carpet cleaning apparatus comprising: a frame, a housing mounted on said frame, means forming a powder dispensing chamber, a brush chamber and a vacuum chamber in said housing, a powder dispensing roll in said dispensing chamber, a collection bag in said vacuum chamber, brush means in said brush chamber, a single drive means driving said powder dispensing roll and said brush means, and handle means to move said carpet cleaning apparatus over an area to be cleaned, said brush means including at least two brushes, each of said brushes having a plurality of groups of rows of elongated bristles with the bristles in each row forming a substantially straight line and being substantially the same length, each of said groups of rows of bristles having an outer circumference substantially less than an arc with a subtended angle of 20° and with the groups of one brush being out-of-phase with the groups of the other brush, each of said brush means having an axis of rotation substantially parallel to each other which are spaced from one another a distance slightly greater than the radial length of said rows of bristles, said drive means rotating said brushes in a cylindrical path to allow the interdigitation of said brushes to allow intensified cleaning action on the carpet to be cleaned.

4,267,618

MOBILE CLEANING APPARATUS HAVING ADJUSTABLE WINDOW CLOSURE PANEL ASSEMBLY

John F. Cuscovitch, 42 Woodbridge Ave., East Hartford, Conn. 06108

Filed Oct. 19, 1979, Ser. No. 86,536
Int. Cl.[3] A47L *9/00*
U.S. Cl. 15—339 **10 Claims**



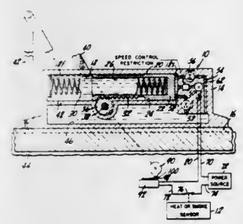
1. In combination with a mobile cleaning apparatus including a vehicle and a cleaning machine carried by the vehicle and having at least one flexible hose attached thereto, a panel assembly having at least one variable dimension for positioning in an opening defined by a window frame and a movable window supported by the frame, said panel assembly having an aperture therein receiving an associated portion of said hose therethrough, said aperture closely complementing said associated portion.

4,267,619

CONTROLLED RELEASE DOOR HOLDER

Charles R. Suska, Roxbury, Conn., assignor to The Stanley Works, New Britain, Conn.

Continuation-in-part of Ser. No. 220,815, Jan. 26, 1972, abandoned. This application Aug. 9, 1972, Ser. No. 279,198
Int. Cl.[2] E05F *3/10, 3/12, 3/22*
U.S. Cl. 16—48.5 **5 Claims**



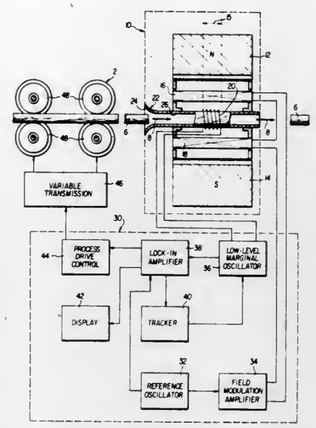
1. A controlled release door holder comprising a housing having a portion defining a cylinder for containment of a fluid, a piston received in the cylinder for axial movement therein, the piston dividing the cylinder into a first variable volume section on one side of the piston and a second variable volume section on the other side of the piston, a spring in the first section of the cylinder compressed between the housing and the piston to urge the piston in a direction in the cylinder to reduce the volume of the second section of the cylinder, and increase the volume of the first section, means responsive to any movement of the door relative to the door opening for moving the piston axially in the cylinder a distance that is a function of the degree of such movement of the door, the movement of the piston being in the direction of the spring to compress it as the door is moved in a direction from closed to open, a first fluid flow path in the housing, the first flow path affording flow of fluid from the first section to the second section and including a check valve for preventing flow of fluid through the first path from the second section to the first section, a second fluid flow path in the housing, the second flow path affording flow of fluid from the second section to the first section and including a pressure relief valve for preventing fluid flow therethrough in the absence of the generation of a set minimum pressure in the second section, a third fluid flow path in the housing, the third fluid flow path affording flow of fluid from the second section to the first section, a controllable valve in the third flow path for selectively preventing or permitting fluid flow along said third path, and a sensing means responsive to the position of the door relative to the door opening to open the controllable valve when the door is in any position between slightly opened and fully closed to enable flow of fluid from the second section to the first section.

4,267,620

METHOD AND APPARATUS FOR CONTROLLING TEXTILE WORKING SYSTEMS EMPLOYING NMR DETECTOR

John D. Allen, Jr., Knoxville, Tenn., assignor to Special Instruments Laboratory, Inc., Knoxville, Tenn.

Filed Aug. 17, 1978, Ser. No. 934,536
Int. Cl.[3] G01R *33/08;* **D01H** *5/32*
U.S. Cl. 19—239 **10 Claims**



2. A method of controlling a textile working system comprising the steps of:

producing a signal related in value to the number of a specific type of atom bonded to fibrous material in a known length of a traveling fibrous body being worked in the system by detecting the amount of energy absorbed by the length of the fibrous body at nuclear magnetic resonance; and

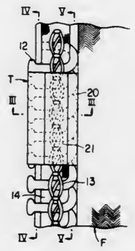
varying an operating parameter of the textile working system responsive to variations in said signal to vary the fibrous mass per unit length.

4,267,621

SLIDE FASTENER

Shunji Akashi, Kurobe, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Oct. 1, 1979, Ser. No. 80,703
Claims priority, application Japan, Oct. 9, 1978, 53-138712[U]
Int. Cl.[3] A44B *19/36*
U.S. Cl. 24—205.11 R **4 Claims**



1. A slide fastener comprising:

(a) a pair of carrier tapes;

(b) two rows of continuous interlocking fastener elements made of a synthetic-resinous material and secured by lines of sewn stitches to inner edges of said respective tapes;

(c) a slider including a slider body, a pair of side flanges provided on the opposite side edges thereof and a neck portion provided on the flared front end of said slider body to define with said slider body and said side flanges a Y-shaped channel to slidably receive said interlocking fastener elements for opening and closing thereof; and

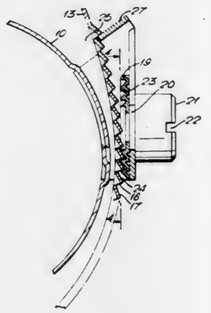
(d) a top stop made of a synthetic-resinous material and comprising a platelike body substantially rectangular in plan molded on and longitudinally of a plurality of uppermost fastener elements of one of said rows of fastener elements so as to extend over the substantially entire width of said one row of fastener elements and an elongated ridge portion provided on and longitudinally of said platelike body so as to extend along its linear region registering with one of said lines of sewn stitches.

4,267,622

HOSE CLIP APPARATUS

Roy L. Burnett-Johnston, 270 Carlton Rd., Gidea Park, Romford, Essex, England

Filed Aug. 6, 1979, Ser. No. 63,723
Int. Cl.[3] F16H *33/00*
U.S. Cl. 24—274 WB **10 Claims**



1. Clip apparatus, comprising:

a housing;

a flexible spiral shaped strip having its first end secured to said housng and formed along its outer surface with a plurality of teeth, the end of said strip opposite that secured to said housing extending through said housing; and

a rotatable driving member slidably carried by said housing for longitudinal movement relative to said strip between first and second positions, said driving member having a substantially flat face formed with a second plurality of teeth so shaped that they engage the teeth of said strip when said driving member is disposed in its first position and rotation of said driving member about an axis normal to said flat face causes expansion and contraction of the spiral shape of said strip, with the teeth of said driving member being disengaged from the teeth of said strip when said driving member is moved longitudinally towards the second end of said strip to the second position of said driving member so as to permit the spiral shape of the strip to be adjusted independently of rotation of the driving member.

4,267,623

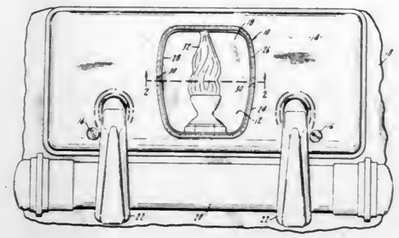
CASKET ORNAMENT STRUCTURE

Francis R. Christian, 411 Ashland Ave., River Forest, Ill. 60305

Continuation of Ser. No. 871,450, Jan. 23, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 76,202

Int. Cl.³ A61G *17/04*

U.S. Cl. 27—2 **6 Claims**



1. For use with a casket structure having a casket body closed on the bottom with four upstanding walls, a decorative mounting adapted to be mounted on the walls of such a casket, including a dish-shaped, outwardly convex unitary bracket adapted to be attached to the side walls of such a casket, an opening in the bracket with the edges thereof defining a rim, a decorative insert releasably positioned in the bracket opening and having a peripheral framing circumferential flexible skirt set in and conforming to the bracket opening so as to engage the rim, an ornament astride and mounted in the flexible skirt and visible from the outside, the ornament joining the skirt in a limited number of spaced locations so that the skirt can be easily flexed in areas where the ornament is not joined to it, and a releasable interlock between the insert skirt and the rim of the opening responsive to flexing of the skirt in the plane of the opening in the areas where the ornament is not joined to it to release or hold the insert in the bracket opening.

4,267,624

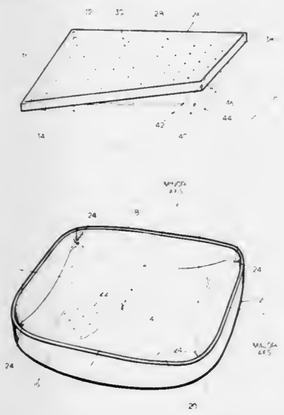
METHOD OF PLACING MASK MOUNTING PINS IN A CRT FACEPLATE

William F. Augsburger, Pickerington, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 22, 1979, Ser. No. 86,862

Int. Cl.³ H01J *9/18*

U.S. Cl. 29—25.15 **11 Claims**



1. The method of manufacturing a cathode ray tube including the steps of:

(a) forming a glass faceplate to a concave configuration,

(b) inserting a plurality of shadow mask support studs, in spaced apart relationship, into the concave side of said faceplate,

(c) selecting at least three of said studs to establish a reference plane and indexing a gauging mechanism therewith,

(d) measuring the distance of one of said nonselected studs is out of alignment with said reference plane,

(e) comparing said measured distance to a mathematical model representing the convex surface of a flexible shadow mask, one section of which has been deflected out of plane equivalent to the out of plane distance of said nonselected stud,

(f) calculating the distance between the convex surface of the shadow mask model and the actual concave surface of the faceplate at a plurality of locations,

(g) resetting the position of the said non-selected stud tooling so that the distance between the shadow mask and the faceplate is within tolerance at said locations on the next to be manufactured faceplate.

4,267,625

ASSEMBLY METHOD FOR LARGE DIAMETER ROLLING BEARINGS

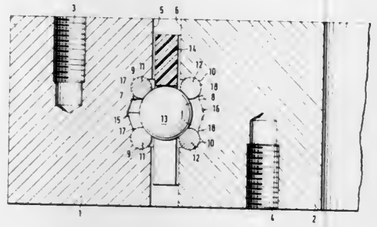
Georg Gugel, Nuremberg, Fed. Rep. of Germany, assignor to Industriewerke Schaeffler OHG, Herzogenaurach, Fed. Rep. of Germany

Division of Ser. No. 930,020, Aug. 1, 1978, abandoned. This application Apr. 27, 1979, Ser. No. 33,964

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1977, 2734712

Int. Cl.³ F16C *43/04*

U.S. Cl. 29—148.4 A **4 Claims**



1. A method for the assembly of large diameter rolling bearings comprised of two concentric supporting rings provided at their outer surfaces facing each other with circumferential grooves having 2 raceway wire seats each arranged in axial distance from each other for receiving raceway wires and provided with a circumferential cavity between the seats with a greater radial depth than the seats comprising inserting raceway wires into the circumferential cavity with their ends abutting with radial play and pressing the raceway wires with axial pressure into their seats where they are retained under preload with their ends abutting.

4,267,626

FIBER BED ELEMENT AND METHOD FOR MAKING THE SAME

Alvah B. Terry, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Apr. 25, 1979, Ser. No. 33,366

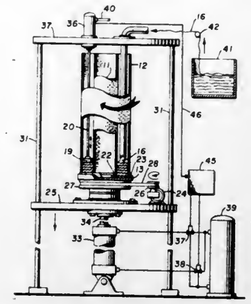
Int. Cl.³ B23P *15/16*

U.S. Cl. 29—163.5 F **10 Claims**

1. The method of making a fiber bed element, comprising:

a. feeding a roving of fibers into the annulus formed by a pair of concentric foraminous screens while rotating said screens, and

b. applying a packing force to the roving to compact said roving to a density of 80 to 320 Kg per cubic meter, said packing force being applied in a direction generally parallel to the axis of the screens so that the roving is compacted in an axial direction.



4,267,627

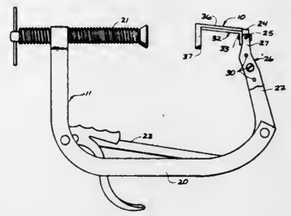
ATTACHMENT FOR VALVE SPRING DEPRESSING TOOL

Ray Douglas, 210 S. Madison, Box 396, Thompson Falls, Mont. 59873

Filed Dec. 17, 1979, Ser. No. 104,440

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—217 **7 Claims**



1. A spring depressing attachment for a valve spring depressing tool that enables selective compression of valve return springs on engine cylinder heads wherein the valve return springs are situated within axial cylinder head recesses, said attachment comprising:

a yoke member;

bracket means on the yoke member for pivotably mounting the yoke member to the valve spring depressing tool about a first axis;

an elongated spring depressing member pivotably mounted to the yoke about a second axis perpendicular to the first axis and having a length dimension greater than the depth of the axial cylinder head recess;

said spring depressing member having an elongated leg extending outwardly from the yoke; and

a ring at an outward end of the leg adapted to extend into an axial recess within the cylinder head and engage a valve return spring therein.

4,267,628

APPARATUS FOR INSTALLING CABLE COVERINGS

Hyman Izraeli, West Caldwell, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

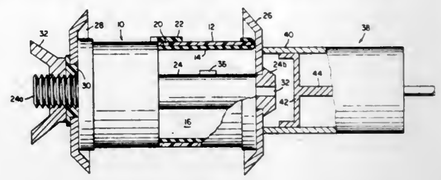
Filed Aug. 23, 1979, Ser. No. 69,223

Int. Cl.³ B23P *19/02*

U.S. Cl. 29—235 **22 Claims**

1. Apparatus for expansion of a sleeve member assembled interiorly of an outer member of hollow self-sustaining configuration, such assembly having opposed first and second open ends and a passage therebetween circumscribed by said sleeve member, said apparatus comprising:

support means for receiving said assembly and for fluid sealing said passage, including first and second end closures and spacer means supporting said first and second end closures for relative movement therebetween for placement of said first and second end closures in respective fluid sealed engagement with said first and second ends of said assembly;



fluid conduit means accessible exteriorly of and extending through said support means to an outlet in juxtaposition with said passage;

and, unidirectional flow valve means supported by said support means in registry with said conduit means and said passage.

4,267,629

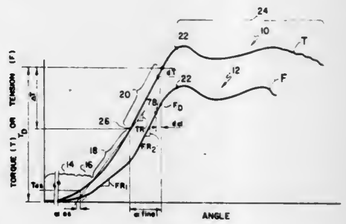
TENSION CONTROL OF FASTENERS

Siavash Eshghy, Pittsburgh, Pa., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Division of Ser. No. 912,151, Jun. 2, 1978, Pat. No. 4,179,786, which is a continuation-in-part of Ser. No. 712,554, Aug. 9, 1976, abandoned, and Ser. No. 766,429, Feb. 7, 1977, Pat. No. 4,106,570. This application Apr. 19, 1979, Ser. No. 31,359

Int. Cl.³ B23P *19/06*

U.S. Cl. 29—407 **6 Claims**



1. A method of tightening a threaded fastener sequentially through regions of relatively free rotation, incipient clamp up, and increasing fastener stress toward a region of plastic deformation, comprising

applying torque to and threadably advancing the fastener;

sensing applied torque and producing an output signal representative thereof; and

filtering the output signal in one region to a greater extent than in a second region of tightening.

4,267,630

METHOD OF FABRICATION OF CORELESS HOLLOW FILAMENT SEPARATORY MODULE

Robert E. Sebring, Westwood, Mass., assignor to Albany International Corp., Menands, N.Y.

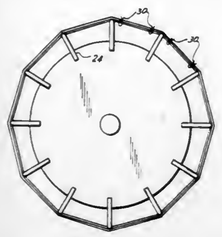
Filed Jun. 28, 1979, Ser. No. 52,861

Int. Cl.³ B23P *17/00*

U.S. Cl. 29—411 **6 Claims**

1. The method of fabricating a coreless filament separatory module comprising the steps of providing a drum with a plural-

ity of radially outwardly projecting vanes extending axially of the drum and spaced so that the tangential distance between tips of the vanes is substantially equal to or greater than the desired length of ultimate filament bundle, winding the filament about the vanes by relative motion between the drum and



the filament being wound to provide a pattern of left and right hand helices with multiple crossover points formed and in which the bundle is thereafter slid axially of said drum and the turns roped together at spaced points thereby trellising the crossover points and segments of the bundle are tied and cut between the vanes to produce the desired length bundle.

4,267,631

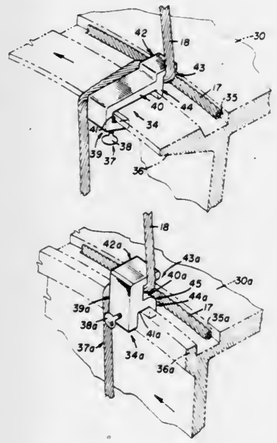
DEVICE AND METHOD FOR REPLACING ROPE CARRIERS ON DRYER ROLLS OF PAPER MAKING MACHINES

Verlin R. Chase, 1246 Simmons, Antioch, Calif. 94509

Filed May 29, 1979, Ser. No. 42,857

Int. Cl.³ B23P *19/00;* **F16H** *7/08;* **B21F** *1/10;* **B25B** *27/14*

U.S. Cl. 29—426.1 **13 Claims**



1. In a paper making machine having a plurality of dryer rolls rotatably mounted therein, a rope installing guide device for replacing a rope on one of the rotatable dryer rolls of the paper making machine, said dryer roll having a annular groove in part defined by an outboard flange disposed adjacent to an end thereof for normally receiving a pair of ropes therein, said guide device comprising

fastening means for releasably clampingly attaching said guide device to an inside and outside of said flange of said dryer roll, and

guide means for receiving and moving at least one of said ropes into the groove formed on said dryer roll, upon dislodgement of said rope from said groove, in response to rotation of said dryer roll, said guide means including guide flange means extending inwardly in at least partial overlying relationship relative to said annular groove to define a circumferential extending recess between said guide flange means and said annular groove for permitting said rope to be positioned in said recess in captured relationship under said guide flange means and against a leading side of said guide means to automatically move said rope into said annular groove upon rotation of said dryer roll.

12. A method for replacing a dislodged, endless rope back onto a rotatable dryer roll of a paper making machine having a plurality of dryer rolls, said dryer roll having an annular groove in part defined by an outboard flange disposed adjacent to an end thereof for normally receiving a pair of ropes therein, comprising the steps of

clampingly attaching a guide device to said dryer roll, to an inside and outside of said flange of said groove, and in captured relationship relative to a convoluted portion of said rope, said attaching step including the step of positioning a guide flange of said guide device in at least partial overlying relationship relative to said groove to define a recess thereat and capturing said rope in said recess to prevent dislodgement of said rope from said recess upon rotation of said dryer roll,

placing said rope over said guide device, and rotation said dryer roll to engage a leading side of said guide device with said rope to automatically reposition said rope in said groove.

4,267,632

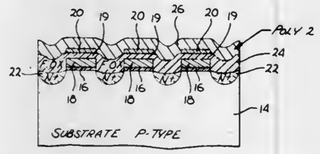
PROCESS FOR FABRICATING A HIGH DENSITY ELECTRICALLY PROGRAMMABLE MEMORY ARRAY

Joseph Shappir, Saratoga, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Oct. 19, 1979, Ser. No. 86,273

Int. Cl.³ H01L *21/28*

U.S. Cl. 29—571 **11 Claims**



1. A process for fabricating a metal-oxide-semiconductor, electrically programmable memory array on a substrate, comprising the steps of:

forming a first plurality of parallel, spaced-apart, polysilicon lines insulated from said substrate;

doping elongated regions in said substrate between said first lines, in alignment with said first lines;

forming a second plurality of parallel, spaced apart, polysilicon lines insulated from said first lines and said doped regions, said second lines generally transverse to said first lines and overlying said first lines and doped regions; and

etching said first lines in alignment with said second polysilicon lines so as to form a plurality of floating gates from said first lines, each of said floating gates being disposed between a pair of said doped regions and being insulated from, and disposed below, one of said second lines;

whereby a plurality of electrically programmable floating gate memory devices are formed in a high-density memory array.

4,267,633

METHOD TO MAKE AN INTEGRATED CIRCUIT WITH SEVERABLE CONDUCTIVE STRIP

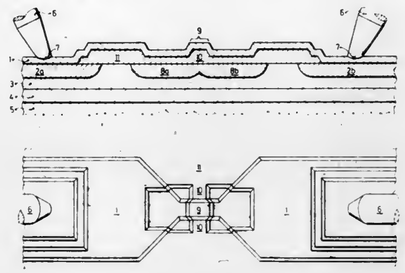
Hartmut Seiler, Reutlingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Division of Ser. No. 799,246, May 23, 1977, abandoned. This application Jan. 4, 1979, Ser. No. 814

Claims priority, application Fed. Rep. of Germany, Jun. 4, 1976, 2625089

Int. Cl.³ H01L *21/28, 23/48*

U.S. Cl. 29—578 **2 Claims**



1. Method to make an integrated circuit by planar technology having a metallic strip (**1**) adapted to be severed at a predetermined location (**9**) on the surface area of the chip by application of electrical current to said strip.

comprising the steps of

providing a silicon substrate chip (**3**, **4**, **5**);

forming a zone of lesser heat dissipation capacity than surrounding areas at said predetermined location beneath the metallic strip to provide a burn-out point at said predetermined location including

forming a layer (**11**) of silicon oxide on said substrate chip of increased thickness with respect to surrounding areas at said predetermined location by utilizing a masking pattern having two windows adjacent said predetermined location (**9**) while leaving a bridge at said location between said two windows, and diffusing doping material into said chip into the zones of said windows to form diffusion zones (**8***a*, **8***b*) in said chip adjacent to and beneath said predetermined location (**9**) and forming a covering silicon oxide layer (**11**) at said diffusion zones (**8***a*, **8***b*) and over said bridge of silicon oxide whereby the silicon oxide bridge will have a thickened portion (**10**) with respect to the adjacent areas of the silicon oxide layer (**11**);

and applying a metallic conductive layer (**1**) in strip form over the silicon oxide layer located over said diffusion zones (**8***a*, **8***b*) and over said thickened portion (**10**), to provide said zone of lesser heat dissipation capacity at said location (**9**) than the heat dissipation capacity of the oxide layer (**11**) in areas surrounding said predetermined location.

4,267,634

METHOD FOR MAKING A CHIP CIRCUIT COMPONENT

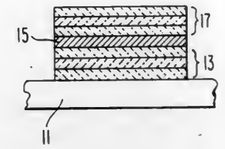
Charles L. Wellard, Oaks, Pa., assignor to American Components Inc., Conshohocken, Pa.

Filed Apr. 5, 1978, Ser. No. 893,288

Int. Cl.³ H01C *17/06*

U.S. Cl. 29—620 **2 Claims**

1. A method for making a chip circuit component comprising the steps of: depositing individually a first plurality of thin layers of wet ceramic material in a stacked form on a sheet means and partially drying each of said thin layers of ceramic between each layer deposition thereof; depositing a pattern of electrical resistance material in a wet form onto the uppermost, partially dried, ceramic layer in said stack and partially drying said electrical resistance material; depositing individually a second plurality of thin layers of wet ceramic material in a stacked form onto the partially dried electrical resistance material and partially drying each of said thin layers of ceramic between each layer deposition thereof; further drying the above described stack consisting of the partially dried first plurality of ceramic layers, the partially dried electrical resistance material and the partially dried second plurality of ceramic layers; cutting the further dried, above described, stack into a plurality of chips each of which has a section of said electrical resistance material and abutting two edges thereof surrounded by dried ceramic material, firing said plurality of chips until the ceramic material is hardened into a solid ceramic housing; and securing terminal means to said two edges of the ceramic material and forming said terminal means integral with the resistance material disposed in said solid ceramic housing.



4,267,635

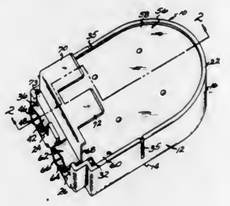
METHOD OF MAKING A SOLID STATE ELECTRICAL SWITCH

Robert F. Blaha, Dedham, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 682,421, May 3, 1976. This application Mar. 8, 1978, Ser. No. 884,779

Int. Cl.³ H01C *7/00*

U.S. Cl. 29—622 **2 Claims**



1. In a method employing a solid state electrical switch having an element with first and second contact surfaces separated by a thickness of material having a relatively constant (base) resistivity at temperatures below an anomaly temperature and rapidly increasing resistivity with increasing temperature above said anomaly, the switch being subjected to a given maximum applied voltage across the thickness of the element, comprising the step of selecting the thickness of the element so that the voltage gradient is between approximately 1000 and 1614 volts per centimeter and forming the element so that its base resistivity is approximately 250 ohm cm or higher.

4,267,636

WELDED ARMORED CABLE CUTTING TOOL

Lucien C. Ducret, 8 Apache Pl., Riverside, Conn. 06878

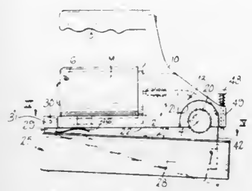
Filed Aug. 29, 1979, Ser. No. 70,893

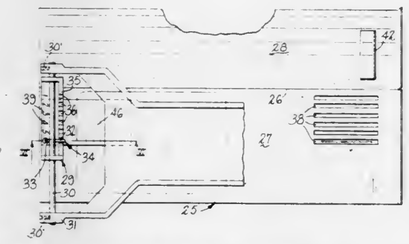
Int. Cl.³ B21F *13/00;* **B26B** *27/00*

U.S. Cl. 30—90.3 **5 Claims**

1. A cutting tool for making an axially extended incision in the surface of an armored cable comprising, a chassis having a substantially flat lower surface, means supporting a circular saw blade on the chassis in a position such that the blade's

periphery projects below the plane of said lower surface, a motor on the chassis and a gear train connecting the motor to the saw blade, in combination with a cable guide constituted by an upper flat panel and a side flat panel, the panels lying in planes which intersect at a wide angle, the upper panel being pivotally secured to the chassis at a point remote from the saw and being provided with a plurality of parallel elongated openings dimensioned and laterally disposed to permit passage therethrough of the periphery of the saw blade, the path of

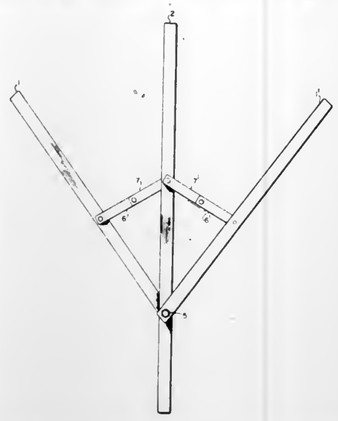




pivotal movement of the cable guide being toward and away from the lower surface of the chassis, and said openings lying parallel to the line of intersection of the panels, spaced at different distances therefrom, and spaced from the pivot point of the panel a distance equal to the spacing of the saw from said pivot point, and means associated with the pivot point of the panel for holding the cable guide selectively in different laterally adjusted positions corresponding to registry of the saw blade selectively with each elongated opening.

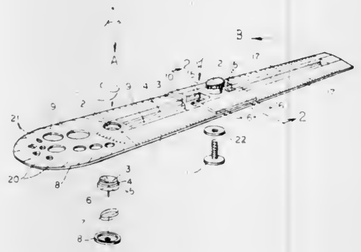
4,267,637
DEVICE FOR SETTING-UP A BASEBALL DIAMOND
Sheldon A. Paull, 9248 Lavergne, Skokie, Ill. 60076
Continuation-in-part of Ser. No. 847,661, Nov. 1, 1977, abandoned. This application Jun. 25, 1979, Ser. No. 51,676
Int. Cl.³ G01B *5/24;* **G01C** *15/00*
U.S. Cl. 33—1 G **3 Claims**

1. A device for setting-up a baseball diamond comprising: a central prong and two secondary prongs; wherein said central prong and adjacent secondary prongs are pivoted together by a means; wherein said secondary prongs are spaced equidistant on opposite sides of the central prong by means of a separate bar pivoted between each secondary prong and the central prong; wherein said bar consists of two equal sections; wherein one section is pivoted to the secondary prong and the other section is pivoted to the central prong and both sections are pivoted by means of a swivel hinge; wherein said secondary prongs are at a 90° angle to each other and each secondary prong is at a 45° angle to said central prong; and wherein home plate is located at said means, first base is located at a given distance in the direction of the right-hand secondary prong, and third base is located at a given distance in the direction of the left-hand secondary prong, and second base is located at a given distance in the direction of the central prong and the



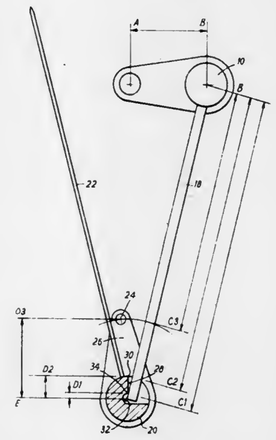
pitcher's rubber is located at a given distance in the direction of the central prong.

4,267,638
PROTECTED PIVOT ADJUSTABLE SCALED COMPASSES
Richard A. Heinz, 76 Woodhaven Rd., Glastonbury, Conn. 06033
Continuation-in-part of Ser. No. 891,899, Mar. 30, 1978, abandoned. This application Jul. 12, 1979, Ser. No. 56,828
Int. Cl.³ B43L *9/04*
U.S. Cl. 33—27 C **4 Claims**



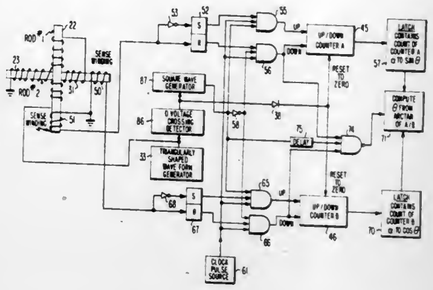
1. A protected pivot adjustable scaled compass comprising a molded plastic ruler-like body with an elongated slot along its centerline, said body having scales along the edges thereof, said body having means for a retractable spring loaded protected pivot at one end of said body, said protected pivot made of transparent material in the form of a button and scribed with cross hairs, a molded slide of transparent material that fits within said body slot and overlaps said body scales, said slide having a plurality of holes at the edges aligned with said centerline, hairlines inscribed in said slide, normal to the slide and body centerline which intersect said holes in said slide, said body having on its upper surface grooves parallel to said elongated slot on either side thereof, and said slide having means mating with said grooves for sliding movement therealong, a hole through the center of said slide that permits the insertion of a locking screw with a flat head that engages an elongated recess in the body along said slot in the bottom surface of said body, said screw passes through the slide and engages a thumb nut, further comprising a precise thickness washer having a hole in its center that fits over the locking screw, said washer has a diameter the same as said locking screw head, said washer capable of being positioned below said body and slide, one side of the washer resting in said recess of the body slot and the other side of the washer resting against the underside of the head of the locking screw with said locking screw passing through holes in said washer and slide and engaging said thumb nut, or alternately said washer capable of being positioned above said body and slide, one side of said washer resting on top of the slide and the other side of the washer resting against the bottom of the thumb nut, with locking screw passing through said holes in said slide and washer and engaging the thumb nut, thereby permitting an adjustment in height of the body and slide above the surface to be marked in the former position when using ink to prevent a smear and permitting an adjustment in height of the body and slide so that the body and slide rest on the marking surface in the latter position when using a pencil or scribe for increased accuracy, the thumb nut being tightened to lock the slide in both positions.

4,267,639
INDICATING INSTRUMENTS
Barry D. Selfe, "Fourays", Capel, England
Filed Jun. 19, 1979, Ser. No. 49,970
Claims priority, application United Kingdom, Jun. 19, 1978, 27223/78
Int. Cl.³ G01B *3/22*
U.S. Cl. 33—172 R **8 Claims**



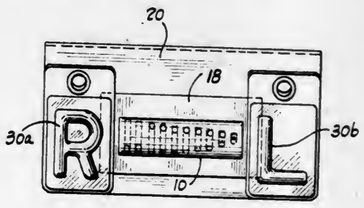
1. An indicating instrument comprising a first member which is mounted for pivotal movement about a first axis; a feeler secured to the first member; a lever arm having one end mounted on the first member and extended away from the first axis; a second member mounted for pivotal movement about a second axis which is parallel to and spaced from the first axis; a first abutment on the second member; a second abutment on the second member further from the second axis than the first abutment; and an indicator device operatively associated with said second member to give an indication corresponding to the angular movement of the second member, said lever arm engaging said second member for, when movement of the feeler rotates the first member, swinging the lever arm, turning the second member first by co-operation with the second abutment to give a certain sensitivity and then by cooperation with the first abutment to give a greater sensitivity.

4,267,640
SYSTEM FOR ASCERTAINING MAGNETIC FIELD DIRECTION
Chin T. Wu, North Brunswick, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Apr. 30, 1979, Ser. No. 34,743
Int. Cl.³ G01C *17/30*
U.S. Cl. 33—361 **10 Claims**



1. Magnetic field direction indicating means comprising:
first and second orthogonally positioned rods, each having a rectangularly shaped BH curve and a switching winding wound therearound;
sensing means for individually sensing a change in polarity of magnetization of said rods;
second means for supplying an alternating current having a triangularly shaped waveform through said switching windings to switch the polarity of magnetization of said rods between their upper and lower levels; and
third means for determining the arc tangent of the ratio of the differences in positive and negative currents required to switch each of said rods between its upper and lower levels.

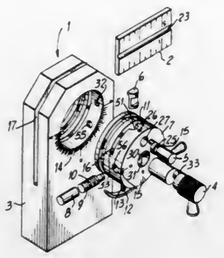
4,267,641
RADIOGRAPHIC FILM INCLINOMETER
Tamotsu Shinozaki, South Burlington, Vt.; Thomas E. Gallant, Norwood, Mass.; Robert S. D. Deane, Burlington, and Daniel Cunningham, Milton, both of Vt., assignors to Picker Corporation, Cleveland, Ohio
Filed Jul. 9, 1979, Ser. No. 55,776
Int. Cl.³ G01C *9/10*
U.S. Cl. 33—365 **7 Claims**



1. An inclinometer for use with radiographic film, the inclinometer comprising:
(a) body structure defining an array of columns lying in parallel planes and extending within said body structure said columns being substantially orthogonal to an axis and having different respective radial dispositions with respect to the axis, and
(b) substantially radiopaque inclination indicating material disposed for gravity responsive movement within the

respective columns as a function of orientation of the body structure relative to the horizontal.

4,267,642
ANGLE GAGE MECHANISM
Richard C. Stapleford, Miami, Fla.
Continuation-in-part of Ser. No. 963,292, Nov. 24, 1978, abandoned. This application Sep. 24, 1979, Ser. No. 77,967
Int. Cl.³ B43L *7/06*
U.S. Cl. 33—473 **6 Claims**

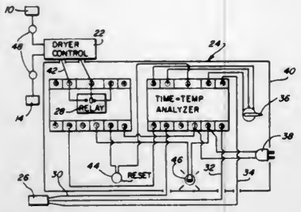


1. An angle gage mechanism to measure angles of surfaces in workpieces comprising, in combination, a frame having a cylindrical hole, said hole including a plurality of radially-extending loking cavities opening into its inner wall and positioned at mutually circumferentially-spaced, predetermined angles, and a longitudinal side slot perpendicular to the axis of said cylindrical hole and extending therethrough, a slidable ruler having a longitudinally-extending groove along one side and capable of being partially inserted in said slot, a cylindrical spindle rotatively received in said spindle hole and having a radially-extending partial slot in register with said side slot of said frame, said cylindrical spindle having a concentric axial cylindrical hole, and first and second radially-extending, diametrically-opposed through holes in communication with said axial hole, a first means for frictionally locking said slidable ruler in place within said radially-extending partial slot of said cylindrical spindle, said first means comprising a radially-extending aperture in said cylindrical spindle, open to the outer periphery thereof and rotatively angularly displaced with respect to said first and second radial holes, a ruler locking pin received in said radially-extending aperture and radially movable ruler for urging said ruler in abuting contact with the bottom surface of said partial slot; a second means including a first locking pin spring biased toward said axial hole and slidable in said first radially-extending hole and actuated at its inner end by eccentric control means carried in said axial hole in said spindle, receivable at its outer end in one at a time, selectively, of said cavities for locking said spindle in place at a predetermined location with respect to said frame; and third means including a second locking pin being of a length greater than the longitudinal dimension of said second radially extending through-hole and being slidable in said second radially-extending hole and actuated at its inner and by said control means carried in said axial hole in said spindle, said second locking pin being abutable at its outer end against the peripheral surface of said spindle hole for frictionally locking said cylindrical spindle with respect to said frame at any angular position with respect thereto.

4,267,643
PROCESS AND APPARATUS FOR CONSERVING ENERGY IN LAUNDRY EQUIPMENT
John C. Haried, 1616 Kenilworth Pl., Aurora, Ill. 60506
Filed Dec. 4, 1979, Ser. No. 100,253
Int. Cl.³ F26B *21/10*
U.S. Cl. 34—48 **1 Claim**

1. A process for controlling the duration of a cycle of operation of equipment for drying launderable products such as bedding, towels, clothing and the like, having a closed compartment for containing material to be dried, ducts for directing air into and out of said compartment, and controllable means for inducing the flow of air through said duct system, means for heating air prior to entry into said compartment, and means for controlling the last-mentioned means; said process comprising the steps of:

(a) heating said products at a rate sufficient to effect a decreasing level of discharge temperature of air leaving said

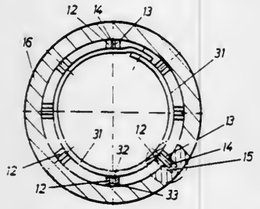


duct system at a gradually decreasing rate until said rate of change thereof approaches zero and its temperature begins to increase at a non-linear rate;

(b) sensing a rate of increase of temperature of said air as it increases at said non-linear rate; and

(c) in response to sensing a rate of increase in said temperature which exceeds a predetermined rate of increase, initiating the operation of said controlling means to effect a decrease in the operation of said means for heating of air prior to entry thereof into said compartment.

4,267,644
ROTATABLE HOLLOW CYLINDER, PARTICULARLY USEFUL AS THE DRYING CYLINDER FOR A PAPER MACHINE
Christian Schiel, Heidenheim, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Fed. Rep. of Germany
Filed Dec. 27, 1979, Ser. No. 107,545
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903784
Int. Cl.³ F26B *25/20*
U.S. Cl. 34—110 **12 Claims**



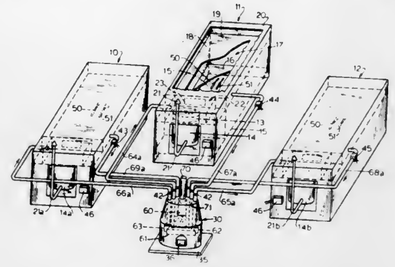
1. A hollow rotatable cylinder having a cylindrical inner wall;

a set comprising at least two cleat means, each being profiled to project radially inwardly into said cylinder, each extending in the axial direction of said cylinder, each being located at said cylindrical inner wall, and said cleat means of said set being arranged in an axially extending row; said cleat means each being comprised of a cleat; each said cleat having opposite axial ends; said cleats in said set of cleat means being arrayed axially adjacent; each said cleat end having a respective end pin thereon that extends toward said cylindrical inner wall;

boreholes being provided in said cylindrical inner wall generally at the locations toward which said end pins extend said boreholes being so shaped and said end pins of said axially adjacent cleats being so positioned that said adja

cent end pins of two axially adjacent cleats extend into a common one of said boreholes.

4,267,645
BURNER-FIRED COMBINED WITH WOOD-FIRED APPARATUS FOR DRYING CROPS
Edwin W. Hill, Rte. 2, Box 130, Smithfield, N.C. 27577
Filed Oct. 22, 1979, Ser. No. 87,096
Int. Cl.³ F26B *19/00*
U.S. Cl. 34—213 **6 Claims**



1. A crop drying apparatus, comprising:

(a) barn structure establishing a plurality of heating compartments and for each compartment a confined path for recirculating air therethrough and which path is isolated from similar paths for the other compartments;

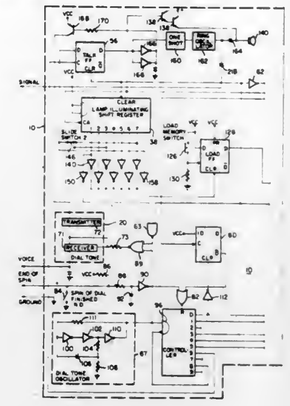
(b) a plurality of individually controllable burner-fired heat sources in the nature of gas or oil-fired furnaces having individually controllable associated blower means, one of said burner-fired heat sources and its associated blower means being operatively associated with each of said compartments for blowing and heating the air circulated along the path associated therewith;

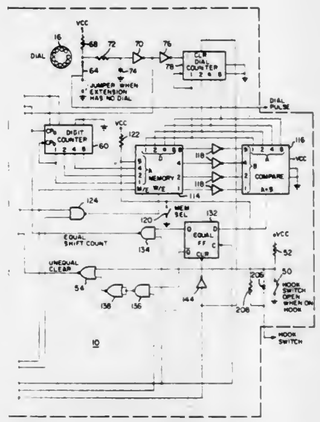
(c) a wood-burning furnace located proximate said barn structure and having within the furnace a heat exchange unit establishing a plurality of separate air-heating chambers and a set of pipes associated with each chamber and extending externally of the furnace enabling separate air paths to be established through the furnace and through separate said chambers;

(d) air conduit means associated with each said compartment, said air conduit means being adapted to establish an airflow path which connects at one end to the intake side of the blower means for a selected said compartment and at another end connects to the air discharge side of the selected said compartment enabling air heated in said wood furnace to be continuously circulated through said blower means, through the selected said compartment and through one of said chambers; and

(e) control means associated with said air conduit means and said burner-fired heat sources and blower means enabling each said compartment when in use to have the associated blower means operate continuously and independently of any other compartment blower means operating so as to allow each such compartment to be heated either solely by air passed through one of said furnace chambers, solely by air passed through one of said burner-fired heat sources or by air passed through both one of said chambers and one of said burner-fired furnaces and to have such air however heated to be continuously circulated through such compartment by the blower means associated therewith.

4,267,646
TELEPHONE QUESTION AND ANSWER TRAINING DEVICE
Edward R. Hagwell, 2924 S. Central, Olympia, Wash. 98501
Filed Jan. 18, 1979, Ser. No. 4,350
Int. Cl.³ G09B *7/02*
U.S. Cl. 434—111 **7 Claims**





1. A telephone training device, comprising:

memory means for storing a set of known digits;

a primary telephone having first input means for sequentially selecting a set of digits corresponding in number to the number of digits in said set of known digits;

comparator means for sequentially comparing each of said selected digits to a corresponding known digit;

indicating means receiving the output of said comparator means for sequentially indicating the result of each set of said comparisons;

register means for storing the results of each of said comparisons such that the results of said comparisons are continuously indicated as subsequent digits are selected;

reset means for clearing the results of said comparisons from said register means responsive to a negative comparison between a selected digit and a corresponding known digit;

first audio indicating means actuated as each digit is selected by said input means and positively compared to its corresponding known digit; and

second audio indicating means actuated responsive to the

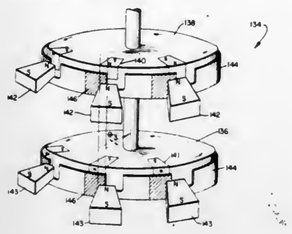
final digit being selected by said input means and positively compared to its corresponding known digit.

4,267,647

APPARATUS FOR DEMONSTRATING MAGNETIC FORCE

Clarence E. Anderson, Jr., and Rhawn F. Anderson, both of 1802 Morris Rd., SE., Washington, D.C. 20020

Continuation-in-part of Ser. No. 633,469, Nov. 10, 1975, abandoned. This application Sep. 9, 1977, Ser. No. 832,018
Int. Cl.³ G09B 23/18
U.S. Cl. 35—19 A **5 Claims**



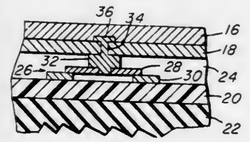
1. An apparatus for demonstrating magnetic force comprising rotor means, rotor magnet means attached to said rotor means for rotation therewith; stationary field magnet means spaced apart from said rotor magnet means and in proximity thereto, like-poles of said rotor magnet means and said field magnet means being in facing relationship to each other, an air gap being formed between said rotor magnet means and said field magnet means; stationary magnetic shielding means located in said air gap, said shielding means being formed of a high magnetic permeance material and shielding only a portion of said field magnet means from said rotor magnet means, said rotor magnet means being first attracted to said shielding means causing rotation of said rotor, and then repelled by said field magnet means as said rotor magnet means is exposed to said field magnet means during rotation.

4,267,648

SHOE SOLE WITH LOW PROFILE INTEGRAL SPRING SYSTEM

Vera C. Weisz, 90 Pierce Rd., Watertown, Mass. 02172

Filed Sep. 19, 1979, Ser. No. 76,904
Int. Cl.³ A43B 13/18, 21/30
U.S. Cl. 36—28 **5 Claims**



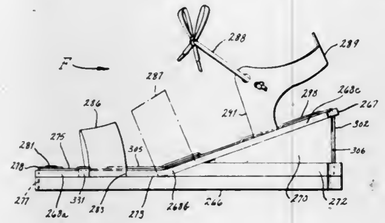
1. An article of footwear, comprising
(a) an upper portion for engaging the top of a foot on which said footwear is worn,
(b) a bottom portion connected to said upper portion for engaging the sole of said foot,
(c) said bottom portion including at least a pair of upper and lower strata generally conforming to the outline of said sole and spaced from one another to define a chamber therebetween, and,
(d) spring means of relatively low profile mounted in said chamber and adapted to provide a spring action perpendicular to said sole,
(e) spring means including a plurality of individual spring units arranged in closely spaced side by side relation within said chamber,
(f) each of said spring units comprised of a relatively wide annular support mounted to one of said strata, a hub mounted to the other of said strata in opposing coaxial relation to said support and a relatively narrow disc spring element mounted coaxially to said hub and engaging said support, said support providing axial clearance for said disc when the center thereof is deflected axially by applied force.

4,267,649

INTERCHANGEABLE SHOE

Gardner M. Smith, 415 N. 12th St., St. Louis, Mo. 63101

Filed May 7, 1979, Ser. No. 36,482
Int. Cl.³ A43B 3/24, 3/12
U.S. Cl. 36—101 **14 Claims**



1. An article of footwear of selectively reconfigurable wedgie character, said article of footwear comprising an outsole of unitary construction having a toe portion, a central portion, and a heel portion, an upper half-outsole overlying said heel portion and having a forward wedge-defining portion terminating at the central portion of said outsole, said upper half-outsole being secured to said outsole, a heel also of wedge-defining character seated upon said upper half-outsole in removable relationship, a topsole overlying said heel, the forward wedge-defining portion of said upper half-outsole, and the toe portion of said outsole, first hinge-defining means flexibly interengaging said topsole and the forward portion of said upper half-outsole above the central portion of said outsole, a sock liner overlying said topsole, second hinge-defining means flexibly interengaging a toe portion of said sock liner and the toe portion of said outsole, said sock liner extending rearwardly from said second hinge-defining means toward said heel, a securement strap extending upwardly from the heel portion of said outsole at the rear of said heel and forwardly above a heel portion of said topsole, and means for detachably securing said securement strap to said sock liner with said strap and sock liner in tension thereby to maintain said sock liner and said heel portion of said top sole in relative position, and upper defining means detachably secured to said article of footwear at toe and heel portions thereof.

4,267,650

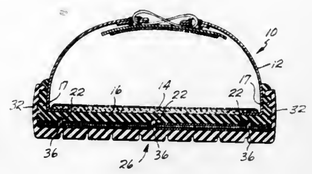
SHOE WITH REMOVABLE OUTSOLE

Peter Bauer, 6033 Hazelwood La., Bellevue, Wash. 98006

Filed Jul. 30, 1979, Ser. No. 61,924
Int. Cl.³ A43B 3/24, 9/10
U.S. Cl. 36—101 **6 Claims**

1. A shoe comprising an upper; an insole connected with the upper, said insole terminating along its peripheral margins in one part of a longitudinally extending bead and a longitudinally extending and mating recess mechanical locking means, said longitudinally extending bead part comprising beads which are round in section and beads which have a face disposed in a horizontal plane and a face which extends angularly and upwardly therefrom; a removable outsole; and a flexible

member connected with said outsole and terminating along its peripheral margins with the other part of the longitudinally



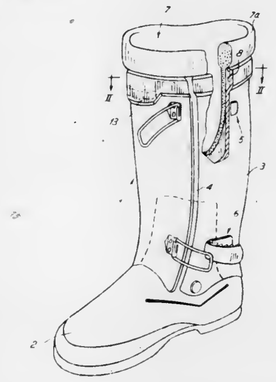
extending bead and longitudinally extending recess mechanical locking means.

4,267,651

BOOT FOR MOTORCYCLISTS PROVIDED WITH MEANS FOR REMOVING AIR FROM THE INSIDE

Amedeo Albano, Milan, Italy, assignor to Pierluigi Nava, Como, Italy

Filed Jan. 15, 1979, Ser. No. 3,533
Claims priority, application Italy, Jan. 25, 1978, 19579 A/78
Int. Cl.³ A43B 5/14, 7/06
U.S. Cl. 36—131 **11 Claims**



1. A boot for motorcyclists equipped with means for removing air from the inside thereof, comprising one shoe-section made of a flexible synthetic material, one leg-section made of a stiff synthetic material, the last mentioned section having a vertical, lateral slit-shaped overlapping opening, provided with hook-like, closing and tensioning elements, and a small inner shoe, characterized in that a first circuit for a moving air stream is formed, provided with at least one air inlet-opening and with at least one discharge opening for the moving air, a second circuit for conducted air abutting at one end an air tap and terminating at the other end into the first circuit, said second circuit comprising a portion of the inner chamber of the small shoe, means for hermetically sealing the small shoe with the leg section and means for discharging water from the boot.

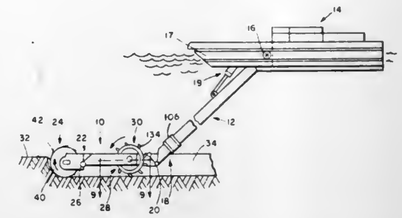
4,267,652

DREDGING SYSTEM AND APPARATUS

Joseph Senesac, P.O. Box 2462, Ft. Myers, Fla. 33902

Filed Apr. 27, 1979, Ser. No. 34,050
Int. Cl.³ E02F 3/88
U.S. Cl. 37—66 **1 Claim**

1. In combination with a vessel floating on a body of water and a boom pivotally suspended from the vessel within said body of water, a dredging assembly for excavating material from a bottom surface, during travel in one direction, comprising a frame pivotally connected to said boom, rotary digging means mounted by the frame for rotation about a rotational axis transverse to said direction of travel, propelling wheel means pivotally mounted on the frame in spaced relation to the digging means for engagement with the bottom surface, powered means connected to the digging means and the propelling wheel means for rotation thereof to respectively excavate a trench and exert a propelling force on the frame in the direction of travel, means biasing the propelling wheel means in a direction maintaining the wheel means in engagement with the



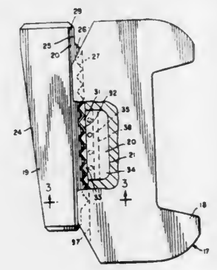
bottom surface, and means for displacing the propelling wheel means and the digging means from submergence in water to a position on board the vessel, the displacing means comprising:
means connected between the vessel and the boom for rotating the boom in and out of water;
means connected between the boom and the frame for rotation therebetween;
means connected between the frame and the propelling wheel means for rotation therebetween.

4,267,653

LOCKING DEVICE FOR EXCAVATING EQUIPMENT

Frederick C. Hahn, and Larren F. Jones, both of Beaverton, Oreg., assignors to ESCO Corporation, Portland, Oreg.

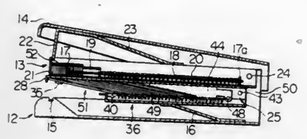
Filed Jan. 16, 1980, Ser. No. 112,160
Int. Cl.³ E02F 9/28
U.S. Cl. 37—142 A **9 Claims**



1. A locking device for securing a slip-over forwardly projecting adapter to an excavator lip comprising a C-clamp member straddling said lip while extending through vertically aligned openings in said adapter and lip, and a wedge member also extending through said aligned openings and forwardly of said clamp member, said clamp member having a forward facing wall confronting said wedge member and having a forwardly facing recess in said forward wall, a resilient lock element having forwardly facing horizontal serrations in said recess, said wedge member having a rearwardly facing wall with rearwardly facing serrations releasably lockable with the lock element serrations, said clamp member forward wall having a vertical slot therein developing forwardly projecting sidewalls, said wedge member in the portion adjacent said rearwardly facing wall being received in said slot whereby said

sidewalls cooperate with said wedge member portion and stabilizing the lockable engagement of said serrations.

4,267,654
TAGS FOR USE WITH STAPLERS
Hisao Sato, 10, Toyotamaminami-3-chome, Nerima-ku, Tokyo, Japan
Division of Ser. No. 949,444, Oct. 10, 1978, Pat. No. 4,182,474.
This application Jul. 31, 1979, Ser. No. 62,326
Int. Cl.³ G09F *3/12*
U.S. Cl. 40—2 R **26 Claims**



1. For use with a stapler including a staple magazine having a staple throat at its front end, and further including a tag magazine located below said staple magazine and having a downward opening in its front end region underlying said staple throat and a pair of projections extending generally laterally inwardly of said downward opening from the opposite sides of said tag magazine at respective positions spaced rearwardly from the front end of said tag magazine;

a tag adapted to be stapled to at least one object, comprising:

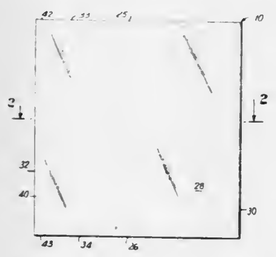
a piece of flat plate or sheet having a front edge, a rear edge, and a pair of side edges,

said tag being provided with a pair of recesses each extending inwardly from a respective one of said side edges at a position spaced rearwardly from said front edge of said tag by an amount corresponding to the rearward spacing of the corresponding one of said projections from said front end of said tag magazine,

the depth of each of said pair of recesses in said tag being slightly greater than the lateral extent of the associated one of said pair of projections of said tag magazine, and

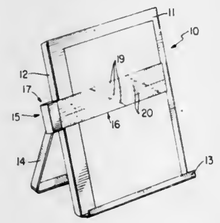
said tag being constructed such that a plurality of said tags are adapted to be detachably connected to each other in a predetermined overlapping and staggered relationship in series, thereby to form a tag stick adapted to be slidably received in said tag magazine with only the front end region of the foremost one of said tags underlying said staple throat and overlying the region of said downward opening frontwardly of said projections.

4,267,655
PRINT ALBUM
Sheldon Holson, Wilton, Conn., assignor to The Holson Company, Wilton, Conn.
Filed Apr. 16, 1979, Ser. No. 30,327
Int. Cl.³ G09G *1/10*
U.S. Cl. 40—159 **3 Claims**



1. A composite photo album page comprising: a generally rectangular planar opaque filler member and an envelope element of clear synthetic resinous material enclosing said filler member, said envelope including first and second laminae mutually interconnected along a first edge thereof, and having oppositely disposed edges in mutually spaced relation overlying a corresponding edge of said filler member, said filler member being interconnected to said envelope element only in the area adjacent said oppositely disposed edges; and at least one elongated spacer member positioned parallel to and adjacent to said corresponding edge, and glued to a surface of said envelope element; whereby upon the binding together of a plurality of pages to form an album, means is provided for the accommodation of the swelling of the pages upon the insertion of photographic prints within the interstices between said filler member and the inner surfaces of said first and second laminae, said interstices being accessable from side edges of said envelope element disposed between said first and said oppositely disposed edges.

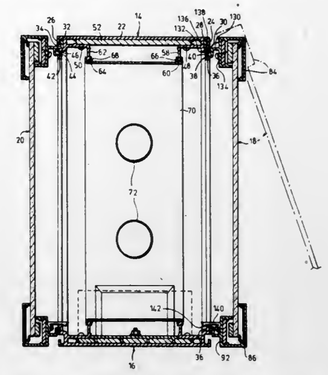
4,267,656
COPY HOLDER
Jack Solomon, Long Beach, N.Y., assignor to Esselte Pendaflex Corp., Garden City, N.Y.
Filed Sep. 4, 1979, Ser. No. 72,179
Int. Cl.³ B41J *11/14*
U.S. Cl. 40—352 **2 Claims**



1. A copy holder comprising a stand having a support surface, a metal edge extending along at least one side of the support surface, a line guide extending across the support surface, a line guide housing disposed along an end portion of the line guide and in movable registration with the metal edge of the support surface, said housing including at least a pair of magnetic rollers rotatably mounted within the housing, each roller including a magnet having a North pole and a South pole and means for magnetically and rotatably contacting each magnetic pole with the metal edge, said means disposed adjacent said poles, the magnets of each roller are toroid shaped, the means for magnetically and rotatably contacting the North and South pole of each magnet with the metal edge comprises metallic, concentric end pieces rotatably engaged with the magnets at their poles, the diameter of the end pieces is greater than the diameter of the magnets and the magnetic rollers are biased in rotatable alignment against an inner wall of the housing.

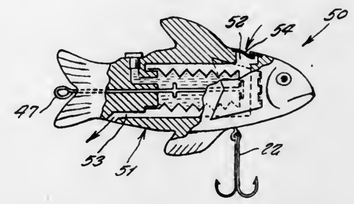
4,267,657
ILLUMINATED SIGN
Werner Kloke, Whitby, Canada, assignor to Prem Gandy, Downsview, Canada
Filed Jun. 20, 1979, Ser. No. 50,362
Int. Cl.³ G09F *13/04*
U.S. Cl. 40—549 **6 Claims**

1. An illuminated sign comprising a casing have top, side, bottom, front and back walls wherein a front edge of a top wall has a generally C-shaped groove extending therealong and opening to the front of the casing, said front wall comprising interconnected top, bottom and side frame elements supporting a light-transmitting panel, the top frame element being an extrusion and comprising a generally L-sectioned flange extending from a rear surface thereof towards the interior of the casing, the distal limb of the flange being directed upwardly and terminating in a longitudinally extending bead, said distal limb being received within said C-shaped groove and said bead defining a hinging surface cooperating with an interior surface of said groove to support the front wall for hinging movement about an axis of said bead, said flange defining a drainage groove, said bead and groove having cooperating cylindrical



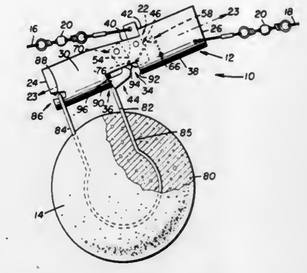
surfaces constituting means permitting controlled hinging movement of said front wall relative to said top wall from a closed position, over a large angle and constituting means permitting removal of said front wall from said top wall upon movement beyond said angle, said front wall being pivotable from said closed position to a first position in which it is held by engagement of said flange and said front edge of the top wall and from that first position to a second position beyond said large angle, in which it can be removed from the sign.

4,267,658
FISHING LURE SIMULATING FISH BAIT
Clarence C. Brown, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007
Filed Sep. 20, 1977, Ser. No. 834,910
Int. Cl.³ A01K *97/02*
U.S. Cl. 43—42.06 **1 Claim**



1. A fishing lure resembling a fish comprising a fish head and a hollow body, with a tail including a duct through the head communicating with the interior of said body including a rear duct from said body, said body containing material emitting the odor and taste of fish, whereby water entering the body mixes with said material and is emitted therefrom to attract fish, said tail having means for attachment to a fishing line in combination with a second means for causing flow from said rear duct responsive to the fishing line being pulled, whereby said second means opposes resiliently the pull on the fishing line and returns to a normal condition when there is no pull on the line, including a normally closed check valve disposed in the first said duct, said second means comprising a bellows with perforations engaging the fishing line to cause contraction of said bellows when the line is pulled said bellows being secured to a rear portion of said body and enclosing said material whereby contraction of said bellows causes material in said bellows to flow out of said bellows, releasing the pull on the fishing line causing expansion of said bellows to expel a mixture of said material and water through said outlet.

4,267,659
SINKER RELEASING APPARATUS
Roy Grasso, 5915 W. Wallbrook, San Jose, Calif. 95129
Filed Nov. 9, 1979, Ser. No. 93,025
Int. Cl.³ A01K *97/00*
U.S. Cl. 43—43.12 **8 Claims**



1. In an apparatus useful in fishing having a body and a sinker releasably held thereto, the body being attachable between a leader line and a fishing line, and having a release mechanism for the sinker which is actuated by the leader line between a releasing position and a holding position, an improvement comprising:

said body having a notch therein and said release mechanism being mounted on said body with a portion of said release mechanism being adapted for pivotal movement within said notch responsive to actuation of said release mechanism;

said sinker having a first hook member protruding therefrom, said first hook member being receivable within said notch and being held therewithin by said release mechanism portion during said holding position; and

mounting means for pivotally mounting said sinker on said body and for permitting releasing of said sinker from said body responsive to pivoting of said sinker;

said release mechanism including a first pivotally mounted lever having said lead line swivelingly attachable to an arm thereof, a second pivotally mounted lever having said portion on an arm thereof and being closely adjacent said first lever, and biasing means for urging said first lever into engagement with said second lever to hold said second lever against pivotal movement within said notch.

4,267,660
STAKE FOR ANIMAL TRAPS
Larry L. Kielhorn, Holstein, Iowa 51025
Filed Jan. 29, 1979, Ser. No. 6,998
Int. Cl.³ A01M *23/28*
U.S. Cl. 43—96 **6 Claims**

1. A stake for animal traps, comprising,

an elongated supporting post having an upper end,

a cross bar secured at its center to the upper end of said post and extending transversely in opposite directions from said post,

said cross bar having opposite ends, and a notch in each end adapted to receive frame members of a rotating frame animal trap; said notches being positioned and oriented in

the ends of said crossbar and being defined by upper and lower lip means to permit parallel trap rod portions to be



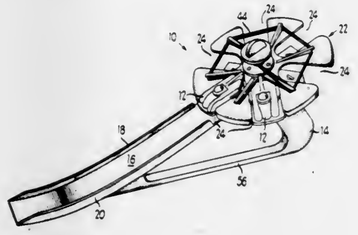
rotated into and out of said notches in directions towards and away from, respectively, the center of said crossbar.

4,267,661

MULTIPLE VEHICLE LAUNCHER

Stephen P. Hanson, Brea, Calif., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Jan. 21, 1980, Ser. No. 113,718
Int. Cl.³ A63H *33/00;* **F41B** *3/02*
U.S. Cl. 46—1 K **17 Claims**



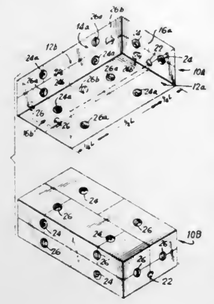
1. A toy for launching a plurality of objects mounted on said toy, comprising:
- a vertically inclined launching ramp for launching said objects onto a surface such as a floor or the like;
- a carrier for said objects to be launched rotatably mounted on said ramp;
- means on said carrier for holding at least one of said objects to be launched;
- launching means on said holding means for launching said object; said launching means including a stored energy element secured to said holding means in position for simultaneously biasing all of said plurality of said objects for launching each of said objects; and
- means for rotating said carrier to align said holding means with said launching ramp.

4,267,662

INFLATABLE MATING BUILDING BLOCKS

Peter Gordy, Spring Valley, N.Y., assignor to Gordy International, Inc., New York, N.Y.

Filed Feb. 21, 1979, Ser. No. 13,018
Int. Cl.³ A63H *33/08, 3/06*
U.S. Cl. 46—25 **4 Claims**



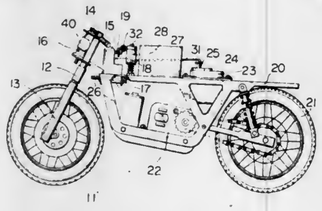
1. Building block toy apparatus comprising:
- an inflatable member having side surfaces formed of flexible plastic sheet material, said member defining, upon inflation, a polyhedron having three pairs of opposed, substantially parallel side surfaces, two of said pairs of side surfaces defining longitudinally extending side walls and the third pair of side surfaces defining transversely extending end walls; and
- connector means integrally formed on said side and end walls of said inflatable member for detachably fastening at least one additional inflatable member thereto, said connector means formed on each side wall comprising at least one male connector element including a bulbous-shaped protrusion which is expandable upon inflation of said inflatable member and at least one female connector element including a recess defined in said side wall.

4,267,663

RADIO-CONTROLLED STEERING DEVICE FOR TOY MOTORCYCLES

Sin Nagahara, 32-12, Minamicho, Itabashiku, Tokyo, Japan

Filed Oct. 25, 1979, Ser. No. 88,311
Int. Cl.³ A63H *30/04, 17/36, 11/10*
U.S. Cl. 46—254 **3 Claims**



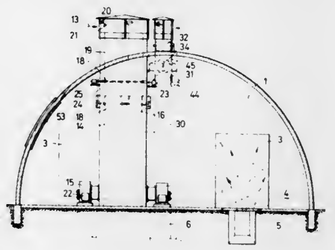
1. A radio-controlled toy motorcycle comprising:
- a frame having a longitudinal central axis and rotatably supporting a rear wheel which rotates about an axis at right angles to the central axis of the frame,
- a pivot shaft extending along the central axis of the frame of said toy motorcycle and being secured to the front end of the frame;
- a connecting block coupled to said pivot shaft for rotation about the pivot shaft axis,
- a front wheel handle shaft rotatably mounted to the front end of said connecting block for rotation about a front wheel handle shaft axis inclined to the pivot shaft axis to provide a caster effect;
- a fork connected to said front wheel handle shaft and aligned therewith,
- means for rotatably supporting a front wheel within said fork for rotation about an axis at right angles to the inclined pivot axis of said front wheel handle shaft,
- a servomotor mounted to said frame and driven by signals from a transmitter; and
- a transmission mechanism for transmitting the rotating force of said servomotor to said connecting block for rotating said connecting block about the axis of said pivot shaft to cause said front wheel to rotate about the inclined axis of said front wheel handle shaft and said frame to be banked by reaction of said caster effect of said front wheel to cause the toy motorcycle to turn easily and smoothly under nonaccelerated banking.

4,267,664

PROCESS FOR CULTIVATION OF MUSHROOMS AND MUSHROOM NURSING PLANT FOR CARRYING OUT THE PROCESS AND AIR CONDITIONING PLANT FOR THE MUSHROOM NURSING PLANT

Detlef Henke, Fabeckstr. 57, 1000 Berlin 33, Fed. Rep. of Germany

Filed May 31, 1978, Ser. No. 911,216
Claims priority, application Fed. Rep. of Germany, Jun. 8, 1977, 2726176; Sep. 30, 1977, 2744684
Int. Cl.³ A01G *1/04*
U.S. Cl. 47—1.1 **9 Claims**



1. Mushroom cultivation plant with nutrient compost arranged in air conditioned rooms, the nutrient compost being placed to form an extended hilly bed having a predetermined cross-section of substantially 2×2 m in the beginning of a cultivation cycle, comprising: an air duct arranged below the bed and covered with a covering grill having transverse slits for ventilating and tempering the compost by controlled air supply through said transverse slits; said air duct emitting tempered air and said transverse slits having a length of 40 to 60 cm and width of 2 cm; said covering grill having a cross-section which reduces from one end towards another end, a feeding air shaft extending from a fresh air supply end having at least one fan and at least one control damper and leading to said air duct, a vent running in said feeding air shaft for circulating air leading into said rooms, a circulation air damper connected with said control damper, an auxiliary air duct between two connected auxiliary control dampers being connected to an air supply shaft for interior air, said air supply shaft extending into an upper area of said rooms over substantially the whole length of the beds and having at least one fan and air distributor means.

4,267,665

DOUBLE WALLED THERMAL PROTECTIVE COVERINGS

Volney Wallace, Terra, Box 1 West, and Carlos F. A. Pinkham, Terra, Box 4 East, both of Dugway, Utah 84022

Continuation-in-part of Ser. No. 863,801, Dec. 23, 1977, Pat. No. 4,137,667. This application Dec. 13, 1978, Ser. No. 968,745
Int. Cl.³ A01G *13/00*
U.S. Cl. 47—26 **17 Claims**



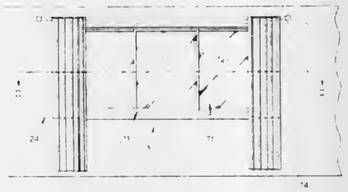
1. A double walled tubular device for thermally protecting plants comprising an inner tubular wall having a top and bottom end, an outer tubular wall of substantially the same height having a top and bottom end, said inner and outer tubular walls being continuous with each other at the bottom ends and unjoined at the top ends thereof creating an annular space between said walls which is open at the top, said inner and outer tubular walls being joined together to divide said annular space into compartments which may be filled from the top with water or water and air.

4,267,666

SHIELD FOR A WINDOW

James D. Davidson, 2003 Lansing St., Portage, Mich. 49081

Continuation of Ser. No. 912,186, Jun. 5, 1978, abandoned, which is a continuation of Ser. No. 776,488, Mar. 10, 1977, abandoned. This application May 16, 1979, Ser. No. 39,449
Int. Cl.³ E05C *7/02*
U.S. Cl. 49—63 **10 Claims**



1. In combination with a window unit mounted in a building structure having upright walls, said window unit including a window frame and glass panel means mounted in said window frame, the improvement comprising a shutter unit having first and second parallel track means spaced inwardly of said window unit and having a spacing therebetween at least equal to one dimension of said window unit, said track means extending parallel to the plane of said glass panel means;
- laminate insulative shield means mounted in said track means for movement between positions adjacent the side of said window unit and in front thereof, to block off the entirety of said glass panel means, low friction means for supporting said laminate insulative shield means for movement on said track means, said laminate insulative shield means including a frame movably supported on said track means and having an imperforate surface layer and an insulation material layer mounted side-by-side in the frame, said imperforate surface including a metallic sheet against which is engaged said insulative material, said insulative

material having little resistance against breakage when forces are applied in directions perpendicular to the plane thereof, said metallic sheet providing a protective barrier from the outside and a rigidification of said insulative material against the effects caused by forces applied from the outside in directions perpendicular to the plane thereof; and

seal means for effecting a seal around the periphery of said glass panel means and between said window unit and said insulative shield means thereby defining a sealed chamber.

4,267,667
BALANCED DOOR
Gary G. Ingham, 3534 B Newcastle Rd., Oklahoma City, Okla. 73119
Filed Aug. 30, 1979, Ser. No. 71,335
Int. Cl.³ E05D *15/30*
U.S. Cl. 49—252 **5 Claims**



1. In an entryway door having stiles and top and bottom rails and having a pair of arms pivotally connected with the respective rails intermediate their ends for horizontal swinging movement of the door about a vertical axis and projecting horizontally into a door side jamb formed by a channel member coextensive with the adjacent door stile and having the legs of the channel projecting from its bight portion toward the door, the improvement comprising:

a shaft disposed within the side jamb coextensive with the door height and rigidly connected at its respective end portions with said arms;

a plurality of vertically spaced bearings secured within said jamb and journalling intermediate portions and respective end portions of said shaft,

each said bearing being characterized by a bearing block extending transversely between the side jamb legs and secured to the side jamb bight portion; and,

tension means connected with said side jamb for maintaining the latter vertical,

said tension means including a pair of angle brackets secured to the surface of the side jamb bight portion facing said door adjacent its respective ends,

an elongated flexible member secured to and extending tautly between said angle brackets in overlying relation with respect to at least one said bearing block, and,

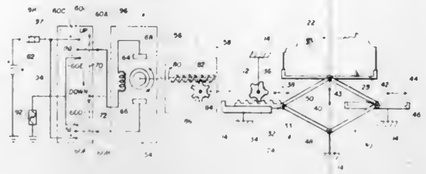
screw threaded bolt means on at least one end of said flexible member for increasing or decreasing its tension.

4,267,668
POWER WINDOW LIFT ASSEMBLY
Ronald E. Natinsky, 6727 Rolling Vista, Dallas, Tex. 75248
Filed Apr. 26, 1979, Ser. No. 33,529
Int. Cl.³ E05F *15/08*
U.S. Cl. 49—349 **3 Claims**

1. In a motor vehicle having a source of electrical current for providing operating power to accessories and having a door with a movable window and a mechanical crank assembly coupled intermediate the door and window, said crank assembly including a crank stub for engaging a manually operable crank handle, the combination with the mechanical crank assembly of an electromechanical drive assembly for applying a rotary cranking force to the crank stub, said electromechanical drive assembly comprising:

an electrical drive motor mounted on the door having a field winding and a rotor member for producing a rotary driving force in response to electrical excitation of the field winding;

a flexible drive shaft coupled intermediate the rotor and the

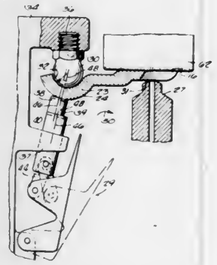


crank stub for turning the crank stub in response to rotation of the rotor;

a manually operable switch assembly coupled intermediate the vehicle power source and the field winding for applying operating power to said drive motor; and,

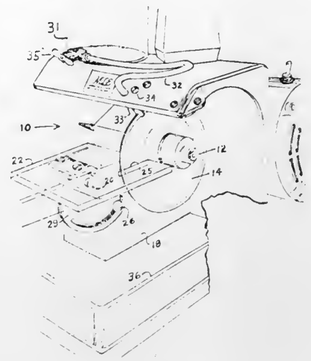
a self-interrupting and self-resetting current responsive switch coupled in series electrical circuit relation intermediate said power source and the field winding of said motor.

4,267,669
METHOD AND APPARATUS FOR GRINDING SMALL CUTTING BLADES
Spencer C. Schantz, 5880 Anchorage Rd., Oconomowoc, Wis. 53066, and Leland A. Rupenthal, Oconomowoc, Wis., assignors to Spencer C. Schantz, Oconomowoc, Wis.
Filed Jan. 21, 1980, Ser. No. 113,937
Int. Cl.³ B24B *3/52*
U.S. Cl. 51—5 D **9 Claims**



1. A method of grinding planar cutting surfaces of cutting blades in which substantial portions are non-planar, the blades including a planar cutting portion and a shank and inside and outside concentric arcuate surfaces comprising the steps of providing a work table with a pair of clamping jaws for each of the cutting blades, including a movable jaw and a fixed jaw, and in which one of said jaws has a surface with a curvature complementary to the curvature of the arcuate blade shank portions, and means for releasably clamping the jaws against the arcuate shank surfaces, with the bite of the jaws creating a moment of force to fulcrum the blade portion about the contact point with one of said jaws and against a spaced work rest supported on the work table to expose the blade surface to be ground and rotating the work table while moving the table along a feed axis parallel to the axis of rotation of a rotary grinding wheel.

4,267,670
COMBINED DUPLICATOR AND PREFORMER FOR LAPIDARY USE
Gene C. Mason, 11531 Tulary Way, Marysville, Wash. 98270
Filed Sep. 15, 1978, Ser. No. 942,691
Int. Cl.³ B24B *9/16*
U.S. Cl. 51—101 R **3 Claims**



1. In combination,

a grinding machine having a grinding wheel with a rotary axis and a grinding surface; and

a fixture for a workpiece to be ground comprising,

a mounting base presenting an elongated slideway defining a slide plane,

means for swing mounting the mounting base on the grinding machine to swing toward and away from the grinding surface about a swing axis extending parallel to said slide plane and laterally at right angles relative to the length of said slideway,

elongated slide means in the slideway arranged to selectively slide in a fore and aft direction along the slideway toward and away from the grinding surface,

clamping means for holding said slide means against movement from a selected position along the slideway,

a guide bar on the slide means projecting laterally beyond one longitudinal side of the slide means and mounting base and presenting a planar guide face occupying a plane perpendicular to said slide plane,

a swing arm pivotally mounted on the slide means on a pivotal axis perpendicular to said slide plane and projecting by its free end in the same general direction as said guide bar, said swing arm presenting a journal near its free end which is parallel to said pivotal axis,

means rotatably mounted in said journal for holding a template opposite said guide face and for holding a workpiece coaxially of said template and opposite said grinding surface whereby the workpiece may be in engagement with the grinding surface while the template is turned while in engagement with the guide face.

4,267,671
POSITIONING OF AN ABRASIVE BELT ON A GRINDING MACHINE
Richard Rettew, Newmanstown, Pa., assignor to Contraves Goerz Corporation, Pittsburgh, Pa.
Filed Aug. 24, 1978, Ser. No. 936,349
Int. Cl.³ B24B *21/00, 21/18*
U.S. Cl. 51—135 BT **12 Claims**

1. A belt grinding machine, for grinding a workpiece, comprising:

an elongated fixed bed;

a table for receiving the workpiece supported for back and forth movement along said elongated fixed bed;

power means for providing continuous oscillating back and forth movement to said table while grinding the workpiece;

a base secured to said bed and extending therefrom transverse to the longitudinal axis of said bed;

a vertical column supported from said base for back and forth movement transverse to the movement of said table;

power means for providing continuous reciprocating back and forth movement to said vertical column along said base normal to the longitudinal axis of the bed while grinding the workpiece;

a contact wheel slidably supported for up and down movement on said vertical column;

an idler wheel slidably supported on said vertical column, above said contact wheel, for up and down movement on said column;

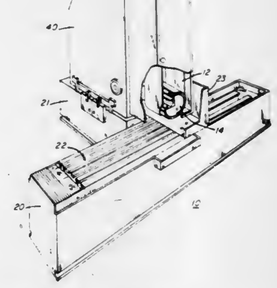
a grinding belt which is wider than the workpiece disposed around said contact wheel and said idler wheel above said table for back and forth movement with said column while grinding;

table speed control means which is adjustable for controlling the speed of oscillation of said table;

table travel control means which is adjustable for controlling the travel of said table;

column speed control means which is adjustable for controlling the speed at which said column reciprocates; and

column travel control means which is adjustable for controlling the travel of said column which moves said grinding belt back and forth over the workpiece when grinding.



7. A belt grinding machine comprising:

an elongated fixed bed;

a vertical column supported for reciprocating movement along an axis transverse to the longitudinal axis of said elongated fixed bed;

column reciprocating means for continuously reciprocating said vertical column back and forth;

an idler pulley supported from said column and slidable thereon;

a contact pulley supported from said column, spaced apart from said idler pulley, and slidable on said column;

a continuous belt having coated abrasive on the outside thereof disposed around said idler pulley and said contact pulley;

tensioning means for biasing said idler pulley and said contact pulley apart to put tension on said belt;

a table supported on said elongated bed for movement parallel to the longitudinal axis of said bed;

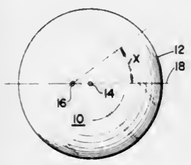
table reciprocating means for reciprocating said table beneath the contact pulley which is supported from said vertical column;

feed means for moving said contact wheel toward said table;

a spindle having a circular center portion defining a first longitudinal axis and eccentric spaced apart ends defining a second longitudinal axis extending transverse to the first longitudinal axis;

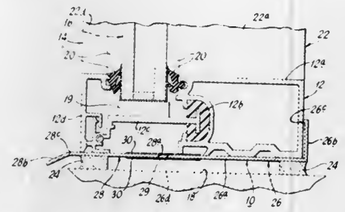
bearing means supporting said idler pulley from the circular center portion of said spindle for rotation thereabout;
adjusting means disposed on said column for supporting and rotatably positioning the eccentric ends of said spindle to adjust the tilt of the first longitudinal axis, which is defined by the circular center portion, relative to said column;
photoelectric sensing means for sensing the position of said belt, and,
control means responsive to said photoelectric sensing means for controlling said adjusting means to rotate the position of the eccentric ends of said spindle to maintain said belt at a desired position.

4,267,672
LENS PROCESSING METHOD
Frank D. Sorrells, Knoxville, Tenn., assignor to Cole National Corporation, Cleveland, Ohio
Filed Jun. 4, 1979, Ser. No. 44,991
Int. Cl.[3] B24B *1/00*
U.S. Cl. 51—284 R **14 Claims**



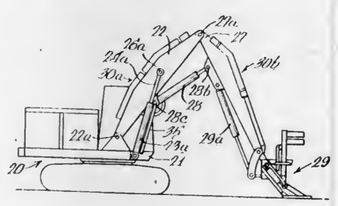
1. A method for generating an optical lens from a lens blank having opposed faces and a peripheral edge and which method requires only a single mounting of said lens blank to an associated lens block, said method comprising the steps of:
providing a lens blank having a frame center axis and a peripheral size substantially greater than the peripheral size of a finished optical lens to be formed from said lens blank;
providing a reusable preformed lens block having a peripheral size which is not greater than said peripheral size of said finished optical lens, said lens block including means for mounting same to a chuck and having a longitudinal mounting axis;
affixing said lens block to said lens blank so as to extend outwardly from the face thereof which is opposite to the lens blank face which is to be processed and with said longitudinal mounting axis substantially aligned with said frame center axis;
placing said lens block in operative mounted communication with a first chuck associated with lens surface generating apparatus in a manner such that said frame center axis of said lens blank and said longitudinal mounting axis of said lens block are substantially coaxial with the longitudinal axis of said first chuck;
adjusting the position of said lens block in said first chuck for moving said lens blank to accommodate a predetermined desired amount of decentration whereby the desired optical center axis in said lens blank is positioned generally coaxial with said first chuck longitudinal axis;
generating the desired optical surface configuration on said lens blank processed face and thereafter removing said lens block with said lens blank from said first chuck;
locating said lens block with lens blank in a second chuck associated with at least one second processing apparatus;
fining and polishing said lens blank processed face on said at least one second processing apparatus and thereafter removing said lens block with lens blank from association therewith;
positioning said lens block with lens blank in operative communication with third processing apparatus;
providing a final desired contour for said lens blank peripheral edge on said third processing apparatus to provide a finished optical lens having a peripheral size not smaller than the peripheral size of said lens blank and thereafter removing said lens block with lens blank from association therewith; and,
deblocking the finished lens from said lens block for reuse of said lens block in carrying out the preceeding method steps on additional lens blanks.

4,267,673
HEAT INSULATING FLASHING
Ellwin L. Coulston, Niles, Mich., assignor to Kawneer Company, Inc., Niles, Mich.
Filed Feb. 15, 1979, Ser. No. 12,284
Int. Cl.[3] E04D *13/00;* **E06B** *1/62*
U.S. Cl. 52—97 **18 Claims**



1. Insulated flashing comprising:
an inner metal element having an outer edge and an upstanding flange;
an outer metal element having an inner edge in spaced apart relation with said outer edge; and
a joining element of insulating material continuously interconnecting said metal elements between said spaced apart edges.

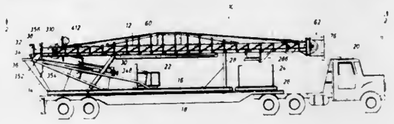
4,267,674
GUARD STRUCTURE FOR FLUID CONDUITS OF HYDRAULIC CYLINDERS OF MOBILE APPARATUS
Thomas P. Muller, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Jul. 16, 1979, Ser. No. 98,145
Int. Cl.[3] B66C *23/06*
U.S. Cl. 52—115 **9 Claims**



1. In a mobile apparatus (**20**) having a chassis (**21**), a boom (**22**) pivotally mounted (**22***a*) on said chassis, hydraulic cylinders (**23***a* and **23***b*) with piston rods (**24***a* and **24***b*) at the two sides of said boom (**22**), spherical mounting joints (**25***a* and **25***b*) attaching the cylinders (**23***a* and **23***b*) to the chassis, spherical connecting joints (**26***a* and **26***b*) operatively attaching the rods (**24***a* and **24***b*) to the sides of the boom (**22**), first conduits (**31***a* and **31***b*) with fixtures (**31***c* and **31***d*) and couplings (**32***a* and **32***b*) for connecting the head ends of said cylinders (**23***a* and **23***b*) to a hydraulic pressure source on the chassis (**21**), and second conduits (**33***a* and **33***b*) with fixtures (**33***c* and **33***d*) and couplings (**34***a* and **34***b*) for connecting the rod ends of said cylinders (**23***a* and **23***b*) to said hydraulic pressure source,

guard means (**35**) for said conduits (**31***a*–**31***b* and **33***a*–**33***b*) and couplings (**32***a*–**32***b* and **34***a*–**34***b*) comprising, in combination:
first brackets (**36***a* and **36***b*) fixedly supported on the head ends of said cylinders (**23***a* and **23***b*) immediately adjacent said first conduit fixtures (**31***c* and **31***d*);
second brackets (**37***a* and **37***b*) fixedly supported on the rod ends of said cylinders (**23***a* and **23***b*) immediately adjacent said second conduit fixtures (**33***c* and **33***d*);
a unitary, rigid guard member (**38**) which has a central plate (**39**) spanning the cylinders (**23***a* and **23***b*), the first and second conduits (**31***a* and **31***b*–**33***a* and **33***b*) and the first and second couplings (**32***a* and **32***b*–**34***a* and **34***b*) and side webs (**40***a* and **40***b*) flanking all of said cylinders, conduits and couplings;
and mounting means (**41**) supporting said guard member (**38**) on said first (**36***a*–**36***b*) and second (**37***a*–**37***b*) brackets, said mounting means (**41**) including bolts (**48**) and spacer means (**49-50-51**) affording limited movement of said guard member (**38**) relative to said cylinders (**23***a* and **23***b*) transversely in the plane of the central plate (**39**) and axially of the bolts (**48**).

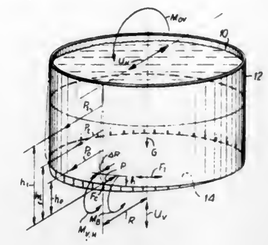
4,267,675
WELL WORKING RIG
Chudleigh B. Cochran, Houston, Tex., assignor to Joe R. Brown, Houston, Tex.
Filed May 4, 1979, Ser. No. 35,848
Int. Cl.[3] B66C *23/06*
U.S. Cl. 52—118 **50 Claims**



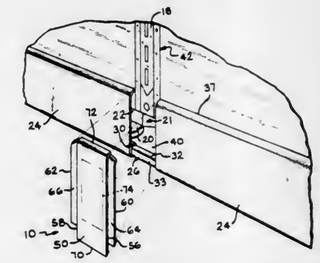
1. Apparatus for manipulating pipe members comprising:
(a) mast means, including first pole means and second pole means selectively moveable along said first pole means, whereby said mast means may be selectively extended and retracted;
(b) chain drive means joined to said second pole means and selectively operable for movement of chain generally along said second pole means; and
(c) hoisting mechanism means, joined to said first pole means, and selectively operable to engage said chain drive means whereby sid chain drive means may be so operated to cause said second pole means to so move along said first pole means.

4,267,676
EARTHQUAKE RESISTING TANK AND METHODS OF CONSTRUCTING SAME
Tadeusz J. Marchaj, Pt. Washington, Long Island, N.Y., assignor to Preload Technology, Inc., Garden City, N.Y.
Filed Feb. 26, 1979, Ser. No. 15,102
Int. Cl.[3] E04H *9/02;* **E04B** *1/98;* **E02D** *27/34*
U.S. Cl. 52—167 **42 Claims**

1. A tank for containing a liquid adapted to withstand a force acting upon a side wall thereof under earthquake conditions, including a side wall and a reinforcing means surrounding the wall and banding it in a stripe configuration at a location of maximum combined stresses resulting from gravitational, horizontal and vertical accelerations of the tank and its contents under earthquake conditions.



4,267,677
FILLER INSERT FOR A WALL BASEBOARD ASSEMBLY IN A SPACE DIVIDER SYSTEM
Travis M. Randolph, Saugatuck, and Thomas J. Newhouse, Grand Rapids, both of Mich., assignors to Herman Miller, Inc., Zeeland, Mich.
Filed Apr. 24, 1979, Ser. No. 32,944
Int. Cl.[3] E04F *19/04*
U.S. Cl. 52—242 **1 Claim**



1. In a baseboard assembly positioned along the lower edge of a wall unit and comprised of a plurality of upright cover members arranged end to end and support means mounting said cover members in said upright position along said wall unit, each of said cover members having a front surface and a rear surface facing said wall unit, at least a pair of adjacent ones of said cover members being spaced apart to form an opening between the adjacent ends thereof, a removable filler section positioned in said opening and spanning substantially the entire distance between said adjacent ends, said filler section comprising a main body having longitudinally spaced apart opposite ends and an outer surface generally conforming with the outer surfaces of said adjacent cover members, and coacting means maintaining said filler section in an interposed position in said opening such that the outer surface of said main body is substantially flush with the outer surfaces of said pair of adjacent cover members, said coacting means comprising flange portions extending longitudinally from said main body at the opposite ends thereof, said flange portions being offset rearwardly with respect to said main body and engaging the rear surfaces of said pair of adjacent cover members to restrain forward movement of said filler section from said interposed position, said main body having an upper portion in front of and abutting said wall unit and a lower portion in front of and abutting said support means to restrain rearward movement of said filler section from said interposed position, said flange portions and said abutting portions coacting with said wall unit, said support means, and said side cover members to main-

tain said filler section in said interposed position, said filler section being releasable forwardly by removal of one or both of said adjacent cover members from said support means.

4,267,678

INSULATED ROOF STRUCTURE

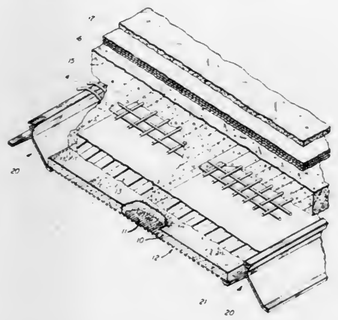
Frank E. Carroll, Barrington, Ill., assignor to Carroll Research, Inc., Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 545,303, Jan. 30, 1975, Pat. No. 3,962,841, which is a continuation-in-part of Ser. No. 457,996, Apr. 4, 1974, Pat. No. 3,965,641. This application Jun. 15, 1976, Ser. No. 696,213

The portion of the term of this patent subsequent to Jun. 15, 1993, has been disclaimed.

Int. Cl.³ E04B *1/24;* **E04C** *2/10*

U.S. Cl. 52—302 **3 Claims**



1. A poured concrete insulated deck structure comprising:

a series of parallel sub-purlins having horizontal flanges extending outwardly at the lower portion of said sub-purlin;

high temperature resistant, moisture permeable formboard, said formboard being a mineral fiber structural board having plastic bonded mineral fibers with an integral mat facing reinforced with parallel glass fiber strands, resting on said flanges between adjacent sub-purlins, said formboard having secured to its upper surface rigid synthetic polymer foam having spaces vertically therethrough providing communication from the upper side of said formboard to the upper side of said foam, said spaces having an area of about 5 to about 20 percent of the area of said formboard;

poured concrete adjacent the upper side of said foam and extending through said spaces contacting the upper side of said formboard, said concrete completing drying by escape of moisture through said formboard;

reinforcing wire mesh over said foam; and

a waterproof wearing surface to the exterior of the poured concrete.

4,267,679

INSULATED BUILDING PANEL WALL CONSTRUCTION

Leroy Thompson, Sewickley, Pa., assignor to Steelite, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 754,756, Dec. 27, 1976, abandoned, which is a continuation-in-part of Ser. No. 556,632, Mar. 10, 1975, abandoned. This application Feb. 22, 1979, Ser. No. 13,910

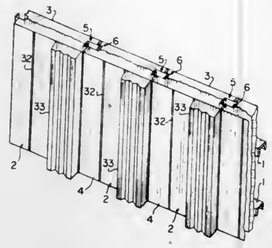
Int. Cl.³ B44F *7/00;* **E04D** *1/34;* **E04C** *1/10;* **E04B** *1/62*

U.S. Cl. 52—311 **9 Claims**

1. A wall construction comprising:

a. a plurality of spaced girts defining a framework,

b. a plurality of hollow insulating construction panels comprising opposed interior and exterior sheet metal sections secured together through yieldable insulating gaskets, said sections together defining interior and exterior walls and opposed inter-engaging panel edges, one of said edges provided to receive fasteners, said edges having generally S-shaped central sections, said panel edges having peripheral faces extending between said S-shaped central sections and said walls, said panels secured at their fastening



edge to said girts, each of said panels inter-engaging the adjacent panel to form a continuous insulating wall; and,

c. at least one feature strip comprising an ornamented surface, said feature strip secured to the face of said wall by means positionable between the interengaging edges of said panels.

4,267,680

TILE FOR THE CONSTRUCTION OF WALLS OR DIVERSE DISASSEMBLABLE SURFACES

Jean Delattre, 245a, Chemin du Roucas Blanc, Marseille, France (13007)

Filed Mar. 22, 1979, Ser. No. 22,943

Claims priority, application France, Mar. 24, 1978, 78 09193

Int. Cl.³ E04F *13/08*

U.S. Cl. 52—384 **13 Claims**



1. A tile having top and bottom faces for use in constructing dismountable walls, floors and the like, comprising a plurality of flexible clips adapted to clip onto a frame arranged along one of its faces, said tile further comprising a plurality of bores extending through said tile, each of said clips comprising two elastic fingers, each of said bores being aligned with one of said clips and positioned to extend between each of said fingers whereby said tiles may be conveniently and securely stacked on one another.

4,267,681

RESILIENT STRUCTURES

Peter C. Dickson, Runcron, England, assignor to Dunlop Limited, London, England

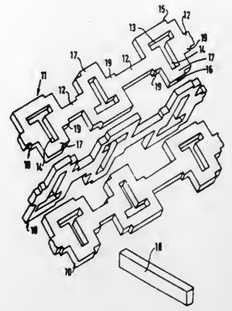
Filed Apr. 9, 1976, Ser. No. 675,281

Claims priority, application United Kingdom, Apr. 16, 1975, 15584/75

Int. Cl.³ E04C *2/42*

U.S. Cl. 52—664 **34 Claims**

1. A resilient three-dimensional structure comprising: an interlocked assembly of a plurality of parallel strips arranged such that successive strips lie in planes angled relative to one another, each strip being of substantially rectangular cross-sectional shape and formed with a plurality of apertures and projections in engagement respectively with projections and apertures of another strip of the plurality, the projections in one strip of a resilient deformable material engaging apertures in another strip to retain the two strips against relative movement in a first direction perpendicular to the direction of the length of said one strip, and the apertures in said one strip being engaged by projections of said other strip to retain the two strips against relative movement in a second direction perpendicular to the direction of the length of said one strip; and, a plurality of retaining rods in contact with said strips and extending through said apertures in a direction perpendicular to the direction of said strips to provide an additional means retaining the strips in position relative to one another.



4,267,682

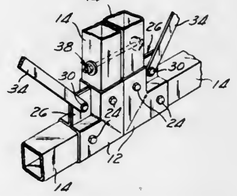
BUILDING PANEL

Neal G. Fowler, 872 Albany Ave., Ventura, Calif. 93003, and Charles L. Hedrick, 205 W. Rosa, Oxnard, Calif. 93030

Filed May 7, 1979, Ser. No. 36,437

Int. Cl.³ E04B *1/56;* **E04C** *2/38*

U.S. Cl. 52—657 **5 Claims**



1. A panel to be interconnected with several other similar panels to construct a building, said panel being polygonal shaped, said panel comprising:

a plurality of corner members, each said corner member having a pair of openings, the longitudinal center axis of each of said openings intersecting, each said opening having a center line, each said corner member being constructed of two separate identical parts connected together by a diagonal weld in a facing and abutting relation ship;

a plurality of elongated tubular members, one end of a said tubular member to be telescopingly located within one of said openings of a said corner member with the opposite end of the said tubular member to be telescopingly located within a said opening of another said corner member, each said opening of each said corner member being occupied by a said tubular member with said tubular members being arranged to form an enclosed area;

brace means located between a pair of said corner members and attached thereto, said brace means comprising a pair of brace members interconnected by connecting means, said connecting means being operable to vary the longitudinal length of said brace means, said brace means located substantially along a single axis, said single axis being inclined in respect to the longitudinal center axis of each said elongated tubular member; and

each said corner member including a sheet material web section, each said web section including attachment means to facilitate securement with said brace means, said brace means being fixedly secured to said web section, each said web section having an inside surface, said inside surface lying in a plane which passes through said center point whereby said web section is offset in respect to said center point.

4,267,683

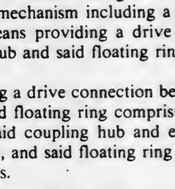
COUPLING MECHANISM FOR CAPPING MACHINE CHUCK

Shelby A. Harrington, Snyder, N.Y., assignor to A-T-O Inc., Willoughby, Ohio

Filed Nov. 29, 1979, Ser. No. 98,518

Int. Cl.³ B67B *3/20;* **B65B** *7/28*

U.S. Cl. 53—331.5 **10 Claims**



1. In an apparatus for applying a screw-type closure element to a container, the apparatus having a rotary drive spindle adapted to be disposed above a container, a chuck sleeve, and a coupling mechanism interconnecting said spindle and said sleeve, said coupling mechanism including a floating ring, a coupling hub, and means providing a drive connection between said coupling hub and said floating ring, the improvement comprising:

said means providing a drive connection between said coupling hub and said floating ring comprising lugs formed integrally with said coupling hub and extending below said coupling hub, and said floating ring having recesses receiving said lugs.

4,267,684

METHOD OF PACKAGING DELICATE ARTICLES

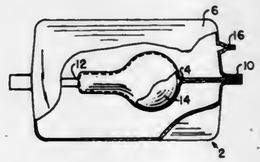
Charles J. Ambrose, 2230 Benton St., Richland, Wash. 99352

Division of Ser. No. 613,402, Sep. 15, 1975, Pat. No. 4,190,158. This application May 29, 1979, Ser. No. 43,209

The portion of the term of this patent subsequent to Feb. 26, 1997, has been disclaimed.

Int. Cl.³ B65B *23/22*

U.S. Cl. 53—472 **2 Claims**



1. A method of packaging comprising:

(a) providing a container comprising an outer envelope of flexible sheet material and an elongated inner envelope of

flexible sheet material, within and extending across said outer envelope, said outer envelope having normal dimensions in all directions greater than said inner envelope, said outer envelope being sealed to said inner envelope solely adjacent the ends of said inner envelope, said outer envelope being adhesively joined to the walls of a surrounding, substantially rigid casing;

(b) inserting said article into said inner envelope; and

(c) changing the relative pressures in said envelopes in such a manner as to make the pressure in the inner envelope substantially less than that in said outer envelope, thereby collapsing said inner envelope about said article.

4,267,685

BULLROPE

John J. Cragin, 1517 Sunnyridge Rd., Nampa, Id. 83651

Filed Jan. 21, 1980, Ser. No. 114,124

Int. Cl.³ B68B *1/00*; A01K *29/00*

U.S. Cl. 54—1 **6 Claims**



1. A bullrope comprising:

a main body portion operable to surrond the girth of an animal, said body portion being divided so as to form a handle member adapted for grasping by a rider of the animal;

a loop member having an eye, attached at one end of said body portion to define one end of the bullrope and incapable of moving along the body portion;

a tail portion attached at an opposing end of said body portion, said tail portion having a free terminal end insertable through the eye of said loop member to cinch the bullrope about the girth of an animal, and

fastening means located on said tail portion, said fastening means operable to form a temporary loop in said tail portion adapted for grasping.

4,267,686

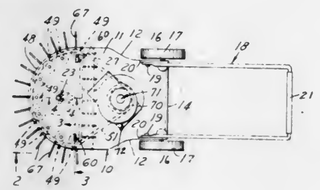
LAWN MOWER HAVING FLEXIBLE FILAMENT CUTTER ELEMENTS

Charles A. Heath, 2239 N. River Rd., Saint Clair, Mich. 48079

Filed May 31, 1979, Ser. No. 44,045

Int. Cl.³ A01D *53/14*

U.S. Cl. 56—12.7 **13 Claims**



1. A lawn mower having a support frame, a power drive means mounted on said frame having an output shaft, said support frame having a pair of ground engaging support wheels at the rear end thereof and a handle member operatively attached to the rear end of the frame, characterized in that:

(a) said support frame includes a frame plate having an arcuate front end formed as a portion of a circle;

(b) a plurality of driven pulleys are each rotatably mounted on the frame plate with their axes arcuately disposed in positions to form a portion of a circle adjacent the arcuate front end of the frame plate;

(c) said driven pulleys are drivably connected with the power drive means output shaft; and,

(d) an endless carrier belt is operatively mounted around the driven pulleys and provided on the periphery thereof with a plurality of laterally spaced apart, flexible filament cutter elements which are flung horizontally outward into cutting positions by centrifugal force, for cutting lawn and vegetation, when the driven pulleys are driven by the power drive means to drive the carrier belt around the arcuately disposed driven pulleys.

4,267,687

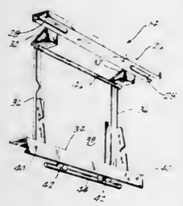
COMBINATION COMBINE AND HAY HEAD

Harley D. Neuhring, R.R. #1, Kanawha, Iowa 50447

Filed Oct. 19, 1979, Ser. No. 86,412

Int. Cl.³ A01D *73/00*

U.S. Cl. 56—14.4 **7 Claims**



1 The combination of a grain combine having a forward end, an intake opening, and a hydraulic circuit, and a forage harvester rotatable forage pick-up means having a discharge opening and a plurality of clevis attachment elements, comprising,

an adapter frame having an upper horizontally disposed frame member having a pair of spaced apart slots adapted to receive the conventional hubs on the upper forward end of a combine a lower horizontally disposed frame member having a plurality of holes adapted to receive bolts to be secured to the lower forward end of a combine,

spaced apart vertical frame members connecting said upper and lower frame members and defining a forage passageway opening adapted to register with the discharge opening of a forage harvester forage pick-up means, and with the intake opening on a combine, horizontally disposed attachment rods on said upper and lower frame members for attachment to clevis elements on a forage harvester,

said adapter frame having a center opening registering with the intake opening on said combine and said discharge opening on said forage pick-up means.

4,267,688

MOWING DEVICE

Hermanus H. Vissers, and Gijsbert J. Mijnders, both of Nieuw-Vennep, Netherlands, assignors to Multinorm B.V., Nieuw-Vennep, Netherlands

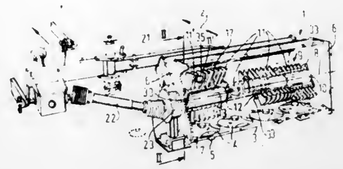
Filed Oct. 24, 1979, Ser. No. 87,725

Claims priority, application Netherlands, Nov. 1, 1978, 7810873

Int. Cl.³ A01D *43/00*

U.S. Cl. 56—16.4 **11 Claims**

1. A mowing device comprising a frame, cutting means carried by said frame for cutting a crop close to the ground, at least one rotor journalled in the frame so as to be rotatable about a rotary axis disposed above the cutting means, said rotor comprising at least one carrier and at least one crop-engaging catch connected with the carrier so as to be freely pivotable at one end about a pivotal axis radially displaced from said rotary axis, and means for rotating said rotor whereby said catch tends to align its center of gravity along a line containing said rotary and pivotal axes, said catch having an arcuate marginal



edge portion remote from said one end thereof and lying in a plane perpendicular to said pivotal axis, a substantial portion of the mass of said catch being concentrated along said marginal edge portion.

4,267,689

MAIZE CUTTER

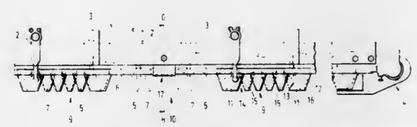
Rudolf Schneider, and Wilhelm Schefers, both of Remscheid, Fed. Rep. of Germany, assignors to Busatis-Werke KG, Remscheid, Fed. Rep. of Germany

Filed Jun. 29, 1979, Ser. No. 53,326

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828766

Int. Cl.³ A07D *45/02*

U.S. Cl. 56—53 **14 Claims**



1. In a maize cutter having several divider plates and at least one outside deflector for directing cornstalks into the maize cutter; and also having at least one of entry chains, entry bands and the like disposed between the divider plates and also between the divider plates and the outside deflector for holding the cornstalks fast and feeding the cornstalks to a cutting mechanism; an improvement comprising:

said cutting mechanism including double cutter means for cutting the cornstalks, said double cutter means including upper sets of cutter blades and co-acting associated lower sets of cutter blades;

each of said upper and associated lower cutter blades being arranged in a column;

said cutter blades in each set being spaced apart a selected distance;

said upper and associated lower sets of cutter blades being laterally spaced from each other to provide bladeless sections therebetween, said bladeless sections being wider than said selected distance between said cutter blades; and

said sets of cutter blades being disposed between the divider plates and also between the divider plates and the outside deflector, respectively, with said bladeless sections being disposed under the divider plates.

4,267,690

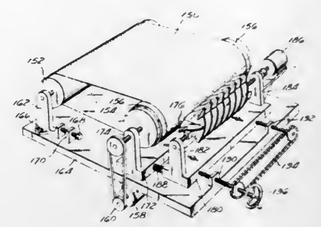
DISC REEL MOWER

Carl A. Pike, 13600 S. Praire Ave., Hawthorne, Calif. 90250, and J. Ellsworth Hixson, 1320 W. 16th St., Long Beach, Calif. 90813

Filed Apr. 14, 1980, Ser. No. 140,254

Int. Cl.³ A01D *55/20*

U.S. Cl. 56—294 **9 Claims**



1. In a mowing machine of the construction which includes a bed knife and a generally cylindrical knife construction made up of a plurality of generally elliptical discs lying generally parallel to each other at an acute angle to the cylindrical axis and means for rotating the cylindrical knife construction such that the periphery of the discs form cutting edges coacting with the bed knife, the improvement:

wherein the discs which have major and minor axis include adjacent the peripheral end of the major axis thereof an ear extending away from the plane of the disc respectively in opposite directions from said plane, the ears being so constructed and configured as to present a cutting edge at an acute angle at the bed knife as the disc is rotated, as part of the cylindrical knife construction, adjacent the bed knife; and

comprising supporting fan structures extending outwardly generally along the major axes of the discs from proximate the axis of the cylindircal knife construction, said supporting fan structures being so constructed and configured as to support the discs against excessive flexing along the major axis thereof and lift and blow during the use of the machine for mowing, the discs comprising:

a central core section of unhardened metal, said central core section comprising at least two-thirds the thickness of the disc; and

hardened surfaces on each side of the central core section.

4,267,691

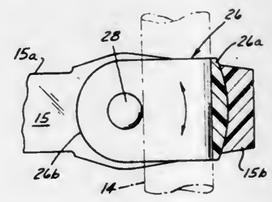
CHAIN HAVING PIVOT PINS ALSO PREVENTING DISASSEMBLY

Ralph R. Schoenick, Mequon, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Nov. 13, 1979, Ser. No. 93,573

Int. Cl.³ F16G *13/06*

U.S. Cl. 59—85 **2 Claims**



1. In a chain wherein each chain joint includes the corre-

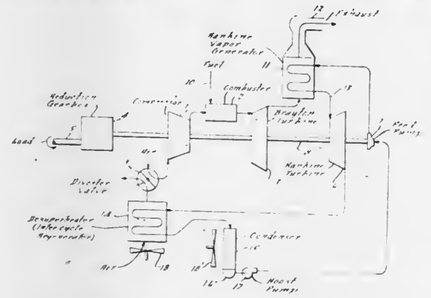
sponding spaced ends of two pin links, one end of a center link which is intermediate said pin link ends, and a T-headed connecting pin extending through said ends; said chain being of the type wherein the center link end includes spaced bars defining therebetween an elongated opening for the pin and wherein the pin is removable by a seque ,ce of steps which includes first moving the pin laterally in said opening; the improvement wherein the center link is of a molded thermoplastic construction and is provided with a U-shaped bushing between the spaced bars and in which the pin is turnable, the two bars of the center link being molded with aligned studs which project toward each other and on which the bushing is pivotable, the distance between the ends of the opposing studs being less than the diameter of the pin (a) to such extent with regard to the stiffness of the bars that manually moving the pin deliberately between the studs is possible as in the intentional disassembly of the chain and (b) to such extent with regard to the stiffness of the bars that manually moving the pin unintentionally between the studs as in handling the chain is improbable.

4,267,692

COMBINED GAS TURBINE-RANKINE TURBINE POWER PLANT

Ernest R. Earnest, Hobe Sound, Fla., assignor to Hydragon Corporation, Lake Park, Fla.

Filed May 7, 1979, Ser. No. 36,516
Int. Cl.³ F02C *6/18*
U.S. Cl. 60—39.18 R **24 Claims**



1. A powerplant having a combined gas turbine engine and Rankine turbine engine, said powerplant comprising
a gas turbine engine comprising a compressor, a gas turbine, and a burner and ambient air supply assembly for delivering air from the compressor and products of combustion from the burner to said gas turbine,
a closed loop Rankine turbine engine comprising a vapor generator, a Rankine turbine, a desuperheater, a condenser and a liquid feed pump, said vapor generator heated by the exhaust of said gas turbine and delivering heat to the Rankine fluid for powering said Rankine turbine,
means for directing air through said desuperheater and toward said compressor, and
valve means upstream of said compressor for selectively introducing said heated air from said desuperheater into said compressor.

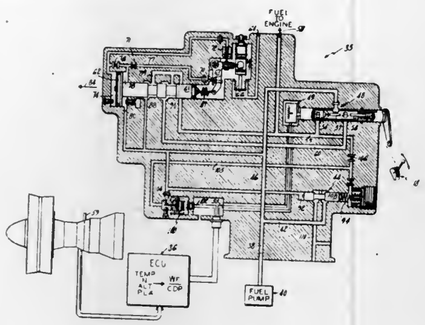
4,267,693

HYDROMECHANICAL FUEL CONTROL WITH INDEPENDENT ELECTROMECHANICAL INTERFACE

Charles F. Stearns, Longmeadow, Mass., assignor to United Technologies Corporation, Hartford, Conn.

Filed Aug. 23, 1979, Ser. No. 69,139
Int. Cl.³ F02C *9/04*
U.S. Cl. 60—39.28 R **1 Claim**

1. A fuel control system, comprising,
a fuel control circuit having a fuel input port for receiving fuel from a fuel supply line and a fuel output for supplying fuel to an output line, said circuit establishing fuel flow between said input and output,
a fuel pressure regulator for maintaining a preselected constant pressure on said supply line by reference to a fuel pressure reference, said reference being augmentable by applying an augmenting pressure to an input port on said regulator,
means for increasing said fuel flow in response to an electrical signal by augmenting said pressure reference, said means comprising,



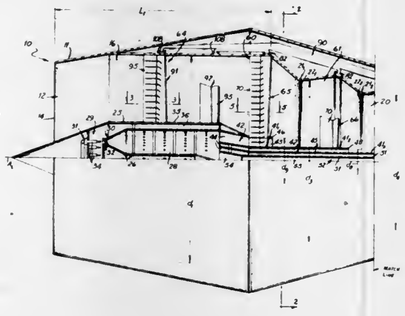
an orifice having its input connected to said regulator input and its output connected to said control circuit output,
a valve controllable by a torque motor in response to said signal for supplying fluid from said fuel supply line to said orifice input, said flow raising the pressure between said control circuit output and said reference, and thereby raising the pressure between said control circuit input and outputs and increasing the fuel flow therebetween.

4,267,694

STAGED INDUCTION ENGINE

Thomas H. Sharpe, 502 Dorr Ave., Belvedere, S.C. 29841

Filed Oct. 10, 1979, Ser. No. 83,394
Int. Cl.³ F02K *7/10*
U.S. Cl. 60—269 **8 Claims**



1. A staged induction engine comprising:
an air duct having a leading end and a trailing end and defining an air passage therethrough open to the atmosphere at the leading and trailing end of said duct so that air can flow through said passage from its leading end to its trailing end, said air passage including an inlet section adjacent its leading end of a first diameter, a nozzle section at its trailing end having a minimum second diameter smaller than said first diameter and a converging section connecting said inlet section and said nozzle section, said converging section varying from said first diameter to said second diameter, said converging section defining a plurality of venturis therein axially spaced from each other along the length of said converging section, each of said venturis having a throat of a diameter smaller than the throat of the next upstream of said venturis;
a burner unit defining combustion chamber therein, a burner inlet thereto and a burner outlet therefrom; and
exhaust jet pumping means operatively associated with said burner outlet, said exhaust jet pumping means including a plurality of venturi jet pumping tubes corresponding in number to said venturis, each of said venturi jet pumping tubes defining an exhaust passage therethrough having an upstream exhaust inlet in communication with the burner outlet so that exhaust gases from said combustion chamber are forced therethrough, each of said exhaust passages having a downstream exhaust outlet from which the exhaust gases are discharged, one of said exhaust outlets being positioned upstream of the throat of each of said venturis so that the exhaust gases will be discharged through the throat of said venturi associated therewith to force air in the air passage through said air duct upstream of said venturi through said venturi under jet pumping action.

4,267,695

BUOYANCY ENERGY ENGINE

Peter Micciche, 614 Drexel Ave., Drexel Hill, Pa. 19026

Filed Sep. 27, 1979, Ser. No. 79,570
Int. Cl.³ F03C *1/00*
U.S. Cl. 60—473 **7 Claims**

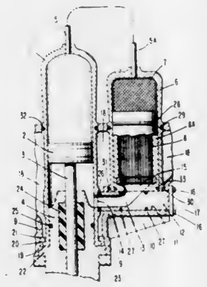
1. In a buoyancy energy engine, the combination of
a vertical casing defining an interior piston space,
the casing having a top, a bottom and interconnecting sidewalls;
a buoyancy piston means reciprocal within the casing between an upper position and a lower position,
the buoyancy piston means comprising a piston and being buoyant in a circulating liquid,
the buoyancy piston means defining a clearance space for the circulating liquid between the piston and the casing sidewalls, top and bottom;
a sealing plate means affixed to the piston,
the sealing plate means comprising a peripheral seal, the seal being adapted for sliding, sealing engagement with the casing sidewalls to prevent liquid leakage thereabout as the piston is reciprocated, the sealing plate means being provided with an opening to permit liquid passage therethrough and a valve means to alternately close and expose the opening to control the passage of the liquid;
a circulating pump means to circulate the liquid about the piston,
the pump means drawing its suction from the casing below the sealing plate means and discharging into the casing above the sealing plate means; and
a work output shaft affixed to the buoyancy piston means and adapted to reciprocate as the piston is reciprocated, the work output shaft being positioned partially within and partially without the casing.

4,267,696

HOT GAS ENGINE

Per S. Lindskoug, Skanor, Sweden, assignor to Kommanditbolaget United Stirling AB & Co., Malmo, Sweden

Filed Feb. 14, 1979, Ser. No. 12,120
Int. Cl.³ F02G *1/04*
U.S. Cl. 60—526 **10 Claims**



1. A hot gas engine having a plurality of monoblock assemblies, each monoblock assembly including a cylinder, a heater pipe system and a regenerator-cooler housing, said monoblock assembly being detachably connected to a crankcase, the improvement in the monoblock assembly comprising:
transversely directed, coaxial bores formed in the regenerator-cooler housing and a cooler unit received therein,
a locking pin passing through said bores and locking the regenerator-cooler housing relative to said cooler unit, and
a cold gas connecting duct in said locking pin for providing communication between the cylinder and the regenerator-cooler housing.

4,267,697

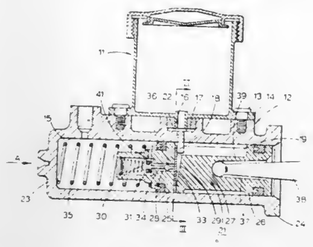
HYDRAULIC MASTER CYLINDER

Harold Hodkinson, Coventry, England, assignor to Automotive Products Limited, Leamington Spa, England

Filed Aug. 22, 1979, Ser. No. 68,536
Claims priority, application United Kingdom, Aug. 31, 1978, 35109/78
Int. Cl.³ B60T *11/28*; F15B *7/08*
U.S. Cl. 60—589 **7 Claims**

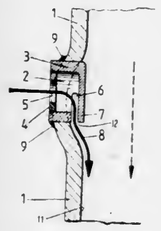
1. A hydraulic reservoir and master cylinder assembly having:
a master cylinder body;
a master cylinder bore with the body;
a piston slideable in the master cylinder bore:
an input rod for transmitting loads to the piston;
a blind bore defined in the piston, co-axial therewith for receiving the input rod;
a stepped bore in the piston, co-axial therewith;
a breather valve located in the stepped bore;
an axial slot in the outer surface of the piston an which axially overlaps with but does not interconnect with the stepped bore;
an abutment projecting laterally into the master cylinder

bore and which is accommodated in said slot thus allowing the piston to slide axially;
and a lever pivoted to the piston and extending substantially



diametrally thereof to be engaged with the abutment to operate the breather valve such that only a relatively short abutment and consequently shallow piston slot are required.

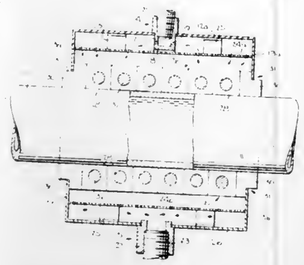
4,267,698
COOLING-AIR NOZZLE FOR USE IN A HEATED CHAMBER
Max Hartmann, Baden, and Ferdinand Thuringer, Wettingen, both of Switzerland, assignors to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland
Filed May 1, 1979, Ser. No. 35,265
Claims priority, application Switzerland, Jun. 13, 1978, 6413/78
Int. Cl.³ F02C 7/18
U.S. Cl. 60—756 **7 Claims**



1. A cooling-air nozzle in combination with a heated chamber of the type comprising an enclosure wall having an internal surface to be cooled, said nozzle including a nozzle body having cooling air inlet means, and cooling air discharge means directed generally longitudinally relative to said wall, said internal surface including a depression, said nozzle body being located within said depression such that the innermost end thereof is substantially flush with said internal surface.

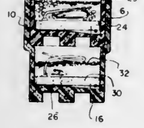
4,267,699
FREEZE ISOLATION SEAL
Harry H. Bahrenburg, 11 Sherman Ct., Bethpage, N.Y. 11714
Filed Feb. 21, 1979, Ser. No. 13,087
Int. Cl.³ F25C 1/00
U.S. Cl. 62—66 **25 Claims**

1. A device for freezing liquid in a conduit by the use of a cryogenic fluid comprising a clamp assembly sized for fitting closely about and gripping a conduit wherein liquid is to be frozen to support the conduit throughout the length of a conduit section wherein the liquid is to be frozen whereby deformation of the conduit under internal pressure is precluded, said clamp assembly also preventing direct contact between the conduit and the cryogenic fluid, and a housing adapted to surround the clamp assembly and to define a space between the clamp assembly and the housing for the flow of the cryogenic



fluid, the housing having an inlet and an outlet for cryogenic fluid.

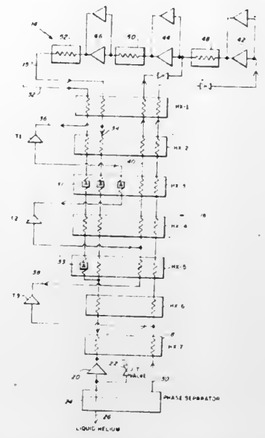
4,267,700
CONTAINER METHOD AND APPARATUS
Buryl Minter, P.O. Box 655, Chugiak, Ak. 99567
Filed Oct. 23, 1979, Ser. No. 88,192
Int. Cl.³ F25C 1/18; F28C 1/00; F25D 3/08
U.S. Cl. 62—70 **7 Claims**



1. The method of using containers for transporting and chilling materials comprising placing a manifold in a bottom of a container, placing ice in the bottom of the container and on the manifold, stacking a number of containers having manifolds and ice, shipping the stacked containers, unstacking the containers, connecting a pressurized air supply to a manifold in a bottom of a container, adding water and materials to be cooled, supplying air to the manifold and bubbling air through the water and ice and materials, placing a cover on the container and stacking another similar container on the cover.

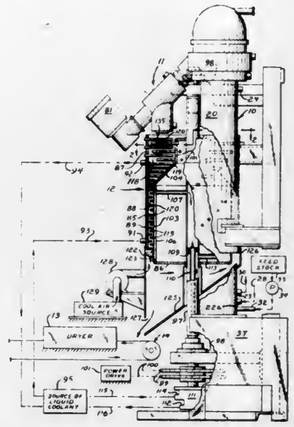
4,267,701
HELIUM LIQUEFACTION PLANT
William M. Toscano, Sudbury, Mass., assignor to Helix Technology Corporation, Waltham, Mass.
Filed Nov. 9, 1979, Ser. No. 92,232
Int. Cl.³ F25B 9/00
U.S. Cl. 62—86 **10 Claims**

1. In a liquefaction plant of the type in which gas in a high pressure line from a compressor section is precooled by gas in medium and low pressure lines and is liquified in a liquifying stage, some high pressure gas is expanded and returned to the compressor section through the medium pressure line, and gas from the liquifying stage is returned to the compressor section through the low pressure line, the improvement of:



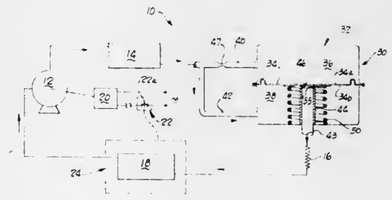
an expander between the medium and low pressure lines for further cooling a portion of the medium pressure gas.

4,267,703
METHOD AND APPARATUS FOR MANUFACTURING CRYSTALLINE FOOD PRODUCTS
Bernard W. Minifie, Saltford, England, and Ted S. Czyzewski, Bloomingdale, Ill., assignors to Groen Division - Dover Corporation, Elk Grove Village, Ill.
Continuation of Ser. No. 770,269, Feb. 22, 1977, abandoned, which is a division of Ser. No. 660,846, Feb. 24, 1976, Pat. No. 4,086,371. This application Aug. 3, 1979, Ser. No. 63,551
Int. Cl.³ B01D 9/02
U.S. Cl. 62—123 **33 Claims**



1. An apparatus for preparing a crystalline product from a liquid feed stock material comprising sugar, milk solids and a significant amount of moisture, said apparatus comprising in combination:
evaporator means comprising walls defining a substantially vertical passage for the flow of material to be condensed, an input at the bottom of said passage for said feed stock material, a first discharge at the top of said passage for the condensed material, and means to heat said walls above the vaporization temperature of said moisture;
crystallizer means comprising two walls defining a descending second passage having an input at the top and a discharge at the bottom, a first group of material engaging elements extending from one of said walls into the second passage, a second group of material engaging elements extending from the other of said walls into the second passage in juxtaposition to the first group, means for moving one of said groups of elements transversely to said second passage with respect to the other group of elements to knead material in the second passage; and
transfer means for moving condensed material from the discharge of the first passage to the input of the first passage.

4,267,702
REFRIGERATION SYSTEM WITH REFRIGERANT FLOW CONTROLLING VALVE
William J. Houk, Miami, Fla., assignor to Ranco Incorporated, Columbus, Ohio
Filed Aug. 13, 1979, Ser. No. 66,188
Int. Cl.³ F25B 1/00; G05D 23/00
U.S. Cl. 62—115 **12 Claims**
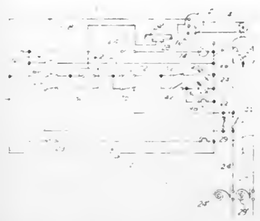


1. In a refrigeration system including a compressor, a refrigerant condensing heat exchanger, a refrigerant evaporating heat exchanger, a refrigerant expansion device for enabling condensed refrigerant to expand into said evaporating heat exchanger and a control device for cycling the compressor on and off according to a sensed condition, the improvement comprising: refrigerant flow controlling valve means for blocking flow of refrigerant between the refrigerant condensing heat exchanger and the refrigerant evaporating heat exchanger when the compressor is cycled off and for enabling refrigerant flow between the refrigerant condensing heat exchanger and the refrigerant evaporating heat exchanger when the compressor is cycled on, said valve means including a refrigerant pressure responsive member movable to condition said valve means to block refrigerant flow in response to changes in refrigerant pressure caused by the compressor cycling off and movable to condition the valve means to enable refrigerant flow in response to changes in refrigerant pressure caused by the compressor cycling on.

4,267,704
TIMING CIRCUIT FOR AIR CONDITIONER CHILLER
Jack Yapp, 11338 Yearling, Cerritos, Calif. 90701
Filed Feb. 9, 1979, Ser. No. 10,891
Int. Cl.³ G05D 23/32; F04B 49/00
U.S. Cl. 62—158 **17 Claims**

1. A timing circuit for an air conditioner compressor for compressing a coolant to cool a recycling heat transfer fluid employing restriction means that governs the supply of coolant to said compressor by opening to increase coolant supply to said compressor and by closing to reduce coolant supply to said compressor comprising:
an initial timing means responsive to initial power loading of said compressor to arrest the operation of said restriction

means to limit coolant supply to said compressor to a minimum level during an initial timing interval,

a return sensor providing opposite signals above and below a setpoint temperature and arranged to monitor temperature of said recycling heat transfer fluid as it returns to thermal communication with said coolant, and



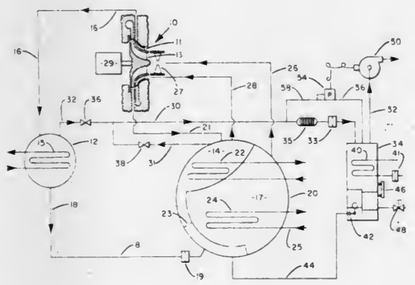
duty cycle timing means operative in response to signals from said return sensor corresponding to temperatures above said setpoint temperature to intermittently open said restriction means, and inoperative in response to signals from said return sensor corresponding to temperatures below said setpoint temperature.

4,267,705

REFRIGERATION PURGING SYSTEM

Gary S. Leonard, Minoa, and Thomas M. Zinsmeyer, Pennellville, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Sep. 12, 1979, Ser. No. 74,693
Int. Cl.³ F25B *43/04*
U.S. Cl. 62—195 **2 Claims**



1. A purge system for use in removing non-condensible gases and other contaminants, such as water, from a refrigeration system of the type utilizing more than one condenser, each of which operates at a different pressure, comprising:

a purge chamber having a cooling coil located in the chamber to condense refrigerant vapor, means to return condensed refrigerant to the refrigeration system and means to remove condensed contaminants from the chamber,

a main purge line connected to the purge chamber to conduct refrigerant vapor, non-condensible gases and contaminants and including a pressure reducing device located in the line,

a series of secondary purge refrigerant lines arranged to connect said main purge refrigerant line to each condenser to provide vaporous mixture from the condenser to the main purge refrigerant line,

means located in each secondary purge refrigerant line to prevent vapor from flowing from one condenser to another condenser,

pump means connected to the purge chamber to remove non-condensible gases from the purge chamber,

a pressure differential measuring device connected by a first pressure sampling line to the purge chamber and by a second pressure sampling line to the main purge refrigerant line at a point ahead of the pressure reducing device,

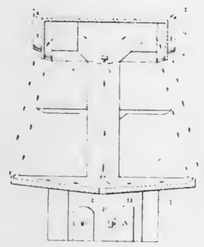
said pressure differential means being operatively connected to the pump means to activate the pump means when the pressure differential between the purge chamber and the main purge refrigerant line drops below a preset amount.

4,267,706

SHOP AROUND REFRIGERATED MERCHANDISER

Fayez F. Abraham, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Filed May 31, 1979, Ser. No. 44,021
Int. Cl.³ A47F *3/04*
U.S. Cl. 62—256 **13 Claims**



1. A refrigerated display case comprising:

a cabinet having top and bottom sections and air conduit means coupling said top and bottom sections and said cabinet having an opening therein between said top and bottom sections, said opening circumscribing an angle of at least approximately 90°;

said conduit means having a vertically extending portion located approximately at the center of radius of said cabinet and extending into both said top and bottom sections, said conduit means including a first air conduit and a second air conduit;

said first air conduit passing through said conduit means and having at opposing ends thereof an air outlet opening and an air inlet opening, said air outlet opening and said air inlet opening being in alignment for establishing an inner air curtain across said opening in said cabinet;

said second air conduit passing through said conduit means and lying so as to be at least partially surrounded by said first air conduit in said vertically extending portion thereof and said second air conduit having at opposing ends thereof an air outlet opening and an air inlet opening lying outside of said air outlet and inlet openings of said first air conduit, said air outlet opening and said air inlet opening being in alignment for establishing a second air curtain across said opening in said cabinet, such second air curtain being directed along a path spaced outwardly of the inner air curtain;

first air band establishing means for circulating air through said first air conduit and forming an air band of refrigerated air within said display case, said first air establishing means including first air propelling means arranged within said first air conduit for propelling air through said first air conduit and refrigeration means for cooling air passing through said first air conduit and such cool air being expelled from said air outlet opening of said first air conduit and received by said inlet opening of said first air conduit so as to establish a band of refrigerated air with an inner air curtain across said opening in said cabinet;

second air band establishing means for establishing a band of non-refrigerated circulating air in said second air conduit

and including second air propelling means for propelling air through said second air conduit such that such air leaving said outlet opening of said second air conduit passes across said opening in said cabinet and is received by said inlet opening of said second air conduit, thereby establishing a secondary air band with the second air curtain across said opening in said cabinet; and

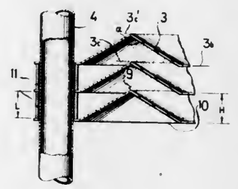
defrost means for deactivating said refrigeration means and causing ambient air to circulate through said first air conduit for defrosting said refrigeration means.

4,267,707

THERMAL RADIATION SHIELD

Johann Hemmerich, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich Gesellschaft mit beschräü äÄË üÖïÏ üö ü Ä üä

Filed Nov. 9, 1979, Ser. No. 92,660
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907055
Int. Cl.³ F28F *1/30*
U.S. Cl. 62—514 R **9 Claims**



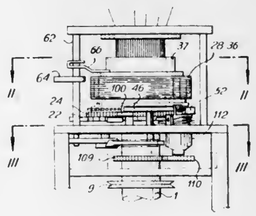
1. The combination of a cooled member of a cryogenic element with a thermal radiation shield, said shield comprising a plurality of spaced-apart stacked thermally conductive plates of annular configuration surrounding said member and having a continuous V-section extending in a toroidal pattern with a ridge of each plate extending into the V section of an overlying plate, said plates having aligned holes traversed by cooled tubes, and means for spacing said plates apart along said tubes.

4,267,708

CIRCULAR HOSIERY MACHINE AND THE LIKE, HAVING SIMPLIFIED PROGRAM CONTROL MEANS

Giovanni Chietti, San Casciano Val di Pesa, Italy, assignor to Macchine Tessili Circolari MATEC S.p.A., Italy

Filed Dec. 14, 1978, Ser. No. 969,292
Claims priority, application Italy, Dec. 16, 1977, 9659 A/77
Int. Cl.³ D04B *15/94, 15/00*
U.S. Cl. 66—56 **4 Claims**



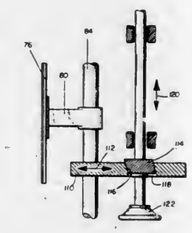
1. A circular knitting machine comprising a needle cylinder, means defining a control cam shell, means defining a program cam drum, said cam shell and program drum being co-axial with the needle cylinder, pawl means for advancing said drum, means for causing the drum to advance selectively through angular movements of short or long-pitch, said advancing means comprising means defining an array of seats on the drum, removable pin means located in selected ones of the seats, and control means cooperating with the pin means and operative to control the pawl means in dependence on the arrangment of the pin means so as to effect short or long-pitch advance of the drum, two ratchet wheels rotatable with the drum, one of said ratchet wheels having small-pitch teeth, and the other of said ratchet wheels having long-pitch teeth, said pawl means comprising first and second pawls each associated with a respective one of the two ratchet wheels, said control means being operative to actuate a selected one of the two pawls in accordance with the arrangement of the pin means, a manual control for actuating that one of the pawls which is associated with the ratchet wheel having long-pitch teeth to cause a rapid advancement of the drum to a zero-setting position, means for maintaining said advancement until said zero-setting position has been reached, a cam rotatable with the needle cylinder, means linking the cam to that one of the pawls which is associated with the ratchet wheel having long-pitch teeth such that the pawl is reciprocated by rotation of the cam, said linking means being rendered selectively operative and inoperative by the action of said control means and of said manual control, and means for changing the speed of needle cylinder rotation, such that during the long-pitch advancements of the drum, the cylinder rotates at a reduced speed.

4,267,709

TWIN-BEDDED WARP KNITTING MACHINE

Gerhard Hittel, Rodgau, Fed. Rep. of Germany, assignor to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany

Filed Nov. 23, 1979, Ser. No. 97,032
Claims priority, application Fed. Rep. of Germany, Dec. 1, 1978, 2851995
Int. Cl.³ D04B *23/02*
U.S. Cl. 66—87 **4 Claims**



1. A twin needle bed warp knitting machine comprising:

(a) a plurality of needle bars disposed parallel to each other having a plurality of needles affixed thereon, forming a pair of needle beds, said needles traversing a path from the knock-over to the lapping position which increases their separation in a direction perpendicular to said needle beds;

(b) a plurality of commonly swingable guidebars including a plurality of guides affixed thereon, said guides having flat end portions disposed parallel to the swing plane of said guides, at least one of said guidebars forming stitches on both needle beds and at least one of said guide bars performing an underlap displacement movement, said guidebars having a forward and reverse swinging movement corresponding to a single work cycle of said needle bed;

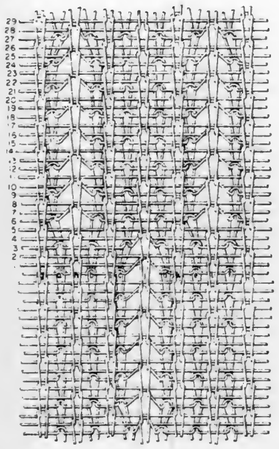
(c) means for adjusting the separation between said needles on one of said pair of needle bars from the needles on the other of said pair of needle bars when said needles are in the knock-over position, said separation being smaller than the space required for an underlap displacement by one of said guides; and

(d) a pair of parallel trick plates having knock-over edges disposed between said pair of needle bars, each trick plate cooperating with one of said needle bars in the formation of stitches.

4,267,710
DOUBLE KNIT FABRIC WITH PATTERNED LOOP INTERLOCKING

Yoshio Imamichi, Tondabayashi, Japan, assignor to Mizuno Sporting Goods Co., Ltd., Osaka, Japan

Filed Oct. 14, 1977, Ser. No. 842,169
Claims priority, application Japan, Oct. 18, 1976, 51/140375[U]
Int. Cl.³ D04B 7/04
U.S. Cl. 66—196 1 Claim

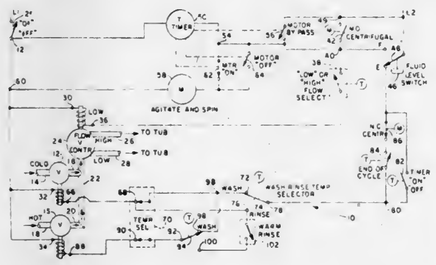


1. A double knit fabric having a front surface comprising courses of plain knit stitches formed from a synthetic fiber yarn such as polyester and a rear surface comprising courses of plain knit stitches formed from a natural fiber yarn such as cotton, or a blended yarn wherein each of the front and rear surface courses are interlocked with one another by the engagement of a plurality of loops between a first pair of rear surface wales to a first series of loops of a front surface wale with this interlocking occurring for a first series of courses with a plurality of non interlocked rear wales occurring between adjacent first wale pairs and whereir said wale pairs are separated by an interlocking of the loops of a second rear wale pair to a second series of front surface loops in a second series of courses adjacent to said first course series.

4,267,711
CONTROL SYSTEM FOR LAUNDRY APPLIANCE

Lawrence A. Kolze, Bensenville, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 15, 1979, Ser. No. 84,958
Int. Cl.³ D06F 33/02
U.S. Cl. 68—12 R 7 Claims



1. A control system for a laundry appliance of the type having a receptacle filled with washing fluid and the articles to be laundered are agitated in the fluid by a motor, said control system comprising:

(a) headsensor means operable in response to the fluid level in said receptacle to make and break an electrical circuit when said fluid level is greater than or less than a predetermined value;

(b) circuit means operable in response to said headsensor means to energize the machine motor from a source of power;

(c) timing means adapted for connection to a source of power and operable in response to energization of said motor means to provide a plurality of outputs at predetermined time intervals;

(d) fill valve means having a first input adapted for connection to a source of heated washing fluid and a second input adapted for connection to a source of unheated washing fluid and operable in response to making of said headsensor circuit to provide a selected mixture of said heated and unheated washing fluid;

(e) flow control valve means having the input thereof connected to receive the flow of washing fluid mixture from said fill valve means, said flow control valve means being operable in a first state to provide a first, or low, rate of flow therethrough and being operable in a second state to provide a second, substantially higher, rate of flow therethrough for filling said washing receptacle, said flow control valve means including actuator means operable upon connection to a source of power to change said flow control valve means from said high-flow state to said low-flow state and means biasing said valve means to said high-flow state;

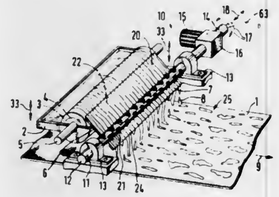
(f) low-switch means operable in response to one of said timing means out puts to connect said flow control valve actuator means to a source of power for changing said flow control valve means to said low-flow state; and,

(g) duty cycle switch means operable in response to a second output of said timing means to intermittently interrupt said connection of said fill valve means to said source of power thereby intermittently stopping flow of said washing fluid.

4,267,712
PATTERN-CREATING DEVICE FOR ADVANCING TEXTILE OR SIMILAR WEBS

Heinz Grüber, Tönisvorst, Fed. Rep. of Germany, assignor to Eduard Küsters, Krefeld, Fed. Rep. of Germany

Filed Feb. 20, 1980, Ser. No. 122,861
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1979, 2938494
Int. Cl.³ D06B 1/06
U.S. Cl. 68—205 R 10 Claims



1. In a pattern creating device for advancing textile or similar webs, in which a pattern creating liquid is present, prior to being applied to the web, in the form of a film which extends over the entire width of the web and flows onto the web over a run-off surface inclined at an angle, and drops from the lower edge of the run-off surface freely onto the web, said device having a rotatable tube which extends along the run-off surface parallel and spaced therefrom and supported for movement back and forth in its longitudinal direction, said tube containing a plurality of pattern creating elements which are distributed over its surface and are adapted to make the film, which flows down over the run-off surface, nonuniform at certain points, the improvement comprising:

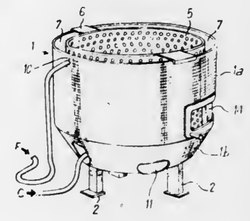
(a) the plurality of pattern creating elements being a plurality of soft resilient wiper elements which are attached to the circumference of the tube and occupy only a fraction of the dimension of the tube in the longitudinal and circumferential direction thereof; and

(b) said tube supported adjacent said run-off surface such that said elements engage the run-off surface in the interior thereof at a distance from the lower edge of said surface.

4,267,713
MACHINE FOR DEPILATING THE SKINS OF SLAUGHTERED ANIMALS

Claude Tournier, Lioujas, 12000 Rodez, France

Filed Dec. 4, 1979, Ser. No. 100,226
Claims priority, application France, Dec. 4, 1978, 78 34721
Int. Cl.³ C14B 15/00; C14C 1/00
U.S. Cl. 69—24 11 Claims

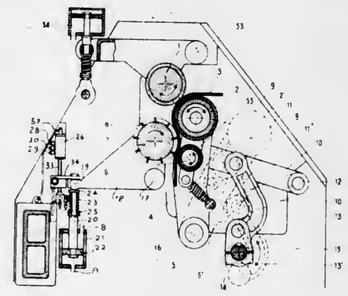


1. Machine for removing the hair from animal hide, comprising an upwardly open vat and a horizontal perforated plate arranged in the lower part of the vat and rotationally driven on a central pivot by suitable means, said plate being provided on its surface in contact with the material to be treated with sharp edges formed on the contour of said perforations, and bounded peripherally by a fixed perforated cylinder, defining with the inner wall of the vat a coronary space ensuring the removal of the hair stripped off and projected by centrifugal force into the openings of said cylinder.

4,267,714
HYDRAULIC DEVICE FOR PRODUCING A TO-AND-FRO MOVEMENT

Silvio Repetto, Modena, Italy, assignor to S.p.A. Luigi Rizzi & C., Modena, Italy

Filed Jul. 7, 1978, Ser. No. 922,842
Claims priority, application Italy, Sep. 15, 1977, 27585 A/77
Int. Cl.² C14B 1/06
U.S. Cl. 69—32 7 Claims



1. A hydraulic device for producing a to-and-fro movement of a first member, the device comprising a double-acting piston-cylinder unit to which the first member is connected, a pressure fluid distributor including a control member for alternately feeding pressure fluid to one side or to the other side of the piston in the piston/cylinder unit to move the first member alternately in opposite directions, and a hydraulically actuable control device for controlling the distributor, the control device including a cylinder, a reciprocable piston member movable in the cylinder and a motion transmitting member, the piston member having a central large diameter section between two reduced diameter sections, and the motion transmitting member being in contact with the surface of the piston member so as to move transversely of the cylinder first in one direction and then in the opposite direction when the piston member moves relative to the motion transmitting member between two end positions, the motion transmitting member also being in contact with the control member of the distributor to transmit motion thereto, the control device also including an independently actuable single-acting piston movable into a position where it holds the piston member with its large diameter section registering with the motion transmitting member.

4,267,715
SKI EQUIPMENT LOCK

Edward C. Aylesworth, 33511 Pacific Hwy. S., Federal Way, Wash. 98003

Filed Jul. 6, 1979, Ser. No. 55,180
Int. Cl.³ E05B 73/00, 37/02
U.S. Cl. 70—58 18 Claims



1. A security line shackle integratable into a ski pole shaft below the handle, comprising:

first and second parts, each including an end portion connectable to a section of a ski pole shaft, and each including a jaw member which projects laterally outwardly beyond a side boundry of the ski pole shaft;

means connecting said first and second parts together for limited telescopic movement, between an open position in which the two jaw members of the two parts are spaced apart axially a distance greater than the diameter of a security line and a closed position in which the two jaw members are positioned relatively close together;

at least one of the jaw members including a chordwise groove in the side thereof which faces towards the other jaw member, said groove being sized to receive a portion of a security line; and

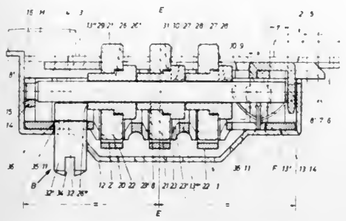
lock means carried by one of said parts operable to lock the two parts together in said closed position.

4,267,716

COMBINATION LOCK FOR BAGGAGE

Peter Milles, Alberthofen, Fed. Rep. of Germany, assignor to S. Franzen Sohne (GmbH & Co.), Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 55,067
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 2828859; Jul. 8, 1978, 2830091; Jul. 8, 1978, 2830092
Int. Cl.[3] E05B *37/02, 65/52*
U.S. Cl. 70—70 6 Claims



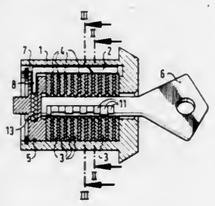
1. A combination lock for baggage, the lock having a housing containing a spindle which carries individual rotatable blocking sleeves, the sleeves being capable of being uncoupled against spring action by hand-actuated axial displacement from respective number selection discs for resetting the opening combination and having keyways which, when the opening combination is set, are in alignment with, and can receive projections on, a longitudinally slidable locking bolt positioned behind a front plate of the lock; and spring tongues bearing against the peripheries of the number selection discs and arranged to engage in catch recesses in the peripheries to locate the number selection discs in angular positions corresponding to selected numbers and to limit the rotation of the number selection discs in one direction in datum positions, characterized in that the spring tongues are formed integrally with a box-like insert in the lock housing, characterized in that the lock housing insert is formed symmetrically on each side of its transverse central plane, both end walls of the insert having similar bearings for receiving the ends of the spindle with a snap action and both regions of a bottom of the insert adjacent to the end walls having openings for the optional passage of a hand actuator for the displacement of the block sleeves relatively to the number selection discs.

4,267,717

DISC CYLINDER LOCK

Kaarlo Martikainen, Joensuu, Finland, assignor to Oy Wartsila Ab, Helsinki, Finland

Filed Nov. 14, 1979, Ser. No. 94,105
Claims priority, application Finland, Nov. 17, 1979, 783510
Int. Cl.[3] E05B *29/02*
U.S. Cl. 70—366 6 Claims



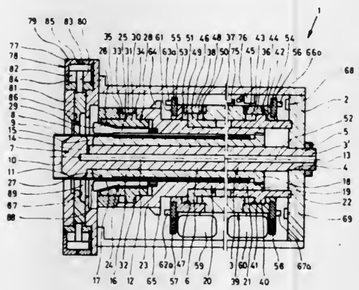
1. A cylinder lock comprising a fixed, hollow cylinder housing and therein a plurality of tumbler discs turnable by means of the key of the lock, each tumbler disc having a peripheral recess, a locking bar axially disposed in said lock and being guided by said locking discs in a radial direction of the lock, said locking bar being movable between an outer, locking position and an inner, releasing position, and further, a turnable force-transmission member non-turnably connected to said locking bar, wherein the improvement consists in the combination, that between said locking discs, there are, in a manner known per se, spacer discs provided with a peripheral recess at the position of said locking bar, said peripheral recess being formed to give said locking bar lateral guidance when it is moved between said two positions, that said locking discs as well as said spacer discs are turnably guided and radially supported directly by the internal surface of said cylinder housing, and that said locking discs, said spacer discs and said locking bar have guiding surfaces acting in a tangential direction of the lock, said guiding surfaces providing a tangential locking of said spacer discs relative to said locking bar in all functional positions of the lock as well as fixed limits for the movability range of said locking discs relative to said locking bar and means for obtaining a force transmission from said locking discs to said locking bar at the limits of said movability range.

4,267,718

APPARATUS FOR PRODUCING A TUBE WITH SUCCESSIVE CORRUGATIONS OF DIFFERENT RADIAL EXTENSIONS AND SPACINGS

Hubertus Benteler, Bielefeld; Egon Olszewski; Rainer Hansen, both of Paderborn-Elsen, and Ferdinand Wecker, Paderborn-Sennelager, all of Fed. Rep. of Germany, assignors to Benteler-Werke AG, Paderborn, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,213
Int. Cl.[3] B21D *15/06*
U.S. Cl. 72—59 8 Claims



1. Apparatus for producing a tube with successive corrugations of different radial extensions and spacings from a tubular blank of constant diameter, comprising support means; a central pin having an elongated shaft portion fixedly attached only at one end to said support means and having a radially enlarged head portion at the other end; a tubular member mounted on said shaft portion of said central pin for moving in axial direction and adapted to support together with said head portion a tubular blank at the inner surface thereof, said tubular member having one end axially spaced from said head portion to form between said one end and said head portion and a blank supported thereon an annular expansion chamber; first clamping means comprising a plurality of hydraulically operated and radially movable holding and forming jaws opposite said head portion; second clamping means comprising a plurality of circumferentially displaced radially tiltable clamping fingers of a collet arranged in the region of said one end of the tubular member about the outer circumference of a blank supported by the latter; a hydraulically operated axially movable annular clamping piston surrounding said clamping fingers for moving the latter between a clamping and a releasing position; an upsetting cylinder connected at one end to the other end of the tubular member and having opposite said one end a radially enlarged end portion surrounding and guiding said clamping piston for movement in axial direction; an axially movable corrugation cylinder surrounding part of said upsetting cylinder and being formed with an annular groove; a pair of annular

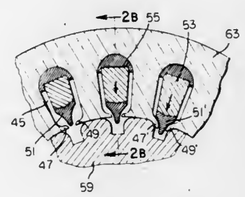
discs respectively mounted on opposite ends of said corrugation cylinder turnable about the axis of the latter but axially immovable thereto and each provided with axially extending projections; a pair of abutments respectively provided on said radially enlarged end portion of said upsetting cylinder and on said support means and respectively located opposite said projections; an annular collar fixed to said upsetting cylinder and located in said annular groove of said corrugation cylinder and forming in said groove two chambers adapted to be alternatingly filled with pressure fluid so as to axially move said upsetting cylinder relative to said corrugation cylinder; means for turning said discs to align a respective projection with the corresponding abutment to limit axial movement of said upsetting cylinder; and means for feeding pressure fluid into said expansion chamber after axially spaced portions of the blank have been clamped against the head portion and said one end of the tubular member by said first and said second clamping means to expand a portion of the blank clamped between said first and said second clamping means.

4,267,719

APPARATUS FOR ASSEMBLING DYNAMOELECTRIC MACHINE STATORS

Robert G. Walker, Ossian, Ind., assignor to Industra Products, Inc., Fort Wayne, Ind.

Division of Ser. No. 834,106, Sep. 19, 1977, Pat. No. 4,176,444.
This application Jun. 1, 1979, Ser. No. 44,754
Int. Cl.[1] H02K *15/02*
U.S. Cl. 72—122 3 Claims



1. A device for deforming the tips of the teeth of a hollow cylindrical dynamoelectric machine stator core radially inward throughout the entire axial extent of the core to provide enhanced openings for the insertion of windings into that core comprising a stator bore support for engaging and supporting the stator core, a plurality of punches each disposable in a corresponding stator core slot, and means for forcing each punch toward a corresponding pair of stator tooth tips.

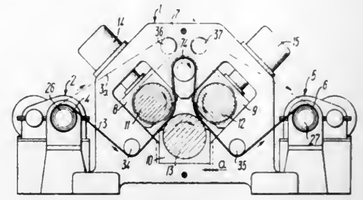
4,267,720

MILL FOR ROLLING METAL STRIPS

Vladimir N. Vydrin, ulitsa Timiryazeva, 28, kv. 27; Leonid M. Ageev, ulitsa Rossiiskaya, 200, kv. 28, and Anatoly P. Pellenen, ulitsa Degtyareva, 49a, kv. 48, all of Chelyabinsk, U.S.S.R.

Division of Ser. No. 836,400, Sep. 26, 1977, abandoned. This application Nov. 9, 1979, Ser. No. 92,968
Claims priority, application U.S.S.R., Nov. 17, 1976, 2416651
Int. Cl.[3] B21B *39/08, 1/28*
U.S. Cl. 72—205 9 Claims

1. A mill for rolling metal strips, comprising: a stationary working stand having a housing; at least three work rolls mounted in said stand and cooperating successively through the strip being rolled, at least two of said rolls being secured in chocks placed in said housing of the working stand, the axis of a middle work roll being offset with respect to a plane passing through the axes of the extreme work rolls in the direction of entry of the strip being rolled into a first pair of said work rolls, defined by said middle work roll and a first extreme work roll along the path of rolling, and of exit of the strip from a second pair of work rolls, defined by said middle work roll and a second extreme work roll; drive means for rotating said work rolls in opposite directions at different peripheral speeds increasing along the path of rolling; a screw down for at least one of said work rolls; means for decoiling the strip; means for coiling the strip; and a deflecting roll mounted on said housing and arranged with respect to said middle work roll on the



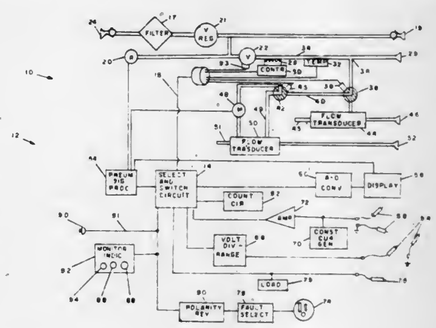
opposite side of a plane passing through the axes of said extreme work rolls, the axis of said deflecting roll being in a plane passing through the axis of said middle work roll perpendicularly to the plane passing through the axes of said extreme work rolls.

4,267,721

RESPIRATORY ANALYZER

Ned Longenecker, Lancaster; Clair M. Becker, Washington Boro; David P. Riegel, Landisville, and Alan G. Vogt, Jr., Lancaster, all of Pa., assignors to Timeter Instrument Corp., Lancaster, Pa.

Filed Nov. 9, 1979, Ser. No. 92,723
Int. Cl.[3] G01L *27/00*
U.S. Cl. 73—1 G 9 Claims



1. An apparatus for multiple function calibration and testing of respiratory therapy equipment comprising:
- a structural means;
- an electronically operated digital display located on a surface of the structural means;
- an analog to digital converter, the output of which is connected to the digital display;
- a selecting and switching means which activates preselected valves and connects pre-selected transducers to the analog to digital converter upon operation of any of several switches, each switch controlling a particular calibration procedure;
- a pneumatic signal processer, electrically connected to the selecting and switching means and to the digital display, capable of converting pressure information to electrical signals;
- a high flow inlet mounted upon the structural means;
- a high flow linear transducer the flow inlet side of which is connected to the high flow inlet;
- a high flow outlet connected to the flow outlet side of high flow transducer;

a low pressure transducer the negative pressure side of which is connected to the low pressure output of the high flow transducer and the electrical output of which is connected to the pneumatic signal processor;

a first selector valve, connected to and controlled by the selecting and switching means, the outlet of which is connected to the positive pressure inlet of the low pressure transducer, a first inlet of which is connected to the high pressure outlet of the high flow transducer and a second inlet of which is connected to the outlet of a second selector valve;

a low flow inlet mounted upon the structural means;

a low flow transducer, the flow inlet side of which is connected to the low flow inlet;

a low flow outlet connected to the flow outlet side of the low flow transducer; and

a second selector valve, connected to and controlled by the selecting and switching means, the outlet of which is connected to the second input of the first selector valve, a first inlet of which is connected to the high pressure output of the low flow transducer.

4,267,722

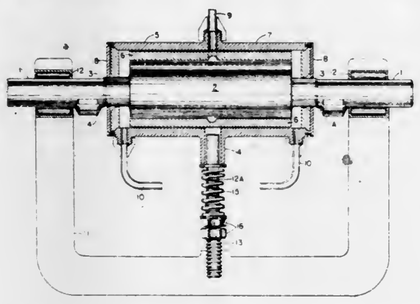
ADJUSTABLE LUBRICATION QUALITY INDICATOR-PROTECTOR FOR ENGINES AND OTHER MACHINES

Harold M. Hendry, 5107 S. Westshore Blvd., Tampa, Fla. 33611

Continuation-in-part of Ser. No. 912,999, Jun. 6, 1978, Pat. No. 4,169,368. This application Aug. 2, 1979, Ser. No. 63,084

Int. Cl.[3] **G01N** *19/00, 33/30*

U.S. Cl. 73—10 **14 Claims**



1. A device for indicating the lubricating quality of lubricating oil for a machine, comprising in combination:

a frame rotatably mounting a shaft;

said rotatable shaft having a journal for rotation with said shaft;

a housing having an internal cavity;

means for rotatably mounting said housing on said rotatable shaft with said journal disposed within said internal cavity of said housing;

a journal engaging member mounted in said internal cavity for engaging said journal;

means for establishing a normal force between said journal engaging member and said journal;

an oil inlet and an oil outlet communicating with said internal cavity in said housing;

means connecting said oil inlet and said oil outlet to the machine for circulating the lubricating oil between said housing and the machine;

said oil inlet and said oil outlet directing the lubricating oil between said journal and said journal engaging member;

means for retarding the rotation of said housing relative to said frame;

electric motor means for driving said rotatable shaft relative to said housing;

first means for indicating the electrical input to said electric motor to determine the quality of the lubricating oil from the electric motor torque required to rotate said shaft relative to said housing; and

second means for indicating the rotational position of said housing relative to said frame to provide a second determination of the quality of the lubricating oil from the torque transferred from said rotating shaft to said housing by friction between said journal and said journal engaging means.

4,267,723

METHOD OF INTRODUCING A LIQUID INTO A MEASURING TUBE

John D. Mull, 1905 Fieldgate Dr., Burlington, Ontario, Canada (L7P 3H4)

Filed Jul. 19, 1979, Ser. No. 58,893

Int. Cl.[3] **G01N** *15/04, 33/48*

U.S. Cl. 73—61.4 **2 Claims**



1. A method of determining the erythrocyte sedimentation rate of a blood sample, comprising the following steps in sequence:

providing a device comprising: an elongate transparent tube which is open at both ends and which is marked with a series of graduations extending longitudinally of the tube; and a cap fitted to a first end portion of the tube and having a closed top and a skirt which depends from said top and makes airtight sealing engagement with the tube, the cap being slidable along the tube from a first position to a second position closer to the first end of the tube than said first position while maintaining said airtight sealing engagement;

arranging the cap at its first said position;

immersing a second end portion of the tube in the blood sample;

while maintaining said second end portion of the tube immersed in the blood sample, sliding the cap along the tube towards its said second position to an extent sufficient to cause blood to be drawn up the tube to an appropriate level determined by reference to said graduations;

removing the tube from the blood sample;

maintaining the tube in an upright position with the first end portion of the tube uppermost for a predetermined length of time; the lumen of the tube being dimensioned so that the column of blood is retained in the tube; and,

after said predetermined length of time, determining by reference to said graduations the extent to which erythrocytes in the blood have settled as an indication of the erythrocyte sedimentation rate of the blood sample.

4,267,724

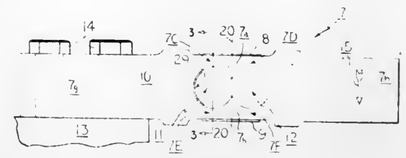
STRAIN-GAGE TRANSDUCER BRIDGE GAGES WITH INTEGRAL CALIBRATION RESISTORS

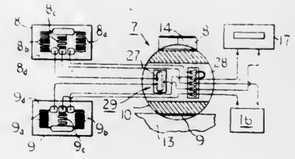
Martin Spoor, Cambridge, Mass., assignor to Bofors America, Inc., Edison, N.J.

Filed Jan. 8, 1979, Ser. No. 1,607

Int. Cl.[3] **G01L** *1/20*

U.S. Cl. 73—862.65 **8 Claims**





1. A strain-gage transducer bridge gage unit for a transducer having a sensing portion exhibiting surface strains in response to loading thereof, comprising a relatively thin broad-area insulating carrier having a thin metal layer thereon shaped to form both at least a pair of strain gages and a calibration resistor thereon which are integral with one another and with relatively large-area wiring tabs, active portions of said strain gages and said calibration resistor being spaced apart laterally along said carrier to occupy separate positions and to have predetermined orientations promoting response to surface strains and immunity from effects of surface strains, respectively, when said carrier is bonded with predetermined surfaces of a sensing portion of a transducer, said calibration resistor being directly connected integrally at one end with one of said tabs and at its other end with a junction of each of two of said strain gages, whereby said calibration resistor is disposed for electrical wiring externally of a strain gage bridge including said strain gages and calibrates external impedance characteristics of a bridge, said calibration resistor exhibiting resistance which does not vary significantly with temperature over an intended range of use.

4,267,725

ARRANGEMENT FOR REGISTERING LOADS

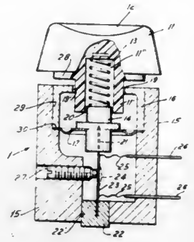
Jac M. Roth, and Veronika Roth nee Werner, both of Sandbuechel 26a, D-506 Bensberg-Refrath, Fed. Rep. of Germany

Filed May 22, 1979, Ser. No. 41,517

Int. Cl.[3] **G01L** *1/22;* **G01D** *1/18*

U.S. Cl. 73—862.65 **8 Claims**

1. An arrangement for registering loads comprising an elongated transversely flexible element having two end portions and an intermediate portion therebetween; fastening means for rigidly fastening said end portions, said fastening means including a laterally immovable pressing nipple rigidly embracing one of said end portions; means for applying a compressive force lengthwise of said elongated element and towards the center thereof, said pressing nipple being operatively connected to said compressive force applying means; supporting means for supporting said pressing nipple adapted to permit the same to move longitudinally in the direction of elongation of said elongated element and to prevent any lateral movement of said pressing nipple in the direction transversal to said elongation; and operating means mounted on said elongated element and operative for generating a signal due to stressing of said operating means, whereby when the compressive force applied



to said elongated elements exceeds a predetermined limit said intermediate portion flexes laterally so that said operating means are stressed and a signal corresponding to flexing of said intermediate portion is generated.

4,267,726

WELL PRESSURE TESTING METHOD

Simon P. Noïk, Verrieres le Buisson, France, assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed Aug. 23, 1979, Ser. No. 69,220

Claims priority, application France, Aug. 30, 1978, 78 24998

Int. Cl.[3] **E21B** *47/06*

U.S. Cl. 73—151 **9 Claims**



1. A well test method for determining a represenation of the pressures in a well at different selected levels of an interval having one or more production zones, comprising the following steps:

making pressure gradient measurements in the well along the interval of the well;

making at least one stationary meaurement of the local pressure in the well at a depth in the interval; and

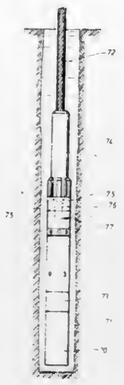
combining the pressure gradient measurements and the said at least one stationary local pressure measurement by integrating the variations of the pressure gradient measurements along the interval to obtain a first pressure-variation profile and shifting the first profile until the best coincidence is obtained with the at least one stationary local pressure measurement to determine the pressure profile of the well along the interval.

4,267,727

PRESSURE AND TEMPERATURE COMPENSATION MEANS FOR A DOWNHOLE FORCE MEASURING DEVICE

Joachim A. Hoppe, Spring, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed Sep. 21, 1979, Ser. No. 77,576
Int. Cl.[3] E21B *47/00*
U.S. Cl. 73—151 5 Claims



1. In an apparatus for measuring the downhole force applied to a cable suspending a well-logging apparatus in a borehole, said apparatus including an elongated sensitive element adapted to be connected between the cable and the well-logging apparatus to deform elastically under the effect of the downhole tension and strain gauge means mounted on the sensitive element for measuring the downhole force, the improvement which comprises:

means for compensating for pressure and temperature changes in a borehole, including an elongated envelope having at least three sides, sealingly disposed about the strain gauge means and formed to allow said sides to deflect inwardly and outwardly from said strain gauge means in response to changes in pressure and temperature, said envelope being filled with an oil.

4,267,728

APPARATUS FOR ANALYZING THE FORCES ACTING ON A HUMAN FOOT

Michael T. Manley, Heath Cottage, Tarrylaw, Swaanswyk Rd., Tokai, and Edward G. Solomon, 5 Chester Ct., 202 High Level Rd., Sea Point, both of Cape Town, Cape Province, South Africa

Filed Jul. 2, 1979, Ser. No. 54,000
Claims priority, application United Kingdom, Jul. 4, 1978, 28740/78
Int. Cl.[1] A61B *5/10*; G01M *19/00*
U.S. Cl. 73—172 10 Claims

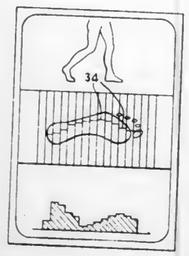
1. An apparatus for analyzing the forces acting on a foot comprising:

a platform composed of a plurality of transparent beams, each end of each beam being associated with means for measuring a load imposed on that end of the beam by a subject walking across said platform;

a first television camera for providing a first video image of the gait of said subject;

a second television camera for providing a second video image of the plantar surface of the foot of said subject as viewed through said platform;

means for converting the output of said measuring means to a visual display signal representative of the force acting on the foot of a subject walking across said platform; and,



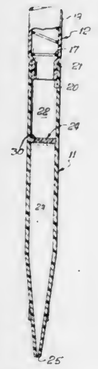
means for simultaneously displaying said first and second video images and said force representative visual display signal.

4,267,729

VOLUMETRIC PIPETTOR

Roy T. Eddelman, 60916 Terminal Annex, Los Angeles, Calif. 90054, and Gregory F. Moran, 225 E. El Sur, Monrovia, Calif. 91016

Filed May 14, 1979, Ser. No. 38,460
Int. Cl.[1] B01L *3/02*
U.S. Cl. 73—425.4 P 5 Claims



1. A tip for use on a volumetric pipettor having a bellows means, said tip comprising:

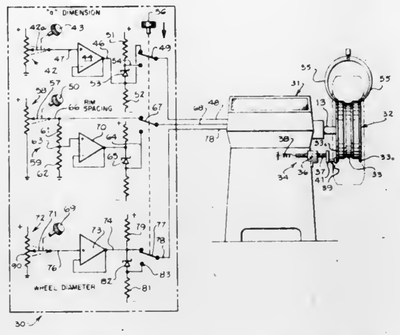
an upper chamber for attachment to the bellows means of the pipettor to which the chamber is to be attached in an airtight relationship therewith, said upper chamber being adjacent to a lower chamber terminating in a lower opening, said lower chamber having a predetermined volume defined and limited by a partition separating the upper chamber and lower chamber, said partition being sealingly positioned between the chambers and being permanently affixed to the intersection between the upper chamber and the lower chamber by a shoulder located within said tip, said partition being fabricated from a disc-shaped microporous layer readily permeable to gasses and essentially impermeable to liquids, whereby when said lower opening is immersed in a liquid and air is drawn inwardly from said upper chamber, the liquid will enter the lower chamber of the tip until the predetermined volume of liquid reaches the partition after which the lower opening may be removed from the liquid and the liquid ejected by moving air outwardly from the upper chamber and through the partition while retaining the partition in its position between the upper and lower chambers.

4,267,730

WHEEL BALANCING SYSTEM

Donald B. Curchod, Saratoga, and Hoyt H. Nelson, Santa Clara, both of Calif., assignors to Nortron Corporation, Sunnyvale, Calif.

Filed Sep. 5, 1978, Ser. No. 939,473
Int. Cl.[3] G01M *1/22*
U.S. Cl. 73—462 17 Claims



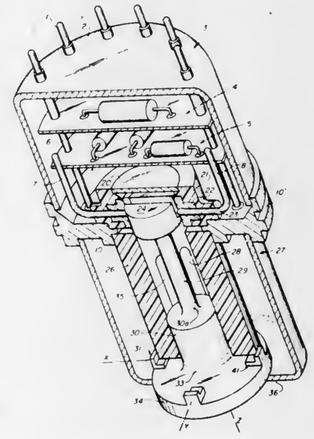
1. In a wheel balancing system for computing the amount of counterbalancing weight to be added in each of two spaced parallel planes taken through said weights and defined by rotation of said weights with a dynamically unbalanced wheel, variable means controllable by an operator for providing a first input signal substantially representative of the spacing between the rims of the wheel, means for adjusting the value of said first signal by a predetermined relationship to provide a second input signal substantially representative of a spacing between said planes different from the first named spacing, and means for selectively coupling said first or second input signals to said system for computing the value of weights to be added in the first or second named spaced parallel planes.

4,267,731

FORCE BALANCED VIBRATORY RATE SENSOR

Peter E. Jacobson, Phoenix, Ariz., assignor to Sperry Corporation, New York, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,179
Int. Cl.[3] G01C *19/56*
U.S. Cl. 73—505 15 Claims



1. A force feed back inertial rate sensor comprising:

a first support member,

a second support member,

an elongate beam cantilevered from said second support member, extending along a sensing axis about which rate of turn is to be measured, and having a free end,

first signal generating means coupled with and responsive to vibration of said free end in a first plane including said sensing axis,

first elongate drive means cantilevered from said first support member and coupled with said second support member and responsive to said first signal generating means for vibrating said elongated beam in said first plane at a frequency dependent upon the natural vibration of said elongate beam,

second signal generating means coupled with and responsive to vibration components of said free end in a second plane including said sensing axis and normal to said first plane due to rate of turn of said support member about said sensing axis, and

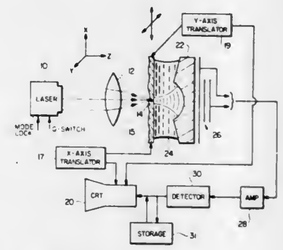
second elongate drive means cantilevered from said first and coupled with said second support member and responsive to said second signal generating means for vibrating said elongated beam in said second plane in a phase and amplitude such as to reduce the signal from said second signal generating means to zero whereby the signal supplied to said second driver means is proportional to said rate of turn about said sensing axis.

4,267,732

ACOUSTIC MICROSCOPE AND METHOD

Calvin F. Quate, Stanford, Calif., assignor to Stanford University Board of Trustees, Stanford, Calif.

Filed Nov. 29, 1978, Ser. No. 964,613
Int. Cl.[1] G01N *29/00*
U.S. Cl. 73—606 28 Claims



1. An acoustic microscope, comprising:

(a) means operatively connected to an object of interest for heating the object so that the object thermally expands and generates acoustic waves which are propagated therefrom;

(b) means focused for detecting only the acoustic waves generated and propagated from a microscopic portion of the object of interest, said detecting means being sensitive to acoustic waves having frequencies greater than about 100 MHz; and

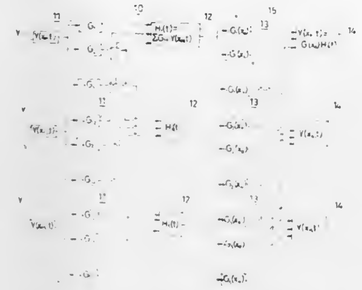
(c) means connected to the object of interest and the detecting means for moving one of either the object of interest or the detecting means with respect to the other so that the object of interest is scanned in a raster pattern.

4,267,733

TORSIONAL VIBRATION MONITORING METHOD AND AN APPARATUS FOR PERFORMING THE SAME

Ichiji Shima; Tatsuo Yamamoto; Shigeru Yoshibayashi; Hiroshi Teshima, all of Amagasaki; Akio Hizume, Tokyo; Tetsuo Iki, Nagasaki; Takashi Yamamoto, Nishisonogi; Kyozo Kanamori, Isahaya; Kenzo Noguchi, and Shinobu Kishikawa, both of Nagasaki, all of Japan, assignors to The Kansai Electric Power Co. Inc., Osaka and Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, both of, Japan

Filed May 30, 1979, Ser. No. 43,679
Claims priority, application Japan, Jun. 1, 1978, 53-66143
Int. Cl.[3] G01H *1/10*
U.S. Cl. 73—650 **2 Claims**



1. In an apparatus for monitoring torsional vibration in which a torsional vibration at an arbitrary position on a rotating shaft system is measured from a torsional vibration detected at a certain position on the rotating shaft system on the basis of the facts that a torsional vibration occurred in the rotating shaft system is a sum of modal vibrations and the modal vibration can be represented by a product of a vibration mode type and a vibration mode component, the improvement comprising n sets of detectors for detecting torsional vibrations at each of n certain positions on the rotating shaft system, a matrix arithmetic unit for multiplying previously obtained n sets of n constants to the n sets of torsional vibrations obtained by said detectors, respectively, and for adding the results of the multiplications to obtain n vibration mode components and a modal arithmetic unit for multiplying the n vibration mode components to vibration mode types at arbitrary position on the rotating shaft system and for adding them to obtain torsional vibrations at the arbitrary positions.

4,267,734

TORSIONAL VIBRATION MONITORING APPARATUS FOR ROTATING SHAFT SYSTEM

Ichiji Shima, 39-27 , Hukuyo-machi; Tatsuo Yamamoto; Shigeru Yoshibayashi; Hiroshi Teshima, all of c/o The Kansai Electric Power Co., Inc., Technical Research Center of 2, Ichinotsubo 1-chome, Nakoji, Amagasaki City, Hyogo Pref.; Akio Hizume, 8-11, Naka-machi 1-chome, Setagaya-ku, Tokyo; Tetsuo Iki, 1998-5, Yokoo-machi, Nagasaki City, Nagasaki Pref.; Takashi Yamamoto, 347, Motomurago, Tokitsu-cho, Nishisonogi-gun, Nagasaki Pref.; Kyozo Kanamori, 16-10, Shiraiwa-cho, Isahaya City, Nagasaki Pref.; Yoshiaki Mitsuyama, 145-4, Fukohori-machi 1-chome, Nagasaki City, Nagasaki Pref., and Shigeho Tanaka, 39-27 Hokuyo-machi,, Nagasaki Pref., all of Japan

Filed Sep. 12, 1979. Ser. No. 74,815
Claims priority, application Japan, Sep. 22, 1978, 53/117205
Int. Cl.[3] G01H *1/10;* **G06G** *7/64*
U.S. Cl. 73—650 **3 Claims**

1. A torsional vibration monitoring apparatus for a rotating shaft system comprising a detector disposed at a certain position of the rotating shaft system for detecting torsional vibration thereof, a memory device for storing the torsional vibration having a constant time duration which is detected by said detector as a time series data obtained by sampling the torsional vibration with minute sampling time, a Fourier transformer for transforming the time series data into a frequency series data, multipliers each for multiplying the frequency series data with a previously obtained relation between the



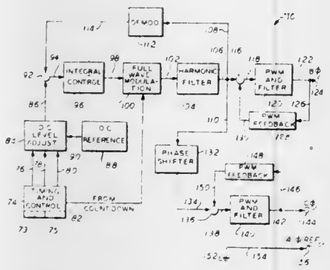
vibration of the shaft system at said certain position thereof and that at an arbitrary position thereof at respective frequencies to obtain a frequency series data for said arbitrary position and a reverse Fourier transformer for transforming the frequency series data for said arbitrary position to obtain a time series data of the torsional vibration of the shaft system at said arbitrary position thereof.

4,267,735

GYRO MOTOR CONTROL SYSTEM

Henry Valles, Rockaway; Allen R. Taylor, Nutley, and Thomas Beneventano, Washington Towship, Bergen County, all of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Jun. 25, 1979, Ser. No. 51,764
Int. Cl.[3] G01C *19/10*
U.S. Cl. 74—5.7 **8 Claims**



1. In an instrument gyro system having a gyro wheel and a synchronous motor with solid rotor for driving the gyro wheel, the gyro system being characterized by a drift rate that remains uniform during a given synchronized period, and that is different in random manner for succeeding on-off gyro operations, the method of eliminating the error-effects of the aforesaid on-off gyro drift that comprises:

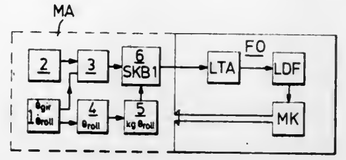
- supplying a modulated voltage waveform having repetitive intervals to the motor,
- supplying notch period pulses and run period pulses to the motor during the intervals,
- supplying a notch voltage over a notch period and a run voltage over a run period during each repetitive interval,
- controlling the notch voltage so as to be lower than the back EMF voltage of the motor,
- thereby causing a braking action on the rotor and a position slip of the rotor relative to its motor field during each interval.

4,267,736

DEVICE FOR TILTING THE BODY OF A HIGH-SPEED VEHICLE RELATIVE TO AN UNDERFRAME THEREOF

Gunnar A. E. G. Westbeck, Solna, Sweden, assignor to Westbeck Navitele AB, Stockholm, Sweden

Filed Feb. 9, 1977, Ser. No. 766,849
Claims priority, application Sweden, Feb. 9, 1976, 7601345
Int. Cl.[3] G01C *19/42;* **B62D** *37/00*
U.S. Cl. 74—5.22 **10 Claims**



1. Apparatus for controlling the tilt angle of a vehicle body in a roll direction relative to an underframe supporting the vehicle body, comprising

a speed detector arranged to sense the linear velocity (V) of the vehicle,

a gyro arrangement mounted on a part of the vehicle and arranged to sense the yaw angular velocity ($\dot{\theta}_{gir}$) and the roll angular velocity ($\dot{\theta}_{roll}$) at said vehicle part, and

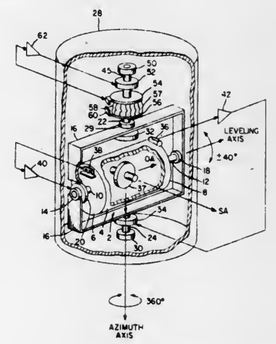
means responsive to the sensed V, $\dot{\theta}_{gir}$ and $\dot{\theta}_{roll}$ to adjust the tilt angle of the vehicle body so as to tend to reduce the value of $|m.V.\dot{\theta}_{gir}| - |k.g.\theta_{roll\ VB}|$, where $\dot{\theta}_{roll\ VB}$ is the roll angle of the vehicle body relative to an external reference plane, g is the acceleration due to gravity and m and k are coefficients.

4,267,737

DUAL SUSPENSION GYROSCOPIC DEVICE HAVING POWERED GIMBAL SUPPORT

Bernard J. O'Connor, Eastchester, N.Y.; William H. Ficken, Berkeley Heights, N.J.; Tony R. Carnevale, Oradell, N.J., and Michael J. Lanni, Ridgewood, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Dec. 4, 1978, Ser. No. 965,762
Int. Cl.[2] G01C *19/28, 19/30*
U.S. Cl. 74—5.47 **14 Claims**



1. A gyroscopic device comprising:

a gyroscope having at least a single degree of freedom and including a first case, a float and low torque means for supporting said float in said first case for relative motion between said float and said first case about a first axis;

a gimbal supporting said first case for relative motion of said gimbal and said first case about said first axis;

means responsive to relative motion between said first case and said float for caging said first case to said float;

a second case;

means supporting said gimbal in said second case for relative motion between said gimbal and said second case about a second axis;

means responsive to relative motion between said first case and said gimbal about said first axis for applying torque to said gimbal about said second axis to maintain the gyroscope spin axis in a reference plane;

sensing means mounted on said gimbal and providing data signals indicative of the displacement of said gimbal relative to said second case;

means mounted on said gimbal and rotatable relative thereto for transferring data signals from said gimbal mounted sensing means to points of utilization external to said second case;

means for sensing relative motion between said gimbal and said data transferring means; and

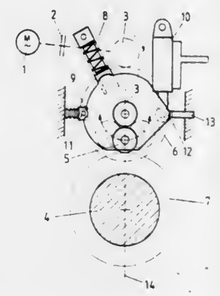
means responsive to said sensed relative motion between said gimbal and said data transferring means for rotating said data transferring means.

4,267,738

TURNING DEVICE ESPECIALLY FOR DRIVING A TURBINE SHAFT

Alfred Häusermann, Nussbaumen, Switzerland, assignor to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed Jan. 17, 1979, Ser. No. 4,185
Claims priority, application Switzerland, Feb. 21, 1978, 1841/78
Int. Cl.[3] F16H *57/10, 35/00*
U.S. Cl. 74—8 **14 Claims**



1. A turning device for driving a rotatable member especially a turbine shaft, comprising:

a cam member supporting a pinion gear, said cam member being mounted adjacent said rotatable member for swinging movement forward and backward relative to said rotatable member;

drive means for selectively driving said pinion gear;

first means for urging the pinion gear into operative engagement with the rotatable member by swinging said cam member to an intermediate position, said intermediate position being between extremes of said foreward and backward swinging movement of said cam member;

second means for releasably maintaining the pinion gear in said operative engagement with the rotatable member; and

third means for swinging said cam member out of said intermediate position upon a release of said second means.

4,267,739

PUSHBUTTON TUNER

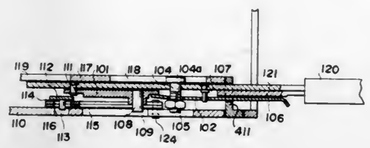
Yasuhisa Nishikawa, and Takao Kanai, both of 50, Kamitoda, Toda-shi, Saitama-ken, Japan

Filed Dec. 18, 1978, Ser. No. 970,329

Claims priority, application Japan, Dec. 19, 1977, 52-169590[U]; Dec. 19, 1977, 52-169591[U]; Dec. 22, 1977, 52-171829[U]; Dec. 22, 1977, 52-171830[U]; Dec. 22, 1977, 52-171831[U]

Int. Cl.[3] **H03J** *1/08, 5/12*

U.S. Cl. 74—10.33 **6 Claims**



1. A pushbutton tuner comprising:
a base plate;
a button slide mechanism including
a plurality of button slide assemblies disposed in parallel with the base plate,
each of said button slide assemblies being comprised of a button slide, a frequency control member, a locking member to lock the frequency control member in a given position, a pin provided on the frequency control member for station selection operation, a threaded shaft, a nut in mesh with the threaded shaft to hold the locking member intermediate thereof; and
an upper plate for covering said button slide mechanism; said button slide mechanism being mounted directly on said base.

4,267,740

SHAFT-TURNING DEVICE

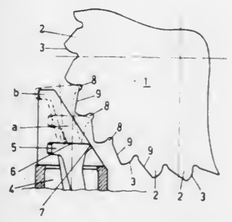
Hans Schwarz, Umiken, Switzerland, assignor to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed Aug. 27, 1979, Ser. No. 70,106

Claims priority, application Switzerland, Sep. 14, 1978, 9625/78

Int. Cl.[3] **F16H** *27/02, 31/00*

U.S. Cl. 74—128 **3 Claims**



1. Apparatus for rotating a shaft, comprising:
a ratched wheel on said shaft, said ratchet wheel having a plurality of teeth said teeth having a substantially straight and flat segment intersecting a bearing surface at the top of the teeth and having a base portion which includes a recess having a rounded V shape between said flat segment and said bearing surface, said bearing surface having a convex curvature extending from said top portion to said base portion;
a pawl having a contact surface for engagement with said teeth, said contact surface having a substantially straight flat portion merging into a convex portion, said pawl contact surface also having a projection in the shape of a wedge with a rounded point; and
means for intermittently engaging the pawl with each of the teeth of the ratchet wheel, said pawl being positioned for engagement of said pawl contact surface with said teeth bearing surface for turning said shaft and for engagement of said pawl projection with said teeth straight segment as the shaft turns, said pawl and teeth surfaces cooperating to roll off in normal operations and to slide off harmlessly upon insufficient teeth engagement by the pawl.

4,267,741

VEHICLE GEARBOX

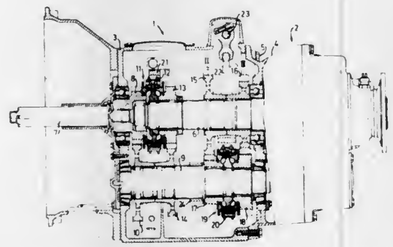
Stig Jarl, Mölnlycke; Per-Olof Eker, Gothenburg, and Peter Davidsson, Mölnlycke, all of Sweden, assignors to AB Volvo, Gothenburg, Sweden

Filed Apr. 4, 1979, Ser. No. 27,091

Claims priority, application Sweden, Apr. 11, 1978, 7804070

Int. Cl.[3] **F16H** *3/20, 3/08, 3/02*

U.S. Cl. 74—339 **4 Claims**



1. Gearbox for motor vehicles comprising an input shaft with an input gear; a countershaft with a drive gear for the countershaft, said driving gear engaging the input gear; a transmission main shaft with a number of gears depending on the number of gear ratios, each of said gears being in driving engagement with an individual gear on the countershaft; a reverse shaft with a driving gear for the reverse shaft, said driving gear engaging a gear on the countershaft; and a reverse gear engaging a gear on the main shaft, the gears on the main shaft and associated gears on the countershaft and reverse shaft being selectively engagable to establish various driving connections between the input shaft and the transmission main shaft, characterized in that the reverse shaft has at least one additional gear disengagably journalled on the reverse shaft and which gear engages a gear disengagably journalled on the countershaft; and in that one of the other gears on the countershaft engages the main shaft gear which engages the reverse gear and is disengagably journalled on the countershaft.

4,267,742

SINGLE LEVER CONTROL MECHANISM FOR BICYCLE FRONT AND REAR DERAILLEURS

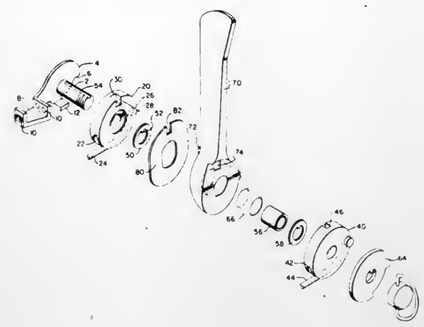
Maximino R. Cabeza, Calle Central 709, Miramar, Santurce, P.R. 00907

Filed Nov. 22, 1978, Ser. No. 963,099

Int. Cl.[3] **G05G** *9/02*

U.S. Cl. 74—471 XY **5 Claims**

1. Mechanisms for operating the gear shift and central shifter of a multi-speed bicycle, comprising a shaft fixed to the frame of the bicycle, a ring surrounding the shaft and having a convex spherical external surface, two spaced, parallel disks mounted on the shaft at the ends of the ring for limited rotational movement about the shaft, a cable connected to each disk and being respectively operatively connected to the gear shift and central shifter, each of the facing surfaces of the disks having therein at its periphery a notch, a lever having an inner end with a concave spherical surface mounted on the spherical surface of the ring for limited rotational movement about the shaft and for sideways rocking movement toward and away from each disk, and a tooth on each side of the lever positioned to be received in the notch in each of the disks.



4,267,743

TRANSMISSION CONTROL DEVICE

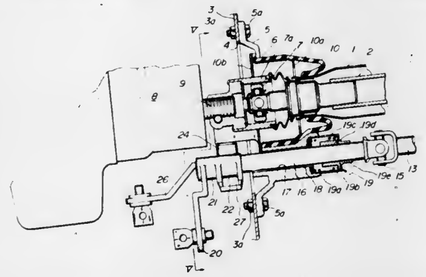
Yoshiyuki Tanaka, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jul. 25, 1979, Ser. No. 60,674

Claims priority, application Japan, Nov. 22, 1978, 53-143264

Int. Cl.[3] **G05G** *9/16*

U.S. Cl. 74—473 SW **5 Claims**



1. A transmission control device comprising in combination,
an upper control rod driven to shift and to rotate by a change lever, and being supported at the upper end of said upper control rod by a support bracket mounted by a steering column housing a steering shaft,
a lower control rod supported slidably and freely rotatably by a mount bracket secured on a dash panel and having an end projecting in an engine room side and coupled to a transmission device via a linkage, and
a tilt joint for coupling the lower end of the upper control rod and the cabin side end of the lower control rod.

4,267,744

BICYCLE SPEED CHANGE LEVER

Kazuto Yamasaki, Osaka, Japan, assignor to Maeda Industries, Ltd., Osaka, Japan

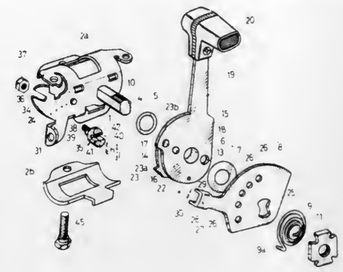
Filed Mar. 5, 1979, Ser. No. 17,740

Claims priority, application Japan, Mar. 3, 1978, 53/24844

Int. Cl.[3] **G05G** *5/06;* **B62K** *23/06*

U.S. Cl. 74—475 **10 Claims**

1. A bicycle speed change lever comprising:
a lever body pivotally mounted at its base portion on a support shaft,
a click plate mounted on said support shaft and slightly spaced apart from said lever body, in such a manner that it is resiliently urged toward said base portion and is slightly movable about said support shaft in opposite directions for presenting alternative of two different positional phases,
one of said two positional phases being that the click plate is in such a position as slightly turned upwardly,
the other of said two positional phases being that the click plate is in such a position as slightly turned downwardly,
at least one concave portion formed in said base portion for retaining a ball therein,
a plurality of ball receiving means formed in said click plate,



said plurality of ball receiving means being aligned in an arc of a circle in spaced-apart relation with each other,
said ball being interposed between said base portion and said click plate so as to be engageable with and disengageable from a selected one of said plurality of ball receiving means, and
a phase converting mechanism for converting said positional phases of the click plate from one to the other and vise versa only when directions of pivotal movement of said lever body is changed.

4,267,745

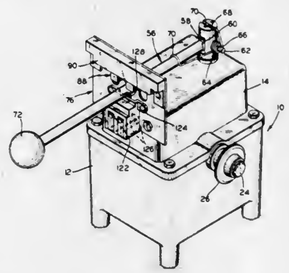
SHIFT CONTROL FOR TRANSMISSION

Douglas F. Edwards, Mount Vernon, Ohio, assignor to The J. B. Foote Foundry Co., Fredericktown, Ohio

Filed Oct. 25, 1979, Ser. No. 87,829

Int. Cl.[3] **G05G** *5/02*

U.S. Cl. 74—476 **10 Claims**



1. In a transmission having an output shaft, a first gear rotatably mounted on said shaft, a second gear rotatably mounted on said shaft, a shift dog mounted on said shaft for rotation therewith and for slidable movement with respect thereto, said shift dog having a first position engageable with said first gear, a second position engageable with said second gear, and a third, neutral position therebetween in which said shift dog is disengaged from both gears, a shifter fork engaged with said shift dog for moving said shift dog among its three positions, said shifter fork having a shaft extending away from said shift dog, a shift lever connected to said shaft and movable among

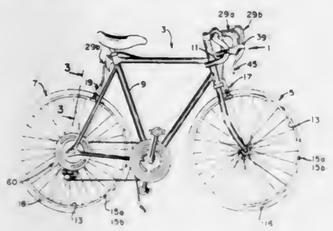
three positions to correspondingly move said shift dog among its three positions by said shifter fork, a lockout plate having an opening including an elongate slot with three notches along one side corresponding to the three positions of said shift lever, with a central one of the three notches corresponding to the neutral position of said shift dog and the outer notches corresponding to the two engaged positions of said shift dog, said shift lever extending through said opening, a guide located adjacent said elongate slot, a lockout slider having a portion guided in said guide for movement parallel to said slot and having two projections in alignment with said elongate slot, said projections being spaced apart a distance approximately equal to the width of the central notch, said guide having stops engageable with said slider to limit movement of said slider so that said projections can be moved in each direction along said slot a distance only about equal to the width of one of the notches, whereby said shift lever can only be moved from one notch to an adjacent notch at a time and cannot be moved between the outer two notches without first being moved into the central notch.

4,267,746

SINGLE HAND-OPERATED DUAL BRAKE ACTUATOR

Earl M. Pruett, 4725 Vienna, St. Louis, Mo. 63109

Filed May 3, 1979, Ser. No. 35,737
Int. Cl.[1] G05G *9/00*; B62L *3/02*
U.S. Cl. 74—489 **8 Claims**



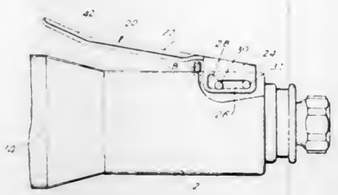
1. A single hand-operated actuator for a pair of caliper-type bicycle brakes or the like, each of said brakes being actuated by a respective Bowden sliding element linkage, each of said Bowden sliding element linkages including an outer sheath and an inner sliding member, said actuator comprising a base adapted to be secured to the handle bars of a bicycle, a first reaction point on the base for receiving and holding the outer sheath of a first of said Bowden sliding element linkages, a second reaction point on the base for receiving and holding the outer sheath of a second of said Bowden sliding element linkages, a handle pivotally mounted on said base, said handle having separate means for securing said inner sliding members of each of said first and second Bowden sliding member linkages to the handle, said handle being manually movable between a released position in which said inner sliding members are spaced relatively close to said reaction points and an actuated position for effecting substantially simultaneous, proportional, relative sliding movement between said inner sliding members and their respective outer sheaths of said first and second Bowden sliding element linkages thereby to apply said pair of brakes substantially simultaneously with a preselected proportion of braking force applied by each of said brakes.

4,267,747

SAFETY LEVER

William K. Wallace, Barneveld; David A. Giardino, Deerfield, and Gerrit van Nederynen, Frankfort, all of N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y.

Filed Apr. 26, 1979, Ser. No. 33,467
Int. Cl.[1] G05G *9/04*
U.S. Cl. 74—526 **9 Claims**



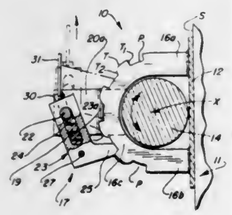
1. A safety throttle lever for use on hand-held tools, said lever being arranged for two operational modes, the first a tool non-operating mode, the second a tool operating mode wherein a throttle valve of the tool is activated, primary means to allow longitudinal movement of said lever by manual pressure while maintaining tool first operational mode, said primary means including a means having longitudinal slots formed on the lever and pin means for engagement by said slots, and secondary means to allow tool second operational mode after a given amount of lever longitudinal movement, said secondary means comprising notch means formed at an end of said longitudinal slots.

4,267,748

RELEASABLE LOCK MECHANISM

Lynn O. Grunewald, Cudahy, and Steven J. Hipp, Milwaukee, both of Wis., assignors to Rite Hite Corporation, Milwaukee, Wis.

Filed Oct. 2, 1978, Ser. No. 947,886
Int. Cl.[1] G05G *5/06*
U.S. Cl. 74—529 **8 Claims**



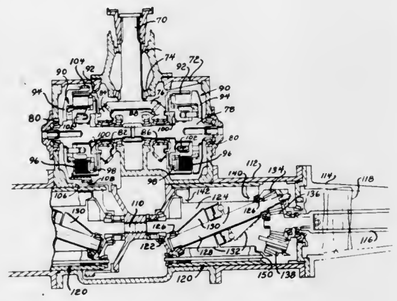
1. A releasable lock mechanism comprising a stationary first member; a second member mounted adjacent said first member for rotary movement relative to said first member between an inoperative idel position and a plurality of selected operative positions annularly spaced from said inoperative position, said second member including means offset from the rotary axis thereof urging said second member to normally assume said inoperative position; a first lock component carried by one of said members and having at least a curved peripheral segment provided with a plurality of annularly spaced pockets, each pocket corresponding to a selected operative position of said second member relative to said first member, the center of curvature of the first lock component peripheral segment being substantially coaxial with the rotary axis of said second member; and a pivotally adjustable second lock component carried by the other of said members and being in interlocking engagement with a peripheral pocket when said second member is in a selected operative position, said lock components, when in interlocking engagement, effecting retention of said second member in a selected operative position, said second lock component having means to transversely shift the pivotal axis thereof relative to the said other member upon a predetermined manual external force being applied to said second lock component in a direction away from the peripheral segment of said first lock component whereby said second lock component assumes an unlocked position.

4,267,749

COMPACT REVERSIBLE VARIABLE SPEED TRANSMISSION AND DIFFERENTIAL

Robert O. Chambers, Peoria, and Robert N. Stedman, Chillicothe, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Oct. 12, 1979, Ser. No. 84,289
Int. Cl.[3] F16H *37/06, 15/16*
U.S. Cl. 74—690 **4 Claims**



1. A compact, reversible, variable speed clutch, transmission and differential comprising:

a rotatable input shaft (**70**) having a drive gear (**76**) therein and adapted to be connected to a prime mover for rotation about a first axis;

forward and reverse gears (**88,84**) mounted for rotation about an axis or axes non-parallel to said first axis, said forward and reverse gears being engaged with said drive gear with said forward gear (**88**) being located oppositely from said reverse gear (**84**) with respect to said first axis;

a pair of selectively operable clutches (**90**) each having an input (**92**) and an output (**94**), the input of one clutch being connected to said forward gear and the input of the other clutch being connected to said reverse gear; and

a variable speed nutating transmission means having a pair of independently rotatable outputs (**116**) and an input (**110**) connected to both said clutch outputs for rotation about a second axis, said transmission means further including a pair of nutating elements (**130**) each having a surface (**132**) configuration defined by a non-cylindrical surface of revolution having an axis of revolution, means (**126,128**) mounting each of said elements for rotation about a third axis coincident with said axis of revolution, said mounting means being mounted for rotation about an axis different than said third axis, a pair of rotatable drive units (**134**), one for each nutating element, fixedly connected to the associated nutating element, a pair of second drive units (**140,142**), one for each nutating element, in frictional engagement with the surface of revolution of the associated nutating element, means (**150**) for selectively moving each of said second drive units along the associated surface of revolution while maintaining frictional engagement therewith, means (**124**) connecting said mounting means to one of said transmission means input and a corresponding one of said transmission means outputs, and means (**136**) connecting said rotatable drive units to the other of said mounting means and a corresponding one of said transmission means outputs;

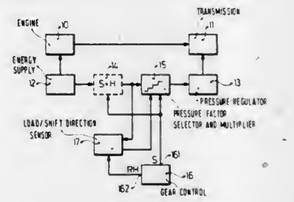
whereby (a) forward and reverse rotation of said transmission means outputs may be achieved by selectively engaging one or the other of said clutches, (b) variable speeds may be obtained by moving both said second drive units in concert along their respective surfaces of revolution, and (c) differential speeds may be obtained by moving one or the other or both of said second drive units differentially along their respective surfaces or revolution.

4,267,750

METHOD AND APPARATUS FOR ADJUSTING THE OPERATING FORCE APPLIED TO GEARS DURING GEAR SHIFTS

Helmut Espenschied; Uwe Kiencke, both of Ludwigsburg, and Alfred Schulz, Oberriexingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 9, 1978, Ser. No. 932,172
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1977, 2742032
Int. Cl.[3] B60K *41/10*; F16H *3/74*
U.S. Cl. 74—866 **15 Claims**



1. In a drive system operative under load and no load conditions, said drive system having an engine (**10**), gearing (**11**) operative in a plurality of gear ratios, transmitting means (**11**) for transmitting operating force from said engine to said gearing, said transmitting means having a controllable transmit characteristic adapted to vary the maximum force transmittable therethrough, regulator means (**13**) connected to said transmitting means for controlling said controllable transmit characteristic in accordance with a regulator signal applied thereto, and energy supply means for furnishing metered energy to said engine and for furnishing an energy control signal indicative of the amount of so-furnished energy:

apparatus for furnishing said regulator signal to said regulator means, comprising multiplier means (**36**) connected to said energy supply means and said regulator means for multiplying said energy control signal by a selected one of a plurality of predetermined factors, the so-multiplied energy control signal constituting said regulator signal;

and selector means (**17, 39–46**) connected to said multiplier means for selecting said selected one of said predetermined factors in accordance with the direction of gear shift and the absence or presence of load on said engine.

4,267,751

SAW CHAIN DEPTH-GRINDING APPARATUS

Lynn J. Ziegelmeyer, P.O. Box 1112, Medford, Oreg. 97501

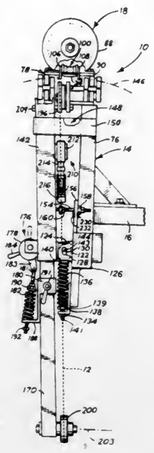
Filed Nov. 16, 1979, Ser. No. 94,885
Int. Cl.[3] B23D *63/16*
U.S. Cl. 76—25 A **8 Claims**

1. Apparatus for grinding the depth gauge of a saw chain cutter link having a cutter blade adjacent said depth gauge, said apparatus comprising

grinding means having a grinding surface contactable by said depth gauge,

means mounting said cutter link for movement toward and away from said grinding surface, and

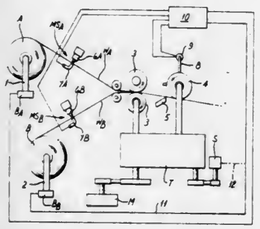
guide means adjacent said grinding means positioned to be contacted by said cutter blade to limit the closest approach between said depth gauge and said grinding surface, whereby said depth gauge is ground by said grinding means to a selected depth relative to said cutter blade.



4,267,752
CUTTING APPARATUS FOR CONTINUOUS WEBS

Graham A. B. Byrt, and Kenneth Chandler, both of Bristol, England, assignors to Masson Scott Thrissell Engineering, Bristol, England

Filed Feb. 19, 1980, Ser. No. 122,342
Claims priority, application United Kingdom, Feb. 20, 1979, 6015/79
Int. Cl.³ B26D *1/36, 1/38, 5/20*
U.S. Cl. 83—74 **8 Claims**

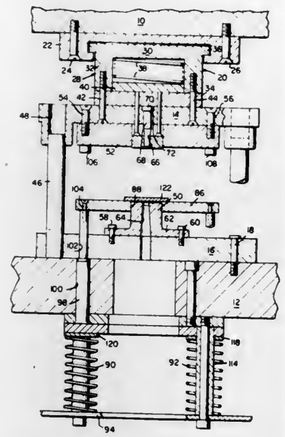


1. Apparatus for cutting a plurality of webs of paper or the like simultaneously to form a succession of sheets, including support means for an equal plurality of supply reels of web to be cut, a pair of pull rollers for pulling web from the supply reels, a rotary knife disposed to receive all of the webs from the pull rollers, a mark sensor from each web arranged to emit a detection signal on sensing each register mark on the web, a knife sensor arranged to emit reference signals representing rotation of said knife, drive means for said pull rollers and said knife, modifying means for each web, and control means arranged to receive said detection signals from the mark sensors and said reference signals from the knife sensor and to derive from the detection signals from each mark sensor, by comparison with said reference signals, feed control signals for the respective web, said feed control signals being applied to said modifying means for modifying the rate of feed of each web to the knife means to maintain the detection signals from the mark sensors in the desired relationship to the reference signals from the knife sensor so that a desired constant sheet length is produced.

4,267,753
APPARATUS FOR PRODUCING A BLANK FROM STOCK MATERIAL

Edward D. Bennett, 1401 S. Ocean Blvd. Apt. 902, Pompano Beach, Fla. 33062

Filed Nov. 8, 1979, Ser. No. 92,403
Int. Cl.³ B21D *45/06, 28/16*
U.S. Cl. 83—124 **18 Claims**

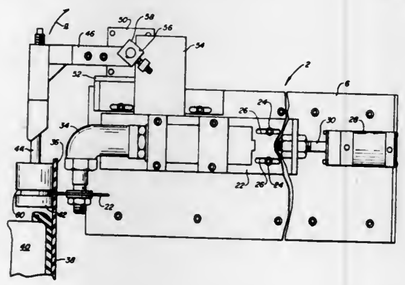


1. A blanking punch and die combination comprising a blanking die defining an opening, a cooperating blanking punch dimensioned closely to mate with said opening, the die edge defining said opening being rounded, a stock engaging shedder displaceable within said die opening to engage and clamp stock, a stripper encircling said blanking punch and displaceable therealong to remove surplus stock after a blanking operation and spacer means disposed between the blanking die and the stripper to space the blanking die and the stripper apart by a distance exceeding the thickness of said stock.

4,267,754
CARCASS BAND END TRIMMER

Michael C. Allaman; Leo T. Bailey, both of Cuyahoga Falls, and Richard E. Hudgins, Wadsworth, all of Ohio, assignors to The General Tire & Rubber Company, Ohio

Filed Nov. 7, 1979, Ser. No. 92,017
Int. Cl.³ B23D *19/08*
U.S. Cl. 83—187 **3 Claims**



1. Apparatus for trimming the end portion of a pneumatic tire carcass ply that is mounted on a carcass building drum and has said end portion extending axially beyond the end of said carcass building drum, including a base support located radially outwardly from said end portion of said carcass ply, a cutting tool slidably mounted on said fixed support, means for moving said cutting tool with respect to said base support radially toward and away from cutting engagement with said end portion, and backing means for supporting the radially inward side of said end portion of said carcass ply at the location where said end portion is to be cut by said cutting tool, said apparatus characterized by said backing means including:

(a) a roller engageable with said radially inward side of said end portion at the location where said end portion is to be cut by said cutting tool,

(b) a shaft rotatably supporting said roller about an axis that is parallel to the axis of said carcass building drum when said roller engages said radially inward side of said end portion,

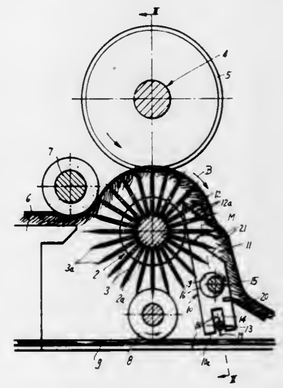
(c) means pivotally securing said shaft to said base support, said pivotal securing means permitting said shaft to swing about a pivot axis that is substantially perpendicular to said axis of said building drum, and

(d) means for swinging said shaft about said pivot axis to carry said roller between a position in which said roller engages said radially inward side of said end portion, and a position in which said roller is located axially outwardly from the end of said carcass ply.

4,267,755
FUR-CUTTING APPARATUS

Hermann Oehler, Freudental, Fed. Rep. of Germany, assignor to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH, Besigheim and Oehler Maschinenbau GmbH, Ludwigsburg, both of, Fed. Rep. of Germany

Filed Feb. 27, 1980, Ser. No. 125,014
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 7906315[U]
Int. Cl.³ B26D *7/06*
U.S. Cl. 83—423 **10 Claims**

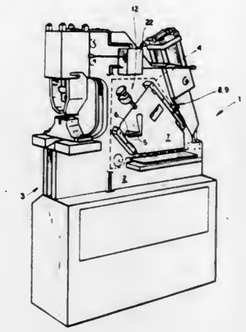


1. In a fur-cutting apparatus for cutting of furs into strips and wherein the hair side faces downwardly, comprising a circular-knife roller, a porcupine, which is arranged below a circular-knife roller having plural circular knives, with long, radially aligned needles, which penetrate through the fur and which project between said circular knives, and a rake having leaf-shaped prongs, said rake being arranged on the outlet side of said porcupine and the free ends of said rake extending between said needles and releasing the fur from the tips of the needles, the improvement comprising wherein said rake is pivotally supported about an axle which is arranged parallel with respect to the axis of rotation of said porcupine and is driven by a gearing means provided between the porcupine axis and said rake, and which gearing effects a movement of the free ends of the prongs relative to said porcupine in a direction which is substantially radially outwardly and inwardly relative to said porcupine.

4,267,756
HOLDDOWN FOR POWER SHEAR

Richard Muhr, Attendorn, and Werner Schröder, Finnentrop, both of Fed. Rep. of Germany, assignors to Muhr und Bender, Attendorn, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,628
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838735
Int. Cl.³ B23D *33/02;* **B26D** *7/02*
U.S. Cl. 83—463 **7 Claims**



1. A power shear comprising:

a frame defining a shear plane;

a fixed blade secured to said frame;

a movable blade displaceable on said frame and along said plane past said fixed blade, whereby a workpiece extending across said plane can be sheared by said blades at said plane;

a holddown plate displaceable in a predetermined direction parallel to said plane on said frame between an up position relatively far from said fixed blade and a down position relatively close to said fixed blade, said holddown plate having a pair of plate edges parallel to said direction and each formed with a plurality of outwardly open notches; and

means including a pair of guide rails on said frame respectively engaging said plate edges, each rail having at least two teeth overreaching said plate and alignable with the respective notches in one of said positions for retaining said plate on said frame against movement perpendicular to said direction except in said one position, one of said teeth of each rail being aligned in a direction perpendicular to said plane in said one end position with one of the respective notches and the other end of said teeth of each rail being aligned in said direction perpendicular to said plane with the other of the respective notches in the other position of said plate, whereby said plate can be separated from said frame in a direction perpendicular to said plane in either of said positions.

4,267,757
CABLE SLITTER

Robert H. Frantz, Newville, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 30, 1979, Ser. No. 71,229
Int. Cl.³ B26D *7/02, 1/14, 5/10*
U.S. Cl. 83—464 **6 Claims**

1. A slitting tool for separating conductors of multi-conductor flat flexible insulated cable into individual conductors or

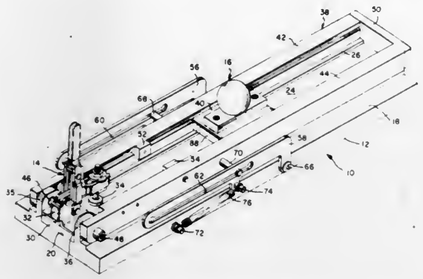
groups of conductors at one end of the cable, said tool comprising:

a base member defining an elongated, flat cable receiving surface;

a cable stop at one end of said surface;

cable clamping means adjacent said stop and adapted to secure a cable against said surface;

a cable cutter assembly pivotally attached by one end to an end of said base member so as to be movable with respect to said surface independent of said cable clamp to provide access to said surface in an open condition and aid in



securing the cable against said surface in a closed position, said cutting assembly having a frame formed by a pair of parallel spaced side rails each with a like end pivotally attached to said base member, hinge means attached intermediate the ends of the frame and said base and adapted to open the frame to an angle of approximately 45° with respect to said base, a slide block movable along said side rails longitudinally of said cable receiving surface, and cutter means carried by said slide block, said cutter means comprising a module exchangeably secured to said slide block and slitting blades carried in said module in longitudinally and transversely spaced relationship.

4,267,758

ACTUATOR MOUNT FOR POWER SHEAR OR PUNCH

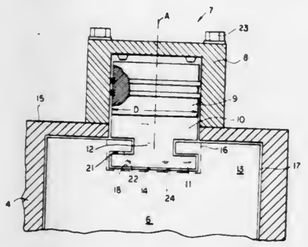
Richard Muhr, Attendorn, and Werner Schröder, Finnentrop, both of Fed. Rep. of Germany, assignors to Muhr und Bender, Attendorn, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,627

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838733

Int. Cl.[3] **B23D** *15/14*

U.S. Cl. 83—571 **6 Claims**



5. A metalworking machine comprising:

a pair of substantially parallel and spaced-apart frame plates mounted fixedly relative to each other;

a slide displaceable in a slide direction parallel to said plates between said plates and having an edge formed with a throughgoing cutout opening at said edge and having a pair of cutout faces directed oppositely toward each other in said direction; and

a hydraulic ram having a cylinder fixed but releasably mounted on said plates, a piston displaceable in said cylinder is said direction, and a piston rod fixed to said piston and having an end engaged in said cutout and having a pair of piston faces directed oppositely away from each other in said direction and respectively engageable with said cutout faces, the piston face directed forwardly in said direction bearing on forward displacement in said direction on the cutout face facing backwardly and vice versa, said plates having plate edges adjacent said cylinder, said piston rod being displaceable between an extended end position extending relatively far into and between said plates and a fully retracted end position extending substantially less far into and between said plates, one of said plate edges being formed with a notch aligned in a direction transverse to said plates in said fully retracted position of said piston rod, whereby said piston rod can be transversely disengaged from said slide through said notch when in said fully retracted position.

4,267,759

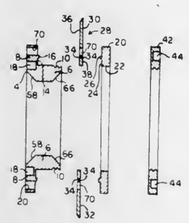
TOOL SAFETY LOCK RING

Richard D. Sullivan, and Allen E. Knies, both of Jasper, Ind., assignors to Kimball International, Inc., Jasper, Ind.

Filed Jul. 27, 1979, Ser. No. 61,465

Int. Cl.[3] **B27B** *33/08, 5/32*

U.S. Cl. 83—665 **9 Claims**



1. A tool assembly comprising:

a first collar having a generally cylindrical body portion and a flange portion, said flange portion including a tool engaging surface,

a circular, split tool comprising a plurality of segments, said tool, when assembled, having a central opening through which the body portion of said first collar extends,

a second collar being disposed around said first collar body portion and having a tool engaging surface, the respective tool engaging surfaces of said collars being on opposite sides of and in engagement with said tool,

an annular groove on one side of said tool and an annular rib on the tool engaging surface of the collar in engagement with said tool one side, said annular rib and groove interlocking with each other,

a second annular groove on the other side of said tool and a second annular groove on the tool engaging surface of the collar and in engagement with said tool other side, said second rib and groove interlocking with each other,

a locking collar threadedly secured to the body portion of said first collar and urging said second collar against said tool so as to tightly clamp said tool between said first and second collars, and

pins keying together the respective segments of said tool to said first collar flange portion.

4,267,760

SELF-GUIDING CIRCULAR SAW

Garth L. Smith, and Gordon Whitehead, both of Granby, Canada, assignors to Wallace Murray Canada Limited, Granby, Canada

Filed Oct. 10, 1979, Ser. No. 83,234

Int. Cl.[3] **B23D** *61/04*

U.S. Cl. 83—835 **5 Claims**



1. A self-guiding circular saw comprising a series of circumferentially spaced teeth around the periphery thereof, the saw having two radial parallel planar surfaces, the teeth defining a predetermined kerf wider than the thickness of the saw blade defined by said planar surfaces, a pair of ribs protruding one on opposite surfaces of the saw blade and each rib being co-extensive with the other and extending from the periphery of the blade linearly toward the central area of the blade, the combined thickness of the ribs and the blade being greater than the thickness of the blade but less than the kerf defined by the teeth of the saw such that the ribs will function to guide the saw in a straight path in a workpiece.

4,267,761

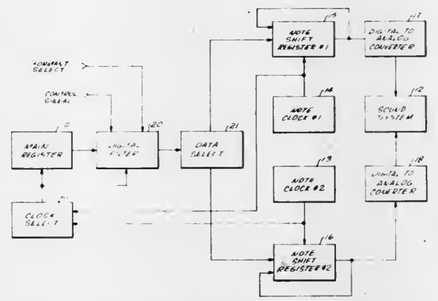
MUSICAL TONE GENERATOR UTILIZING DIGITAL SLIDING FORMANT FILTER

Ralph Deutsch, Sherman Oaks, Calif., assignor to Kawai Musical Instrument Mfg. Co. Ltd., Hamamatsu, Japan

Filed Oct. 6, 1977, Ser. No. 839,916

Int. Cl.[3] **G19H** *1/00, 1/02;* **G06F** *7/38*

U.S. Cl. 84—1.01 **16 Claims**



1. A digital tone generator comprising:

a source of a set of digital word coded to represent the relative amplitudes of a series of equally spaced points defining the complex periodic waveshape of an audio tone, the number of words defining one cycle of a tone being a predetermined fixed number independent of the frequency of the tone, digital filter means receiving each of the words from said source in predetermined time sequence for digitally filtering the waveshape, the digital filter means modifying in a predetermined manner the coded value of the words to change the relative amplitudes of the successive points defining the periodic waveshape, a digital-to-analog converter, means transferring successive words from said source through the digital filter to the converter at a variable rate, said transferring means including transient suppressing means for blocking transfer of a predetermined number of the initial data points from the output of the digital filter means to the converter, and means setting said rate equal to the desired pitch frequency multiplied by the number of words defining one cycle of the tone being generated.

4,267,762

ELECTRONIC MUSICAL INSTRUMENT WITH AUTOMATIC ARPEGGIO PERFORMANCE DEVICE

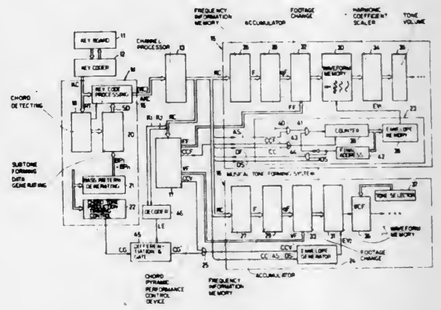
Eiichiro Aoki, and Tsutomu Suzuki, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jan. 16, 1978, Ser. No. 870,008

Claims priority, application Japan, Jan. 19, 1977, 52-4672

Int. Cl.[3] **G10H** *1/28, 1/38, 5/00*

U.S. Cl. 84—1.03 **10 Claims**



1. An electronic musical instrument comprising:

(a) first means for producing, according to information representative of the note name of a single depressed key, key information representative of the note names of a plurality of tones which are in predetermined non-octave, chord interval relations to the tone of said key;

(b) second means for detecting said key information successively at predetermined time intervals; and

(c) third means for producing tones corresponding to the key information detected by said detection means in response to the detection thereof, one at a time over plural octaves.

4,267,763

FUNCTION GENERATORS OF TIME-DEPENDENT VARIABLE TYPE

Tsuyoshi Futamase, and Masanobu Chibana, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Oct. 24, 1979, Ser. No. 87,660

Claims priority, application Japan, Oct. 28, 1978, 53/133001

Int. Cl.[3] **G10H** *1/06;* **G06F** *1/02*

U.S. Cl. 84—1.22 **10 Claims**

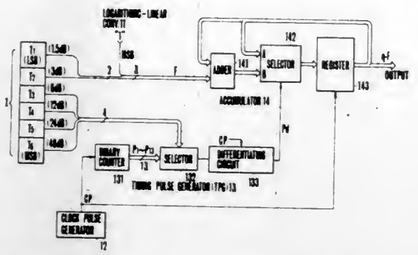
1. A function generator of time-dependent variable type which generates a time function waveshape which varies with time at a rate corresponding to time information for determining a time-dependent variable, comprising:

means for setting multi-bit digitalized information which represents time information in terms of a logarithm;

means for dividing the bits of said time information into upper order bits and lower order bits at a bit of a predetermined order;

means for converting a portion of said time information represented by said lower order bits into linear information;

a timing pulse generator which produces a timing pulse having a period corresponding to a value obtained by converting a portion of said time information represented by said higher order bits into a natural number; and



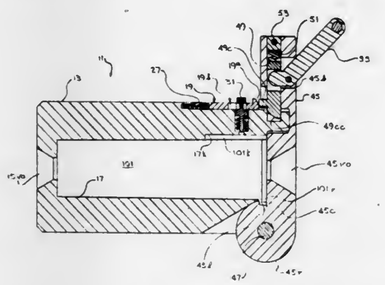
Accumulating means for accululating said linear information produced by said converting means at a period of said timing pulse generated by said timing pulse generator thereby producing an accumulated value of said accumulating means as said time function waveshape which varies with time at a rate corresponding to said time information.

4,267,764

ARRANGEMENT FOR USE IN PROJECTILE LAUNCH SIMULATION

Christopher J. Yaniger, Lutherville, Md., assignor to AAI Corporation, Cockeysville, Md.

Filed Jun. 1, 1979, Ser. No. 44,624
Int. Cl.³ F41F *11/00*
U.S. Cl. 89—25 **10 Claims**



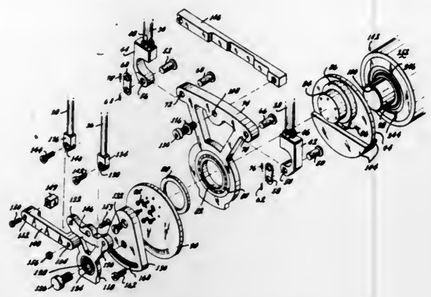
1. A cartridge chamber and breech arrangement comprising a chamber housing having a cartridge chamber formed therein,
a firing pin mounted in an opening formed in a side wall of said housing and communicable with the interior of said chamber to enable said firing pin to be in alignment with a side-mounted primer on a projectile when the projectile is fully chambered,
a breech block movable from an open position to a closed chamber position relative to said cartridge chamber,
lock means for locking said breech block in said closed position,
and a movable interrupter on said housing and being normally spring-biased to a firing-pin-movement-interrupt position whereby the firing pin is prevented from firing,
said interrupter being movable in response to closure and locking of said breech block, to thereby move to a noninterrupt position relative to said firing pin and thereby enable said firing pin to be actuated for firing of a cartridge primer aligned therewith only when such cartridge is chambered and securely locked in position by said breech block and breech block lock.

4,267,765

RECIPROCATING ENGINE WITH IMPROVED FEED AND EXHAUST VALVE MEANS

John H. Hedger, P.O. Box 357, Lakeside, Calif. 92040

Filed Dec. 19, 1978, Ser. No. 970,877
Int. Cl.³ F01B *1/00*; F01L *31/00*
U.S. Cl. 91—186 **5 Claims**



1. In a fluid driven reciprocating engine which comprises an engine block containing at least two parallel cylinders, a piston located in each of said cylinders for parallel reciprocating movement therein, piston rods rigidly connected at one end to each of said pistons extending out of said cylinders along the cylinder centerlines into a housing containing first connecting means operatively connecting the other end of each of said piston rods to a single crank pin on a rotary output shaft, and valve means within said block for selectively supplying fluid to and exhausting fluid from said cylinders above and below said pistons, the improvement wherein said valve means comprise cylinder means within said block each containing a spool valve attached to a first end of a valve operating rod extending out of said block for reciprocation along paths substantially parallel to said piston rods, second connecting means connecting the second ends of the operating rods to vavle timing means, said valve timing means comprising a first and second plate means, said first plate means attached to said single crank pin by attachment means, said second plate means connected to said first plate means in a manner for allowing selected relative positioning therebetween, locking means carried by said second plate means for locking together said first and second plate means at a selected relative position and said second plate means is rotatably connected through a bearing means to said second connecting means at a location offset from said crank pin, said second connecting means having an approximately isosceles triangular configuration with an opening surrounding said bearing means at the apex of said triangle and means pivotably connecting said second ends of said operating rods to the other corners of said triangle, whereby said valve spools reciprocate as said piston rods reciprocate.

4,267,766

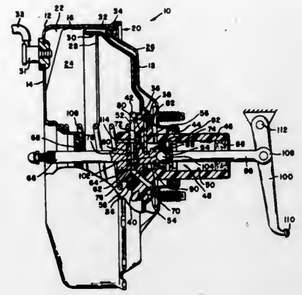
CONTROL VALVE APPARATUS FOR A PNEUMATICALLY OPERATED SERVOMOTOR

John J. Horsting, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jan. 29, 1979, Ser. No. 6,989
Int. Cl.³ F15B *9/10*
U.S. Cl. 91—369 A **13 Claims**

1. In a servomotor having a housing with a first chamber separated from a second chamber by a wall, said wall being moved by a pressure differential developed between a first fluid in the first chamber and a second fluid communicated to the second chamber, said pressure differential creating an output force in the wall in response to an input force to move an output member, the improvement comprising:
valve means including a first resilient member located in said wall adjacent said output member and a second resilient member with slits therein, said first resilient member having a first passage therethrough for connecting said first chamber with said second chamber, said first passage providing a first flow path through which the first fluid is communicated from the first chamber to sthe second chamber; and
plunger means responsive to said input force for operating said valve means, said first resilient member being deformed by being compressed between said plunger means and output member by the input force acting on said plunger means and the resistance of the output member to movement by the output force to seal said first passage and interrupt communication of said first fluid to said second chamber and said second resilient member being expanded to thereafter allow said communication of said second fluid to the second chamber through said slits.

sense, whereby to prevent movement of said piston in a first direction;
mechanical means, including a stop member adjustable along said piston rod outside said cylinder and a push rod slidably carried by said cylinder, normally operative when said piston, moving in said first direction, reaches a predetermined position to actuate said valve means;
and manual means for operating said push rod independently of the position of said piston, to cause actuation of said valve means.

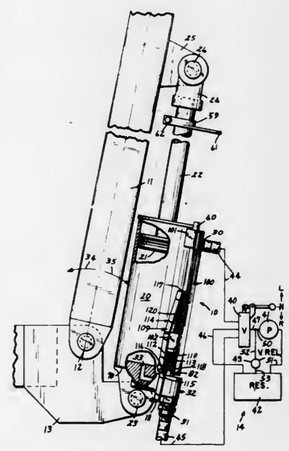


4,267,767

POSITION LOCK

Gary Hodapp, Mankato; Richard Peterson, Le Sueur, and Richard Schulz, Lake Crystal, all of Minn., assignors to Hiniker Company, Mankato, Minn.

Filed Jul. 2, 1979, Ser. No. 53,951
Int. Cl.³ F15B *13/04*; F16H *21/02*
U.S. Cl. 91—404 **16 Claims**



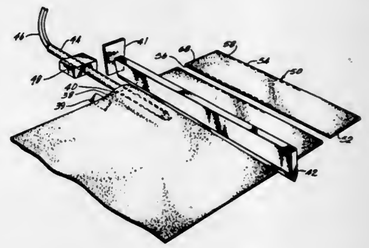
14. In combination:
a fluid actuator including a cylinder, having fluid ports near its ends, and a piston reciprocable in said cylinder between the sites of said ports and having a piston rod extending out of said cylinder;
valve means carried by said actuator and linearly actuable to prevent flow of fluid through one of said ports in a first

4,267,768

PROCESS FOR FABRICATING A RECLOSABLE BAG

Patrick J. Cieslak, and Michael J. Moran, both of Sierra Madre, Calif., assignors to David M. Cieslak, Sierra Madre, Calif., a part interest

Division of Ser. No. 724,553, Sep. 20, 1976, abandoned, which is a continuation-in-part of Ser. No. 654,117, Feb. 2, 1976, abandoned. This application Dec. 27, 1977, Ser. No. 865,003
Int. Cl.² B31B *1/90, 49/04*
U.S. Cl. 493—203 **3 Claims**



1. A process for fabricating a recloseable bag comprising the steps of:
(1) passing a pair of superimposed layers of sheet material formed by longitudinally folding a single sheet of thermoplastic material along a defined path to a cutting and sealing station;
(2) positioning a length of cable comprising a pair of spaced apart strands of bendable inelastic material encapsulated in thermoplastic cable material longitudinally of the bag at a point straddling a line of separation of one bag from an adjacent bag and
(3) separating the layers of thermoplastic material into separate and individual bags by cutting and sealing the superimposed sheets of thermoplastic material and the cable of thermoplastic material along a line between the pair of inelastic strands to bond the sheets of thermoplastic material to each other and to the thermoplastic cable material to define the sealed side edges of the bag and to secure a strand of inelastic material along each side edge of the bag in at least one encapsulating layer of thermoplastic material.

4,267,769

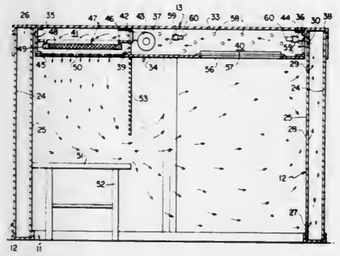
PREFABRICATED KNOCKDOWN CLEAN ROOM

George B. Davis, Frederick, and Robert W. Irving, Boonsboro, both of Md., assignors to Environmental Air Control, Inc., Hagerstown, Md.

Filed Feb. 22, 1979, Ser. No. 14,177
Int. Cl.³ B01D *50/00*
U.S. Cl. 98—33 A **3 Claims**

1. A prefabricated knockdown clean room for providing clean air to a work area comprising a plurality of independent base members located in end-to-end relationship, each of said base members being generally U-shaped in cross section and facing upwardly, a tie plate member bridging each pair of aligned base members, said tie plate members and said base

members having interlocking means so that said tie plate members substantially prevent relative lateral and lengthwise movement of contiguous base members, a plurality of independent side wall sections vertically slidably received within said base members, each of said side wall sections having spaced inner and outer panels connected together by end walls, the inner panel of certain of said side wall sections being imperforate and the inner panel of at least one side wall section having at least one return opening therein to permit air within the clean room to enter the space between said inner and outer panels, sealing means attached to the exterior of at least one end wall of each side wall section and engagable with a contiguous side wall section, a roof section including top and bottom panels connected together by end walls and side walls and defining a hollow compartment, generally U-shaped yoke means on at least said end walls of said roof section for slidably receiving the upper portions of said side wall sections and detachably connecting said roof section and side wall sections together, a partition separating said compartment into a plenum chamber and an air return chamber, the space between said panels of



said one wall section and said air return chamber being in communication with each other, blower means for moving air from said air return chamber into said plenum chamber, said bottom panel of said roof section having an opening into said plenum chamber, a micro filter extending entirely across said roof section opening so that air from said plenum chamber must be discharged through said micro filter, depending barrier means supported by said roof section adjacent to said roof section opening and extending entirely across said clean room, a work area located directly below said micro filter and said opening, air from said plenum chamber being directly introduced into said work area, said one of said side walls being remotely located from said work area so that the flow of clean air is maintained in a path from said plenum chamber into said work area and subsequently to the remaining portion of the interior of said clean room from which such air is returned to the plenum chamber by way of said one of said side walls and said air return chamber, whereby said base member, side wall sections and roof section may be easily assembled on a relatively flat surface to form a clean room.

4,267,770

CHARGE FEEDING AND SLEEVE VALVE CONSTRUCTIONS FOR AUTOMATIC PLATEN PRESS

Ralph E. Reiner, 6474 Chestnut La., Orchard Park, N.Y. 14127

Continuation-in-part of Ser. No. 36,062, May 4, 1979. This application Oct. 2, 1979, Ser. No. 81,139

Int. Cl.³ B30B *9/06*

U.S. Cl. 100—122 **10 Claims**

1. A press particularly adapted for use in extracting juice from fruit, said press comprising in combination:

a pair of vertically disposed press platens including a stationary platen element and a movable platen element supported for horizontal movement relative to said stationary platen element between remote charging and adjacent pressing positions;

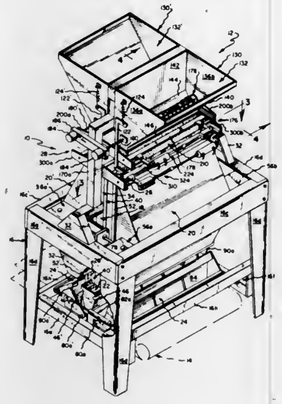
a sleeve formed of filter cloth;

means to movably suspend said sleeve to extend vertically and horizontally intermediate said platen elements, said sleeve having open upper and lower ends and side surfaces disposed for pressing engagement by said platen elements;

means for depositing a charge of fruit to be pressed within said sleeve through said upper end;

means for selectively closing said sleeve adjacent said lower end;

means for selectively closing said sleeve adjacent said upper end including a pair of horizontally disposed clamping bars arranged adjacent said side surfaces of said sleeve, means for supporting said clamping bars for movement relative to said sleeve from an open position in which said clamping bars are disposed adjacent said side surfaces and a clamping position in which said clamping bars are disposed in deforming engagement with said side surfaces for



clamping off and closing said sleeve, and means for moving said clamping bars between said open and closed positions, said means for supporting said clamping bars additionally permitting horizontal movements thereof while in deforming engagement with said sleeve as an incident to horizontal movements of said sleeve resulting from movements of said movable platen element between said charging and pressing positions, said means for closing said lower and upper ends of said sleeve cooperating to retain said charge of fruit within said sleeve during pressing thereof incident to movement of said movable platen element into said adjacent pressing position; and

means for collecting juice extracted from said charge of fruit disposed within said sleeve incident to pressing thereof.

4,267,771

SELF-ALIGNING MANDREL FOR CAN PRINTING MACHINES

James S. Stirbis, Littleton, Colo., assignor to Coors Container Company, Golden, Colo.

Filed Sep. 13, 1979, Ser. No. 74,979

Int. Cl.³ B41F *17/22*

U.S. Cl. 101—40 **13 Claims**

1. Apparatus for supporting a can during printing of the can by a printing machine having blanket means for applying pressure to the can to transfer printing to the can, comprising:

a rigid support member fixed on said printing machine;

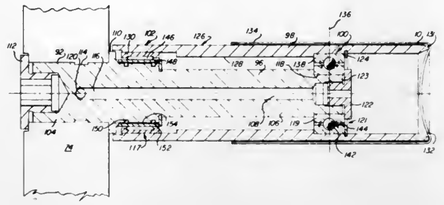
a generally cylindrical sleeve circumferentially mounted on said support member in generally coaxial relationship therewith;

said sleeve supporting and receiving thereover in a predetermined position a generally cylindrical can, said can having an axial length;

first mounting means for rotatably pivotably mounting said sleeve relative to said support member to permit pivoting of said sleeve relative to the support member between a

rest position whereat said sleeve and said support member are coaxial and variable pivotally displaced non-coaxial positions relative to said support member;

said first mounting means being located in the vicinity of the



mid-portion of said axial length of a can supported on said sleeve; and

second mounting means for rotatably, resiliently mounting said sleeve relative to said support member for positioning said sleeve in the rest position.

4,267,772

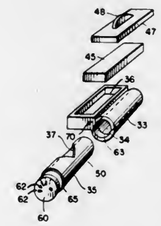
INK SUPPLY CARTRIDGE

Roy Maitland, Laguna Niguel, Calif., assignor to Count Numbering Machine, Inc., San Diego, Calif.

Continuation of Ser. No. 875,379, Feb. 6, 1978, abandoned, which is a continuation-in-part of Ser. No. 714,004, Aug. 13, 1976, abandoned. This application Oct. 30, 1979, Ser. No. 89,404

Int. Cl.³ B41F *1/42, 1/48*

U.S. Cl. 101—103 **3 Claims**



1. An ink supply cartridge for use with an insignia applying device having a pivotally mounted support member thereon and a movable insignia element therein, the ink supply cartridge including in combination:

a cartridge housing having an ink applying portion containing applicator means extending outwardly from said cartridge housing and adapted to communicate with the movable insignia element to permit the flow of ink to the insignia element, said cartridge housing further including a tubular ink supplying portion adapted to receive a tubular ink supply member, said cartridge housing further having partition means positioned between said ink applying portion and said tubular ink supplying portion with said partition means having at least one opening therein, and wherein said tubular ink supply member is rotatable in said ink supplying portion and includes a V-shaped slotted opening in the tubular surface thereof which communicates with at least one opening in said partition means for predeterminely controlling the flow of ink from said ink supplying portion to said ink applying portion and said applicator means, and wherein said cartridge housing further includes a projection clip member integral thereto and extending outwardly from said ink supplying portion adjacent said ink applying portion to define an opening therebetween, said clip member being engageable with the pivotally mounted support member when the same is positioned between said clip member and said applying portion to firmly hold said applicator means in said cartridge housing and said cartridge housing in engagement with the insignia applying device to permit the inking of the insignia element after each cycle of operation of the insignia applying device.

4,267,773

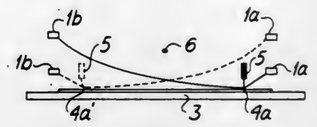
SILKSCREEN PRINTING MACHINE

Sven Scherp, Södertälje, and Sylve J. D. Ericsson, Tumba, both of Sweden, assignors to Svecia Silkscreen Maskiner AB, Norsborg, Sweden

Filed Jan. 31, 1979, Ser. No. 7,972

Int. Cl.³ B05C *17/04;* **B41L** *27/00*

U.S. Cl. 101—123 **4 Claims**



1. A silkscreen printing machine, comprising:

a table;

a stencil mounted on a frame, said frame having first and second opposing ends;

support means for supporting said frame above said table;

a squeegee arranged above said stencil;

means for urging said squeegee against said stencil to press said stencil against and into contact with said table and for moving said squeegee relative to said stencil; and

said support means including positioning means for vertically moving each of said ends of said frame relative to the table to position said frame at an oblique angle relative to said table to thereby enable said stencil to be positioned at an oblique angle relative to said table at the point of contact of said stencil with said table, said positioning means including at least one rotatable arm connected to said first end of said frame, at least one rotatable arm connected to said second end of said frame, means for rotating said rotatable arms, and means for transforming a rotational motion of said rotatable arms into independent vertical motion of said first and second ends of said frame.

4,267,774

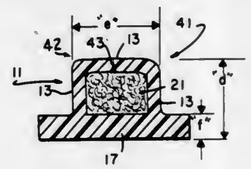
HEAT-SEALED PYROTECHNIC CAP

Harold H. Hall, Jr., Marblehead; Andre C. Bouchard, Peabody, both of Mass.; John W. Shaffer, and Thomas L. Gavenonis, both of Williamsport, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jan. 10, 1979, Ser. No. 2,263

Int. Cl.³ C06C *9/00*

U.S. Cl. 102—201 **10 Claims**



1. In a pyrotechnic cap for providing an audible signal of high intensity upon receipt of energy in the form of light and/or heat from a flashlamp wherein said cap comprises a plastic container having a quantity of pyrotechnic mixture hermetically sealed therein separately from said flashlamp, the improvement wherein said container includes a heat-sealed end

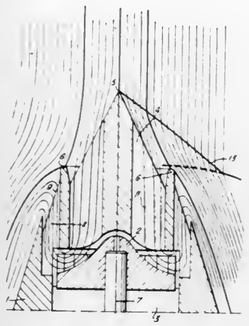
portion, said heat-sealed end portion providing said hermetic seal.

4,267,775

ARRANGEMENT IN RAM AIR TURBINES

Kyrre Sjotun, and Tore Rognmo, both of Kongsberg, Norway, assignors to A/S Kongsberg Våpenfabrikk, Norway

Filed Nov. 1, 1978, Ser. No. 956,577
Claims priority, application Norway, Nov. 2, 1977, 773755
Int. Cl.[3] F42C 11/00
U.S. Cl. 102—208 1 Claim



1. An arrangement in ram air turbines for driving an electric generator in a missile, in which ram air is supplied to the turbine wheel through an axial inlet positioned at the forward end of the missile which is surrounded by a forwardly protruding annular edge and leaves the missile through discharge openings at the periphery of the missile outside the annular edge, the forward end of the missile inside the annular edge being conical with an apex protruding forwardly of the annular edge, characterized in that: the inlet is divided into a plurality of inlet ducts arranged in circular spaced relationship around the conical forward end and that the discharge openings are forwardly directed and positioned immediately adjacent said annular edge, the position of said discharge openings being located with respect to said annular edge to co-operate with the air flowing over said forward end and over said discharge openings at subsonic speeds and the shock waves produced at said forward end at supersonic speeds to effectively limit the flow of air through the turbine and the turbine speed at high missile velocity.

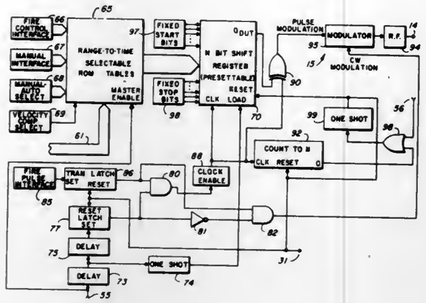
4,267,776

MUZZLE VELOCITY COMPENSATING APPARATUS AND METHOD FOR A REMOTE SET FUZE

Curtis L. Eickerman, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 29, 1979, Ser. No. 53,617
Int. Cl.[3] F42C 11/06
U.S. Cl. 102—215 12 Claims

1. Muzzle velocity compensating apparatus for a remote set fuze comprising:
(a) a source of constant frequency timing pulses;
(b) a Doppler radar transceiver mounted to provide Doppler pulses proportional to the relative velocity of a projectile carrying a remote set fuze;
(c) a counter connected to be activated for a predetermined number of Doppler pulses from said transceiver and to count timing pulses from said source during the activated period;
(d) decode means connected to said counter for utilizing the pulse count to provide an indication of the measured velocity of the projectile;
(e) range set means for presetting an operating time corresponding to a desired range into the apparatus utilizing a predicted projectile velocity; and
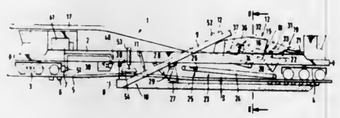


(f) means coupled to said range set means and said decode means for adjusting the corresponding time for said preset range to compensate for differences between the predicted velocity and the measured velocity.

4,267,777

MOBILE BALLAST CLEANING MACHINE

Josef Theurer, Vienna, and Karl Fölser, Linz-Urfahr, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed Jun. 11, 1979, Ser. No. 47,010
Claims priority, application Austria, Jun. 16, 1978, 4418/78
Int. Cl.[3] E01B 27/10
U.S. Cl. 104—7 R 17 Claims



1. A mobile ballast cleaning machine comprising
(a) a frame mounted for mobility on a track supported on ballast,
(b) a drive for moving the frame along the track in an operating direction,
(c) a drive monitoring device producing an output signal responsive to the drive speed,
(d) means mounted on the frame for excavating ballast from a track section and for conveying the excavated ballast,
(e) a drive for moving the ballast excavating and conveying means,
(f) another drive monitoring device producing an output signal responsive to the speed of the drive for moving the ballast excavating and conveying means,
(g) a ballast cleaning means arranged on the frame to receive the ballast from the excavating and conveying means, to clean the ballast and to discharge the cleaned ballast into a conveying path,
(h) means mounted on the frame in the conveying path for conveying the cleaned ballast discharged from the ballast cleaning means and for redistributing the cleaned ballast to the excavated track section,
(i) a measuring means arranged to measure the amount of conveyed cleaned ballast before it is redistributed to the excavated track section,
(j) a measuring means monitoring device producing an output signal responsive to the measured amount of conveyed ballast,
(k) a ballast storage receptacle arranged on the frame in the conveying path for selectively receiving the cleaned ballast from the ballast cleaning means and discharging the stored ballast to the conveying and redistributing means,
(l) a ballast redistribution monitoring and control arrangement for controlling the amount of redistributed ballast, the monitoring and control arrangement including
(1) an adjustment circuit means responsive to the output signals produced by the monitoring devices whereby the amount of redistributed cleaned ballast is controlled by the drive speed of the machine, the drive speed of the ballast excavating and conveying means, and the amount of the conveyed cleaned ballast,
(m) a ballast flow control means in the ballast cleaning means for adjusting the ballast flow therethrough, and
(n) a drive for actuating the flow control means, the monitoring and control arrangement including a first control element responsive to the adjustment circuit means and connected to the ballast flow control means drive for operating the drive.

4,267,778

OVERHEAD CONVEYOR TRACK SYSTEM

William V. Wilkie, 2953 George La., Ludington, Mich. 49431

Filed Aug. 13, 1979, Ser. No. 66,087
Int. Cl.[3] E01B 3/00
U.S. Cl. 104—94 9 Claims

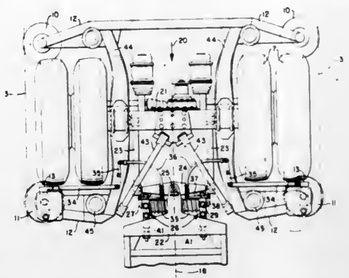
1. An overhead trolley conveyor system comprising an overhead track and a plurality of trolleys, adjacent trolleys being connected by a flexible, inextensible member, said track comprising a pair of longitudinally extending, parallel angle irons and a plurality of longitudinally spaced strap members each of said angle irons having an inwardly extending flange and an upwardly extending wall, each of said strap members having a channel-shaped cross section with a pair of downwardly extending legs, each of said legs having a laterally inwardly facing surface canted from the vertical such that the lower portion thereof lies laterally outwardly from the upper portion thereof, said surface of one of said legs being fixedly attached to a portion of the laterally outer side of one of said walls, and said surface of the other of said legs being attached to a portion of the laterally outer side of the other of said walls, and each of said trolleys comprising a pair of tapered wheels interconnected by an axle and having a hanger attached thereto, each of said wheels being adapted to roll longitudinally along the upper surface of one said flange, each of said pair of angle irons being spaced a distance from the other sufficient to allow free extension of said hanger therebetween but insufficient to allow one of said pair of tapered wheels to extend therebetween before the other of said pair of tapered wheels contacts the inwardly facing surface of one of said vertically extending walls of one of said angle irons.

4,267,779

MECHANICALLY TRACKABLE ROAD VEHICLE

Hellmuth Binder, Stuttgart, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,613
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844626
Int. Cl.[3] B61F 9/00
U.S. Cl. 104—247 39 Claims



1. A bi-mobile mechanically trackable vehicle adapted to be driven with or without a guide track, the vehicle including a steerable axle having steerable wheels mounted thereon, at least one additional non-steerable axle having non-steerable wheels mounted thereon, a plurality of tracking transverse guide roller means for guiding the vehicle along the guide track, means for at least indirectly mounting the transverse guide roller means at the respective axles in an area of the respective wheels of the vehicle, means for mounting the at least one non-steerable axle on the vehicle so as to be freely pivotable about a vertical axis, and means for selectively locking the at least one non-steerable axle in an exact transverse position for driving without a guide track and for unlocking the at least one non-steerable wheel from said transverse position, characterized in that the means for at least indirectly mounting the transverse guide roller means includes means for enabling at least one of the transverse guide roller means to be transversely displaceable within preset limits, means are provided for elastically tensioning said at least one guide roller means so as to move the same from a first end position defining an operating position to a second end position, said first and second end positions are within the preset limits, and in that means movable with the at least one transverse guide roller means are provided for coupling the transverse guide roller means with the selective locking and unlocking means so as to automatically unlock the at least one non-steerable axle wheel when the at least one transverse guide roller means is in the operating position and for automatically locking the at least one non-steerable axle wheel when the transverse guide roller means is in the second end position.

4,267,780

LOAD SUPPORTING AND HANDLING MEANS

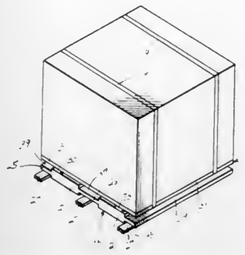
Joseph S. Candella, 6309 Manor Rd., Niagara Falls, N.Y. 14304

Continuation of Ser. No. 762,417, Jan. 25, 1977, abandoned. This application Apr. 21, 1978, Ser. No. 898,656
Int. Cl.[2] B65D 19/26
U.S. Cl. 108—52.1 1 Claim

1. Load-supporting and handling means comprising:
(A) a permanent and reusable pallet base which comprises a plurality of laterally spaced, parallel supporting members of equal height adapted to rest on a floor and a plurality of base panels integral with said supporting members, said base panels having a thickness less than that of said supporting members and each extending laterally from an edge face of one of said supporting members intermediate the top and bottom thereof, at least one of said supporting

members being spaced inwardly from opposite side edges of said pallet base, thereby providing spaces between said base panels and said floor in which the fork of a fork-lift truck may enter for lifting said pallet base by said panels, said base being symmetrical with respect to a horizontal plane extending through the centers of said supporting members and said panels, and

(B) a disposable load board adapted to be carried by and supported on said pallet base, said load board comprising a load-supporting panel and a plurality of laterally spaced,



parallel runners, said load-supporting panel having a flat, uninterrupted, upper face and substantially the same horizontal dimensions as said pallet base and said runners extending outwardly from the lower face of said load-supporting panel and being adapted to rest on and parallel to said supporting members when said pallet base and load board are assembled, thereby providing spaces between said base and said load-supporting panel for entry of the fork of a fork-lift truck, said load board having at least one runner for cooperation with each of the supporting members of said base.

4,267,781

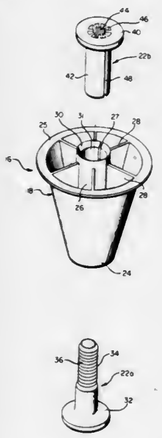
PALLET AND POST CONSTRUCTION THEREFOR

Richard J. Powers, 4340 N. Marmora, Chicago, Ill. 60639

Filed Jul. 30, 1979, Ser. No. 61,674

Int. Cl.³ B65D *19/26, 19/40*

U.S. Cl. 108—56.1 **10 Claims**



1. A post for use in combination with a pallet having at least an upper platform with a plurality of holes formed in it, said post comprising, in combination, an inner body, a plurality of flanges extending outwardly from said inner body, the peripheral edges of said flanges defining a truncated, cone-shaped surface about said post, a top wall on at least the larger end of said post, said inner body having a portion extending beyond said flanges at at least the top wall end thereof and having an axially aligned bore extending through it, the extended portion of said inner body being disposable within the respective ones of said holes in said upper platform, and a rivet having an enlarged diameter base portion and a cylindrical shaft portion formed integrally therewith, said cylindrical shaft portion being proportioned to extend through a respective one of said holes in said upper platform and into said bore in said body of said post, complimentary interlocking means on said cylindrical shaft portion of said rivet and on the side wall of said bore in said inner body which interlock to fixedly and replaceably secure said post to said upper platform; and a slot in said inner body extending the longitudinal length thereof for providing sufficient relief to permit said rivet to be inserted into said bore in said body without stripping said interlocking means.

4,267,782

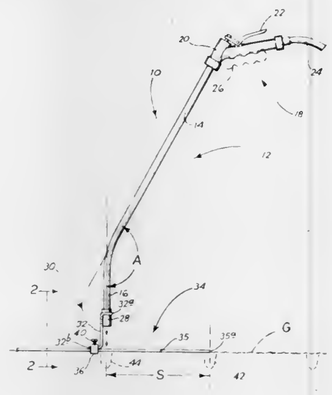
PORTABLE, HAND-HELD DEVICE FOR FORMING CROP-RECEIVING CAVITIES IN THE GROUND

Gene B. Talbott, Box 173-D, Rte. 1, Banks, Oreg. 97106

Filed Apr. 2, 1979, Ser. No. 25,866

Int. Cl.³ A01C *5/02*

U.S. Cl. 111—7.1 **3 Claims**



1. Portable, hand-held device for use in transplanting crops comprising:

a handle for gripping by an individual adapted for connection to a supply of fluid;

substantially rigid tubular means including a first tubular portion extending from said handle and a second tubular portion extending from said first tubular portion, said first and second tubular portions having their longitudinal axis offset from one another;

a nozzle mounted on a discharge end of said second tubular portion for directing fluid outwardly therefrom so that the fluid will impinge against the ground to form a crop receiving cavity in the ground;

orienting means connected to said tubular means adjacent said discharge end including a first member extending beneath said discharge end and generally parallel to the longitudinal axis of said second tubular portion and a stabilizing means comprising an elongate member secured to said first member, said elongate member being positionable along its length against the ground to orient said tubular means and said nozzle above the ground so that fluid may be discharged substantially vertically into the ground; and

adjustable means interconnecting said first member and said elongate member operable for preselecting and fixing the distance between the ends of said elongate member relative to said discharge end.

4,267,783

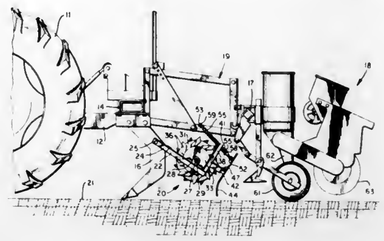
SEED BED PREPARATION METHOD AND APPARATUS

Robert W. Hendrix, and Jerry W. Hendrix, both of Rte. 2, Statesboro, Ga. 30458

Filed Mar. 7, 1979, Ser. No. 18,165

Int. Cl.³ A01C *5/06;* **A01B** *13/02*

U.S. Cl. 111—52 **2 Claims**



1. In an agricultural implement including a sub-soiler for cutting a deep furrow in the earth to define a location for a crop row and a planter mounted behind and movable with said sub-soiler for planting seeds along the row defined by said sub-soiler, the improvement comprising a seed bed preparation means mounted between said sub-soiler and said planter, said seed bed preparation means comprising:

rotary, bladed means operating directly over the furrow formed by said sub-soiler for filling in the furrow formed by said sub-soiler with soil turned up by said sub-soiler and for forming a depression along the crop row, said rotary, bladed means rotating in a direction of rotation upon movement of said implement, and comprising:

a frame;

a horizontal axle rotatably mounted on said frame transverse to the crop row;

a central disc member mounted at its center to said axle;

a pair of outer disc members each mounted at its center to said axle in spaced relation to said central disc member on opposite sides thereof along said axle, said outer disc members having diameters less than the diameter of said central disc member; and

a plurality of soil-working blades, said blades converging toward said axle as they extend from said central disc member to one of said disc members, and each of said soil-working blades being attached to said outer disc member at a point relative to the direction of rotation of said disc members ahead of the point at which said soil-working blade is attached to said central disc member so as to be angled to move soil toward said central disc member as said soil-working blade rotates with said axle; and

a means for packing the soil in a central portion of the depression prior to said planter.

4,267,784

TUFTING MACHINE

Theodore C. Heemstra, 958 Hollywood, NE., Grand Rapids, Mich. 49505

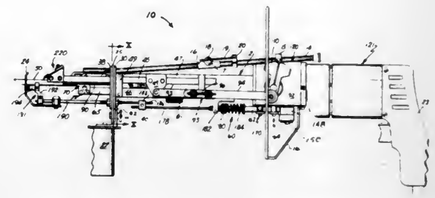
Filed Nov. 30, 1979, Ser. No. 99,021

Int. Cl.³ D05C *15/00*

U.S. Cl. 112—80 **32 Claims**

1. In a tufting machine for forming loop or cut pile fabrics including an elongated, rigid support arm; first means on said support arm for engaging a backing material; second means on said support arm for forming successive loop tufts from a continuous length of yarn in the backing material and for cutting said loop tufts when desired; yarn holding means on at least one side of said second means for holding the yarn of at least one previously formed loop against the backing material on said one side of said second means during cutting and/or forming of said loop or cut pile tufts, the improvement comprising:

drive means for operating said second means and said yarn holding means including crank means for operating said second means and camming means for operating said yarn



holding means independently of said second means during a predetermined portion of the operation of said second means.

4,267,785

AUTOMATIC APPARATUS FOR FEEDING AND FITTING A GORE PIECE TO THE INSIDE THIGH OPENING OF A STOCKING MATERIAL

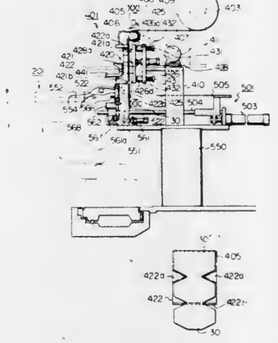
Takatori Osho, Nara, Japan, assignor to Takatori Machinery Works Ltd., Japan

Filed May 29, 1980, Ser. No. 154,229

Claims priority, application Japan, Jun. 21, 1979, 54-079525

Int. Cl.³ D05B *21/00*

U.S. Cl. 112—121.12 **7 Claims**



1. An automatic apparatus for feeding and fitting a gore piece to the inside thigh opening of a stocking material comprising

a pedestal arranged facing a station on the path of travel of clampers each of which holds a stocking material having an inside thigh opening defined by sliced fringes,

a gore piece feeding assembly arranged on said pedestal, and

a gore piece fitting assembly arranged on said pedestal for cooperation in a prescribed sequence with said feeding assembly;

said gore piece feeding assembly including

a supply source of a material strip,

means arranged on the downstream side of said supply source for intermittently delivering said material strip from said supply source over a length corresponding to each said gore piece per each intermittent movement,

a stationary cutter arranged on the downstream side of said intermittent delivering means and having a cutting surface facing the path of travel of said material strip,

a movable cutter arranged facing said stationary cutter and having on its cutting surface a pair of laterally spaced triangular blades and a transverse straight blade spaced

from said triangular blades along said path of travel of said material strip,

means for estranging said movable cutter always from said stationary cutter, and

means for putting, at a prescribed timing, said movable cutter in smug surface contact with said stationary cutter in order to trim and separate each said gore piece of a prescribed pattern from said material strip per each said surface contact; and

said gore piece fitting assembly including

means arranged facing the path of travel of said gore piece on the downstream side of said cutters for holding by pneumatic suction each said gore piece in the flat state,

a fitting element arranged facing said holding means, and

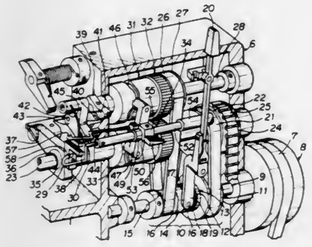
means for driving, at a prescribed timing, said fitting element for movement in a direction substantially normal to said path of travel of said gore piece in order to fold and fit each said gore piece on said holding means to said inside thigh opening of said stocking material.

4,267,786

LOCK STITCHING AND OVERLOCK STITCHING SEWING MACHINE

Susumu Hanyu; Noboru Kasuga, both of Hachioji; Kazumasa Hara, Tama, and Koichi Watanabe, Fussa, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Dec. 14, 1977, Ser. No. 860,589
Claims priority, application Japan, Dec. 17, 1976, 51-150749
Int. Cl.[3] D05B *1/14*
U.S. Cl. 112—168 **31 Claims**



1. A lock stitching and overlock stitching sewing machine having a frame and primary driving means, comprising, in combination, a lock stitching device having a stitch forming part including a needle bar driving mechanism for forming lock stitches, said frame with said primary driving means forming an integral part of said lock stitching device; and an overlock stitching device having a stitch forming part spaced apart from said part for forming lock stitches and including a separate needle bar driving mechanism for forming overlock stitches, said overlock stitching device being disconnectably coupled to said lock stitching device, each stitching device having driving pulleys and a cover to selectively shield said pulleys, and further including means for reversing the movement of said primary driving means in response to the change of position of said cover with respect to said pulleys.

4,267,787

CONTROL METHOD FOR A TUFTING MACHINE

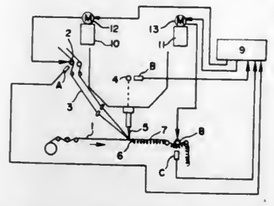
Tsutomu Fukuda, 785-1 Kunikane, Kamisocho, Kakogawashi, Japan

Filed Apr. 16, 1980, Ser. No. 140,833
Claims priority, application Japan, Jun. 29, 1979, 54-81341
Int. Cl.[3] D05C *15/20*
U.S. Cl. 112—266.2 **1 Claim**

1. A method of controlling a tufting machine comprising:

preestablishing a selected stitch number and a selected yarn feed length for a predetermined unit feed length of ground fabric;

determining stitch number and yarn feed length for the unit feed length of ground fabric by means of measured values respectively obtained from a ground fabric feed detector, a yarn feed detector and a stitch number detector;



comparing the measured values with the preestablished stitch number and the preestablished yarn feed length; and

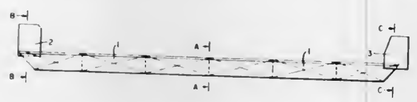
automatically controlling the rotation speeds of a spiked roller or a yarn roller respectively to correct the ground fabric feed and the yarn feed to the preestablished values whenever the measured values depart from a predetermined tolerance from the selected values.

4,267,788

SELF-STABILIZED ELEVATOR-FLOAT FOR DRYDOCKING OR FLOATING ANY TYPE OF VESSEL

Manuel G. Blanco, c/o Hermanos Paquet, No. 2, 4°, Gijon, Spain

Filed Dec. 27, 1977, Ser. No. 864,525
Claims priority, application Spain, Sep. 14, 1977, 462.374
Int. Cl.[3] B63C *1/02*
U.S. Cl. 114—45 **8 Claims**



1. A self-stabilized float adapted for use with a wharf for dry docking or floating a vessel on a body of fluid and permitting the transfer of the vessel between the body of fluid and the wharf via the float, in the longitudinal and transverse directions of the float, said float comprising:

a main body having at least one ballast tank,

a first pair of hollow, closed towers at one end of said body, supporting means extending laterally from said main body, for securing said towers thereto so as to be laterally offset therefrom,

a second pair of hollow, closed towers at the other end of said body spaced substantially closer together than said first pair of towers and mounted for vertical displacement with respect to said main body, said first and second pairs of towers serving to impart transverse and longitudinal stability to said float,

means for alternatively bailing and flooding said at least one tank to raise or lower said body, said means also bailing and flooding said first pair of towers to maintain the level of fluid therein approximately at the same level as said body of fluid thereby relieving stresses on said supporting means, said second pair of towers being normally free of fluid, and

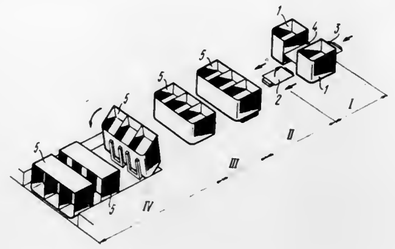
means for selectively flooding and bailing said second pair of towers to lower and raise the same with respect to said main body.

4,267,789

METHOD OF ASSEMBLING MIDDLE BODY OF A VESSEL HULL

Jury P. Ivanov, Grazhdansky prospekt, 92/2, kv. 1; Evgeny A. Evstafiev, ulitsa Karpinskogo, 31, korpus 1, kv. 139, and Alexandr E. Tarasov, Tallinskaya ulitsa, 6a, kv. 23, all of Leningrad, U.S.S.R.

Filed May 12, 1978, Ser. No. 905,466
Claims priority, application U.S.S.R., May 17, 1977, 2528811
Int. Cl.[3] B63B *3/04*
U.S. Cl. 114—65 R **1 Claim**



1. A method of assembling middle bodies of vessel hulls for vessels to be used for the transportation of liquid, granular and gaseous cargoes which are formed by a framing extending the width of the vessel hulls and including bottom sections, deck sections, D-type modules and cross bulkheads, comprising:

assembling starboard side and port side D-type modules outside a place of assembly of a middle body of a vessel hull from a set of sections including deck sections, bottom sections, side sections and lengthwise and cross sections;

installing other deck and bottom sections of said set of sections and a cross bulkhead section between a pair of said starboard side and port side D-type modules, outside the place of assembly of the middle body of a vessel hull thereby assembling a complete module that forms framing extending the width of the vessel hull, said assembly including positioning said cross bulkhead and said other deck and bottom sections between starboard side and port side D-type modules, said modules being spaced apart from each other by a distance greater than the width of said cross bulkhead, lifting said cross bulkhead to an elevated horizontal position, tilting said deck and bottom sections to vertical positions and securing same to said elevated cross bulkhead to thereby form a central part of said module, and moving said starboard side and port side D-type modules towards said central part to thereby assemble said complete module;

transferring said complete module to the place of assembly of the middle body of the vessel hull and attaching it to previously assembled and installed modules, said complete module being assembled with the plane of said cross bulkheads in a horizontal position, and said transferring of said assembled complete module including turning said module into a position in which the planes of said cross bulkheads of the assembled complete module and those of previously installed modules extend in parallel with one another.

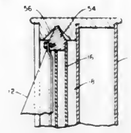
4,267,790

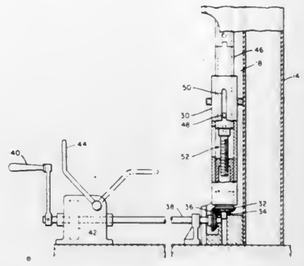
SAIL FURLING AND REEFING APPARATUS

Ralph S. Hood, 2543 Lucille Dr., Fort Lauderdale, Fla. 33316

Filed Apr. 20, 1978, Ser. No. 898,290
Int. Cl.[3] B63H *9/10*
U.S. Cl. 114—106 **7 Claims**

1. Apparatus for supporting and housing a sail comprising a substantially vertical stayed mast, walls forming a chamber in said mast and a rear facing slot leading from the outside into said chamber, a hollow cylindrical member in said chamber having an outside diameter greater than the width of said slot, means connecting said sail to said cylindrical member and supporting the entire weight of said sail, means for rotating said cylindrical member whereby the sail is drawn into said chamber to furl said sail, said cylindrical member being substantially rigid, extending in said chamber the full vertical length of said sail, means supporting the weight of said cylindrical member against downward forces applied thereto by said cylindrical member and the weight of said sail only at the base of said cylindrical member independently of said mast, and means at the top of said chamber for supporting said cylindrical member only against forces applied laterally thereto.



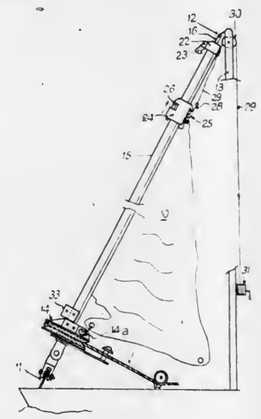


4,267,791

JIB ROLLER SYSTEMS

Jean-Pierre Ingouf, 131, rue de la Sante, 75013 Paris, France

Filed Jul. 25, 1979, Ser. No. 60,611
Claims priority, application France, Aug. 4, 1978, 78 23656
Int. Cl.[3] B63H *9/10*
U.S. Cl. 114—106 **10 Claims**



1. A device for positioning, maintaining, and rolling a headsail on a sailing vessel having a fixed stay adjacent said sail and a halyard for raising said sail, comprising:

(i) tubular mandrel means adapted to rotate on said stay comprising:

a. a plurality of mandrel segments placed end to end along said stay, said segments having an internal bore for receiving said stay and three external grooves disposed

through an arc of not more than 120 degrees with respect to said internal bore;

b. internal sleeve means for interconnecting said segments;

(ii) normally closed locking means disposed at the top of said mandrel means;

(iii) sail attaching means, slidably movable along said mandrel means and attached to the top portion of said sail, for moving into locking engagement with said locking means, said sail attaching means being temporarily connectable with said halyard; and

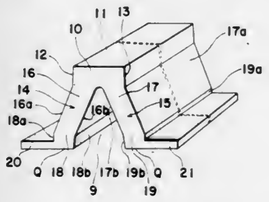
(iv) releasing means, slidably movable along said mandrel means and attachable to said halyard, for releasing said sail attaching means from said locking means, thereby allowing said sail to be lowered.

4,267,792

ELASTICALLY DEFORMABLE FENDER

Tamisuke Kimura, Kobe; Tomokazu Kashiwara, and Tetsuo Yamaguchi, both of Nishinomiya, all of Japan, assignors to Sumitomo Rubber Industries, Ltd., Kobe, Japan

Filed Dec. 26, 1978, Ser. No. 973,035
Claims priority, application Japan, Dec. 27, 1977, 52-159597
Int. Cl.³ B63B *59/02*
U.S. Cl. 114—219 **3 Claims**



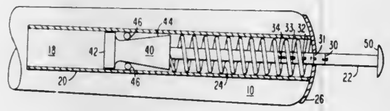
1. An elastically deformable fender adapted to be mounted on one or both of an impact applying element and an impact receiving element for cushioning the impact applied from the impact applying element to the impact receiving element, said fender comprising an elongated body of one-piece construction having a buffer block of substantially rectangular cross section, said buffer block having a thickness within the range of $(0.1\times H)$ to $(0.3\times H)$, wherein H represents the overall height of the fender, an outer surface of said buffer block forming an impact receiving surface, and a pair of opposed support walls extending from said buffer block so as to diverge from each other in a direction away from said buffer block, at least the inner surface of said support walls being bent at their free side edge portions inwardly with respect to each other thereby providing respective leg sections adjacent the buffer block, each of the leg sections having a thickness within the range of $(0.2\times H)$ to $(0.4\times H)$, with H representing the overall height of the fender, and respective heel sections on one side of said leg sections remote from the buffer block, each of said heel sections having a fitting flange protruding outwardly from the corresponding heel section in parallel relation to the plane of said impact receiving surface, said heel sections being spaced from each other a maximum span S within the range of $(0.75\times W)$ to $(1.5\times W)$, wherein W represents the width of said buffer block, said heel section being measured from the boundary between the corresponding heel and leg sections to a plane which is in flush with fitting surfaces of the respective fitting flanges adapted to contact the impact receiving element and is within the range of $(0.15\times H)$ to $(0.4\times H)$, with H representing the overall height of the fender, and wherein the angle of divergence of the support walls is so selected that a plane of any one of the inner and outer surfaces of each of the leg sections, which are opposed to each other across the thickness of the leg section, forms an angle within the range of 55° to 80° relative to the plane which is in flush with fitting surfaces of the respective fitting flanges adapted to contact the impact receiving element, that a plane of any one of inner surfaces of the respective heel sections, which face towards each other, forms an angle within the range of 75° to 90° relative to said plane in flush with the fitting surfaces of the respective fitting flanges while a plane of any one of outer surfaces of the respective heel sections, which are opposite to said inner surfaces of said heel sections, forms an angle within the range of 55° to 90° relative to said plane in flush with the fitting surfaces of the respective fitting flanges.

4,267,793

VELOCITY METER FOR BASEBALL BAT

Michael D. Lane, 2005 Huntington Cir., Ft. Collins, Colo. 80526, and Kenneth J. Von Forell, Sr., Ft. Collins, Colo., assignors to Michael D. Lane, Ft. Collins, Colo.

Filed Dec. 26, 1979, Ser. No. 106,699
Int. Cl.³ A63B *69/00*; G01P *15/02*
U.S. Cl. 116—324 **5 Claims**



1. A velocity meter comprising:

a baseball bat having a handle, shaped to be grasped by the hands of a user, and a hitting portion continuing away from said handle;

means defining a cavity extending longitudinally inward toward said handle from an outer end of said hitting portion;

an elongated plunger means slidably receivable within said cavity, said plunger means including a tapered plug means rigidly affixed thereto and movable therewith slidably within said cavity;

means for resiliently holding said plunger means within said cavity;

means on the bat coacting with indicating means on said plunger means for indicating the amount of movement of said plunger means outwardly from said cavity as a result of a swinging of said bat by said user;

and means for automatically locking said plug means in the position of maximum amount of movement within said cavity during said swinging, to enable maintaining the indication of said movement following said swinging of said bat.

4,267,794

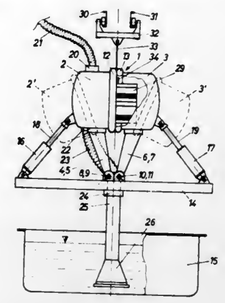
APPARATUS FOR COATING ARTICLES WITH ENAMEL SLIP

Ferdinand Hartmann, Vienna, Austria, assignor to Austria Email Aktiengesellschaft, Vienna, Austria

Filed Jun. 23, 1980, Ser. No. 161,785
Claims priority, application Austria, Jul. 2, 1979, 4625/79
Int. Cl.³ B05C *9/00, 11/11, 13/00*
U.S. Cl. 118—50 **6 Claims**

1. Apparatus for coating articles, comprising an evacuatable container consisting of two parts, which are movable toward and away from each other and have confronting edges which are covered with respective seals, and an endless conveyor track provided with hanger means for suspending said articles from said track, means for positioning said hanger means whereby to introduce said articles into the open container,

means for moving said parts whereby the seals are operatively associated to tightly grip the hanger means therebetween and



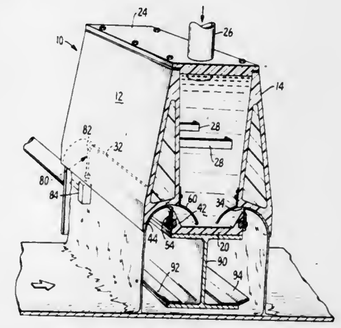
to close said container, and means for evacuating and for supplying the coating material to the closed container.

4,267,795

LIQUID DISTRIBUTING APPARATUS

Imants Reba, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed May 9, 1980, Ser. No. 148,111
Int. Cl.³ B05C *1/04, 3/18, 5/00*
U.S. Cl. 118—302 **6 Claims**



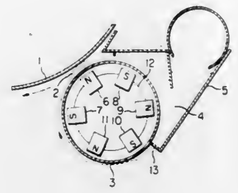
1. Apparatus for uniformly distributing liquid to the surface of a moving web, said apparatus comprising a housing having side walls and a bottom wall, said housing being disposed above said surface and having an interior accommodating said liquid, at least one of said side walls having an upper wall section having a curved bottom end and a lower wall section having a narrow top end, said ends spaced from one another to define an elongated narrow slit extending across said web surface and positioned above said bottom wall, said curved bottom end extending from the housing interior over said narrow top end and at least partially defining a curved liquid deflection surface extending from said elongated narrow slit externally of said housing interior and adapted to direct liquid exiting in a generally horizontal direction from said housing interior through said exit slit downwardly toward said web surface in a thin stream conforming to the dimensions of said elongated narrow slit.

4,267,796

APPARATUS FOR DEVELOPING ELECTROSTATIC LATENT IMAGE

Nin-ichi Kamogawa, and Yoshio Yamazaki, both of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Apr. 23, 1979, Ser. No. 32,381
Claims priority, application Japan, Apr. 28, 1978, 53/50092
Int. Cl.³ G03G *15/09*
U.S. Cl. 118—658 **3 Claims**



1. In a magnetic brush developing apparatus for use in an electrostatic recording machine for forming a copy of an original and including a rotatably disposed electrostatic latent image carrying member and dispenser means for holding a supply of single-component magnetic developer,

carrying means between said dispenser means and said image carrying member and having a peripheral surface arranged for rotation in a direction opposite the image carrying member for transporting the developer on said peripheral surface from an upstream feed-in zone to a downstream feedback zone through a developing zone therebetween, said developing zone being located adjacent the image carrying member such that at least some of the developer is selectively attracted from the peripheral surface developing zone to the image carrying member in accordance with an electrostatic image pattern of the original impressed thereon, and

magnetic means stationarily disposed with respect to said carrying means for forming magnetic fields of adjacently alternating polarities on said peripheral surface to attract the developer for transport from the dispensing means and to and through said developing zone as said peripheral surface is rotated,

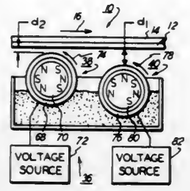
the magnetic field at said developing zone being stronger than the fields at said feed-in and feedback zones, and the magnetic fields at said feed-in and feedback zones being unequal in strength so as to offset the concentration point of the composite magnetic field density on said carrying means peripheral surface away from said developing zone adjacent the image carrying member, said offset being effective to prevent the accumulation on said image carrying member of excess developer transported on said peripheral surface to the developing zone and not attracted to the image carrying member for forming a toner image thereon in accordance with the image pattern of the original, whereby said excess developer is attracted to said peripheral surface at said offset magnetic field density concentration point remote from said image carrying member, the attraction of excess developer away from said image carrying member resulting in the creation of a notably sharpened toner image on the image carrying member.

4,267,797

DEVELOPMENT SYSTEM

Raymond W. Huggins, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 27, 1979, Ser. No. 34,095
Int. Cl.³ G03G *15/09*
U.S. Cl. 118—658 **32 Claims**



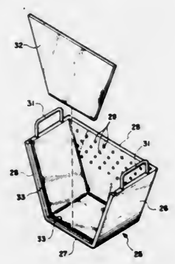
1. An apparatus for developing a latent image, including:
first magnetic means for advancing a conductive developer composition comprising marking particles into contact with the latent image, said first means interacting with the developer composition causing the developer composition to have a first conductivity so as to optimize development of solid areas within the latent image with the marking particles; and
second magnetic means, spaced from said first means, for advancing the developer composition into contact with the latent image, said second means interacting with the developer composition causing the developer composition to have a second conductivity lower than the first conductivity so as to optimize development of lines within the latent image with the marking particles.

4,267,798

METHOD AND APPARATUS FOR RAISING PLANT AND ANIMAL LIFE IN A MARINE ENVIRONMENT

Arthur H. Collins, Rte. 1, Artesian Rd., Eagle, Id. 83616

Filed Dec. 26, 1978, Ser. No. 973,089
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **8 Claims**



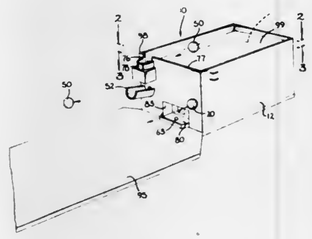
1. Apparatus for raising plant and animal life in a marine environment comprising
an elongate raceway through which water is flowed, said raceway including a bottom and side walls extending upwardly from opposite sides of said bottom, an inlet end wall and an outlet end wall;
a source of heated water;
means for supplying heated water from said source to the inlet end of said raceway;
a partition extending across the raceway, said partition providing a solid barrier across the raceway at an upper portion thereof and being perforated at a lower portion thereof;
a discharge pipe extending upwardly in the raceway to a height just below the uppermost edges of the side walls and partition; and
a catch box in the raceway, said catch box including a bottom and a pair of side walls adapted to fit snugly within the raceway bottom and side walls,
a downstream panel forming a back wall interconnecting the bottom and side walls of the catch box, said downstream panel having a solid lower portion and a perforated upper portion to allow water flow therethrough and to restrict movement of fish therethrough, and a removable panel interconnecting the upstream ends of the bottom and side walls of the catch box.

4,267,799

ANIMAL TRAINING AND AMUSEMENT DEVICE

Roger C. Bacon, 1042 N. Sweetzer Ave., Los Angeles, Calif. 90069

Filed Nov. 1, 1979, Ser. No. 90,489
Int. Cl.³ A01K *15/02*
U.S. Cl. 119—29 **36 Claims**



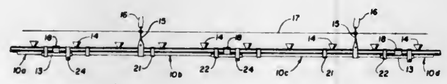
36. An animal training and amusement device, comprising:
a means for projecting an object through the air away from the device;
a means for releasing a food pellet;
a trigger means coupled to said projecting means for triggering operation of said projecting means; and
a means for activating said releasing means when said object is returned to said device and placed in a preselected position wherein said return and placement of said object also resets said device for repeated operation.

4,267,800

SUSPENDED WATERING SYSTEM FOR POULTRY HOUSE

Morris C. Keller, and Francis Rustin, both of 2615 College St., Springfield, Mo. 65806

Filed Feb. 27, 1980, Ser. No. 125,205
Int. Cl.³ A01K *7/00*
U.S. Cl. 119—72.5 **12 Claims**



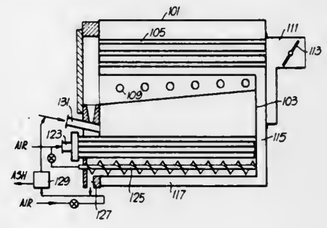
7. In a watering system, for suspension from overhead supports, the improvement comprising
a continuous line of flexible pipe consisting of a plurality of pipe sections coupled in end-to-end relation by pipe couplings; and an associated stiffening support system consisting of elongated support bars disposed contiguous to, and being substantially coextensive in length with, said pipe sections, and bridging bars disposed contiguous to and overlapping adjacent support bars and bridging said couplings; and clamp means disposed at selected intervals for clamping together said pipe, said support bars and said bridging bars at each side of a pipe coupling, and for clamping together said support bars and pipe sections intermediate said pipe couplings;
said support bars and bridging bars being elongated rigid members having a V-shaped cross section; the channels of said support bars being disposed in nesting relation with said pipe sections; and said bridging bars being disposed in nesting relation with said support bars;
and a plurality of animal operated drinker devices mounted on said pipe sections in longitudinally spaced relation, to be supplied by said pipe.

4,267,801

CIRCULATING FLUIDIZED BED BOILER

Edwin Robinson, Darlington, England, assignor to Deborah Fluidised Combustion Limited, Peterlee, England

Filed May 30, 1979, Ser. No. 43,880
Claims priority, application United Kingdom, May 31, 1978, 25698/78
Int. Cl.³ B09B *3/00*
U.S. Cl. 122—4 D **8 Claims**



1. A boiler comprising fuel burning means and means allowing heat exchange between the products of combustion of the fuel and a working fluid, the fuel burning means including a substantially cylindrical housing for accommodating a bed of particulate material, air distributors located within the housing so as to be surrounded by bed material, said air distributors effecting fluidisation of the bed material, said air distributors extending longitudinally of and being spaced from the housing and comprising first and second air distributors arranged on opposite sides of a vertical longitudinal plane through the bed and on each side extending substantially circumferentially with respect to the axis of the housing, and means for feeding air to the air distributors to effect circulation of the bed material in two zones on said opposite sides of said vertical longitudinal plane.

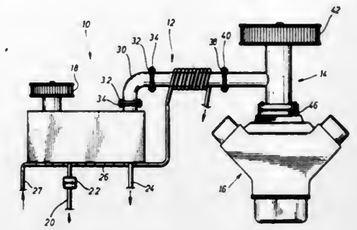
4,267,802

FUEL VAPORIZATION AND DELIVERY SYSTEM

Delmar J. Garretson, Mineral Springs, Ark., assignor to Gordon O. Dodson, Texarkana, Ark.

Filed Sep. 21, 1978, Ser. No. 944,334
Int. Cl.³ F02M *31/00*
U.S. Cl. 123—523 **4 Claims**

1. A fuel vaporization and delivery system for an internal combustion engine, comprising:
a vaporizing chamber having a first air inlet and a mixture outlet and further comprising
a reservoir for storing a quantity of fuel wherein said first air inlet is positioned for providing for the passage of incoming air over said reservoir,
a jet nozzle within said chamber and communicating with a source of pressurized fuel, for spraying fuel into said air and supplying fuel to said reservoir, the passage of air over said reservoir and the spraying of said fuel producing a fuel and air mixture,
a first baffle disposed within said chamber between said first air inlet and said nozzle, and
a second baffle disposed within said chamber between said nozzle and said outlet, said baffles adapted to produce a swirling motion in said mixture, thereby promoting the vaporization of said fuel;
a metering device having a second air inlet for providing additional air to said mixture, the metering device communicating with said chamber and with said engine for controlling the amount of said mixture supplied to said engine; and



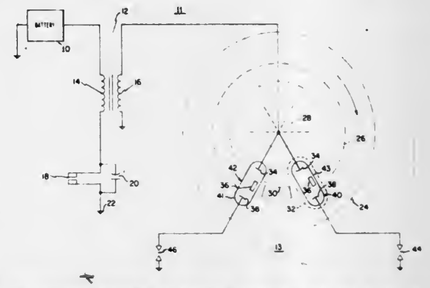
an intermediate vapor expander including a heated region positioned between and in communication with said mixture outlet of said vaporizing chamber and said metering device for further vaporizing the fuel and air vapor mixture between the vaporizing chamber and the metering device.

4,267,803

DISCHARGE DEVICE IGNITION SYSTEM

Richard A. Formato, 17 Red Coat Rd., Shrewsbury, Mass. 01545, assignor to Richard A. Formato, Shrewsbury, Mass. and Theodore P. Zoli, Jr., Glens Falls, N.Y.

Filed Jun. 14, 1979, Ser. No. 48,673
Int. Cl.³ F02P *7/00*
U.S. Cl. 123—146.5 A **38 Claims**



35. An ignition system for a multi-cylinder engine having a distributor shaft for timing the ignition, and a plurality of spark plugs, comprising:
a first member, rotatable with said shaft;
a second member, independent of said first member and rotatable with said shaft;
means responsive to said first member, for periodically producing a high voltage signal for firing the spark plugs;
a discharge device including a pair of spaced electrodes in a sealed chamber interconnected between the means for producing a high voltage signal and each spark plug and incapable of conducting in response only to the high voltage signal;
a source of energy for producing seed ionization within said discharge device; and
means, responsive to said second member and independent of said means for producing a high voltage signal for firing the spark plugs, for periodically selectively applying said energy to each said discharge device to produce seed ionization therein and enable said discharge device to

conduct a high voltage signal for firing the associated spark plug.

4,267,804

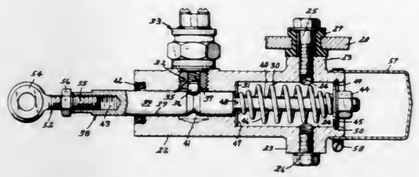
NEUTRAL START AND CENTERING DEVICE FOR POWER TRANSMISSION MECHANISM

Dann B. Rypka, Owatonna, Minn., assignor to Owatonna Manufacturing Company, Inc., Owatonna, Minn.

Filed Jan. 31, 1978, Ser. No. 873,897

Int. Cl.[2] H01H 3/00

U.S. Cl. 123—179 K **6 Claims**



1. In combination with an engine having a starting motor, a fluid pump operated by said engine, and a control lever for said pump and movable between a neutral position and spaced forward and reverse pump operative positions;

(a) fixed housing means defining a bore;

(b) a shaft extending axially through said bore and axially movable therein, said shaft having a transverse notch disposed within said bore;

(c) a switch for said starting motor mounted on said housing and having an operating stem extending in a direction transversely of said bore;

(d) a ball detent on the end of said stem for engagement with said shaft and reception in said notch, said ball detent sized with respect to said notch so that any appreciable axial movement of said shaft from a position wherein said detent is received in said notch will eject said detent from said notch to open said switch;

(e) centering means yieldingly holding said shaft against axial movements in opposite directions away from said detent in said notch;

(f) and connector means for attaching said shaft to said lever.

4,267,805

INTERNAL COMBUSTION ENGINE

Johann Schmuck, Bad Feilnbach, Fed. Rep. of Germany, assignor to Motorenfabrik Hatz GmbH & Co. KG, Ruhstorf, Fed. Rep. of Germany

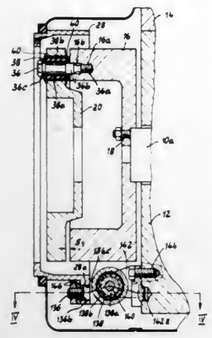
Filed May 29, 1979, Ser. No. 42,929

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1978, 2825177

Int. Cl.[1] F02B 77/00

U.S. Cl. 123—198 E **7 Claims**

1. In an internal combustion engine comprising a crankshaft rotatably supported in an engine housing, a flywheel mounted on said crankshaft, an aggregate housing surrounding said flywheel and mounted on said engine housing by fastening means, a drive shaft for an aggregate rotatably journaled in said aggregate housing, and means for drivingly connecting said flywheel to said drive shaft, the improvement comprising wherein said fastening means comprises damping means for damping vibrations between said internal combustion engine and said aggregate housing, which damping means comprise at



least one elongate elastic buffer element extending tangentially with respect to said flywheel.

4,267,806

HIGH COMPRESSION TYPE INTERNAL COMBUSTION ENGINE

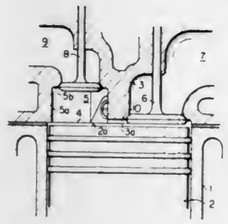
Mutsumi Kanda; Kiyoshi Nakanishi, both of Susono, and Katsuhiko Motosugi, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Apr. 17, 1979, Ser. No. 30,864

Claims priority, application Japan, May 12, 1978, 53-5586

Int. Cl.[1] F02B 3/00

U.S. Cl. 123—287 **10 Claims**



1. An internal combustion engine comprising:

a cylinder block having a cylinder bore therein;

a piston reciprocally movable in said cylinder bore and having a flat top face;

a cylinder head having a circular inner wall portion covering the cylinder bore and comprising a flat portion substantially parallel to the top face of the piston and a recessed portion which is arranged adjacent to the periphery of said inner wall and has a circumferential wall and a top wall, said flat portion being arranged at a position close to the flat top face of said piston when the latter is positioned at top dead center for forming a squish area therebetween, said piston and said circular inner wall portion of said cylinder head forming a combustion chamber therebetween;

an intake valve arranged on said flat portion and having a valve head which has a front face exposed to said combustion chamber, the front face of said valve head being approximately coplanar with said flat portion;

an exhaust valve arranged on the top wall of said recessed portion and having a valve head;

a groove formed in said flat portion and extending from the valve head of said intake valve to said recessed portion, said groove having an approximately uniform depth which is slightly larger than the clearance between said flat portion and the flat top face of said piston when the latter is positioned at top dead center;

a depression formed in said groove adjacent to and opening into said recessed portion, said depression having a flat inner wall which is inclined downwardly and slightly towards said recessed portion with respect to a plane parallel to the axis of the cylinder bore and passing through the centers of said intake and exhaust valve heads; and

a spark plug arranged in a bore in said inclined wall of the depression in said groove and having a spark gap located approximately on the axis of the cylinder bore, so that the flame propagation distances to the most remote surfaces of the circumferential walls of the recessed portion are minimized.

4,267,807

INTERNAL COMBUSTION ENGINES

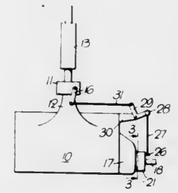
Herbert E. Ashfield, Huddersfield, England, assignor to David Brown Tractors Limited, Huddersfield, England

Filed Jul. 6, 1979, Ser. No. 55,215

Claims priority, application United Kingdom, Jul. 13, 1978, 29719/78

Int. Cl.[3] F02D 9/06, 7/00

U.S. Cl. 123—323 **7 Claims**



1. An internal combustion engine provided with means for automatically preventing overspeeding of the engine, said means including an exhaust brake associated with the engine, and a servo system operatively connected between the output side of the engine and the exhaust brake and comprising a mechanical device which remains completely inoperative unless the engine speed exceeds a predetermined value, whereupon said device moves rapidly through a limited distance to apply the exhaust brake suddenly and fully.

4,267,808

CENTRIFUGAL RPM GOVERNOR FOR FUEL INJECTED ENGINES

Ilija Djordjevic, and Ernst Ritter, both of Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

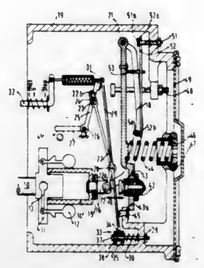
Filed Jun. 21, 1979, Ser. No. 50,582

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2855889

Int. Cl.[3] F02D 1/04

U.S. Cl. 123—367 **4 Claims**

1. A centrifugal rpm governor for fuel injected internal combustion engines including a housing, comprising an intermediate lever which is coupled with a supply quantity adjustment member of an injection pump which is engaged by both a control member moved by means of flyweights in accordance with rpm and a setting member which is pivotable for the purpose of arbitrary variation of the supply quantity, said governor further including a support member which contacts a stop attached to the housing under a prestressing force of a main control spring, said control member coming into effective contact with said support member after covering an idling sleeve path against the force of an idling spring, further wherein both said setting member and said control member are connected by a shift lever and are articulated via said shift lever on said intermediate lever, said shift lever includes opposite end portions, one end of said end portions being connected to said control member and the opposite end portion being connected with said setting member, said shift lever further being pivotably connected to said intermediate lever; said



intermediate lever further provided with a pivotal bearing which is adjustable within the governor housing in a direction parallel with the movement of said control member for the purpose of accomplishing the basic setting of the full-load supply quantity.

4,267,809

EXHAUST GAS RECIRCULATION CONTROL SYSTEM

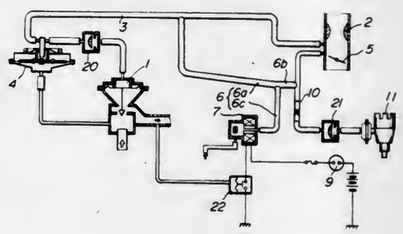
Yasushi Mase, and Toshikazu Okamura, both of Tokyo, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 4, 1979, Ser. No. 45,410

Claims priority, application Japan, Jul. 5, 1978, 53-80944

Int. Cl.[3] F02B 47/08; F02P 5/00

U.S. Cl. 123—409 **4 Claims**



1. In an exhaust gas recirculation control system including a negative pressure passage for introducing intake negative pressure in the proximity of a throttle valve of a carburetor into an exhaust gas recirculation control valve, which control valve is constructed to open when said intake negative pressure is applied thereto, and an advance negative pressure passage for introducing the intake negative pressure in the proximity of the throttle valve of the carburetor into a distributor, the improvement comprising positive pressure delay valves provided in said negative pressure and advance negative pressure passages, respectively, said delay valves each comprising a bypass orifice and a check valve, said delay valves connected in said passages for permitting flow through said check valve from said control valve and said distributor, respectively, to said intake negative pressure.

4,267,810

CONTROL SYSTEM FOR CONTROL OF REPETITIVE EVENTS, E.G. IGNITION, FUEL INJECTION, IN INTERNAL COMBUSTION ENGINES

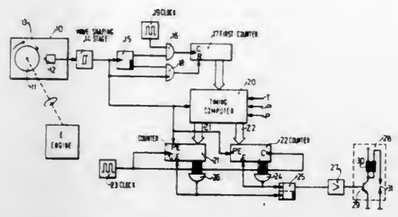
Jürgen Wesemeyer, Nuremberg; Georg Haubner, Berg; Werner Meier, Rednitzhembach, and Hans Schrumpf, Oberasbach, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 25, 1979, Ser. No. 42,360

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824981; Aug. 22, 1978, 2836614; Nov. 28, 1978, 2851336

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—416 **17 Claims**



1. System to control the operation of repetitive events in cylinder-piston type internal combustion engines having

a transducer (**10, 40**) coupled to the crankshaft of the engine;

at least one output stage (**27, 28**) including a controlled switch (**29**) connected to and controlling the respective event;

and an electronic computing stage (**20, 43**) connected to and controlled by the transducer and furnishing output signals to the output stage for control of the controlled switch (**29**) in accordance with processed information supplied to the computing stage by the transducer,

wherein, in accordance with the invention,

the transducer (**10, 40**) is of the type which provides a single needle, or sharp output pulse when a piston of the engine moves towards top dead center (TDC) position;

and the system comprises

a clock frequency generator (**19**) producing clock pulses at a fixed, predetermined rate;

a counter (**17**) connected to said generator to count at said rate;

and logic circuit means (**15, 16, 18**) connected to said counter (**17**) and to the transducer (**10, 40**) sensing the presence of a transducer pulse and enabling said counter to count until the next sensed transducer pulse to derive a count number representative of speed of the engine, whereby the counter will count during one pulse cycle,

and then applying the count number in the counter to the computing stage, whereby, in the subsequent pulse cycle, the count number is available at the counter until the occurrence of a third following pulse initiating another cycle similar to said first cycle.

4,267,811

CYLINDER HEAD FOR A MIXTURE-COMPRESSING INTERNAL COMBUSTION ENGINE

Willi Springer, Göppingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

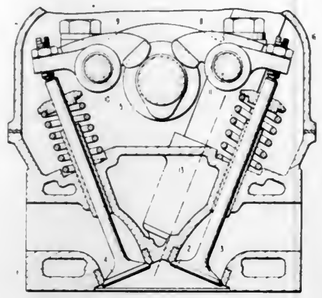
Filed Feb. 27, 1979, Ser. No. 15,616

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809157

Int. Cl.³ F02B *15/00*; F01L *1/02*

U.S. Cl. 123—432 **5 Claims**

1. A cylinder head for a mixture-compressing internal combustion engine having a relatively small cylinder diameter, with a V-arrangement of two inlet valve means and of two exhaust valve means which are actuated by way of rocker arm means from a cam shaft means, comprising a single cam shaft extending with a longitudinal axis located between said valve means, characterized in that the rocker arm means are so supported that a spark plug having a substantially central orifice of its spark plug bore is so arranged in the combination



chamber that the center longitudinal axis through the spark plug extends at least approximately parallel to one of said valve means in a plane normal to said cam shaft longitudinal axis, and further being located between said one valve means and the cam shaft means.

4,267,812

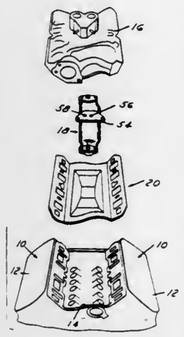
ENGINE EGR COOLER

Howard A. Aula, and Jerry L. Mauch, both of Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 9, 1979, Ser. No. 83,014

Int. Cl.³ F02B *47/08*

U.S. Cl. 123—570 **6 Claims**



1. An engine exhaust gas recirculation (EGR) cooler for use in an internal combustion engine having an engine intake manifold, the intake manifold including passages therein defining an exhaust gas recirculation (EGR) system, the cooler comprising, a flat sandwich type casing mounted contiguous to the manifold and connected to both the engine coolant system and to the EGR system for cooling of the EGR gases by engine coolant, the casing being of tubular oblong shape connected at opposite ends to engine coolant passages in the manifold, and an essentially U-shaped tube mounted within the casing surrounded by coolant and having the open pair of end portions of the tube connected one to the EGR system to constitute an inlet for receiving EGR gases therein and the other connected to the EGR system to constitute an outlet for the discharge therefrom of the exhaust gases cooled by heat transfer to the coolant.

4,267,813

IGNITION SYSTEM WITH AUTOMATIC INCREASE IN IGNITION ENERGY DURING ACCELERATION

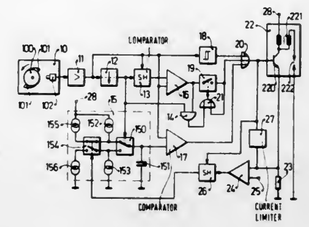
Gerd Hohne, Ludwigsburg, and Gerhard Sohner, Remshalden, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 1, 1979, Ser. No. 16,509

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1978, 2812291

Int. Cl.³ F02P *3/04*

U.S. Cl. 123—609 **10 Claims**



1. In an internal combustion engine having a rotating member (**100**), means (**221, 222**) for producing a spark upon interruption of current therethrough, ignition switch means (**220**) connected to said spark producing means and having a first and second stable state for, respectively, allowing and blocking current flow through said spark producing means, and switch control means for maintaining said ignition switch means in said first state for a desired closure angle of rotation of said rotating member immediately preceding said production of said spark, the improvement comprising

means (**12, 13, 14, 16**) for furnishing an acceleration signal upon acceleration of said rotating member, said means comprising,

means for furnishing cyclically recurring speed signals each indicative of the rotational speed of said member, and means (**16**) for comparing sequential ones of said speed signals to each other and furnishing said acceleration signal when the difference between so-compared signals exceeds a predetermined difference; and

means (**19, 20, 21**) connected to said acceleration signal furnishing means for abruptly increasing said desired closure angle to an increased closure angle in response to said acceleration signal, whereby sufficient energy for producing a spark is available in said spark producing means even during acceleration of said engine.

4,267,814

ABRASIVE SAW BLADE FOR TRAPEZOIDAL GROOVING

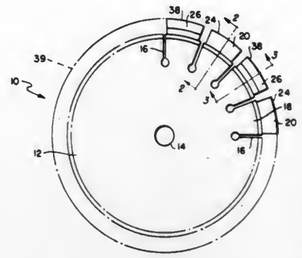
Donald H. Benson, Spencerport, N.Y., and Larry Mosher, Lebanon, Tenn., assignors to Federal-Mogul Corporation, Detroit, Mich.

Filed Dec. 6, 1979, Ser. No. 101,045

Int. Cl.³ B28D *1/04*

U.S. Cl. 125—15 **13 Claims**

1. A saw blade for producing a trapezoidal-shaped groove in a surface comprising: a circular support disc and a plurality of spaced-apart abrasive elements supported about the periphery of said support disc, said abrasive elements including a first set of a generally rectangular cross sectional configuration having a flat, work-engaging end surface of a predetermined width and a second set of a generally trapezoidal cross sectional configuration having a work-engaging end surface and sloping



work-engaging side surfaces defining a maximum width greater than the width of said first set of abrasive elements.

4,267,815

THERMAL CUT-OUT FOR GAS-HEATED GLASS CERAMIC COOKING SURFACES

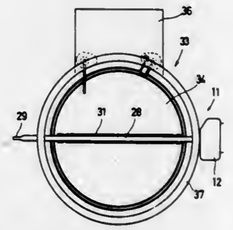
Gerhard Gössler, Oberderdingen, Fed. Rep. of Germany, assignor to E.G.O. Elektro-Gerate Blanc u. Fischer, Oberderdingen, Fed. Rep. of Germany

Filed Aug. 28, 1979, Ser. No. 70,451

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 7826549[U]

Int. Cl.³ F24C *3/04*; H01H *37/48*

U.S. Cl. 126—39 G **14 Claims**



7. A thermal cut-out for gas-heated glass ceramic cooking surfaces, comprising:

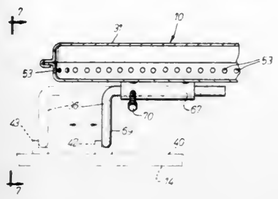
a switch housing;

a snap switch arranged in the housing;

a temperature sensor extending from the switch housing and cooperating with the snap switch, the temperature sensor comprising a tube with a rod arranged therein, the tube and at least one portion of the length of the rod having differing coefficients of thermal expansion, the tube and the rod being connected to one another at their ends opposite the housing; and,

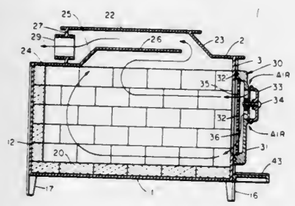
an enveloping tube surrounding the temperature sensor at a distance therefrom defining an insulating space therebetween, whereby the temperature sensor is insulated from the direct thermal and corrosive effects of burning gas, and instead, experiences a clean, even thermal distribution throughout its length.

4,267,816
UNIVERSAL BURNER ELEMENT FOR A GAS BARBECUE GRILL
Walter Koziol, Box 97, Russell, Ill. 60075
Filed Sep. 7, 1978, Ser. No. 940,215
Int. Cl.³ A47J *37/00*; F23Q *9/00*; F16M *11/38*
U.S. Cl. 126—41 R **13 Claims**



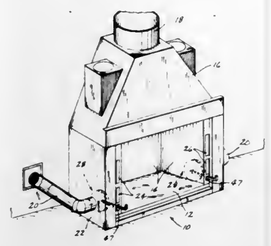
1. A burner element for a gas barbecue grill comprising:
a hollow body member defining a central portion and at least two extending arm portions;
a plurality of apertures distributed over said body member;
an intake member in fluid communication with said hollow body member and extending in a given direction;
a leg member defined by a longitudinal and angular portion and longitudinally extendable from each said arm portion and in a direction generally transverse of said intake member; and means to adjustably secure said leg member in said arm portion in both a longitudinal and transverse manner.

4,267,817
WOOD-BURNING STOVE
Arthur W. Hicks, Warner, N.H., and Gerald D. Jolicoeur, P.O. Box 292, Warner, N.H. 03278, assignors to Gerald D. Jolicoeur, Belmont, N.H.
Filed Mar. 23, 1978, Ser. No. 889,237
Int. Cl.³ F24C *1/00*
U.S. Cl. 126—60 **3 Claims**



1. A wood stove comprising: a generally rectangular firebox airtight except for a door and an exhaust pipe for products of combustion; a door having an adjustable air inlet passageway, said door being hinged to the vertical front face of said firebox and being adapted when open to admit solid fuel and when closed to admit combustion air in a regulated amount through said air inlet passageway which is the only source of combustion air when said door is closed; a baffle plate extending from the top of the rear wall of said firebox below said exhaust pipe forward towards said front face, leaving a passageway therebetween for products of combustion to flow up and over said baffle plate to said exhaust pipe; said baffle plate extending rearwardly below and beyond said exhaust pipe forming a horizontal back shelf, and a vertical rear plate set back from said rear wall and connecting said horizontal back shelf and said top, said exhaust pipe being located in said vertical rear plate and the set back of said vertical rear plate from said rear wall being sufficient to permit a right angle flue pipe to be connected to said exhaust pipe without said flue pipe intersecting the plane of said rear wall.

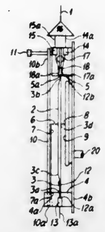
4,267,818
DAMPER CONSTRUCTION
Edwin E. Taylor, New London, Iowa, assignor to Vega Industries, Inc., Des Moines, Iowa
Filed Jun. 25, 1979, Ser. No. 51,527
Int. Cl.³ F24B *7/00*
U.S. Cl. 126—121 **14 Claims**



1. A damper construction for controlling draft through an opening of predetermined peripheral dimensions in a heating appliance structure, said damper construction comprising, in combination:
(a) a first, rigid disc member having peripheral dimensions smaller than said predetermined dimensions;
(b) a second, rigid disc member having peripheral dimensions larger than said predetermined dimensions;
(c) a flexible disc member having peripheral dimensions larger than said predetermined dimensions;
(d) an operating rod passing through an opening in all three of said disc members to carry the latter in superposed relation in closely parallel planes with said flexible disc member between said first and second rigid disc members and wherein said apertures are of larger cross sectional dimension than the portion of said rod upon which said disc members are carried, whereby said disc members are loosely carried by said rod to allow radial variation in the relation of said superposed planes and the axis of said rod; and
(e) means for mounting said rod for selective movement between a first position, wherein said first disc member is positioned within said opening and said flexible disc member contacts the structure defining said opening about the periphery thereof, and a second position, wherein all of said disc members are spaced from the structure defining said opening to allow gaseous flow therethrough.

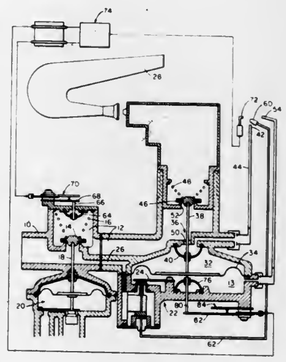
4,267,819
DEVICE FOR GENERATING AN ELECTRIC OUTPUT SIGNAL IN RESPONSE TO THE POSITIONING OF A MECHANICAL MEMBER
Per-Göran Claesson, Österhagens gard, 142 00 Trangsund, Sweden
Filed Jul. 10, 1979, Ser. No. 56,338
Claims priority, application Sweden, Jul. 19, 1978, 7808001
Int. Cl.³ F23L *11/00*; F23N *3/02*
U.S. Cl. 126—285 B **8 Claims**

1. Apparatus for controlling the draft in an oil-fired boiler unit, comprising:
a valve for controlling the flow of air through the boiler;
a diaphragm operatively connected to the boiler such that its position is responsive to the pressure in the boiler;
a movably mounted elongate strip connected to said diaphragm for movement therewith;
a spring biasing said elongate strip away from said diaphragm;
a first optical fiber disposed on said elongate strip;
a source of illumination provided at one end of said first optical fiber;
at least two additional optical fibers spaced from one another and disposed adjacent the other end of said first optical fiber such that the amount of light from said source of illumination that is transmitted to each of said additional optical fibers by said first optical fiber is dependent upon the position of said elongate strip;
at least two phototransistors connected in series and respectively disposed adjacent said additional optical fibers to receive light transmitted thereby;



an operational amplifier having an input terminal connected to the common junction of said phototransistors, to thereby provide compensation for ambient light and temperature conditions, and providing an output signal related to the position of said elongate strip; and
a regulating circuit responsive to the output signal from said operational amplifier to control the position of said valve.

4,267,820
CONTROL MECHANISM FOR A GAS-FIRED WATER HEATER
Jean-Claude Charron, Saint Maur, France, assignor to Saunier Duval, Rueil Malmaison, France
Filed Oct. 27, 1978, Ser. No. 955,254
Claims priority, application France, Oct. 28, 1977, 77 32668
Int. Cl.³ F24H *1/10*
U.S. Cl. 126—351 **8 Claims**



1. A gas-fired hot water heater adapted to operate without a permanent pilot comprising
an igniter pilot,
a main gas inlet chamber for providing gas to said igniter pilot,
a safety pilot,
a secondary gas inlet chamber for providing gas to said safety pilot,
an igniter for said igniter pilot,
a flame detector disposed adjacent and responsive to at least the igniter pilot,
means responsive to said flame detector for admitting gas into said secondary chamber, and
switching means responsive to the pressures of gas in said main chamber and said secondary chamber for energizing said igniter when sufficient gas pressure exists in said main chamber and for deenergizing said igniter whenever there is at least a minimum pressure in said secondary chamber.

4,267,821
SOLAR ENERGY COLLECTOR
Cecil O. Nelson, 6324 Parsifal Pl., Las Vegas, Nev. 89107
Filed Jul. 5, 1978, Ser. No. 922,364
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—417 **1 Claim**



1. A solar energy collector, comprising, in combination:
(a) a housing forming a receptacle;
(b) heat absorbing mat means disposed within the receptacle for absorbing solar energy;
(c) fluid flow path means passing through the heat absorbing mat means for permitting a fluid medium to pass through the mat means and collect heat energy stored within the mat means, wherein the heat absorbing mat means includes, in combination:
(1) a first planar sheet constructed from a rigid material impervious to a fluid medium passing through the mat means;
(2) a second planar sheet arranged substantially parallel to and coextensive with, but spaced from, the first planar sheet, and constructed from a material having a high heat absorbing capacity; and
(3) a planar fluid absorbing layer disposed between the first planar sheet and second planar sheet and permitting passage of the fluid medium therethrough between the first planar sheet and second planar sheet;
said housing, and the receptacle formed thereby, are in the form of a rectangular parallelpiped having an open top and including a substantially planar bottom wall, with the first planar sheet being arranged substantially parallel to, but spaced from, the bottom wall of the housing and bisecting the receptacle into a pair of chambers, the one of the chambers being disposed between the heat absorbing mat means and the open top of the housing being usable for removing excess heat from the housing, and the other of the chambers being usable for heating a fluid medium for space heating purposes, said housing further including a pair of substantially parallel, spaced side walls, and a pair of headers positioned between said side walls and forming opposite ends of said housing, with the first planar sheet extending between the side walls and from one of the headers to adjacent, but spaced from, the other of the headers, a trough being provided in the housing and arranged connected to and extending between the first planar sheet and the other of the headers, the trough

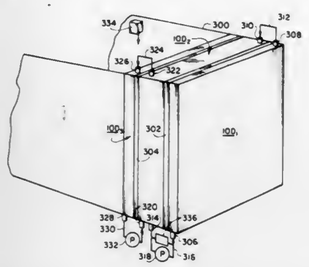
extending transversely of the extent of the first planar sheet and being provided with a drain, and a liquid source disposed in the mat means arranged extending between the side walls of the housing, with the fluid absorbing layer of the mat means being coextensive with the first planar sheet between the headers, but spaced from the side walls of the housing.

4,267,822

INTEGRATED SOLAR ENERGY SYSTEM

Edward H. Diamond, East Moriches, N.Y., assignor to Grumman Energy Systems, Inc., Bohemia, N.Y.

Filed Nov. 8, 1978, Ser. No. 958,783
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—417 **4 Claims**



1. A solar collector module comprising a cast concrete body, a recess in the upper surface of said body, a plate transparent to solar radiation covering said recess in a sealed relationship therewith, the floor and walls of said recess with said transparent plate defining a hermetic chamber in said body, a pattern of labyrinthine interconnected channels in the floor of said recess, a perforated metal absorber plate on said floor overlying said channels, at least some of the perforations in said absorber plate being aligned with said channels, said metal plate absorbing solar energy passing through said transparent plate, an inlet port opening into said hermetic chamber, an outlet port opening on said channels, said ports communicating with the outside of said module, whereby the circulation of fluid through said inlet into said chamber and through said perforations in said metal plate imparts heat to said fluid when said metal plate is absorbing solar energy such that, when said heated fluid passes into said channels and out said outlet port, said heat is transferred outside of said module for utilization.

4,267,823

SOLAR COLLECTOR WITH LENS ARRAY

Armin Bohg, Neuweiler, and Marian Briska, Boeblingen, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

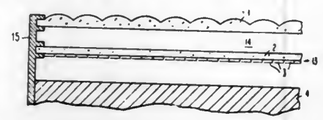
Filed Jul. 19, 1979, Ser. No. 59,017
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842400
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—422 **1 Claim**

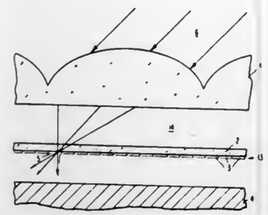
1. A solar collector having a light incidence surface formed by a lens array which focuses radiation onto a translucent sheet positioned in the focal plane of said lenses and having a refractive index adapted to the lens radius of said array;

a solar absorber mounted essentially parallel to said translucent sheet and on the opposite side of said translucent sheet from said lens array;

said translucent sheet having mounted on the surface thereof adjacent to said absorber a plurality of the order of 100 per each lens of said lens array, of bimetallic scales consisting of a short 1.3 micrometer thick copper member laminated with a longer 1.0 micrometer thick aluminum member;

each said bimetallic scale serving as a solar energy responsive radiation passage location, each said bimetallic scale further having a reflective coating for solar energy on the surface thereof adjacent to said absorber; and





a radiation transmitting cooling medium having a refractive index coinciding with the refractive index of said lens array of said sheet flowing between said sheet and said absorber.

4,267,824

SOLAR CONCENTRATOR

John T. O'Halloran, Glendale, Mo., assignor to Hayakawa Associates, St. Louis, Mo.

Filed Jul. 30, 1979, Ser. No. 61,620
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—426 **10 Claims**



1. An inflatable solar concentrator comprising an elongate hollow member of relatively thin flexible material inflatable to an upright position in which it is generally in the form of a cone convergent from its upper to its lower end, said inflated member having a substantially transparent top closing its upper end of a material adapted to transmit incident solar radiant energy, and a highly reflective inner conical surface for reflecting downwardly and thereby concentrating said radiant energy, a rigid collar around the lower end of the member, a passage in communication with the interior of said member for supply of gas under pressure into the member to inflate it, and means for mounting the member with its lower end above a heat absorbing surface for impingement on the surface of concentrated

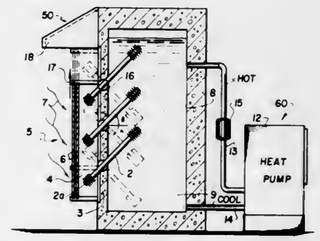
solar radiant energy, said mounting means being adapted for mounting said member with its lower end and said collar thereon spaced above said heat absorbing surface, said solar concentrator further comprising a flexible connector having a highly reflective inner surface connecting said collar and the heat absorbing surface and forming a passage therebetween for passage of said concentrated radiant energy, said mounting means being operable for swinging said member with respect to said heat transfer surface about an axis generally perpendicular to the central longitudinal axis of the member at the lower end thereof for allowing the member to track the path of the sun, said connector being adapted to flex as the member is swung about said axis.

4,267,825

SOLAR HEAT COLLECTOR WITH HEAT PIPES

Dan S. Ward, Fort Collins, Colo., assignor to Entec Products Corporation, Fort Collins, Colo.

Filed Jun. 27, 1979, Ser. No. 52,620
Int. Cl.³ F24J *3/02*; **F28D** *15/00*
U.S. Cl. 126—433 **9 Claims**



1. A solar heat collector comprising, a heat storage tank containing a heatable fluid, solar heat receiving means for receiving heat from the sun comprising at least one heat pipe having one end for receiving solar heat and an opposite end in the fluid in said heat storage tank, means pivotally mounting said heat pipe to a wall of said tank through which said heat pipe extends whereby said heat pipe is positioned at an angle of at least 30° with respect to the horizontal with said one end lower than said opposite end when the fluid in said tank is to be heated and wherein said heat pipe is pivotable to an angle of at least 30° with respect to the horizontal with said opposite end lower than said one end for removing heat from the fluid in said tank, and an enclosed solar chamber slidably mounted on said wall of said tank through which said heat pipe extends for containing said one end of said heat pipe, said solar chamber including at least one transparent wall through which rays from the sun may pass to heat said one end of said heat pipe, said solar chamber being slidable downwardly for containing said one end of said heat pipe when it is in its lower position and slidable upwardly for containing said one end of said heat pipe when it is at its higher position.

4,267,826

SOLAR COLLECTOR FOR HEATING AND COOLING

William H. Hitt, Jr., San Bernardino, Calif., assignor to Dale C. Miller, Riverside, Calif.

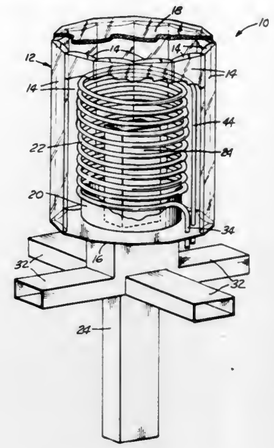
Filed Jun. 20, 1978, Ser. No. 917,210
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—440 **2 Claims**

1. A solar collector comprising, in combination:

a plurality of refractors arranged side-by-side and facing in a plurality of directions toward that portion of the sky in which the sun appears to travel from sunrise to sunset, said refractors being disposed so that as the sun moves across the sky, successive groups of the refractors bend the rays of sunlight so that they are concentrated on a common target;

said common target comprising tubing carrying fluid that is to be heated by the sun's rays that are concentrated and intensified by said refractors;

said common target additionally including a cylindrical shell around which said tubing is coiled in heat-transfer contact



therewith, so that the shell is heated by the hot fluid in the tubing; and

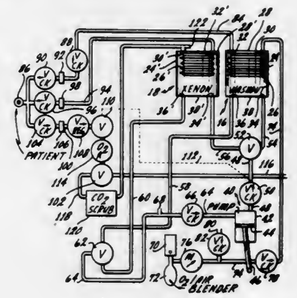
means for circulating air through said shell whereby the air is warmed by contact with the heated shell and is then directed to space to be warmed.

4,267,827

VENTILATOR APPARATUS FOR LIFE-SUPPORT AND LUNG SCAN

L. Andrew Rauscher, Rancho Sante Fe, and Donald G. Parsons, San Diego, both of Calif., assignors to The Regents of the Univ. of California, Berkeley, Calif.

Filed Oct. 12, 1979, Ser. No. 84,129
Int. Cl.³ A61B *6/00*
U.S. Cl. 128—1.1 **6 Claims**



1. Apparatus for ventilating patient comprising:

controllable motive means for generating a predetermined sequence of motive forces;

first reservoir means for receiving an oxygen/air mixture in an amount necessary for administering said mixture to a patient for both an inhalation and exhalation phase and discharging the same to the patient in accordance with a set of predetermined ventilation parameters when the predetermined sequence of motive forces is applied thereto;

first inspiratory path means for supplying the oxygen/air

mixture discharged from the first reservoir means to the patient;

second reservoir means for receiving an oxygen/air/traceable gas mixture in an amount necessary for administering said mixture to a patient for both an inhalation and exhalation phase and discharging the same to the patient in accordance with the set of predetermined ventilation parameters when the predetermined sequence of motive forces is applied thereto;

second inspiratory path means for supplying the oxygen-/air/traceable gas mixture discharged from the second reservoir means to the patient;

expiratory path means for receiving expired mixture from the patient; and

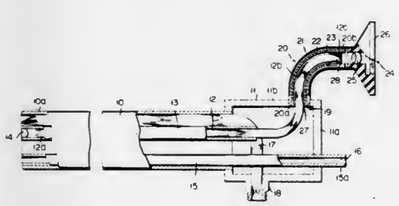
switching means for selectively applying the predetermined sequence of motive forces generated by the controllable motive means to different ones of the first and second reservoir means whereby the patient is continuously ventilated and the ventilation parameters of the predetermined set are maintained substantially constant.

4,267,828

ENDOSCOPE HAVING AN EXTENSION GUIDE FOR OBSERVATION

Kazumasa Matsuo, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 22, 1979, Ser. No. 51,032
Int. Cl.³ A61B *1/06*
U.S. Cl. 128—6 **2 Claims**



1. An endoscope comprising:

an elongated rigid sheath to be introduced in the body cavity, said sheath having a distal end and a base end,

a control section housing having a side wall and a pair of end walls, said base end of the sheath being attached to one of the end walls,

an extension guide having an open end fixed to the control section housing to communicate with the interior of the housing and an outer free end into which an eyepiece is fitted, said guide being flexible along its length such that it may be bent into a plurality of angular orientations with respect to said housing, and

a single optical fiber bundle of an observation system made of many thin glass fibers and having a distal end inserted within the sheath and a base end portion extended into the extension guide through said housing and said open end of the extension guide, said base end portion of the fiber bundle having a mounting base end fixed to the extension guide in a position near to the eyepiece and directly optically connected to the eyepiece without interposing a prism therebetween,

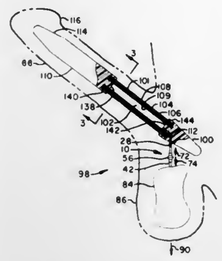
said base end portion of said fiber bundle having a flexibility except for the mounting base end and the glass fibers of the remaining portion of the fiber bundle being united together in a rigid glass rod-like fashion.

4,267,829

PENILE PROSTHESIS

John H. Burton, Minnetonka, and Michael A. Mikulich, St. Paul, both of Minn., assignors to American Medical Systems, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 28,979, Apr. 11, 1979, Pat. No. 4,224,934. This application Dec. 28, 1979, Ser. No. 108,124
Int. Cl.³ A61F *5/00*
U.S. Cl. 128—79 **14 Claims**



1. An implantable penile prosthesis comprising:

an elongated front portion for mounting inside the distal portion of a patient's penis, said front portion comprising a cylinder which is substantially rigid so as to impart rigidity to said penis and thus provide for satisfactory erection of said penis, when said penile prosthesis is implanted in said penis and when said penile prosthesis is placed in an erect condition.

a rear portion for mounting inside the proximal portion of said penis;

a tubular section attached to and mounted between said front portion and said rear portion, and having a collapsible tubular sheath and an internal chamber means so that said penile prosthesis assumes an erect condition when fluid pressure is supplied to said chamber means and so that said penile prosthesis is allowed to assume a nonerect, bent condition when fluid pressure is allowed to release from said chamber means wherein said tubular sheath is allowed to collapse when said penile prosthesis assumes a nonerect, bent condition so that when said penile prosthesis is implanted in said penis, said penis is allowed to bend in a region within the length of said tubular section; and

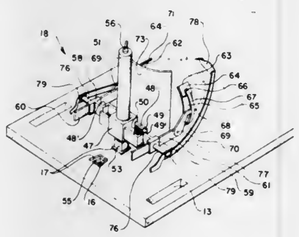
a pump means actuateable to supply fluid pressure to said chamber means.

4,267,830

COMBINATION SPINE BOARD AND HEAD STABILIZER

Wiley D. Vick, Stantonsburg, N.C. 27883

Filed Jan. 25, 1979, Ser. No. 6,471
Int. Cl.³ A61F *5/04*
U.S. Cl. 128—87 R **9 Claims**



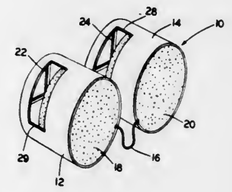
1. A combination spine board and head stabilizer comprising: a substantially planar, rigid short spine board having a top and bottom for use in conjunction with the head and trunk of a patient; a substantially planar, rigid long spine board having a top and bottom for use in conjunction with the head and entire body of the patient; mechanical means for removably connecting the bottom of said short board to the top of said long board in stacked juxtaposed relationship; and a mechanical head stabilizing means operatively mounted on the top of said short board for stabilizing the head of the patient using the board, said mechanical head stabilizing means includes a pair of head pads for grippingly holding opposite sides of the head, a pair of pinion driven rack means for laterally adjusting the relative position of said pads, a pair of support prongs longitudinally disposed relative to said board and adjustably mounted one on each end of said pair of racks for longitudinally adjusting the relative position of said pads, and means for vertically adjusting the relative position of said pads.

4,267,831

NASAL AIR FILTER AND MEDICAMENT DISPENSER DEVICE

Rogelio M. Aguilar, P.O. Box 46, Alajuela, Costa Rica

Filed Sep. 24, 1979, Ser. No. 78,004
Int. Cl.³ A61M *15/08*
U.S. Cl. 128—203.14 **8 Claims**



1. A nasal insert comprising:

a pair of dispenser devices adapted to be positioned within the nasal passages, each of said devices being formed of a resilient, cylindrical wall member;

a connecting strip extending between said cylindrical members and adapted to bridge across the septum;

an absorptive plug located within each of said cylindrical members and adapted to be saturated with a medicament;

a sidewall of each of said cylindrical members being established by a continuous cylindrical surface, an access opening being formed in a portion of said surface for receiving said plug;

a lower end of each of said cylindrical members including a filter element; and

an upper end of each of said cylindrical members including a means for retaining said plug in said member while permitting axial air flow.

4,267,832

EXPIRATION VALVE APPARATUS FOR USE WITH A RESPIRATOR OR LIKE APPARATUS

Taisto Häkkinen, Kaarlonkatu 25, 13210 Hämeenlinna 21, Finland

Filed Apr. 17, 1979, Ser. No. 30,844
Claims priority, application Finland, Apr. 18, 1978, 781171
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—205.24 **5 Claims**

1. Valve apparatus for use in connection with a respirator or like apparatus suitable for use in resuscitation for permitting both inhalation and exhalation, the valve apparatus adapted to provide stepless or continuous adjustment of the counter-pressure presented to expiration, comprising:

a rear portion having at least one wall defining an interior space therewithin, said wall having an opening formed therein adapted to provide a fluid inlet into said interior space and including means adapted to be connected to a drug atomizer of a respirator or like apparatus suitable for resuscitation use to receive inhalation gas therefrom;

one-way diaphragm valve means operatively associated with said rear portion adapted to open upon inhalation to allow the passage of the inhalation from said rear portion interior space therethrough under the effect of incoming pressure flow during inspiration and being adapted to close during expiration when the incoming pressure flow ceases to prevent the passage of exhalation into said rear portion interior space;

a front portion having at least one wall defining an interior space therewithin, said one wall including tubular means for connecting the same to a mouthpiece of the respirator or the like and a substantially cylindrical skirt portion, concentrically disposed with respect to said tubular means said front portion being operatively connected to said rear portion in a manner such that said one-way valve means is interposed between the interior spaces defined by said front and rear portions, said substantially cylindrical skirt



portion having an aperture formed therein providing communication between said front portion interior space and the external atmosphere, said one wall of said front portion including means associated with said one-way diaphragm valve means to prevent flow through said aperture during inhalation and permit flow through said tubular means, said interior space of said front portion and said aperture during exhalation; and

an adjustment ring including a substantially cylindrical skirt portion having an aperture formed therethrough, said ring being concentrically and rotatably mounted about said tubular means on said front portion with said ring skirt portion being concentric with and overlapping said front portion skirt portion, said ring being rotatable with respect to said front portion in a continuous and stepless manner such that the adjustment ring aperture is adapted to be moved into overlapping relationship with respect to said front portion aperture to any desired degree so that the effective size of said front portion aperture can be steplessly and continuously varied.

4,267,833

METHOD OF FLUSHING A MEDICAL FLUID

Larry N. Barger, Glendale, and Kenneth R. McCord, Lakewood, both of Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

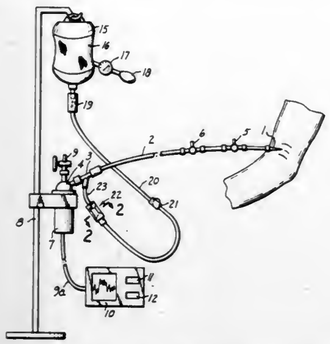
Filed Apr. 24, 1979, Ser. No. 32,830
Int. Cl.³ A61M *5/00*
U.S. Cl. 128—214.F **11 Claims**

1. A method of flushing a fluid through a medical valve with an elastic tube that having a noncircular outer surface, which tube encases a flow restrictor and combines with such restrictor to form a flow passage means comprising the steps of:

(a) passing fluid through the flow passage means at a predetermined rate;

(b) squeezing the noncircular outer surface of the tube to temporarily form a flush passage having a substantially greater flow rate;

(c) holding the tube in squeezed condition until flushing is completed; and



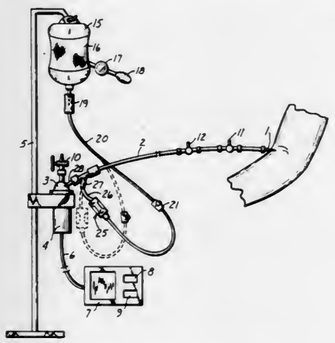
(d) releasing the tube to seal off the flush passage causing fluid to flow only through the flow passage means.

4,267,834

SYSTEM FOR FLUSHING A MEDICAL FLUID

Larry N. Barger, Glendale; Kenneth R. McCord, Lakewood, and Claude A. Vidal, Los Angeles, all of Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Apr. 24, 1979, Ser. No. 32,831
Int. Cl.³ A61M 5/00
U.S. Cl. 128—214 F **16 Claims**



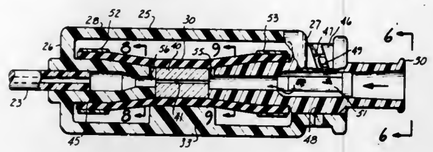
1. A system for flushing a medical fluid that includes a pressure wave tube for coupling a patient connector with a pressure transducer, and which includes a feed tube to continuously infuse fluid to a patient through a side port of the system, wherein the improvement comprises: a flushing valve connected to the feed tube and spaced from the side port by a flexible tube segment; and the flushing valve includes an elastically distortable tube having a noncircular outer surface, and a restriction in the tube which combines with the tube to form a restricted passage means having a predetermined flow rate therethrough, said tube being distortable to temporarily form a flush passage in the valve having a substantially faster flow rate.

4,267,835

MEDICAL FLUSHING VALVE

Larry N. Barger, Glendale, and Kenneth R. McCord, Lakewood, both of Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Apr. 24, 1979, Ser. No. 32,832
Int. Cl.² A61M 5/00
U.S. Cl. 128—214 E **34 Claims**



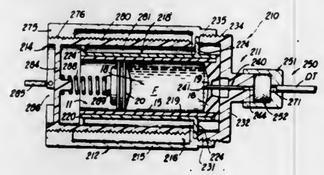
1. A medical flushing valve comprising: an elastically distortable tube with a noncircular outer surface that includes a force concentrating section; and a restrictor in the tube which combines with the tube to form a restricted passage means in the form of a fixed size bore extending through the restrictor and having a predetermined flow rate therethrough, said tube being distortable by application of a force to such force concentrating section of the tube's outer surface to temporarily form a flush passage in the valve having a substantially faster flow rate during the application of such force, which tube is adapted to close the flush passage upon removal of such force from the force concentrating section.

4,267,836

INJECTION DEVICE AND METHOD

Douglass G. Whitney, 2518 W. Wesley Rd., and John K. Martin, III, 2837 Ridge Wood Cir., both of, Atlanta, Ga. 30327

Division of Ser. No. 471,528, Nov. 12, 1976, Pat. No. 4,150,672.
This application Apr. 16, 1979, Ser. No. 30,277
Int. Cl.³ A61M 5/20
U.S. Cl. 128—215 **6 Claims**



1. An injector to inject fluid into a patient comprising:
an ampule holder defining an ampule receiving chamber therein;
an ampule assembly removably mounted in said ampule receiving chamber in said ampule holder, said ampule assembly including an ampule comprising:
a seamless tubular side wall defining a passage therethrough opening onto opposite ends of said side wall;
a penetrable member closing one end of said passage at one end of said side wall so that a discharge opening from said passage can be made by penetrating said penetrable member; and
a piston member slidably received in said passage from that end of said tubular side wall opposite said penetrable member and in sealing engagement with said tubular side wall so that a fluid chamber is defined by and between said tubular side wall, said piston member and said penetrable member and filled with the fluid whereby the fluid can be dispensed from said fluid chamber upon penetration of said penetrable member to form the discharge opening and forcing said piston member toward said penetrable member;

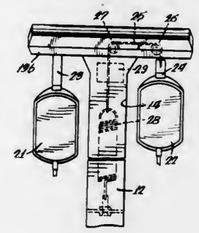
cap means removably connected to said ampule holder and engaging that end of said ampule at said penetrable member to positively and removably position said ampule in said ampule receiving chamber;
penetrating means carried by said cap means for penetrating said penetrable member on said ampule as an incident to the positioning of said ampule in said ampule holder and for forming a fluid outlet from said fluid chamber through which the fluid is injected into the patient;
a manually engagable externally threaded sleeve member having a projecting end and an opposite end and defining an axially extending ampule receiving passage therein; said sleeve member threadedly engaging said ampule holder so that, as said sleeve member is screwed into said ampule holder, the projecting end of said sleeve member is moved axially along said ampule receiving chamber in said ampule holder and that end of said ampule opposite said penetrable member is slidably supported by said sleeve member within said ampule receiving passage therein, said sleeve member including an end wall at said opposite end closing said ampule receiving passage; and
a drive spring assembly extending between said end wall on said sleeve member and said piston, said drive spring assembly including a compressible coil spring mounted on said end wall of said sleeve member and having a projecting end extending axially of said sleeve member within said ampule receiving passage toward said piston, said drive spring assembly further including a drive plunger on the projecting end of said coil spring operatively engaging said piston so that, as said coil spring is compressed, the spring force urges said piston toward said penetrable member to force fluid out the fluid outlet, the length of said coil spring selected so that, as said sleeve member is manually screwed into said ampule holder, the compression of said coil spring is increased to selectively increase the effective spring force urging said piston toward said penetrable member.

4,267,837

BLOOD COLLECTION MONITORING DEVICE AND METHOD

Robert W. Purdy, Sunnyvale, Calif., and Don A. Arneson, Elgin, Ill., assignors to SBR Lab Inc., Elgin, Ill.

Filed Sep. 27, 1979, Ser. No. 79,487
Int. Cl.³ A61F 5/44
U.S. Cl. 128—275 **6 Claims**



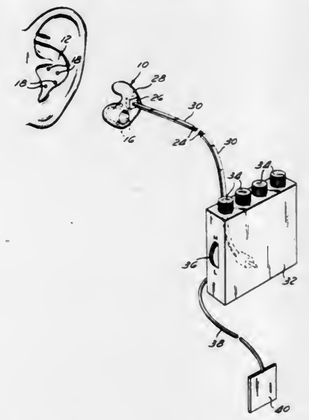
1. Apparatus for monitoring the collection of blood from a donor into a plastic bag assembly which includes a blood collection bag, an anticoagulant supply bag, a first pliable tube interconnecting the two bags and a second pliable tube connected at one end to the blood collection bag and carrying a needle on its free end for insertion into a vein of the donor and comprising:
a horizontal base;
an upright support column mounted on said base;
a control console disposed in a horizontal plane and mounted on top of said column;
a first relatively fixed support for mounting the anticoagulant supply bag beneath said console;
a second extendable support for mounting the blood collection bag beneath said console and being movable downward proportionately to the weight of blood and anticoagulant collected;
a first manually actuatable hemostat means adapted to receive and restrict the flow of anticoagulant through the first tube;
a second manually and electromagnetically actuatable hemostat means adapted to receive and restrict the flow of blood through the second tube; and
electrical means effective to actuate said second hemostat means according to prescribed blood collection procedures.

4,267,838

APPARATUS FOR ELECTRICAL IMPULSE ACUPRESSURE TREATMENT

Francis J. McCall, 16250 Ventura Blvd., Encino, Calif. 91436

Filed Aug. 29, 1979, Ser. No. 70,747
Int. Cl.³ A61H 39/04; A61N 1/36
U.S. Cl. 128—303 R **3 Claims**



1. An electrical pulse acupressure treatment device comprising:
a plastic molded housing having an interior surface and an exterior surface, said housing adapted to be removably connected to a portion of a human body in a predetermined position relative to acupuncture points of the body;
a plurality of separate metallic nodules imbedded in said interior surface of said plastic molded housing, each of said nodules being positioned on said housing to press against a said acupuncture point and to therefore treat the corresponding body function when said housing is retained in said predetermined position; and
an electrical conductor assembly, composed of a plurality of separate electrical conductors, each said nodule being attached to a said electrical conductor with there being a separate elecrical conductor for each said nodule, each said electrical conductor being combined at a junction box, said junction box being polygonal shaped, a polygonal shaped recess formed in said exterior surface of said plastic molded housing, said junction box tightly fitting within said polygonal shaped recess, a source of electrical energy to produce electrical pulses, said electrical conductors being electrically connected to said source of electrical energy, said source of electrical energy being of a size to be readily carried by a human being, said electrical conductors to transmit said electrical pulses to said nodules.

4,267,839

SURGICAL INSTRUMENT FOR USE IN REVERSIBLE STERILIZATION OR PERMANENT OCCLUSION PROCEDURES

Leonard E. Laufe, Chapel Hill, and Robert G. Wheeler, Durham, both of N.C., assignors to Repromed, Inc., Chapel Hill, N.C.

Filed Sep. 12, 1979, Ser. No. 74,884
Int. Cl.³ A61B *17/12*
U.S. Cl. 128—303 A **4 Claims**



1. An instrument for use in reversible or permanent occlusion procedures, comprising:

(a) a forcep-like structure providing a pair of resilient leg members of unequal length joined at one end and extending outwardly therefrom in a normally spaced relation;

(b) a hollow, thin wall, cylindrical, rigid sleeve integrally secured at a position intermediate the length thereof to the terminal end of the longer of said leg members, said sleeve having its central axis oriented at an obtuse angle with respect to the central axis of said longer leg member and having a forward portion extending outwardly from the terminal end of said longer leg member and a rearwardly extending portion positioned to clear said shorter leg member when closed against said longer leg member, the outside diameter of said sleeve being adapted to receive an occluding hood, band device or the like;

(c) a collar slidably mounted on said forward sleeve portion forward of the terminal end of said longer leg member; and

(d) a linkage extending between and having pivotal connections to the terminal end of said shorter leg member and said collar enabling said collar to be advanced on and within the length of the forward portion of said sleeve by closing said shorter leg member on said longer leg member and to be retracted by allowing said shorter leg member to retract to its normal outwardly spaced position thereby enabling an occluding device to be installed on and ejected from said sleeve forward portion at appropriate times during the performing of an occlusion procedure.

4,267,840

ELECTROSURGICAL GROUNDING PAD

Lawrence S. Lazar, Morristown, and Robert F. Wittemann, New Brunswick, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed Jan. 8, 1979, Ser. No. 1,503
Int. Cl.³ A61B *17/39*
U.S. Cl. 128—303.13 **6 Claims**

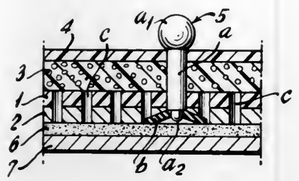
1. A grounding electrode useful in electrosurgery and easily contoured to body surfaces which comprises:

an open cell polymeric foam;

a flexible, perforated metal sheet having an upper side and a lower side;

a fenestrated film having first and second sides;

and electrically conductive means adapted to be connected to an electrosurgical device for conducting an electrical curreent therefrom; said lower side of said metal sheet being coated with a conductive adhesive, said upper side of said metal sheet being adhesively secured to said first



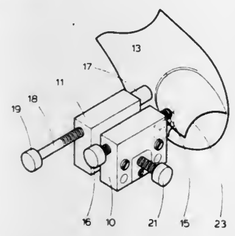
side of said fenestrated film, said polymeric foam being adhesively secured to said second side of said fenestrated film, and said conductive means being secured to said metal sheet and extending through said fenestrated film and said polymeric foam.

4,267,841

NAIL MATRIX TREPHINE

Alexander R. Fraser, 2 Ralston Pl., West Ferry, Dundee, Scotland

Filed Dec. 22, 1978, Ser. No. 972,635
Claims priority, application United Kingdom, Jan. 6, 1978, 562/78
Int. Cl.³ A61F *17/32*; **A61B** *17/00*; **A61F** *5/04*
U.S. Cl. 128—305 **6 Claims**



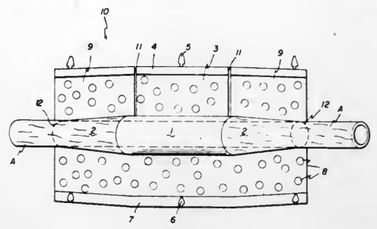
1. A nail-matrix trephine adapted to be attached to a nail plate of a toe or finger for removing unwanted nail-matrix cells, including a clamping head comprising a hooked nail engaging member adapted to be located beneath a nail plate, a clamping member mounted on said clamping head and adapted to co-operate with said hooked nail engaging member to firmly attach said clamping head to said nail plate and clamp alignment means on said hooked nail engaging member for aligning said clamping head on said nail plate, a guide head adapted for supporting and guiding trephine cutter means mounted thereon, and adjustable means interconnecting said clamping head and said guide head, wherein the adjustable means includes guide rails on which said clamping head and said guide head are moveable one relative to the other and further including a screw for moving said heads one relative to the other; wherein upon clamping and aligning said clamping head to said nail plate the position of said guide head is adjusted so that when said trephine cutter means is advanced a selected portion of the nail-matrix cells is removed.

4,267,842

MICRO-ARTERIAL SLEEVE-GRIP

Steven L. Archibald, 1816 F. St. #7, Sacramento, Calif. 95814

Filed Jul. 9, 1979, Ser. No. 56,133
Int. Cl.³ A61B *17/11*
U.S. Cl. 128—334 R **10 Claims**



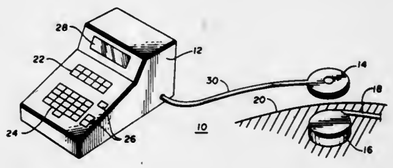
1. A device for joining arteries and the like comprising an innertube having a central portion of substantially uniform cross section, said innertube having a central opening therethrough which terminates at opposed extremities thereof to open ends, and having end portions on opposite sides of said central portion, said innertube end portions having a generally tapering cross section adapted to receive an artery or vein thereover, and one-piece gripping means having a central portion movable into overlying engagement with said innertube central portion and oppositely disposed, tapering end portions movable independently of said gripping means central portion into overlying retaining engagement with an artery disposed on said innertube end portions.

4,267,843

MEANS TO INHIBIT A DIGITAL CARDIAC PACEMAKER

Ray S. McDonald, St. Paul, and Jerome T. Hartlaub, New Brighton, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 6, 1978, Ser. No. 957,959
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PT **27 Claims**



1. a programmable implantable medical device having program stroage means for accepting and storing a programming signal remotely applied thereto which influences the operating conditions of the medical device, one of the conditions being the complete inhibition of the operation of said medical device on the body in which the medical device is implanted, characterized by:

program acceptance means responsive to the programming signal for providing signals manifesting the conditions under which said medical device is programmed to operate, one of said signals comprising an inhibition condition signal manifested directly upon receipt and acceptance of a programming signal providing the inhibition condition:

oscillator means responsive to said program acceptance means signals, other than said inhibition condition signal, for providing a periodic control signal for periodically operating said medical device;

inhibit control means responsive to the inhibition condition signal for providing an inhibit control means signal to completely inhibit operation of said medical device on the body upon acceptance by the program acceptance means of the programming signal; and

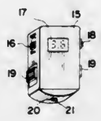
timing means responsive to said oscillator means for terminating the provision of said inhibition condition signal after the passage of a certain time related to a predetermined number of periodic control signals of said oscillator means and since the receipt of the last programming signal manifesting the inhibition condition.

4,267,844

MEDICAL INSTRUMENT FOR DETERMINING JAUNDICE

Akio Yamanishi, Tondabayashi, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed May 2, 1979, Ser. No. 35,230
Claims priority, application Japan, May 15, 1978, 53/57867
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—633 **23 Claims**



1. A medical instrument for determining the existence and degree of jaundice comprising:

light source means including means for producing a flash of light containing at least two separate wavelengths;

means for receiving light from the light source means after contact with living tissue of a person and producing a pair of electrical signals from a pair of separate wavelengths of light;

means for automatically activating said light source means at a predetermined pressure between said medical instrument and said living tissue, and

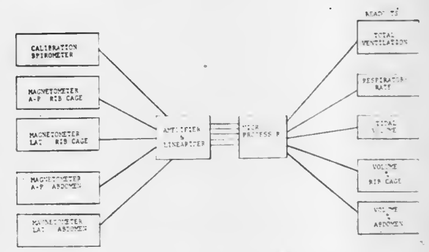
means for processing the pair of electrical signals to determine the bilirubin value in the tissue.

4,267,845

METHOD AND APPARATUS FOR MEASURING PULMONARY VENTILATION

Charles H. Robertson, Jr., 4200 Oxford Circle East, Richmond, Va. 23221, and Mark E. Bradley, 32 Orchard Way South, Rockville, Md. 20854

Filed Oct. 5, 1978, Ser. No. 948,789
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—721 **3 Claims**



1. A device for measuring pulmonary ventilation comprising microprocessor means for receiving discrete electrical signals and at least 4 sets of magnetometer means for measuring lateral and anterior displacement of the rib cage and abdomen during breathing and calibration means for measuring the volume of

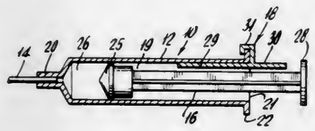
breaths taken during breathing; said magnetometer means and calibration means generating discrete analog electrical signals in response to said measured displacement and volume respectively and being connected to said microprocessor means for receiving said discrete electrical signals from each of said magnetometer means and said calibration means and performing an analog to digital conversion on said signals; a plurality of readout means being connected to said microprocessor means for receiving said digital signals and displaying separate readouts for total pulmonary ventilation, respiratory rate, tidal volume, and comparative volume contributed by rib cage and abdomen.

4,267,846

CONTROLLED VOLUME BLOOD SAMPLING SYRINGE

Stavros B. Kontos, Oakland, N.J., assignor to Critikon, Inc., Tampa, Fla.

Filed Jan. 29, 1979, Ser. No. 7,135
Int. Cl.[3] A61B *5/14*
U.S. Cl. 128—765 **1 Claim**



1. A syringe useful for taking samples of blood comprising:
A barrel having a bore therethrough, a distal end of said barrel adapted to be connected to a hollow needle so that the lumen of the needle and the bore are in fluid communication, the bore at the proximal end of the barrel being open;
a flange extending from said barrel about said proximal end thereof, substantially perpendicularly to the longitudinal axis of said barrel;
a plunger slidably positioned in said bore having a piston at its forward end providing a fluid-tight seal against the wall of the barrel, said plunger having a rearward portion extending outwardly beyond the proximal end of said barrel;
a one piece stop element including:
a first arm extending into said bore and having a free end positioned to engage said piston upon its outward movement to thereby limit the outward travel of said plunger;
said first arm having a first surface confronting the inside surface of said barrel and contoured conformingly with the shape of said barrel;
a second arm extending rearwardly beyond the proximal end of said barrel and having a free end positioned to engage the plunger upon its inward movement to thereby limit the inward travel of said plunger;
said first and second arms aligned in a generally co-planar relationship;
a hook having a flexible upstanding portion extending substantially perpendicularly from the plane of said first and second arms between the free ends of said first and second arms;
said hook including an L-shaped portion integrally disposed on and extending from the upper extent of said upstanding portion in a direction of generally parallel to said first and second arms so as to provide a hook adapted to fit over said barrel flange to thereby hold said stop element in position;
whereby said stop element maintains a desired maximum volume of blood that may be collected in the syringe by limiting the rearward travel of said plunger and maintains a desired minimum volume of blood that may be collected in the syringe by limiting the forward travel of said plunger;
said stop element adapted to permit the maximum and minimum volume of said syringe to be maintained for repeated use without adjustment.

4,267,847

TOBACCO ADDITIVES

William W. Reid, London, England, assignor to British-American Tobacco Company Limited, London, England

Filed May 7, 1979, Ser. No. 36,528
Claims priority, application United Kingdom, May 21, 1978, 19228/78
Int. Cl.[3] A24B *3/12, 15/24, 15/30*
U.S. Cl. 131—275 **12 Claims**

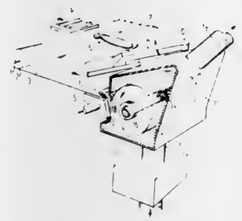
1. A method for obtaining a smoking material additive which is a smoke-aroma precursor, which comprises the steps of removing surface gum having a diterpene fraction and a lipid fraction from fresh Nicotiana plant parts including gums and subjecting the gum to a partition or purification process whereby the diterpene fraction constituting the precursor and the fraction containing undesirable lipids are obtained, the latter fraction being discarded.

4,267,848

METHOD AND DEVICE FOR CONDITIONING TOBACCO LEAVES OR PARTS THEREOF IN A COIL OR BOBBIN

Franciscus N. Rijckaert, RR Vught, Netherlands, assignor to B. V. Arenco P.M.B., Best, Netherlands

Filed Jun. 22, 1979, Ser. No. 51,064
Claims priority, application Netherlands, Jul. 18, 1978, 7807682
Int. Cl.[3] A24B *3/12*
U.S. Cl. 131—304 **12 Claims**



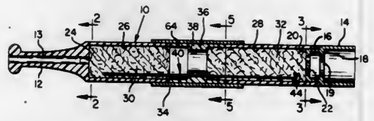
1. A device for treating tobacco material comprising a spindle for receiving a bobbin filled with tobacco material and a spindle for an empty bobbin, as well as means for stretching the belt portion between the two windings characterized by a closed cabinet around the spindle with the filled bobbin, said cabinet having a passage for the belt and having means for supplying and conducting away a conditioning medium.

4,267,849

CIGARETTE HOLDER

Ernest A. Smith, 757 NW. Coast St., Newport, Oreg. 97365

Filed Jul. 16, 1979, Ser. No. 57,737
Int. Cl.[3] A24F *3/02, 13/02, 9/04*
U.S. Cl. 131—84 R **13 Claims**



1. A cigarette holder comprising:

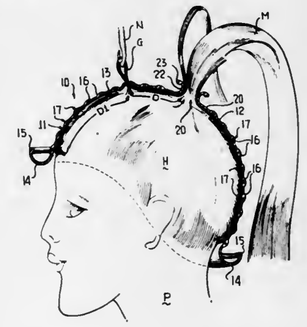
an elongated hollow tubular shell adapted to receive filtering material therewithin, said tubular shell having a mouthpiece at one end provided with an interior passage communicating with the interior of said shell and a cigarette holding member at the other end having an opening communicating with the interior of said shell, said tubular shell having an internal longitudinal bore for receiving said filtering material through which smoke must pass from said cigarette holding member to said mouthpiece, said cigarette holder being separable to provide access to the interior of said bore for inserting and withdrawing filtering material,
and a retrieving member adapted to be carried within said holder for urging filtering material within said bore and retrieving filtering material from said bore, said retrieving member comprising an elongated wire adapted to be received along the side of said bore adjacent said filtering material and being reversely bent at one end to provide the configuration of a hook and including a handle at the remaining end for tamping filtering material into said bore, said handle being disposed generally in the plane of said elongated wire to fit along said bore said holder providing means for slidably receiving said retrieving member.

4,267,850

FROSTING CAP

Eileen Barrett, 3613 Orlando Pl., Alexandria, Va. 22305

Filed Mar. 12, 1980, Ser. No. 129,658
Int. Cl.[3] A45D *8/40*
U.S. Cl. 132—9 **7 Claims**



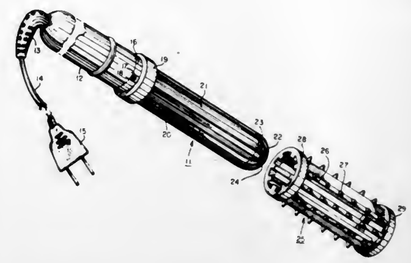
1. A frosting device comprising a generally flexible cap adapted to rest upon the head of a person in generally overlying relationship to the hair thereof, a plurality of first aperture means disposed about said cap for pulling therethrough groups of hair from an interior of said cap to an exterior thereof whereby each such group of hair can be individually treated, and at least one further aperture means substantially larger than any one of said plurality of first aperture means for receiving therethrough a single mass of hair disposed exteriorly of said cap whereby said groups of hair are individually drawn from said mass of hair in an inward direction from the cap exterior through said larger aperture means along a portion of said cap interior and thereafter outwardly through selected ones of said first aperture means incident to treating the individual groups of hair exteriorly of the cap.

4,267,851

HAIR CURLING DEVICE

Richard E. Plaisted, Framingham, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Jun. 11, 1979, Ser. No. 47,367
Int. Cl.[3] A45D *2/12, 4/18*
U.S. Cl. 132—33 R **12 Claims**



1. A curling device comprising:
an elongated tubular heat conductive rod portion defining a heating chamber and having first and second ends and a hair winding portion disposed between said first and second ends, said hair winding portion including a plurality of longitudinal channels;
heating means disposed in said heating chamber for providing heat to said hair winding portion; and
a tubular cage-like roller member, having first and second open ends, slidably mountable on said hair winding portion of said rod through either said first or second open end, said roller member including a plurality of longitudinal bars, each bar having a height substantially equal to or less than the depth of said mating channels of said rod so that a wound tress will be in direct contact with the outer surface of a substantial portion of said hair winding portion.

4,267,852

PROCESS FOR ENHANCING AND STRENGTHENING THE GROWTH OF NAILS

Judith E. Hullinger, 6605 E. State Blvd., Suite No. 7, Fort Wayne, Ind. 46815

Filed Sep. 17, 1979, Ser. No. 75,882
Int. Cl.[3] A45D *29/00*
U.S. Cl. 132—73 **9 Claims**

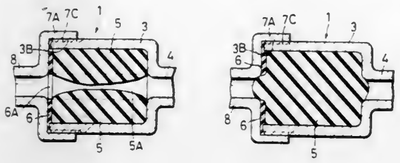
1. A process for enhancing the growth and strength of fingernails and toenails, including the steps of:
coating the nails with a dryable protein containing tacky emulsion comprising a mixture of henna, an aqueous solution of collagen polypeptides and water;
heating the thus coated nails to open the nail pores to absorb the protein mixture;
drying the nails;
coating the thus protein penetrated coated nails with a second cream emulsion coating, preferably at room temperature, including protein and silicone in an amount sufficient to enhance protein dispersion into the nails from both coatings and provide a protective and shinable silicone coating on the nails;
buffing the thus coated nails to increase the moisture and protein content in the nails;
drying the thus treated nails;
coating the nails with a dryable liquid suspension of a fibrous material to minimize breaking of the nails and provide a base for later applied polish; and
drying the suspension to adhere the ingredients of the suspension to the second coating.

4,267,853

SELF-CLOSING GAS PIPES AND PIPE JOINTS

Yukio Yamaguchi, Seto; Kenji Ishihara, Nagoya, and Kikuo Yonekura, Higashibayashi, all of Japan, assignors to Toho Gasu Kabushiki Daisha, Nagoya and Kabushiki Kaisha Togawa Gomu Seizosho, Osaka, both of, Japan

Filed Feb. 13, 1978, Ser. No. 877,566
Int. Cl.[3] F16K *17/38;* **C01B** *31/04*
U.S. Cl. 137—67 **4 Claims**



1. A self-closing joint for connecting at least a pair of metallic gas pipes, said joint comprising:

a metallic tubular member having an axial passage for gas and having means for connection with said gas pipes; and

means provided within said metallic tubular member and adapted to close said axial passage upon expansion by heat, said means being formed from material which expands and carbonizes when heated, comprising a rubbery material containing thermally expansible graphite, and

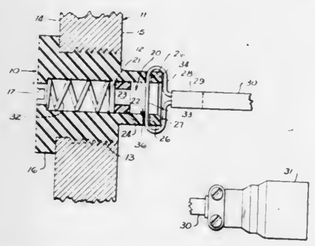
wherein said rubbery material containing thermally expansible graphite comprises about 2 to 30 parts by weight of oxidized thermally expansible graphite powder mixed with 100 parts by weight of raw rubber.

4,267,854

FLOOD VALVE

Carlton W. Naab, Williamsville, and Roman Jankowiak, Cheektowaga, both of N.Y., assignors to Conax Corporation, Buffalo, N.Y.

Filed Aug. 6, 1979, Ser. No. 64,110
Int. Cl.[3] F16K *17/40*
U.S. Cl. 137—72 **13 Claims**



1. A flood valve adapted to be mounted in an opening provided through a wall separating a fluid on one side thereof from a space on the other side thereof, said flood valve comprising:

(a) a body member adapted to normally close such opening to sealingly separate the fluid from the space, said body member having a forward portion adapted to be sealingly mounted in such opening and having a rearward portion communicating with the space, said body member also having a bore open to the fluid and extending through said rearward portion;

(b) a piston assembly slidably mounted in said bore, said piston assembly having one face exposed to the fluid and arranged in sealing engagement with the wall of said bore to sealingly separate the fluid from the space; and

(c) an electrical heating element extending through said rearward portion and restraining said piston assembly against movement through said rearward portion;

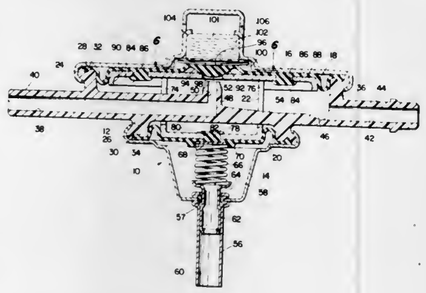
(d) said heating element being adapted to be selectively energized to melt the material of said rearward portion and thereby permit movement of said piston assembly through said rearward portion to admit the fluid into the space.

4,267,855

PNEUMATIC VACUUM REGULATOR

Cyril E. Bradshaw, Kalamazoo, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 17, 1980, Ser. No. 112,892
Int. Cl.[3] G05D *16/06*
U.S. Cl. 137—85 **16 Claims**



1. A fluid pressure signal converter comprising:

(a) housing means defining a sealed cavity therein, said housing means defining a signal inlet port communicating with said cavity and adapted for connection to a positive gauge pressure signal and a fluid pressure source port adapted for connection to a source of negative gauge pressure, said housing means further defining an atmospheric vent and a signal output port adapted for connection to a device controlled by a negative gauge fluid pressure signal;

(b) differential pressure responsive transducer means movably disposed within said cavity and including first and second spaced diaphragms defining within said cavity:

(i) a positive pressure chamber communicating only with said signal inlet port;

(ii) a negative pressure chamber communicating with said source port and said signal output port with said diaphragms forming opposite walls of said negative pressure chamber;

(iii) structure defining a valve seat stationary with respect to said housing means and a valve member movable with respect thereto for controlling fluid flow through said source port;

(iv) means defining a bleed port communicating said vent port with said negative pressure chamber,

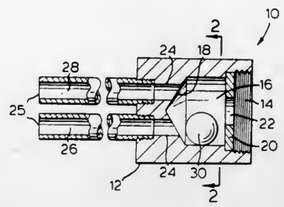
(v) said valve member being movable with respect to said bleed port for controlling flow therethrough wherein, for a given positive pressure input signal, said transducer means moves to modulate flow through said valve seat and said bleed port to maintain said negative pressure output signal substantially constant.

4,267,856

FLUID OSCILLATOR

Clyde C. K. Kwok, Montreal, and Leszek Suchy, St. Bruno, both of Canada, assignors to Edward V. Rippingille, Jr., Key Largo, Fla.

Continuation of Ser. No. 669,013, Aug. 18, 1976, abandoned.
This application Aug. 14, 1978, Ser. No. 1,971
Claims priority, application Canada, Feb. 20, 1976, 246237
Int. Cl.[2] G09D *11/03*
U.S. Cl. 137—119 **5 Claims**



1. A fluid oscillator for producing pulsations in a flow of fluid comprising:

(a) a housing defining a fluid inlet channel, first and second similar fluid outlet channels each of which exhibits less resistance to fluid flow than the inlet channel, a valve chamber located between and communicating with said channels, the valve chamber including a surface defining first and second valve seats where the respective outlet channels meet the valve chamber, said inlet channel being adapted to be connected to a supply of fluid under pressure to direct this flow generally towards said surface and said outlet channels communicating with atmosphere;

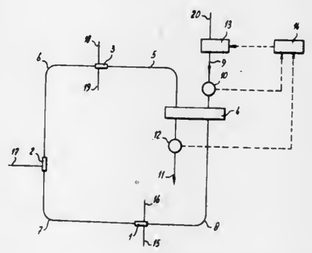
(b) a freely movable spherical valve element contained loosely in said valve chamber and dimensioned to alternately engage said valve seats and seal the respective outlet channels, the valve seats being positioned adjacent one another and opposite said inlet channel whereby, with the valve element located on a first of the valve seats, fluid flowing towards the second of the outlet channels will entrap the valve element and move the element with this fluid on to said second valve seat whereupon fluid will then flow towards the first of the valve seats and then entrap the valve element to return the valve element to the first valve seat, such movements of the element being repeated as long as fluid flows so that fluid leaving by way of the first and second outlet channels will pulsate.

4,267,857

DUCT SYSTEM CONTAINING A MOVABLE PLUG BODY

Henry M. T. van Haaften, Aquamarijnstraat 793, Groningen, Netherlands

Filed Sep. 25, 1979, Ser. No. 78,673
Int. Cl.[3] A01G *27/00*
U.S. Cl. 137—119 **37 Claims**



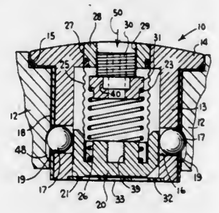
1. A duct system for a fluid which includes a main duct, a plug body within said main duct, means for supplying fluid to said main duct to create a predetermined pressure difference between the fluid pressure upstream of the plug body and the fluid pressure downstream of the plug body, which predetermined pressure difference is sufficient to move said plug body through said main duct, mutually cooperating means for retaining the plug body in a number of subsequent positions in said duct in opposition to said predetermined pressure difference, and release means for temporarily increasing the pressure difference between the fluid pressure upstream of the plug body and the fluid pressure downstream of the plug body, which increased pressure difference is sufficiently greater than said predetermined pressure difference as to operate on said mutually cooperating means to release the retained plug body, the improvement which comprises control means responsive to retention of said plug body at a particular position for actuating said release means after a certain retention time of the plug body at said particular position, allowing the plug body to move to the next of said subsequent positions by the fluid.

4,267,858

PRESSURE RELIEF VALVE

Oliver G. Lewis, Mountainside, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 8, 1980, Ser. No. 138,552
Int. Cl.[3] F16K *15/00*
U.S. Cl. 137—529 **16 Claims**



1. A pressure relief mechanism seated within a wall of a pressurized vessel, comprising:

a valve body having an inner bore, and at least two detent apertures opening into said bore;

at least two detents respectively seated within said apertures of said valve body and normally extending into, and engaging with, a recessed portion in said wall of said pressurized vessel to prevent said valve body from relieving the pressure in the vessel by disengaging from said vessel;

a piston disposed in said bore of said valve body and normally engaging with, and holding, said detents in their extended position with respect to said recessed portion of said vessel wall, said piston being movable past said detent apertures under the influence of a predetermined vessel pressure for disengaging said detents from said recess portion;

spring biasing means disposed in the bore of said valve body for compressively biasing said piston towards engagement with said detents; and

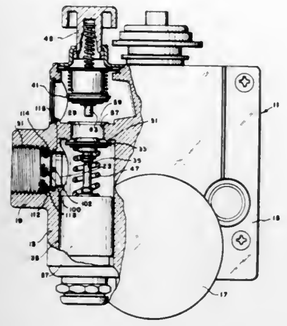
a flexible bellows exerting a compressive spring force against movement of the piston is disposed between said valve body and said piston for establishing a seal between said valve body and said piston, whereby when said piston is caused to move under the influence of said vessel pressure it will be urged against such movement by both said spring biasing means and the compressive spring force of said bellows.

4,267,859

PROTECTIVE INLET FOR GAS REGULATOR VALVE HOUSING

Theodore J. Dykzeul, Rolling Hills, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed May 23, 1979, Ser. No. 41,727
Int. Cl.³ B01D *46/10*
U.S. Cl. 137—550 **6 Claims**



1. In a gas valve which includes a housing having an internal valve cavity including valve means, and further having an inlet port for admitting gas to said valve cavity, improved means for preventing insertion of tools and the like into said valve cavity through said inlet port, said improved means comprising;

a screen having a peripheral portion mounted in said inlet port, and overlying the entire flow area of said inlet port for shielding said valve cavity from relatively small foreign particles;

a screen support located between said screen and said valve cavity and thereby exteriorly covered by said screen, said screen support including a peripheral portion, and further including a transverse bar portion extending across said inlet port and operative to block insertion of tools and the like into said valve cavity; and screen and support retaining means comprising first permanent, internal shoulder means in said inlet port constituting stop means for seating said peripheral portions of said screen and screen support and preventing inward movement of said screen and screen support toward said internal valve cavity.

4,267,860

LOAD RESPONSIVE VALVE ASSEMBLIES

Tadeusz Budzich, 80 Murwood Dr., Moreland Hills, Ohio 44022

Continuation of Ser. No. 954,104, Oct. 24, 1978, abandoned, which is a continuation of Ser. No. 894,112, Apr. 17, 1978, Pat. No. 4,140,152, which is a division of Ser. No. 716,360, Aug. 20, 1976, Pat. No. 4,107,923. This application Jan. 4, 1980, Ser. No. 109,651
The portion of the term of this patent subsequent to Feb. 20, 1996, has been disclaimed.
Int. Cl.³ F15B *13/08*
U.S. Cl. 137—596.2 **11 Claims**

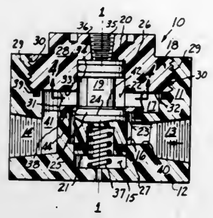
1. A load responsive valve assembly comprising a housing having fluid inlet means connected to a pump, at least one load chamber, and fluid exhaust means connected to reservoir means, first valve means for selectively interconnecting said fluid load chamber with said fluid inlet means and said fluid exhaust means, and pressurizing means of said fluid exhaust means having exhaust fluid throttling means interposed between said fluid exhaust means and said reservoir means and selectively operable to maintain a relatively constant pressure upstream of said pressurizing means, said pressurizing means having activating means responsive to pressure in said load chamber.

4,267,861

PLURAL MODULAR FLUID TRANSFER VALVES

Verlon C. Roth, Pasadena, Calif., assignor to RK Industries, Ontario, Calif.

Filed Nov. 5, 1979, Ser. No. 90,906
Int. Cl.³ F16K *1/32, 27/02*
U.S. Cl. 137—625.48 **14 Claims**



1. A fluid transfer valve combination comprising:

a rigid composition valve housing having a base and a coaxial aligned opposed inlet port and outlet port, and a hollow cylindrical interior having four stepped concentric cylindrical bores, said concentric bores comprising a deep base bore, a fluid transfer bore disposed above said deep base bore, an outlet base bore disposed above said transfer bore, and a screw cap retainer bore having screw threads disposed above said outlet base bore, each one of the stacked aforesaid concentric bores having a successively larger selected bore diameter on serially proceeding from said deep base bore to said screw cap retainer bore;

a cylindrical sealing solid piston having a first flat piston end face and an opposed second flat piston end face, and having at least one diametrically concentric fluid transfer channel disposed in and circumferentially around the piston cylindrical axis ajdacent to said first piston end face, said piston having a circumferential sealant shoulder disposed on the channel wall opposed said first flat piston end face, said shoulder suitable for sealing fluid flow;

plural sealing O-rings disposed in O-ring sealing channels each one of said O-rings separately concentrically disposed adjacent said first and second flat piston end faces and said at least one concentric fluid transfer channel, providing slidable fluid sealants on said piston;

a cylindrical screw cap having concentric screw threads is secured in said hollow cylindrical valve housing interior, said screw threads mating with the screw threads of the screw cap retainer bore, an interior integral cap collar secured to the screw cap interior face has multiple concentric radial apertures providing a connecting fluid flow path to a concentric cap bore disposed in said screw cap and diametrically sized to provide a close slidable linear alignment path for the slidable sealant of said first flat piston face, and a shoulder mating with said piston circumferential shoulder;

a first actuating means secured conductively to a valve housing face adjacent a first piston end face and disposed to cooperatively actuate on said first piston end face;

a second actuating means secured conductively to a valve housing face adjacent a second piston end face and disposed to cooperatively actuate on said second piston end face;

one sealing O-ring disposed in an O-ring channel concentrically disposed in the base of said outlet base bore adjacent to said fluid transfer bore, providing a fluid transfer seal;

one sealing O-ring disposed in an O-ring channel concentrically disposed in the base of said screw cap retainer bore, providing a fluid transfer seal;

a first internal fluid port connecting conductively said inlet port to said fluid transfer bore; and,

a second internal fluid port disposed in the base of said outlet base bore connecting conductively said outlet base bore to said outlet port;

whereby actuating said first actuating means positions said first piston end face of said piston in an open valve position, providing an open fluid transfer path from inlet port, through said first internal fluid port, through said concentric fluid transfer channel disposed around said piston axis, through said fluid transfer bore, through said outlet base bore, through said second internal fluid port and through said outlet port,

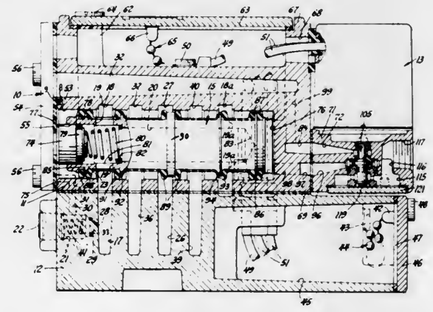
and whereby actuating said second actuating means positions said second piston end face in a closed valve position, positioning said piston in a sealing position, closing said at least one piston fluid transfer channel to fluid flow.

4,267,862

DIRECTIONAL CONTROL VALVE WITH FLOW PATH THROUGH VALVE SPOOL

James A. Neff, Bloomfield Township, Oakland County; Richard A. Fagerlie, Union Lake, and Walter J. Bowman, Detroit, all of Mich., assignors to Mac Valves, Inc., Wixom, Mich.

Filed Feb. 21, 1979, Ser. No. 13,387
Int. Cl.³ F15B *13/043*
U.S. Cl. 137—625.64 **11 Claims**



1. A directional control air valve having a valve body mounted on a base member a valve spool bore formed in the valve body in which a valve spool is movably mounted, the base member being provided with a pressurized air supply inlet port, an exhaust port, a first cylinder port and a second cylinder port, characterized in that:

(a) a first pressurized air supply chamber is formed in the wall of said valve spool bore, and a second pressurized air supply chamber is formed in the wall of said valve spool bore in a position longitudinally spaced apart from the first pressurized air supply port;

(b) said valve spool has a longitudinally disposed pressurized air flow chamber formed therein which is connected to said first and second pressurized air supply chambers, and to said pressurized air supply inlet port;

(c) an exhaust chamber is formed in the wall of said valve spool bore in an intermediate position between said first and second pressurized air supply chambers for connection to said exhaust port;

(d) a first cylinder chamber is formed in the wall of said valve spool bore in an intermediate position between said first pressurized air supply chamber and said exhaust chamber;

(e) a second cylinder chamber is formed in the wall of said valve spool bore in an intermediate position between said second pressurized air supply chamber and said exhaust chamber;

(f) said valve spool includes annular seal means at the ends thereof to seal said first and second pressurized air supply chambers from the end portions of the valve spool bore;

(g) a plurality of annular valve seal members are mounted around the periphery of the valve spool between the annular seal means, and in longitudinal position spaced apart from each other and from the annular seal means, for controlling the flow of pressurized supply air between the first and second pressurized air supply chambers and the first and second cylinder chambers, and the flow of exhaust air between the first and second cylinder chambers and the exhaust chamber; and,

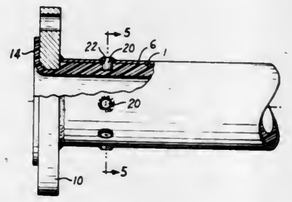
(h) said valve includes means for moving the valve spool to a first position to connect said first pressurized air supply chamber with said first cylinder chamber and said exhaust chamber to said second cylinder chamber, and to a second position to connect the second pressurized air supply chamber with the second cylinder chamber and said exhaust chamber to said first cylinder chamber.

4,267,863

TUBE REINFORCED WITH A SYNTHETIC MATERIAL

Jean Burelle, Courbevoie, France, assignor to Compagnie Plastic Omnium, Lyons, France

Filed Nov. 17, 1975, Ser. No. 632,704
Claims priority, application France, Nov. 19, 1974, 74 38043
Int. Cl.³ F16L *9/18, 57/00*
U.S. Cl. 138—109 **10 Claims**



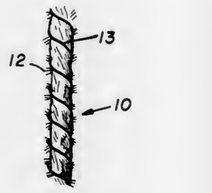
1. In a tube made from a synthetic plastic material surrounded by a continuous rigid tubular sheath, the ends of said tube of synthetic plastic material being formed with collars which project radially beyond said rigid sheath, the improvement which comprises means for preventing damage to said tube at said collars as a result of expansion and contraction of the tube with respect to said rigid sheath, said means comprising locking member fixed to said rigid sheath adjacent each collar and projecting radially inward from said sheath into a mating groove in the outer surface of said tube of synthetic plastic material.

4,267,864

FABRIC SUITABLE FOR MAKING SANDBAGS AND METHOD FOR MAKING THE SAME

Witold R. Kocay, Pomfret, Conn., assignor to Monsanto Company, St. Louis, Mo.

Filed May 29, 1979, Ser. No. 43,603
Int. Cl.³ D03D *15/00, 3/00;* D02G *3/02, 3/38*
U.S. Cl. 139—420 R **7 Claims**



1. The method for making fabric suitable for use in making sandbags, comprising weaving a fabric from a yarn made up of staple acrylic fibers wrapped with a continuous filament, said fibers having a length of 7 to 20 centimeters and a denier per

filament of about 10 to 15, said yarn having a total denier of about 200 to 2650, said continuous filament being of a type which is degraded by sunlight, said continuous filament being wrapped around the staple fibers in such a manner that hairiness of the yarn is reduced to the point where the yarn can be woven into fabric with a weaving efficiency of at least about 70%, said yarn being free of size during said weaving.

4. A woven fabric made from a yarn made up of staple acrylic fibers having a denier per filament of 10 to 15 and a total denier of about 200 to 2650 having a denier per filament of 5 to 15 and a total denier of from about 200 to about 2650, said fibers being wrapped with a continuous filament of a type which is degraded by sunlight, said staple fibers being wrapped in such a manner that fuzziness of the fibers is reduced to the extent that the yarn can be woven into said fabric at a weaving efficiency of at least about 70%.

4,267,865

APPARATUS FOR PRODUCING COILS

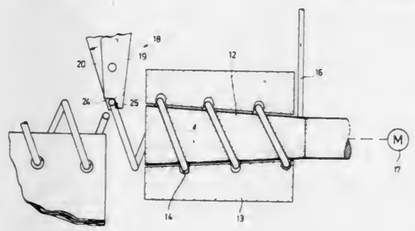
Guido Negro, Neuffen, Fed. Rep. of Germany, assignor to Bielomatik Leuze GmbH & Co., Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,456

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2837946

Int. Cl.³ B21F *3/04, 45/00*

U.S. Cl. 140—92.94 **13 Claims**



1. An apparatus for producing coils in the course of a process for the production of binding coils which are to be introduced directly into a row of holes in a pack of sheets, the apparatus comprising:

a continuously driven, coil-forming winding spindle which is surrounded by the coil produced thereon;

means for cutting the coil; and,

means for periodically stopping the cut end of the forming coil, causing the coil to lift from the continuously driven spindle and interrupt the coil-forming process.

4,267,866

METHOD AND MACHINE FOR FILLING A CAPSULE WITH POWDER

Hans-Gunnar Larsson, and Erik Westman, both of Vesteras, Sweden, assignors to ASEA Aktiebolag, Vesteras, Sweden

Filed Aug. 31, 1979, Ser. No. 71,485

Claims priority, application Sweden, Sep. 6, 1978, 7809365

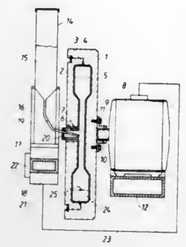
Int. Cl.¹ B65B *1/14*

U.S. Cl. 141—1 **6 Claims**

1. A method of filling a capsule having a ring or disc-shaped cavity, comprising the steps of:

rotating the capsule around a horizontally positioned shaft;

feeding powder into the central portion of the cavity within the capsule; and



controlling the speed of rotation of the capsule such that the centrifugal force at the inner surface of powder within the capsule cavity is substantially equal to the force of gravity.

4,267,867

DEVICE FOR FIXING A WHEEL TO AN APPARATUS FOR FITTING AND REMOVING TIRES

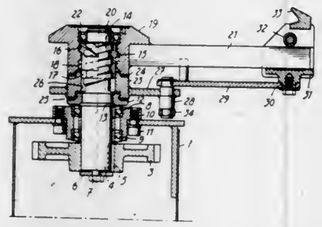
Francis du Quesne, 138, Cleistraat, 2630 Aartseloor, Belgium

Filed Aug. 13, 1979, Ser. No. 66,277

Claims priority, application Belgium, Sep. 1, 1978, 57248

Int. Cl.³ B25H *5/00*

U.S. Cl. 157—17 **6 Claims**



1. A device, for securing a wheel on an apparatus for fitting and removal of automobile tires, comprising:

(i) a support structure,

(ii) a drive shaft journalled in said support structure for rotation,

(iii) a head spaced about said shaft and having a plurality of arms,

(iv) a plurality of gripping jaws carried each on a respective one of said arms and movable radially towards and away from the head,

(v) a driven member spaced about said shaft,

(vi) a plurality of link means each connecting said driven member with a respective one of said jaws such that relative rotation of said driven member with respect to said head causes radial movement of said jaws,

(vii) a drive member disposed about said shaft and between said shaft and said head, said drive member being coupled in axially movable manner to said shaft and to said head, said drive member being keyed for rotation with but axially movable relative to said driven member,

whereby, with a wheel disposed between said gripping jaws, rotation of said drive shaft relative to said head causes said drive member to be rotated with said drive shaft and thereby rotate said driven member relative to said head with radial inward movement of the gripping jaws to tighten against the wheel, whereafter further rotation of the drive shaft causes said drive member to shift said head axially and lock said head, drive member and driven member together to rotate in unison with said drive shaft.

4,267,868

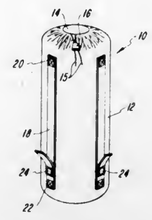
COMPRESSIBLE STUFF SACK

Michael R. Lowe, Eldorado Springs, Colo., assignor to Lowe Alpine Systems, Inc., Lafayette, Colo.

Filed Oct. 29, 1979, Ser. No. 89,326

Int. Cl.³ B65D *33/00*

U.S. Cl. 150—11 **10 Claims**



1. A compressible stuff sack comprising:

a bag having opposite ends and of pliable material adapted to substantially assume a circular cross-section between the opposite ends;

an opening defined in the bag;

means to close the opening;

a plurality of spaced straps each of which is fixedly attached to the bag at two positions one each of which is adjacent an opposite end of the bag; and

means to vary the length of each strap between the attachment points of the strap to the bag;

whereby, after filling the pliable bag with compressible items, the opening may be closed and additional compressive forces maintained by shortening the straps between the attachment points at the opposite ends of the bag.

4,267,869

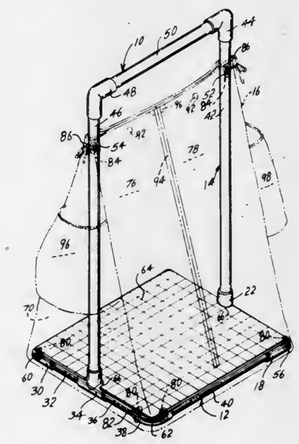
HANDY BAG

Marvin L. Behar, 316 Main St., Edmonds, Wash. 98020

Filed Oct. 25, 1979, Ser. No. 88,164

Int. Cl.³ A45C *3/00*

U.S. Cl. 150—50 **5 Claims**



1. An article carrying device comprising a base and a closure means:

A. a base comprising:

1. a first tee, a second tee, a first short tube, a second short tube, a third short tube, a fourth short tube, a first long pipe, a second long pipe, a first connecting means, a second connecting means, a third connecting means and a fourth connecting means;

2. said first short tube connecting with said first connecting means and said first tee;

3. said second short tube connecting with said first tee and said second connecting means;

4. said first long pipe connecting with said second connecting means and said third connecting means;

5. said third short tube connecting with said third connecting means and said second tee;

6. said fourth short tube connecting with said second tee and said fourth connecting means;

7. said second long pipe connecting with said fourth connecting means and said first connecting means;

B. a handle means comprising:

8. a first upright leg connecting with said first tee and a fifth connecting means;

9. a second upright leg connecting with said second tee and a sixth connecting means;

10. a third long pipe connecting with said fifth connecting means and said sixth connecting means;

C. said closure means comprising:

11. a bottom support operatively connecting with said base for supporting articles;

12. a bag, operatively, connecting with said base to support said articles and to assist in positioning said articles on said base;

D. said bottom support having exterior dimensions larger than the interior dimensions of said base so as to rest upon and to be supported by members of said base; and,

E. said bottom support being a solid sheet.

4,267,870

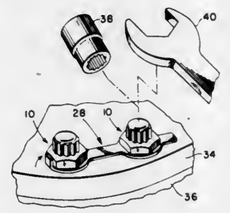
SCREW FASTENER WITH MULTI-POINT WRENCHING HEAD AND LOCKING CAPABILITIES

John R. Warner, Rocky River, Ohio, assignor to The Ferry Cap & Set Screw Co., Cleveland, Ohio

Filed Nov. 13, 1978, Ser. No. 959,523

Int. Cl.³ F16B *23/00, 39/10*

U.S. Cl. 411—98 **4 Claims**



1. A fastener construction having primary wrenching, secondary wrenching and locking capabilities comprising a multi-point wrenching fastener having a shank portion threaded at one end and having a normally non-shearable primary multi-point wrenching portion at the other end adapted for use with a multi-point wrenching tool, and an annular bearing collar portion, having an inner bearing surface, integral with said shank portion axially inwardly adjacent said multi-point wrenching portion, said collar portion having a greater cross-sectional area than said shank portion and including at least two flat chordal side surfaces on the outer periphery of said collar portion extending from said inner bearing surface substantially parallel to the axis of the fastener and to each other to define a secondary wrenching portion adapted for use with another type of wrenching tool, said primary wrenching portion being of lesser cross-sectional area than said secondary wrenching portion, and lock means engageable with any one of said flat chordal side surfaces of said collar portion for preventing rotation of said fastener when received in a bore in a member to be secured, said lock means including a thin elongate strip having an aperture for receiving the threaded end of said

fastener and including tab means adapted to be bent into flush engagement with any one of said flat chordal side surfaces of said collar portion for preventing rotation of said fastener relative to said elongate strip, and means for preventing rotation of said strip relative to the member being secured.

4,267,871

TIRE PROTECTOR CHAIN

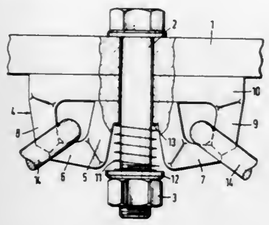
Erhard A. Weidler, Danziger Str. 32, Aalen-Unterkochen, Fed. Rep. of Germany (7080)

Filed Jan. 23, 1980, Ser. No. 114,644

Claims priority, application Switzerland, Feb. 2, 1979, 1030/79

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—189 **11 Claims**



1. A tire protector chain comprising plate-shaped components which cover the tread of the tire that is to be protected, and which at least at their ends nearer the outer side of the tire are provided with connection devices for fastening a chain net covering the side wall of the tire, characterized in that the connection devices (**4**; **15**; **24**; **28**; **34**) are in the form of overload protection means which under the action of external forces free the chain net, or parts thereof, before the breaking strength of the chain links (**14**) is reached, in such a manner that no fragments are released.

4,267,872

VEHICLE TIRE WITH TREAD HAVING CIRCUMFERENTIALLY VARYING RIGIDITY

Tadashi Kamiya, Niiza, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,434

Claims priority, application Japan, Apr. 20, 1978, 53-47092; Apr. 21, 1978, 53-47526; Apr. 21, 1978, 53-53037[U]

Int. Cl.³ B60C *11/06, 11/14*

U.S. Cl. 152—209 D **6 Claims**

1. A vehicle tire comprising:

a tread portion having a plurality of projections on the surface thereof;

sidewall portions;

shoulder portions extending between said tread portion and said sidewall portions;

bead portions for fitting said tire to a wheel rim;

said tread portion including a plurality of first areas and a plurality of second areas;

said first areas having substantially high rigidity relative to said second areas and being adapted to yield by a relatively small degree radially inwardly of said tire when said first areas come into contact with a ground surface;

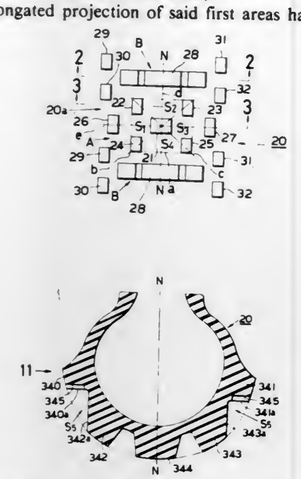
said second areas having a substantially low rigidity relative to said first areas and being adapted to yield by a relatively large degree radially inwardly of said tire when said second areas come into contact with a ground surface;

said first and second areas of said tread portion being alternately arranged in the circumferential direction of said tire;

said first areas each including a substantially elongated projection having the length thereof extending in the widthwise direction of said tire;

said second areas of said tread portion including a plurality of projections arranged substantially sparsely relative to said elongated projections in said first areas, so as to define relatively large spaces between said sparsely arranged projections of said second areas;

said elongated projection of said first areas having a relatively greater volume than the volume of said projections of said second areas;



first ones of said plurality of projections including outer surfaces facing widthwise of said tire and extending substantially parallel to a radial plane of said tire; and

second ones of said plurality of projections located outwardly widthwise of said first projections being provided with inner surfaces extending substantially perpendicular to said outer surfaces of said first ones of said projections.

4,267,873

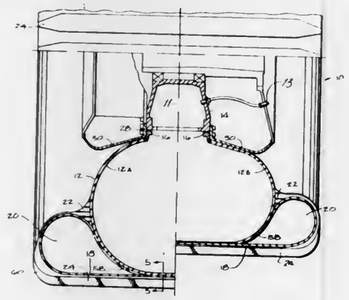
COMPOSITE HIGH MOBILITY TIRE FOR OFF-ROAD VEHICLES

Bruce J. McColl, Whitby, Canada, assignor to B. J. McColl & Company, Ltd., Whitby, Canada

Filed Jun. 15, 1979, Ser. No. 48,922

Int. Cl.³ B60C *5/06, 9/18*

U.S. Cl. 152—339 **12 Claims**



1. A high mobility tire for off-road vehicles, said tire comprising an inner torus having a pair of rigid flanges integrally formed on the inner periphery thereof for detachably securing the tire to a vehicle wheel; and an annular flexible tread belt bonded to the outer periphery of the inner torus, the tread belt comprising an annulus having both lateral extremities folded inwardly to lie adjacent to the internal surface of the annulus and bonded between the inner torus and said internal surface, thereby defining a pair of hollow annular chambers on the peripheral side edges thereof, the belt being substantially wider than the inner torus with the latter nesting between said annular chambers.

4,267,874

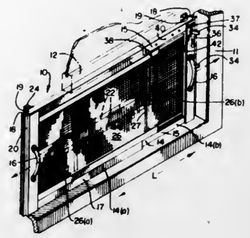
EXPANDABLE BURGLAR PROOF WINDOW

Clarence Pope, P.O. Box 472, Glassboro, N.J. 08020

Filed Mar. 1, 1979, Ser. No. 16,526

Int. Cl.³ E06B *3/32*

U.S. Cl. 160—92 **15 Claims**



1. An adjustable window guard and screen apparatus comprising:

an adjustable framework of two sections, said sections being slidably mated for expansion and contraction of said framework in the longitudinal dimension thereof;

a set of screen members, each of said screen members being affixed to an opposite framework section and in slidable relationship with each other for expansion or contraction thereof upon adjustment of same framework,

a plurality of adjustable bar members, each bar member having two slidably mating sections and each bar member section mounted to an opposite framework section, said bar members constructed for expansion and contraction with adjustment of said framework and further constructed to function as security guards,

one or more louver members, each of said louver members being in the form of two sections in slidably adjacent relationship to each other for slidable expansion and contraction with adjustment of said framework, each louver member mounted to a bar member, said bar member sections to which a louver member is mounted being rotatably mounted to said framework, said louver member affixed to said bar member so that said louver member rotates upon rotation of said bar member; and

louver operating means for rotating said bar member and said louver member mounted thereon.

4,267,875

SLIDING CLUTCH FOR VENETIAN BLIND

Marinus F. Koks, Rotterdam, Netherlands, assignor to Hunter Douglas International N.V., Netherlands

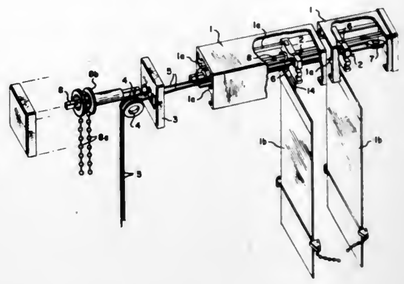
Filed Feb. 21, 1979, Ser. No. 13,278

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807440

Int. Cl.³ E06B *9/26*

U.S. Cl. 160—176 R **11 Claims**

1. A clutch mechanism for use in a venetian blind having at least one housing, a drive shaft, and at least one slat, which clutch mechanism is operatively connected between the drive shaft and said slat to rotate said slat about its longitudinal axis upon rotation of the drive shaft, the improvement comprising said clutch mechanism having a first part mounted for rotation in response to rotation of said drive shaft, said clutch also having a second part, said second part being operatively connected to said slat for rotation of such slat upon rotation of said second part, said first and second parts being mounted for relative movement with respect to each other, said housing including at least one resilient portion for resiliently imparting relative movement to said parts to effect driving engagement of parts with each other, and the resiliency of said resilient portion being such as to yield to permit relative movement between said parts and in a sufficient amount to disengage said parts from driving engagement with each other upon the application of excess torque to said drive shaft and said first part.



4,267,876

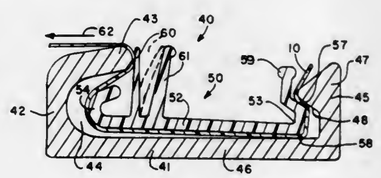
FILM FASTENING SYSTEM

Roger D. Bloomfield, Jackson, Wyo., assignor to Park Fastener Company, Colorado Springs, Colo.

Continuation of Ser. No. 950,998, Oct. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 792,660, May 2, 1977, abandoned. This application Dec. 5, 1979, Ser. No. 100,549

Int. Cl.³ A47H *13/00*

U.S. Cl. 160—392 **13 Claims**



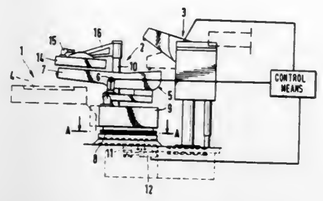
1. An apparatus for holding a flexible sheet of material in place comprising in combination an elongated substantially rigid channel member having a base wall and a pair of side walls extending generally parallel to each other and along the longitudinal length of said base wall, at least one of said side walls forming an overhanging ledge above and spaced from the base wall, an elongated flat relatively rigid locking strip having a width substantially greater than its height and having a pair of longitudinally extending edge portions which define the width thereof, the height of said locking strip being substantially less than the height of said channel side walls, a first edge portion of said locking strip being removably positionable under said overhanging side wall of said channel, and the second edge portion of said locking strip including a wall portion extending outwardly from said locking strip and having portions engaging a second side wall of said channel to form detent means tending to resist removal of said lock strip, and a cantilevered spring element fixed to said flat locking strip and spaced from said wall portion thereof and engaging a portion of said overhanging ledge of said channel and urging said wall portion of said strip to engage the second wall of said channel under a resilient force when the locking strip is in place in said channel adjacent the base of said channel.

4,267,877

APPARATUS FOR THE CONTINUOUS CASTING OF AN OBJECT OF PREDETERMINED WEIGHT OR SIZE

Matti O. Leiponen, and Ossi T. Tonteri, both of Espoo, Finland, assignors to Outokumpu Oy, Helsinki, Finland

Filed Nov. 30, 1978, Ser. No. 965,022
Int. Cl.³ B22D 25/04, 39/04
U.S. Cl. 164—155 1 Claim



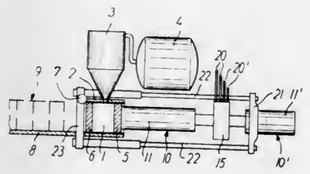
1. An apparatus for the continuous casting of a plate-like object of predetermined weight or size into low-rimmed open molds at the periphery of a rotating wheel, the apparatus comprising: at least one casting ladle fitted adjacent to the molds for pouring molten metal into the molds, the casting ladle having a spout and being fitted to swivel around a substantially vertical shaft, which shaft is inside the periphery of the wheel for movement of the ladle between two positions so that the spout of the casting ladle moves with the mold below during a casting cycle and then moves back to a position above the next mold before a next casting cycle; feeding means for filling the casting ladle with molten metal between castings; measuring means for determining the total weight of the casting ladle before and during casting; and control means for regulating the casting cycle on the basis of the measured total weight of the casting ladle, said casting ladle, measuring means and control means constituting a single swiveling unit.

4,267,878

APPARATUS FOR PRODUCING CASTING MOULD PARTS BY COMPRESSING SAND OR A SIMILAR MATERIAL BETWEEN A PRESSURE PLATE AND A COUNTER-PRESSURE PLATE

Vagn Mogensen, Gentofte; Villy E. Jorgensen, Olstykke, and Peter Krebs, Herlev, all of Denmark, assignors to Dansk Industri Syndikat A/S, Herlev, Denmark

Filed May 20, 1980, Ser. No. 151,607
Claims priority, application Denmark, Jun. 1, 1979, 2304/79
Int. Cl.³ B22C 15/08
U.S. Cl. 164—187 2 Claims



1. An apparatus for producing casting mould parts by compressing sand or the like between a pressure plate and a counter-pressure plate forming movable end walls of a pressure chamber which subsequent to the production of a mould part can be opened by displacing away the counter-pressure plate, whereafter the mould part can be pushed out from the pressure or squeeze chamber by a further movement of the pressure plate in its squeezing direction, both plates being movable by means of a respective one of two aligned hydraulic drive units each comprising a piston and a cylinder, and the counter-pressure plate being connected to the associated drive unit by means of pull and push rods arranged in parallel with the squeezing direction and an interconnecting cross member, whereas the pressure plate is directly connected to the other drive unit, said drive units comprising movable cylinder members connected to the cross member and to the pressure plate, respectively, and associated stationary piston members each having a piston rod extending tightly through an inner end wall of the associated cylinder member, and a piston head dividing the chamber of said cylinder member into an outer end compartment and an inner, annular compartment surrounding the piston rod, both compartments being provided with inlet and outlet connections for a pressure fluid.

4,267,879

METHOD FOR FORMING GLAUBER'S SALT CRYSTALS OF REDUCED SIZE BY INCLUDING A FLUORINE-CONTAINING SURFACTANT

Carlyle S. Herrick, Alplaus, and Fred F. Holub, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 21, 1979, Ser. No. 68,415
Int. Cl.³ C09K 5/06
U.S. Cl. 165—1 10 Claims

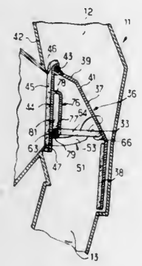
7. A liquid-solid phase-change mixture comprising sodium sulfate decahydrate and a water-miscible fluorine-containing surfactant selected from the group consisting of fluorine-substituted alkyl sulfonic acid, potassium salts of said acid, and mixtures thereof, said surfactant being included in an amount effective to limit the formation of sodium sulfate decahydrate crystals to an average size which is less than the average size of the crystals thereof which would be formed in the absence of said surfactant.

4,267,880

AIR DISTRIBUTION DEVICE

Maurice A. Jacquet, Maurepas, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Feb. 23, 1979, Ser. No. 14,566
Claims priority, application France, Feb. 24, 1978, 78 05406
Int. Cl.³ F16K 11/18, 19/00; B60H 1/24
U.S. Cl. 165—41 11 Claims



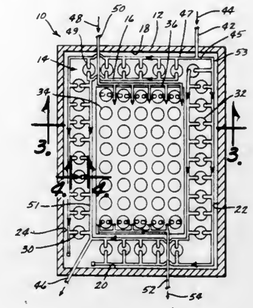
1. A device for distributing in a passenger space of a motor vehicle the air arriving from at least one channel into an inlet opening for two ducts, comprising a flap with two branches forming a V rotatably mounted on an axis, a first branch of the flap being able to control the opening and shutting off of the first duct, a second branch of the flap being able to control the opening and shutting off of the second duct, wherein a second flap is mounted on the edge of one of the branches of the V-shaped flap which is remote from the pivoting axis, means being provided for independently displacing said second flap when said one branch is in the shutting off position of the duct which it controls so as to control the opening and shutting off of the inlet opening.

4,267,881

HEAT STORAGE SINK

Cecil W. Byerly, R.R. 2, Box 917, Waukee, Iowa 50263

Filed Nov. 8, 1978, Ser. No. 958,674
Int. Cl.³ F28D 21/00
U.S. Cl. 165—45 4 Claims



1. A storage system for heat and cold and exchange with a fluid from a solar collector, comprising,

a large block of earth material having a top surface, and vertical side walls, said side walls being defined by a perimeter trench adjacent said side walls, said perimeter trench being lined with moisture impervious material and filled with dry, particulate earth material,

an outer zone of vertical channels extending into said block of earth material, and

an inner zone of vertical channels extending into said block of earth material,

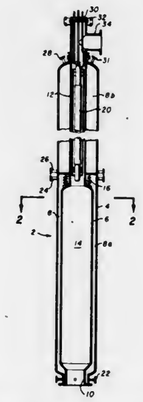
and filling each of said channels, a U-shaped conduit embedded in concrete material and connected for parallel passage of heat exchange fluid with the other U-shaped conduits of said zone to provide heat exchange between said fluid and said block of earth material.

4,267,882

HEAT EXCHANGER FOR COOLING A HIGH PRESSURE GAS

Gary W. Gralton, Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Mar. 3, 1980, Ser. No. 126,227
Int. Cl.³ F28F 9/26
U.S. Cl. 165—83 6 Claims



1. A heat exchanger for cooling a high pressure, hot gas having a first vertically elongated cylindrical pressure containment vessel, a second vertically elongated cylindrical pressure containment vessel coaxially disposed within said first vessel, the annular space between said first and second vessels forming a cooling water jacket about said second vessel, a gas inlet pipe penetrating through the bottom of said first vessel and extending upward therein to open into said second vessel through the bottom thereof, a gas outlet pipe penetrating through the top of said first vessel and extending downward therein to open into said second vessel through the top thereof, means for conveying cold cooling water into said cooling water jacket, and means for removing heated cooling water from said cooling water jacket; characterized by means for dividing the annular space into a lower and an upper cooling water jacket comprising an annular plate disposed horizontally in the annular space between said first and second vessels, said annular plate being welded along its outer circumference to the inner wall of said first vessel and being flexibly attached to said second vessel so as to slide at its inner circumference along the outer surface of said second vessel as said second vessel moves axially relative to said first vessel in response to thermal influences.

2. A heat exchanger for cooling a high pressure, hot gas comprising:

a. a first vertically elongated cylindrical pressure containment vessel;

b. a second vertically elongated cylindrical pressure containment vessel being of substantially shorter length than said first vessel, disposed coaxially within the lower portion of said first vessel;

c. a gas inlet pipe penetrating through the bottom of said first vessel and extending upward therein to open into said second vessel through the bottom thereof;

d. a gas outlet pipe penetrating through the top of said first vessel and extending downward therein to open into said second vessel through the top thereof;

e. means disposed in the annular space between said first vessel and said second vessel at a location immediately above the top of said second vessel for establishing a lower cooling water jacket in the annular space between said first and second vessels and an upper cooling water jacket in the annular space between said first vessel and said gas outlet pipe;

f. means for conveying cold cooling water into said lower cooling water jacket;

g. means for conveying heated cooling water out of said lower cooling water jacket;

h. means for conveying cold cooling water into said upper cooling water jacket; and

i. means for conveying heated cooling water out of said upper cooling water jacket.

4,267,883

COOLING TOWER

Jean Maurice, St. Germain de la Grange, and Raymond Quesnel, Massy, both of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Jul. 19, 1978, Ser. No. 926,210
Claims priority, application France, Jul. 22, 1977, 77 22596
Int. Cl.³ F24H 9/02; B01F 3/04
U.S. Cl. 165—129 16 Claims

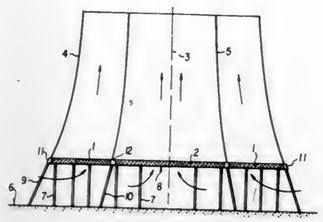
1. A cooling apparatus which comprises:

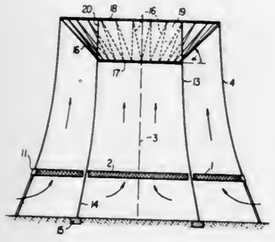
a dry type natural draft tower including an inlet;

an outlet;

a battery of thermal exchanges arranged on a straight cross-section of the tower at the base of the tower forming a plurality of separate and independent thermal exchange networks for uniformity of heat transfer wherein said networks are concentric with relation to the symmetrical axis of the tower; and,

means for separating said networks above the ground including an inner and outer concentric shell wherein said inner





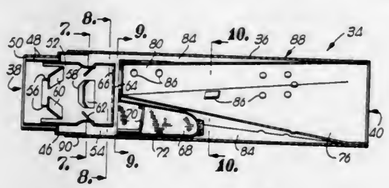
shell extends from and intersects said means for separating said networks.

4,267,884

HEAT RECOVERY DEVICE FOR USE IN RETURN AIR DUCT OF FORCED AIR FURNACE FOR RECOVERING HEAT FROM THE FLUE OF SUCH FURNACE

Fred J. Gary, R.F.D. #1, Box 164, Glasco, Kans. 67445

Division of Ser. No. 891,171, Mar. 29, 1978, Pat. No. 4,176,787.
This application Mar. 23, 1979, Ser. No. 22,972
Int. Cl.[3] F28F *1/40*
U.S. Cl. 165—179 **7 Claims**



1. Apparatus for increasing the transfer of heat from a first, heated gas flowing through a heat conductive, tubular member to a second, cooler gas in contact with external surface areas of said member, wherein only a predetermined portion of said first gas would typically flow into direct heat transferring contact with interior surface areas of said member opposite said external surface areas thereof in the absence of the provision of means for suitably modifying the otherwise normal flow and heat transferring utilization of the passage of said first gas through said member, said apparatus including:

gas flow dividing and deflecting means adapted to be disposed and supported within said member for proportionally dividing the flow of said first gas through said member into a first portion, greater than said predetermined portion, which is diverted and directed by said dividing and deflecting means outwardly toward and into heat transferring contact with said interior surface areas of said member for increased heating of said member and conduction of the increased heat thereby absorbed by said member to said external surface areas of said member in contact with said second gas for transfer to the latter, and a second, remaining portion, which is carried by and discharged from said dividing and deflecting means along a path spaced from said interior surface areas of said member and generally parallel to the direction of said normal flow of said first gas through said member,

said dividing and deflecting means including sleeve means for defining an inner conduit open at its upstream extremity for receiving said flow of said first gas, said sleeve means including wall means spaced from said interior surface areas of said member and provided with a plurality of apertures therethrough for defining an outer conduit in partial lateral communication with said inner conduit and disposed between said wall means and said interior surface areas of said member for receiving said first portion of said first gas through said apertures and laterally confining the same, said outer conduit being open at its downstream extremity for discharging said first portion of said first gas along a path adjacent to said interior surface areas of said member and generally parallel to the direction of said normal flow of said first gas through said member,

said dividing and deflecting means further including a plurality of deflecting vane means respectively operably associated with said apertures and extending into the interior of said sleeve means for diverting said first portion of said first gas from the flow of the latter entering said sleeve means and directing said first portion of said first gas outwardly through said apertures into said outer conduit and said heat transferring contact with said interior surface areas of said member,

said dividing and deflecting means further including means for restricting without fully blocking gas flow operably associated with said sleeve means adjacent the downstream extremity of the latter for increasing the pressure of said first gas within said inner conduit to increase the flow of said first portion of said first gas through said apertures into said outer conduit and said heat transferring contact with said interior surface areas of said member, while also providing sufficient clearance to gas flow to present said path for said discharge of said second portion of said first gas from the downstream extremity of said inner conduit.

5. In apparatus for transferring heat from flowing, heated, flue gas containing noxious products of combustion to cooler air to be heated and breathed, wherein said products of combustion are to be kept isolated from intermixing with said air:

a heat conductive, tubular member having an external surface in contact with said air, an internal surface, an inlet extremity for receiving a flow of said flow gas, and an outlet extremity for discharging said flow of said flue gas away from said air; and

a hollow, heat conductive, baffle structure mounted within said member and having a closed, upstream extremity facing said inlet extremity of said member, an open, downstream extremity facing said outlet extremity of said member and in communication with the latter, and a side wall having exterior and interior surfaces and provided with a plurality of openings therethrough,

said internal surface of said member being in the path of and directly contacted by a portion of said flow of said flue gas and constituting means for absorbing heat from the latter and conducting same to said external surface of said member for transfer to said air,

said exterior surface of said side wall being in the path of and directly contacted by a portion of said flow of said flue gas and constituting means for absorbing heat from the latter,

said internal surface of said member being in adjacent proximity to said exterior surface of said side wall and constituting means for receiving and absorbing heat radiating from said side wall and conducting the same to said external surface of said member for transfer to said air,

said exterior surface of said side wall being tapered outwardly toward said internal surface of said member as said downstream extremity of said structure is approached and constituting means for increasing the pressure of those portions of said flue gas in contact with said internal surface of said member and said exterior surface of said side wall and for deflecting an increased portion of said flow of said flue gas into direct contact with said internal surface of said member for increased absorption of heat by the latter and conduction of same to said external surface of said member for transfer to said air,

said side wall of said structure adjacent said downstream extremity thereof being in direct engagement with said internal surface of said member and constituting means for conducting further heat from said structure to said member through the zone of said direct engagement therebetween for conduction of same to said external surface of said member for transfer to said air,

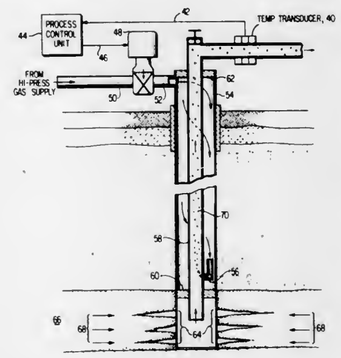
said openings of said side wall permitting ultimate passage of said flow of said flue gas into the interior of said structure and into direct contact with said interior surface of said side wall and constituting means for causing the absorption of further heat by the latter for transfer to said member by said radiation and said conduction for conduction of same to said external surface of said member for transfer to said air.

4,267,885

METHOD AND APPARATUS FOR OPTIMIZING PRODUCTION IN A CONTINUOUS OR INTERMITTENT GAS-LIFT WELL

Dorsey W. Sanderford, Lake Charles, La., assignor to Cybar, Inc., Calcasieu Parish, La.

Filed Aug. 1, 1979, Ser. No. 62,798
Int. Cl.[3] E21B *43/12*
U.S. Cl. 166—250 **16 Claims**



9. A method of improving the production of an oil well, comprising the steps of:

injecting a pressurized gas into the production tubing by the gas-lift technique; and

controlling the rate of injection of the gas based upon a predetermined relationship between the rate of injecting the gas and the monitored temperature of the liquid produced at the wellhead.

12. Apparatus for improving the production of an oil well, comprising:

injecting means for injecting a pressurized gas into the production tubing by the gas-lift technique; and

controlling means for controlling the rate of injection of the gas based upon a predetermined relationship between the rate of injecting the gas and the monitored temperature of the liquid produced at the wellhead.

4,267,886

LIGNOSULFONATES CARBOXYLATED WITH CHLOROACETIC ACID AS ADDITIVES IN OIL RECOVERY PROCESSES INVOLVING CHEMICAL RECOVERY AGENTS

George Kalfoglou, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 900,692, Apr. 27, 1978, Pat. No. 4,172,497, Ser. No. 745,495, Nov. 26, 1976, abandoned, Ser. No. 715,957, Aug. 19, 1976, abandoned, Ser. No. 591,573, Jun. 30, 1975, abandoned, and Ser. No. 591,574, Jun. 30, 1975, Pat. No. 4,006,779. This application Jul. 5, 1979, Ser. No. 54,774
The portion of the term of this patent subsequent to Oct. 30, 1996, has been disclaimed.
Int. Cl.[3] E21B *43/22*
U.S. Cl. 166—273 **4 Claims**

1. A method for recovering oil from a subterranean formation containing oil and having an injection well and a production well wherein aqueous solutions of surfactant and polymer are injected into the subterranean formation wherein the polymer increases the viscosity of the solution comprising:

(a) injecting through the injection well into the formation an aqueous solution of lignosulfonates carboxylated with chloroacetic acid whereby said chloroacetic acid reacts with phenolic, hydroxyl and sulfonate groups in said lignosulfonate to yield carboxylate groups,

(b) then injecting into the formation via the injection well an aqueous surfactant solution also containing lignosulfonates said lignosulfonates carboxylated with chloroacetic acid of steps (a) and (b) being present in amounts effective for reducing the extent of adsorption of surfactant and polymer by the formation matrix,

(c) subsequently injecting into the formation via the injection well an aqueous solution of polymer wherein the polymer increases the viscosity of the solution and

(d) producing oil from the formation via the production well.

4,267,887

METHOD FOR ACIDIZING HIGH TEMPERATURE SUBTERRANEAN FORMATIONS

David J. Watanabe, Orange, Calif., assignor to Union Oil Company of California, Brea, Calif.

Continuation-in-part of Ser. No. 14,054, Feb. 22, 1979, Pat. No. 4,203,492, which is a continuation-in-part of Ser. No. 885,450, Mar. 10, 1978, Pat. No. 4,148,360. This application Mar. 24, 1980, Ser. No. 133,275
Int. Cl.[3] E21B *43/26, 43/27*
U.S. Cl. 166—300 **18 Claims**

1. A method for acidizing a subterranean formation having a temperature above about 250° F., which comprises:

(a) introducing a substantially anhydrous foamed treating fluid through a well into said formation, said treating fluid consisting essentially of (1) a gas, (2) a nonionic substantially hydrophobic foaming agent and (3) one or more normally liquid acid precursors having a generalized formula:

$$C_xH_yX_z$$

wherein X represents one or more halogens;
$x=1$ or 2;
$y=0$, 1 or 2, but $y \leqq x$; and
$z=2x-y+2$,
and which is thermally stable under the temperature and pressure conditions to which it is exposed prior to hydrolysis; and

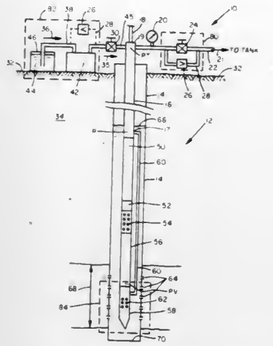
(b) allowing said acid precursor to hydrolyze in situ to generate a hydrohalic acid which reacts to increase the permeability of said formation.

4,267,888

METHOD AND APPARATUS FOR POSITIONING A TREATING LIQUID AT THE BOTTOM OF A WELL

Mortimer Singer, 2320 Plaza del Grande, Las Vegas, Nebr. 89102

Filed Nov. 15, 1979, Ser. No. 94,381
Int. Cl.³ E21B *37/00*
U.S. Cl. 166—312 **11 Claims**



10. In an oil well having at least a string of tubing, a standing valve, a sucker rod pump, and a string of sucker rods;

an opening in said tubing above said sucker rod pump, said opening connected to an overpressure valve positioned below the intake of said sucker rod pump, said over-pressure valve set to open at a selected fluid pressure PV = P + P1 on its inlet; where P is the normal hydrostatic pressure in the tubing at said opening, and P1 is a selected small value of pressure;

the method of positioning a selected first volume of a selected first liquid in the bottom of said well without disturbing said pump, rods, tubing or standing valve, comprising the steps of;

(a) with said sucker rods not pumping, closing off the top end of said tubing string;

(b) injecting at least said selected first volume of a selected first liquid into the top of said tubing string, at a selected pressure P2 above atmospheric pressure, where P2 > P1, and where the sum of P2 plus P the normal pressure head of liquid in said opening is greater than PV = P + P1;

whereby said first overpressure valve will open and discharge an equal volume of liquid through said opening.

4,267,889

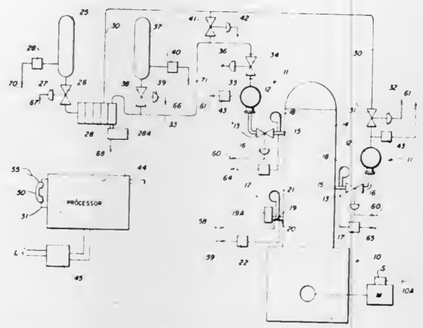
EXPLOSION SUPPRESSION SYSTEM FOR FIRE OR EXPLOSION SUSCEPTIBLE ENCLOSURE

Robert M. Williams, 16 La Hacienda, Ladue, Mo. 63124

Continuation-in-part of Ser. No. 973,679, Dec. 27, 1978, abandoned. This application Apr. 26, 1979, Ser. No. 33,433
Int. Cl.³ A62C *37/18*
U.S. Cl. 169—61 **19 Claims**

1. A fire and explosion suppression system for protecting an enclosure against destructive forces comprising: sensor means for sensing the initiation of a condition in the enclosure which if unchecked can cause destruction to the enclosure; a container for a fire and explosion suppression agent; a connection between said container and the enclosure including a valve normally closed and operable to release the entire charge of the agent in said container into the enclosure; processor means interconnecting said sensor means and said normally closed valve for opening said valve upon said sensor means sensing a condition associated with the advent of destructive forces that can cause destruction to the enclosure, the opening of said normally closed valve releasing the entire charge of agent to the enclosure through said connection; a source of suppression agent; means connecting said source of suppression agent to said container; a source of pressurizing medium; means connecting said source of pressurizing medium to said container for pressurizing said agent therein; operating connections between said sources of agent and medium and said processor means for effecting selectively the initial charging and the recharging of agent into said container and admitting medium for repressurizing the agent therein; and means for examining said processor means for determining the functional condition of the system.

16. A method of examining the functionality of a plurality of agencies associated with a protection system for a closed space in which fire and the pressure rise associated with an explosion may occur by reason of a flame front raising the pressure



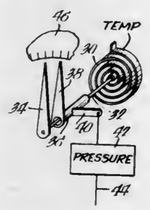
within the closed space, said method comprising: continuously monitoring the closed space for the existence of a destructive condition; sensing the conditions in the closed space; completely releasing to the closed space a pressurized suppression agent at high speed to effect the protection of the closed space; recording the event of the release of the suppresion agent in a processor having circuit connections with the plurality of agencies; located at a distance from the processor to monitor the events recorded in the processor; and operating the processor to respond to an examination of its recorded events, to effect a system check and to recharge the pressurized suppression agent and restore the functionality of the plurality of the agencies following a release of the suppression agent.

4,267,890

FIRE EXTINGUISHING SYSTEM INCLUDING SENSOR COMPARABLE TO DETERMINE CHARGE

Jimmy D. Myers, Morton, and Lawrence F. Fratzke, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 8,982, Feb. 5, 1979, abandoned. This application May 12, 1980, Ser. No. 149,193
Int. Cl.³ A62C *23/08*
U.S. Cl. 169—75 **7 Claims**



1. In a fire extinguishing system including a pressure vessel (**10**) adapted to contain under pressure a fire extinguishing material, means (**12,14,16**) connected to said vessel and selectively operable to release the pressurized fire extinguishing material therefrom, a pressure sensing device (**42**) in fluid communication with the interior of said vessel and having a visual indicator (**38**) and a temperature sensing device (**30**) mounted in fixed association with said vessel for determining the temperatures in the environment of said vessel and having a visual indicator (**34**), the improvement comprising

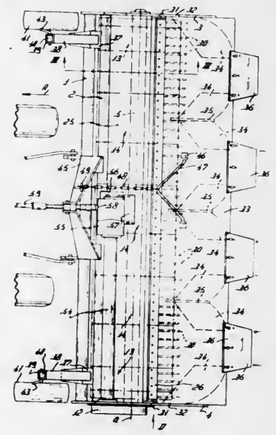
the provision of a single scale (**46**) associated with said visual indicators providing a visual comparison of the two visual indicators to indicate whether the system is properly charged over a wide range of ambient temperatures, said first indicator indicating the pressure sensed by said pressure sensing device and said second indicator indicating the temperature sensed by said temperature sensing device, said visual indicators comprising needles mounted for rotation about a single axis.

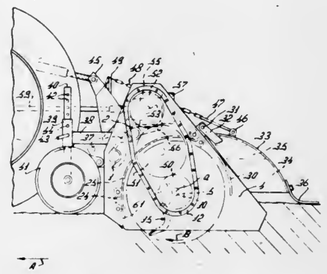
4,267,891

SOIL CULTIVATING MACHINES

Ary van der Lely, Maasland, and Cornelis J. G. Bom, Rozenburg, both of Netherlands, assignors to C. van der Lely N.V., Maasland, Netherlands

Filed May 31, 1977, Ser. No. 801,626
Claims priority, application Netherlands, Feb. 28, 1977, 7702108
Int. Cl.³ A01B *17/00, 49/04*
U.S. Cl. 172—28 **7 Claims**





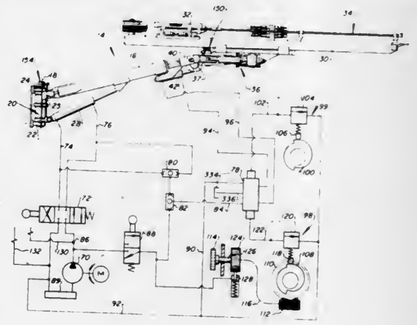
1. A soil cultivating machine comprising a frame and a plurality of soil working members being mounted on elongated support means on said frame, said support means being rotatable about a horizontal transverse axis and driving means engaging said support means, said soil working members being arranged in spaced apart groups along the length of said support means and crop strikers being positioned on said support means between successive groups of soil working members, spaced apart convergent pairs of guide members being located rearwardly of said groups of soil working members with respect to the normal direction of machine travel and openings being formed between said pairs, said crop strikers being located in front of the openings between the pairs of guide members and said guide members being positioned to engage crop displaced by said crop strikers and soil working members to deposit same in swathes, said support means being an elongated substantially horizontal support which, together with said working members is partially surrounded by a screening hood, the leading edge of said hood being located below the longitudinal axis of said support, said leading edge having opposite ends with screening plates and said screening plates having obliquely upwardly and inwardly inclined inner edges.

4,267,892

POSITIONING CONTROL SYSTEM FOR ROCK DRILL SUPPORT APPARATUS

James R. Mayer, Englewood, Colo., assignor to Cooper Industries, Inc., Houston, Tex.

Filed Apr. 30, 1979, Ser. No. 34,211
Int. Cl.³ E21C *1/00;* **F15B** *15/00*
U.S. Cl. 173—43 **5 Claims**



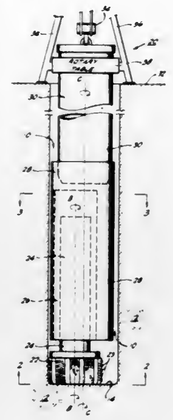
1. In a rock drill apparatus a drill boom mounted on a boom support for pivotal movement about a first pivot axis, an elongated drill feed bar mounted on said boom for pivotal movement with respect to said boom about-a second pivot axis, a rock drill mounted on said feed bar and adapted to actuate an elongated drill stem, a first boom actuator for moving said boom pivotally about said first axis, a first feedbar actuator for effecting pivotal movement of said feed bar about said second axis, said first boom actuator and said first feed bar actuator being pressure fluid operated, a pressure fluid control circuit including a source of pressure fluid, valve means operable at will to cause said first boom actuator to move said boom about said first axis, a control valve for supplying pressure fluid to said first feed bar actuator, means including a first sensing device comprising a cam and a cam follower which are relatively moveable in response to pivotal movement of said boom to cause said control valve to effect a predetermined amount of pivotal movement of said feed bar about said second axis in response to movement of said boom about said first axis, and means for producing relative movement between said cam and said cam follower to cause said control valve to effect pivotal movement of said feed bar about said second axis independent of movement of said boom about said first axis said means for producing relative movement between said cam and said cam follower includes a gear connected to said cam and adapted to rotate said cam with respect to said cam follower, and gear operating means for rotating for said gear and said cam at will to effect pivotal movement of said feed bar by the operation of said control valve.

4,267,893

DUAL-ROTATING ECCENTRIC DRILLING APPARATUS AND METHOD

Alfred T. Mannon, Jr., Santa Maria, Calif., assignor to Union Oil Company of California, Brea, Calif.

Filed Aug. 27, 1979, Ser. No. 69,797
Int. Cl.³ E21B *4/02*
U.S. Cl. 175—65 **19 Claims**



1. An apparatus for drilling a borehole, which comprises:

a single drill bit adapted for rotation about a first axis of rotation substantially parallel to the axis of said borehole, said drill bit having a diameter of between about 0.55 and about 0.90 times the diameter of said borehole;

downhole motor means operably connected to said drill bit for rotating said drill bit about said first axis of rotation;

a drill string connected to said motor means and adapted to suspend said motor means and said drill bit in said borehole, said drill string being rotatable about a second axis of rotation substantially parallel to said first axis of rotation and spaced from said first axis of rotation by a distance of about 0.5 times the difference between the diameter of said borehole and the diameter of said drill bit; and

rotary means for rotating said drill string about said second axis of rotation and thereby rotate said drill bit in a planetary motion about said second axis of rotation.

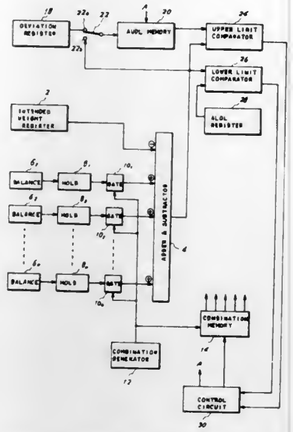
4,267,894

COMBINATION WEIGHING DEVICE

Takashi Hirano, Kobe, and Takashi Aga, Akashi, both of Japan, assignors to Yamato Scale Company, Limited, Hyogo, Japan

Filed Dec. 12, 1979, Ser. No. 102,660
Claims priority, application Japan, Dec. 12, 1978, 53-171151[U]
Int. Cl.³ G01G *19/62*
U.S. Cl. 177—25 **2 Claims**

1. A combination weighing device comprising an intended weight register for storing a predetermined intended value of weight, a plurality of weighing balances for weighing a plurality of articles to be weighed, respectively, and producing weight outputs representative of the respective measured weights, an arithmetic unit for receiving said weight outputs and the content of said intended weight register to produce a deviation output representative of the difference between the sum of said measured weights and said intended weight, a plurality of normally-open switches inserted respectively between said weighing balances and said arithmetic unit, each of said switches having a control input, switch control means coupled to said control inputs of said swithces for selectively closing said switches in accordance with a plurality of predetermined combinations, a deviation memory for storing an allowable deviation with reference to said intended weight, a comparator for comparing said deviation output from said arithmetic unit with the content of said deviation memory and producing an output when said deviation output is within said allowable deviation, means for updating the content of said



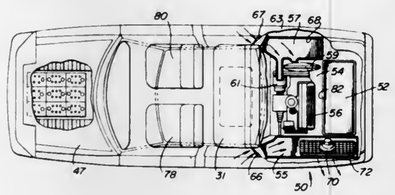
deviation memory with the deviation output of said arithmetic unit in response to the output of said comparator, and means for storing the output of said switch control means at the time when said comparator produces said output.

4,267,895

AUTOMOTIVE BODY FRAME FOR A COMBINED ENGINE AND BATTERY OPERATED VEHICLE

Walter S. Eggert, Jr., Huntington Valley, Pa., assignor to The Budd Company, Troy, Mich.

Filed May 10, 1979, Ser. No. 37,693
Int. Cl.³ B60K *11/04, 7/00*
U.S. Cl. 180—54 A **6 Claims**



1. A body frame structure for a rear engine automotive vehicle comprising:

(a) means providing a passenger compartment for front and rear seats,

(b) a front structure providing a front compartment disposed forwardly of said passenger compartment,

(c) a rear structure providing a rear compartment disposed rearwardly of said passenger compartment having a first area adjacent said passenger compartment, a second area behind said first area, and a substantially vertical wall structure therein for separating said areas;

(d) said rear structure comprising a pair of side quarter panels providing side walls for said rear compartment and having rear wheel housings therein for accommodating rear wheels of said vehicle, vent openings extending outwardly from each of said quarter panels for receiving outside air, and ventilation plenums extending from each of said vent openings, disposed and extending along opposite sides of the area for receiving said engine;

(e) said rear wheel housings being disposed rearwardly away from said rear seat in said passenger compartment beneath said rear compartment, and

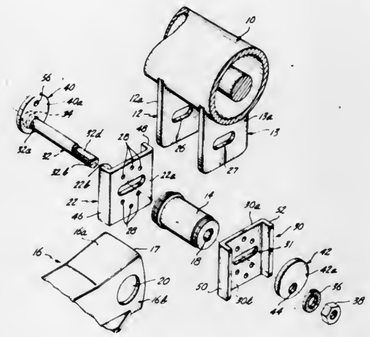
(f) means provided in said first area for receiving said rear engine in substantial transverse alignment between said rear wheel housings, and said second area adapted to provide storage space for luggage.

4,267,896

METHOD AND APPARATUS FOR ALIGNING AUTOMOBILE SUSPENSION MEMBERS

Errol C. Hendriksen, 29200 45th Ave. South, Auburn, Wash. 98002

Filed Feb. 4, 1980, Ser. No. 118,556
Int. Cl.³ B60G *9/00*
U.S. Cl. 180—73 R **7 Claims**



1. In a suspension system for an automobile having a frame member and a rear axle housing, said frame member being suspended on said rear axle housing by a coil spring and having at least one lower control arm interposed between said frame member and said rear axle housing, a first end of said lower control arm being pivotally attached to said rear axle housing and a second end of said lower control arm being pivotally attached to said frame member, the improvement comprising a linearly adjustable connection for attaching said lower control arm to said rear axle housing, said improved linearly adjustable connection comprising:

a cam plate affixed to said rear axle housing, said cam plate lying in a substantially vertical plane substantially orthogonal to said rear axle housing and having an elongate slot formed therein, the elongate dimension of said slot being substantially parallel to the fore/aft axis of said automobile, said cam plate further including a pair of elongate flanges extending orthogonally from a first surface of said cam plate in substantially parallel spaced relation, the elongate dimension of said flanges being orthogonal to the elongate dimension of said slot, said slot being interposed between said flanges;

a mounting pin positioned within said slot and within a mounting hole formed in said first end of said lower control arm;

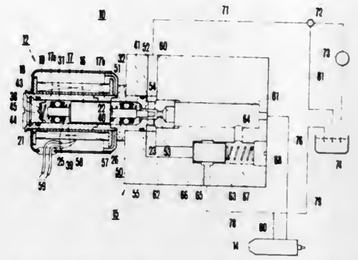
a circular planar cam member eccentrically mounted on said pin orthogonal to the elongate dimension of said pin, a first surface of said cam member abutting said first surface of said cam plate, said cam member being positioned between said flanges, said cam member being mounted on said pin in such a manner that the pin and cam member rotate in unison with one another, said cam member, pin and cam plate cooperating such that planar rotation of said cam member causes a linear movement of said pin within said slot to change the spatial relation between said first end of said lower control arm and said rear axle housing.

4,267,897

ELECTRO-MECHANICAL CONVERTERS AND CONTROL APPARATUS FOR POWER STEERING UNITS UTILIZING THE SAME

Sadao Takeshima, Higashimatsuyama, Japan, assignor to Jidosha Kiki Co. Ltd., Tokyo, Japan

Filed Feb. 21, 1979, Ser. No. 13,717
Claims priority, application Japan, Feb. 20, 1978, 53/19639[U]; Feb. 20, 1978, 53/19640[U]
Int. Cl.³ B62D *5/08*
U.S. Cl. 180—143 **5 Claims**



1. In control apparatus for a power steering unit of a motor car of the type wherein a plunger contained in a cylinder having an inner diameter is moved in the axial direction thereof in accordance with the magnitude of a speed signal of the motor car, said speed signal being passed through a solenoid coil wound about said cylinder, and the amount or pressure of operating fluid supplied to said power steering unit is controlled by a control valve operated by said plunger, the improvement wherein the outer diameter of said plunger is less than said inner diameter such that said plunger can move freely within said cylinder without causing undue sliding friction therebetween, said plunger including a pair of substantially coaxial guide rod portions having an outer diameter less than said outer diameter of said plunger located at opposite ends thereof to minimize transaxial rotation of said plunger, and further including a pair of bearing members each associated to a different one of said pair of guide rod portions, each said bearing member comprising a plurality of rotatable bearing elements arranged for rolling movement between the associated one of said guide roll portions and said inner diameter of said cylinder, keeper means having an aperture arranged about said associated guide rod portion for translational movement therealong and having a plurality of bearing element apertures for receiving said bearing elements, and spring bias means for applying a first biasing force between the adjacent end of said plunger and said keeper means and a second biasing force between said keeper means and the adjacent end of said cylinder for reducing linear motion of said bearing elements along the axis of said cylinder in response to plunger movement therealong by a predetermined amount, said plunger being supported in said cylinder by said rotatable bearing elements.

4,267,898

MOTORIZED BICYCLE CONVERSION APPARATUS

George B. Wheaton, 147 Long Dr., SW., Marietta, Ga. 30060

Filed Dec. 10, 1979, Ser. No. 101,418
Int. Cl.³ B62M *7/08*
U.S. Cl. 180—205 **2 Claims**

1. Motorized propelling apparatus for attaching a motive means to the frame structure of a bicycle, said apparatus comprising in combination:

a frame assembly configured to fit above the conventional rear wheel of a bicycle;

said frame assembly comprising a rear portion to receive and support said motive means above the bicycle rear wheel, and a forward portion extending forwardly from said rear portion to be disposed in proximity to bicycle frame struc-

ture extending downwardly and rearwardly from beneath the bicycle seat to the rear wheel attachment of the bicycle frame;

attachment means operatively associated with said forward portion of said frame assembly to securely engage the bicycle frame, thereby securing said frame assembly in position above the bicycle rear wheel;

motive means mounted on said frame assembly in position substantially above the axis of rotation of the rear wheel;

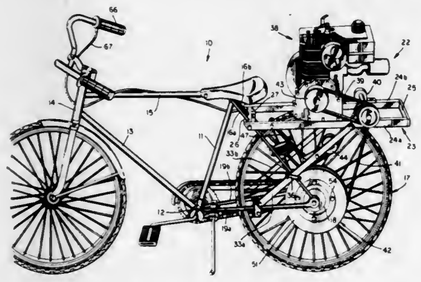
side brace means securely engaging the bicycle frame structure extending horizontally rearwardly from the bicycle crank housing to the rear wheel attachment;

said side brace means comprising a pair of strut members connected to said frame assembly rearwardly of said motive means and extending downwardly and forwardly therefrom to a lower end for securement in proximate location with the bicycle frame horizontal structure extending forwardly from the rear wheel toward the crank housing of the bicycle, so that the weight of said frame assembly and said motive means is vertically supported by said strut members and transmitted to the horizontal frame structure of the bicycle between said rear wheel and said crank assembly; and

drive means operatively interconnecting said motive means and said rear wheel;

said drive means comprising pulley means attached to the rear wheel of the bicycle;

said pulley means comprising a driven member operatively



connected to said motive means and positioned on the outside of the rear wheel spokes;

means disposed within said spokes and operatively engaging the hub of the rear wheel;

means extending between said wheel spokes to operatively interconnect said drive means and said hub engaging means, so that the rear wheel is rotated in response to rotation of said driven member by said motive means;

said hub engaging means being diametrically split to define a pair of clamp members each having a smooth arcuate hub engaging surface configured to provide a complementary fit on the circumference of said hub of the bicycle rear wheel;

connecting means engaging each of said clamp member to draw said hub engaging surfaces into frictional engagement against the circumference of the hub;

said means extending between the wheel spokes to interconnect the drive means and the hub engaging means comprising a plurality of bolts engaging said clamp members and extending between the spokes of the bicycle rear wheel to engage said driven member; and

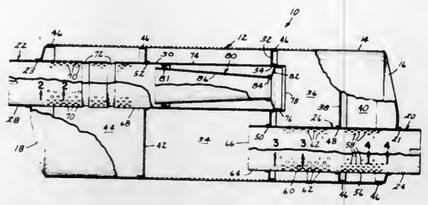
means protruding between said driven member and said clamp members, and also extending between said rear wheel spokes, to limit the extent to which the clamp members and driven means can be drawn together, so as to prevent damage to the spokes and the hub of the rear wheel as the clamp members and the driven member are drawn into mutual engagement by said fasteners and said bolts.

4,267,899

MUFFLER ASSEMBLY

Wayne M. Wagner, Apple Valley, and David E. Winnes, Bloomington, both of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Filed Aug. 31, 1979, Ser. No. 71,542
Int. Cl.³ F01N *1/08*
U.S. Cl. 181—272 **14 Claims**



1. A muffler for reducing the noise level of gases passing therethrough comprising:

a housing defining an interior space and having an inlet and an outlet;

an inlet conduit in fluid communication with said inlet and extending a distance within said interior space for guiding gases to the muffler;

an outlet conduit in fluid communication with said outlet and extending a distance within said interior space for guiding gases out of the muffler;

partition means for dividing said interior space into a plurality of chambers including a resonator chamber, a flow chamber, and a broad band attenuation chamber;

said inlet conduit having an open end disposed within said resonator chamber and a plurality of flow holes through it for providing fluid communication between said inlet and said flow chamber;

said outlet conduit having an open end disposed within said flow chamber for guiding gas from said flow chamber to said outlet; and

one of said inlet and outlet conduits passing through said attenuation chamber and having a field of attenuation holes through it for providing fluid continuity to said attentuation chamber so that broad band sound attenuation can occur therein.

4,267,900

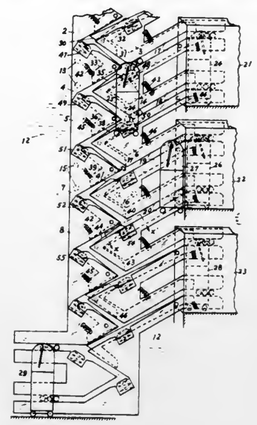
EMERGENCY ESCAPE SYSTEM

Yang Yin-Lung, P.O. Box 865, Kaohsiung,Taiwan

Filed Jul. 24, 1979, Ser. No. 60,134
Int. Cl.³ A62B *1/02, 3/00*
U.S. Cl. 182—13 **3 Claims**

1. A loader car for emergency escape used with a vertical zigzag track for multistory building comprising two parallel axles perpendicularly and firmly fixed at the upper and the lower end back side of the car in a same distance between said axles as the distance between any two similar points of the track for supporting and traveling the car with two axles on the track simultaneously, the track is formed by a plurality of special contour structures, each structure having three plies of plate mounted in parallel relationship adjacent to outside wall of the building and having a plurality of parallel branch tracks extending laterally and slightly upwardly from the vertical track to an exit tunnel at each floor of the building, means

provided between the parallel plates of the track for automatic sequence control of the traveling cars, a spring damper located



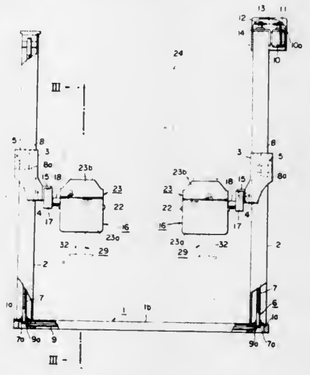
at each turning point of the track for dampening the speed of the traveling car.

4,267,901

DUAL TYPE FREE-WHEEL/DRIVE-ON VEHICLE LIFT

Tozaburo Tsujimura, Fujinomiya, Japan, assignor to Yasui Sangyo Co., Ltd., Fujinomiya, Japan

Filed Mar. 8, 1979, Ser. No. 18,071
Claims priority, application Japan, Oct. 4, 1978, 53-122348
Int. Cl.³ B66F *7/00*
U.S. Cl. 187—8.54 **5 Claims**



1. A vehicle lift comprising:

(a) a pair of support pillars;

(b) a carriage which moves up and down relative to each of the support pillars;

(c) a supporting ramp, adapted to support a vehicle by its tires, said supporting ramp being coupled to each of the carriages; and

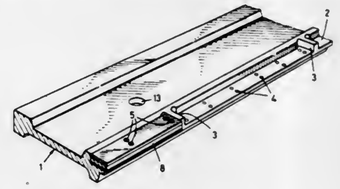
(d) an underbody support coupled to each supporting ramp comprising an underbody contact member and a plurality of supporting legs pivoted to the underside of the underbody contact member which extend through holes in the support ramp in such a manner that when extended they project vertically downward and when folded they are substantially horizontal, said supporting legs being adapted to be held in the horizontal position by removable pins when folded, at least one of the support ramps being coupled to the respective carriage in a manner to be adjustably moved transversely so as to adapt its distance from the other support ramp to the width of various vehicles, whereby the supporting legs when unfolded support the underbody of the vehicle when the supporting ramps are lowered and the free ends of the supporting legs contact the ground, and continued lowering of the supporting ramps permits separation of the supporting ramps from the vehicle and thereby results in the vehicle being solely supported by the supporting legs.

4,267,902

RAILWAY CAR RETARDER

Hans-Rudolf Schüpbach, Rosshäusern, and Eric J. Rathe, Russikon, both of Switzerland, assignors to Schweizerische Bundesbahnen (Bauabteilung der Generaldirektion), Bern, Switzerland

Filed Oct. 5, 1979, Ser. No. 82,028
Claims priority, application Switzerland, Nov. 16, 1978, 11793/78
Int. Cl.³ B61K *7/04*
U.S. Cl. 188—62 **3 Claims**



1. A railway car retarder comprising:

two elongated brake beams for location on opposite sides of a track rail and running parallel with the rail,

the longitudinal side of each beam facing the rail having a longitudinal recess therein with a substantially horizontal bottom wall and vertical rear wall, the bottom wall of the recess being broader than the height of the rear wall of the recess,

the recess of each beam having a plurality of longitudinally spaced web ribs extending upwardly from the bottom wall of the recess and running transversely to the longitudinally axis of said recess to divide the recess into a plurality of adjacent compartments,

a braking shoe for each beam formed by a plurality of segments, each said segment fitting within a respective compartment of said recess and resting against the bottom and rear walls thereof with the web ribs at the ends of said compartments forming longitudinal support for said segments, a lateral surface of the segments of each brake shoe extending inwardly of the beam toward the rail such that a braking groove is formed between the brake shoes to engage the wheels of a rail car passing in the groove,

and means passing through said segments and extending perpendicular to the bottom wall of said recess for removably fastening each segment in a respective compartment.

4,267,903

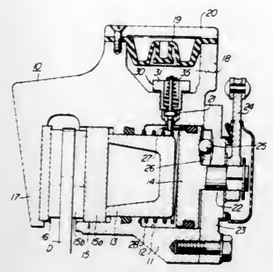
DISK BRAKE APPARATUS FOR MOTOR VEHICLE

Yasuo Kita, and Yukinori Nishiyama, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jan. 3, 1979, Ser. No. 743
Claims priority, application Japan, Jan. 19, 1978, 53-4848
Int. Cl.³ F16D *55/26*
U.S. Cl. 188—72.6 **7 Claims**

1. A hydraulically operated disk brake apparatus for motor vehicles comprising a brake disk, a caliper-like brake housing having a pair of caliper arms and disposed to straddle over said brake disk, a pair of brake pad assemblies disposed in said

caliper housing in opposition to each other with said brake disk being interposed therebetween, said brake pad assemblies being movable toward and from said brake disk, a cylinder chamber formed in one of said caliper arms and filled with a hydraulic medium, a first piston member disposed slidably in said cylinder chamber adjacent to an associated one of said brake pad assemblies, a second piston member disposed slidably in said cylinder chamber with a space from said first piston member, means for sliding said second piston member toward said first piston member upon application of said brake



while simultaneously rotating said second piston member, thereby to produce a hydraulic pressure within said cylinder chamber under which said first piston member and said associated brake pad assembly are caused to more toward said brake disk; a reservoir for containing hydraulic medium; and means actuated by rotation of said second piston member for permitting flow of medium from said reservoir into said cylinder chamber when said second piston member is in its rest state, whereby compensation for wear of said brake pad assemblies is automatically achieved.

4,267,904

SPOT-TYPE DISC BRAKE

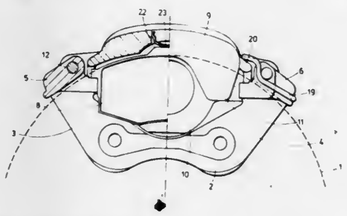
Juan Belart, Walldorf, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Mar. 19, 1979, Ser. No. 21,746

Claims priority, application Fed. Rep. of Germany, Apr. 17, 1978, 2816559

Int. Cl.³ F16D *65/02*

U.S. Cl. 188—73.3 **27 Claims**



1. A spot-type disc brake comprising:
- a brake support member straddling a brake disc having a central opening in which a pair of brake shoes are disposed, each of said pair of brake shoes being disposed on a different side of said disc and being guided on guide surfaces present in said support member;
- a brake caliper disposed in said central opening embracing said disc and said pair of brake shoes from the outside, said caliper carrying a brake-actuating device on one side of said disc in direct actuating relationship with one of said pair of brake shoes; and
- a sliding guide arrangement to connect said caliper to said support member including
  - a first closed end bore in one of said caliper and said support member, a first retaining pin parallel to the axis of rotation of said disc fastened to the other of said caliper and said support member and slidably received in said first bore, said first retaining pin having a spherical sliding surface in engagement with an associated first portion of a cylindrical inner surface of said first bore to provide a first bearing surface to support said caliper at a first point, said first retaining pin enabling relative movement between said caliper and said support member in all operating states of said brake for continuous alignment of said caliper with said pair of brake shoes,
  - a resilient arrangement to clamp said caliper to said support member, and
  - two additional spaced bearing surfaces disposed on one of said support member and said pair of brake shoes to support said caliper at second and third points.

4,267,905

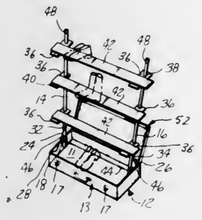
PORTABLE DISPLAY RACK AND SAMPLE CARRYING CASE

Oscar Stewart, 12073 N. Elms Rd., Clio, Mich. 48420

Filed Sep. 14, 1979, Ser. No. 75,690

Int. Cl.³ A47B *61/06;* **A45C** *9/00;* **B65D** *5/52*

U.S. Cl. 190—13 R **6 Claims**



1. A portable display rack and sample carrying case including a storage compartment and a hinged cover comprising:
- a carrying case comprising a base including a pair of opposed upstanding end walls;
- a pair of spaced apart telescoping tubes storable within the case;
- a pair of tube encircling clamps mounted to the end walls of the storage compartment to slidingly support the tubes;
- a pair of braces extending between the tubes and the end walls;
- a plurality of elongated planar shelf supports including a tube engaging aperture formed in one end to slidingly engages the tubes, the shelf supports being distributed along the extending tubes; and
- a plurality of shelves extending between the shelf supports.

4,267,906

SLIDING CONTACT FOR A TOY TRAIN

Artur Fischer, Weinhalde 34, 7244 Waldachtal 3, Tumlingen, Fed. Rep. of Germany

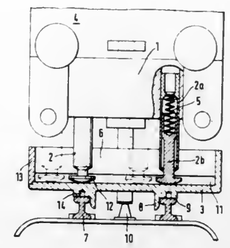
Filed Jan. 25, 1980, Ser. No. 115,294

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1979, 2906309

Int. Cl.³ B60L *5/38*

U.S. Cl. 191—49 **12 Claims**

1. A sliding contact for a toy train, for collecting current from a two-rail track system of a toy railroad, comprising a holding plate; two contact pins mountable on the toy train by said holding plate, each of said contact pins being arranged to be located above one rail of a track system and having an end portion facing toward the same; a sliding bridge engaged with said contact pins so as to allow lateral movement of the latter relative to the former, said sliding bridge being arranged to slide along both rails of the track system and to maintain the electrical connection between the rails and said contact pins;



and means for guiding said sliding bridge during its sliding along the rails.

4,267,907

CLUTCH CONTROL APPARATUS OF AN AUTOMOTIVE POWER TRANSMISSION

Kazuyoshi Hiraiwa, Ome, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 728,966, Oct. 4, 1976, abandoned. This application Nov. 24, 1978, Ser. No. 963,344

Claims priority, application Japan, Oct. 6, 1975, 50-119691

Int. Cl.³ B60K *41/22;* **F16D** *67/00*

U.S. Cl. 192—3.56 **3 Claims**

1. A power transmission system of an engine driven vehicle having a change-gear transmission with an input shaft and an output shaft; a plurality of drive gears of different numbers of teeth freely rotatably mounted on the output shaft and constantly driven from the input shaft; a plurality of synchronizing assemblies mounted on the output shaft for slideable movement thereon, each said synchronizing assembly being slidably engageable with a corresponding drive gear for synchronization between the gear and the output shaft; a driver-operable gear shift lever having a neutral position and a plurality of gear shift positions including at least a first shift position and a second shift position in which the synchronizing assemblies engage corresponding drive gears respectively; a link rod axially reciprocally movable with the gear shift lever for slide movement of the synchronizing assemblies by a predetermined stroke from the neutral position to the first shift position or to the second shift position; an electrically operable clutch to transmit torque of an engine to the transmission; and a clutch control circuit comprising
- an electric actuator providing engagement of said clutch in response to opening of said clutch control circuit,
- a first switch located in the gear shift lever to be closed while the driver is applying a force to move the gear shift lever toward the first shift position,
- a second switch located on the gear shift lever to be closed while the driver is applying a force to move the shift lever toward the second shift position,
- a third, usually closed switch operatively associated with the link rod and connected in parallel with the first and second switches to be opened both when the link rod moves by 60 to 80% of the predetermined stroke from the neutral position to the first shift position and when the link rod moves by 60 to 80% of the predetermined stroke from the neutral position to the second shift position,
- a fourth, usually closed switch operatively associated with the link rod and connected in series with the first switch to be opened when the link rod moves by 60 to 80% of the predetermined stroke from the neutral position to the first shift position, and
- a fifth, usually closed switch operatively associated with the link rod and connected in series with the second switch to be opened when the link rod moves by 60 to 80% of the predetermined stroke from the neutral position to the second shift position.

4,267,908

UNILATERALLY ALTERNATING BACKLASH TORQUE LOCK

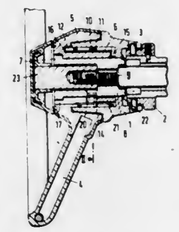
Horst Herold, Aschaffenburg, Fed. Rep. of Germany, assignor to Petri AG, Aschaffenburg, Fed. Rep. of Germany

Filed Mar. 23, 1979, Ser. No. 23,476

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1978, 2813095

Int. Cl.³ F16D *67/02, 49/02*

U.S. Cl. 192—8 C **9 Claims**



1. A unilaterally alternating backlash torque locking mechanism comprising a frame member, a control member having a longitudinally extending tubular portion, a longitudinally extending torque transmission member in rotational engagement about its axis with said control member, a sleeve member fixedly mounted on said frame member and extending radially adjacent said tubular portion of said control member and two loop springs embracing said control element in a loosely sliding arrangement against said sleeve member and extending at their inner and outer ends into recesses in said control member said inner ends abutting adjacent each other in one of said recesses.

4,267,909

UNILATERALLY ALTERNATING BACKLASH TORQUE LOCK

Horst Herold, Aschaffenburg, Fed. Rep. of Germany, assignor to Petri AG, Aschaffenburg, Fed. Rep. of Germany

Filed May 30, 1979, Ser. No. 43,669

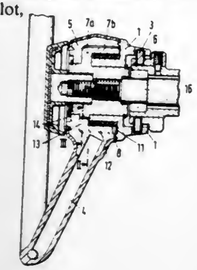
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824947

Int. Cl.³ F16D *67/00*

U.S. Cl. 192—8 C **8 Claims**

1. A unilaterally alternating backlash torque locking mechanism comprising:
- a housing member having a cam protruding inwardly;
- a slotted cylindrical sleeve member having a slotted cylindrical portion and a slotted flange portion to receive said cam with a certain clearance;
- a fixedly mounted inner hub member substantially surrounded by said sleeve member in spaced relationship to form an area between said inner hub and sleeve member;
- a spring wound around said inner hub member in said area and turning radially inward at its end portions to abut

against said housing member, cam and sleeve member in the clearance space formed by the relationship of said cam in said slot,



wherein the cam is in a stepped configuration having a greater circumference in the area of said flange portion of said sleeve and extending at least partially into the area of said clearance space.

4,267,910

CLUTCH DRUM ASSEMBLY FOR AUTOMATIC POWER TRANSMISSION

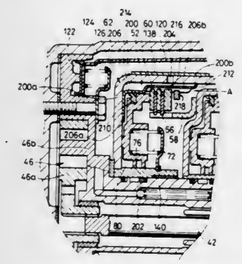
Takahiro Yamamori, Tokyo; Kazuyoshi Iwanaga, and Kunio Ohtsuka, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 30, 1978, Ser. No. 956,131

Claims priority, application Japan, Sep. 18, 1978, 53-114937

Int. Cl.³ F16D *67/02, 13/68, 13/72*

U.S. Cl. 192—17 R **5 Claims**



1. A power transmission having input and output shafts, a clutch drum assembly, a brake band wrapping the clutch drum assembly to brake the same when actuated, first clutch plates splined at their outer peripheral edges to the clutch drum assembly, and second clutch plates splined to a hub member rotatable with the input shaft, with the first and second clutch plates being alternately arranged, said clutch drum assembly comprising:

an outer drum member having an annular base portion and a cylindrical outer wall portion, said outer wall portion having an exterior surface contacted by said brake band, said outer drum member being coaxial with and rotatable about the axis of said input shaft;

an inner drum member having a cylindrical inner wall portion with an annular base portion at one end thereof which is fixed to and in sealing contact with the annular base portion of said outer drum member, said cylindrical inner wall portion being radially spaced from and being concentrically arranged within said cylindrical outer wall portion, said cylindrical inner wall portion being formed with a plurality of axially extending spline portions to which said first clutch plates are splined, the opposite end of said cylindrical inner wall portion being shaped to provide a radially outwardly extending integral lip in sealing contact with said cylindrical outer wall portion, the radial spacing between said cylindrical inner and outer wall portions in combination with the sealing contact between said annular base portions as well as between said lip and said cylindrical outer wall portion cooperating to define a fluid retaining chamber between said inner and outer drum members; and

means for providing a fluid communication between the interior of said inner drum member and said fluid retaining chamber, and between said fluid retaining chamber and the exterior surface of said outer wall portion.

4,267,911

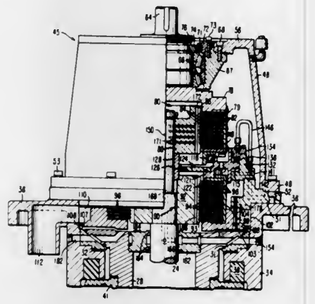
CLUTCH-BRAKE UNIT

Halsey W. Cory, Fairfield, Ohio, assignor to Force Control Industries, Inc., Hamilton, OhioIO

Division of Ser. No. 777,312, Mar. 14, 1977, abandoned. This application May 11, 1978, Ser. No. 904,764

Int. Cl.³ B60K *41/24;* **F16D** *13/74*

U.S. Cl. 192—18 A **4 Claims**



1. In a clutch-brake unit including a housing enclosing an input shaft aligned axially with an output shaft, a clutch assembly including at least one annular clutch plate mounted on said input shaft and disposed adjacent at least one annular clutch disc connected for rotation with said output shaft, a brake assembly including at least one annular brake disc connected to rotate with said output shaft and disposed adjacent at least one annular brake plate connected to said housing, and means for compressing said clutch plate and disc together to effect driving of said output shaft and for compressing said brake plate and disc together to effect braking of said output shaft, the improvement comprising means for directing separate flows of cooling and lubricating fluid within said housing between said clutch disc and plate and between said brake disc and plate, and partition means disposed between said clutch assembly and said brake assembly for substantially maintaining said separate flows of fluid through said clutch and brake assemblies, said means for compressing said clutch and brake discs and plates comprise a non-rotating annular piston and an annular cylinder supporting said piston for axial movement, and said partition means include a non-rotating annular baffle mounted on said piston for axial movement therewith.

4,267,912

SYNCHRONIZING RING

Walter Bauer, Eppelheim; Emilio Fabricius, Heidelberg; Günther Lanzerath, Wieblingen; Helmut Patzer, Nussloch, and Richard Vögele, Aultussheim, all of Fed. Rep. of Germany, assignors to Borg-Warner-Stieber GmbH, Heidelberg, Fed. Rep. of Germany

Filed Oct. 3, 1978, Ser. No. 948,286

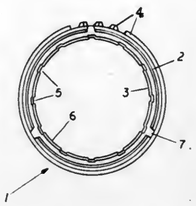
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1977, 2744994

Int. Cl.³ F16D *23/06, 13/66*

U.S. Cl. 192—53 F **14 Claims**

1. A synchronizing ring adapted for gear synchronization in

gear couplings, comprising an annular body of a suitable material and having a conical clutching surface, and a friction lining formed of organic materials joined to the clutch surface of the



body by cementing, depressions formed in the annular body for the reception of said friction lining material, the friction lining having a coefficient of friction of more than 0.10.

4,267,913

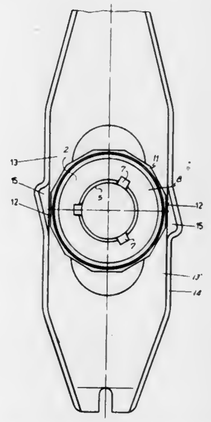
CLUTCH RELEASE DEVICE

Horst M. Ernst, Eltingshausen; Armin Olschewski, Schweinfurt; Rainer Schürger, Schwanfeld; Lothar Walter, Schweinfurt; Manfred Brandenstein, Aschfeld, and Erich Burkl, Stammheim, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Feb. 21, 1978, Ser. No. 879,745

Int. Cl.³ F16D *23/14*

U.S. Cl. 192—98 **15 Claims**



1. In a clutch release system wherein a clutch release bearing has rolling elements arranged between first and second bearing rings, the second bearing ring is shaped to be axially held with respect to the diaphragm spring of the clutch, and a clutch release lever is mounted to directly engage said first bearing ring, the improvement wherein said first bearing ring and said clutch release lever have cooperating first and second holding means respectively positioned to directly engage one another for holding said first bearing ring at a fixed angular displacement with respect to said clutch release lever, with respect to the axis of said bearing.

4,267,914

ANTI-KICKBACK POWER TOOL CONTROL

David A. Saar, Timonium, Md., assignor to Black & Decker Inc., Newark, Del.

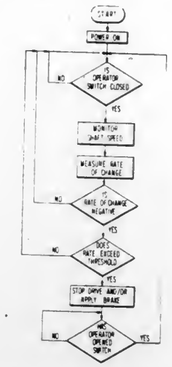
Filed Apr. 26, 1979, Ser. No. 33,661

Int. Cl.³ F16D *43/20, 43/24, 67/02*

U.S. Cl. 192—147 **46 Claims**

1. In a power tool of the type having an implement driven by a motive power source, the improvement of a system for detecting an impending kickback condition in the power tool comprising:

(a) monitoring means for monitoring the speed of a predetermined part of the power tool;



(b) means connected to said monitoring means for determining the rate of change of the monitored speed; and

(c) means for producing a predetermined response when said rate of change attains a determinable value.

4,267,915

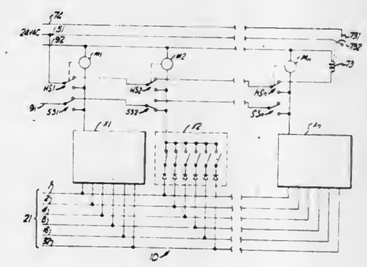
VENDING APPARATUS PRICE INTERFACE

Donald L. McLaughlin, Newtown Square, and Paul J. Beshenich, Norristown, both of Pa., assignors to Mars, Inc., Mc Lean, Va.

Filed Oct. 3, 1978, Ser. No. 948,170

Int. Cl.³ G07F *9/00*

U.S. Cl. 194—1 N **13 Claims**



1. A price interface for use with a multiprice vending machine or the like and a vending machine control circuit in a vending system which comprises

product selection means,

means for producing a price selection signal having a price value corresponding to a selected product which price value may change during the system's vending cycle,

means for comparison of a price value with the value of a vending system user's original credit,

means for vending the selected product, and

means for deducting a price value from the user's original credit,

the price interface comprising

a first register for capturing and storing a first price value which is the price value detected at the beginning of the vending cycle,

means for comparing the first price value with a current price value detected later during the vending cycle, and

means for determining whether the first price value or the current price value is representative of the product actu-

ally vended and transmitting that price value to the means for deducting a price value from the user's original credit.

4,267,916

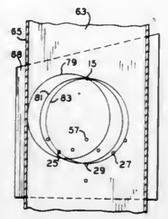
COIN IDENTIFICATION SYSTEM

Charles H. Black, Chicago, and Cary N. Eskow, Morton Grove, both of Ill., assignors to Keene Corporation, New York, N.Y.

Filed Jan. 30, 1979, Ser. No. 7,802

Int. Cl.³ G07F *3/02*

U.S. Cl. 194—102 **20 Claims**



1. The method of determining the denomination-indicative size of each of a sequence of coins comprising the steps of:

moving the coins serially past an array of optical sensors;

determining the conjoint obscuration by a coin of a first sensor and at least one of a plurality of second sensors each at a common distance from the first sensor;

determining the conjoint obscuration by a coin of the first sensor and at least one third sensor at a second distance more remote from the first sensor than the second sensors;

for each such obscuration of the first sensor, identifying the coin denomination according to the maximum conjoint obscuration distance; and

monitoring another sensor intermediate the first sensor and the plurality of second sensors and disregarding a conjoint obscuration determination if the intermediate sensor is not also obscured.

4,267,917

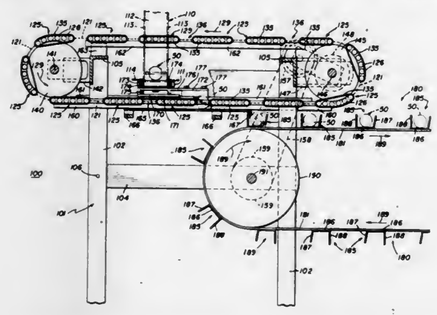
ARTICLE TRANSFER MECHANISM

Walter H. Vogel, Hoffman Estates, Ill., assignor to Redington Inc., Bellwood, Ill.

Continuation of Ser. No. 833,435, Sep. 15, 1977, Pat. No. 4,176,741. This application Jun. 4, 1979, Ser. No. 45,198

Int. Cl.³ B65G *47/26*

U.S. Cl. 198—457 **21 Claims**



1. Article transfer apparatus for changing the direction of movement of articles while maintaining the orientation of the articles, the transfer apparatus comprising an infeed conveyor for conveying articles in a first direction while maintaining the articles in a predetermined orientation, a transfer conveyor comprising a wheel having a plurality of preformed containers thereon open only at the tops and bottoms thereof for receiving articles through the tops from said infeed conveyor in the predetermined orientation, guide mechanisms maintaining said containers oriented in the predetermined orientation during rotation of said wheel about an essentially vertical axis, an article conveyor having a plurality of pockets thereon open at the tops thereof for receiving articles through the tops thereof from said transfer conveyor in the predetermined orientation for conveying the articles in a direction different from that of said infeed conveyor, retainer structure closing the bottom of each of said containers as it arrives in position to receive an article from said infeed conveyor and opening the bottom of each of said containers as it arrives in position to deposit an article into one of said pockets on said article conveyor, whereby said article transfer apparatus transfers articles from said infeed conveyor moving in one direction with the articles in a predetermined orientation and deposits the articles in pockets on said article conveyor moving in another direction while maintaining the articles in the predetermined orientation.

4,267,918

PACKAGING MACHINE

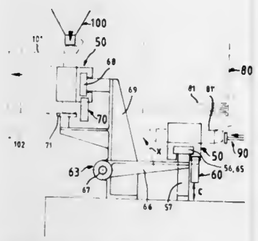
Bernhard Steinbrecher, Südendstr. 54, 7500 Karlsruhe, Fed. Rep. of Germany

Filed May 29, 1979, Ser. No. 43,479

Claims priority, application Fed. Rep. of Germany, May 29, 1978, 2823331

Int. Cl.³ B65G *37/00*

U.S. Cl. 198—472 **3 Claims**



1. In a packaging machine of the type including transport elements adapted to receive articles of a desired shape and nature, said transport elements being movable by endless conveyor means past stationary work stations adapted to act in at least two different directions of work upon the articles, the improvement wherein

(a) said conveying means comprises at least two separate conveying portions each including guiding means for guiding transport elements (**50**) along said conveying portions, the number of said separate conveying portions corresponding to the number of different working directions,

(1) said separate conveying portions being arranged in planes that intersect at an angle corresponding with the angle between the different working directions:

(2) said transport elements and said guide means including cooperating undercut guide slot (**53**) and rail means (**56, 68**) for retaining the elements in a given orientation in each conveying portion;

(b) wherein at the end of each conveying portion turning means (**63, 64**) are provided for transposing the transport elements from the preceding to the following conveying portion, each of said turning means including a rocking lever (**66**) pivotally connected at one end for pivotal displacement about an axis (**67**) parallel with said guide rail means, and a turning plate (**65**) connected with the free end of said rocking lever, said rocking lever being pivotable between first and second transfer positions in which said turning plate is aligned with the guide rail means of

said separate conveying portions, respectively, thereby to transport an element from one guide means to a position opposite one end of the other guide means; and

(c) further wherein each conveying portion includes drive means (**60,70**) for driving the transport elements in common along each conveying portion.

4,267,919

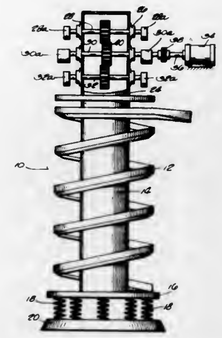
VIBRATING SPIRAL CONVEYOR DRIVE

Preston H. Schrader, Middletown, Ky., assignor to Rexnord Inc., Milwaukee, Wis.

Filed May 21, 1979, Ser. No. 41,167

Int. Cl.³ B65G *27/02*

U.S. Cl. 198—756 **4 Claims**



1. An improved circular conveyor having a base, a plurality of resilient members attached to the base, carrier means supported by said resilient members, and drive means for imparting vibrating motion to said carrier such that the articles carried thereon are imparted a circular motion, said improvement comprising

(a) a plurality of co-planar shafts mounted in a vertical plane rotably associated with said carrier, and positioned transverse to the vertic axis of said circular conveyor with one of said shafts essentially intersecting said vertical axis,

(b) means for driving at least one of said shafts at a predetermined angular speed,

(c) coupling means for coupling said one shaft to the other of said shafts so that all shafts rotate at essentially the same predetermined angular speed, and

(d) a pair of eccentric weights mounted on each shaft, each weight of a pair mounted near an end of its respective shaft, said pairs being angularly displaced with each other such that the vertically directed components of the resultant forces caused by the rotating eccentric weights are in phase when the horizontal components are in phase.

4,267,920

CONVEYOR BELT ROLL

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eussenheim; Lothar Walter, Schweinfurt; Horst M. Ernst, Eltingshausen; Heinrich Kunkel, Schweinfurt; Leonard Halliger, Schweinfurt; Robert Stolz, Schweinfurt, and Rainer Schürger, Schwanfeld, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

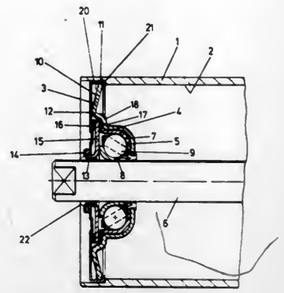
Filed Jun. 28, 1979, Ser. No. 52,796

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 7819856[U]

Int. Cl.³ B65G *39/09*

U.S. Cl. 198—842 **12 Claims**

1. A conveyor belt roll assembly comprising a roll casing, a roll end mounted in at least one end of the roll casing, a rolling bearing including a plurality of rolling elements and at least one bearing ring, a shaft, a ring member connected to the shaft and supporting the rolling elements between said bearing ring and roll end, said roll end and bearing ring being made of sheet metal, said roll end having a radially outwardly directed flange having corrugations extending continuously at its outer edge in a peripheral direction, said ring member axially securing the bearing on the shaft being arranged outside of the bearing, a radially outwardly directed disc mounted on the shaft and



forming a radial sealing slot with the outer axial face of the roll end and a cover plate extending radially inwardly to a point adjacent said ring member for axially securing the bearing on the shaft arranged on the roll end and forming with said disc a radial sealing slot and seal means mounted in the sealing slot between the opposing faces of said cover plate and disc and in the sealing slot between said roll end and said disc.

4,267,921

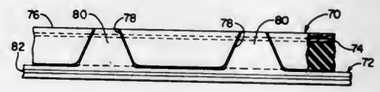
ANTI-BACKBEND BELTS

Ralph W. Kell, Lincoln, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 944,485, Sep. 21, 1978. This application Jan. 28, 1980, Ser. No. 115,829

Int. Cl.³ B65G *15/34, 23/14*

U.S. Cl. 198—847 **5 Claims**



1. Endless flexible belt means for operation between a plurality of pulleys including at least one flexible belt having an elastomeric body and opposite inside and outside face surfaces, the inside surface of any belt of said belt means being directed toward the pulley axes when the belt means are in use, said one belt including a plurality of longitudinally extending high tensile modulus cords embedded in said one belt nearer the inside surface and a layer of substantially incompressible material facing outwardly and forming the outside surface, said incompressible material facing outwardly of said inside face surface, said incompressible material comprising at least 50% of the total outside surface-to-inside surface thickness of said one belt to provide an anti-backbend characteristic to the belt means when it is in its straightened position between said pulleys, said endless flexible belt means further including a conveyor belt including drive lugs on its inside surface and longitudinally extending tensile cords, said conveyor belt operable between a conveyor drive pulley and a take-up pulley, said one belt providing for support of said conveyor in an area between said conveyor drive pulley and take-up pulley, said one belt having a plurality of notches located along at least one lateral edge thereof and extending completely through from the inside surface to the outside surface thereof in a position capable of alignment with the conveyor belt drive lugs so as to be in engagement therewith, said one belt operable between at

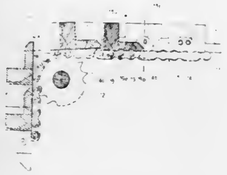
least two pulleys mounted on the inside pathway of said conveyor belt in proximate position between said conveyor drive and take-up pulleys so as to become engaged with said drive lugs on the inside surface of said conveyor belt and to run in drive synchronism therewith, the combination of interlocked notches and the separation of the tensile cords of said one belt and said conveyor belt providing an anti-backbend characteristic that supports a load on the surface of said conveyor belt.

4,267,922

CHAIN WITH A SINGLE DIRECTION OF CURVATURE AND APPLICATION TO A HANDRAIL

Pierre Patin, Paris, and Jean Plagne, St-Maur-des-Fossés, both of France, assignors to Regie Autonome des Transports Parisiens, Paris, France

Filed Jun. 28, 1979, Ser. No. 52,792
Claims priority, application France, Jul. 11, 1978, 78 20595
Int. Cl.³ B65G *17/06*
U.S. Cl. 198—851 **6 Claims**



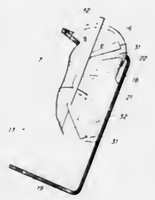
1. A chain with a single direction of curvature comprising a classic chain of single links and second links in regular succession and a block fixed to each of said second links having a plane face tangent to the axes of said second links extending on either side of said second links in the longitudinal direction of the chain over a length at least equal to the total length of said single links adjacent said second links, adjacent ones of said blocks overlapping along the chain.

4,267,923

EYEGLASS CASE

Charles A. Baratelli, and Aletha V. Baratelli, both of Ft. Lauderdale, Fla., assignors to Itek Corporation, Lexington, Mass.

Filed Jul. 9, 1979, Ser. No. 55,666
Int. Cl.³ A45C *11/04*
U.S. Cl. 206—5 **9 Claims**



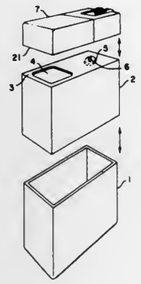
1. In an eyeglass case for holding a pair of eyeglasses, said eyeglass case having a pair of elongated opposed wall portions defining a pocket therebetween for the receipt of said eyeglasses, said opposed wall portions being joined together along at least one of their respective edges to define a first longitudinal edge of said case, said wall portions further defining first and second opposite ends of said case, said first end including means defining an opening through which a pair of eyeglasses are inserted into and removed from said pocket, the improvement comprising separator means positioned within said pocket for maintaining the temple portions of said pair of eyeglasses separated from the lens portions thereof when said pair of eyeglasses are positioned within said pocket, said separator means comprising an elongated member extending partially into said pocket from said first longitudinal edge of said case and positioned generally centrally between said opposed wall portions, whereby upon insertion of a pair of eyeglasses into said pocket through said opening, the temple portions thereof will be positioned on the opposite side of said member from said lens portions thereof.

4,267,924

CIGARETTE CONTAINER AND LIGHTER COMBINATION

Peter Tata, 404 E. LaSalle Ave., Royal Oak, Mich. 48073

Filed Jul. 30, 1979, Ser. No. 62,044
Int. Cl.³ A24F *15/00, 15/10, 15/18*
U.S. Cl. 206—87 **10 Claims**



1. A cigarette container and lighter combination adapted to receive cigarettes therein comprising:

a container having a bottom closure and an opening opposite said bottom closure;

a cover slidably mounted to said container, said cover having a top closure and an opening opposite said top closure, said top closure having an opening of predetermined size near three edges of said top closure;

means for dispensing said cigarettes so that the travel of said dispensing means is limited from a first predetermined closed position to a second predetermined open position;

means for mounting said dispensing means to said top closure so that at least one cigarette is dispensed through said hole in said top closure when said dispensing means is in a second predetermined position; and

means mounted to said dispensing means for lighting said cigarettes.

4,267,925

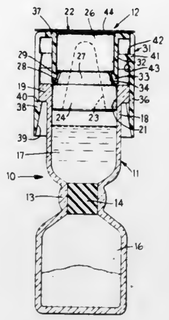
CLOSURE FOR LARGE-VOLUME VIAL

Gary K. Crankshaw, Kalamazoo, Mich., and Roger A. Erber, Mount Prospect, Ill., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Oct. 1, 1979, Ser. No. 80,740
Int. Cl.³ B65D *25/08*
U.S. Cl. 206—221 **10 Claims**

1. In combination, a two-compartment mixing vial having a constriction between the two compartments, a removable plug disposed within the constriction to provide a liquid-tight barrier between the two compartments, said vial having a neck at one end thereof for defining an opening communicating with one of said compartments, said neck having an annular radially outwardly projecting rim adjacent the free end thereof, and a closure structure attached to said neck for closing the opening therein, said closure structure including a substantially cylindrical and resiliently flexible stopper means including a first portion having an outside diameter which is normally slightly larger than the inside diameter of, and sealingly received within, said neck, said stopper means including a second portion of reduced diameter projecting beyond the free end of said neck, said closure structure also including cap means having a top wall and a cylindrical skirt fixed to said top wall and projecting therefrom in surrounding relationship to said stopper, said skirt having radially inwardly projecting flange means adjacent the free end thereof, said skirt being telescoped over said annular rim with said flange means located below said rim to mechanically lock said cap means upon said vial, the improvement comprising:

means defining a surrounding annular groove in said stopper means intermediate said first and second portions thereof, said annular groove being disposed adjacent to and outwardly of said rim, said groove having spaced side walls;



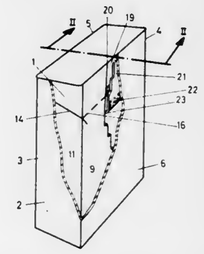
said cap means including an inner sleeve affixed to said top wall, concentric with said outer skirt and spaced inwardly therefrom, said inner sleeve surrounding said second stopper portion and having an outside diameter no greater than the inside diameter of the vial neck opening so that said inner sleeve can be moved axially into said neck along with the second stopper portion upon the urging of said closure structure toward said vial, said inner sleeve having radially inwardly projecting locking means extending into said annular groove for axially mechanically interlocking said cap to said stopper whereby axial movement of said cap means causes corresponding axial movement of said stopper means.

4,267,926

BOX FOR SMOKING ARTICLES IN THE FORM OF CIGARETTES OR THE LIKE

Ramon Toimil, Bole, Switzerland, assignor to Fabriques de Tabac Reunies S.A., Neuchatel, Switzerland

Filed Jul. 19, 1979, Ser. No. 59,097
Claims priority, application Luxembourg, Jul. 27, 1978, 80049
Int. Cl.³ B65D *85/10;* **A24F** *15/00;* **B65D** *5/38, 5/66*
U.S. Cl. 206—268 **8 Claims**



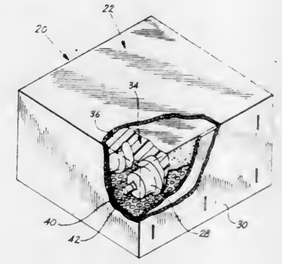
1. Box for smoking articles in the form of cigarettes or the like, comprising a four-walled outer box, open on top and on the bottom, made from a first blank of stiff cardboard, and into which an inner box is inserted, the inner box being made from a second blank of stiff cardboard, having opposed side walls and a back wall whose upper part provides a folding lid (top) formed by means of inclusions on both side walls and a fold on the back wall joining these, and a tongue punched from the back wall of the inner box, said tongue being attached to the outer box by its free lower end so that it moves the folding lid backward when the inner box is lifted upward, said box being further characterized in that the free end of the tongue (**19**) is glued to the outer box (**2**) and the tongue (**19**) has a flexible area (**22**) which, when the inner box (**1**) is inserted forms a loop (**23**) which is opened when the inner box is pushed upward.

4,267,927

ARTICLE OF MANUFACTURE COMPRISING PROTECTIVE PACKAGING FOR PACKAGEABLE OBJECTS OF A FRAGILE OR PERISHABLE NATURE

Edgar English, Jr., 45125 Redwood Ave., Lancaster, Calif. 93534

Filed Oct. 22, 1979, Ser. No. 87,316
Int. Cl.³ B65D *85/42*
U.S. Cl. 206—524 **11 Claims**



1. An article of manufacture taking the form of protective packaging means for packageable objects of a fragile or perishable nature, comprising: hollow protective container means comprising at least two container portions and means for relatively positioning same in a manner defining a hollow interior chamber for protectively receiving and packaging objects of a fragile or perishable nature, at least one of said container portions being effectively provided with shaped inner liner means having one or more shaped recess means formed in place therein in the presence of such previously received packageable objects and at least partially engaging in at least partially coextensive contact with parts of such previously received packageable objects, said shaped inner liner means comprising a multi-phase material taking the form of a protective compressible partial pad means of foamed-in-place compressible, expanded-cell foam plastic material and interspersed therebetween with effective bubble-pack means having a large number of closely adjacent, but completely isolated and non-communicating gas cells, said effective bubble-pack means comprises plastic sheeting forming said large number of closely adjacent, but completely isolated and non-communicating gas cells wherein enclosed gas comprises air, and wherein said gas cells effectively comprises air cells.

4,267,928

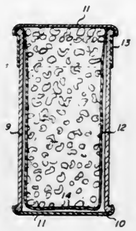
COMPOSITE CONTAINER STRUCTURE

Byron V. Curry, Jr., Box 5040, Montecito, Calif. 93108

Continuation-in-part of Ser. No. 928,283, Jul. 26, 1978, abandoned. This application Jan. 16, 1979, Ser. No. 3,903
Int. Cl.³ B65D *73/00*
U.S. Cl. 206—583 **2 Claims**

1. A composte container having an outer support and an inner liner surrounding the space within the container and top and bottom rigid gas impervious cover means adapted to be seamed onto the container for cooperating with said liner to seal the contents placed in the storage space within the struc-

ture, comprising a fibrous tubular member having a generally circular cross-section defined by exterior and interior walls and forming an open ended outer support member, a tubular shrinkable plastic barrier film inner liner fitted within the support member with a portion thereof extending beyond at least one of the ends of said tubular member, said liner being flexible and impervious to gas flow, said liner being sealed at one end and having said other open end extending from within the support member and beyond an open end of the support member to define the mouth of the tubular liner, a portion of the mouth of said liner that extends beyond the support member being folded over and around to overlap the exterior wall of the support member at said one end of said at least one of the ends of said support, the overlapped portion of the liner being



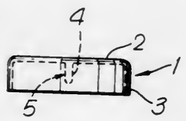
heat shrunk to be wrinkle-free and tightly conforming to the exterior surface of the support member at said one end thereof, said heat shrunk overlapped portion of the mouth of the liner forming a plastic ring integral with that open end of the support member, said ring forming a smooth seat for cooperating with the top cover means seamed to the support member over said ring to seal the mouth of the liner, the bottom cover means being crimped to the other end of the support member, said plastic liner being supported within the fibrous member having a product stored within the liner which together with the cover means seamed to the support member over the ring forms a gastight impervious container enclosing the storage space for the product to protect such product when there is a difference in pressure between the storage space within the container and the pressure on the outside thereof.

4,267,929

LID ARRANGEMENT FOR A SKI WAX CAN WITH A TEAR-OFF CASING

Lars Korterod, Stokke; Arne Strand, Oslo; Odd Ellingsen, and Harry Broen, both of Sem, all of Norway, assignors to Tubefabrikken A/S, Sem, Norway

Filed Oct. 24, 1979, Ser. No. 87,795
Claims priority, application Norway, Nov. 3, 1978, 783703
Int. Cl.³ B65D *3/26, 5/54, 75/70;* **B43K** *19/02*
U.S. Cl. 206—603 **10 Claims**



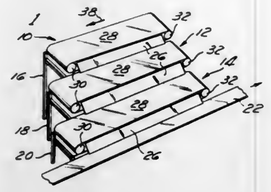
1. A lid arrangement for a ski wax can with a tear-off casing, said lid comprising a bottom surrounded by a peripheral skirt adapted to lie against the exterior of the casing, characterized in that a sharp edge or knife edge is arranged on the interior of the lid at its skirt and facing away from the bottom of the lid, said edge or knife edge producing a cut in the upper edge of the can casing when the lid is placed on the can.

4,267,930

RAISIN SEPARATING DEVICE

Douglas H. Melkonian; Mark S. Melkonian, both of 6058 E. Butler, Fresno, Calif. 93727; Dennis J. Melkonian, 8336 E. North Ave., Sanger, Calif. 93657, and Suren M. Melkonian, 6058 E. Butler, Fresno, Calif. 93727, assignors to Douglas H. Melkonian; Mark S. Melkonian, both of Fresno; Dennis J. Melkonian, Sanger and Suren Melkonian, Fresno, all of, Calif.

Filed Feb. 28, 1979, Ser. No. 15,936
Int. Cl.³ B07C *5/02*
U.S. Cl. 209—3.1 **14 Claims**



1. A method for separating moldy raisins from a mixed batch of moldy raisins and unspoiled raisins, comprising the steps of:

immersing said mixed batch of raisins in hot water for a sufficient amount of time to make the moldy raisins substantially softer than the unspoiled raisins;

loading said mixed batch of raisins in a bulk mass onto a resilient moving conveyor, inclined transversely to its direction of movement;

striking said conveyor with a predetermined frequency to cause the firmer raisins to bounce progressively off the side of said conveyor in a series of bounces while the softer raisins move more in the direction of movement of the conveyor; and

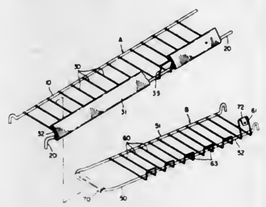
removing said softer raisins from said surface.

4,267,931

ADJUSTABLE SHELVING RACK

Anthony S. Belotta, Bloomfield, N.J., assignor to Warner-Lambert Co., Morris Plains, N.J.

Filed Jul. 5, 1979, Ser. No. 54,736
Int. Cl.³ A47F *5/00, 5/14*
U.S. Cl. 211—153 **8 Claims**



1. An adjustable shelving rack comprising two elements wherein

A. the first element comprises two sections interconnected by a series of planar rungs, one section above the plane formed by said rungs and the other section below the plane formed by said rungs;

B. the second element comprises two sections supporting a series of planar rungs with both sections on the same side of the plane formed by said rungs;

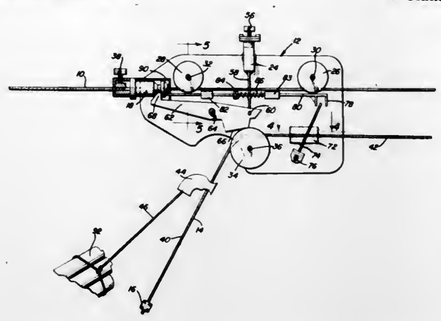
such that when both elements are coupled together the rungs of both elements all lie in the same plane.

4,267,932

SKYLINE LOGGING CARRIAGE

Rodney W. Vessey, 1006 South Hall, Grangeville, Id. 83530, and Colin C. Rhoades, Box 34, White Bird, Id. 83554

Continuation-in-part of Ser. No. 928,079, Jul. 26, 1978. This application Nov. 21, 1978, Ser. No. 962,681
Int. Cl.³ B66C *21/00*
U.S. Cl. 212—92 **5 Claims**



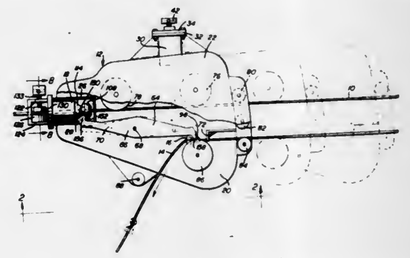
1. In combination with an inclined skyline, a carriage guidingly supported from said skyline for movement therealong, a stop carried by said skyline establishing a lower limit of downward movement of said carriage along said skyline, said carriage including guide means, a dragline guidingly supported from said guide means for longitudinal shifting relative to said carriage and including one end portion depending downwardly from said carriage and a second end portion extending upwardly along said skyline, an abutment means carried by said one end portion of said dragline for abuttingly engaging with said carriage for limiting upward movement of said dragline relative to said carriage, latch means shiftably supported from said carriage for movement between first and second applied and release positions and spring biased toward its applied position, said latch means being latchingly engageable with said stop to latch said carriage against upward movement of said carriage when said latch means is in said first position and said carriage is in its lower limit position on said skyline defined by said stop, brake means on said carriage including an operator shiftable between applied and released positions and spring biased to its applied position, said brake means being operative to brake the second end portion of said dragline against longitudinal shifting relative to said carriage when said operator is in its applied position, said abutment means, upon upward movement of said one end portion of said dragline relative to said carriage into a predetermined raised position including means operative to shift said latch means from its applied position to its release position, said stop and operator including means operative to positively shift said operator toward its released position upon final movement of said carriage downwardly along said skyline toward said lower limit, said carriage including opposite side portions between which said dragline is guidingly received, an abutment surface carried by one side portion, generally paralleling said second end portion of said dragline, facing the other side portion of said carriage and closely opposing the side of said dragline adjacent said one side portion of said carriage, pivot means defining a pivot axis extending between said opposite side portions, said brake means including a wedge member supported from said other side portion of said carriage opposing said abutment surface and defining a ramp surface inclined downwardly along said dragline second end portion toward said one side portion of said carriage, said brake means also including a lever pivotally supported at one end portion from said carriage by said pivot means for oscillation about said axis with the latter extending transversely of said lever and with the remaining portion of said lever disposed between said abutment and ramp surfaces, said lever being supported from said pivot means for lateral shifting along said axis, said operator being operably associated with the remaining portion of said lever for swinging said remaining portion downwardly along said dragline responsive to shifting of said operator to said applied position and for swinging said remaining portion of said lever upwardly along said dragline responsive to shifting of said operator to said released position, said lever, when being swung downwardly along said dragline being engageable with said ramp surface to effect camming of said lever along said axis toward said abutment surface and into engagement with said dragline for clampingly engaging the dragline between said remaining portion of said lever abutment surface.

4,267,933

LOGGING CARRIAGE

Rodney W. Vessey, 1016 W. 13th Ave., Meridian, Id. 83642, and Colin C. Rhoades, Box 34, White Bird, Id. 83554

Filed Jul. 26, 1978, Ser. No. 928,079
Int. Cl.³ B66C *21/00*
U.S. Cl. 212—108 **5 Claims**



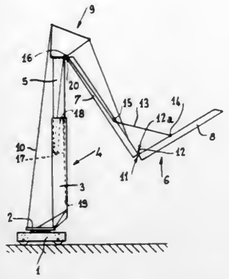
1. In combination with an inclined skyline, a carriage guidingly supported from said skyline for movement therealong, a stop carried by said skyline for limiting downward movement of said carriage along said skyline, said carriage including guide means, a dragline guidingly supported from said guide means for longitudinal shifting relative to said carriage and including one end portion extending upwardly along said skyline and a lower end portion depending downwardly from said skyline, an abutment carried by said dragline abuttingly engageable with said carriage for limiting upward movement of said dragline relative to said carriage, latch means shiftably supported from said carriage for movement between a release position and a latch position relative to said carriage, means yieldingly biasing said latch means toward said latch position, said stop including a latch surface engageable by said latch means, upon downward approach of said carriage along said skyline to a first latching position closely adjacent the lower limit position of movement of said carriage on said skyline defined by said stop, to latch said carriage against upward movement along said skyline, said abutment including a latch surface engageable by said latch means, upon upward approach of said dragline relative to said carriage toward a second latching position closely adjacent the upper limit position of movement of said dragline relative to said carriage, to prevent downward movement of said dragline relative to said carriage, said stop including a cam surface, on the side of said stop latch surface remote from the upper end of said skyline, engageable by said latch means to cam said latch means from said latch position toward said release position upon downward movement of said carriage along said skyline past said first latching position, and said abutment including a cam surface on the side of said abutment latch surface remote from said one upper end portion of said dragline operative to cam said latch means toward said release position upon upward movement of said dragline relative to said carriage past said second latching position.

4,267,934

TELESCOPICALLY EXTENDIBLE MAST CRANE

Henri Vernay, La Clayette, France, assignor to S.A. A C M A G, Semur en Brionnais, France

Filed Jul. 20, 1978, Ser. No. 926,567
Claims priority, application France, Jul. 22, 1977, 77 23362
Int. Cl.³ B66C *23/42*
U.S. Cl. 212—184 **4 Claims**



1. A device for complete folding or unfolding of a hinged two section boom pivotally mounted at one end of a first section thereof atop a telescopically extendible crane mast comprising:
(a) first pulley means rotatably mounted adjacent the upper end of a lower section of said crane mast;
(b) second and third pulley means rotatably mounted adjacent the lower and upper ends respectively of an upper section of said crane mast;
(c) fourth pulley means rotatably mounted on said first boom section adjacent the hinge;
(d) a substantially inextensible cable of selected length secured at one end thereof to said crane mast and reeved over said first, second, third and fourth pulley means, said cable being secured at the other end thereof adjacent the free end of the second section of said boom, so that upon relative movement of said upper and lower sections of said crane mast, said second section of said boom pivots relative to said first section thereof;
(e) said first and third pulley means in all positions of said boom having a distance therebetween equal to the distance between said fourth pulley means and said other end of said cable; and
(f) wherein said mast and said first and second boom sections are in substantially coplanar parallel relationship when said mast sections are in a fully retracted position.

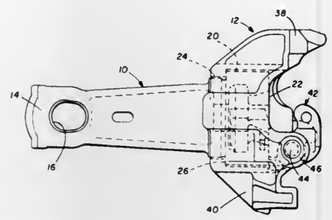
4,267,935

RAILWAY CAR ROTARY COUPLER

Walter C. Dilg, Elma, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 4, 1979, Ser. No. 72,707
Int. Cl.³ B61G *1/38*
U.S. Cl. 213—72 **15 Claims**

10. A railroad car coupler comprising:
(a) a shank having a butt end portion for mounting with a coupler yoke and a head end portion on the opposite end portion thereof;
(b) a coupler head means having a guard arm side portion, a knuckle side portion and a knuckle for cooperative interconnection with another mating coupler having similar elements;
(c) means on said shank at said shank head end portion thereof to rotatably mount said coupler head means including, a substantially cylindrical exterior surface portion therearound, an annular shoulder extending inward of said substantially cylindrical surface and transverse to the longitudinal axis of said shank at the end of said substantially cylindrical surface facing said butt end portion wherein said cylindrical surface and said annular shoulder form coupling and mounting surfaces for permitting rotation of said coupler head means relative to said shank and for supporting said coupler head on said shank for draft action of said railcar coupler;
(d) means within said coupler head means to mount with said means at said shank head end portion to rotatably mount said coupler head means including, an opening within said coupler head means having a portion of circular cross-section extending longitudinally of said coupler, an annular shoulder transverse to the longitudinal axis of said shoulder, extending inward of said circular cross-section portion and facing away from said shank butt end portion, and an opening in a rear portion of said coupler head



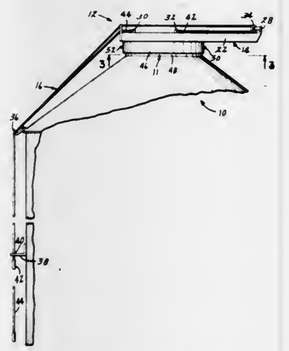
means through which said shank head end portion extends into said coupler head means;
(e) said knuckle is mounted with said coupler head means knuckle side portion and has a nose portion extending from said railway car coupler for cooperative interconnection with another railway car coupler, and a tail portion extending into the interior of said coupler head means; and
(f) said means on said shank head end portion to rotatably mount said coupler head means has an opening within said shank head end portion to receive and rotatably mount said knuckle tail portion for rotating motion of said coupler head means including said knuckle tail portion relative to said shank and for mounting said knuckle for draft action of said knuckle.

4,267,936

REMOTELY OPERABLE LID FOR STORAGE BINS

Cleone J. Pavlicek, Morris, Minn., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Nov. 13, 1979, Ser. No. 93,442
Int. Cl.³ B65D *43/26*
U.S. Cl. 220—262 **22 Claims**



1. A storage bin having a remotely operable lid comprising:
(a) an enclosure for storing materials, said enclosure having an opening for admitting the materials into the enclosure,

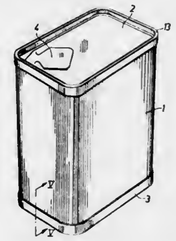
said opening having a ridge extending outwardly from said enclosure and around the periphery of said opening;
(b) a remotely operable lid apparatus including a cover plate, a pair of guides for carrying edges of said plate and allowing said plate to slide laterally within said guides;
(c) means for remotely operating said lid;
(d) means for attaching said lid apparatus to said enclosure including a band-shaped member to encompass said ridge, said band being fastened to said apparatus, and means for attaching said band to said ridge.

4,267,937

TEAR OPENING DEVICE FOR CONTAINERS

Lars-Eric Piltz, Dalby; Bo T. Quist, Bjärred; Folke Kiellarson, Barsebäck; Siwer Mansson, Lund, and Bengt Nilsson, Södra Sandby, all of Sweden, assignors to AB Akerlund & Rausing, Sweden

Division of Ser. No. 721,866, Sep. 9, 1976. This application Apr. 2, 1979, Ser. No. 25,792
Claims priority, application Sweden, Sep. 12, 1975, 7510169; Sep. 12, 1975, 7510170
Int. Cl.³ B65D *17/30, 17/32*
U.S. Cl. 220—267 **8 Claims**



1. In an opening device for a package, said package comprising a substantially rigid outer wall portion and an inner layer of substantially gas-tight material, the improvement wherein said outer wall portion includes a first tearing notch defining a removable portion and a second tearing notch defining a grip tongue, said outer wall portion and said inner layer being interconnected substantially over their total surfaces facing each other with said outer wall portion and said inner layer being separated within an area under at least a portion of said grip tongue, said outer wall portion including an injection molded cap and said inner layer including polypropylene laminated with a thin aluminum foil attached to said cap, said cap being attached to a middle part of said package, said middle part being in the form of an extruded casing which on the outside thereof includes a sealing outer layer, and said inner layer substantially extending to said sealing outer layer.

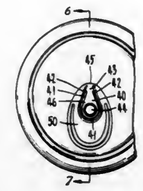
4,267,938

RESEALABLE PRESSURE RELEASE CLOSURES

Michael Debenham, Frankston; Allan G. Dalli, Warrandyte, and Peter L. Revill, Middle Park, all of Australia, assignors to The Broken Hill Proprietary Company Limited, Melbourne, Australia

Filed Oct. 3, 1979, Ser. No. 81,361
Claims priority, application Australia, Oct. 10, 1978, PD6325
Int. Cl.³ B65D *17/32*
U.S. Cl. 220—268 **14 Claims**

1. In a push-in easy opening closure comprising an aperture in a container member and a push-in pressure releasing resealable closure overlapping with and underlying said container member to close said aperture, the improvement comprising connection means integrally connecting said closure to said container member for rendering flexure of said closure, during opening of said closure, more uniform and less concentrated, at



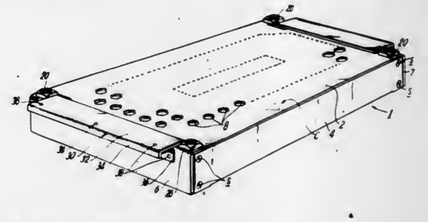
least in the region of said closure adjacent said connection means, to improve the resealing properties of said closure.

4,267,939

MEDICAL DEVICE STERILIZATION CASE

Thomas R. Perrett, Bala Cynwyd, Pa., and Gilbert T. Carter, Oaklandon, Ind., assignors to Synthes AG, Chur, Switzerland

Filed Aug. 10, 1979, Ser. No. 65,530
Int. Cl.³ B65D *45/00*
U.S. Cl. 220—318 **3 Claims**



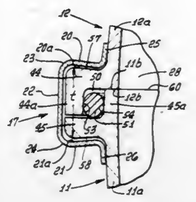
1. A case comprising
a top wall member being provided with a pair of attached, parallely opposed, depending side walls,
a bottom wall member being provided with a pair of attached, parallely opposed, upstanding front and rear walls,
at least four upstanding post members with a post member disposed at each side edge of the front and rear walls and attached to the front and rear walls, each post comprising a neck extending above the upper edge of the front and rear walls and a head surmounting said neck whose minimum transverse dimension is greater than the maximum transverse dimension of said neck, and
a handle member pivotally attached to each side wall with its axis of pivoting rotation and its longitudinal central axis disposed in parallel relation to the longitudinal central axis of its associated side wall and with a portion of it pivotally disposable between an adjacent post affixed to the front wall and an adjacent post affixed to the rear wall,
said top wall being provided with
a pair of recesses extending rearwardly from the front edge of said top wall, each recess being open to the front edge of said top wall and being provided with a concave extension at its rear edge configured to underly said head and restrain upward movement of said top wall and
a pair of apertures disposed adjacent the rear edge of said top wall, each aperture being generally rectangular in top plan view and being provided with a concave extension at its rear edge configured to underly said head and restrain upward movement of said top wall,
the longitudinal dimension of said handle being approximately equal to the distance between an adjacent post affixed to the front wall and an adjacent post affixed to the rear wall so that said handle, when disposed between an adjacent post affixed to the front wall and an adjacent post affixed to the rear wall, prevents rearward sliding movement of said top wall and its associated side walls.

4,267,940

REMOVABLE CLAMP STRUCTURE FOR TANK SECTIONS WHICH AT TIMES BLOCK SAID REMOVAL

Charles E. Wade, Covina, Calif., assignor to Purex Corporation, Lakewood, Calif.

Filed Jun. 26, 1979, Ser. No. 52,100
Int. Cl.[3] B65D 45/32, 45/34
U.S. Cl. 220—321 13 Claims



1. In a tank closure system, the combination comprising

(a) complementary sections of a tank adapted to contain pressurized fluid, said sections having annular flanges which are subject to relative separation as the tank sections relatively separate due to said fluid pressurization,

(b) said flanges respectively having oppositely facing annular surfaces which extend in relatively divergent relation away from the tank interior, and

(c) clamp means assembled onto said flanges and having channel shape with webs extending in complementary relation to said divergent surfaces to engage the flanges and block said relative separation of the flanges at which time removal of the clamp means off the flanges is also blocked by said divergent surfaces,

(d) the webs having relatively divergent surfaces complementary to said flange divergent surfaces to engage same in response to said relative separation of the flanges, the webs being vertically spaced apart, the upper web divergent surface extending radially outwardly and upwardly relative to a horizontal plane, and the lower web divergent surface extending radially outwardly and downwardly relative to said horizontal plane,

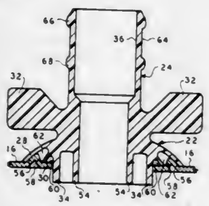
(e) there being terminal flanges respectively integral with the webs to stiffen the webs, said terminal flanges extending generally vertically proximate said tank sections.

4,267,941

BREATHER CAP

Philip B. Loudin, Palos Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 106,596
Int. Cl.[3] B65D 6/12, 6/40, 25/00, 90/12
U.S. Cl. 220—85 SP 6 Claims



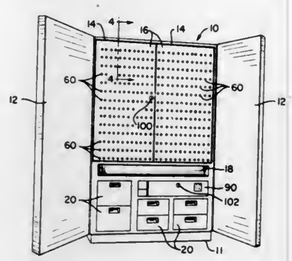
1. A unitary plastic cap for covering an aperture in a member having a raised annular ridge disposed radially outwardly of said aperture and including relatively inner and outer walls joining said member, said cap comprising: (a) retaining means for extending through said aperture and compressively engaging said cap against said member, and (b) an endless outer sealing element having a diametral extent greater than said annular ridge for sealingly engaging against said outer wall, and (c) an endless inner sealing element having a diametral extent less than said annular ridge for sealingly engaging against said member.

4,267,942

PHARMACEUTICAL DISPENSING CABINET

John B. Wick, Jr., Box 578 R.D. 2, Parkesburg, Pa. 19365, and Eric C. Norlin, 90 Hilltop Rd., Coatesville, Pa. 19320, assignors to John B. Wick, Jr. and Eric C. Norlin, both of Chester, Pa.

Filed Jun. 20, 1979, Ser. No. 50,930
Int. Cl.[3] A47B 67/02
U.S. Cl. 221—2 11 Claims



1. A cabinet for storage and controlled issuing of preselected stock comprising:

a main supporting shell;

a stock supporting rack internally of said shell, said rack including vertically and horizontally aligned rows of stock supporting cubicles which are contoured and designed to support a stack of packaged stock items with barrier means adjacent one side thereof restricting ejection of said items to bottom of the stock item only;

an inner closure for said rack, said inner closure including an operating panel affording limited access to items of stock supported in said rack for controlling dispensing theereof;

means for selective locking and unlocking of said inner closure;

an outer locked closure for said cabinet shell;

means for unlocking and opening of said outer closure for access to said operating panel, said means including an electrical key reader and readable operator assigned keys; and

recording means for documenting opening of said outer closure and dispensing of said stock, said recording means identifying key used with date and time of use.

4,267,943

METHOD AND APPARATUS FOR HANDLING AND DISPENSING HYGROSCOPIC PELLETS

John J. Karikas, Shelby, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed May 18, 1979, Ser. No. 40,233
Int. Cl.[3] B65B 31/02; B67C 3/10; G01F 11/24
U.S. Cl. 222—1 9 Claims

6. A mechanism for receiving and dispensing hygroscopic lamp fill material which has been formed into pellets of substantially uniform size comprising:

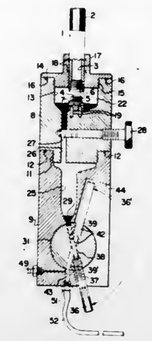
a housing defining a reservoir comprising a loading chamber having an inlet opening, a dispensing chamber having an outlet opening, and a passage interconnecting said chambers together with a valve for opening or closing the passage,

said inlet opening being adapted to accommodate and be sealed by the insertion of a vial thereinto, said vial being adapted to contain a charge of said pellets and having a stoppered end adapted to enter said loading chamber,

means for flushing dry non-reactive gas through said reservoir,

means for unstoppering said vial without unsealing said inlet opening,

and a transfer device comprising metering means defining a



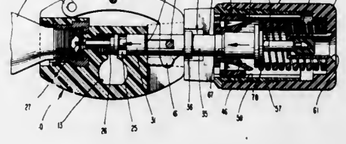
volume accommodating a given number of pellets and means to oscillate said metering means in a closed path between said outlet opening and a delivery channel in order to transfer said given number of pellets from the dispensing chamber to the delivery channel at every oscillation.

4,267,944

AUTOMATIC INFLATOR

Glenn H. Mackal, Buena Vista Dr., Ringwood, N.J. 07456

Filed Aug. 7, 1978, Ser. No. 931,432
Int. Cl.[3] B63C 9/24
U.S. Cl. 222—5 13 Claims



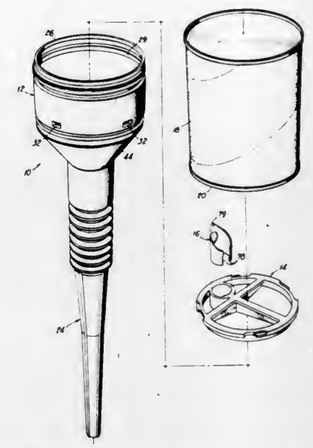
1. In an inflator for a gas-inflatable article, said inflator having a gas capsule-holding means, a capsule-piercing pin, means including a plunger for advancing the piercing pin and capsule relatively toward each other to pierce the capsule, resilient means urging the plunger and capsule relatively toward each other, and a latching mechanism cooperating with the plunger for holding the plunger in cocked position against the thrust of the resilient means, the improvement which comprises a housing for the plunger and the latching mechanism, the housing having a body with an elongated sleeve and a transverse base portion at an axially inner end thereof, a cap with a transverse cover portion at its axially outer end and an elongated skirt extending axially inwardly from the cover portion, the sleeve and skirt being telescoped and having a threaded connection therebetween, the plunger extending longitudinally within the sleeve and skirt and having a free end terminating adjacent the base portion of the housing, the latching mechanism comprising an annular water-responsive latching unit removably received in a seat within the sleeve in the base portion of the housing, the latching unit receiving the free end of the plunger therewithin and substantially encircling said free end of the plunger, and the resilient means being interposed between a portion of the cap adjacent its axially outer end and a part of the plunger.

4,267,945

LIQUID FUNNEL AND CONTAINER PIERCING BLADE COMBINATION

Walter P. Maynard, Jr., 3070 Presidential Dr., Suite 236, Atlanta, Ga. 30340

Filed Aug. 6, 1979, Ser. No. 63,857
Int. Cl.[3] B67B 7/28
U.S. Cl. 222—83.5 5 Claims



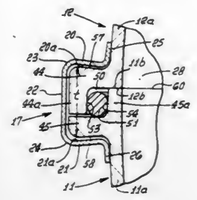
1. A piercing and pouring device for a cylindrical side wall container having dispensing material therein and having a cover, comprising: a hollow body portion having an open top, a bottom and an interior wall surface and being dimensioned to telescopically receive therein said container; a pouring spout depending from said bottom and terminating in a pouring opening, said spout being in flow communication with said body portion; a container piercing blade carrying element which is circular in shape; means for releasably securing said blade carrying element within said body portion; and a piercing blade on said blade carrying element and having a piercing point upwardly extending from said carrying element toward said open top, said securing means including a protrusion on said interior wall surface, said protrusion having a flat bottom surface, said blade carrying element having an opening on its other periphery, said opening dimensioned to have said protrusion pass therethrough, and said blade carrying element having a groove on its outer periphery in communication with said opening, said blade carrying element being inserted within the interior of said hollow body portion with said opening in registry with said protrusion, said blade carrying element being lowered beneath said protrusion and rotated so as to have said flat bottom surface engage said groove and wherein said securing means includes said blade carrying element having a plurality of said openings and respective grooves and said interior wall surface carrying a plurality of said protrusions, each dimensioned to cooperate with a respective one of said openings, the bottom surfaces of said protrusions being co-planar, wherein one of said openings and one of said protrusions are dimensioned so as to cooperate only with each other so as to secure said blade carrying element in a selected position within said body portion and wherein a horizontal ledge projects outwardly from said interior wall surface so as to engage the bottom of said blade carrying element when it is in said selected position, said body portion further including a pair of spaced upper and lower indented rings circumferentially extending about its exterior surface for adding structural stability to said body portion, each of said indented rings having an

4,267,940

REMOVABLE CLAMP STRUCTURE FOR TANK SECTIONS WHICH AT TIMES BLOCK SAID REMOVAL

Charles E. Wade, Covina, Calif., assignor to Purex Corporation, Lakewood, Calif.

Filed Jun. 26, 1979, Ser. No. 52,100
Int. Cl.³ B65D *45/32, 45/34*
U.S. Cl. 220—321 **13 Claims**



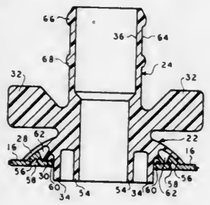
1. In a tank closure system, the combination comprising
(a) complementary sections of a tank adapted to contain pressurized fluid, said sections having annular flanges which are subject to relative separation as the tank sections relatively separate due to said fluid pressurization,
(b) said flanges respectively having oppositely facing annular surfaces which extend in relatively divergent relation away from the tank interior, and
(c) clamp means assembled onto said flanges and having channel shape with webs extending in complementary relation to said divergent surfaces to engage the flanges and block said relative separation of the flanges at which time removal of the clamp means off the flanges is also blocked by said divergent surfaces,
(d) the webs having relatively divergent surfaces complementary to said flange divergent surfaces to engage same in response to said relative separation of the flanges, the webs being vertically spaced apart, the upper web divergent surface extending radially outwardly and upwardly relative to a horizontal plane, and the lower web divergent surface extending radially outwardly and downwardly relative to said horizontal plane,
(e) there being terminal flanges respectively integral with the webs to stiffen the webs, said terminal flanges extending generally vertically proximate said tank sections.

4,267,941

BREATHER CAP

Philip B. Loudin, Palos Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 106,596
Int. Cl.³ B65D *6/12, 6/40, 25/00, 90/12*
U.S. Cl. 220—85 SP **6 Claims**



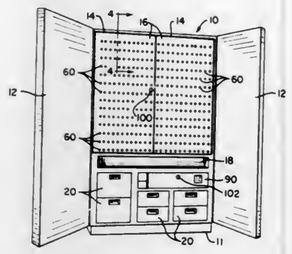
1. A unitary plastic cap for covering an aperture in a member having a raised annular ridge disposed radially outwardly of said aperture and including relatively inner and outer walls joining said member, said cap comprising: (a) retaining means for extending through said aperture and compressively engaging said cap against said member, and (b) an endless outer sealing element having a diametral extent greater than said annular ridge for sealingly engaging against said outer wall, and (c) an endless inner sealing element having a diametral extent less than said annular ridge for sealingly engaging against said member.

4,267,942

PHARMACEUTICAL DISPENSING CABINET

John B. Wick, Jr., Box 578 R.D. 2, Parkesburg, Pa. 19365, and Eric C. Norlin, 90 Hilltop Rd., Coatesville, Pa. 19320, assignors to John B. Wick, Jr. and Eric C. Norlin, both of Chester, Pa.

Filed Jun. 20, 1979, Ser. No. 50,930
Int. Cl.³ A47B *67/02*
U.S. Cl. 221—2 **11 Claims**



1. A cabinet for storage and controlled issuing of preselected stock comprising:
a main supporting shell;
a stock supporting rack internally of said shell, said rack including vertically and horizontally aligned rows of stock supporting cubicles which are contoured and designed to support a stock of packaged stock items with barrier means adjacent one side thereof restricting ejection of said items to bottom of the stock item only;
an inner closure for said rack, said inner closure including an operating panel affording limited access to items of stock supported in said rack for controlling dispensing theereof;
means for selective locking and unlocking of said inner closure;
an outer locked closure for said cabinet shell;
means for unlocking and opening of said outer closure for access to said operating panel, said means including an electrical key reader and readable operator assigned keys; and
recording means for documenting opening of said outer closure and dispensing of said stock, said recording means identifying key used with date and time of use.

4,267,943

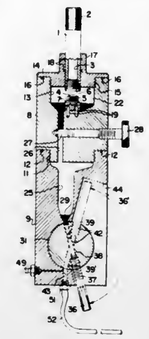
METHOD AND APPARATUS FOR HANDLING AND DISPENSING HYGROSCOPIC PELLETS

John J. Karikas, Shelby, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed May 18, 1979, Ser. No. 40,233
Int. Cl.³ B65B *31/02;* **B67C** *3/10;* **G01F** *11/24*
U.S. Cl. 222—1 **9 Claims**

6. A mechanism for receiving and dispensing hygroscopic lamp fill material which has been formed into pellets of substantially uniform size comprising:
a housing defining a reservoir comprising a loading chamber having an inlet opening, a dispensing chamber having an outlet opening, and a passage interconnecting said chambers together with a valve for opening or closing the passage,
said inlet opening being adapted to accommodate and be sealed by the insertion of a vial thereinto, said vial being adapted to contain a charge of said pellets and having a stoppered end adapted to enter said loading chamber,

means for flushing dry non-reactive gas through said reservoir,
means for unstoppering said vial without unsealing said inlet opening,
and a transfer device comprising metering means defining a



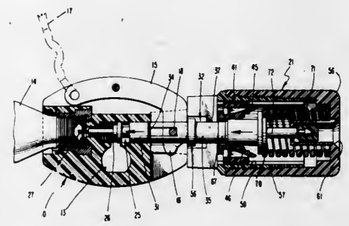
volume accommodating a given number of pellets and means to oscillate said metering means in a closed path between said outlet opening and a delivery channel in order to transfer said given number of pellets from the dispensing chamber to the delivery channel at every oscillation.

4,267,944

AUTOMATIC INFLATOR

Glenn H. Mackal, Buena Vista Dr., Ringwood, N.J. 07456

Filed Aug. 7, 1978, Ser. No. 931,432
Int. Cl.³ B63C *9/24*
U.S. Cl. 222—5 **13 Claims**



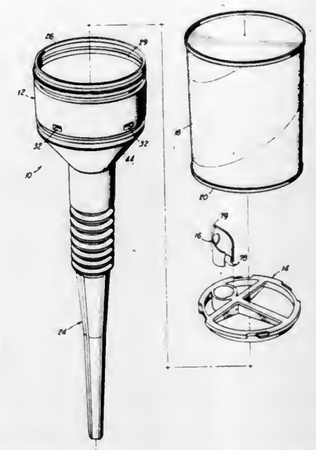
1. In an inflator for a gas-inflatable article, said inflator having a gas capsule-holding means, a capsule-piercing pin, means including a plunger for advancing the piercing pin and capsule relatively toward each other to pierce the capsule, resilient means urging the plunger and capsule relatively toward each other, and a latching mechanism cooperating with the plunger for holding the plunger in cocked position against the thrust of the resilient means, the improvement which comprises a housing for the plunger and the latching mechanism, the housing having a body with an elongated sleeve and a transverse base portion at an axially inner end thereof, a cap with a transverse cover portion at its axially outer end and an elongated skirt extending axially inwardly from the cover portion, the sleeve and skirt being telescoped and having a threaded connection therebetween, the plunger extending longitudinally within the sleeve and skirt and having a free end terminating adjacent the base portion of the housing, the latching mechanism comprising an annular water-responsive latching unit removably received in a seat within the sleeve in the base portion of the housing, the latching unit receiving the free end of the plunger therewithin and substantially encircling said free end of the plunger, and the resilient means being interposed between a portion of the cap adjacent its axially outer end and a part of the plunger.

4,267,945

LIQUID FUNNEL AND CONTAINER PIERCING BLADE COMBINATION

Walter P. Maynard, Jr., 3070 Presidential Dr., Suite 236, Atlanta, Ga. 30340

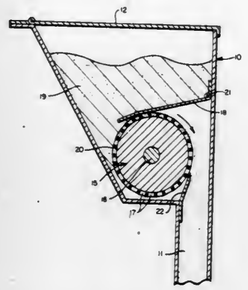
Filed Aug. 6, 1979, Ser. No. 63,857
Int. Cl.³ B67B *7/28*
U.S. Cl. 222—83.5 **5 Claims**



1. A piercing and pouring device for a cylindrical side wall container having dispensing material therein and having a cover, comprising: a hollow body portion having an open top, a bottom and an interior wall surface and being dimensioned to telescopically receive therein said container; a pouring spout depending from said bottom and terminating in a pouring opening, said spout being in flow communication with said body portion; a container piercing blade carrying element which is circular in shape; means for releasably securing said blade carrying element within said body portion; and a piercing blade on said blade carrying element and having a piercing point upwardly extending from said carrying element toward said open top, said securing means including a protrusion on said interior wall surface, said protrusion having a flat bottom surface, said blade carrying element having an opening on its other periphery, said opening dimensioned to have said protrusion pass therethrough, and said blade carrying element having a groove on its outer periphery in communication with said opening, said blade carrying element being inserted within the interior of said hollow body portion with said opening in registry with said protrusion, said blade carrying element being lowered beneath said protrusion and rotated so as to have said flat bottom surface engage said groove and wherein said securing means includes said blade carrying element having a plurality of said openings and respective grooves and said interior wall surface carrying a plurality of said protrusions, each dimensioned to cooperate with a respective one of said openings, the bottom surfaces of said protrusions being co-planar, wherein one of said openings and one of said protrusions are dimensioned so as to cooperate only with each other so as to secure said blade carrying element in a selected position within said body portion and wherein a horizontal ledge projects outwardly from said interior wall surface so as to engage the bottom of said blade carrying element when it is in said selected position, said body portion further including a pair of spaced upper and lower indented rings circumferentially extending about its exterior surface for adding structural stability to said body portion, each of said indented rings having an

interior annular surface which projects inwardly from said interior wall surface, said interior annular surface of said lower ring being disposed between said bottom surfaces of said protrusions and said horizontal ledge whereby said interior annular surface of said lower indented ring engages the underside of said blade carrying element when said blade carrying element is in said selected position.

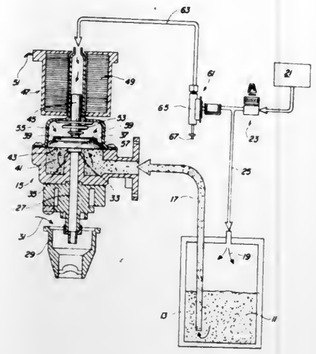
4,267,946
PARTICULATE MATTER DISPENSING DEVICE
Gary G. Thatcher, Van Wert County, Ohio
Filed Oct. 1, 1979, Ser. No. 80,825
Int. Cl.³ G01F *11/10*
U.S. Cl. 222—345 **4 Claims**



1. A particulate matter dispensing device comprising container means, rotatable cylindrical means disposed horizontally in said container means, means for rotating said cylindrical means, a plurality of particulate receiving container means covering substantially the entire surface of said cylindrical means, a single length of sprocket chain, helically wound about said cylindrical means in abutting relationship wherein said sprocket chain is fastened at each of its ends to longitudinally opposite ends of said cylindrical means and covers substantially all of the surface of said cylindrical means, said sprocket chain comprising a single chain comprising two spaced substantially parallel sides, said sides being connected at spaced intervals by connecting pin means, so as to create said plurality of particulate receiving means, and restrainer means positioned coextensive with said cylindrical means and extending throughout the length of said cylindrical means.

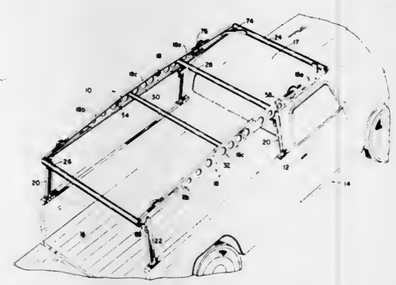
4,267,947
BEVERAGE DISPENSER VALVE ARRANGEMENT
Henry Wasserstrom, Chicago, Ill., assignor to Alco Foodservice Equipment Company, Miami, Fla.
Filed Jul. 2, 1979, Ser. No. 53,857
Int. Cl.³ B65D *83/14*
U.S. Cl. 222—399 **6 Claims**

1. A valve arrangement for a pressurized non-homogeneous flavoring additive in a beverage dispenser comprising:
- a valve seat;
- a valve member to engage said valve seat to prevent discharge of the non-homogeneous flavoring additive;
- bias means urging said valve member into engagement with said valve seat;
- actuating means to selectively provide a positive force to separate said valve member from said valve seat for a predetermined time to permit discharge of a predetermined amount of the non-homogeneous flavoring additive;
- first pressure means responsive to the pressure of the non-homogeneous flavoring additive to assist said actuating means in separating said valve member from said valve seat against the force of said bias means;
- second pressure means not utilizing the non-homogeneous flavoring additive to assist said bias means in moving said valve member to engagement with said valve seat against the force of said first pressure means; and



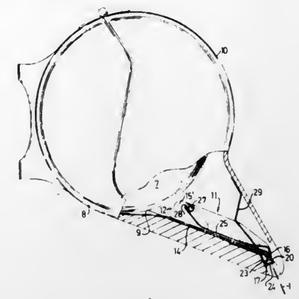
- pressure release means to deactivate said second pressure means upon energization of said actuating means.

4,267,948
CARGO CARRIER
David W. Lewis, 169 Otto Cir., Sacramento, Calif. 95822
Filed Jun. 11, 1979, Ser. No. 47,232
Int. Cl.³ B60P *3/40;* **B62D** *33/00*
U.S. Cl. 224—42.34 **6 Claims**



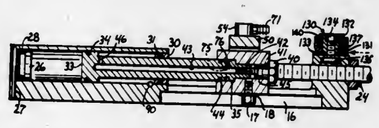
1. A cargo carrier for a vehicle comprising:
- a pair of channel member side rails to extend fore and aft of the truck with the flanges thereof facing inward;
- said side rails being formed in forward and rear sections and including:
- a central extender section having fore and aft extension thereon receivable in said forward and rear side rail sections;
- a splice member receivable by said forward and rear side rail sections when same are placed end to end;
- screw means for securing a selected one of said extender section and said splice member to said front and rear channel sections;
- pairs of front and rear legs supporting said side rails;
- mounting brackets carried on the tops of said legs;
- hooks on said mounting brackets engaging over the lower flanges of said channel members;
- a bolt hole through each of said brackets;
- a series of spaced bolt holes through the lower flanges of said channel member side rails in the areas thereof to overlie the general locations of said front legs; and
- bolts extending through the mounting brackets of said front legs and a selected, aligned pair of said spaced bolt holes.

4,267,949
DEVICE FOR SEPARATING TAPE PORTIONS FROM A TAPE OF FLEXIBLE MATERIAL
Sven A. Hemgren, Kungsängen, Sweden, assignor to Esselte Pendaflex Corp., Garden City, N.Y.
Filed Oct. 1, 1979, Ser. No. 80,311
Claims priority, application Sweden, Oct. 4, 1978, 7810397
Int. Cl.³ B26F *3/02*
U.S. Cl. 225—106 **11 Claims**



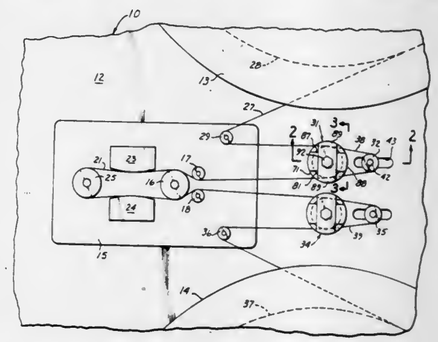
1. A device for separating tape portions of mutually equal length from a tape of flexible material, for instance a tape of queue tickets, characterized in that the device comprises a guide channel having a first plane bottom portion, which at one end thereof over a steplike ledge, extending transversely over the whole width of said guide channel, passes over into a second bottom portion provided with an obliquely cut away portion at one side of said guide channel, whereby said tape, which is provided with a plurality of slots, spaced at mutually alike distances from each other and extending obliquely to the longitudinal direction of the tape over the main part of the width thereof, so that short unslotted edge portions are left at each tape edge, is pullable along said guide channel in engagement with said first bottom portion, the edge of said ledge and the second bottom portion and is pressed into abutment with said second bottom portion immediately adjacent said ledge by means of an elongated, resilient member, the trailing, unslotted edge portions of the tape thereby passing in over said cut away portion of the second bottom portion, so that the leading tape portion is separated from the tape, when the intermediate slot passes in over said cut away portion.

4,267,950
STOCK FEEDER FOR PUNCH PRESSER AND THE LIKE
Albert W. Scribner, Six Country Club Rd., Darien, Conn. 06820
Continuation of Ser. No. 679,490, May 10, 1976, Pat. No. 4,076,161. This application Feb. 16, 1978, Ser. No. 878,383
The portion of the term of this patent subsequent to Feb. 28, 1995, has been disclaimed.
Int. Cl.³ B65H *17/36, 17/44*
U.S. Cl. 226—146 **1 Claim**



1. A pneumatically operated feeder for intermittently advancing stock into the work station of a punch press or the like: comprising
- a one-piece U-shaped generally rectangular frame that includes a main block portion, an end block portion and an intermediate plate-like portion that integrally interconnects the lower regions of said main block portion and said end block portion;
- said main block portion being formed at its side with an air supply inlet aperture;
- laterally adjustable stock guide means carried by said frame at said end block;
- a feed slide mounted for reciprocating movement on said plate-like frame portion, the lower side of said feed slide being provided with generally flat surfaces that slidably engage corresponding generally flat surfaces on the upper side of said plate-like frame portion;
- retaining means for retaining said feed slide on said plate-like frame portion for longitudinal reciprocatory movement;
- stock gripping means carried by said feed slide;
- fluid motor means carried by said feed slide for actuating said stock gripping means;
- a main fluid motor means disposed in said main block portion and having a movable piston and piston rod, the outer end of the later being connected to said feed slide; and
- valve means communicating with said air inlet aperture for controlling the operation of both of said fluid motor means and including a valve and a movable control member therefor mounted at one lateral side of said main block portion.

4,267,951
TAPE GUIDING METHOD AND APPARATUS
Frederic F. Grant, Bellflower, and Henry M. Martija, La Verne, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.
Filed Jul. 16, 1979, Ser. No. 58,225
Int. Cl.³ B65H *23/08*
U.S. Cl. 226—195 **32 Claims**



23. Apparatus for guiding a tape having a major tape surface extending between parallel tape edges, comprising in combination:
- first tape guide means extending across said major tape surface for supporting said advancing tape and including a first tape supporting surface;
- second tape guide means extending across said major tape surface for supporting said advancing tape and including a second tape supporting surface;
- means for stressing said advancing tape with said first tape guide means including said first tape supporting surface uniformly across said tape and at both of said edges, including means connected to said first tape guide means for mounting said first tape supporting surface;
- means connected to said second tape guide means for mounting said second tape guide means in spaced relationship to said first tape guide means;
- means for advancing said tape in a loop-shaped tape path relative to said first and second tape guide means, with said loop-shaped tape path having a first leg portion touching said first tape supporting surface on one side of

said first tape guide means, a second leg portion touching said first tape supporting surface on another side of said first tape guide means, and a bight portion interconnecting said first and second leg portions and extending about said second tape guide means in contact with said second tape supporting surface;

means for positioning the tape in said first leg portion at one of said tape edges, including a first reference surface extending at an acute angle to said first supporting surface;

means for positioning the tape in said second leg portion at said one tape edge, including a second reference surface extending at an acute angle to said first supporting surface; and

means coupled to said second tape guide means for imposing on said tape a yaw motion loading the tape at said one edge against said first and second reference surfaces.

4,267,952

FOUR BAR LINKAGE FASTENER LOADER

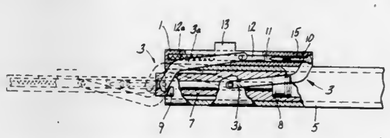
Stuart D. Kershner, Bethany, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Oct. 29, 1979, Ser. No. 89,644

Claims priority, application United Kingdom, Nov. 4, 1978, 43231/78

Int. Cl.³ B25C *1/18, 1/14*

U.S. Cl. 227—9 **4 Claims**



1. An improved fastener loading device adapted for use with a powder-actuated tool comprising a substantially tubular retaining member adapted to receive a fastener therein, means for retaining a fastener within said retaining member, push rod means carried by said retaining member and adapted to overcome said retaining means and controllably eject a fastener from said retaining member, and connecting means hingedly connected to said retaining member and adapted to be connected to a powder-actuated tool, said connecting means comprising at least two legs, disposed in spaced relation along the axis of said retaining member.

4,267,953

METHOD FOR ALLEVIATING THERMAL STRESS DAMAGE IN LAMINATES

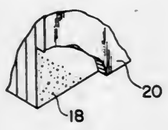
Charles A. Hoffman; John W. Weeton, both of Rocky Rivery, and Norman W. Orth, Cleveland, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 893,857, Apr. 6, 1979, Pat. No. 4,211,354.

This application Feb. 20, 1980, Ser. No. 122,967

Int. Cl.³ B23K *20/02*

U.S. Cl. 228—118 **3 Claims**



1. A method for making metallic composites comprising at least two alternating layers of metals and metal alloys having different coefficients of thermal expansion and defining an interface therebetween, said method comprising

providing a plurality of tungsten reinforcement layers,

providing a plurality of nickel-chromium alloy matrix layers,

positively introducing non-intersecting discrete discontinuities into the alloy matrix layers at said interface in said composite by placing inert particles between said reinforcement layers and said matrix layers at said interface so as to reduce thermal stress produced by the unequal thermal expansion of said alternating layers,

assembling said reinforcement layers and said matrix layers into alternating layers,

hot pressing said assembled reinforcement and matrix layers to form said composites, and

cooling said composities to ambient temperature.

4,267,954

METHOD OF MAKING NAILABLE STEEL FLOOR CHANNELS

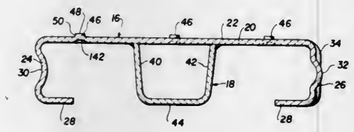
James T. Smith, Valparaiso, Ind., assignor to National Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 873,074, Jan. 27, 1978, Pat. No. 4,194,330.

This application Jul. 26, 1979, Ser. No. 60,770

Int. Cl.³ B21D *5/08;* **E04F** *15/06*

U.S. Cl. 228—173 D **4 Claims**



1. A method of forming nailable steel planking members having an anti-skid load-bearing surface thereon comprising

passing a running length of flat strip steel stock successively through a first plurality of sets of forming rolls, a set of die rolls, and a second plurality of sets of forming rolls to progressively form the initially flat steel strip into a structural channel member having a flat central web defining the load-bearing surface of the planking members with a plurality of die-formed anti-skid projections integrally formed on and projecting outwardly from the load-bearing surface and opposed first and second downwardly depending flanges formed one on each side edge of the central web with the flanges each terminating at their lower edge in substantially coplanar, inturned ledges, the first flange being formed with a longitudinally extending outwardly convex corrugation which is substantially complementary to the concave corrugation in the first flange,

the first plurality of forming rolls each having substantially smooth continuous central surface portions for engaging and maintaining the straight flat condition of the central section of the steel strip forming the central web of the channel and contoured side edge portions for roll forming the side edge of the steel strip into substantially the final configuration of the first and second flanges but with the first and second flanges being inclined outwardly from their final position in the structural channel,

the set of die rolls including at least one pair of opposed die rolls each including a first die roll having a plurality of spaced substantially cylindrical female die cavities formed in its outer periphery and a second die roll having a plurality of substantially spherical raised pressure elements on its outer periphery with the spacing of the pressure elements corresponding to the spacing of the die cavities in the first die roll, the first and second die rolls being rotated in synchronization with the die cavities and pressure elements engaging the central web portion of the channel being formed in opposition to one another with the pressure elements applying sufficient pressure to the steel strip to cause a cold flow of metal from the steel strip into the opposed die cavities to thereby form a plurality of longitudinally extending rows of anti-skid projections on the central web portion of the channel, the anti-skid projections each being substantially cylindrical and having a height no greater than about one-half the thickness of the strip steel being formed,

the second plurality of forming roll sets each having one roll engaging the surface of the strip on which the anti-skid projections are formed and having a plurality of annular grooves in its surface in position to receive the anti-skid projections,

the second plurality of forming rolls acting on the continuous strip to form the first and second flanges into their final position in the channel, and

welding a generally U-shaped reinforcing channel to the central web of the structural channel between the first and second flanges.

4,267,955

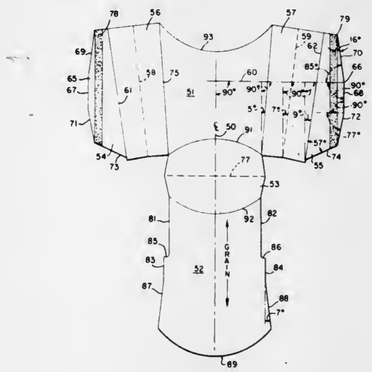
QUICKLY ERECTED SCOOP-TYPE CARTON AND LAYOUT FOR CUTTING

Glenn E. Struble, Oxford, Ohio, assignor to Diamond International Corporation, New York, N.Y.

Filed Jul. 25, 1979, Ser. No. 60,516

Int. Cl.³ B65D *5/36, 5/08*

U.S. Cl. 229—16 R **8 Claims**



1. A blank for forming a carton comprising

a bottom panel,

a pair of sidewall panels each connected to said bottom panel on opposite sides of said bottom panel,

end wall panels attached on opposite sides of one of said sidewall panels,

glue flaps attached to each of said end wall panels along opposite edges of said end wall panels from the edges of said end wall panels attached to said sidewall panels,

a portion of the outer edge of each of said glue flaps aligned parallel to a center line extending longitudinally through said bottom and sidewall panels,

a second portion of the outer edge of each of said glue flaps extending inward at an acute angle from said parallel edge portion,

the other one of said pair of sidewall panels having an edge portion on each side parallel to the center line extending longitudinally through said bottom and sidewall panels, and outwardly extending edge portions on each side of said sidewall panel extending at an obtuse angle from each of said parallel sidewall edge portions which obtuse angle is complementary to said acute angle of each of said second portions of the outer edges of said glue flaps.

4,267,956

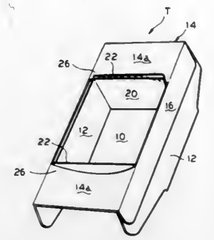
LIQUID TIGHT TRAY

Richard F. House, St. Charles; Karl A. Kohler, Roselle, both of Ill., and Philip W. Lewis, Greensboro, N.C., assignors to Container Corporation of America, Chicago, Ill.

Filed Jan. 25, 1980, Ser. No. 115,607

Int. Cl.³ B65D *5/36*

U.S. Cl. 229—30 **8 Claims**



1. A paperboard and film tray for holding liquid and readily erectable with one hand from a collapsed tubular blank, comprising:

(a) a bottom wall;

(b) a pair of opposed side walls foldably joined at their lower edges to and upstanding from opposed side edges of said bottom wall;

(c) a top wall foldably joined at opposed side edges to and extending laterally between upper edges of respective side walls;

(d) said top wall including a pair of co-planar end sections spaced from each other a distance not substantially less than the length of said bottom wall to form an opening therebetween for access to said tray;

(e) a pair of opposed end walls foldably joined at their lower edges to and extending upwardly from opposed end edges of said bottom wall;

(f) said end walls each having at least one upper portion engageable with an edge of an opening in said top wall to provide interlocking engagement between said end wall and said top wall;

(g) a relatively thin, flexible sheet of liquid impermeable material having marginal areas secured to certain of said side and end walls.

4,267,957

PACKING CONTAINER AND A LAMINATE FOR ITS MANUFACTURE

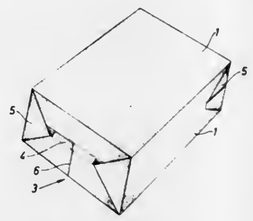
Sven N. H. Holmström, Löberöd, Sweden, assignor to Tetra Pak International AB, Lund, Sweden

Filed Nov. 15, 1979, Ser. No. 94,496

Claims priority, application Sweden, Nov. 21, 1978, 7811982

Int. Cl.³ B65D *5/08*

U.S. Cl. 229—37 R **15 Claims**



1. A packing container, comprising:

a first end wall having first, second and third consecutive edges with a first corner defined by the first and second edges and a second corner defined by the second and third edges;

a first wall joined to the first end wall along said first edge;

a second wall both joined to the first wall and connected to the second edge of the first end wall between said first and second corners by a corner lug;

a third wall both joined to the second wall and joined to the first end wall along said third edge;

said corner lug having a first crease line which extends between a central portion of the first end wall and an imaginary straight line between said first and second corners; and

a sealing fin extending both over the first end wall and the corner lug, said sealing fin being connected both to the first end wall and to the corner lug, said first crease line crossing the sealing fin between a central portion of the sealing fin of the first end wall and a portion of the sealing fin crossing said imaginary straight line between said first and second corners.

4,267,958

HINGE-LID CIGARETTE PACK

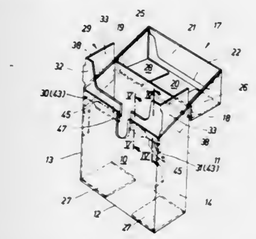
Heinz Focke, and Kurt Liedtke, both of Verden, Fed. Rep. of Germany, assignors to Focke & Co., Verden, Fed. Rep. of Germany

Filed Jul. 6, 1979, Ser. No. 55,206

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833494

Int. Cl.[3] **B65D** *5/66, 85/10*

U.S. Cl. 229—44 CB **9 Claims**



1. A hinge-lid cigarette pack folded from a unitary blank and including a lid hinged to a rear wall of the pack, the lid surrounding and engaging in its closed position an upstanding collar inwardly set back from a front and opposite side walls of the pack, characterized by:

(a) the collar being directly connected to the blank only by a pair of narrow residual connecting bridges (**30**, **31**) disposed at opposite ends of a front wall (**32**) of the collar and extending to corresponding opposite ends of the upper edge of the front wall (**10**) of the pack,

(b) an elongated intermediate reinforcing strip (**44**) disposed in the open blank between the upper edge of the front wall of the pack and a lower edge of the collar front wall and defined by a transverse separating cut (**40**) extending between and above the connecting bridges and a pair of angled perforation cuts (**42**) individually extending from opposite ends of the separating cut to transverse fold lines (**45**) on the bridges,

(c) the height of each perforation cut measured transverse to the length of the intermediate reinforcing strip being less than the width of the strip, and

(d) the collar and intermediate reinforcing strip being Z-folded inwardly about the upper edge of the front wall of the pack and the transverse fold lines, with the strip lying against the inner surface of the upper front wall portion of the pack and engaging the lower edge of the collar front wall.

4,267,959

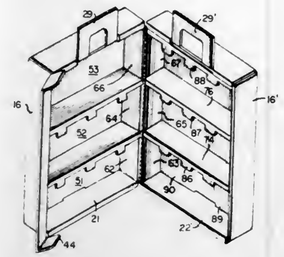
HINGED PAPERBOARD CONTAINER

Earl F. Gilbert, Farmington Hills, Mich., assignor to Westvaco Corporation, New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 87,013

Int. Cl.[1] **B65D** *5/46, 25/22, 5/22*

U.S. Cl. 229—52 B **4 Claims**



1. A container with integral handles formed from a single blank of corrugated paperboard or the like comprising a pair of connected trays which are foldable to meet one another and provide a single package enclosing a volume equal to the combined volume of each tray, the improvement wherein each tray comprises a reinforced construction including a bottom wall with foldably attached side walls, a plurality of end wall reinforcing flaps foldably attached to the ends of said side walls and a locking flap foldably attached to an edge of one of said side walls for frictionally locking said paired trays together, a multiple thickness end wall at the bottom of each tray and a handle containing end wall at the top of each tray, each bottom end wall having a triple thick construction consisting of a pair of panels which are folded together to capture a pair of end wall reinforcing flaps, each bottom end wall being held together by a locking tab on the end of one of said panels which is inserted in a cooperating locking slot in said bottom wall, each top end wall having a triple thick construction except in the handle area consisting of an outermost panel and an innermost panel, said outermost panel comprising three parts including a first centrally located handle portion which extends upwardly from the top end wall, and a pair of abbreviated locking flaps which are folded over to lie adjacent to said innermost panel and capture a pair of end wall reinforcing flaps, each top end wall being held together by locking tabs on the ends of said abbreviated locking flaps which are inserted in cooperating locking slots in said bottom wall.

4,267,960

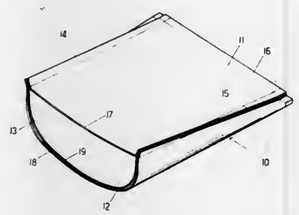
BAG FOR VACUUM PACKAGING OF MEATS OR SIMILAR PRODUCTS

Keith D. Lind, and Deane E. Galloway, both of Appleton, Wis., assignors to American Can Company, Greenwich, Conn.

Filed Aug. 29, 1979, Ser. No. 70,734

Int. Cl.[3] **B65D** *33/02, 81/14, 85/00;* **B65B** *25/00*

U.S. Cl. 229—55 **10 Claims**



1. An open ended bag adapted for the packaging of meat having bone protrusions, comprising:

(a) two outer rectangular panels each having front, back and side edges with the corresponding side edges of each panel being equal in length, the front and back edges of one of the panels being substantially longer than the corresponding front and back edges of the other panel so that the one panel is substantially wider than the other panel, each of said outer panels being formed of an inner layer of a thermoplastic heat sealable material and an outer layer of plastic material which is not affected by temperatures required to seal the heat sealable material;

(b) an inner boneguard panel, to resist puncture by the bone protrusions, with surfaces of heat sealable thermoplastic material and having front, back and side edges which are substantially equal in length to those corresponding front, back and side edges of said larger outer panel, said inner panel being secured at its side edges and along one of its back edges between and to said two outer panels by heat seals formed along said corresponding side edges of the two outer panels and by a heat seal formed along the entire length of the back edge of the smaller outer panel so that all three panels are secured and sealed together along their corresponding side edges and back edges, and with the portions of the back edges of the larger outer panel and the inner panel extending outwardly from the back edge of said smaller outer panel being folded over and heat sealed together, so that an open ended bag is formed to allow insertion of a meat product therein, with the boneguard panel being fixed in place co-extensive with the wider outer panel so that the bag has an inner panel of additional protective material extending over more than 50% of the inner surface of the bag, and all facing surfaces of said three panels at the open front end of the bag being heat sealable so that the bag may be closed by pressing the front edges of the bag panels together under heat and pressure after the product has been inserted.

4,267,961

PHOTOCROSSLINKABLE, HIGH-TEMPERATURE-RESISTANT POLYMERS AND THEIR USE IN COLOR IMAGING DEVICES

Thomas W. Martin, Rochester; Mohammad A. Sandhu, Pittsford, and Dennis J. Savage, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 940,057, Sep. 6, 1978, Pat. No. 4,190,446. This application Sep. 14, 1979, Ser. No. 75,621

Int. Cl.[3] **G03F** *5/00;* **G03C** *1/76;* **H01L** *31/04;* **G02B** *1/04*

U.S. Cl. 250—226 **10 Claims**

1. In a color filter array comprising a layer of a transparent polymer containing a planar array of filter elements, wherein each of said filter elements contains a heat-transferable dye, the improvement wherein said polymer is a photocrosslinkable organic solvent-soluble condensation polymer having at least two recurring units and a Tg greater than 200° C., wherein said polymer contains sufficient ethylenically unsaturated radiation-sensitive crosslinkable units to render said polymer insoluble in organic solvents on exposure to radiation to which said crosslinkable units are sensitive.

4,267,962

SECURITY SYSTEM

Ronald A. Domkowski, Arlington Heights, Ill., assignor to Honor-Gard System, Chicago, Ill.

Filed Jun. 29, 1979, Ser. No. 53,427

Int. Cl.[1] **G07F** *9/06*

U.S. Cl. 232—15 **12 Claims**

1. A security system for mounting a coin-collecting container in a plurality of operating positions on a coin-processing machine, said system comprising:

a mounting member removably attached to said container including a coin-receiving aperture for directing coins into said container;

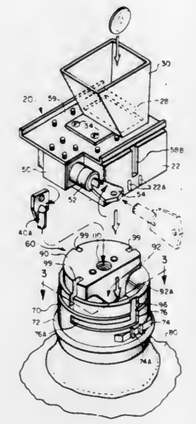
rotatable closure means movable on said member between an opened position allowing coins to pass through said aperture and a closed position blocking the passage of coins through said aperture;

first actuating means on said member for selectively driving said closure means between said opened and closed positions;

abutment means arranged in a plurality of selected positions on said member;

a housing adapted for connection to said coin-processing machine and further adapted to releasably connect said mounting member and the associated container to said machine, said housing including means for receiving coins processed by said machine and directing the coins into said container;

a plurality of locking stations defined by said housing and arranged in selected positions about the housing, each



station being alignable with at least one of said abutment means with said member connected to said housing;

second actuating means on said housing and engagable with said first actuating means to drive said closure means into said opened position as said member is rotated with respect to said housing to align one of said abutment means with one of said locking stations; and

integral locking means adapted to be positioned at one of said locking stations and including a locking detent movable between a locked and an unlocked position, said locking means and detent being arranged to permit relative rotation of said member and said housing in said unlocked position and further arranged to engage said locking detent with said abutment means on said member, to thereby prevent the relative rotation of said member and said housing, with said detent in said locked position.

4,267,963

SAFETY DEVICE FOR CENTRIFUGAL SEPARATOR

Hugo Zurbrüggen, Oelde, Fed. Rep. of Germany, assignor to Westfalia Separator Aktiengesellschaft, Oelde Westfalen, Fed. Rep. of Germany

Filed Oct. 30, 1979, Ser. No. 89,701

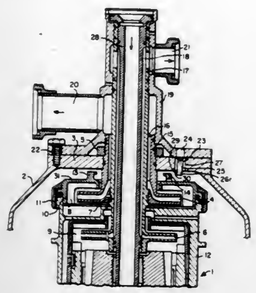
Claims priority, application Fed. Rep. of Germany, Oct. 30, 1978, 2847106

Int. Cl.[1] **B04B** *7/06, 11/08*

U.S. Cl. 233—1 B **8 Claims**

1. In a centrifugal separator comprising a rotatable drum for the separation, a stationary hood surrounding the drum with clearance, at least one paring disk secured by releasable fastening means to the hood and disposed in the drum with clearance with respect to the drum and for withdrawal of material separated in the drum, each paring disk having a shaft for conveying the separated material away from the paring disk, and an offtake for receiving separated material from the shaft, sur-

rounding the shaft and fastened to the hood top, said releasable fastening means being inaccessible when the offtake is in place on the hood, the improvement which comprises a safety device for locking the offtake in place on the hood when the drum is rotating, comprising first permanent magnet means mounted on the drum extending only part way around the drum axis, second permanent magnet means mounted on said offtake for



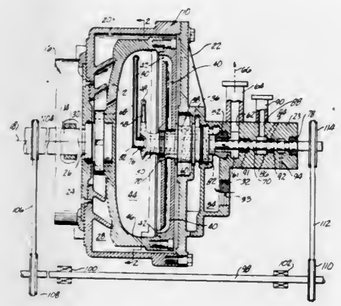
actuation in response to interaction of the first and second magnet means when the drum is rotating, and effective when actuated to lock the offtake on the hood, the portion of the drum over which the first magnet member does not extend providing a relatively non-magnetic zone which is long enough so that the lock can be disengaged when the drum is not rotating by disposing the second magnet means opposite said zone.

4,267,964

CENTRIFUGAL SEPARATOR WITH ROTATING PICK-UP TUBE

Carter P. Williams, Yosemite, Calif., assignor to Kobe, Inc., Huntington Park, Calif.

Filed Oct. 1, 1979, Ser. No. 80,420
Int. Cl.³ B04B *11/08*; F04D *1/14*
U.S. Cl. 233—21 **10 Claims**



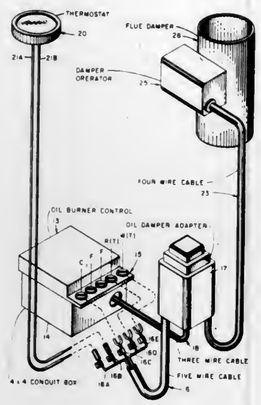
1. A centrifugal pitot pump having a casing; means for rotating the casing in a selected direction of rotation; means for delivering fluid to the interior of the casing; a stationary inner pitot tube having a fluid outlet relatively nearer the axis of rotation of the casing for withdrawing fluid from an intermediate region of the casing into the inner pitot tube; an outer pitot tube having a fluid outlet relatively nearer the periphery of the casing; and means for rotating the outer pitot tube in the same direction of rotation as the casing, but at a slower speed than the casing to withdraw fluid from a peripheral region of the casing into the outer pitot tube.

4,267,965

OIL BURNER CONTROL SYSTEM WITH FLUE DAMPER ADAPTER CIRCUIT

William F. Everett, Goshen, Ind., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Sep. 13, 1978, Ser. No. 941,963
Int. Cl.³ F23N *3/00*; G05D *23/00*
U.S. Cl. 236—1 G **18 Claims**



1. In combination with an oil burning unit having a burner motor and ignition circuit; oil burner control means for energizing said burner motor and ignition circuit in response to a control signal; and a thermostat in a space to be heated by the unit for generating a call-for-heat signal, said unit exhausting combustion gases through a flue, the improvement comprising:

a flue damper assembly including a damper plate movable between an open position and a closed position;

damper operator means including a second motor for driving said damper plate to said positions and including means for generating a first signal when said damper plate is in said closed position and a second signal when said damper plate is in said open position; and

adapter circuit means comprising:

a source of energy connected in circuit with said thermostat and said second motor for energizing said second motor in response to a call-for-heat signal to move said damper plate to said open position, said damper operator means de-energizing said second motor when said damper plate is in said open position;

first switching circuit means including a first pair of contacts connected in circuit with said burner control means for generating said control signal to energize said burner motor and ignition circuit in response to said second signal of said damper operator means, and for removing said control signal when said call-for-heat signal is removed;

delay circuit means responsive to an input signal for generating an output signal a predetermined time after said input signal and coupled to said damper operator means for moving said damper plate to said closed position; and

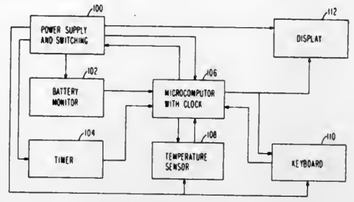
second switching circuit means responsive to the de-energization of said burner motor and ignition circuit when said call-for-heat signal is removed by said thermostat for generating said input signal to said delay circuit means to close said damper plate after said predetermined time has lapsed.

4,267,966

PROGRAMMABLE THERMOSTAT

Robert M. Neel; James B. Waite, and Myron Yoknis, all of Ft. Collins, Colo., assignors to Teledyne Industries, Inc., Ft. Collins, Colo.

Filed Aug. 27, 1979, Ser. No. 69,870
Int. Cl.³ F23N *5/20*; G05B *11/01*
U.S. Cl. 236—46 A **10 Claims**



1. A programmable thermostat comprising:

a housing assembly;

switching means mounted on said assembly for selective operation by the user;

an indicator mounted on said assembly for signaling to the user;

a circuit unit mounted within said assembly and interconnected to receive signals from said switching means and to deliver signals to said indicator, said circuit unit including a read only memory permanently programmed to enable defining a pattern of unit values of temperature desired at different times on different days of a week selectively all individually and in various combinations of said days and the times therein, said circuit unit further including a random access memory, coupled to and addressable by said switching means, interrelated with said read only memory for effecting the selected particular definition of said pattern;

a temperature sensor mounted within said assembly and responsive to ambient air temperature to deliver a temperature-representative signal to said circuit unit;

and connecting means for coupling said circuit unit to an external device to be controlled in response to previous operation of said switching means and governed in response to said temperature-representative signal.

4,267,967

TWO-SPEED AUTOMATIC CONTROL OF SUPPLY FANS

Joseph H. Beck, North Merrick, and Paul F. Orilio, Brooklyn, both of N.Y., assignors to J.C. Penney Company Inc., New York, N.Y.

Filed Aug. 28, 1978, Ser. No. 937,163
Int. Cl.³ F24F *7/00*; G05B *5/00*
U.S. Cl. 236—49 **10 Claims**

1. An energy-saving system for maintaining air temperature comfort in a zone of a structure comprising:

means for sensing the ambient temperature in the zone;

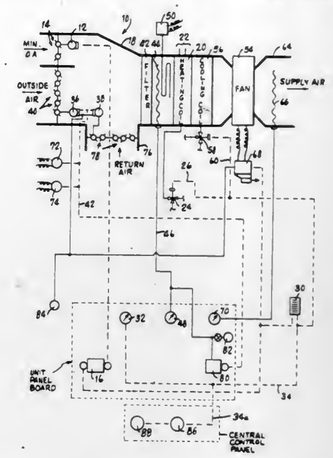
fan means for supplying air into the zone;

means for temperature conditioning the supplied air;

starter means for starting said fan means and having a high speed coil and a low speed coil;

two-speed motor means for driving said fan means to distribute the conditioned and supplied air in the zone, said motor means having a high speed and a low speed winding; and

control means for selectively coupling said high speed and said low speed winding to the corresponding one of the starter means coils to produce two fan driving speeds, each exceeding at least one-half of the rated maximum speed of the fan means, said control means being responsive to the temperature sensing means for separately actuating the temperature conditioning and having a selectable first operational state wherein irrespective of the temperature sensing means the low speed starter means coil and the corresponding motor means winding are energized to produce said low fan speed, with said low fan speed being less than the rated maximum speed of the motor so as to reduce energy consumption of the system, and a selectable second operational state wherein the high speed starter means coil and the corresponding motor



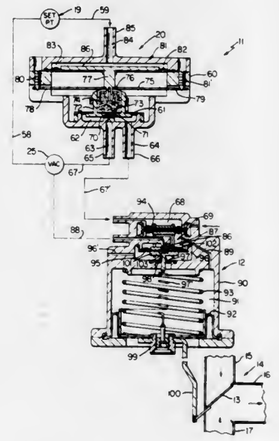
means winding are energized to produce said high fan speed in response to the temperature sensing means irrespective of energy consumption, and automatic switching from the high fan speed to the low fan speed occurs when the ambient temperature sensed drops below a preselected temperature.

4,267,968

PNEUMATIC CONTROL SYSTEM AND PARTS THEREFOR AND METHODS OF MAKING THE SAME

Douglas R. Scott, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 864,455, Dec. 27, 1977, Pat. No. 4,194,687.
This application Jul. 25, 1979, Ser. No. 60,671
Int. Cl.³ F24F *7/06*
U.S. Cl. 236—49 **13 Claims**



1. In a pneumatic control system for controlling a pneumatically operated device in relation to the operation of a pneu-

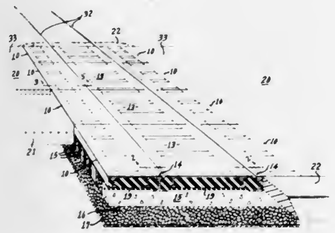
matic signal sending thermostat and a pneumatic signal sending set point adjuster, said thermostat having a temperature sensor and a pneumatically operated temperature setting means therefor, said set point adjuster having means for directing its said pneumatic signal to said setting means to set said temperature sensor to a particular temperature setting thereof, said thermostat having an output chamber for directing its said pneumatic signal to said device to control said device in relation to the differential between the temperature sensed by said temperature sensor and said temperature setting thereof, said thermostat having valve means to create said pneumatic signal thereof and having interconnection means interconnected to said valve means, said temperature sensor being interconnected to said interconnection means, the improvement wherein said pneumatically operated temperature setting means of said thermostat is located remote from said output chamber thereof and is interconnected to said interconnection means outboard of said temperature sensor whereby said temperature sensor is effectively disposed intermediate said valve means and said pneumatically operated temperature setting means, said temperature sensor comprising a bimetal member, said setting means comprising a flexible diaphragm carried by said thermostat and being operatively interconnected to said bimetal member by said interconnection means, said valve means comprising a fixed valve seat carried by said thermostat and a movable valve member carried by said thermostat, said flexible diaphragm and said bimetal member being operatively interconnected to said valve member by said interconnection means.

4,267,969

RAILROAD GRADE CROSSING CONSTRUCTION

Harvey E. Hales, and Edmund R. Fredrick, both of St. Augustine, Fla., assignors to Railroad Concrete Crosstie Corporation, St. Augustine, Fla.

Filed Aug. 24, 1979, Ser. No. 69,292
Int. Cl.³ E01C 9/04
U.S. Cl. 238—8 **12 Claims**



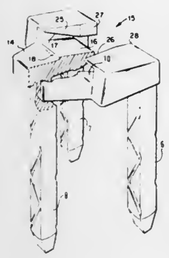
1. In a railroad grade crossing where a highway intersects a pair of parallel railroad rails supported by and affixed to a plurality of substantially rigid and non-compressible parallel ties, the associated structure interfacing the highway and the rails comprising a plurality of interior panels between said pair of rails and a pair of pluralities of exterior panels joining the outside of each rail to said highway, each of said interior and exterior panels being generally in the shape of a right rectangular prism having an upper rectangular surface, a lower rectangular surface, and four rectangular sides, each panel constructed of four railroad rail sections forming the sides of said panel and being positioned with the base of the rail section in the upper surface of the panel, said four rail sections being joined with sufficient reinforcing metal cross pieces to produce a rigid structure with all the remaining space between the upper and lower surfaces of said panel interiorly of said four rail sections filled with structural concrete, and with all exterior irregularities, including the exterior portions around said four rail sections, filled with an elastomeric compound; each said interior panel having on its lower surface in the vicinity of each corner a guideway opening through said lower surface and terminating spacedly downwardly from said upper surface and cooperating with respective and spaced studs firmly attached to and upwardly projecting from said parallel ties underlying said guideways, each said exterior panel having on its lower surface at least a pair of guideways opening through said lower surface and terminating spacedly downwardly from said upper surface, at least a pair of studs firmly attached to and upwardly projecting from respective and spaced said parallel ties underlying said pair of guideways; and each panel being substantially completely supported on a plurality of said parallel ties and separated therefrom by a layer of an elastomeric compound, said studs in said guideways of said interior and exterior panels permitting limited lateral and vertical relative movement between said ties and panels with said layer of elastomeric compound dampening the vibrational relative movement therebetween.

4,267,970

HOLDER FOR A GUIDING STRUCTURE

Marius H. Lubbers, Wassenaar, Netherlands, assignor to Everts & Van der Weyden Exploitatiemaatschappij Ewem/N.V., The Hague, Netherlands

Filed Jun. 13, 1979, Ser. No. 48,041
Claims priority, application Netherlands, Jun. 13, 1978, 7806398
Int. Cl.³ E01B 9/28, 9/44
U.S. Cl. 238—310 **5 Claims**



1. A holder for receiving resilient clamping means and adapted to be anchored to a railway sleeper such that the clamping means resiliently bears upon an associated rail foot, said holder comprising a body having a pair of longitudinally spaced upstanding portions having opposed side surfaces defining a channel therebetween, each of said side surfaces including a portion which tapers inwardly with respect to said channel whereby to define, with such portion of the other side surface, a convergent mouth for said channel, each upstanding portion being undercut to define a receiving slot and said body having a downwardly sloping floor defining the bottom of such slot, said body including a laterally projecting portion defining a generally horizontal upper surface leading to said floor, said undercut portions presenting downwardly inclined overhang surfaces spaced above said floor, and said body also including depending anchor posts disposed in a triangular pattern, one below each upstanding portion and one below said laterally projecting portion.

4,267,971

METHOD AND MEANS OF PRESETTING THE OUTPUT RATE OF A CENTRIFUGAL PUMP AGRICULTURAL METERING SYSTEM

Douglas Johnston, Decatur, Ala., assignor to John Blue Company, New York, N.Y.

Continuation-in-part of Ser. No. 946,048, Sep. 26, 1978, abandoned. This application May 18, 1979, Ser. No. 40,309
Int. Cl.³ B05B 9/06
U.S. Cl. 239—11 **16 Claims**

1. In a system for applying liquid agricultural chemicals to the soil from driver-operated self-propelled moving vehicle

means at a substantially constant preselected rate, in amount per unit area, substantially independent of vehicle speed, the combination comprising:

centrifugal pump means of the type having its outlet pressure substantially proportional to the square of its speed, for receiving liquid from a source of supply and delivering it to liquid discharge orifice means for applying the liquid to the soil, flow through said orifice means being substantially proportional to the square root of the pressure of liquid delivered thereto;

means for driving said pump means at a rate substantially directly proportional to vehicle means speed;

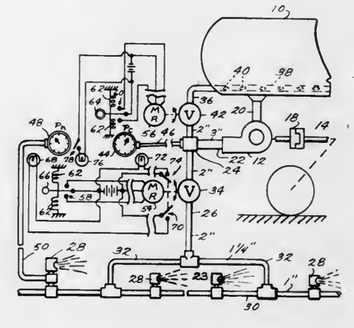
a delivery line connected to the outlet of said pump means;

a shut-off valve in said delivery line;

first means controllable by the vehicle means driver for operating said shut-off valve;

a by-pass line connected to the outlet of said pump means for returning liquid to the source of supply;

adjustable orifice means in said by-pass line for controlling upstream of said adjustable orifice means;



second means controllable by the driver while the vehicle means is moving for adjusting said adjustable orifice means;

and a pressure gauge readable by the driver while the vehicle means is moving and connected to said lines upstream of said valve and said adjustable orifice means;

whereby the driver can select an application rate, predetermined a pressure upstream of said valve when the latter is closed and when the vehicle means is moving at a predetermined speed with said pump means being driven which will result in the selected application rate when said valve is opened, close said valve, operate the vehicle means to move at the predetermined speed with said pump means being driven while the vehicle means is so moving, adjust said adjustable orifice means to attain said predetermined pressure in said lines upstream of said valve while the latter is closed, and then open said valve to apply liquid at the selected rate substantially independent of vehicle means speed.

4,267,972

PNEUMATICALLY OPERATED GATED IRRIGATION SYSTEM

Donald E. Bryant, Larned, Kans., assignor to FarmTronics Inc., Larned, Kans.

Filed Oct. 17, 1979, Ser. No. 85,588
Int. Cl.³ A01G 25/02; F16K 3/00, 31/12
U.S. Cl. 239—66 **21 Claims**

1. In an irrigation system utilizing an irrigation pipe having longitudinally spaced openings therein from which water may be discharged, and a plurality of gates associated with respective openings and each movable between an open position in which water is permitted to discharge from the associated opening and a closed position sealing the opening, the improvement comprising:

a fluid-operated actuator having a cylinder component provided with a piston component therein;

means securing one of said components to said pipe, whereby the other component moves relative to the pipe in response to fluid pressure in said cylinder component;

a longitudinally shiftable operating member extending along said pipe, provided with means for operably coupling the



same with said gates, and having a passage therein communicating with said cylinder component for flow of fluid along the member to the cylinder component;

means connecting said other component to said member for movement of the member with the other component to operate the gates; and

means coupled with said member for delivering fluid under pressure to said passage for flow to said cylinder component, whereby to shift the member to open or close the gates.

4,267,973

PARKING LOT AND HIGHWAY SAFETY LINE-PAINTING MACHINE

James J. Stewart, 3817 Capers Ave., Columbia, S.C. 29205

Filed Jan. 27, 1978, Ser. No. 872,772
Int. Cl.³ B05C 5/00
U.S. Cl. 239—73 **13 Claims**



1. An implement for painting lines on the surface of highways, parking lots and the like which comprises:

a vehicle including a motor for propelling same, at least one steerable front ground engaging wheel and a frame;

an air compressor mounted on said frame in the forward portion of said vehicle;

a tank for paint mounted on the rearward portion of said vehicle;

an elongated pressurized paint container mounted on one side of said frame whereby it is inclined downwardly towards the front of said vehicle;

swivel clamp means mounted on said frame forward of said container;

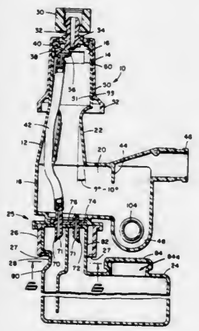
boom means held by said clamp means whereby it extends downwardly towards the front of said vehicle, said boom means being selectively turnable about its longitudinal axis and selectively extensible along its longitudinal axis relative to said clamp means, said clamp means being selectively movable within an arc of movement as seen from the side and further within an arc of movement as seen from above;

an air spray paint gun mounted at the forward end of said boom means;

a first air conduit provided between said compressor and said paint container for applying air pressure to the latter;

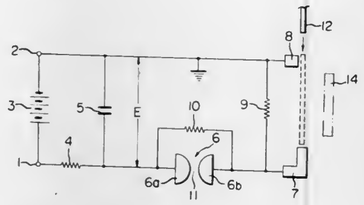
a second air conduit connecting said compressor to said paint spray gun;
a third air conduit connecting said compressor to the forward end of said container;
a first paint conduit from said paint tank to said container;
a second paint conduit connecting said container to said paint spray gun;
control valve means in said second air conduit for selectively actuating opening and closing said second air and paint conduits whereby paint and air under pressure are selectively received by said paint gun, and further valve means in said third air conduit for selectively providing air for agitating paint contained in said container; and guide means interconnected to said steerable wheel, said guide means adapted to be pointed at area on said surface towards which said paint spray gun is directed when supported by said boom means, whereby said paint spray gun is adapted to move in the direction to be travelled by said vehicle and to indicate where said paint spray gun will paint on said surface.

4,267,974
NEBULIZER DEVICE
Charles M. Kienholz, Upland, and Clifford D. Bennett, Alta Loma, both of Calif., assignors to C. R. Bard, Inc., Murray Hill, N.J.
Filed Jul. 25, 1979, Ser. No. 60,393
Int. Cl.³ B67D *5/38;* **A61M** *11/06*
U.S. Cl. 239—74 **22 Claims**



1. A nebulizer device comprising:
(a) a body defining an initial nebulization chamber, a subsequent baffling chamber and a venturi means therebetween;
(b) means on said body for connecting said nebulization chamber to a source of pressurized gas;
(c) air intake means disposed on said body adjacent said nebulization chamber for providing said nebulization chamber with air in predetermined quantities;
(d) aerosol means for producing a conical aerosol spray of fine particles of liquid entrained in said gas and subsequently flowing to said baffling chamber along said flow path, said aerosol means located in said nebulization chamber upstream of said venturi means such that flow of said aerosol through said venturi means draws air through said intake means thereby diluting said aerosol, said nebulization chamber, baffling chamber and venturi means configured so as to form a straight, uninterrupted flow path from said aerosol means to said baffling chamber;
(e) means for supplying said aerosol means with a liquid;
(f) said venturi means located downstream of said air intake means and defined by a converging section in flow communication with said nebulization chamber and a diverging section in flow communication with said baffling chamber, said venturi means increasing the flow rate of air through said intake means and directing said air and said aerosol into said baffling chamber, said aerosol means located in said nebulization chamber sufficiently upstream of said venturi means such that said conical spray impacts on said converging section of said venturi means; and
(g) outlet means in flow communication with said baffling chamber for directing said aerosol out of said baffling chamber.

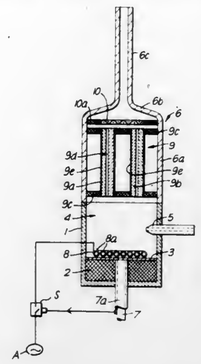
4,267,975
APPARATUS FOR WIRE EXPLOSION SPRAY COATING
Takeshi Goto, Akashi; Akio Tanaka, Ono, and Yasuo Suzuki, Nagaokakyo, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe and Nissin Electric Co., Ltd., Kyoto, both of, Japan
Filed Mar. 19, 1979, Ser. No. 21,704
Claims priority, application Japan, Mar. 20, 1978, 53-32236[U]
Int. Cl.³ B05C *13/00*
U.S. Cl. 239—83 **3 Claims**



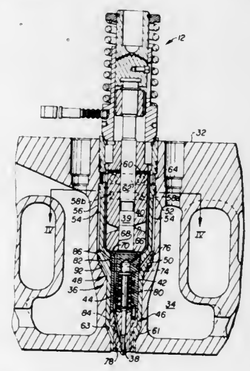
1. Apparatus for wire spray coating including capacitor means connected with electric power source means to be charged thereby, gap switch means having discharge electrodes which are spaced apart from each other so that a discharge is produced under a voltage applied by the capacitor means, and wire receiving terminals which are spaced apart to receive a length of wire of coating material therebetween, said terminals being connected with the capacitor means so that charge of the capacitor means is applied to the terminals through the switch means, said discharge electrodes being maintained at a fixed distance, wherein a discharge across the electrodes is readily produced when the electrodes are supplied with the voltage from the capacitor means, voltage dividing means for applying a fraction of the voltage across the capacitor means to the discharge electrodes and a remainder of the voltage to the wire receiving terminals when the wire is not in position between the terminals, but for applying substantially a total voltage of the capacitor means when the wire is in position between the terminals.

4,267,976
APPARATUS FOR VAPORIZING AND ATOMIZING LIQUIDS
Francis R. Chatwin, Higher Polgassic, Lansallos, Polperro, Looe, Cornwall, England (PL13 2PY)
Filed Mar. 10, 1978, Ser. No. 885,341
Int. Cl.³ F02M *31/18*
U.S. Cl. 239—102 **9 Claims**

1. Apparatus for vaporising and atomising liquids comprising:
a casing,
means within said casing defining an internal chamber,
a heater within said chamber,
means for supplying electrical current to operate said heater,
a resonant plate within said chamber,
a transducer attached to said resonant plate, said transducer operating, when energised, to vibrate said plate at an ultrasonic frequency,
a liquid injector pipe projecting into said chamber,
a vapor discharge duct extending from said chamber,
a thermally conductive element in thermal contact with said resonant plate and extending into contact with a heat source spaced from said apparatus, and
a thermal switch sensitive to the temperature of said thermally conductive element, said switch operating to disconnect said heater from its supply of current when said thermally conductive element attains a critical temperature in the vicinity of the operating temperature of said heater.

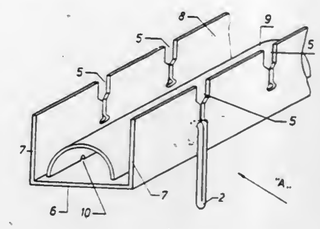


4,267,977
TEMPERATURE CONTROLLED UNIT INJECTOR
Alan R. Stockner, Chillicothe, and Michael K. Stratton, Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US 79/00382, § 371 Date Jun. 4, 1981, § 102(e) Date Jun. 4, 1981, PCT Pub. No. WO80/02654, PCT Pub. Date Dec. 11, 1980.
This PCT application filed Jun. 4, 1979, Ser. No. 85,341
Int. Cl.³ B05B *15/00*
U.S. Cl. 239—132.3 **10 Claims**



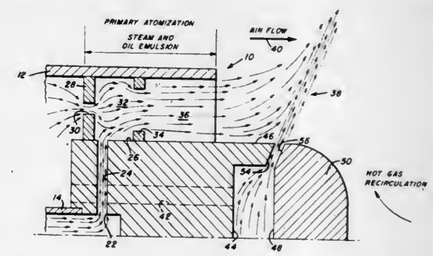
1. A unit fuel injector apparatus (**12**) comprising:
a cylinder head (**32**) defining a bore (**50**) and inlet and outlet fluid passages (**58***a*,**58***b*) connected to the bore (**50**);
a retainer sleeve (**48**) having a nozzle end (**36**), an outer peripheral surface (**56**), a circumferential groove (**52**) opening on the surface (**56**), and first and second axially oriented passages (**54***a*,**54***c*) opening on the surface (**56**) and connected to the groove (**52**); and
means (**96**) for separating one portion (**52***a*) of the groove (**52**) from another portion (**52***b*) of the groove (**52**), the retainer sleeve (**48**) being releasably connected in the bore (**50**) and aligning the one portion (**52***a*) with the inlet passage (**58***a*) and the another portion (**52***b*) with the outlet passage (**58***b*), the first axially oriented passage (**54***a*) communicating temperature controlling fluid from the one portion (**52***a*) toward the nozzle end (**36**), and the second axially oriented passage (**54***c*) communicating temperature controlling fluid away from the nozzle end (**36**) and toward the another portion (**52***b*).

4,267,978
LIQUID DISTRIBUTION DEVICE IN LIQUID-VAPOR CONTACT APPARATUS
Rolf P. C. Manteufel, Epiceadreef 11, B-2180 Kalmthout-Heide, Belgium
Filed Aug. 21, 1979, Ser. No. 68,465
Claims priority, application Belgium, Jan. 9, 1979, 873352
Int. Cl.³ B05B *1/36, 1/20*
U.S. Cl. 239—193 **4 Claims**



1. A device for the even distribution of liquids onto an area, said device comprising a distributor trough having vertically extending walls, overflow slits distributed along said walls and liquid guide means extending from each said slit, said liquid guide means comprising a pin-shaped pair of arms spaced from each other, each said overflow slit being wider at the top and narrower at the bottom with said liquid guide means extending from the outside face of the bottom of each said overflow slit, each said liquid guide means having a free end being disposed below the level of the bottom of the trough.

4,267,979
DUAL-PHASE ATOMIZER
George F. Lomax, Tyler, Tex., assignor to Howe-Baker Engineers, Inc., Tyler, Tex.
Filed Nov. 19, 1979, Ser. No. 95,301
Int. Cl.³ B05B *7/08;* **F23D** *11/40*
U.S. Cl. 239—419 **7 Claims**



1. In apparatus for atomizing a fluid fuel; an atomizer body having an inlet end, a distal outlet end, and a longitudinal axis extending between said ends, a chamber defined in said body through the inlet end thereof, at least one primary atomization port at the periphery of the body, said port generally paralleling the body and including inlet and outlet ends, a fluid passage communicating said chamber with said port between the inlet and outlet ends thereof, first means for supplying fluid fuel, second means for providing a primary flow of atomizing medium under pressure, one of said supplying means communicating with said port at the inlet end thereof, the other of said supplying means communicating with said port through said

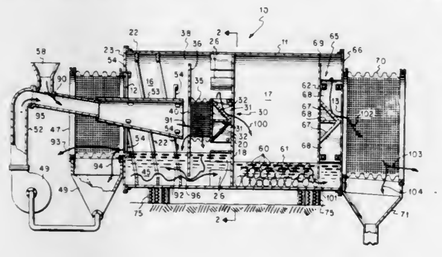
chamber and said fluid passage for an introduction, mixing and atomizing of the fluid fuel with the atomizing medium within the port and a subsequent pressurized discharge flow of atomized fuel from said port at the outlet end in a direction generally paralleling the longitudinal axis of said body, and means for introducing a secondary direction defining flow of atomizing medium laterally outward into the path of the discharge flow of atomized fuel at a greater velocity than that of the discharge flow to effect a laterally outward spreading of the atomized fuel relative to the body, and a thinning of the atomized fuel in a layer on the upstream surface of the secondary flow.

4,267,980

SEPARATOR

Albert E. LaPoint, Socorro, N. Mex., assignor to Cal West Metals, Long Beach, Calif.

Filed Nov. 26, 1979, Ser. No. 97,489
Int. Cl.[3] B02C *23/18, 23/08*
U.S. Cl. 241—20 **6 Claims**



1. Apparatus for separating an input material having floating and sinking fractions, comprising:

a separation container with two ends, one end for overflowing the floating fraction, and another end for discharging the sinking fraction;

an input flow stream to introduce the fractions to be separated and a fluid near the sinking fraction discharging end;

a partition inside the container to isolate the floating fraction to the floating fraction overflowing end;

means to separate fluid from the input flow stream to introduce at least a part of the input flow stream behind the partition, whereby the fluid flow is established in a direction from the sinking fraction discharging end to the floating fraction overflowing end past the partition;

means for moving the sinking fraction in a direction opposite the fluid flow path past the partition toward and out of the sinking fraction discharging end and substantially in contact with the flow stream to be scrubbingly contacted thereby;

and means for returning fluid overflowing the container at the floating fraction overflowing end to the input flow stream.

2. The apparatus of claim 1 further comprising:

a secondary sizing container for receiving the sinking fraction from the sinking fraction discharging end;

a quantity of grinding balls in the sizing container to reduce the size of the sinking fraction therein;

a partition in said sizing container to permit only sinking fraction particles of at least a predetermined small size pass;

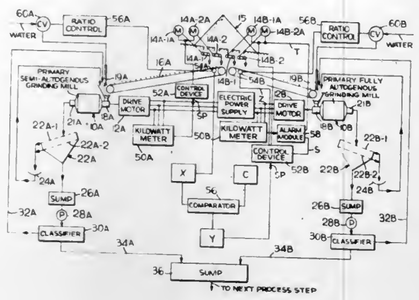
and means for discharging the sinking fraction which has passed the partition from said sizing container.

4,267,981

GRINDING SYSTEM AND METHOD UTILIZING CONSTANT FEED RATE SOURCE

Chester A. Rowland, Jr., Glendale, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 19, 1979, Ser. No. 95,392
Int. Cl.[3] B02C *25/00*
U.S. Cl. 241—30 **16 Claims**



1. A method of grinding mineral ore which is adapted for use where ore is required to be fed for grinding from a supply source at a substantially constant rate of feed and in which the grinding characteristics of said ore and the power required to grind a predetermined weight of said ore vary unpredictably during the grinding operation comprising the steps of:

(1) connecting a primary semi-autogenous grinding mill and a primary fully autogenous grinding mill in parallel relation with each other to an ore supply source;

(2) measuring the input power required to drive said semi-autogenous grinding mill;

(3) varying the ore feed rate to said semi-autogenous grinding mill whereby to maintain the input power required to drive said semi-autogenous grinding mill at a substantially constant value or set point;

(4) measuring the rate of ore flow to said semi-autogenous grinding mill with said input power to said semi-autogenous grinding mill being maintained at said substantially constant value;

(5) comparing the measured rate of ore flow to said semi-autogenous grinding mill with the substantially constant rate of ore flow required from said supply source whereby to obtain a differential value;

(6) and adjusting the rate of ore flow to said fully autogenous grinding mill to correspond to said differential value whereby to cause the sum of the ore flow rates to said primary semi-autogenous grinding mill and to said primary fully autogenous grinding mill to be substantially equal to said substantially constant rate of feed required to be fed from said supply source.

4,267,982

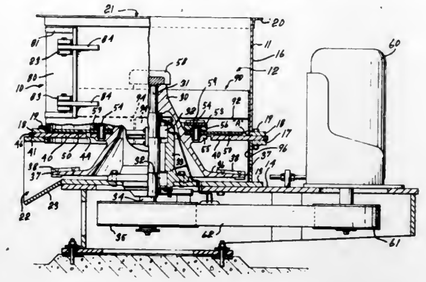
BARK SHREDDER

Anthony W. Hooper, Montreal, Canada, assignor to Uniweld Inc., West Sherbrooke, Canada

Filed Feb. 22, 1979, Ser. No. 13,814
Int. Cl.[3] B02C *18/18*
U.S. Cl. 241—257 R **13 Claims**

1. A bark shredder comprising a casing having a top tubular part and a bottom tubular part and means to detachably join the casing parts together, the casing defining a cylindrical working chamber, the chamber having a top inlet and a bottom symmetrical outlet, a rotor axially mounted in the chamber, a plurality of fixed shredding elements attached to the casing in a circle at one level of the chamber intermediate the inlet and outlet, the fixed shredding elements extending radially inwards from the casing into the chamber, means to detachably mount

in the circle the fixed shredding elements between the two parts, a plurality of rotating shredding elements pivoted to the rotor in a circle and located above but adjacent to the fixed shredding elements, the rotating shredding elements extending



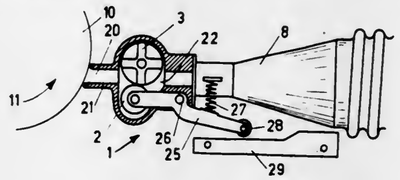
radially outward from the rotor, the fixed and rotating shredding elements shaped to co-operate with each other to shred material in the chamber when the rotor is rotated in either direction.

4,267,983

THREAD DRAW-OFF APPARATUS

Erwin Leu, Horgen, Switzerland, assignor to Maschinenfabrik Schweiter AG, Horgen, Switzerland

Filed Apr. 28, 1980, Ser. No. 144,370
Claims priority, application Switzerland, May 16, 1979, 4564/79
Int. Cl.[3] B65H *54/22*
U.S. Cl. 242—35.6 E **12 Claims**



1. Thread draw-off apparatus to pick off loose thread ends from a spool of textile material, such as a cross-wound cone or cop (**10**), having

a suction element (**1**) positionable adjacent the spool;

two draw-off rollers (**2, 3**) located within the suction element to draw off thread ends from the spool,

and wherein, in accordance with the invention, the suction element includes

a nozzle portion (**21, 21'**) adapted to be positioned with a nozzle opening (**20**) therein close to the spool (**10**);

a suction fitting (**8**) adapted to be attached to a source of suction;

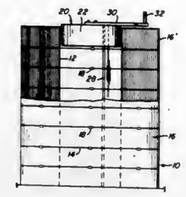
and means defining an airflow chamber (**22**) within the suction element and positioned between the nozzle portion (**21**) and the suction fitting (**8**), the rollers (**2, 3**) being located in said chamber and freely rotatable therein, and driven by the stream of suction air passing through said chamber upon application of suction to the suction fitting.

4,267,984

METHOD AND APPARATUS FOR SEPARATING STRIP COIL FROM WOUND CONSTRUCT BY ROTATION

William A. Box, Bethel Park, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 13, 1980, Ser. No. 129,965
Int. Cl.[3] B65H *35/02;* **B26F** *3/00*
U.S. Cl. 242—56.4 **6 Claims**



1. A method of fracturing tabs for detaching a coiled strip from a wound construct of web material comprising a plurality of axially spaced strip coils, the strips being frangibly interconnected in side-by-side relation by intermittently spaced tabs bridging the parting line between adjacent strips comprising the steps of:

(a) grasping the free end of the strip to be separated at the inner diameter thereof; and

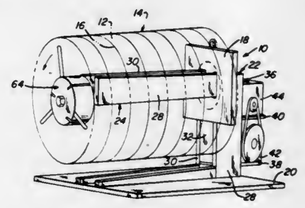
(b) imparting relative rotational movement between said strip and the remainder of the construct to cause the grasped strip to undergo a reduction in diameter in relation to that of said construct remainder.

4,267,985

STRIP SEPARATOR AND PAYOUT APPARATUS

John W. Rogers, 22175 Douglas Rd., Shaker Heights, Ohio 44122

Filed Mar. 13, 1980, Ser. No. 129,966
Int. Cl.[3] B65H *35/02;* **B26F** *3/00*
U.S. Cl. 242—56.4 **8 Claims**



1. Apparatus for detaching and dispensing strip material from a wound construct having an axial opening therethrough and including a plurality of axially spaced coils of strip material interconnected by frangible connections, said apparatus comprising:

(a) a frame including means for telescopically receiving said construct through the axial opening therein;

(b) a spinner rotatably attached to said frame, said spinner having an external diameter to be received in the axial opening of said construct;

(c) gripper means in said spinner for attaching the innermost free end of the strip to be separated; and

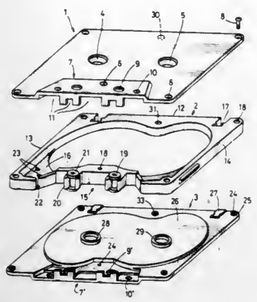
(d) mechanical drive means operatively connected to said spinner for rotating the same in a direction to create relative movement between the strip coil to be separated and the remainder of the construct to effect detachment of the frangible connections therebetween, said drive means being operative following separation of the strip coil to rotate said spinner for unwinding the strip material therein.

4,267,986

MAGNETIC TAPE CASSETTE

Noboru Uemura, Odawara; Shunzo Hatakeyama, Ibaragi, and Hidehisa Hashimoto, Funabashi, all of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Jul. 23, 1979, Ser. No. 59,824
Int. Cl.³ G03B *1/04*; G11B *15/32*
U.S. Cl. 242—199 **7 Claims**



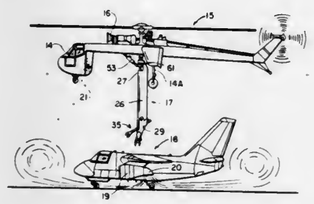
1. A magnetic cassette comprising a rectangular metallic intermediate frame, said frame having a long rear portion and a pair of shorter side portions, said frame having a front portion and a pair of reinforcing webs connecting the adjacent ends of the side portions and said front portion; said rear portion, said side portion and a part of said front portion having common top and bottom flat surfaces in parallel, the bottom surface of said webs being flush with said bottom flat surface; the inner walls of said rear, sides and front portions and the upper surface of said webs defining a cassette tape-containing space; a top plate and a bottom plate each of a plastic material in the form of substantially flat plates, means fastening said plates together with said intermediate frame there between along said top and bottom flat surfaces to thereby close said space; and means for aligning said intermediate metallic frame with said top and bottom plates, said aligning means including an opening in said frame, said opening being defined by said inner walls and the inner edges of said webs, and a land formed on one of said plates, said land being fitted within said opening.

4,267,987

HELICOPTER AIRBORNE LOAD SYSTEMS AND COMPOSITE AIRCRAFT CONFIGURATIONS

William R. McDonnell, 24 Oakleigh La., Ladue, Mo. 63124

Filed Mar. 29, 1979, Ser. No. 24,881
Int. Cl.³ B64D *5/00*
U.S. Cl. 244—2 **3 Claims**



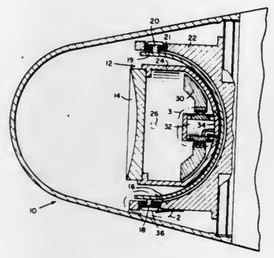
1. In a composite aircraft consisting of a rotary wing aircraft and a fixed wing aircraft, the improvement which comprises: a single elongated probe means for spatially interconnecting said aircrafts with said rotary wing aircraft above said fixed wing aircraft; means operably connecting said probe means to said rotary wing aircraft for movement relative to said rotary wing aircraft; cooperative means on said probe means and on said fixed wing aircraft to engage each other for securing the aircrafts together, said cooperative means on said fixed wing aircraft being close to the center of gravity of said fixed wing aircraft; and cooperative means between said probe means and said fixed wing aircraft for controllably pitching said fixed wing aircraft such that the thrust of said fixed wing aircraft propulsion is directed to assist the flight system of the composite aircraft.

4,267,988

SNAP-LOCK MECHANISM FOR HIGH-G PLATFORM

Aubrey Rodgers, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 23, 1979, Ser. No. 32,192
Int. Cl.³ F41G *7/26*
U.S. Cl. 244—3.16 **7 Claims**



1. In a projectile having a platform assembly disposed for surviving a high-g launch phase, said platform assembly comprising:

a. a platform;

b. first and second gimbal members carried in gimballed relation therebetween and with said platform, said first and second gimbal members being disposed in concentric relation;

c. a rotor supported in said first gimbal member;

d. a first support assembly including compliant support means for support of said rotor in said first gimbal member;

e. a second support assembly including compliant support means for support of said second gimbal member in said platform; and,

f. a third support assembly including compliant support means for support of said first gimbal member in said second gimbal member;

g. snap-lock means cooperating with said support assemblies for rigidly securing said rotor and gimbal members into a stable position responsive to deceleration of said projectile.

4,267,989

TOY HOT AIR BALLOON

Kenneth D. Skaggs, 1805 Clement St., Alameda, Calif. 94604

Filed Sep. 7, 1979, Ser. No. 73,253
Int. Cl.³ B64B *1/40*; A63H *27/10*
U.S. Cl. 244—31 **6 Claims**

1. A toy hot air balloon comprising:

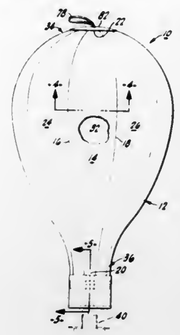
a. a plurality of elongated gores constructed of relatively light-weight, thin material; said gores having opposed pairs of long and short edge portions;

b. means for fastening said elongated gores together in side-by-side configuration at said long edge portions to form an enclosure having a top portion and a bottom portion, said bottom portion of said enclosure including an opening for the admission of heated air into said enclosure;

c. means for stiffening said bottom portion of said enclosure adjacent said opening;

d. means for supporting the top portion of said enclosure above said bottom portion of said enclosure; said means for supporting the top of said enclosure adjacent said opening comprising:

an elongated member fastened at both ends to the inner surface of said enclosure forming an eye which passes from the inside to the outside of said enclosure and a tape portion generally overlapping the inner surface of



said enclosure over said attachment of said ends of said elongated member to the inner surface of said enclosure, a cover being fastened to said outer surface of said enclosure, and

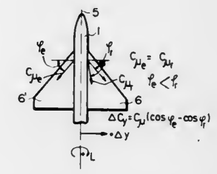
e. means for fixing one short edge portion of each of said gores to said means for stiffening said bottom portion of said enclosure.

4,267,990

METHOD FOR STEERING AN AIRCRAFT

Werner Staudacher, Zorneding, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Nov. 9, 1978, Ser. No. 959,076
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1977, 2751361
Int. Cl.³ B64C *15/00*, *3/50*
U.S. Cl. 244—52 **8 Claims**



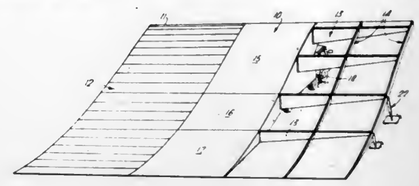
1. A method for steering an aircraft having a fuselage and two wings, by controlling the separation of vortical air flow at the leading edge of said wings by blowing means, comprising the steps of providing position variable blowing means in the aircraft fuselage adjacent to the leading edge of both wings whereby the angle of the blowing direction may be varied relative to a line extending perpendicularly to the roll axis of the aircraft fuselage, blowing a flowing medium laterally outwardly from said blowing means over said aircraft wings substantially in parallel to said leading edge of said aircraft wings, and differentially controlling the angular position of said blowing means whereby said aircraft may be controlled with respect to its roll axis, its pitch axis, and its yaw axis.

4,267,991

PORTABLE RUNWAY

Douglas R. Taylor, Margate, England, assignor to The Secretary of State for Defence in Her Brittanic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Feb. 28, 1979, Ser. No. 15,919
Claims priority; application United Kingdom, Mar. 3, 1978, 8562/78; Mar. 3, 1978, 8563/78
Int. Cl.³ B64F *1/00*
U.S. Cl. 244—63 **6 Claims**



1. A portable Ski-Jump runway for use with V/STOL aircraft employing a bicycle type main carriage and secondary outrigger wheels comprising:

a vehicle having a chassis portion constituting a foremost length of ramp, said vehicle being selected from the group of vehicles comprising a truck and a trailer;

a rearmost length of ramp, said rearmost length of ramp being moveable between a first operative position in which said foremost length of ramp and said rearmost length of ramp are aligned to form a continuous central main Ski-Jump runway ramp section having side edges, and a second storage position in which said rearmost length of ramp is stored on top of said foremost length of ramp for transportation purposes;

outrigger frames adapted to be cantilevered from said side edges when said rearmost length of ramp is in its operative position; and

decking adapted to be mounted on said outrigger frames to provide outer secondary Ski-Jump runway ramp sections, whereby in use the main undercarriage of the aircraft travels along said central main Ski-Jump runway ramp section and the secondary outrigger wheels travel along said outer secondary Ski-Jump runway ramp sections, said outer secondary Ski-Jump runway ramp sections having a substantially lighter weight than the weight of said central main Ski-Jump runway ramp section.

4,267,992

TIRE/WHEEL CONCEPT

Philip M. Harper, Sr., Bellevue, Wash., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Continuation of Ser. No. 893,865, Apr. 16, 1978, abandoned. This application Dec. 12, 1979, Ser. No. 103,836
Int. Cl.³ B64C *25/32*; B60C *5/00*
U.S. Cl. 244—103 R **11 Claims**

1. An aircraft and tire-wheel combination comprising:

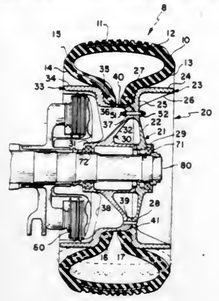
an aircraft having wings with wheel wells situated therein;

means for reducing wing drag profile in the area of said wheel wells including;

a tire having beads, a tread area and inner connecting sidewalls, said sidewalls constructed to fold laterally along their midpoint lines to a degree dependent upon loading;

a wheel having a tire bead retaining channel and leg means extending axially outward from the channel, said leg means constructed to abut, support, and complement the tire sidewall under various loading conditions, under severe dynamic loading the tire sidewalls meeting and shocks being transmitted directly from the ground through the sidewalls to the said leg means; and

braking means with surface area dependent upon the axial length of said wheel channel and the radius of the wheel;



said wheel channel being narrow in axial length and said wheel large in radius.

4,267,993

ARRANGEMENT FOR MOUNTING SPEAKER UNIT TO VEHICLE PANEL

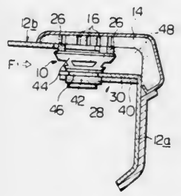
Kenzo Shimizu, and Yoshio Matsuno, both of Yokosuka, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 20, 1978, Ser. No. 944,005

Claims priority, application Japan, Dec. 15, 1977, 52-169285[U]

Int. Cl.³ G12B *9/00*

U.S. Cl. 248—27.1 **3 Claims**



1. A vehicle comprising:

a panel which defines a portion of the body structure of said vehicle and is integrally formed with a speaker supporter section, said speaker supporter section including a first portion which is substantially flat and has at one end thereof a catch portion, and a second portion which integrally connects said first portion to the major portion of said panel in a manner that the first portion is parallelly spaced apart from the major portion, said catch portion including two resilient tangs which are respectively formed at the leading end portions thereof with latching abutments which extend toward each other; and

a speaker unit having a magnet case which is formed around a groove, said speaker unit being held by said catch portion of said speaker supporter section by inserting said two resilient tangs into said groove of said magnet case; and

reinforcing members which are fixed to said first and second portions to increase the mechanical strength of the same.

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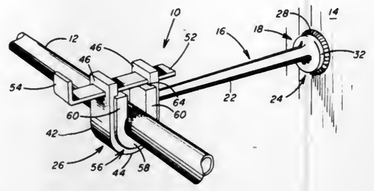
PIPE SUPPORTING APPARATUS

Paul C. Lynch, Rte. 6, Box 60A, Fairmont, W. Va. 26554, and Ervin M. Driver, 312 Graveline La., Gautier, Miss. 39567

Filed Apr. 20, 1979, Ser. No. 31,741

Int. Cl.³ F16L *3/08*

U.S. Cl. 248—65 **7 Claims**



1. Apparatus for supporting a pipe-like member comprising,

a brace member, said brace member having a first end portion and a second end portion with an axially tapered body portion extending between said first and second end portions,

an expanded head portion extending from said first end portion,

said expanded head portion being coaxially aligned with said tapered body portion,

said expanded head portion including an annular portion having a preselected cross-sectional area,

a frusto-conical portion extending outwardly and coaxially from said annular portion,

said frusto-conical portion having an end portion with a cross-sectional area less than said annular portion cross-sectional area,

said frusto-conical portion end portion having a planar surface adapted to abut the surface of a supporting structure, said frusto-conical portion and said annular portion forming an annular recess around said expanded head portion between said annular expanded head portion and the supporting structure,

said annular recess being arranged to receive a weld and thereby provide a maximum surface of said frusto-conical portion for welded engagement with the supporting structure,

support means extending from said second end portion for receiving the pipe-like member to securely support the pipe-like member,

said support means including a substantially U-shaped member secured to and extending from said brace member second portion,

a resilient liner received by said U-shaped member adapted to a compressibly engage in surrounding relation the pipe-like member, and

a pin member removably engageable with said U-shaped member to form an enclosure with said resilient liner for securely retaining the pipe-like member in said U-shaped member in a position substantially perpendicular to said brace member.

4,267,995

WIRE HOLDER

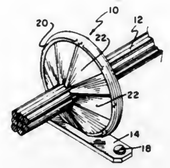
Ronald R. McMillan, Box 114, Jewell, Kans. 66949

Filed Oct. 9, 1979, Ser. No. 82,608

Int. Cl.³ F16L *3/08*

U.S. Cl. 248—74 R **3 Claims**

1. A wire holder for holding a bundle of wires comprising a base; a rim integrally bound to said base; a plurality of overlapping generally triangular shaped elastic members, each elastic member having a base and an apex, said base of each elastic member being mounted in said rim to have said members radially disposed with respect to said rim, said elastic members in a closed position essentially define a plane and unidirectionally flaring when receiving and holding said bundle, said elasticity of each member when holding said bundle bias said members toward said closed position for firmly gripping, holding, and restraining said bundle.



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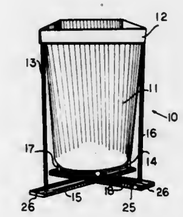
BAG HOLDER APPARATUS

Joseph A. Turcott, 107 Aspen Cir., Leesburg, Fla. 32748

Filed Jul. 13, 1978, Ser. No. 925,541

Int. Cl.² A63B *55/04*

U.S. Cl. 248—97 **10 Claims**



1. A supporting stand for holding open leaf bags or the like in an open position comprising in combination:

a first base member;

a first pair of resilient legs connected to said first base member, one leg on each end portion of said base member;

a second base member;

a second pair of resilient legs connected to said second base member, one leg on each end portion of said base member;

attaching means for movably attaching said first and second base members so that one base member can be rotated on the other from a folded to a supportive position;

locking means for locking said first and second base members generally perpendicular to each other in a supportive position; and

bag engaging tips formed on each end of each of said first pair and each of said second pair of legs, whereby said first and second base members can be positioned in a supportive position with their legs extending therefrom and said legs bowed to engage a folded lip of a leaf bag, or the like, with said bag engaging tips to hold said bag open end open with the bias of said bowed legs.

4,267,997

SUPPORT FRAME FOR A FLEXIBLE BAG

William E. Meier, 3512 E. Montecito, Phoenix, Ariz. 85018

Filed Nov. 15, 1979, Ser. No. 94,642

Int. Cl.³ A63B *55/04*

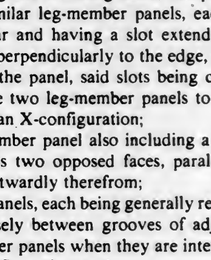
U.S. Cl. 248—97 **4 Claims**

1. A skeletal frame for circumscribingly supporting a collapsible bag, said skeletal frame comprising in combination:

(a) a first upright wire like element having a width and length generally coincident with the width and length of the collapsible bag when it is in the expanded state;

(b) a second upright wire like element having a width and length generally coincident with the width and length of the collapsible bag when it is in the expanded state;

(c) vertically spaced first and second band means for interconnecting said first and second upright elements a distance apart from one another which distance is generally coincident with the breadth of the collapsible bag when it is in the expanded state;



(d) means including an inwardly bent section of each of said first and second upright elements at the lower end of each of said first and second upright elements for providing vertical support to the collapsible bag placed within said skeletal frame; and

(e) handle means disposed at the upper end of each of said first and second upright elements for manually transporting said skeletal frame.

4,267,998

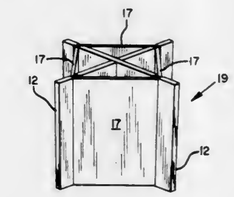
STAND

James F. Weirich, 200 Posada Del Sol #40, Novato, Calif. 94947

Filed Jul. 20, 1979, Ser. No. 59,312

Int. Cl.³ F16M *11/32*

U.S. Cl. 248—165 **4 Claims**



1. A series of panels for interconnection together to form a load supporting and elevating stand, comprising:

a pair of similar leg-member panels, each being generally rectangular and having a slot extending inwardly from one edge perpendicularly to the edge, approximately half way into the panel, said slots being configured so as to permit the two leg-member panels to be interlocked together in an X-configuration;

each leg-member panel also including a pair of grooves in each of its two opposed faces, parallel to the slot and spaced outwardly therefrom;

four brace panels, each being generally rectangular and sized to fit closely between grooves of adjacent faces of the leg-member panels when they are interlocked together in the X-configuration; and

a top panel sized to lie on the top edges of the leg-member panels when they are interlocked together;

whereby load supporting and elevating stand may be quickly assembled together by interlocking the leg-member panels together to form an X-shaped base, then assembling the base panels into the base by sliding them into the grooves, adding strength and stability to the base, then assembling

the top panel onto the top of the base to complete the stand.

4,267,999

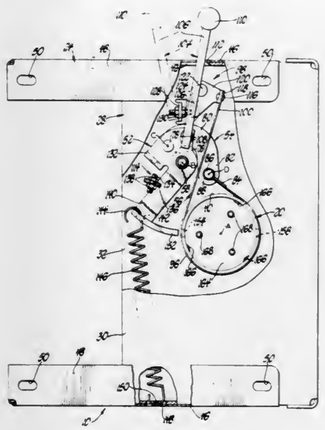
SUPPORT ASSEMBLY FOR VEHICLE SEAT

Russell F. Chekirda; Randall T. Murphy, both of Morristown, Tenn., and Walter Lyszczarz, Warren, Mich., assignors to Lear Siegler, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 729,735, Oct. 5, 1976, abandoned. This application Mar. 25, 1977, Ser. No. 781,248

Int. Cl.³ F16M *13/00*

U.S. Cl. 248—418 **20 Claims**



1. In a vehicle seat support assembly including a floor support and a seat mounting support pivotal on the floor support about a generally vertical axis to change the orientation of a seat supported thereby with respect to the associated vehicle, a locking mechanism comprising: an elongated generally flexible band having opposite ends and an intermediate portion that extends about one of the supports; overcenter locking means mounted on the other support and connected to the opposite ends of the band; said locking means being movable to move the mechanism between a first overcenter locking position where the band is tensioned about the one support to prevent pivotal movement of the seat mounting support and a second nonlocking position where the band tension is reduced relative to the locking position so as to allow the pivotal movement of the seat mounting support; and means for selectively moving the locking means to position the locking mechanism in either the locking or nonlocking position; the floor support including an upwardly projecting tube having a round outer surface about which the intermediate portion of the band extends; the seat mounting support including a seat frame on which the overcenter locking means is mounted; the locking means including a locking member pivotally supported on the frame about a first axis and also including a link having a first end pivoted to the locking member about a second axis and a second end connected to one end of the band; the seat frame including a stop that engages the locking member to position the mechanism in the locking position; and the stop including an adjustable member mounted on the seat frame and engaged with the locking member in an adjustable manner to adjustably control positioning of the locking mechanism in the locking position.

4,268,000

APPARATUS FOR FIXING SHEETS ON A BASE

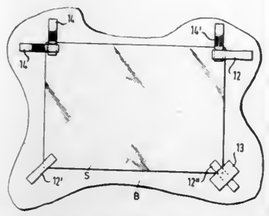
Heinz J. Ulm, Seydlitzstr. 65, 8000 Munich-50, Fed. Rep. of Germany

Filed Jan. 19, 1978, Ser. No. 870,813

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1977, 2702729; Dec. 30, 1977, 2759006

Int. Cl.³ A47G *1/16*

U.S. Cl. 248—467 **2 Claims**



1. An apparatus for attaching flexible sheets onto a base by holding a first corner of the sheet stationarily, by guiding a second and adjacent corner for expansion and contraction movement in a direction away from said first corner while tensioning the sheet outwardly along said direction, and by tensioning third and fourth corners of the sheet outwardly substantially at an angle of 45° with respect to the adjacent edge of the sheet and without guidance, wherein the apparatus comprises the combination of:

a base;

a flexible sheet;

laterally, flexible, nonextensible pivoting strips applied in interconnecting relation from said base to said first corner of said flexible sheet for stationarily holding the latter and to said second corner of said sheet for guiding same in said direction;

a resiliently extensible tensioning strip applied in interconnecting relation to said base and said second corner of said sheet for tensioning of said sheet outward in said direction; and

further resiliently extensible tensioning strips applied in interconnecting relation to said base and third and fourth corners of said flexible sheet for said urging of said corners outward substantially at said 45° angle, said pivoting strips and tensioning strips each having one end adhesively secured to the corresponding corner of said sheet and their opposite ends adhesively secured to said base, and holding said sheet flush against the surface of said base, in which said strips at said first corner comprise first and second pivoting strips having respective first adhesively surfaced ends fixed atop said first corner of said sheet, said first and second pivoting strips respectively being applied in a horizontal direction and a vertical direction to said first corner and having outer adhesively faced ends adhesively fixed to the surface of said base, with the intermediate portion of said first and second nonextensible pivoting strips being nonadhesively faced and thereby free to flex laterally with respect to said sheet and base;

said strips at said second corner comprising a third nonextensible pivoting strip and a first tensioning strip having a resiliently extensible central portion, said third pivoting strip and first tensioning strip having adhesively faced inner ends adhesively secured to the outwardly facing surface of said sheet at said second corner, said third nonextensible pivoting strip extending outward beyond said second corner in a direction substantially parallel to the adjacent one of said first and second nonextensible pivoting strips at said first corner and having an adhesively faced outer end surface adhesively fixed to the surface of said base, said first tensioning strip extending outward from said sheet substantially in a direction opposite that of the other of said first and second pivoting strips and substantially perpendicular to said third pivoting strip and having an outer end adhesively fixed to the surface of said base, said third pivoting strip and first tensioning strip each having central portions between their adhesively faced ends, which central portions are faced nonadhesively and are respectively nonextensible and resiliently extensible, said sheet having a first edge connecting said first and second corners, said one and third nonextensible pivoting strips preventing movement of said first edge of said sheet in a direction toward the opposite edge of said sheet while resiliently permitting expansion and contraction of said sheet along said first edge thereof;

said strips at said third and fourth corners of said sheet comprising a second extensible tensioning strip at said third corner and a third extensible tensioning strip at the fourth corner of said sheet, said second and third tensioning strips each having an adhesively faced inner end overlying and adhesively fixed to the respective third and fourth corner of said sheet, said second and third tensioning strips extending outward from said third and fourth corners, respectively, substantially at a 45° angle to said opposite sheet edge and terminating in adhesively faced outer ends adhesively secured to the surface of said base, said second and third tensioning strips each having a nonadhesive but resiliently stretchable central portion not fixed directly to said sheet or base and which is normally tensioned to hold said sheet snugly and flatly against said surface of said base.

4,268,001

MOLD FOR CASTING CERAMIC MATERIALS

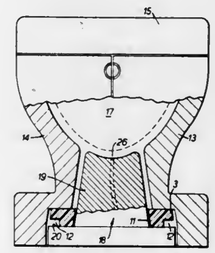
Giuseppe Lippa, Brescia, Italy, assignor to American Standard Inc., New York, N.Y.

Filed Jun. 6, 1980, Ser. No. 156,972

Claims priority, application Italy, May 23, 1979, 46845 A/79

Int. Cl.³ B28B *7/16*

U.S. Cl. 249—58 **10 Claims**



1. A mold comprising a plurality of mold parts of which one constitutes a seat made of a non-casting material, the other mold part or parts being made of casting plaster, a surface region of the seat, in the assembled mold, forming part of the casting cavity, which surface region is bounded by closely adjacent regions of the other mold part or parts such that during casting a solid cast portion of the article is cast against the seat, the mold parts being adapted so that the mold can be opened after casting to leave the article resting on the seat whereby the article can be lifted away on the seat.

4,268,002

MOULD FOR PACKAGING DESSERTS

Rene Deveaux, Le Raincy, France, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

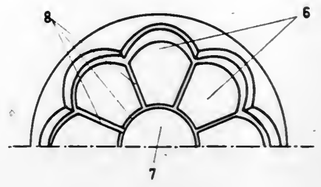
Filed Jun. 12, 1980, Ser. No. 158,892

Claims priority, application France, Jun. 21, 1979, 79 15946

Int. Cl.³ B29C *1/00*

U.S. Cl. 249—127 **5 Claims**

1. A mould for packaging desserts, particulary for ice-cream cake with coating syrup, in the form of a cup comprising an opening through which the dessert is introduced into and removed from the mould, the mould comprising a first compartment near the opening which defines a first space and which is intended to receive a product solid at the storage temperature and a second compartment which defines a second space below the first space and which is intended to receive a syrup liquid at the storage temperature, the second compartment comprising several cells distributed in the base of the cup, each of the cells communicating through an opening with the first compartment and being separated from the other cells by walls simultaneously acting as stiffeners for the mould.



4,268,003

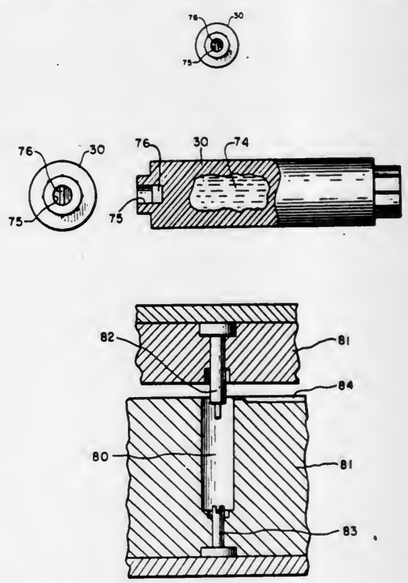
MOLD CORE AND METHOD AND APPARATUS FOR MANUFACTURE

James P. Liautaud, River Bluff Rd., Trout Valley, Cary, Ill. 60013

Continuation of Ser. No. 847,950, Nov. 2, 1977, abandoned, which is a division of Ser. No. 736,323, Oct. 28, 1976, Pat. No. 4,075,273, which is a division of Ser. No. 676,682, Apr. 14, 1976, abandoned. This application Aug. 14, 1979, Ser. No. 66,619

Int. Cl.³ B28B *7/16, 1/24;* B29F *1/00;* A23P *1/00*

U.S. Cl. 249—142 **10 Claims**



1. The method of molding an elongated core member including an elongated bore-shaped recess in one end thereof and a solid elongated portion extending from the interior end of said recess such said interior end of said recess is subject to suck-in

during post-molding cooling of the core member, said method comprising the steps of:

forming an elongated mold cavity corresponding to the surface of the core member;

positioning a mold core to extend into said cavity a distance substantially less than the length of said cavity to form the bore-shaped recess, a substantial length of said cavity beyond the end of said mold core remaining substantially open to form said elongated solid portion;

providing at least one notch at the end of the mold core for forming a bridge portion fully across the interior end of the recess;

injecting plastic into the cavity to form the core member removing the completed core member from the mold cavity.

5. A one-piece molded plastic core member including:

an elongated body portion comprising an elongated body portion comprising an elongated bore-shaped recess of substantially less extent than said body portion in one end thereof;

a solid elongated portion of said body portion extending axially from the interior end of said recess; and

means including a bridge portion extending fully across said recess at said interior end thereof for preventing suck-in at said interior end during post-molding cooling of the core member.

9. Apparatus for molding a core member having an elongated body portion and at least one elongated bore-shaped recess in one end thereof, said core member having an elongated solid, relatively slower-cooling central portion extending from the interior end of said recess, said apparatus comprising:

a mold defining an elongated cavity corresponding to the body portion;

a mold core extensible into said cavity a distance less than the length of said cavity to form the bore-shaped recess, a substantial length of said cavity beyond the end of said mold core being substantially open to form the central solid portion, and

means including a notch in the end of said mold core for forming a bridge portion extending fully across the inside end of said recess to prevent suck-in upon post-molding cooling of said central solid portion.

4,268,004

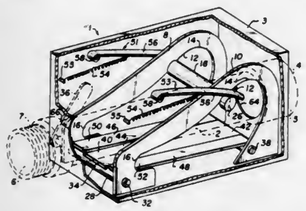
SELF-RELEASING HOSE CLAMP

Leonard W. Gatin, 1173 Pleasant St., Kamloops, British Columbia, Canada (V2C 3C1)

Filed Oct. 1, 1979, Ser. No. 80,742

Int. Cl.³ F16L *55/14*

U.S. Cl. 251—5 **17 Claims**



1. A self-releasing clamp for a fluid carrying hose, comprising:

an inclined guide;

a roller carried by the guide and movable along the guide between a hose releasing position and a hose clamping position;

a hose support for holding the hose against the roller in the clamping position; and

means for providing a space between the roller and the hose support when the roller is in the clamping position, said space providing means permitting a limited flow of fluid past the clamp to increase pressure in the hose downstream from the clamp when fluid flow downstream from the clamp is stopped, expanding the hose between the hose support and the roller and moving the roller to the hose releasing position the space providing means comprising means for moving the hose support away from the roller and for securing the hose support in a position spaced-apart from the roller when the roller is in the clamping position, and a pivotal connection on the hose support and means for holding the hose support against the hose when the roller is in the clamping position.

4,268,005

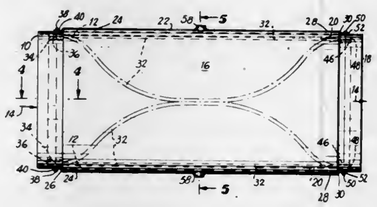
PINCH VALVE

Spiros G. Raftis, Pittsburgh, and Lawrence L. Schneider, Carnegie, both of Pa., assignors to Red Valve Company, Inc., Carnegie, Pa.

Filed Dec. 8, 1978, Ser. No. 967,842

Int. Cl.³ F16L *55/14*

U.S. Cl. 251—5 **5 Claims**



1. A pinch valve construction comprising a cylindrical fluid inlet duct section, said inlet duct section having a fluid inlet end for entry of fluid through the inlet duct section into the pinch valve, a cylindrical outlet duct section, said outlet duct section being coaxial with and spaced from said inlet duct section, said outlet duct section having a fluid outlet end for egress of fluid from the pinch valve through the outlet duct section, said fluid outlet end of said outlet duct section being spaced from and opposite to said fluid inlet end of said inlet duct section, a cylindrical valve housing, said valve housing being coaxial with said inlet duct section and said outlet duct section, and extending between said fluid inlet end and said fluid outlet end, one end of said valve housing being concentrically mounted to the outer surface of said fluid inlet end with a fluid-impervious mounting, the other end of said valve housing being concentrically mounted to the outer surface of said fluid outlet end with a fluid-impervious mounting, a flexible resilient cylindrical sleeve, said sleeve being concentrically disposed within and spaced from said valve housing, fluid-impervious means to secure one end of said sleeve to the inner surface of said fluid inlet end, said one end of said sleeve and said one end of said valve housing straddling said fluid inlet end of said inlet duct section, said means to secure the one end of said sleeve including a first clamping ring within said sleeve, said first ring being concentric and coaxial with both the one end of said sleeve and said fluid inlet end, said first ring being contiguous with the one end of said sleeve, means comprising a first plurality of threaded bolts to clamp said first clamping ring to the one end of said sleeve, each of said first plurality of bolts having a terminal nut external to and contiguous with the fluid inlet end of the inlet duct section, fluid-impervious means to secure the other end of said sleeve to the inner surface of said fluid outlet end, said other end of said sleeve and said other end of said valve housing straddling said fluid outlet end of said outlet duct section, said means to secure the other end of said sleeve including a second clamping ring within said sleeve, said second ring being concentric and coaxial with both the other end of said sleeve and said fluid outlet end, said second ring being contiguous with the other end of said sleeve, means comprising a second plurality of threaded bolts to clamp said second clamping ring to the other end of said sleeve, each of said second plurality of bolts having a terminal nut external to and contiguous with the fluid outlet end of the outlet duct section, and means to impress a fluid between said sleeve and said valve housing so that said sleeve is inwardly deformable to pinch and curtail the flow of fluid through said sleeve.

4,268,006

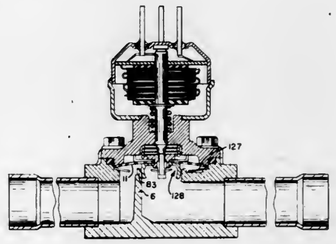
MODULATING DIAPHRAGM VALVE

Bernard L. Kunz, Collinsville, Ill., and David P. Hargraves, Webster Groves, Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Continuation-in-part of Ser. No. 911,883, Jun. 2, 1978, abandoned. This application Sep. 4, 1979, Ser. No. 72,552

Int. Cl.³ F16K *31/04*

U.S. Cl. 251—11 **7 Claims**



1. A modulating diaphragm actuated valve, comprising:

a valve body having an inlet, an outlet, a main flow port between said inlet and said outlet, and a chamber part above said main flow port on the inlet side of said main flow port;

a diaphragm mounted for movement in said chamber between a first position closing said main flow port and a plurality of open positions with respect to said main flow port, said diaphragm having an opening in it to permit fluid flow between said inlet and said chamber part;

a baffle plate in supporting relationship to said diaphragm, said baffle having a fluid pervious portion along the input side of said valve and a fluid impervious portion along the outlet side of said valve, said fluid impervious portion acting to prevent inlet fluid pressure from affecting operation of said diaphragm;

pilot valve means mounted to said diaphragm and movable therewith, said pilot valve means having a pilot opening therethrough, said pilot opening communicating with said chamber part and said outlet;

a valve pin mounted in said pilot opening, said valve pin having a part closing said pilot opening;

means for varying the position of said valve pin with respect to said pilot valve means, said last-mentioned means including a heat motor having a plurality of selective axial positions, said heat motor being axially aligned with said valve pin and operatively connected thereto for controlling the position of said valve pin directly in a plurality of positions of said valve pin;

a first spring mounted in said chamber and adapted to exert a force on said diaphragm so as to urge said diaphragm toward its closed position;

second spring means operatively connected to said actuator means and adapted to bias said valve pin toward its open position in at least one position of said diaphragm; and

damper means mounted for movement with said valve pin for damping oscillation of said diaphragm.

4,268,007

VALVE ACTUATING EQUIPMENT

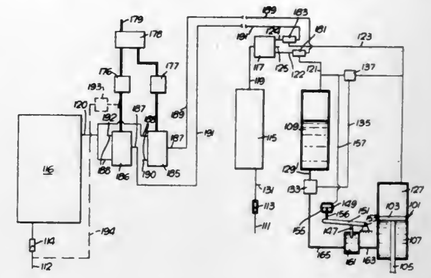
Jeremy B. Chittenden, Lytes Cary Manor, Lytes Cary, Somerton, Somerset, England

Filed Jul. 15, 1977, Ser. No. 816,203

Claims priority, application United Kingdom, Jul. 22, 1976, 30489/76; Feb. 9, 1977, 5328/77; Feb. 9, 1977, 5329/77; Jun. 23, 1977, 26321/77

Int. Cl.³ F16K *31/02, 31/122*

U.S. Cl. 251—30 **18 Claims**



9. In combination, a valve having a gate reciprocally movable between a first end position and a second end position, and actuating equipment for the valve, said equipment comprising:

at least one cylinder and piston mechanically connected to the gate of the valve, said at least one cylinder and piston providing first and second cylinder chambers;

a first hydraulic liquid reservoir;

liquid conduit means connecting said first hydraulic liquid reservoir to said first chamber;

a gas reservoir for compressed gas;

a non-return valve;

a gas inlet for the supply therethrough of compressed gas to said equipment;

control means for said compressed gas;

gas conduit means connecting said gas inlet through said non-return valve to said gas reservoir, connecting said gas reservoir to said control means, and connecting said control means to said first hydraulic liquid reservoir; and

pressure transmitting means connecting said control means to said second chamber;

said control means being selectively operable to permit passage of compressed gas to said first hydraulic liquid reservoir to pressurize it and thereby deliver liquid to said first chamber to pressurize said first chamber, and to permit passage of compressed gas to said pressure transmitting means to pressurize said second chamber, pressurization of said first chamber with hydraulic liquid inducing first movement of said at least one piston relative to said at least one cylinder to move the gate in one direction from said first end position to said second end position, the arrangement being such that delivery of hydraulic liquid to said first chamber is used for effecting movement of said gate in said one direction throughout substantially the whole travel of the gate from said first end position to said second end position, and pressurization of said second chamber inducing second movement of said at least one piston relative to said at least one cylinder to move the gate in the reverse directon from said second end position to said first end position;

said control means comprising first and second solenoid operated valves and means for supplying electricity thereto, said gas conduit means connecting said first solenoid operated value to said first hydraulic liquid reservoir, and said pressure transmitting means connecting said second solenoid operated valve to said second chamber, one of said solenoid operated valves being normally de-energized and the other of them being normally energized

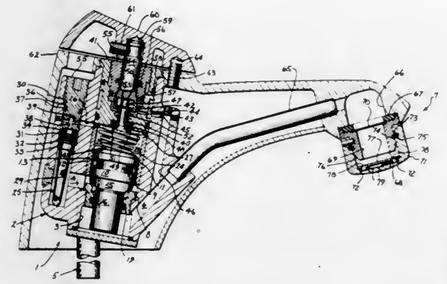
whereby said other of them operates automatically upon cessation of the supply of electricity.

4,268,008

PUSH BUTTON FAUCET

Thomas G. Barnum, Fox Point, and William A. Smart, Jr., Hartland, both of Wis., assignors to Bradley Corporation, Menomonee Falls, Wis.

Filed Oct. 22, 1979, Ser. No. 86,764
Int. Cl.³ F16K *31/122*
U.S. Cl. 251—44 **6 Claims**



1. A faucet for delivering a predetermined volume of liquid in a set period of time comprises:

a control valve for controlling the flow of liquid through the faucet includes a valve body having an inlet for connection to a liquid supply line and an outlet, and a bore extending therethrough;

a valve seat disposed within said bore;

a movable plunger having a front face and a rear face positioned in said bore, the front face of said plunger being normally seated upon the valve seat preventing the flow of water from said inlet to said outlet;

a bypass circuit leading from the inlet through a timing mechanism to a pressure chamber behind the rear face of the plunger so that supply line pressure sensed by the rear face of the plunger maintains the valve in a closed position;

manually actuatable pilot valve means for relieving the pressure in said pressure chamber so that the supply line pressure can move the front face of the plunger off the valve seat to open the valve;

said plunger includes an elongated nose extending from its front face, said nose having an internal flow passage formed therethrough which permits liquid to flow from said inlet through said passage to said outlet when said valve is in its open position; and

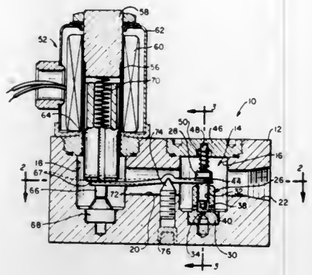
flow control means disposed in the passage in the plunger nose, said flow control means reduces the effective diameter of said passage to provide a jet action as liquid flows therethrough which creates a pressure differential across the valve seat and results in a reduced pressure that is less than supply line pressure to act on the front face of the plunger so that when the pilot valve has been actuated and supply line pressure has been relieved in the pressure chamber the control valve remains open until the pressure chamber is refilled by liquid flowing through the bypass circuit and the pressure sensed by the rear face of the plunger exceeds that on the front face whereupon the plunger moves to seat upon the valve seat and stop the flow of liquid through the faucet.

4,268,009

SOLENOID VALVE

Walter Allen, Jr., Prospect, Conn., assignor to Peter Paul Electronics, New Britain, Conn.

Filed Jun. 6, 1979, Ser. No. 46,024
Int. Cl.³ F16K *31/10*
U.S. Cl. 251—138 **10 Claims**



1. A solenoid-operated fluid control valve comprising a valve body defining a valve chamber, fluid inlet and outlet passages each respectively communicating between the exterior of said valve body and said chamber, means defining a valve seat in said valve chamber and an outlet orifice opening through said valve seat at the inner end of said outlet passage, an axially elongated seal pin having a seating surface thereon, guide means supporting said seal pin for reciprocal movement toward and away from said valve seat between closed and open positions, said seating surface in said closed position sealingly engaging said valve seat to prevent fluid flow from said valve chamber through said outlet orifice and said outlet passage, means for biasing said seal pin toward its closed position, a lever wholly disposed within said valve chamber and engageable with said seal pin, a fulcrum screw threadably engaged in said valve body and extending into said valve chamber and supporting said lever for pivotal movement within said valve chamber, a solenoid assembly mounted on said valve body and including a solenoid plunger supported for reciprocal movement toward and away from said lever between first and second positions, respectively, means for biasing said plunger to its first position wherein said plunger bears against said lever and said lever engages said seal pin and maintains said seal pin in its open position, and magnetic means for moving said solenoid from its first to its second position and for maintaining said plunger in its second position, said seal pin being biased to and retained in its closed position by said seal pin biasing means when said plunger is in its second position.

4,268,010

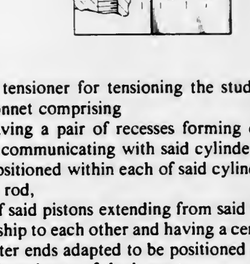
OPERATING HANDLE FOR BOTTOM OPERATED RAILWAY TANK CAR VALVE

Gunter R. Behle, St. Charles, Mo., assignor to ACF Industries, Inc., New York, N.Y.

Division of Ser. No. 955,966, Oct. 30, 1978. This application Jan. 14, 1980, Ser. No. 112,039
Int. Cl.³ F16K *31/60, 35/00*
U.S. Cl. 251—144 **6 Claims**

1. In a railway tank car bottom outlet lading valve assembly, an operating handle assembly for the lading valve comprising:

an outlet chamber extending vertically below said lading valve and having a spout having a center line which makes an angle of significantly less than 90° with respect to the horizontal; said spout having a removable cap at its lower out end; an operating shaft extending vertically within said outlet chamber having a non-round shaft connection portion near the bottom thereof; an operating handle pivotably mounted adjacent said shaft non-round connection portion said handle having a handle connection portion including a ratchet assembly for engaging said shaft non-round connection portion; a handle-storing bracket for the distal end of the operating handle mounted above said shaft connection portion adjacent the tank car bottom; and removable keeper means separate from said removable cap for maintaining the distal end of said handle within said bracket, whereby said removeable keeper means may be removed both when said cap is removed



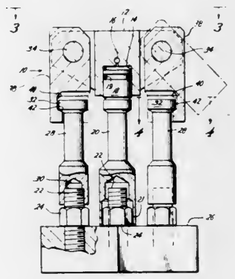
and when said cap remains in place on said spout, and said handle may be pivoted to a generally horizontal position wherein said handle is unobstructed by said spout and is rotatable to rotate said handle connection portion and said shaft through engagement of said ratchet assembly with said shaft connection portion, and thus move the lading valve between open and closed positions.

4,268,011

STUD TENSIONER FOR BLOWOUT PREVENTER

Ross D. Randall, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Filed Jun. 22, 1979, Ser. No. 51,427
Int. Cl.³ E21B *19/00*
U.S. Cl. 254—29 A **2 Claims**



1. A stud tensioner for tensioning the studs of a blowout preventer bonnet comprising

a body having a pair of recesses forming cylinders and a passage communicating with said cylinders,

a piston positioned within each of said cylinders and having a piston rod,

the rods of said pistons extending from said body in parallel relationship to each other and having a centering recess in their outer ends adapted to be positioned over two opposite studs and nuts of the bonnet,

a pair of tension rods having internal threads for threaded engagement with the outer end of bonnet studs on one end of said tension rods,

an enlarged head on the outer end of each tension rod,

swinging links, and

means for pivotally connecting said swinging links to said body,

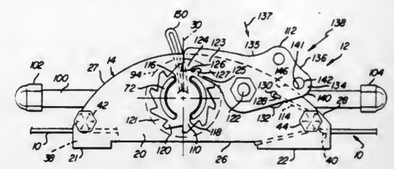
said swinging links having a recess adapted to engage the enlarged heads on said tension rods to exert tension thereon whereby application of pressure to said cylinders exerts tension in the tension rods and the studs engaged by the tension rods.

4,268,012

ADJUSTABLE LENGTH STRAP TIE DOWN APPARATUS

Walter J. Ruehle, 14000 E. Progress Way, Denver, Colo. 80232, and Robert E. Bronson, 710 Holly, Denver, Colo. 80220

Filed Aug. 20, 1979, Ser. No. 67,767
Int. Cl.³ B65D *67/02*; B60P *7/10*
U.S. Cl. 254—223 **11 Claims**



1. In apparatus for fixedly securing one object relative to another object and comprising:

an elongated continuous length strap means for being attached to the one object and for engaging and holding the other objects by tension;

attachment means fixedly non-adjustably connected to opposite ends of said strap means for fixedly securing the opposite ends of said strap means relative to the other object;

rotatable shaft means for winding and unwinding said strap means to adjustably tension said strap means;

slot means in said shaft means having a sufficient width for slidably adjustably receiving and retaining an intermediate loop portion of said strap means for enabling adjustment of the effective length of said strap means by varying the length of said intermediate loop portion and for enabling portions of said effective length of said strap means next adjacent said rotatable shaft means and portions of said intermediate loop portion next adjacent said rotatable shaft means to be simultaneously wound and tensioned and unwound and untensioned by rotation of said rotatable shaft means;

ratchet means operably engageable with said shaft means for releasably holding said shaft means against unwinding rotation during and after tensioning of said strap means;

elongated operating handle means operably connected with said rotatable shaft means for causing rotation thereof;

an elongated frame means having a pair of elongated spaced parallel side plate members having coaxial aligned bores for rotatably mounting said rotatable shaft means;

said rotatable shaft means comprising a pair of elongated split shaft members extending between said side plate members and being spaced from one another to define said slot means and having opposite end portions extending through and rotatably supported in said coaxial aligned bores in side plate members;

said ratchet means having a ratchet wheel member mounted on one juxtapositioned pair of said opposite end portions of said split shaft members and a pawl member mounted on the adjacent one of said side plate members;

said elongated operating handle means comprising an elongated operating handle member slidably mounted on the other juxtapositioned pair of said opposite end portions of said split shaft members adjacent the other of said side plate members, the invention of assembly and mounting means for said shaft means and said ratchet means comprising:

each of said shaft members having a segmental circular cross-sectional configuration of less than 180° with inner and outer arcuate peripheral surfaces extending between said side wall portions and through said coaxial aligned bores, the outer arcuate surfaces having a radius

approximately equal to the radius of said coaxial aligned bores;

a pair of circumferentially spaced arcuate slots in said ratchet wheel member having radii approximately equal to the radii of the arcuate inner and outer surfaces of said split shaft members and being coaxial therewith;

a first end portion of each split shaft member being received in and confined and held in spaced relationship by one of said arcuate slots;

radially extending flange means on said first end portion of each split shaft member axially adjacent said ratchet wheel member for limiting axial displacement of said split shaft members relative to said ratchet wheel member and for holding said ratchet wheel member on said split shaft members between said flange means and the adjacent side surface of one of the side plate members;

a spacer means having a radially extending opening therein and being mounted between the opposite second end portions of said split shaft members for holding the opposite second end portions in uniformly spaced coaxial relationship with said arcuate slots and having a radial extending abutment surface for abutting engagement with the adjacent side surface of the other one of the side plate members to limit axial displacement of the split shaft assembly;

said elongated handle member being slidably mounted in and extending through the aligned radially extending bores in the opposite end portions of said split shaft members and through said radially extending opening in said spacer means and limiting axial relative axial displacement between said spacer means and said split shaft members; and

retaining means on opposite end portions of said handle member for preventing removal of said handle member from said aligned bores in said split shaft members.

4,268,013

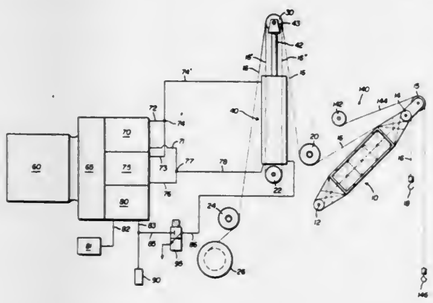
CRANE MOTION COMPENSATOR

Farooq A. Khan, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed Jun. 12, 1978, Ser. No. 914,834

Int. Cl.³ B66D *1/48*

U.S. Cl. 254—392 **14 Claims**



1. A motion compensator for use with a crane which lifts loads from a vertically and erratically moving deck such as an offshore heaving deck comprising:

a displaceable compensating sheave to receive a lift cable of the crane and for displacing the cable in proportion to displacement of the moving deck;

a piston, piston rod and cylinder arrangement for effecting the displacement of the compensating sheave, the piston being movable within the cylinder, the piston rod being interconnected between the piston and the displaceable sheave, and the piston and piston rod having first and second surfaces on one side thereof for respectively receiving the application of pneumatic and hydraulic pressure;

pressure means for applying a pneumatic force to said first surface of said piston and piston rod arrangement to provide at least a portion of the force for displacing the piston in the direction of the sheave;

a variable displacement hydraulic pump selectively varying the hydraulic flow volume and rate to the other side of the piston and to the second surface of said piston and piston rod arrangement; and

control means sensing the vertical movement of a deck and responding to the position of a moving deck by regulating the flow volume and rate output of said variable displacement hydraulic pump such that the piston rod is displaced in response to the output of said power means to achieve displacement of the compensating sheave by an amount which is directly proportional to the displacement of the moving deck.

4,268,014

TRANSPORT LIFT TRUCK FOR METALLURGICAL VESSELS, PARTICULARLY STEEL MILL CONVERTERS

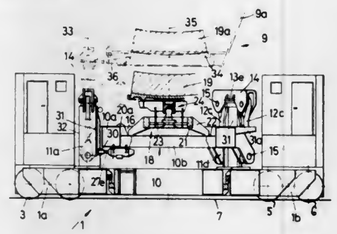
Karlheinz Langlitz, Mülheim, and Günter Schmitz, Duisburg, both of Fed. Rep. of Germany, assignors to Mannesmann Demag AG, Duisburg, Fed. Rep. of Germany

Filed Jan. 10, 1980, Ser. No. 111,088

Claims priority, application Fed. Rep. of Germany, Jan. 29, 1979, 2903361

Int. Cl.³ B65G *7/00*

U.S. Cl. 266—165 **7 Claims**



1. A combination metallurgical vessel lift truck and metallurgical vessel parts carrying device comprising

(a) a truck frame;

(b) a hoisting platform movably secured to said frame;

(c) a plurality of hoisting means for selectively elevating said hoisting platform, said hoisting means being circumferentially spaced around said frame;

(d) pivotally attached pendulum rods extending between each said hoisting means and said hoisting platform; and

(e) a removable carrying device for metallurgical vessel parts, positionable on said hoisting platform centrally of said spaced hoisting means.

4,268,015

BOTTOM OUTLET OR DISCHARGE FOR USE IN METALLURGICAL VESSELS FOR STEEL MELTS, PARTICULARLY TUNDISHES

Ernst Lührsen, Bad Schwalbach; Godehard Süssmuth, Marktredwitz, and Klaus Walden, Buxtehude, all of Fed. Rep. of Germany, assignors to Didier-Werke AG, Wiesbaden and Hamburger Stahlwerke GmbH, Hamburg, both of, Fed. Rep. of Germany

Filed Feb. 12, 1979, Ser. No. 11,569

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1978, 2807123

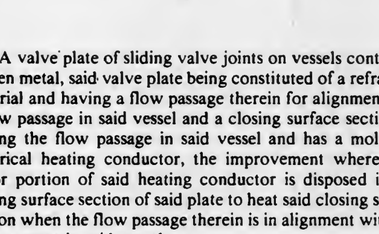
Int. Cl.³ C21C *7/00*

U.S. Cl. 266—236 **8 Claims**

1. A bottom outlet or discharge for use in metallurgical vessels for steel melts, particularly tundishes, said bottom outlet or discharge comprising:

a sleeve brick;

a nozzle brick positioned within said sleeve brick, said nozzle brick having therethrough a discharge opening;



a highly wear-resistant tubular sleeve fitted within said discharge opening of said nozzle brick; and

said sleeve brick, said nozzle brick and said tubular sleeve are formed of materials having thermal expansions at 1400° C. of from 1.0 to 1.15%, from 0.5 to 0.8% and from 1.1 to 1.25%, respectively.

4,268,016

VALVE ELEMENT FOR SLIDING TYPE VALVE JOINTS ON THE OUTLET OF VESSELS CONTAINING MOLTEN METAL AND PROCESS FOR MAKING SAME

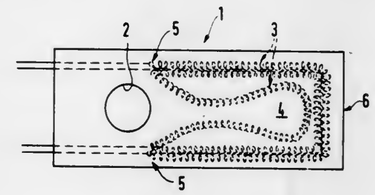
Axel Eschner, Wiesbaden; Hermann Leupold, and Peter Jeschke, both of Walluf, all of Fed. Rep. of Germany, assignors to Didier-Werke AG, Wiesbaden, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,678

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1978, 2826709

Int. Cl.³ C21C *5/42*

U.S. Cl. 266—236 **23 Claims**



1. A valve plate of sliding valve joints on vessels containing molten metal, said valve plate being constituted of a refractory material and having a flow passage therein for alignment with a flow passage in said vessel and a closing surface section for closing the flow passage in said vessel and has a molded-in electrical heating conductor, the improvement wherein the major portion of said heating conductor is disposed in said closing surface section of said plate to heat said closing surface section when the flow passage therein is in alignment with said flow passage in said vessel.

4,268,017

REACTOR WITH EXTRACTABLE FEED NOZZLE

Robert N. Cole, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 28, 1979, Ser. No. 107,898

Int. Cl.³ C21B *7/16*

U.S. Cl. 266—265 **6 Claims**

1. In combination;

(a) a reactor for the chemical or catalytic conversion of hydrocarbons having an outer metallic shell and an inner refractory lining;

(b) at least one nozzle shroud projecting through an aperture in said shell and said lining;

(c) a reactor feed nozzle disposed within a void in said nozzle shroud and concentrically positioned therein;

(d) a compressible insulative refractory fiber wrapped about said one nozzle to a diameter greater than an inner diameter of said nozzle shroud, said fiber being compressed to slideably fit said nozzle within said shroud;

(e) a low melting-point material wrapped about said compressed insulative refractory fiber, which upon heating allows said insulative refractory fiber to expand to said inner diameter of said shroud, thus completely filling said void in said nozzle shroud.

4,268,018

ELECTRICALLY CONDUCTIVE, TELESCOPING SPRING

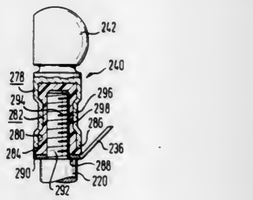
Rolf Langanke, Boppard, Fed. Rep. of Germany, assignor to Stabilus GmbH, Fed. Rep. of Germany

Filed Jul. 24, 1978, Ser. No. 927,094

Claims priority, application Fed. Rep. of Germany, Aug. 6, 1977, 7724548[U]

Int. Cl.³ F16F *9/54*

U.S. Cl. 267—120 **8 Claims**



1. In a spring arrangement comprising (a) a spring including a cylinder member bounding a cavity and having an axis, a plunger member secured to said cylinder member for axial movement inward and outward of said cavity, and resilient means in said cavity for biasing said plunger member outward of said cavity, said plunger member conductively engaging said cylinder member during at least a portion of said axial movement; (b) an electrically conductive terminal mounted on each of said members outside said cavity; and (c) connecting means for connecting each of said members to associated structure for movement relative thereto, the improvement wherein each connecting means comprises:

(1) a first connector element carried by one member of said spring, said first connector element being made of metallic material and formed with a recess opening towards said one member and terminating in a rim portion bounding the open end thereof for receipt therein of a reduced-diameter end portion of said one member, said reduced-diameter end portion defining at the juncture thereof with the main portion of said one member a shoulder facing said rim portion of said connector element;

(2) a second connector element coupled to said first connector element for pivotal movement relative thereto;

(3) fastening means for fastening said second connector element to said associated structure;

(4) insulating means, including a substantially cup-shaped member of insulating material in said recess in surround-

ing relation to the end and sides of said reduced-diameter end portion and a flange member of insulating material interposed between said rim portion and said shoulder, for electrically insulating said one member from said first connector element, thereby preventing the flow of electric current in a path including said first and second connector elements; and

(5) means for respectively securing said end portion of said one member to said cup-shaped member and said cup-shaped member to said first connector element.

4,268,019

FIXTURE AND METHOD FOR REPAIRING TRACK LINKS

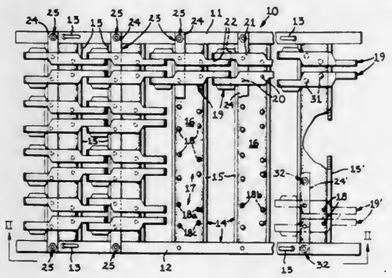
Dean W. Martin, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00283, § 371 Date Apr. 30, 1979, § 102(e) Date Apr. 30, 1979, PCT Pub. No. WO80/02396, PCT Pub. Date Nov. 13, 1980.

This PCT application filed Apr. 30, 1979, Ser. No. 85,649

Int. Cl.³ B25B *1/20*

U.S. Cl. 269—43 **27 Claims**



1. A fixture (**10**) for repairing track links (**19**) of a track assembly for a track-type vehicle comprising

support means (**14**) for supporting a plurality of said track links (**19**) thereon,

locating means (**17**) for positioning said track links (**19**) on upper surfaces (**16**) of said support means (**14**) to expose upper rail surfaces (**20**) of said track links (**19**), and

clamping means (**23**) for releasably clamping said track links (**19**) on the upper surfaces of said support means (**14**).

4,268,020

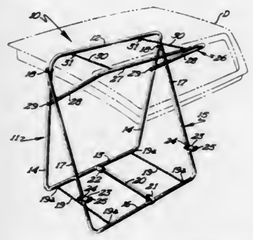
SUPPORT DEVICE FOR AUTOMOTIVE BODY PARTS

Arthur E. Wood, Rte. 3, Box 3, Cambridge, Minn. 55008

Filed Aug. 9, 1979, Ser. No. 65,130

Int. Cl.³ B25B *11/00*

U.S. Cl. 269—88 **3 Claims**



1. A collapsible support device for supporting body parts of an automobile such as doors, hoods, fenders and the like, comprising:

a rectangular frame including spaced apart substantially parallel upper and lower transverse frame members and a pair of substantially parallel generally vertical frame members integral with said transverse frame members,

a generally U-shaped support frame comprising a lower transverse frame member and a pair of vertical frame members integral with said transverse frame members and extending angularly therefrom,

means pivotally connected to the upper end portion of each vertical frame member of the U-shaped support frame with the upper end portion of a vertical frame member of the rectangular frame to permit pivoting movement of the frames with respect to each other between folded, collapsed and unfolded, erect positions, said frame members when in the collapsed position being disposed in substantially side-by-side relation, and when in the unfolded erect position diverging angularly downwardly with respect to each other,

means interconnecting the transverse frame member of the U-shaped support frame with the lower transverse frame member of the rectangular frame to limit movement of the frames in an unfolding direction,

a pair of support elements each being adjustably mounted on the vertical frame members of said U-shaped support frame and cooperating with the rectangular and support frames when the latter are in the unfolded erect position for supporting an automotive body part such as a door, hood, fender or the like in inclined position thereon,

a U-shaped table frame including a transverse frame member and a pair of longitudinal frame members integral with and extending angularly from the transverse frame member,

means pivotally connecting each longitudinal frame member of the table frame with one of the vertical frame members of the rectangular frame to permit pivoting movement of the table frame between the raised and lowered positions, the table frame when in the lowered position being disposed in substantially side-by-side relation with the rectangular frame, said table frame when in the raised position extending angularly upwardly from the rectangular frame and cooperating with the latter for supporting an automotive body part such as a door, hood, fender or the like thereon,

and means on said rectangular frame engaging said table frame for releasably retaining the latter in the raised position.

4,268,021

TRANSPORTATION ARRANGEMENT FOR SHEETLIKE RECORDING CARRIERS

Thomas Rutishauser, Uerikon; Roland Reichlin, Zurich; Claudius Viviani, Mönchaltorf, and Albert Rutishauser, Uerikon, all of Switzerland, assignors to Rutishauser Data AG, Stafa, Switzerland

Filed Jan. 19, 1979, Ser. No. 4,925

Claims priority, application Switzerland, Jan. 23, 1978, 679781/78

Int. Cl.³ B65H *3/06, 5/06, 29/22*

U.S. Cl. 271—4 **7 Claims**

1. In apparatus for transporting separate sheets of paper or the like through equipment by which information can be imparted onto each sheet line by line, the combination of:

a platen rotatable to and past a given angular position at which said information can be imparted onto a sheet disposed on said platen;

means for driving said platen stepwise,

means including at least one feed roll for feeding said separate sheets singularly from a supply into a conveying path toward said platen,

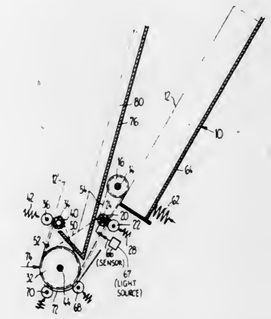
a cooperating pair of transporting rolls disposed in said path between said feeding means and platen for grasping a fed sheet and feeding it onward toward said platen when at least one of said transporting rolls is driven,

said transporting rolls being located in said path downstream from said feed roll a distance less than the path length of a said sheet,

means for maintaining said feed roll in constant and continuous pressure contact with said sheet supply and with each single sheet fed by said feed roll until after the fed sheet is grasped by said transporting rolls for constantly and continuously controlling the movement of each sheet by said feed roll until after it is under the control of said transporting rolls,

roll drive means including releasable coupling means connected between said platen and said one transporting roll for driving said one transporting roll by said platen,

sheet sensing means coupled to said releasable coupling means for detecting the advancement of a sheet along said path to a predetermined sensing position located a fraction of said sheet length downstream from said transporting rolls for releasing said coupling means to stop the drive of said transporting rolls and halt the said onward feeding thereby of a sheet which is then under grasp by said transporting rolls,



means for restarting the onward feeding of a sheet past said sensing means and through said platen of the halted sheet by re-engaging said coupling means to cause driving of said transporting rolls again,

said platen having at least one nip located downstream from said transporting rolls a distance less then the path length of a fed sheet for keeping a sheet fed by the transporting rolls under control thereof at least until the sheet is grasped by the platen at said nip, and

means cooperating with said feeding means and coupling means for causing said feed roll to feed a sheet forward upon said re-engaging of said coupling means but at a speed slower than said transporting rolls for spacing successive sheets to allow detection thereof by said sheet sensing means,

said predetermined sensing position being spaced a given distance from said angular position so that said information can be imparted onto said sheet precisely on each desired predetermined line of said sheet as it is stepped by said platen and its driving means.

4,268,022

CONFORMING DOCUMENT ALIGNER

John H. Looney, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 30, 1979, Ser. No. 71,331

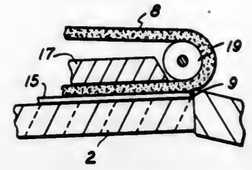
Int. Cl.³ B65H *5/02, 9/04*

U.S. Cl. 271—7 **7 Claims**

1. In a copier having a platen for exposing documents thereon, the improvement of a document registration system, comprising:

a raised registration edge at the forward end of the platen; and

at least one compressible foam document aligning belt located adjacent to and above said registration edge, said alignment belt extending a short distance over said platen and conforming to said registration edge such that the documents engaged by said belt are pulled toward said registration edge with minimum friction and reduced registration edge impact, and means to compress said



compressible foam belt over said raised registration edge allowing said belt to expand downwardly below the top of said edge to push down the lead edge of a document adjacent said registration edge in order to control document up-curl and registration edge jumping.

4,268,023

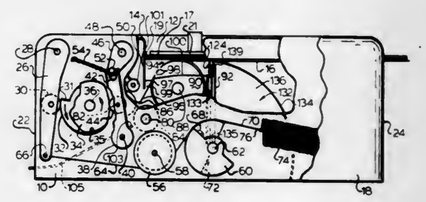
DOCUMENT-FEEDING APPARATUS

Carl P. Anderson, Menlo Park, Calif., assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 20, 1979, Ser. No. 67,689

Int. Cl.³ B65H *3/12*

U.S. Cl. 271—94 **11 Claims**



1. A sheet-feeding device comprising:

means forming a document tray having a generally planar portion and a portion deformed to extend away from the plane of the planar portion, said tray means being adapted to supportively engage a stack of sheet material such that one end portion thereof extends beyond said planar portion to overlie said deformed portion, said deformed portion having at least one longitudinally-extending slot and a plurality of inlet openings formed therein;

pump means including walls forming a chamber and a vane disposed within said chamber, said vane having edges which sealingly engage the walls of said chamber, such that when said vane is actuated in one direction it sweeps through said chamber momentarily reducing the pressure therein so as to draw air through said inlet openings to momentarily reduce the pressure in the space between said deformed portion and the end portion of the facing sheet of material, the reduction of pressure being sufficient to cause the said end portion of the facing sheet to be bowed over said deformed portion;

document feed means disposed to extend through said longitudinally-extending slot;

presser means for causing the bowed sheet portion to be frictionally engaged by said feed means so as to withdraw the sheet from said stack of material; and

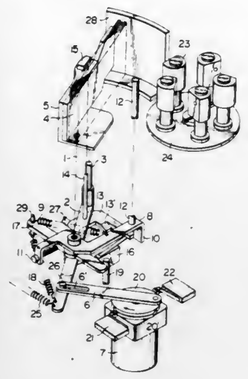
drive means for driving said feed means, said pump means, and said presser means in cyclic fashion so that each sheet in said stack is serially removed therefrom and discharged from said device.

4,268,024

BANK NOTE HOLDING METHOD FOR BANK NOTE COUNTING MACHINE

Eiichi Kokubo, and Tuyoshi Miyagawa, both of Tokyo, Japan, assignors to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed May 8, 1979, Ser. No. 37,011
Claims priority, application Japan, May 11, 1978, 53/55964
Int. Cl.³ B65H *3/42*
U.S. Cl. 271—95 **2 Claims**



1. A bank note holding mechanism for use in a bank note counting machine having a frame, and a plurality of suction cylinders which make planetary movements so that bank notes are counted while being sucked and deflected one by one by the suction cylinders, the holding mechanism comprising:
- a holder (**5**) for receiving bank notes to be counted;
- a keep rod (**12**) for clamping the bank notes to the holder;
- means for forcing clamped bank notes into contact with the suction cylinders;
- a shaft (**1**) mounted on a frame of the machine;
- a holder support plate (**2**) for supporting the holder (**5**), the holder and support plate being pivotably mounted on the shaft (**1**);
- a motor (**7**) for rotating said support plate about for shaft (**1**);
- means for interconnecting said motor and said support plate;
- an actuating plate (**8**) having the keep rod (**12**), said actuating plate being pivotably mounted on the shaft (**1**);
- a first spring (**9**) connected at one end to the actuating plate (**8**) for biasing the same away from the suction cylinders (**23**);
- a spring holding plate (**17**) pivotably mounted on the shaft (**1**) and connected to the other end of the first spring (**9**); and
- a second spring (**18**) connected at the opposite ends thereof to the holder support plate (**2**) and the spring holding plate (**17**) for rigidly holding the bank notes between the holder (**5**) and the keep rod (**12**).

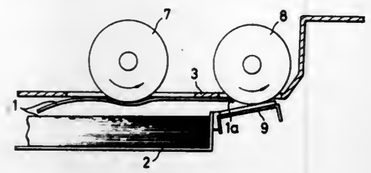
4,268,025

SHEET FEEDING APPARATUS

Seizi Murayoshi, Machida, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 15, 1979, Ser. No. 94,757
Claims priority, application Japan, Nov. 21, 1978, 53-143867
Int. Cl.³ B65H *3/64*
U.S. Cl. 271—112 **5 Claims**

1. In a sheet feeding apparatus comprising a sheet receptacle for placing sheets thereon, a vacuum plate which is disposed above said sheet receptacle and which has a sheet suction hole in a bottom portion thereof directed to said sheet receptacle, a casing for covering said vacuum plate, a fan for bringing a space between said vacuum plate and said sheet receptacle to a negative pressure by sucking air from said casing, a sheet feed roller, which is disposed rotatably in said casing and a sheet transport portion which is exposed to the side of said sheet receptacle through said vacuum plate, a sheet separating roller which is rotatably disposed, downstream of said sheet feed roller, in sheet transport path, and a drive apparatus for driving each of said rollers in the sheet feeding direction, the improvement wherein said sheet separating roller is disposed in said casing and part of the peripheral surface of said sheet separating roller is exposed to the side of the said sheet receptacle through said vacuum plate and in contact with a frictional member disposed below said sheet separating roller.

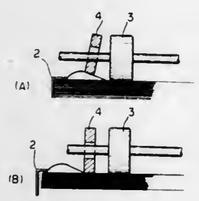


4,268,026

SHEET SUPPLY MEANS FOR A REPRODUCING APPARATUS

Kenji Kojima, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Jul. 25, 1979, Ser. No. 60,421
Claims priority, application Japan, Aug. 2, 1978, 53-105538[U]
Int. Cl.³ B65H *3/06, 3/46*
U.S. Cl. 271—121 **1 Claim**



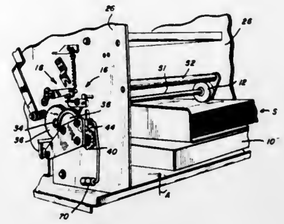
1. In a sheet supply device for a cassette-type reproducing apparatus having at least one cassette for housing a stack of copy sheets, the combination comprising:
- at least one rotatable sheet supply roller mounted on a shaft and disposed for contact with the copy sheets housed in said cassette for feeding said sheets in a forward manner one sheet at a time;
- at least one corner pawl mounted on said cassette and disposed to engage an edge portion of a copy sheet so as to cause, in cooperation with said sheet supply roller, an upward buckling of a top sheet of said stack at a point between said sheet supply roller and said pawl; and
- at least one guide roller mounted on said shaft between said sheet supply roller and said pawl, said guide roller having a central aperture which has a larger diameter than said shaft so that said guide roller is loosely mounted on said shaft so as to be movable in a generally radial direction relative to the axis of said shaft and so as to rotatably contact the copy sheets under its dead weight.

4,268,027

SHEET FEEDING APPARATUS

Richard L. Oleksiak, Lincolnwood, and George P. Niesen, Mt. Prospect, both of Ill., assignors to A. B. Dick Company, Chicago, Ill.

Filed Oct. 22, 1979, Ser. No. 87,209
Int. Cl.³ B65H *1/12*
U.S. Cl. 271—153 **5 Claims**



5. In a duplicating machine including a table movable between raised and lowered positions for supporting a stack of paper sheets having a top portion with an uppermost sheet, a feed member for engaging the uppermost sheet of the stack in a feed zone, means for driving the feed member to feed sheets from the feed zone into the duplicating machine, biasing means coupled to said table for continuously urging the table toward its raised position, and improved means for automatically raising the table so as to maintain the top portion of the stack in the feed zone, the improvment comprising:
- (a) a pawl and ratchet mechanism, the ratchet being coupled to and moving in direct relationship with the movement of the table, said biasing means continuously urging the movement of said ratchet relative to said pawl;
- (b) clutch means for disengaging the ratchet from said table whenever the table is moved away from the feed zone;
- (c) selectively operable pendulum means connected to said pawl for actuating said pawl to release said ratchet and permit the table to move upwardly, and
- (d) sensor means coupled to said pendulum means and responsive to the top portion of the stack being lowered to a predetermined level to enabling operation of said pendulum and disabling said pendulum upon raising of the top portion of the stack to another higher predetermined level.

4,268,028

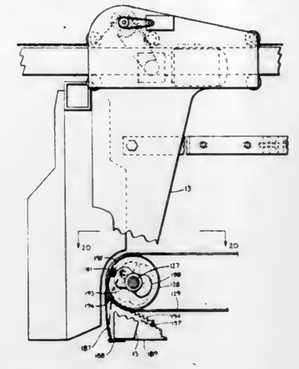
AUTOMATIC SHEET HANDLING APPARATUS

Merrill D. Martin, No. 2 Mall Ct., Oakland, Calif. 94611

Continuation-in-part of Ser. No. 860,886, Dec. 15, 1977, abandoned, which is a division of Ser. No. 771,845, Feb. 26, 1977, Pat. No. 4,099,712. This application Oct. 17, 1979, Ser. No. 85,808
Int. Cl.³ B65H *29/50, 31/38*
U.S. Cl. 271—201 **11 Claims**

3. An undulating stack aligner for the stacker end of a stacker conveyor, comprising
- a flexible element along said stacker end,
- a plurality of individual support elements along said flexible element floatingly to support said element with freedom of flexing sequentially from one end to the other end,
- a plurality of sequential flexing means spaced apart along said flexible element and between the ends of said element to flex said flexible element sequentially from one end to the other end along said stacker end so as to align sheets in a stack as it is stacked at said end of said conveyor,
- and actuating means adjacent said flexing means between the ends of said flexible element to individually sequentially actuate the respective flexing means.

11. The combination with the stacker end of a stacker conveyor, having
- a pair of brackets pivoted on opposite sides of said stacker end,
- back-stops,
- adjustable supports to support said back-stops spaced from said stacker end for stacking sheets discharged therefrom, of
- a connecting brace extending from each bracket and being pivoted on the respective side of said conveyor,
- the pivot of each bracket being located to swing the bracket toward said conveyor when forced by said back-stops,



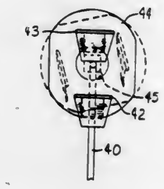
- relatively telescopingly held rods forming each connecting brace,
- resiliently yieldable means to hold said rods extended and resist the turning of said brackets toward said conveyor,
- a switch mounted on one of said rods,
- a member on the other rod for actuating said switch when an obstruction to movement of said back-stops pivots said brackets toward said conveyor thereby telescoping said rods,
- and means actuated by the actuation of said switch to raise and hold said back-stops above said obstruction.

4,268,029

RECREATIONAL BASKETBALL APPARATUS WITH MULTIPLE MOVING GOALS

Andrew P. Collins, 3926 Dover Rd., Durham, N.C. 27705

Division of Ser. No. 829,987, Sep. 1, 1977, Pat. No. 4,202,543. This application Feb. 11, 1980, Ser. No. 120,724
Int. Cl.³ A63J *3/00;* **A63B** *63/06*
U.S. Cl. 272—3 **1 Claim**



1. A commercial basketball recreational facility comprising:
- (a) an array of basketball courts grouped in spaced-apart sets on a common land area, each set of courts having a plural number of courts and each court having a goal-backboard support means and appropriate fencing shared with adjacent courts on either side thereof; and
- (b) a set of elevated unique goal-backboard structures for the array of courts with one such unique structure being supported in each court on each said support means at an elevation appropriate to the game of basketball and including among the set of said unique goal-backboard

structures at least one such unique goal-backboard structure having a single vertical backboard mounting a pair of spaced parallel conventional basketball goals on the same outer playing side thereof and means to rotate said single backboard about a horizontal axis perpendicular thereto and passing through said single backboard between said spaced apart goals.

4,268,030

INFLATABLE ACTION TOY

Lawrence Richards, Glen Cove, N.Y., assignor to GLJ Toy Co., Inc., Syosset, N.Y.

Filed Nov. 1, 1978, Ser. No. 956,659
Int. Cl.³ A63B *69/34*; A63H *15/06*
U.S. Cl. 272—77 **4 Claims**



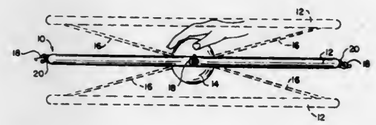
1. An inflatable article comprising first and second panels made substantially of flexible sheet material and sealingly joined to each other at their respective peripheral edges to form a substantially sealed enclosure capable of retaining gas under pressure, said first and second panels having respective first and second panel portions spaced from each other when said enclosure is internally gas pressurized, said first panel portion being transparent to cause said second panel portion to be visible therethrough, said first panel portion being partially imprinted with a first image to permit continued visibility of said second panel portion, a second image being imprinted on said second panel portion, and an intermediate panel between said first and second panels, said intermediate panel being spaced from said first and second panels when said enclosure is internally gas pressurized, said intermediate panel having a transparent panel portion imprinted with a third image to permit continued visibility of said second image therethrough and through said first panel portion, said first, second and third images cooperating with each other to produce an illusion of three dimensions and an image which continuously changes with different angles of observation of the inflatable article.

4,268,031

PLAY AND EXERCISING DEVICE

Fay G. Schomburg, Bradenton, Fla., assignor to Anthony Dama, Bradenton Beach, Fla., a part interest

Filed Jul. 24, 1979, Ser. No. 60,136
Int. Cl.³ A63B *21/14*
U.S. Cl. 272—128 **3 Claims**



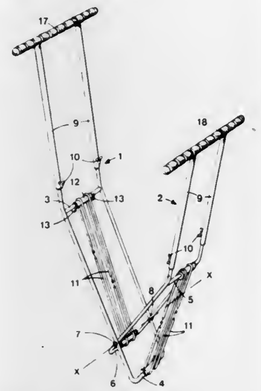
1. A play and exercising device comprising an annular member, a manually graspable spherical member disposed substantially at the center of said annular member. and at least two pairs of elastic stretched strings radially connecting said annular member to said spherical member, wherein each pair of said strings is a single length of elastic line passed freely through diametrical apertures in said spherical member, the ends of said line being attached to said annular member at diametrically opposed points.

4,268,032

EXPANDER

Antoine Cusi, 35, Avenue du Bois-de-la-Chapelle, CH-1213 Onex, Switzerland

PCT No. PCT/CH78/00025, § 371 Date Jun. 5, 1979, § 102(e) Date May 22, 1979, PCT Pub. No. WO79/00181, PCT Pub. Date Apr. 19, 1979.
This PCT application filed Jun. 1, 1979, Ser. No. 109,455
Claims priority, application Switzerland, Oct. 5, 1977, 12187/77
Int. Cl.³ A63B *21/02*
U.S. Cl. 272—137 **3 Claims**



1. An expander for physical exercises, comprising in substantially symmetrical combination:
- a pair of substantially U-shaped actuating arms, each of said arms having a pair of branches connected together at one end forming a U member, said U members forming a first pair of transoms, said arms pivotally articulated together along an axis at right angles to the lengthwise direction of the arms near said transoms;
- a second pair of transoms connecting the branches of said arms at right angles at a location opposite said first pair of transoms with respect to said articulation axis, said U-shaped branches being bent inwardly at an obtuse angle near or at the place of said second pair of transoms, the remaining ends of the branches of each arm being connected together by a handle; and
- resilient means connecting each transom of said first pair of transoms to a transom of said second pair of transoms, whereby said arms are biased away from each other.

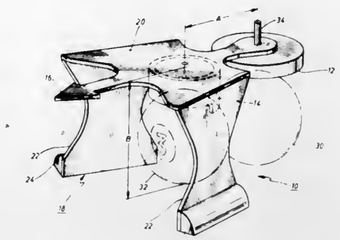
4,268,033

CUE BALL AIMING DEVICE

Paul E. Fontaine, 9411 Railton, Houston, Tex. 77080

Filed Apr. 7, 1980, Ser. No. 137,843
Int. Cl.³ A63D *15/00*
U.S. Cl. 273—2 **9 Claims**

1. A cue ball aiming device, for aiming a cue ball with respect to an object ball, comprising:
- a support structure adapted to rest on the playing surface of a billiard table and generally over an object ball, said support structure having at least two openings therein, the first of which openings being large enough to permit a cue ball to strike an object ball resting generally within the support structure and the second of which openings being large enough to permit the object ball to be projected out of said support structure;
- a cue ball spotter for providing a means for aiming a cue ball, said cue ball spotter being affixed to the support structure at the end thereof nearer the first opening;
- an object ball cradle against which an object ball may rest, to enable the proper positioning of support structure relative to an object ball and for providing an unobstructed path for the projection of an object ball through the second opening, said object ball cradle being affixed to and positioned within said support structure so that the distance between the centerline of the cue ball spotter and the centerline of an object ball when it is abutting said object ball cradle is equal to the diameter of a billiard ball; and
- a center-to-center sight for properly aligning the support structure, said center-to-center sight being affixed to the support structure and connected so that an imaginary line extending horizontally from the center of said sight intersects both of the imaginary centerlines extending vertically upward through the center of an object ball when it is properly positioned under the support structure and through the center of the cue ball spotter.

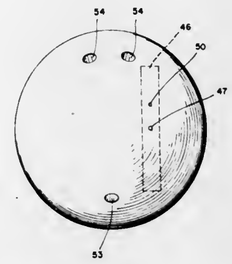


4,268,034

BOWLING BALL

Gene W. MacDonald, Kent, Ohio, assignor to GMSG, Inc., Kent, Ohio

Continuation-in-part of Ser. No. 814,625, Jul. 11, 1977, abandoned, which is a continuation of Ser. No. 605,388, Aug. 18, 1975, abandoned. This application Mar. 12, 1979, Ser. No. 19,823
Int. Cl.³ A63B *37/14*
U.S. Cl. 273—63 C **4 Claims**



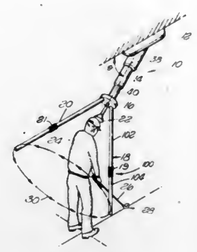
1. A bowling ball comprising a spherical mass, a weight block having a higher specific gravity than said mass embedded in said mass, said weight block having a longitudinal axis, and means connected to said weight block and appearing on the outside surface of said mass to identify the location of the longitudinal axis of said weight block and to determine the depth of said weight block in said mass.

4,268,035

TRANSVERSE FORCE INDICATING DEVICE FOR SWING TEACHING

Jess Oppenheimer, 540 Moreno Ave., Los Angeles, Calif. 90049

Continuation-in-part of Ser. No. 10,554, Feb. 9, 1979, Pat. No. 4,211,418. This application Mar. 25, 1980, Ser. No. 133,941
Int. Cl.³ A63B *69/36*
U.S. Cl. 273—186 A **7 Claims**



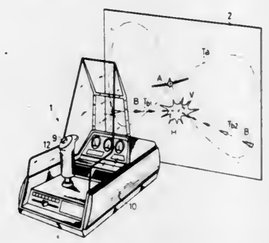
1. An unattached swing teaching apparatus rotatable through a predefined arcuate path, the swing teaching apparatus comprising:
- support means;
- rotating means rotatably attached to and supported by the support means;
- guide rod means fixed for rotating with the rotating means;
- a generally rod-like object for being swung, the guide rod means positioned for being intermittently contacted and rotated by the object as the object is swung for guiding the object through the predefined arcuate path; and
- means for indicating the amount of transverse force exerted by the object against the guide rod means when the object is swung in contacting relationship with the guide rod means.

4,268,036

SHOOTING GAME APPARATUS

Gunpei Yokoi, Kyoto, Japan, assignor to Nintendo Company Limited, Kyoto, Japan

Filed Mar. 26, 1979, Ser. No. 23,893
Claims priority, application Japan, Apr. 20, 1978, 53-047325; Apr. 20, 1978, 53-047326; Apr. 29, 1978, 53-051869; Apr. 29, 1978, 53-059077[U]
Int. Cl.³ A63F *9/02*
U.S. Cl. 273—316 **3 Claims**



1. A bullet image projecting device comprising:
- a housing;
- a light source disposed in said housing;
- a pair of bullet image forming units placed at generally opposing sides of said light source in a symmetrical fashion, each unit including a bullet slit, a mirror and a lense, said unit being rotatable around said light source in said housing, and a means for rotating said unit cojointly around said light source, whereby a pair of bullet image

are projected and moved on a screen in a symmetrical fashion.

4,268,037

TRAINING DEVICE FOR DEVELOPING ROPING SKILLS

Victor W. McKinley, and Fred D. McKinley, both of R.R. 1, Box 850A, Willcox, Ariz. 85643

Filed May 21, 1979, Ser. No. 41,005
Int. Cl.³ A63B *69/00*
U.S. Cl. 273—359 **6 Claims**



1. A foot mounted training device having a target for developing roping skills, said device being mountable upon and solely supported by one of the trainee's feet to locate the target at a sufficient distance to prevent interference of a thrown loop of the rope with the trainee's leg, said device comprising in combination:

(a) a simulated steer head;

(b) simulated horns extending in opposed lateral directions from said head and serving as the target about which the thrown loop of the rope is to fall and be drawn tight by the trainee;

(c) an elongated neck portion extending from said head and including a terminal end, said neck portion and said head being in combination of sufficient fore and aft length to define a distance from the base of said horns to said terminal end greater than one half of the span of said horns and thus also greater than the radius of the thrown loop which is necessary for the thrown loop to fall past said horns;

(d) a cavity extending into said neck portion from said terminal end for receiving the toes and ball of the trainee's foot; and

(e) strap means extending rearwardly from said neck portion for strapping said head and said neck portion to the trainee's foot to maintain the trainee's toe and ball of the foot within said cavity during vigorous vertical and horizontal movement of the trainee's foot, said strap means in combination with said cavity providing the sole support for maintaining said roping target upon the trainee's foot to leave the trainee's hands free to cast the rope;

whereby, the target is sufficiently removed from the trainee's leg to permit unimpeded throwing and fall of a loop of the rope about said horns extending from said head.

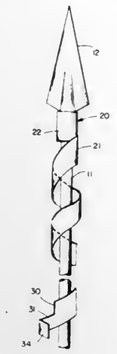
4,268,038

ACCESSORY FOR AN ARROW

Allen J. Wierenga, Hopkins, Mich., assignor to Philip A.D. Machine, Inc., Wayland, Mich.

Filed Nov. 13, 1979, Ser. No. 93,632
Int. Cl.³ F41B *5/02*
U.S. Cl. 273—416 **12 Claims**

11. In combination an arrow having a head and shaft threadedly joined thereto at the base of the head, the threaded joint between said head and shaft forming a shoulder at the forward end of the shaft; a shell having an internal opening of a size to receive and seat closely about said shaft; said shell having a radially inwardly extending flange at its forward end seated on said shoulder and clamped between said shoulder and the base of said head; a coil of ribbon-like resilient material tightly wound about said shell and having one end secured thereto; releasable means holding said material in said coiled condition; a releasable catch projecting outwardly from said coil for



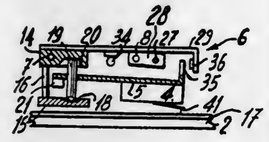
engaging a target as the arrow enters for releasing the strip and freeing it to uncoil.

4,268,039

TANGENTIAL PICK-UP DEVICE FOR A GRAMOPHONE TURN-TABLE

Daniel Bois, Chouilly, Geneva, Switzerland (CH-1242), and Jan Olsfors, Route de Divonne, 18, Nyon, Vaud, Switzerland (CH-1260)

Continuation of Ser. No. 788,890, Apr. 19, 1977, Pat. No. 4,149,730. This application Apr. 16, 1979, Ser. No. 30,560
Claims priority, application Switzerland, Apr. 27, 1976, 5264/76
The portion of the term of this patent subsequent to Aug. 17, 1996, has been disclaimed.
Int. Cl.³ G11B *3/38*
U.S. Cl. 369—220 **4 Claims**



1. In a pick-up device for a phonograph record turntable comprising a tangentially moving tone arm including a mounting block, at least one rectilinear guide member extending parallel to the radius of a record on said turntable, a servomotor in said mounting block, a carriage movable along said guide member, a support beneath said carriage, a pick-up head at one end of said support, articulation means connecting the other end of said support to said carriage, a device on said carriage supplying an electric signal indicating the position of said support relative to said carriage and said servo-motor controlling the displacement of the carriage in response to said signal, the improvement wherein said rectilinear guide member extends over the record upper face, the length of said support being shorter than the radius of said record, said articulation means comprises a pivot member connected to said support and having a conical point at its lower end, a plate member connected to said carriage and having an enlarged conical seat in which said conical point engages said pivot member extending through said support, a guide member connected to said carriage and including a guiding surface, said pivot member sliding at its upper end along said guiding surface whereby said pivot member may move angularly in a plane perpendicular to the surface of and tangential to the grooves of said record and

also rotate around its axis which is substantially perpendicular to the plane of the record, said guide member located further away from the surface of the record than said conical point of said pivot member.

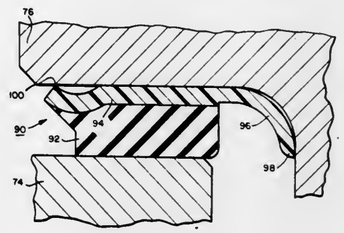
3. In a pick-up device for a phonograph record turntable comprising a tangentially moving tone arm including a mounting block, at least one rectilinear guide member extending parallel to the radius of a record on said turntable, a servomotor in said mounting block, a carriage movable along said guide member, a support beneath said carriage, a pick-up head at one end of said support, articulation means connecting the other end of said support to said carriage, a device on said carriage supplying an electric signal indicating the position of said support relative to said carriage and said servo-motor controlling the displacement of the carriage in response to said signal, the improvement wherein said rectilinear guide member extends over the record upper face, the length of said support being shorter than the radius of said record, said articulation means comprising a pivot shaft extending through said support and having a conical point, said carriage including a plate having an enlarged conical seat disposed beneath said support close to said record, a guide member connected to said carriage and including a guiding surface, said pivot shaft sliding at its upper end along said guiding surface whereby said pivot shaft may move angularly in a plane perpendicular to the surface of and tangential to the grooves of said record and also to rotate around its axis which is substantially perpendicular to the plane of the record, said guide member located further away from the surface of the record than said conical point of said pivot shaft.

4,268,040

THRUST WASHER AND COMBINATION SEAL AND THRUST WASHER METHOD AND APPARATUS

Dean R. Bainard, Bethel Township, York County, S.C., and Martin E. Benjamin, Gastonia, N.C., assignors to Garlock Inc., Longview, Tex.

Division of Ser. No. 733,890, Oct. 19, 1976, Pat. No. 4,166,627. This application Feb. 12, 1979, Ser. No. 11,775
Int. Cl.³ F16J *15/34, 15/32;* F16C *33/20*
U.S. Cl. 277—1 **25 Claims**



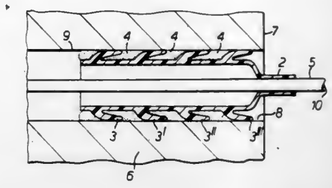
1. An article comprising a thrust washer including a flat, radially extending, ring-shaped member having a pair of radial contact surfaces, said member comprising a backing layer of resilient elastomeric material forming one of said radial contact surfaces, bonded to a bearing layer made of a low coefficient of friction material forming the other of said radial contact surfaces, said bearing layer extending substantially the entire radial dimension of said backing layer and including a sealing lip at both its I.D. and O.D. edge.

4,268,041

SEALING DEVICE AND METHOD

Richard C. Sovish, Waterloo, and Marc F. L. Moisson, Strombeek-Bever, both of Belgium, assignors to N.V. Raychem S.A., Kessel-Lo, Belgium

Division of Ser. No. 847,823, Nov. 21, 1977, Pat. No. 4,194,750. This application Oct. 15, 1979, Ser. No. 84,658
Claims priority, application United Kingdom, Nov. 31, 1976, 45725/76
Int. Cl.³ F16J *15/10, 15/32*
U.S. Cl. 277—1 **19 Claims**



1. A method of forming a seal between the outer surface of an elongated article and the internal walls of a duct through which the article passes, comprising the steps of

(a) selecting a sealing device comprising a hollow body member made of a polymeric material and provided on its external surface with a plurality of spaced apart flanges, such flanges having a peripheral region remote from the surface that is substantially rigid at the maximum temperature likely to be encountered in use of the device and deformable only at elevated temperatures greater than said maximum temperature, wherein at least part of the outer surface of the hollow body member has sealant thereon, the diameter of the flanges being greater than the inner diameter of the duct;

(b) heating at least the outer peripheral regions of the flanges to a sufficiently high temperature to make them deformable;

(c) inserting the sealing device with the heated flanges into the duct at least to the extent that a plurality of flanges is received by the duct whereby the outer portions of the flanges are deformed by the duct;

(d) allowing the device to cool; and

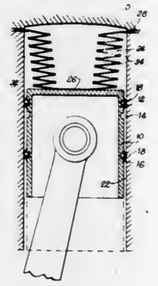
(e) forming a seal between the hollow body member and the article.

4,268,042

FLEXIBLE BELLOWS PISTON SEAL

Albert G. Borlan, 3730 Ginger Way, Oceanside, Calif. 92054

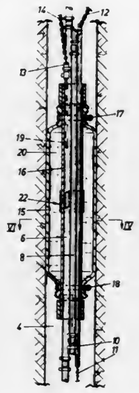
Filed May 8, 1980, Ser. No. 147,926
Int. Cl.³ F16J *3/00*
U.S. Cl. 277—1 **7 Claims**



1. A piston and cylinder comprising:

(a) a piston having a plurality of circumferential slots;
(b) a plurality of bearings seated in said slots to bear on said cylinder; and
(c) a continuous accordion baffle being expansible and contractable longitudinally in said cylinder and defining an expansion chamber with the head of said cylinder.

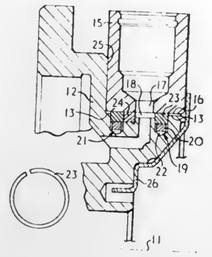
4,268,043
SEALING MEMBER FOR USE IN WELL SHAFTS
Bror I. Forssell, Göteborg, Sweden, assignor to RP Rorprodukter AB, Göteborg, Sweden
Filed Aug. 27, 1979, Ser. No. 70,324
Claims priority, application Sweden, Sep. 15, 1978, 7809715
Int. Cl.³ F16J *15/48*
U.S. Cl. 277—34 **5 Claims**



1. An improved sealing member intended for insertion in a well shaft and comprising a hose, a tube sleeve, said hose being mounted over said tube sleeve and having its ends sealed relative to said sleeve, and at least one pipe carrying pressurized water, said pipe passing through said sleeve, the improvement comprising
a space formed between said sleeve and said hose, said space being connected with said pressurized water pipe, a valve provided in said connection and capable of allowing water to flow from said pipe to said space but not in the reverse direction.

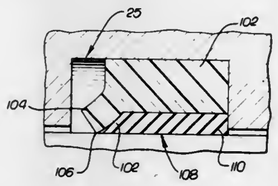
4,268,044
FLUID CONNECTIONS TO ROTARY MEMBERS
Daniel L. Killian, and Peter E. Fraser, both of Leamington Spa, England, assignors to Automotive Products Limited, Leamington Spa, England
Continuation of Ser. No. 853,524, Nov. 21, 1977, abandoned. This application May 7, 1979, Ser. No. 36,810
Claims priority, application United Kingdom, Nov. 25, 1976, 49215/76
Int. Cl.³ F16J *15/00*
U.S. Cl. 277—59 **3 Claims**

1. A rotary fluid supply connection in a power hydraulic apparatus comprising:
two relatively rotatable co-axial members having opposed cylindrical surfaces defining an annular chamber therebetween;
passageways opening into said surfaces for the continuous flow of hydraulic fluid from one member to the other;
a pair of spaced apart resilient sealing rings acting between the surfaces and located one each side of the fluid passageways to define the ends of the annular chamber;
two annular grooves in the rotary member in each of which a sealing ring is located, and there is a clearance in each groove radially inwards of the respective sealing ring to ensure that full bearing loads cannot be transmitted between the co-axial members through the sealing rings; and a bearing ring, wherein the bearing ring is located between the fluid passageways and one of the sealing rings and is



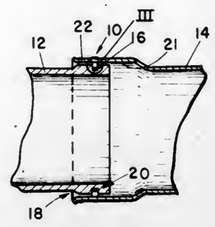
located on a reduced diameter portion of the rotary member that interconnects with one axial side of a groove housing a sealing ring, said bearing ring restraining radial movement between the two members and being made of the same plastics bearing material as the sealing rings.

4,268,045
SEAL ASSEMBLY
Henry A. Traub, Pacific Palisades, Calif., assignor to W. S. Shamban & Co., Santa Monica, Calif.
Continuation-in-part of Ser. No. 32,525, Apr. 23, 1979, Pat. No. 4,231,578. This application Jun. 16, 1980, Ser. No. 159,644
Int. Cl.³ F16J *15/24, 15/32*
U.S. Cl. 277—121 **4 Claims**



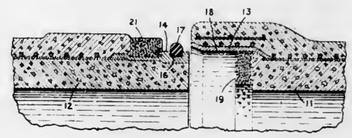
1. A seal assembly having a low pressure side and a high pressure side, comprising:
a first annular sealing ring having a substantially rectangular cross-sectional configuration, said first ring having an inner side and an outer side, one end of the first ring being tapered so as to form an acute edge on the inner side of the ring, the end of the first ring opposite said acute edge defining the low pressure side of the seal assembly; and
a second annular sealing ring having a body having a substantially rectangular cross-sectional configuration defining an inner side and an outer side, said body being positioned concentrically around the first ring such that the outer side of the first ring is adjacent the inner side of the body, said second ring including a wiper arm which extends radially inwardly from an end of the inner surface of the body, said wiper arm including a sloped surface which extends toward the high pressure side of said assembly and abuts the tapered end of the first ring, said wiper arm including an outermost corner at the end of the sloped surface which extends slightly beyond the acute edgeof the first ring, wherein substantially all of the sloped surface engages the tapered end of the first ring, thereby preventing substantial deformation of said corner during operation of the sealing assembly.

4,268,046
MULTIPLE SEAL STATIONARY SEALING RING
Kenneth J. Nisper, Muskegon, Mich., assignor to Muskegon Piston Ring Company, Muskegon, Mich.
Filed Feb. 23, 1979, Ser. No. 14,737
Int. Cl.³ F16J *9/06*; F16L *21/02*
U.S. Cl. 277—139 **18 Claims**



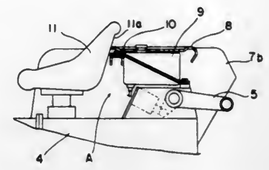
1. A high temperature multiple seal stationary sealing ring adapted to form a seal between a carrier and a circular housing; the carrier including a ring groove having an upper side, a lower side and a bottom, said sealing ring being disposable within said groove and comprising:
a plurality of stacked, annular, parted ring segments dimensioned to slip within the carrier groove, each segment having an outer face and an inner face; and
a circumferential expander means for exerting a radial force on the inner face of each of said segments, said expander means being configured to be spaced from the groove bottom at the operating temperature of the carrier and housing, said segments and said expander means being fabricated from a high temperature alloy which maintains its mechanical properties in the temperature range of 300° F. to 1600° F. and said radial force increasing as temperature increases to said operating temperature.

4,268,047
UNDERGROUND PIPE JOINT WITH HYDRATABLE CEMENT IN POLYURETHANE GASKET
Irving Tashlick, Bradley Beach, N.J., assignor to Interpace Corporation, Parsippany, N.J.
Continuation-in-part of Ser. No. 536,239, Dec. 24, 1974, abandoned, which is a division of Ser. No. 462,041, Apr. 18, 1974, Pat. No. 3,923,311. This application Nov. 27, 1978, Ser. No. 963,746
The portion of the term of this patent subsequent to Dec. 2, 1992, has been disclaimed.
Int. Cl.³ F16J *15/10, 15/38*
U.S. Cl. 277—207 A **2 Claims**



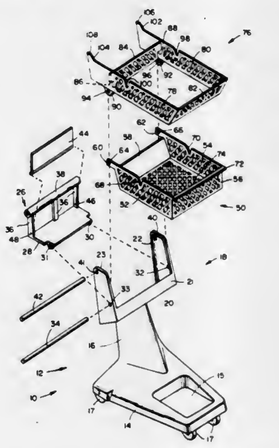
1. A joint for a pipe made of concrete and having a bell and a spigot, the joint comprising a band positionable between the spigot and the bell, the band engageable in the joint by inserting the spigot into the bell, and the band being made of a porous cellular polyurethane foam material having cell walls and providing sponginess and with a hydratable cement dispersed in the cell walls whereby the cement stays in position and on absorption of water by the band the cement hydrates.

4,268,048
FUEL TANK MOUNTING STRUCTURE FOR A TRACTOR
Akira Teraoka, Takaishi, and Mitsugu Nakada, Sakai, both of Japan, assignors to Kubota, Ltd., Osaka, Japan
Filed Sep. 24, 1979, Ser. No. 78,408
Claims priority, application Japan, Dec. 18, 1978, 53/175630
Int. Cl.³ B60N *1/00*; B60R *11/00*
U.S. Cl. 280—5 A **3 Claims**



1. In a fuel tank mounting structure for a tractor, comprising:
a transmission case;
left and right fenders for rear wheels disposed at lateral sides of said transmission case;
a seat disposed on said transmission case, a space being defined above said transmission case and rearwardly of said seat and between said left and right fenders; and
a fuel tank disposed within said space and attached to said transmission case;
the improvement comprising:
a plate-like table disposed upwardly of said fuel tank and secured at left and right end portions thereof to upper portions of said left and right fenders.

4,268,049
SHOPPING CART
Thomas R. Salvador, 204 C St., South San Francisco, Calif. 94080
Filed Feb. 1, 1979, Ser. No. 8,592
Int. Cl.³ B62B *3/02*
U.S. Cl. 280—33.99 H **12 Claims**



1. In a shopping cart having a ground engaging base and a support extending therefrom, the improvement comprising:
a carrying means including a basket having sidewalls and a bottom wall defining a carrying space adapted for carrying goods;

means for pivotally mounting the basket to the support about an axis;

a wall structure having sidewalls defining another space; and

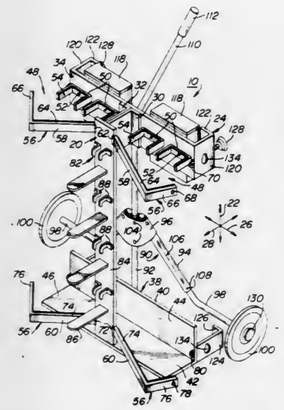
means for pivotally mounting the wall structure to the support such that the wall structure and the basket can be selectively pivoted about said axis to a position wherein the sidewalls of the wall structure form extensions of the sidewalls of the basket whereby the cooperate to define a combined space, which is larger than the carrying space of said basket.

4,268,050

SKI ACCESSORY TRANSPORTATION AND STORAGE SYSTEM

Richard B. Kennedy, Sr., 771 Woods Rd., Pasadena, Md. 21122

Filed Jul. 27, 1979, Ser. No. 61,420
Int. Cl.³ B62B *1/12*; B60R *9/12*
U.S. Cl. 280—38 **11 Claims**



1. A ski accessory transportation and storage system for transportation and storage of skis and ski paraphernalia, comprising:

(a) a central frame member extending substantially in a vertical direction;

(b) an upper support member secured to said central frame member and extending in a transverse direction with respect to said vertical direction;

(c) a lower support member secured to said central frame member, said lower support member extending in said transverse direction and being displaced from said upper support member in said vertical direction, said lower support member being L-shaped in contour having a vertically directed leg section and a longitudinally directed leg section;

(d) ski capturing means for capturing said skis between said upper support member, said lower support member and said central frame member, said ski capturing means including a ski bracket member being U-shaped in contour and secured to said upper support member for insert of at least one ski extending in said vertical direction and ski locking means coupled to said central frame member and releasably coupled to said upper and lower support members for constraining said ski within said ski bracket member; and,

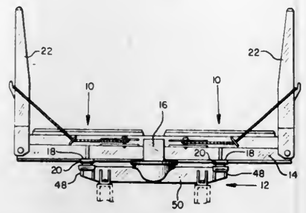
(e) wheel means coupled to said upper and lower support members for rolling displacement of said ski accessory transportation and storage system, said ski locking means including an upper ski locking bar member rotationally coupled to said central frame member and lockingly engageable to one end of said upper support member and a lower ski locking bar member rotationally coupled to said central frame member and lockingly engageable to one end of said lower support member.

4,268,051

LOG BUNK STRUCTURES

Paul G. Skirvin; Walter W. Skirvin, and Carl L. Skirvin, all of Philomath, Oreg., assignors to Enoch Skirvin & Sons, Inc., Philomath, Oreg.

Filed Jan. 20, 1978, Ser. No. 871,152
Int. Cl.³ B60P *7/12*
U.S. Cl. 280—145 **6 Claims**



1. In a trailer vehicle,

elongated supporting members extending longitudinally thereof and in the general direction of travel,

a crossframe including a crossframe member rigidly secured to the longitudinal members and a pair of bearing members,

the bearing members having cutout portions,

and a log bunk pivotal on the crossframe member and having guide shoes at the ends thereof,

and a pair of roller inserts at the ends of the crossframe member,

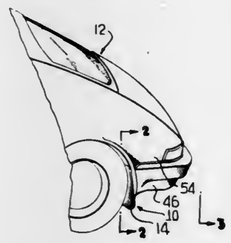
each roller insert including a box-like frame fitting into one of the cut-out portions and welded to the bearing members and an end of the crossframe member and also including a plurality of rollers.

4,268,052

MUD FLAP ASSEMBLY

James L. Sullivan, 15 Parkdale Dr., Farmingdale, N.Y. 11735

Filed Dec. 27, 1979, Ser. No. 107,737
Int. Cl.³ B62D *25/16*
U.S. Cl. 280—153 R **6 Claims**



1. A mud flap assembly for installation on an automobile having a trim screw extending through flanges of lower and upper fenders of the automobile body adjacent a wheel well and a brace extending between the automobile frame and the lower fender, the mud flap assembly comprising

a flap member having an inner edge and a top outer corner;

bracket means mounted on said flap member adjacent said top outer corner having a hole therein for receiving the trim screw to mount said flap member on the lower fender of the vehicle; and

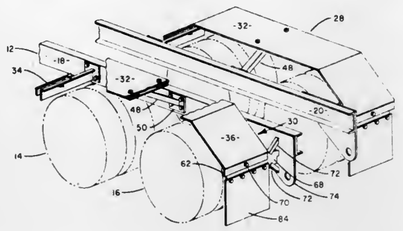
clamp means mounted on said flap member adjacent said inner edge including strap means for extending around the brace of the automobile to mount said flap member thereon whereby said mud flap assembly can be installed on the automobile without drilling holes in the automobile body.

4,268,053

WHEEL FENDER ASSEMBLY

Charles R. Toppins, Knoxville; Cecil L. Williams, Concord, and Otto H. Korth, Maryville, all of Tenn., assignors to Dempster Systems Inc., Knoxville, Tenn.

Filed Aug. 27, 1979, Ser. No. 69,685
Int. Cl.³ B62D *25/16*
U.S. Cl. 280—154 **2 Claims**



1. A fender assembly for mounting on the frame of a wheeled vehicle comprising:

an intermediate flat rigid portion,

lateral downwardly sloping portions positioned at each end of the intermediate portion,

a connector suspended from the vehicle frame to engage the intermediate portion,

means to secure said connector at one location on the intermediate portion,

support brackets connected to the frame adjacent to said lateral portions,

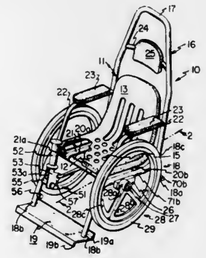
a pivot bolt connecting each lateral portion to a support bracket to allow pivoting movement of said lateral portions relative to the vehicle frame.

4,268,054

CHILD TRANSPORT VEHICLE

Brent L. Twitchell, 3451 W. 4400 So., Granger, Utah 84120, and Kendel S. Twitchell, 1569 Shenandoah Cir., Murray, Utah 84107

Filed Jun. 27, 1979, Ser. No. 48,823
Int. Cl.³ B62M *1/14*
U.S. Cl. 280—242 WC **12 Claims**



1. A child transport vehicle comprising,

a frame formed from a single section of material defining spaced apart side frames and a hand grip area thereabove and includes separate cross piece members secured to and spanning between said side frames, and further includes a step arranged between ends of said single section of material;

a contoured chair means that includes seat and back portions supported between said side frames for supporting a person therein;

a pair of relatively large wheels mounting air inflatable tires thereon and journaled to an axle secured between said side frames;

brake means for simultaneously engaging both large wheels, where said step is axially coupled between frame ends to pivot thereabout, comprising,

a bell crank that is pivotally connected to a frame side, above said step and includes a handle means that extends therefrom convenient for manual operation to pivot said bell crank;

rod means pivotally coupled to said step and said bell crank for translating movement therebetween;

a brake axle journaled to said frame such that turning thereof brings dogleg ends thereof into engagement with said air inflated tires;

means arranged between said bell crank and said brake axle such that pivoting of bell crank is translated into turning of said brake axle; and

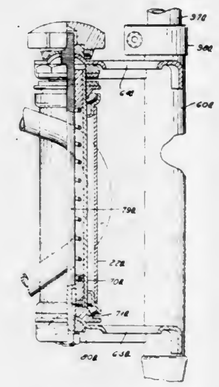
a caster wheel assembly means secured to and extending from said frame for providing a third point of ground contact.

4,268,055

BICYCLE FORK ASSEMBLY

Theodore F. Bell, 400 Fentress Blvd., Daytona Beach, Fla. 32015

Division of Ser. No. 664,238, Mar. 5, 1976, Pat. No. 4,129,317.
This application Oct. 4, 1978, Ser. No. 948,330
Int. Cl.³ B62K *15/00*
U.S. Cl. 280—278 **7 Claims**



1. For use in removably mounting a pair of bicycle fork tubes having longitudinally extending upper and lower brackets on a fork mounting tube of a bicycle frame, a fork assembly comprising

an inner tube,

means for rotatably mounting the inner tube within the fork mounting tube,

a rod extending through said inner tube,

said brackets having rearwardly extending slots through which the rod may pass to engage the fork assembly,

a lower spool on said rod adapted to engage the under side of said lower bracket,

an upper spool on said rod adapted to engage the under side of said upper bracket,

said spools being movable longitudinally with said rod within said inner tube,

spring means within said inner tube yieldingly urging said spools into engagement with said brackets,

and locking means on the upper end of said rod and movable longitudinally of said rod such that when said locking means is moved longitudinally relative to said rod toward

the upper surface of said upper bracket, said fork assembly is locked on said brackets, and when said locking means is moved longitudinally relative to said rod away from said upper bracket, said fork assembly can be removed by moving said rod and said spools longitudinally downwardly against the action of said spring means disengaging said spools from said brackets so that said fork assembly can be removed by transverse movement through said slots.

4,268,056

STRUCTURE FOR ATTACHING HITCH TO TRACTOR

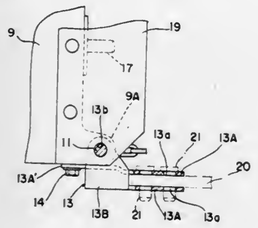
Junji Miyata, Koaza-Yakimachi, and Kazuaki Kurohara, Sakai, both of Japan, assignors to Kubota, Ltd., Osaka, Japan

Filed Aug. 15, 1979, Ser. No. 66,744

Claims priority, application Japan, Aug. 29, 1978, 53-119434[U]

Int. Cl.³ A01B *59/042;* **B60D** *1/14*

U.S. Cl. 280—456 A **3 Claims**



1. A hitch attaching structure for a tractor comprising:

a transmission case on said tractor having a bottom and a lower rear part;

bosses projecting from opposite sides of said lower rear part of said transmission including inner and outer surfaces;

a recess formed between the inner surfaces of said bosses.

a transverse rod supported by apertures in said bosses;

a pair of opposed lower links pivotally supported by said rod, one link on each end thereof, along the outer surfaces of said bosses;

a hitch supported by said rod within said recess between said bosses;

said hitch including spaced parallel horizontal plates and opposed vertical side plates;

one of said horizontal plates including a forward extension which is secured to the bottom of said transmission;

each of said opposed side plates including a hole in their forward portion and extending closely along said inner surfaces of said bosses and secured to said horizontal plates;

said transverse rod extending through said holes in each of said side plates for supporting said hitch;

whereby said hitch is supported by said transverse rod and said forward extension on one of said horizontal plates.

4,268,057

CONTROL DEVICE FOR THREE-POINT HITCH

Roger F. Engelmann, and James E. Thurler, both of Racine, Wis., assignors to J. I. Case Company, Racine, Wis.

Filed Sep. 21, 1979, Ser. No. 77,523

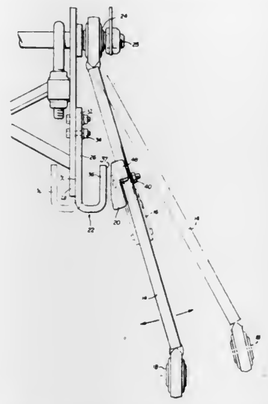
Int. Cl.³ A01B *59/043*

U.S. Cl. 280—474 **4 Claims**

1. A tractor having a hitch assembly including draft arms laterally spaced and pivotally mounted at one end to the tractor frame for lateral and vertical movement relative thereto, the improvement comprising:

bar bracket means mounted to said tractor frame adjacent each of said draft arms, said bar bracket means being adjustable on said tractor frame to provide both sway and non-sway implement settings, said bar bracket means including a mounting surface and a spaced-apart vertical bearing surface, said bar bracket means being generally J-shaped and said mounting surface being generally parallel to said bearing surface, said bar bracket means being mounted to said tractor frame at one position for said sway implement setting, and said bar bracket means being mounted to said tractor frame at a second position for said non-sway implement setting;

a sliding block mounted to each draft arm for sliding engagement with said bar bracket means, said sliding block including a contoured surface portion and a tapered surface portion, said contoured surface portion of said sliding block including inclined surface portions which meet at a crest substantially in the middle of the body of the sliding block, the contact point between said contoured surface portion and its opposed bar bracket being slidably shift-



able from a point on one of said inclined surfaces to the crest and finally to a point on the other inclined surface as said draft arms are raised and lowered in the non-sway implement setting;

said sliding block and said bar bracket means being adjusted to said non-sway implement setting such that said contoured surface portion slidingly engages said bar bracket bearing surface to maintain a constant dimension between said draft arms while said hitch assembly is either being lowered or raised; and

said sliding block and said bar bracket means being adjusted to said sway implement setting such that said tapered surface portion slidingly engages said bar bracket to permit a limited sway of said hitch assembly independent of the movement of said tractor.

4,268,058

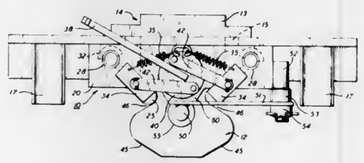
COUPLER FOR SNOWPLOW

Eugene A. Farrell, Fishers Landing, and Jean A. LaBow, Fineview, both of N.Y., assignors to Frink Sno-Plows, Clayton, N.Y.

Filed Aug. 10, 1979, Ser. No. 65,441

Int. Cl.³ B60D *1/02, 3/00*

U.S. Cl. 280—481 **8 Claims**



1. In a coupler for attaching a push frame of a snowplow unit to a prime mover wherein an extended tongue is affixed to the push frame and inserted into the coupler, said tongue having a pair of camming surfaces that are adapted to engage a pair of spring-biased jaw elements mounted upon the coupler to automatically move the jaw elements to an open position as the tongue enters the coupler and then permit the jaws to move into a locked position within recessed shoulders formed in the camming surfaces whereby the push frame is drawn securely against the coupler, the improvement comprising

an actuating bar pivotably mounted at one end in the coupler to allow the bar to swing in a vertical plane, an elongated bolt affixed to the opposite end of the bar that is arranged to move into a receiving hole formed in the tongue, a follower surface on said bar that rides in contact with one of the jaw elements to guide the bolt into the receiving hole as the jaw elements are moved into a locked position.

4,268,059

PROCESS AND APPARATUS FOR FORMING A PROFILED TREAD SURFACE ON A SKI

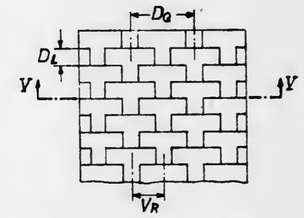
Adolf Staufer, Ried im Innkreis, Austria, assignor to Fischer Gesellschaft m.b.H., Ried im Innkreis, Austria

Filed May 7, 1979, Ser. No. 36,807

Claims priority, application Austria, Jul. 20, 1978, 5280/78; Nov. 30, 1978, 8556/78

Int. Cl.³ A63C *7/06*

U.S. Cl. 280—604 **1 Claim**



1. A ski having a profiled tread surface, comprising individual step ramps, which are sawtooth-shaped in longitudinal section and in a transverse section rise in a gentle curve to a maximum height and then gently decline, said step ramps defining successive rows of recesses, the recesses of adjacent rows being staggered by one-half the width of each recess, and the rows of recesses overlapping each other so that the deeper end of each recess bridges the space between adjacent recesses of an adjacent row of recesses.

4,268,060

SKI BRAKE

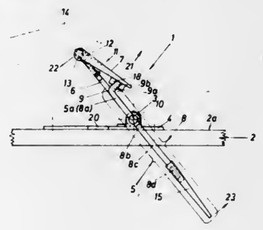
Josef Svoboda, Schwechat, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Jan. 25, 1979, Ser. No. 6,389

Claims priority, application Austria, Jan. 27, 1978, 616/78; Feb. 16, 1978, 1102/78

Int. Cl.³ A63C *7/10*

U.S. Cl. 280—605 **19 Claims**



1. In a ski brake having at least one braking leg pivotal by a force applied by a ski boot or by a sole plate secured to a ski boot to a pedal about an axle extending substantially at a right angle with respect to the longitudinal axis of a ski in a mounting member secured to said ski, said braking leg being pivotal between a braking position and a retracted position, an erecting spring resisting a pivoting of said braking leg toward said retracted position, said braking leg having a braking mandrel thereon and a first segment therein which extends from said braking mandrel toward the central longitudinal axis of the ski, said braking leg being held totally above the upper surface of said ski and between the lateral edges of said ski in the retracted position of said ski brake by said pedal which is stepped down upon by said ski boot or by said sole plate, and in the braking position of said ski brake, said braking mandrel is positioned laterally outside of one of said ski edges and said braking leg projects below the running surface of said ski, said braking leg being pivotal about first means defining a swivel shaft which extends in longitudinal direction of the ski, the improvement comprising wherein said first means defining a swivel shaft includes at least one further second segment on said braking leg which extends substantially parallel with respect to said central longitudinal axis of said ski brake, and second means operatively connecting said second segment to said axle to facilitate said pivotal movement of said braking leg about the axis of said second segment.

4,268,061

SKI BRAKE

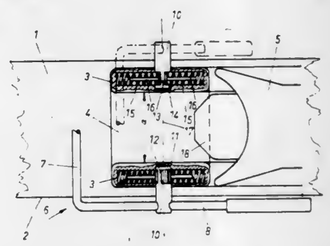
Paul Unger, Bruckwiesenstr. 113, Altenberg b. Nurnberg, Fed. Rep. of Germany (D.8501)

Filed Aug. 27, 1979, Ser. No. 69,897

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1978, 2837787

Int. Cl.³ A63C *7/10*

U.S. Cl. 280—605 **2 Claims**



1. Ski brake on a ski to be used with a ski boot comprising

a base plate mounted on said ski;

a heel grip mounted on said base plate and having a stepping spur extending forwardly therefrom on an intermediate part of said ski;

a pair of hollow, elongated, juxtaposed holding devices, each device mounted between said stepping spur and an outer edge of said ski;

a pair of opposing springs mounted in each holding device;

a pair of separated stub shafts, each said stub shaft mounted respectively at approximately the midpoint of each said holding device;

each said stub shaft having a pair of parallel abutment surfaces for receiving thereagainst an individual end of an opposing spring when each said stub shaft is in a first position for braking action;

a U-shaped braking guide bar comprising arms extending to be mounted respectively at an intermediate point thereof in each stub shaft, and each arm extending further beyond each said stub shaft to provide said braking action; and

said stub shafts movable into a second position when said ski boot presses down on said guard bar to rotate said stub shafts and move said abutment surfaces out of contact

with said ends of said opposing springs and move said extending arms out of said braking position.

4,268,062

SOLE SUPPORT PLATE

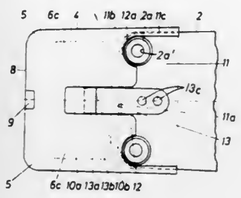
Heinz Wittmann, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Jul. 12, 1979, Ser. No. 57,103

Claims priority, application Austria, Jul. 17, 1978, 5143/78; Mar. 21, 1979, 2099/79

Int. Cl.³ A63C *9/00*

U.S. Cl. 280—611 **4 Claims**



1. In a sole support plate for ski bindings releasably fixed to a ski-fixed means of a ski binding part, said ski-fixed means having laterally spaced guideways thereon, an offset part and a recess on its underside, a bottom surface of said recess resting on the upper side of said ski-fixed means, said recess having a groove on each of two laterally spaced and vertically extending side surfaces, said grooves receiving said guideways therein, said sole support plate having a cavity in the region of said recess adapted to releasably receive therein said offset part of said ski-fixed means, the improvement comprising wherein said offset part is provided on the free end of a tonguelike locking part which extends longitudinally of said ski away from said ski-fixed means and includes a first step, wherein said cavity is provided in said bottom surface of said recess in said sole support plate and includes a second step operatively engaged with said first step to prevent inadvertent release of said sole support plate from said ski-fixed means, and wherein said offset part at the end of said locking part extends away from said first step and terminates in a plane defined by the underside of said locking part.

4,268,063

CROSS COUNTRY SKI BINDING

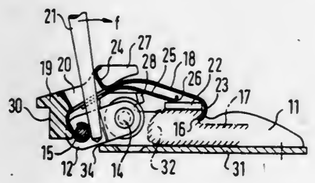
Peter Biermann, Leonberg; Rudi Feucht, Weissach, and Manfred Schmidt, Sindelfingen, all of Fed. Rep. of Germany, assignors to Vereinigte Baubeschlagfabriken Gretsch and Co. GmbH, Leonberg, Fed. Rep. of Germany

Filed Aug. 7, 1978, Ser. No. 931,539

Claims priority, application Fed. Rep. of Germany, Aug. 5, 1977, 2735489

Int. Cl.³ A63C *9/18*

U.S. Cl. 280—615 **22 Claims**



1. Cross country ski binding comprising:

fixed binding means for attachment of a ski boot to a ski, said fixed binding means having side plate means and top restraint means for forming a chamber that is open at at least one end for receiving and locating, in use, a front portion of a sole of a ski shoe;

clamp means for releasably securing a ski boot to said fixed binding means, said clamp means comprising an elastically resilient spring clamp having a hook-shaped ski shoe sole engaging formation at a first end;

link means for enabling displacement of said clamp means relative to said fixed binding means, said link means being pivotally connected at a first end to said fixed binding means for movement about a fixed pivot axis;

over center pivot axis means for interconnecting a second end of said clamp means with a second end of said link means forwardly of said chamber;

actuating means for engaging and releasing the clamp means by producing pivotal movement of the link means and clamp means about said fixed pivot axis between released and fully engaged positions by fore and aft pivotal movement of a ski pole engageable in said actuating means, said actuating means being associated with said spring clamp and comprising an aperture through a forward portion of said clamp means and sized for enabling insertion of a tip of a ski pole, said aperture having front and rear borders, the rear border being closer to said hook-shaped formation than said front border, and wherein said aperture is located, when said clamping means is in said fully engaged position, in general above said over center pivot axis, with the rear border of said aperture lying in general above a corresponding rear border of the over center pivot axis in a manner whereby an engaged tip of a ski pole contacting both said rear borders results in a position of the ski pole inclined in a slightly forward direction.

4,268,064

SOLE HOLDER

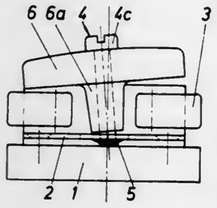
Josef Svoboda, Schwechat, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Apr. 5, 1979, Ser. No. 27,449

Claims priority, application Austria, Apr. 6, 1978, 2418/78

Int. Cl.³ A63C *9/085*

U.S. Cl. 280—625 **15 Claims**



1. A device for engaging and holding a sole of a ski boot to a ski, comprising:

base means adapted to be mounted to the upper surface of said ski and having first means defining an opening therein;

lever means pivotally secured to said base means for movement between first and second positions and at a location spaced from said opening, said lever means including second means adapted to engage the sole of said ski boot when in said first position thereof;

a sole holder located above said lever means and including third means adapted to engage the top edge of said sole of said ski boot and fourth means for movably securing said sole holder to said base means and for movement between first and second positions, said fourth means including a normally vertically aligned elongated fastener, the lower end of which is received in and guided in said opening, said fastener being movable relative to said base means in a vertical plane extending transverse to the longitudinal axis of the ski in response to a movement of at least one of said sole holder and said lever means between said first and second positions thereof, said first position of said sole holder and said lever means corresponding to said vertically aligned position of said fastener, said second position of said sole holder and said lever means corresponding to a position of said fastener inclined to said normal vertically aligned position thereof; and

resilient means for continually urging said fastener to said vertically aligned first position.

4,268,065

DEVICE FOR DISCHARGING PRESSURE GAS RESERVOIRS

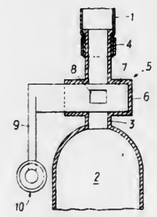
Hubert Granig, Feldkirchnerstr. 30/87, Klagenfurt (Kärnten), Austria

Filed Jun. 28, 1978, Ser. No. 920,069

Claims priority, application Austria, Jul. 4, 1977, 84750/77

Int. Cl.³ B60R *21/08*

U.S. Cl. 280—737 **8 Claims**



1. A device for discharging pressure gas from a pressure gas reservoir, comprising

a discharge conduit defining a discharge passage adapted to communicate with said reservoir,

a valve member associated with said passage and movable between shut-off and full-flow positions and arranged to close and open said passage in said shut-off and full-flow positions, respectively,

actuating means releasable to move said valve member from said shut-off position to said full-flow position,

said actuating means comprising an energy storage device operatively acting on said valve member,

releasing means operable to release said actuating means for moving said valve member from said shut-off position to said full-flow position,

said valve member consists of a rotatable valve plug, and

said actuating means comprise a lever which is connected to said energy storage device and non-rotatably coupled to said plug.

4,268,066

RECREATIONAL VEHICLE WIND STABILIZER

Vernon E. Davis, 1324 Cypress St., Casper, Wyo. 82601

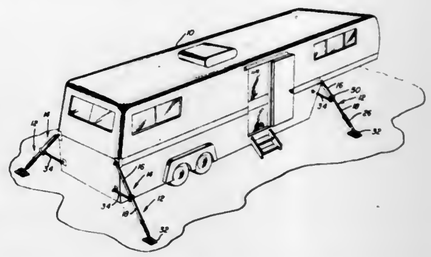
Filed Sep. 5, 1979, Ser. No. 72,618

Int. Cl.³ B60S *9/02*

U.S. Cl. 280—763 **10 Claims**

1. In combination with a recreational vehicle of the type including wheeled running gear and a body spring supported from said running gear, a plurality of opposite side vehicle wind stabilizers, each of said stabilizers including an elongated strut having first and second large and small diameter relatively telescoped opposite end portions, the ends of said first end portions remote from said second end portions including mounting means mounted on a corresponding side of said vehicle body, the free ends of said second end portions remote from said first end portions including relatively extendably adjustable spring biased foot portions for engagement with the ground, a plurality of elongated braces including first and second ends, said first ends of said braces each being anchored to the corresponding side of said vehicle and said second ends of said braces each being anchored relative to the corresponding strut intermediate its opposite ends, and adjustable abutment means supported from and adjustable along the corresponding strut small diameter end portion immediately adjacent the corresponding strut large diameter end portion and abutted thereagainst to limit telescoping of the small diameter strut end portions into said strut large diameter end portions, said struts extending downwardly and outwardly from the corresponding sides of said body said abutment means being adjustable independently of said spring biased foot portions.

5. A stabilizer for use in levelling and stabilizing the body of a recreational vehicle, said stabilizer including an elongated strut having first and second upper and lower relatively extendable end portions, the upper end of said upper end portion including first anchor means for anchoring said strut to said body with said strut inclined downwardly and outwardly away from said body, the lower end of said lower end portion including an endwise outwardly extendably adjustable spring biased ground engageable foot assembly, and an elongated brace including second anchor means on one end for anchoring relative to said body below said first anchor means, the other end of said brace including abutment means releasably secureable in adjusted position along one of said end portions and abuttingly engaged by the other end portion to limit relative contraction of said end portions said abutment means being adjustable independently of said spring biased foot assembly.



4,268,067

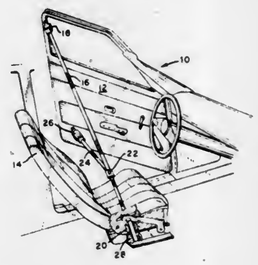
SEAT BELT TENSION ELIMINATOR

Rudy V. Thomas, Macomb, Mich., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jul. 30, 1979, Ser. No. 62,276

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—802 **15 Claims**



1. A vehicle safety belt system comprising:

(a) a lap belt and a separate shoulder belt adapted to be positioned about an occupant in a seat in said vehicle, said belts being connected to at least one seat belt retractor; and

(b) means to eliminate undesirable tension exerted on said occupant by said shoulder belt due to the retraction force of said retractor, said means comprising

(c) fastening means associated with each of said belts and extending at least partially within a region of each of said belts that is secured about said occupant, said fastening means being adapted for engagement with each other when said belts are secured about said occupant, whereby the tension exerted by said shoulder belt is transferred to said lap belt.

14. A junction device adapted for use in a vehicle safety belt system including lap and shoulder belts, said junction device comprising a generally planar section adapted to be secured to said lap belt, a leg extending from said generally planar section, slot means formed in said leg and adapted for communication with said shoulder belt, a pivotable lever mounted on said leg adjacent said slot and adapted to move said shoulder belt towards said generally planar section, and a velveting fastener secured to said generally planar section.

4,268,068

PASSIVE SEATBELT SYSTEM

Ichiro Suzuki, Nagoya; Hisashi Ogawa, and Masanao Motonami, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 8, 1979, Ser. No. 37,151

Claims priority, application Japan, Aug. 16, 1978, 53-112186[U]; Jan. 24, 1979, 54-8082[U]

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—804 **13 Claims**



1. A passive seatbelt system of the type including a seatbelt, a flexible tape having a plurality of holes along its length and which is coupled to the seatbelt to cause the seatbelt to automatically fasten and unfasten from a passenger and a moving means for causing movement of the flexible tape, said moving means comprising:

a sprocket housing having a substantially circular recess formed therein;

a sprocket wheel provided in the circular recess of the sprocket housing and engaging with the holes in the tape;

an arc-shaped channel which is formed in the sprocket housing and accomodates a portion of the flexible tape;

a pair of tape passage channels which are formed in the sprocket housing tangential to the arc-shaped channel and which are oriented in different directions;

a plurality of extra passage channels formed in the sprocket housing tangential to the arc-shaped channel; and

a driving means for selectively rotating the sprocket a predetermined number of rotation in a clockwise and counter-clockwise direction.

10. A passive seatbelt system of the type including a seatbelt, a flexible tape having a plurality of holes along its length which is coupled to the seatbelt to cause the seatbelt to automatically fasten and unfasten from a passenger and a moving means for causing movement of the flexible tape, said moving means comprising:

a sprocket housing;

a lid fastened to the sprocket housing and defining a space between the sprocket housing and itself;

a sprocket wheel provided in the space defined between the sprocket housing and the lid and engaging with the holes in the tape;

one or more L-shaped first tape guides fastened to said sprocket housing and extending tangential to the sprocket housing, said guides being arranged in different directions from each other when a plurality of guides are used;

an L-shaped second tape guide fastened to said lid, and extending tangential to the lid in different directions said first and second tape guides being arranged in the same directions and configured so as to provide a guide path for said flexible tape and for holding said flexible tape in engagement with said sprocket wheel; and

a driving means for selectively rotating the sprocket wheel a predetermined number of rotation in a clockwise and counter-clockwise direction.

4,268,069

PAPER COATED WITH A MICROCAPSULAR COATING COMPOSITION CONTAINING A HYDROPHOBIC SILICA

John J. Stolfo, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Dec. 31, 1979, Ser. No. 108,919

Int. Cl.³ B41M *5/16, 5/22*

U.S. Cl. 282—27.5 **3 Claims**

1. A pressure-sensitive carbonless copy paper, said copy paper being characterized by a substantial reduction of specking when used in photocopying apparatus which utilizes a pressure nip between a photoreceptor belt and a transfer roll to transfer a powder image from the photoreceptor belt to the paper and having utility in a multi-part form, said copy paper comprising a paper substrate to which a transfer coating has been applied, said transfer coating comprising microcapsules containing an oil solution of a chromogenic material, said microcapsules having a mean spherical diameter of from 3 to 12 microns, said chromogenic material being a color precursor of the electron donating type, said transfer coating further containing finely divided silica particles, stilt material and a binder for said microcapsules, said stilt material and said silica particles, said silica particles having been modified by treatment with an organic material to make the surface of said silica particles substantially hydrophobic, said treated silica particles having a surface area of about 50 m^2/g or more and being present in said coating composition in from about 0.1% to about 10% by weight of the total solids of said coating.

4,268,070

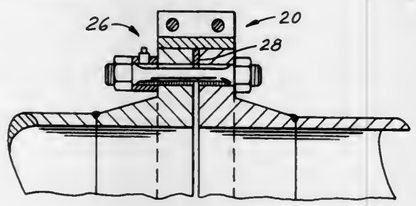
ORIFICE FLANGE CLAMP

Harold R. Adams, St. Francisville, Ill. 62460

Filed Jun. 1, 1978, Ser. No. 911,379

Int. Cl.³ F16L *23/02, 55/16, 55/18*

U.S. Cl. 285—15 **6 Claims**



1. An orifice flange clamp for use with an orifice flange comprised of a pair of oppositely extending conduits fixed to opposed flanges adapted to be drawn toward one another against an intermediate orifice plate, said clamp comprising a circular band adapted to be clamped on the periphery of said flanges sealing the exterior peripheral interface therebetween and means for introducing a fluid sealant under pressure in the interior interface between said flanges, said means comprising an elongated member fitting through a pair of opposed flange holes having a first end secured to one of said flanges and a reduced intermediate portion fitting loosely within a flange hole in an opposed flange and extending therethrough to a second end, collar means fitting loosely over said extending end, a plurality of arcuate sealing ring segments fitted end to end at the interface of said opposed flanges in peripheral sealing relation and nesting in engaging relation with the interior of said band and means for introducing sealant into said collar past the eleongated member and through the flange hole between said sealing rings and said orifice plate into the interface between the opposed flanges to seal the same, the flanges having plug means on the periphery thereof and said band having cut-out means receiving said plug means therethrough.

4,268,071

DEVICE FOR COUPLING PIPELINE FLANGES

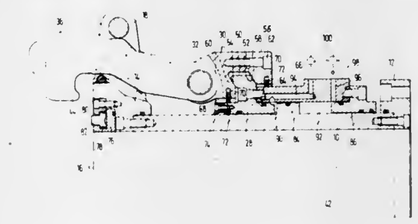
Siegfried Hanchen, Ostfildern, and Hans D. Fabrowsky, Neuhausen, both of Fed. Rep. of Germany, assignors to Herbert Hanchen KG, Ostfildern, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,515

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753667

Int. Cl.³ F16L *23/00*

U.S. Cl. 285—18 **19 Claims**



1. A coupling device for connecting the flanges of two flanged pipelines comprising a plurality of radially spaced axially extending gripping dogs positioned around the circumference of one of said pipelines, said dogs being pivotally connected to a dog support ring so that said dogs project and pivot over the flange of one of said pipelines in a radial plane for engaging the flange of the other of said pipelines, drive means for axially moving said dog support ring and said dogs, and guide means for controlling the pivoting of said dogs in relation to axial movement of said dog support ring, said drive means including a bearing ring axially slideable on said one of said pipelines and including an outer convex spherical surface having its center of curvature on the axis of said one of said pipelines near the plane of the flange thereon, said dog support ring having a concave spherical surface complementary to said convex surface, annular clamp means for maintaining said spherical surfaces in slideable contact, whereby upon actuation of said drive means, said dogs axially urge said flanges into contact and misalignment of said flanges is compensated by pivotal motion of said dog support ring on said bearing ring at said surfaces.

4,268,072

PIPE COUPLING FOR INTERCONNECTING PIPES EXPERIENCING LENGTH CHANGES

Immanuel Straub, 7323 Wangs, Switzerland

Filed Apr. 2, 1979, Ser. No. 26,054

Claims priority, application Austria, Apr. 10, 1978, 2517/78

Int. Cl.³ F16L *17/04*

U.S. Cl. 285—112 **6 Claims**

1. A pipe coupling for interconnecting confronting ends of pipes experiencing changes in length comprising:

a housing flexibly clampable about the pipe ends to be interconnected;

a sealing gasket enclosed within said housing;

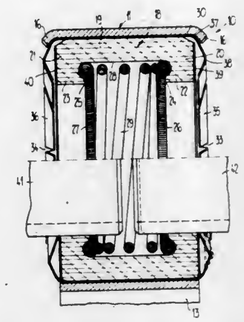
said sealing gasket having a substantially C-shaped axial cross-sectional configuration and being open towards the interior of said housing;

said sealing gasket including two confronting sealing lips each intended to sealingly engage the outside surface of a respective one of the pipe ends to be interconnected when the housing is being clamped;

said sealing gasket further including web means positioned adjacent the inner surface of said housing and end sections merging with said sealing lips;

each of said end sections having an end face;

each of said end faces bearing against one side of a respective



ring-shaped disk arranged to allow limited axial movement of said sealing gasket relative to said housing;

means flexibly connected to the housing for fixedly engaging the outer surface of the pipe ends when the housing is being clamped and providing an axial stop for the other side of the respective ring-shaped disk, said means being arranged for limited axial movement relative to said housing upon movement of said pipe ends relative to said housing; and

a compression spring being arranged within said sealing gasket for urging the end face of each end section against the respective ring-shaped disk and for urging the latter against the respective axial stop;

wherein no wear occurs on the sealing lips of the gasket because said gasket lips move with said pipe ends upon movement of said ends relative to said housing.

4,268,073

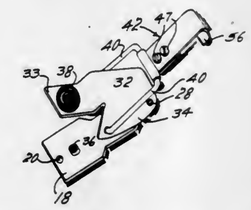
WINDOW LEVER LOCK

Mark W. Hibbert, 1506 11th South, Seattle, Wash. 98134

Filed Jul. 16, 1979, Ser. No. 57,610

Int. Cl.³ E05C *5/02*

U.S. Cl. 292—113 **10 Claims**



1. In combination with a lever and a lever-controlled, swingable, window mounted in a window support, a base member secured to the window support for said window and in close proximity to the lever; one part of a female-male boss-screw

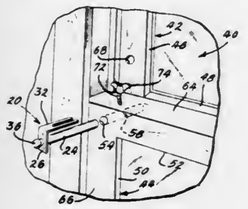
combination carried by said base member; a swing member hingedly connected with said base member; the other part of said female-male combination carried by said swing member and mounted for movement into and out of alignment for threaded engagement with said one part of the female-male combination; and a hook member pivotally connected at one end portion with said swing member and terminating at its other end portion with a catch means detachably connected with the lever of the lever-controlled window for preventing movement of said lever when connected thereto.

4,268,074

DEVICES FOR LOCKING SLIDING CLOSURES

James H. Alexander, 6175 Delmar Blvd., St. Louis, Mo. 63112

Filed Nov. 26, 1976, Ser. No. 745,086
Int. Cl.[3] E05C *1/04, 19/18*
U.S. Cl. 292—149 **2 Claims**



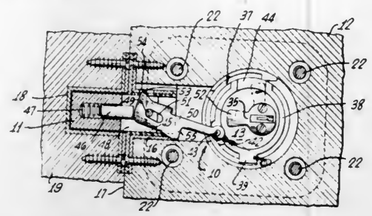
1. A device for preventing relative movement between relatively movable first and second members of sliding window and sliding door assemblies, said first member having a first surface, an adjacent second surface and a single hole extending from said second surface through the first member at a location spaced from said first surface, the second of said relatively movable members having a surface with an opening extending therefrom partway therethrough, at least one of said first and second members being movable relative to the other to locate the single hole in registration with the opening, said device comprising a one-piece locking member having a relatively flat body portion with opposite sides and a side edge, a leg having a relatively flat portion formed integral with said side edge and extending angularly from one of the opposite sides of said body portion, and a projecting member fixedly attached to and extending from said body portion in spaced substantially parallel relationship to the flat portion of said leg, said projecting member having a length and cross-sectional shape to be inserted into simultaneous cooperative engagement with said hole and said opening when in registration, insertion of said projecting member moving said relatively flat body portion into relatively flush abutment with said second surface on said first relatively movable member to limit penetration of said projecting member into said opening, the relatively flat portion of said leg simultaneously moving into substantially flush engagement with said first surface to prevent rotational movement of the projecting member in said hole and said opening, separate means for attaching the locking member to said first relatively movable member after the locking member is positioned in locking engagement with the first and second relatively movable members, said separate means for attaching the locking member to said first relatively movable member including a threaded member, the threaded member being engaged with said first relatively movable member and having a portion extending from said first surface at a location spaced from said second surface, said leg having a slot formed therein for cooperatively receiving said threaded member during installation of the device, and means engageable with said extending portion of said threaded member and with said leg to lock the device in installed position.

4,268,075

LOCK OF THE DEAD BOLT TYPE

Howard M. Allenbaugh, 16360 Sandalwood St., Fountain Valley, Calif. 92708

Continuation-in-part of Ser. No. 923,912, Jul. 12, 1978. This application Apr. 25, 1979, Ser. No. 33,179
Int. Cl.[3] E05C *1/16*
U.S. Cl. 292—167 **29 Claims**



1. A door lock of the dead bolt type comprising:
a bolt;
a housing including a sleeve in which said bolt is reciprocable between a retracted position and an extended position, said housing having an opening therein;
a lock cylinder disposed within a transverse opening extending through a door, said cylinder having an eccentric rotatable cam on the inner end thereof;
a ring supported by said cylinder and rotatable thereon, said ring including an engagement portion extending beyond said cylinder and defining a recess engagable by said cam;
linkage means for causing reciprocation of said bolt in response to rotation of said ring;
a prong carried by said linkage means;
pin-and-slot means for lifting said prong into said opening to prevent movement of said bolt upon the application of a force to said bolt directed toward said retracted position, said catch including a slot that is inclined with respect to the reciprocation of said bolt in said housing;
abutment means carried by said linkage means and normally aligned with a portion of said housing for retaining said bolt in said housing when a force is applied to said bolt in its direction of movement from said retracted position to said extended position;
stop means for arresting rotation of said ring in first and second positions corresponding to said retracted and extended positions of said bolt, respectively; and
resilient means disposed within said bolt for urging said bolt toward said extended position and for simultaneously urging said ring toward said first and second positions.

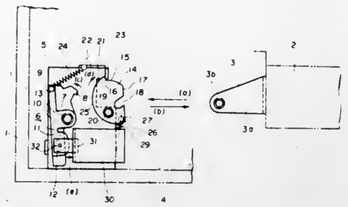
4,268,076

CASH BOX PROVIDED WITH A TILL

Toshihiro Itoi, Tokyo, Japan, assignor to Kabushiki Kaisha Itoi Seisakusho, Tokyo, Japan

Continuation of Ser. No. 870,292, Jan. 18, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,622
Claims priority, application Japan, Sep. 27, 1977, 52-129495
Int. Cl.[3] E05C *3/06*
U.S. Cl. 292—216 **3 Claims**

1. A cash box provided with a till, comprising in combination;
a cash box,
a till slidable into and out of the cash box and provided with an engage body on the rear end of the till, the engage body having members forming a channel, the members being inserted and fixed on an engage rod, an L-shaped base plate uprightly secured on a bottom plate within the cash box, a frame plate formed into a channel-shape having side plates, one of the side plates being formed into a beak-shaped projection on its right upper portion and being cut out on its right lower portion, the other of said side plates being cut out on its right upper portion and having a bearing plate formed at its central portion to be rotatably supported by a shaft on said base plate, a movable rod fitting plate portion being formed at the lower portion of said other side plate and connected with a movable rod through a vertical oblong hole in the movable rod fitting plate portion and a connecting pin therein, a plate cam



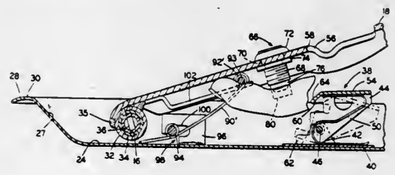
provided with an engage groove and an engage projection on its peripheral portion and being rotatably supported by a shaft on said base plate so that said engage body engages with or disengages from said engage groove to engage or disengage said engage projection with or from said projection of said frame plate, and an electromagnetic means for directly operating said movable rod.

4,268,077

SELF-STORING DOOR HANDLE

Brian O. Bohleen, Kenosha, Wis., and Randall C. Hansen, Gurnee, Ill., assignors to Abex Corporation, New York, N.Y.

Filed Aug. 28, 1978, Ser. No. 937,394
Int. Cl.[2] E05C *13/02, 3/08*
U.S. Cl. 292—336.3 **8 Claims**



1. A self-storing, flush-mounted door latch actuator comprising a pan, a recessed bottom portion in the pan, a handle movable between a stored position within the pan and a released position pivotally attached to the pan, handle storing means connected to the handle characterized by first anchor means attached to the handle, second anchor means attached to the pan, spring means for biasing the handle toward the stored position, manually attachable to and detachable from the first anchor means and the second anchor means, wherein the spring means includes a torsion spring and a rod which passes through the torsion spring, the rod is removably attached to the second anchor means, and one end of the torsion spring is removably connected to the first anchor means.

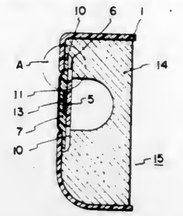
4,268,078

SHOCK ABSORBING BUMPER

Takao Nomura, Toyota; Yoshiro Umemoto, Nagoya; Yasuhiro Mishima, and Tugumi Sanmiya, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 30, 1979, Ser. No. 43,707
Claims priority, application Japan, May 30, 1978, 53-72290[U]; Aug. 29, 1978, 53-117333[U]
Int. Cl.[3] B60R *19/00*
U.S. Cl. 293—120 **11 Claims**

1. A shock absorbing bumper comprising an elastic external guard member having sheathed therein a flexible core member and an elastic decorative facing provided on the front side of the external member, the improvement which comprises said external member having in its front surface
side walls and a bottom wall forming a lateral recession provided with a plurality of generally rectangularly shaped insertion holes arranged along the upper and lower edges where the side walls join the bottom wall, and said decorative facing is provided on a relatively thin elastic



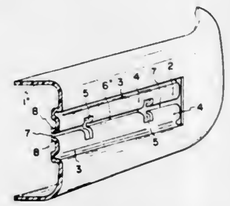
facing base provided with a plurality of correspondingly rectangularly shaped claws arranged along the upper and lower edges thereof so that said claws are matingly engaged into said corresponding insertion holes to thereby secure said facing base integrally to said external bumper member thereby resisting vibrational disengagement of said facing base from said external bumper member.

4,268,079

SHOCK ABSORBING BUMPER

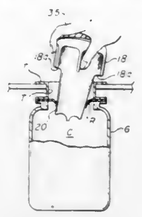
Takao Nomura, Toyota; Yoshiro Umemoto, Nagoya; Yasuhiro Mishima, and Tugumi Sanmiya, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 30, 1979, Ser. No. 43,708
Claims priority, application Japan, May 30, 1978, 53-72289[U]; May 30, 1978, 53-72291[U]
Int. Cl.[3] B62D *35/00*
U.S. Cl. 293—120 **14 Claims**



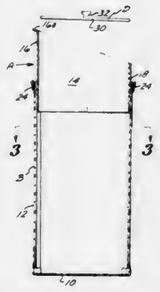
1. A shock absorbing bumper having an elastic decorative facing secured to a recessed portion provided horizontally on an external surface of an elastic external bumper member which has sheathed therein a flexible core member, the improvement wherein a pair of notches are provided in said recessed portion along its length, a row of holes are provided between said notches, and slits are provided between every pair of said holes while an elastic facing base has on its outer surface the decorative facing, is provided on its rear side with at least one hook designed to engage in sad slits and has rims designed to engage in said notches.

4,268,080
MANUAL TOOL FOR FEEDING REFUSE TO A GARBAGE GRINDER DISPOSAL
William L. Lindley, P.O. Box 1292, Conroe, Tex. 77301
Filed Jan. 21, 1980, Ser. No. 113,583
Int. Cl.³ A47F *13/08*
U.S. Cl. 294—1 R **2 Claims**



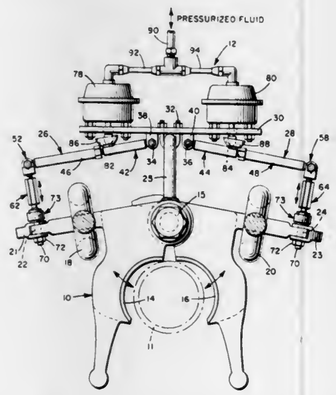
1. A manual tool for feeding refuse to a garbage grinder disposal comprising:
a. a unitary body;
b. said body including:
(1) a head portion adjacent one end of said body;
(2) said head portion having a plurality of spaced, longitudinally extending recess means therein to define longitudinally extending ribs between said recess means;
(3) shaft means extending longitudinally from said head portion and of a size for inserting in the grinder; and
(4) surface means projecting from the end of said shaft portion whereby refuse may be engaged by manual manipulation of the tool and stuffed into the garbage grinder.

4,268,081
REFUSE RECEIVING ASSEMBLY
Leon A. Hawkinson, 911 N. Richman, Fullerton, Calif. 92632
Filed Oct. 22, 1979, Ser. No. 87,558
Int. Cl.³ A01B *1/04*
U.S. Cl. 294—55 **2 Claims**



1. In combination with a pliable trash receiving plastic bag of the type that includes a bottom and a continuous side wall that extends upwardly therefrom an assembly for selectively supporting said bag in either a first substantially horizontal position where refuse may be moved from the supporting ground surface into the bag or a second position where the bag is vertically disposed after being filled with refuse, said assembly when in said second position capable of having said assembly lifted upwardly therefrom to permit said bag to have the upper portion thereof tied to maintain the refuse within the confines thereof, said assembly including:
a. a trash receiving housing that includes a pair of spaced parallel side walls, a first and second parallel end walls that extend between said pair of side walls and occupy fixed positions relative thereto, said first end wall of substantially greater length than said second end wall, said housing of such generally square transverse cross-section as to snugly engage the interior of said bag when the latter is extended thereover said first end wall having a first transverse edge;
b. four rigid legs secured in equally spaced relationship to said housing and extending downwardly therefrom, with said legs of such length that said housing when in said second position has the lower portion thereof disposed above the supporting ground surface a distance less than the height of said bag;
c. first means on the exterior of said housing for removably securing upper portions of said side wall of said bag thereto when said legs extend downwardly in said bag to contact said bottom thereof, with said housing and legs cooperating to maintain said bag in an expanded configuration to receive said refuse both when said bag is in a vertical or horizontal position;
d. at least on U-shaped handle on the exterior of the said side walls of said housing for manually disposing said assembly in said first position with said first end wall downwardly disposed and at least partially resting on said ground supporting surface to permit refuse to be moved into said expanded bag supported on said housing and legs, with said handle when said bag is filled with refuse being used to pivot said assembly and bag to an upright position where said assembly may be lifted from said bag filled with refuse, and the upper portion of said bag thereafter being tied or otherwise secured to prevent refuse falling therefrom; and
e. a lip on the said transverse edge of said first end wall that extends downwardly and outwardly therefrom when said assembly is in said first position to rest on said ground supporting surface and to assist in sweeping said refuse from said ground supporting surface into the interior of said housing and bag.

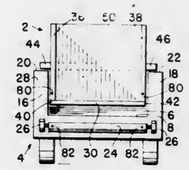
4,268,082
ELEVATOR LATCH FOR DRILLING RIGS
Frank W. Hooton, 715 N. Jefferson, Casper, Wyo. 82601
Filed Oct. 24, 1979, Ser. No. 34,176
Int. Cl.³ B66C *1/10;* **E21B** *19/06*
U.S. Cl. 294—88 **9 Claims**



1. In a drilling rig having an elevator for raising and lowering drill stems and pipes, said elevator having a pair of pivotable sections to clamp said drill stems and pipes and a back handle, elevator latching means removably attached to said elevator and responsive to an operator for automatically closing said elevator to clamp said drill stems and pipes, said elevator latching means comprising:
mounting means removably attached to said back handle of said elevator for mounting said elevator latching means on said elevator;

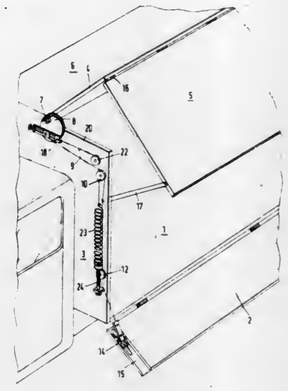
arm means pivotably mounted on said mounting means and removably fastened to said pivotable sections of said elevator for closing said elevator;
driving means coupled to said arm means for driving said arm means; and
operator control means connected to said driving means and responsive to the operator for automatically actuating said driving means to close said elevator on said drill stems and pipes.

4,268,083
UNIVERSAL CARRIER ATTACHMENT FOR PICK-UP VANS
Donald C. Carpenter, 1730 Audrey Dr., Clearwater, Fla. 33519
Filed Oct. 26, 1978, Ser. No. 954,926
Int. Cl.³ B60P *3/42*
U.S. Cl. 296—10 **1 Claim**



1. A carrier attachment for a truck vehicle having a cargo compartment including a horizontal bed located behind a driver's cab, bounded on three sides by a front wall having a top surface and a first and second opposed side walls having top surfaces, with a vertically swinging, bottom mounted tail gate having opposite ends pivotally mounted on the rearward ends of said first and second side walls, respectively, forming a fourth side of said cargo compartment when in a closed position, comprising:
a horizontal platform fitted within said cargo compartment having a front edge adjacent to said front wall and a rear edge adjacent to said tail gate;
first and second opposed vertical walls mounted along opposed edges of said platform and adjacent to said first and second side walls, respectively;
a first horizontal lip mounted to the outside of said first vertical wall and resting on said top surface of said first side wall, for supporting said first vertical wall and said platform to depend downwardly from said first lip into said cargo compartment;
a second horizontal lip mounted to the outside of said second vertical wall and resting on said top surface of said second side wall, for supporting said second vertical wall and said platform to depend downwardly from said second lip into said cargo compartment;
said tail gate mechanically contacting said rear edge of said platform when in said closed position;
a forward vertical wall mounted to said front edge of said platform and adjacent to said front wall;
a forward lip mounted to the outside of said forward vertical wall and resting on said top surface of said front wall, for supporting said forward vertical wall and said platform to depend downwardly from said forward lip into said cargo compartment;
a first horizontal dowel mounted on said forward vertical wall of said carrier, proximate to said front wall of said cargo compartment;
said front wall of said cargo compartment having a perforation therein for mating engagement with said first horizontal dowel;
a second horizontal dowel mounted on a rearward edge of said first vertical wall of said carrier, proximate to said tail gate when closed;
said tail gate having a perforation therein for mating engagement with said second horizontal dowel when said tail gate is in said closed position;
whereby said carrier is secured to said cargo compartment.

4,268,084
TRUCK HAVING A LOAD PLATFORM AND SUPERSTRUCTURE
Günter Peters, Staumühle 228, 4791 Hövelhof, Fed. Rep. of Germany
Filed Mar. 5, 1979, Ser. No. 17,261
Claims priority, application Fed. Rep. of Germany, Mar. 4, 1978, 2809375
Int. Cl.³ B60P *7/04*
U.S. Cl. 296—148 **10 Claims**



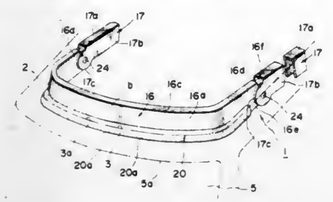
1. A vehicle having a fixed central roof portion, a swingable roof portion that is hinged to the central roof portion by means of a shaft and an associated upper lateral wall portion hinged to the swingable roof portion comprising a pulley that is eccentrically mounted on the shaft about the axis of which the roof portion is swingable, a swingable lower lateral wall portion hinged to the vehicle, a traction cable connecting the lower lateral wall portion with said pulley in order to turn the pulley and the shaft and move the swingable roof portion therewith, a turnbuckle mounted eccentrically on the pulley, a tension spring attached to the vehicle, a traction cable coupling the turnbuckle to the tension spring, the turnbuckle on the pulley wheel being positioned to stress the tension spring with the lateral wall portions in the closed position, to relax the tension spring during the travel of the lateral wall portions toward the opened position, and to stress the tension spring to a maximum as the swinging movement terminates at the fully-open position.

4,268,085
WIND DEFLECTOR ARRANGEMENT IN SLIDING ROOF DEVICE FOR VEHICLE
Kunitaka Sakai, Tokyo, and Jun Ono, Shiki, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 31, 1979, Ser. No. 71,749
Claims priority, application Japan, Sep. 1, 1978, 53/120262[U]
Int. Cl.³ B60J *7/04*
U.S. Cl. 296—217 **9 Claims**

1. A wind deflector arrangement in a sliding roof device for a vehicle which includes an opening on the roof of the vehicle, comprising:
a wind deflector disposed on the inner side of the front edge of said opening;
said wind deflector being supported at the rear ends thereof;

supporting arms pivotally mounted at the rear ends on the inner side of the side edges of said opening;

said arms supporting said wind deflector at the front ends thereof so that said wind deflector is capable of angular displacement with respect to said supporting arms; and



resilient means disposed at the connection between said wind deflector and said supporting arms, said resilient means urging said wind deflector in a substantially vertical direction.

4,268,086

SEAT ASSEMBLY FOR AN AUTOMOBILE

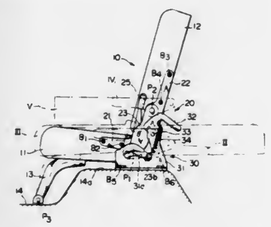
Teiji Okuyama, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jul. 14, 1978, Ser. No. 924,838

Claims priority, application Japan, Jul. 16, 1977, 52-85305

Int. Cl.³ A47C *13/00, 1/032*

U.S. Cl. 297—63 **6 Claims**



1. A seat assembly for an automobile providing means for rearward adjustment to a plurality of inclined positions including horizontal and means for forwardly folding the seat assembly, the seat assembly comprising:

(a) a seat swingable about a transverse axis;

(b) a seat back;

(c) first bracket means, including a plurality of locking recesses, secured to said seat,

(d) second bracket means secured to said seat back;

(e) counter bracket means;

(f) releasing means;

(g) actuating lever means;

(h) a first pivot pin pivotally connecting one end of said counter bracket means to said first bracket means, said first pivot pin passing through openings in said releasing means and said actuating lever means;

(i) a second pivot pin pivotally connecting the other end of said counter bracket means to said second bracket means;

(j) first locking means for releasably locking said counter bracket means to said first bracket means preventing movement relative to each other comprising:

(1) a latch means disposed between said counter bracket means and said second bracket means; and

(2) a first locking pin secured to said latch means and received in a slot in said counter bracket means and adapted to selectively engage the plurality of locking recesses in said first bracket means;

(k) second locking means for releasably locking said counter bracket means to said second bracket means preventing movement relative to each other, comprising:

(1) a second locking pin secured to said counter bracket means and adapted to engage a locking recess in said latch means; and

(2) means for biasing said latch means in a direction for engaging said second locking pin with said locking recess,

said second locking means being released by said releasing means when said first locking means has been released and when said second bracket means has been pivotally moved with respect to said first bracket means in a direction to place the seat back over the seat; and

(l) guide means for guiding a portion of said counter bracket means in such a manner that the point of connection between said first bracket means and counter bracket means is moved when said seat back is moved to a horizontal position so that said seat is moved to a horizontal position to provide a bed together with said seat back.

4,268,087

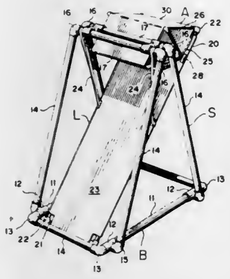
SWINGING CHAISE LOUNGE

Vincent P. Sorrentino, Parkland, Fla., assignor to Bright Industries Inc., Ft. Lauderdale, Fla.

Filed Sep. 10, 1979, Ser. No. 73,785

Int. Cl.³ A63G *9/00*

U.S. Cl. 297—273 **2 Claims**



1. A swinging chaise lounge having a rectangular base consisting of

(a) parallel spaced apart elongated tubular side members, and

(b) transversely extending parallel spaced apart elongated tubular end members cooperating with the side members to define the rectangular base,

(c) T shaped tubular connector members telescopically cemented to the ends of the spaced apart side members and having laterally extending stub support portions,

(d) elbow tubular connector members telescopically cemented to the outer ends of the T shaped connector members at one end and at their other ends cemented to the end members of the rectangular base,

(e) spaced apart upwardly extending tubular angularly converging side support members,

(f) elbow connecting members cemented to the bottom ends of the side support members and the laterally extending stub support portions of the T shaped tubular connector members,

(g) transversely extending tubular connecting means between the upper ends of the angularly converging side support members on opposite sides of the rectangular base,

(h) a lounge including an elongated rectangular shaped framework and a sheet of flexible material having looped end portions secured about the members defining the rectangular shaped lounge framework to provide a support for a person's body, and

(i) lounge support connectors between longitudinally spaced

portions of the rectangular framework on opposite sides of the lounge and the transversely extending connecting means at the upper ends of the converging side support members.

4,268,088

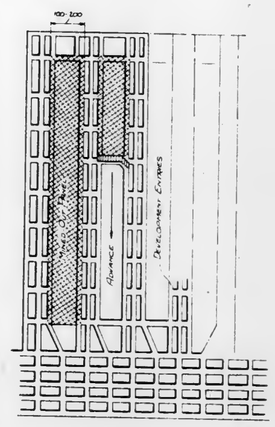
SHORTWALL MINING OF TRONA

Herbert S. Price, and Glen E. Hunter, both of Green River, Wyo., assignors to Texasgulf Inc., Stamford, Conn.

Filed Oct. 1, 1979, Ser. No. 80,271

Int. Cl.³ E21C *41/08*

U.S. Cl. 299—11 **11 Claims**



1. A method of extracting trona ore from an underground formation which includes a trona bed located between layers of shale comprising the steps of:

(a) driving a first entry into said trona bed to a predetermind length,

(b) locating a second entry from said first entry at a distance less than that of the pressure arc that forms over the mined out cavity and at a distance substantially less than the length of said first entry,

(c) driving a second entry into said trona bed substantially parallel to said first entry to a predetermined length substantially equal to that of said first entry,

(d) connecting said first and second entries with a passage means thereby defining the trona bed to be mined,

(e) supporting the upper section of said connecting passage means generally adjacent the path of said trona bed to be mined,

(f) mining a strip of said trona bed between said first and second entries in a direction substantially parallel to said connecting passage and removing the recovered trona ore from the underground formation, and

(g) repeating said steps (e) and (f) until said defined trona bed is substantially mined.

4,268,089

MOUNTING MEANS FOR PICK ON MINING DRUM VANE

Adam M. Spence, Doncaster, and James R. Goff, Brockenhurst, both of England, assignors to Winster Mining Limited, England

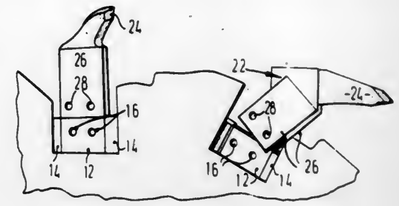
Filed May 30, 1979, Ser. No. 43,774

Claims priority, application United Kingdom, May 31, 1978, 25127/78

Int. Cl.³ E21C *35/18*

U.S. Cl. 299—87 **3 Claims**

1. In a cutting drum for a mining machine, said cutting drum having at least one helically-extending vane from which mining picks extend, the improvement wherein the vane is provided at spaced intervals around its periphery with recesses within each of which recess there is secured a mounting device, the mounting device comprising a central mounting plate which extends in the circumferential direction of the vane, and front and rear end plates at opposite ends of the mounting plate which extend across the mounting plate, said front and rear end plates being secured to opposed faces of the vane bounding the recess, the end plates providing respectively rearwardly



and forwardly facing abutment surfaces on both sides of the mounting plate, a pick box being releasably mounted on each mounting device, each pick box comprising opposed side walls which straddle the central mounting plate and which each have end faces which extend in closely abutting relationship with the abutment surfaces provided by the end plates, and each pick box carrying, releasably secured between said opposed side walls, a cutting pick.

4,268,090

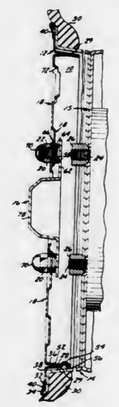
IMBALANCE COMPENSATING VEHICLE WHEEL ATTACHMENT

Kim E. Rush, Irvine, Calif., assignor to William McCahill and Barbara L. Anderson, both of Huntington Beach, Calif., part interest to each

Filed Jun. 9, 1980, Ser. No. 157,547

Int. Cl.³ B60B *7/04, 13/00*

U.S. Cl. 301—5 BA **11 Claims**



1. An imbalance compensating vehicle wheel attachment comprising:

a rim structure adapted for mounting to a vehicle wheel which mounts a tire;

hub structure located centrally of said rim structure and adapted for static axial alignment of its center of gravity with the center of gravity and axis of rotation of the wheel and tire combination;

a plurality of sectors circumferentially arranged about and radiating outwardly from said hub structure, the radially outwardly located extremities of said sectors being resil-

iently coupled to said rim structure whereby said sectors are adapted for resilient radial movement relative to said rim structure; and

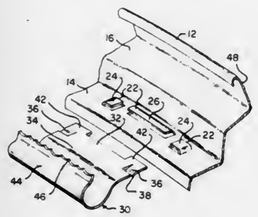
mounting means coupling the radially inwardly located extremities of said sectors to said hub structure, said mounting means enabling radial slidable movement of said sectors relative to said hub structure whereby, on rotation of the wheel and tire combination, said hub structure and each of said sectors are adapted to move radially independently of each other thereby to establish a radius of gyration tending to compensate dynamically for a wheel imbalance.

4,268,091

WHEEL TRIM ASSEMBLY

Claude J. Marshall, Jr., Ann Arbor, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Aug. 10, 1979, Ser. No. 65,632
Int. Cl.³ B60B 7/00
U.S. Cl. 301—37 R **10 Claims**



1. A wheel trim assembly for disposition on the axial outer face of a vehicle wheel having a wheel flange; said wheel trim assembly being of the type comprising an annular ring having a rim portion disposed in a plane substantially parallel to the plane of said wheel flange; said rim portion having formed on the outer surface thereof a plurality of receptacles each of which slidably receive a spring retention clip for mechanically interlocking said spring retention clip to said annular ring; said spring retention clip being engageable with said wheel flange for mounting said wheel trim assembly on said wheel; said receptacle including two opposed circumferentially facing tabs and an axial inwardly facing stop tab all formed by upsetting said tab material from said annular ring; said spring retention clip having an arcuate base portion whose arc corresponds generally to the arc of the outer surface of said annular ring; said base portion of said spring retention clip being received by said receptacle; said stop tab capturing said base portion of said spring retention clip along its radially inwardly facing end.

4,268,092

HYDRAULIC BRAKING SYSTEMS

Alastair J. Young, Kenilworth, England, assignor to Automotive Products Limited, Warwickshire, England

Filed May 25, 1979, Ser. No. 42,555
Claims priority, application United Kingdom, May 31, 1978, 25730/78
Int. Cl.³ B60T 8/22
U.S. Cl. 303—22 R **7 Claims**

1. A vehicle braking system pressure regulator through which fluid under pressure is supplied to actuate wheel brakes and which includes means to limit brake pressure to a proportion of applied pressure dependent on the vehicle loading, said regulator comprising:

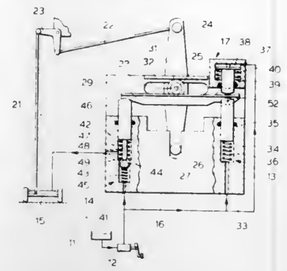
a housing;

a beam member pivotally located in said housing;

first piston means located in the housing to act on the beam member and to subject said beam member to the effect of brake pressure;

second piston means located in the housing to act on the beam member and to subject said beam member to the effect of applied pressure up to a given value and to a fixed proportion of applied pressure thereafter;

a fulcrum member supported by said housing and providing a fulcrum for said beam member intermediate said first and



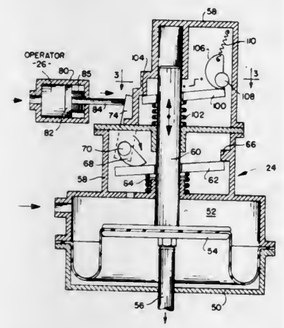
second piston means, means being provided for the position of said fulcrum to be dependent on vehicle loading; and valve means responsive to the angular position of said beam member to control fluid pressure in the regulator to control brake pressure.

4,268,093

AIR BRAKE SAFETY MECHANISM

Zdenek Müller, 2032 Kingsford, Sydney, New South Wales, Australia

Filed Jul. 13, 1979, Ser. No. 57,275
Int. Cl.³ B60T 17/16
U.S. Cl. 303—89 **10 Claims**



1. A fluid-operated braking mechanism for a vehicle comprising: a brake chamber; a movable member mounted in said brake chamber and responsive to a fluid pressure introduced into said brake chamber for setting the brakes of the vehicle; a rod coupled to said movable member and extending along a particular axis for movement in both directions along said axis; supporting means; a latching member mounted on said supporting means having an aperture therein through which said rod extends; operator means mounted on said supporting means and engaging said latching member to cause said latching member to assume a first angular position during normal operation of said braking mechanism in which said rod moves freely in both directions along said axis through said aperture, and for causing said latching member to assume a second angular position during abnormal operation of said braking mechanism to cause said latching member to assume a second angular position in which said rod is prevented thereby from moving along said axis in one direction; a second latching member mounted on said supporting means and spaced along said particular axis from said first-mentioned latching member

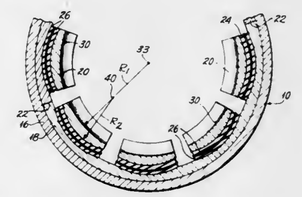
and having an aperture therein through which said rod extends; spring means mounted on said supporting means for biasing said second latching member to a first angular position in which the rod moves freely in both directions along said axis through the aperture therein; and manually operated means for moving said second latching member to a second angular position in which said second latching member engages said rod and for moving said second latching member and said rod axially along said axis from a first axial position to a second axial position along said axis and in a particular direction.

4,268,094

RADIAL AND THRUST-TYPE HYDRODYNAMIC BEARING CAPABLE OF ACCOMMODATING MISALIGNMENT

Jerome Greene, 1608 Comanche Rd., Arnold, Md. 21012

Continuation of Ser. No. 757,323, Jan. 6, 1977, abandoned. This application Jul. 30, 1979, Ser. No. 62,030
The portion of the term of this patent subsequent to Jan. 6, 1993, has been disclaimed.
Int. Cl.³ F16C 7/04, 17/03, 17/06, 27/06
U.S. Cl. 308—9 **5 Claims**



1. A fluid film bearing assembly comprising:

(a) a plurality of bearing pads disposed in a cylindrical array disposed about a longitudinal axis;

(b) pad support areas located beneath each pad;

(c) the bearing pads each comprising:

(i) a face portion having a curved bearing surface facing generally towards said axis, and a spherically curved rear surface facing a concentric surface of a respective bearing support area, the concentric surfaces defining interface surfaces having a center of curvature located between said axis and said bearing surface;

(ii) alternate layers of laminated elastomer-inelastic material between and coextensive with the interface surfaces, the material being bonded to the interface surfaces and being compliant in directions along the interface surfaces but rigid in a radial sense with respect thereto, so that the face portion is supported upon and secured to a respective pad support area by said material in a manner that positively restricts the freedom of motion of said face portion to swinging movement relative to the pad support area in a plurality of directions about a swing center corresponding to said center of curvature during bearing operation, and said material provides an elastic restoring force that resists such swinging movement; and

(d) the bearing surfaces of the pads having a common center of curvature located on said longitudinal axis.

4,268,095

MAGNETIC BEARING

Alan R. Millner, Lexington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Dec. 1, 1978, Ser. No. 965,234
Int. Cl.³ F16C 39/06
U.S. Cl. 308—10 **11 Claims**

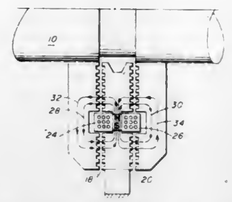
1. A magnetic bearing comprising:

a magnetically permeable central element having a magnet mounted on said central element,

outside magnetically permeable elements, movable relative to said central element, located on either side of said central element, forming air gaps between said central element and said outside elements,

said magnet having a single magnetic axis parallel to said air gaps and being arranged to create parallel magnetic circuits, one across each said gap, to exert magnetic forces between said central element and said outside elements,

two parallel electrical conductors, located on opposing sides of said magnet, both arranged to carry current in the same direction and perpendicularly to the magnetic axis of said



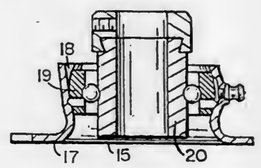
magnet, said conductors having electrical connection means for connection to a source of voltage so that when so connected and conducting current, said conductors create magnetic fields that oppose each other in the vicinity of said magnet, add to the strength of the magnetic field across one of said gaps, and subtract from the strength of the magnetic field across the other of said gaps to adjust the relative magnetic forces created by said permanent magnet between said central and said outside elements.

4,268,096

FLANGE MOUNT FOR SPHERICAL BEARING

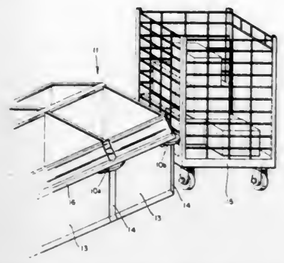
Earl S. Cain, Portola Valley; Jerome A. Carlson, Woodside, and George E. Goodrich, San Carlos, all of Calif., assignors to Tribotech, Redwood City, Calif.

Continuation of Ser. No. 743,923, Nov. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 664,164, Mar. 5, 1976, Pat. No. 4,033,641. This application Apr. 17, 1978, Ser. No. 897,757
Int. Cl.² F16C 35/12
U.S. Cl. 308—15 **6 Claims**



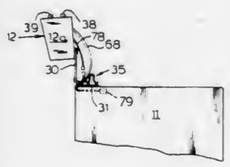
1. A flange mount for a spherical bearing having a spherical outer surface including a flange plate and a bearing receiving flange formed from a single sheet metal piece of predetermined thickness and each of which has substantially the same thickness as said sheet metal with said bearing receiving flange extending outwardly from only one face of said flange plate and adapted to receive and hold the bearing therein, said bearing receiving flange having spherical inner and outer surface portions spaced from the one face of the flange plate, said spherical inner surface defining a re-entrant surface adapted to receive and contact substantially the entire outer surface of said spherical bearing to support the bearing so that it cannot move radially or axially in either direction within the bearing receiving flange and yet permits the bearing axis to rotate, the other face of said flange plate defining a mounting surface substantially perpendicular to the axis of said bearing receiving flange for mounting the flange on a supporting surface.

4,268,097
CABINET MOLDING PROTECTOR
James Woodard, 5470 Glore Dr., Mableton, Ga. 30059
Filed Feb. 14, 1979, Ser. No. 2,402
Int. Cl.[3] B65D 85/48; E04B 7/00
U.S. Cl. 312—137 5 Claims



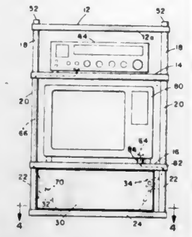
1. In combination with a cabinet including two adjacent wall panels defining a vertical seam between said panels and a strip of vertical molding covering the seam, and a strip of horizontal molding intersecting the strip of vertical molding, a molding protector comprising a rigid, generally arcuate shaped rail member attached to said cabinet in a horizontal attitude beneath said strip of horizontal molding and spanning said strip of vertical molding, said rail member including a first end approaching one of said adjacent wall panels beneath said strip of horizontal molding on one side of said strip of vertical molding forming an obtuse angle of approach with the outer surface of said one wall panel, and a second end approaching the other of said adjacent wall panels beneath said strip of horizontal molding on the other side of said strip of vertical molding forming an abtuse angle of approach with the outer surface of said other wall panel, and the central portion of said strip protruding out from beneath said strip of horizontal molding and spanning said strip of vertical molding.

4,268,098
RETAINING CLIP FOR REMOVABLE CABINET FOR FRONT-SERVICEABLE APPLIANCES
Gerald L. Kretchman, and Robert M. Weir, both of St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Sep. 4, 1979, Ser. No. 72,443
Int. Cl.[3] A47B 81/00, 97/00
U.S. Cl. 312—210 8 Claims



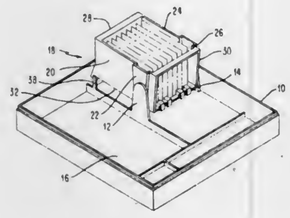
1. In a domestic appliance having a cabinet including a rear panel, a top, a wrapper joined to said top, and a base, a retaining clip for maintaining said cabinet in assembled relationship, said retaining clip comprising:
connecting means for joining said cabinet top to said rear panel, said connecting means including biasing means for urging said top into contact with said rear panel and for biasing said wrapper into contact with said base, said biasing means acting through said top and said back panel to create said wrapper base contact.

4,268,099
SECURE EQUIPMENT RACK
Jack L. Clausen, 7404 Monte Vista Ave., La Jolla, Calif. 92037
Filed Jul. 9, 1979, Ser. No. 56,045
Int. Cl.[3] E05B 73/00
U.S. Cl. 312—280 12 Claims



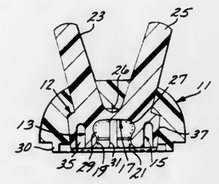
1. A security mounting system for securing appliances against theft comprising in combination:
a supporting rack having at least one mounting position for mounting an appliance, said rack including an accessible secure enclosure having an opening and a closure member providing selective access through said opening to the interior of said enclosure, and an enclosed passageway extending from said secure enclosure to said mounting position, and
an elongated high strength flexible member extending through said passageway and detachably securable at one end to said rack in an accessible position within said secure enclosure and extending from said passageway at said mounting position for detachably securing the other end to an appliance so that said other end is non-accessible when said one end is secured in position in said enclosure.

4,268,100
PIVOTALLY MOUNTED PRINTED CIRCUIT BOARD HOLDER
Dennis H. Kekas; Ronald P. McAdams, and Alexander Polischuk-Sawtschenko, all of Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 5, 1979, Ser. No. 1,102
Int. Cl.[3] H05K 7/16
U.S. Cl. 339—17 LM 9 Claims



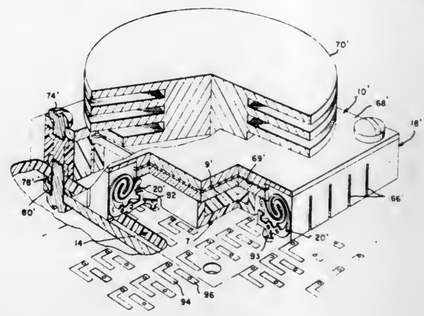
1. For use in an electronic data processing device having a base, a holder for printed circuit boards comprising:
first and second support members extending upwardly from the base, each of said support members having a stop member and an inwardly extending stud, said studs being aligned along a common axis;
a generally rectangular receptacle having opposed end walls, opposed side walls and a bottom wall, each of said sidewalls further including a recessed panel parallel to but displaced outwardly from the remainder of the side wall and having an opening therein for receiving one of the inwardly extending studs on the support members, said receptacle being pivotable from a normal position in which the bottom wall is approximately parallel to but spaced above the base to a service position delimited by the stop members on said support members, the bottom wall being approximately perpendicular to the base in the service position; and
latching means for releasably holding said receptacle in the normal position.

4,268,101
INTEGRAL DOME AND COLLAR ELECTRICAL CONNECTOR
Robert D. Stone, 3050 S. Bristol 8N, Santa Ana, Calif. 92704
Filed Aug. 15, 1979, Ser. No. 66,564
Int. Cl.[3] H01R 11/22
U.S. Cl. 339—61 R 9 Claims



1. A female electrical connector for fitting over a vertically elongated, electrically conductive electrode stem formed on its top extremity with an enlarged-in-cross section button having a rounded top end, said connector comprising:
a hollow electrically conductive cylindrical cap formed with a stem-receiving chamber for telescoping over said stem and including a flexible top wall and a downwardly projecting barrel split longitudinally along its diametrically opposite sides to form opposed axially projecting semicylindrical skirts, said skirts being formed on their free extremities with radially inwardly projecting collars for fitting radially inwardly under the opposite sides of such button to releasably lock said cap on such stem, said collars tapering upwardly and radially inwardly to form respective downwardly facing cam surfaces, said top wall having a relaxed position and being sufficiently flexible to enable its laterally opposite sides disposed on the opposite sides of the axial plane of the splits in said barrel to be angled upwardly and outwardly from such plane of said splits to a pinch-release position angling said skirts downwardly and radially outwardly at an angle sufficient to space said collars a radial distance outwardly from one another to cause the radial inner peripheries thereof to clear the opposite sides of said button;
laterally spaced apart elongated finger grasp ears mounted on said top wall on the lateral opposite sides of such plane of said splits and projecting longitudinally upwardly for being grasped and on their upper extremities and pinched together to flex said top wall to said pinch-release position; and,
an electrical lead leading from said top wall whereby when it is desirable to snap said cap onto said button, it may be pressed thereagainst from an axial direction causing said cam surfaces of said respective collars to engage the opposite sides of said top end of said button to thus cause said collars, and consequently, the lower extremities of said skirts to be spread radially apart and when said collars clear said button said top wall will flex to said relaxed position to urge such bottom extremities of said skirts radially inwardly to snap said collars radially inwardly under the opposite sides of such button and when it is desirable to pinch release said connector from such stem, the free extremities of said ears may be pinched together to cause said top wall to flex to said pinch-release position to spread said collars apart to clear the exterior dimension of said button.

4,268,102
LOW IMPEDANCE ELECTRICAL CONNECTING MEANS FOR SPACED-APART CONDUCTORS
Dimitry G. Grabbe, Lisbon Falls, Me., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 4, 1979, Ser. No. 81,719
Int. Cl.[3] H01R 9/09
U.S. Cl. 339—75 M 8 Claims



1. A multi-contact electrical connector for electrically connecting a first plurality of electrical conductors to a second plurality of electrical conductors with individual conductor-to-conductor connections, said first plurality of conductors having spaced-apart side-by-side first conductor contact surfaces, said second plurality of conductors having spaced-apart side-by-side second conductor contact surfaces, said first conductor contact surfaces being opposed to, and spaced from, said second conductor contact surfaces, said electrical connector comprising:
a plurality of flat stamped one-piece contact terminals of conductive resilient metal, each of said terminals having all parts thereof lying in a single plane and having first and second contact portions which are adjacent to each other, first and second terminal contact surfaces on said first and second contact portions respectively, said terminal contact surfaces facing in opposite directions, first and second bypass contact surfaces on said first and second contact portions respectively, said first and second bypass contact surfaces facing each other, said first and second terminal contact surfaces being remote from each other and said first and second bypass contact surfaces being proximate to each other, said bypass contact surfaces being between said first and second terminal contact surfaces,
each of said terminals having integral spring loop means extending circuitously and laterally between said first and second contact portions, said loop means being resiliently deformable upon movement of said first and second contact portions relatively towards each other, said first and second bypass contact surfaces being movable against, and relatively over, each other upon movement of said first and second contact portions relatively towards each other,
housing means for said terminals, said housing means having a plurality of side-by-side terminal-receiving cavities, each of said terminals being received in one of said cavities with said terminal contact surfaces of each terminal being normally disposed outside of said housing means, said cavities comprising narrow slots which support said terminals against buckling and leave said spring loop means free to deflect along their entire lengths, and
conductor supporting and moving means for supporting said

first conductor contact surfaces against said first terminal contact surfaces, for supporting said second conductor contact surfaces against said second terminal contact surfaces, for moving said first conductor contact surfaces relatively towards said second conductor contact surfaces, and for holding said conductor contact surfaces in their moved positions whereby,

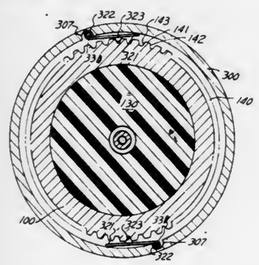
during movement of said conductor contact surfaces towards said second conductor contact surfaces, said loop means will be resiliently deformed and will impose contact forces which will maintain said bypass contact surfaces against each other, which will maintain said first terminal contact surfaces against said first conductor contact surfaces, and which will maintain said second terminal contact surfaces against said second conductor contact surfaces, and said bypass contact surfaces will permit current flowing from each of said first conductors to each of said second conductors electrically to bypass said loop means, thereby to minimize self-inductance in each of said terminals.

4,268,103

ELECTRICAL CONNECTOR ASSEMBLY HAVING ANTI-DECOUPLING MECHANISM

Alan L. Schildkraut; Vincent A. Luca, Jr., both of Sidney, and Carl L. Knapp, Oneonta, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Feb. 2, 1979, Ser. No. 8,714
Int. Cl.³ H01R *13/639*
U.S. Cl. 339—89 M **9 Claims**



1. An electrical connector assembly comprising:

a first electrical connector shell having an insert with a plurality of axial passages having electrical contacts mounted therein;

a second shell having an insert with a plurality of axial passages extending therethrough and a plurality of electrical contacts matable with the contacts in the first shell, said second shell having an external thread thereon;

a coupling nut for selectively coupling and maintaining said first and second shells together and holding said respective contacts together in a mated relationship, said coupling nut being mounted for rotational movement on the first shell with internal thread means connectable with the threads on the second shell for connecting the first and second shells together in a mated relationship; and

means for retarding the rotational movement of the coupling nut with respect to the shells, said retarding means comprising:

an annular shoulder mounted on one of the shells and extending radially outward from the one shell toward the coupling nut, said annular shoulder provided with teeth on the outside surface thereof; and

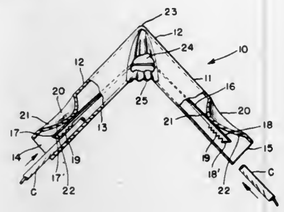
an elongated spring having a pair of ends, one end having a looped end portion for pivotal mounting of said spring to the coupling nut and the other end resting freely on an interior portion of the coupling nut spaced from the one end mounting the spring to the coupling nut, said spring comprising a plastic member and a metallic member, said plastic member including said looped end portion and having a plastic surface facing in the direction of said teeth, said metallic member including an arcuately-shaped portion in which at least a portion of said looped plastic end portion is mounted, said plastic surface including an integrally molded enlarged portion that extends inwardly in a radial direction from an imaginary straight line between the ends of said spring to the coupling nut towards the shell for engaging the teeth to retard rotational movement.

4,268,104

ELECTRICAL CONNECTOR

Kent A. Kidder, 6505 Salem, Apt. 107, Lubbock, Tex. 79414

Filed Apr. 1, 1980, Ser. No. 136,387
Int. Cl.³ H01R *11/20, 13/15*
U.S. Cl. 339—98 **15 Claims**



1. An electrical connector comprising an elongated hollow tube having opposite sides and opposite open ends, and an elongated electrically conductive metal strap extending longitudinally within said tube and having opposite end portions terminating short of the opposite ends of said tube, a plurality of teeth projecting from each end portion of said strap on one side thereof facing one of the opposite sides of said tube and terminating short thereof, a pair of cam means projecting from the other side of said tube toward said one side, there being one of said pair of cam means located inwardly of each end of said metal strap and bearing on said strap, said tube having an intermediate opening formed in said one side and extending toward the other side around said tube leaving a connecting hinge in said other side about which the opposite ends of the tube are normally folded toward each other on the side of said opening, forming an angle between said ends of substantially less than 180° in which position said connector is adapted for the insertion of conductors through the opposite open ends of said tube into the space between the toothed end portions of said strap and said one side, said cam means bearing upon said strap inwardly from said toothed end portions, said toothed end portions of said strap being slidable under said cam means as said tube is straightened into a linear form where said cam means force the toothed ends closer to said one side and thus cause the toothed ends of said strap to bite into said conductors.

4,268,105

TRANSIENT SUPPRESSION CONNECTOR

Henry J. Widmayer, San Jose, and Albert T. Cronin, Los Altos, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 9, 1979, Ser. No. 82,504
Int. Cl.³ H03H *7/00*
U.S. Cl. 339—147 R **1 Claim**

1. A transient suppression connector for suppressing cable induced transients comprising:

(a) an electrical connector at the end of an electrical cable, said electrical connector having a plurality of pins, said pins to be connected to an electronic circuit board within an electronics package case;

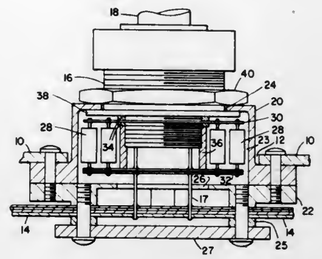
(b) a connector adaptor in the form of a cup having a connector hole in the base and a flange at the rim for attachment to said package case, said adaptor forming a cavity about said electrical connector;

(c) an adaptor plate having a central hole through which said pins protrude and having means for attaching to said connector adaptor and said electronic circuit board;

(d) means for attaching said adaptor housing to said electronics package case and to said electronic circuit board;

(e) a plurality of transient suppression components situated within said cavity about said electrical connector;

(f) a ground plane to which one end of each of said transient suppression components is connected;



(g) an adaptor circuit board having an electronic circuit pattern to which the other end of each of said transient suppression components is connected and to which said pins are connected;

(h) a washer about said electrical connector on each side of said ground plane; and

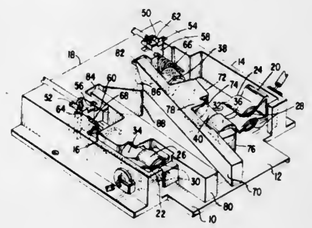
(i) a retaining nut which threadedly engages the end of said electrical connector and abuts said washer on the underside of said ground plane with sufficient force to maintain electrical contact between said ground plane and said adaptor housing thereby forming a minimum inductance transient suppression electrical circuit between said package case and said pins.

4,268,106

FUSE HOLDER ASSEMBLY

Manfred Moerre, Warren, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,669
Int. Cl.³ H01H *85/22*
U.S. Cl. 339—147 R **4 Claims**



1. A fuse holder assembly for a cartridge type fuse comprising:

a support member formed with a side wall and a rear wall;

a fuse clip mounted on the side wall of said support member;

a spring contact member mounted on said support member and spaced from said fuse clip so that a cartridge type fuse may have the spring contact member bearing against one end and the other end held by said fuse clip;

an elongated fuse carrier bar having a containment portion projecting therefrom and adapted to receive therein an intermediate portion of a cartridge type fuse; and

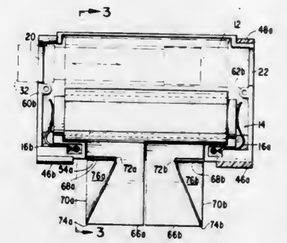
a fuse carrier bar holder mounted on said support member in a location proximate said spring contact member, said holder being formed as a recess in the rear wall of said support member and adapted to receive an end of said carrier bar and allow pivotal motion of said carrier bar so that a fuse within the containment portion of said carrier bar may have a first end brought against said spring contact member and the second end pivoted into engagement with said fuse clip.

4,268,107

FUSE HOLDER

Manfred Moerre, Warren, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,671
Int. Cl.³ H01H *85/22*
U.S. Cl. 339—147 R **10 Claims**



1. A fuse holder for a cartridge type fuse comprising:

a housing having a fuse transfer region and a fuse contact region laterally spaced apart within said housing;

means for providing access between the exterior of said housing and said fuse transfer region, including a first opening formed in said housing through which a cartridge type fuse may pass in an axial direction; and

carrier means captured within said housing for moving a fuse between said fuse transfer region and said fuse contact region;

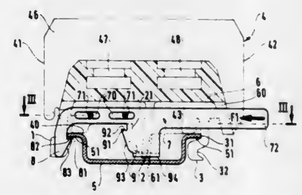
said housing being formed with a second opening and said carrier means including a handle portion extending through said second opening, whereby movement may be imparted to said carrier means from outside said housing.

4,268,108

LOCKING ARRANGEMENT FOR FIXING A TERMINAL BLOCK

Jean Debaigt, Maisons Laffitte, France, assignor to CGEE Alsthom, Levallois-Perret, France

Filed Oct. 30, 1979, Ser. No. 89,393
Claims priority, application France, Nov. 6, 1978, 78 31308
Int. Cl.³ H01R *9/26*
U.S. Cl. 339—198 GA **8 Claims**



1. A locking arrangement for locking a terminal block to a supporting channel section, the terminal block having a base including fixing means for fixing the terminal block to two different kinds of supporting channel, namely a first kind hav-

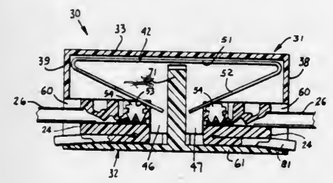
ing outwardly turned rims and a second kind having inwardly turned rims; the fixing means including a first fixing tab for co-operating with an outwardly turned rim, a second fixing tab for co-operating with an inwardly turned rim, and a third fixing tab for co-operating with either kind of rim, such that the block is fixable to either kind of supporting channel by means of the third fixing tab and the appropriate one of the first and second fixing tabs for the kind of supporting channel in question, each fixing tab including a notch for receiving a rim of at least one kind of supporting channel, and the fixing means as a whole including sufficient resilience for the block to be snap fitted to a supporting channel wherein the locking arrangement comprises guide means on said terminal block and a locking plate disposed in said guide means for movement transversely with respect to a supporting channel section when said channel is fixed in the fixing means, said locking plate having lock notches arranged to reinforce the action of the notches in at least some of the tabs, the guide means being arranged to allow at least one of the lock notches to engage one of the rims of a supporting channel once the terminal block has been snap-fitted thereto.

4,268,109

COUPLER FOR TELEPHONE CORDS

Edwin C. Hardesty, Perry Hall, Md., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Oct. 3, 1979, Ser. No. 81,604
Int. Cl.³ H01R *13/15, 13/514*
U.S. Cl. 339—205 **7 Claims**



1. A coupler for connecting telephone cords, which are terminated with modular plugs, said coupler comprising:

a first portion which is made of a dielectric material and which includes a base and opposed walls upstanding from sides and ends of said base, said first portion having a plurality of partitions that extend from one end to the other and form compartments that have a predetermined spacing, each of said partitions including a stem portion extending away from said base;

wire-like contact elements positioned between adjacent partitions, each said contact element having a linear portion which is adjacent to said base of said first portion and having retroflexed free end portions, said linear and said retroflexed portions of each said contact element being maintained at said predetermined spacing by said partitions; and

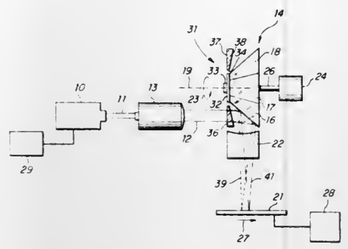
a second portion which is mateable with, which covers, and which cooperates with said first portion to form an externally communicating cavity at each end of the coupler for receiving a plug having terminals mounted therein at said predetermined spacing that engage said contact elements, said second portion including means for supporting said stem portions of said partitions in said first portion at said predetermined spacing to maintain said retroflexed portions of said contact elements at said predetermined spacing to facilitate their engagement by terminals of plugs which are inserted into said cavities and for maintaining said linear portions of said contact elements adjacent to said base of said first portion.

4,268,110

FACET ANGLE CORRECTOR FOR MULTI-FACETED OPTICAL SCANNER

Peter W. Ford, Winchester, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Oct. 12, 1979, Ser. No. 84,275
Int. Cl.³ G02B *27/17*
U.S. Cl. 350—6.7 **10 Claims**



1. In a light scanning apparatus including:

a. means for providing a light beam;

b. beam deflector means positioned in the path of said light beam, said beam deflector means including a plurality of beam deflecting faces; and

c. drive means for moving said beam deflector means to sequentially move said plurality of beam deflecting faces across said light beam to effect the scanning thereof; the improvement comprising

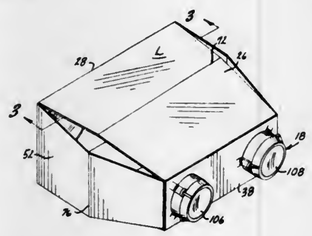
d. corrector means for correcting said light scanning apparatus for misalignment of said plurality of beam deflecting faces, said corrector means including a plurality of transparent optical elements in the path of said light beam, each of said plurality of transparent optical elements being associated with a different one of said plurality of beam deflecting faces and comprising an optical wedge means for bending said light beam through a given angle prior to the light beam impinging upon the associated beam deflecting face to compensate for said misalignment of said associated beam deflecting face, and wherein said corrector means further includes means for individually adjusting each of said optical wedge means for controlling the angle at which said light beam passing therethrough is bent.

4,268,111

FOLDABLE BINOCULARS

John R. Green, 3105 E. Harcourt St., Compton, Calif. 90221, and Charles D. Turner, 48 Eastfield Dr., Rolling Hills, Calif. 90274

Filed Aug. 27, 1979, Ser. No. 70,141
Int. Cl.³ G02B *23/18*
U.S. Cl. 350—70 **6 Claims**



1. A foldable binocular, comprising: a case having a front wall formed with a pair of objective lens apertures, top and

bottom walls integrally connected to the upper and lower edges of said front wall, with the upper rear edge of said top wall being integral with the upper edge of an inside rear wall and the lower rear edge of said bottom wall being integral with the lower edge of an outer rear wall, left and right side walls integrally connected to the side edges of said front wall, with the rear edges of each side wall being formed with an end wall, all of said walls being formed from a single blank, with the adjoining edges between each of said walls defining fold lines and with the intermediate portion of each of said top and bottom walls being formed with a horizontal transverse adjustment fold line and the intermediate portion of each of said side walls being formed with a vertical adjustment fold line;

eyepiece lens apertures formed in said rear walls and said end walls, with said inner and outer rear walls being butted together and said end walls being butted against the inner surface of said inner rear wall so as to place the eyepiece lens apertures in coincidence and in longitudinal alignment with said objective lens apertures;

objective lens means attached to said front wall having a pair of objective lenses covering said objective lens apertures; and

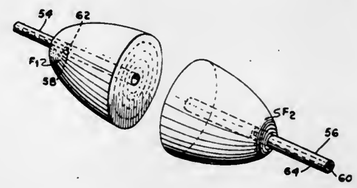
eyepiece lens means attached to said rear walls having a pair of eyepiece lenses covering said eyepiece lens apertures, with focus adjustment of said lens being provided by a longitudinal folding of said top, bottom and side walls about said intermediate fold lines, and with said intermediate fold lines also permitting said front and rear walls to be collapsed together and maintaining their parallelism.

4,268,112

FIBER OPTIC CONNECTOR USING GRADIENT INDEX LENSES

Kenneth P. Peterson, Stamford, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation of Ser. No. 797,969, May 18, 1977, abandoned.
This application May 11, 1979, Ser. No. 37,974
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.18 **9 Claims**



3. An optical fiber connector for attachment to the end of an optical fiber to enable connection of that optical fiber to another optical fiber, the optical fiber connector comprising an optical lens means, wherein said optical lens means is substantially one-half of a solid elliptical bead of glassy material, having:

an optical axis;

a focal point at a first location on said optical axis;

a connector face that intersects said optical axis at a second location spaced from said first location for contacting and being secured directly to a corresponding connector face of a second optical lens means;

a non-uniform index of refraction formed and arranged for controllably expanding energy received at said focal point on said optical axis, said energy being expanded radially about said optical axis and emerging from said connector face in rays parallel to said optical axis, and for controllably focusing energy received by said connector face in rays parallel to said optical axis radially towards said focal point, wherein the index of refraction decreases from the center of said bead toward the outer surface of said bead; and

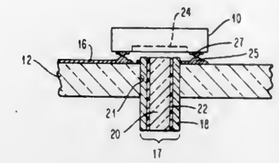
attachment means for attaching the end of an optical fiber core to said optical lens means at said focal point.

4,268,113

SIGNAL COUPLING ELEMENT FOR SUBSTRATE-MOUNTED OPTICAL TRANSDUCERS

Francis E. Noel, Jr., Knightdale, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 16, 1979, Ser. No. 30,401
Int. Cl.³ G02B *5/14, 27/00*
U.S. Cl. 350—96.20 **2 Claims**



1. In the combination of an optical transducer and a supporting insulative substrate, wherein said substrate has at least one aperture therethrough aligned with the transducer, an improved signal coupling element comprising:

a hollow metal pin extending through the substrate aperture and being secured therein by an interference fit between the exterior surface of said metal pin and the aperture walls;

an optical fiber for transmitting light through the the center of said metal pin, one end of said fiber being adjacent an active region of the transducer;

means for providing an electrical connection between said metal pin and the transducer, said means including an electrically conductive annular button encircling and in conductive contact with said metal pin, said button being on the opposite side of the substrate from the transducer and having a bore therethrough aligned with said optical fiber, the bore having a first cylindrical segment having a diameter approximately equal to the outer diameter of said metal pin and a second coaxial segment which flares from a minimum diameter adjacent the bottom end of said first cylindrical segment to a maximum diameter at one surface of said button.

4,268,114

OPTICAL CONNECTOR FOR PRINTED CIRCUIT CARD

Luigi d'Auria, and Philippe Maillot, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Aug. 28, 1979, Ser. No. 70,495
Claims priority, application France, Sep. 1, 1978, 78 25289
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.20 **5 Claims**

1. An optical connector for use in the wall of an enclosure optically coupling a circuit card optical terminal with a cable terminal comprising:

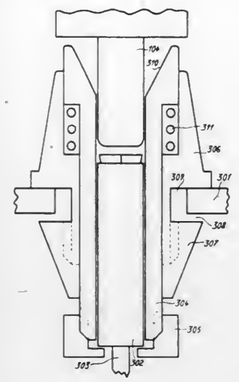
a connector body having a bore therethrough for receiving at one end thereof the circuit card terminal and at the other end thereof the cable terminal;

a sleeve into which the body is slidably positioned, the sleeve including first and second members configured so as to define a groove for engaging the wall of the enclosure, the groove providing lateral clearance of the connector with respect to the wall to permit, by lateral movement of the connector, axial alignment of the connector with the circuit card terminal;

a spring for biasing the body, with respect to the sleeve, in the direction of the circuit card terminal; and

a retaining ring for limiting the movement of the body under the bias of the spring,

the dimensions and positions of all elements being selected such that in its extreme position, the body places the cable terminal beyond the limit position of the circuit card terminal to be engaged, so that the circuit card terminal, when received within the body must displace the cable terminal and body so as to increase the compression of the spring,



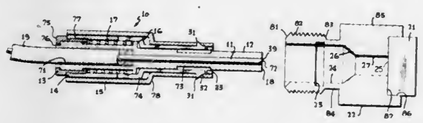
the spring constant of the spring being selected such that the force of the spring is greater than the frictional force of the terminal of the printed circuit board within the body so that during its engagement within the body, the circuit card terminal forces back the body by its pressure on the cable terminal and not by its friction with the body.

4,268,115

QUICK-RELEASE FIBER-OPTIC CONNECTOR

Charles S. Slemon, and Steven W. Braun, both of Encinitas, Calif., assignors to Tetra-Tech, Inc., Pasadena, Calif.

Filed Jun. 1, 1979, Ser. No. 44,575
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 **9 Claims**



1. A connector, for use in presenting the tip of a sheathed optic fiber to a mating optical device for light transmission between such tip and such device, the connector comprising:

a fitting adapted to be affixed to such mating optical device;

a ferrule, adapted to be affixed to the end of such optic fiber, the ferrule defining:

a cavity which penetrates completely through the ferrule and is adapted to accept such fiber, whereby the tip of such fiber may be exposed flush with one end of the ferrule; and

a first spring anchor;

a connector body guiding the ferrule and having a quick-release connecting catch that is adapted to engage the fitting, whereby the connector body may be held in fixed relation to such mating optical device, the said catch comprising:

a hook which is carried by the connector body, formed to engage the fitting, and spring-loaded toward engagement with the fitting; and

manipulable means for retracting the hook, against the spring-loading, to disengage the hook from the fitting; the manipulable hook-retracting means comprising a housing which at least partly covers the connector body and is slidably mounted thereto, and which defines an aperture through which the hook extends;

the connector body being slit in such relation to the hook as to form a spring which urges the hook outward through such aperture and toward engagement with the fitting; and

the hook being shaped for retraction into the housing in response to sliding manipulation of the housing;

a second spring anchor secured to the connector body; and

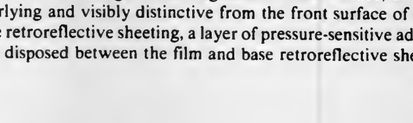
spring means engaging the two anchors and adapted to urge the said one end of the ferrule toward such mating optical device.

4,268,116

METHOD AND APPARATUS FOR RADIANT ENERGY MODULATION IN OPTICAL FIBERS

Donald Schmadel; William H. Culver, and Gordon Gould, all of Gaithersburg, Md., assignors to Optelecom Incorporated, Gaithersburg, Md.

Filed Oct. 26, 1979, Ser. No. 88,579
Int. Cl.³ G02B 5/14; G02F 1/11, 1/29
U.S. Cl. 350—96.29 **31 Claims**



1. Means for modulating radiant energy in a single mode clad optical fiber comprising:

a single mode optical fiber having a modulation control zone where the cladding is partially removed or formed with a decreased thickness relative to the remainder of the cladding;

an optical grating;

means for mounting the optical grating in the control zone with the crests of the optical grating positioned generally normal to the optical axis of the fiber; and

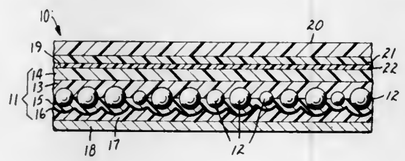
means for sliding the optical grating relative to the optical fiber to cause a narrow band of the radiant electromagnetic energy in the optical fiber to be modulated in phase and/or frequency.

4,268,117

SHEET ASSEMBLY FOR FORMING IMAGED RETROREFLECTIVE SHEETING

Charles V. Sevelin, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Nov. 30, 1979, Ser. No. 98,738
Int. Cl.³ G02B 5/128
U.S. Cl. 350—105 **3 Claims**



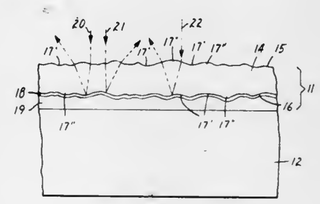
1. Sheet assembly useful to form graphically imaged retroreflective markings comprising a base retroreflective sheeting that retroreflects light shined against its front surface, a film overlying and visibly distinctive from the front surface of the base retroreflective sheeting, a layer of pressure-sensitive adhesive disposed between the film and base retroreflective sheeting, and a heat-susceptible low-adhesion layer interposed between the layer of pressure-sensitive adhesive and either the film or base retroreflective sheeting, the low adhesion layer having low adhesion to the pressure-sensitive adhesive layer prior to heat-exposure of the assembly such that the assembly may be manually peeled apart at the interface between the low-adhesion layer and pressure-sensitive adhesive layer, but developing in combination with the pressure-sensitive adhesive layer a firm and long-lasting bond between the film and base retroreflective sheeting when the assembly is heated to an elevated temperature.

4,268,118

SHEETING USEFUL AS A PROJECTION SCREEN

Philip V. Palmquist, Maplewood, and Thomas I. Bradshaw, Afton, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 5, 1979, Ser. No. 72,661
Int. Cl.³ G03B 21/60
U.S. Cl. 350—128 **8 Claims**



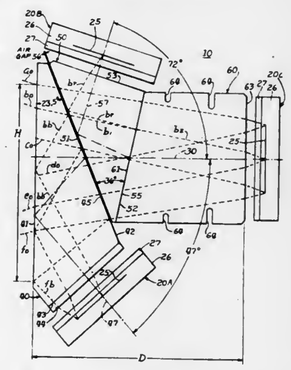
1. Sheeting useful as a durable projection screen from which images projected onto the front of the screen can be brightly reflected with good uniformity to a widely distributed audience, comprising (1) a transparent film that (a) is configured on its back surface with a random pattern of densely packed generally parallel elongated microscopic recesses or projections, which are concave or convex in both their longitudinal and transverse directions, and (b) is configured on its front surface with densely packed light-refracting lenticular recesses or projections that spread light entering and leaving said front surface, and (2) a specularly reflective layer coated on said back surface.

4,268,119

COLOR-SEPARATING OPTICAL SYSTEM

Rudolf Hartmann, Winter Park, Fla., assignor to Bell & Howell Company, Chicago, Ill.

Filed Jan. 22, 1979, Ser. No. 5,180
Int. Cl.³ G02B 7/18, 27/10
U.S. Cl. 350—173 **8 Claims**



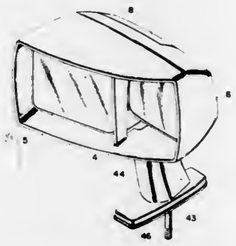
1. An optical system separating color components of light directed along a non-reflecting optical axis in a small portable video color camera, said system comprising a prism assembly including first and second and third prisms and having a light entrance face on said first prism, a first dichroic plate fixedly secured to said first prism and spaced from said second prism by an air gap for receiving light entering said first prism through said input face and selectively reflecting a first color component while transmitting remaining light components to said second prism, a second dichroic plate disposed between said second and third prisms and fixedly secured to each for selectively reflecting a second color component while transmitting the remaining light component to said third prism, three exit faces respectively disposed on said three prisms for respectively emitting light components therefrom along three exit paths each having an axis, three detectors respectively disposed adjacent to said three exit faces and each having an image area thereon for receiving light rays emitted from the associated exit face, and three positioning means each including a rigid body disposed between the associated detector and the corresponding exit face and secured to each fixedly to hold the associated detector in a predetermined position with respect to the associated exit face and its axis, each said rigid body having an opening therethrough to accommodate uninterrupted passage of light rays from the corresponding exit face to said image area of said associated detector.

4,268,120

AUTOMOBILE MIRROR DEVICE

Tsuneharu Jitsumori, 171 Oi, Seto-cho, Akaiwa-gun, Okayama-ken, Japan

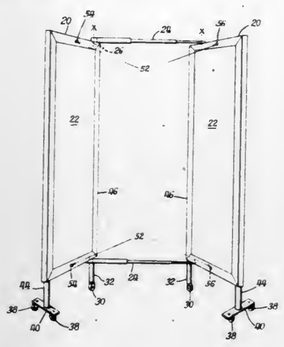
Continuation of Ser. No. 911,120, May 31, 1978, abandoned.
This application Oct. 3, 1979, Ser. No. 81,529
Claims priority, application Japan, Jun. 2, 1977, 52-72468; Apr. 25, 1978, 53-55148
Int. Cl.³ G02B 7/18
U.S. Cl. 350—302 **1 Claim**



1. A multi-mirror device to be mounted on a vehicle for front and rear viewing on the side of a vehicle opposite to that of the driver's seat, said device comprising a casing having side walls, top and bottom walls, and a front wall, at least a portion of which is formed of a transparent material; a support bracket carried within said casing having a pair of support plates offset angularly relative to each other; a first rear view mirror and a front view mirror in alignment with the transparent portion of the front wall; a backing plate secured to the rear face of each of said rear view and front view mirrors, a hollow hemispheric projection on each of said backing plates in a direction away from the mirror surface, complementary hollow projections formed on each of said support plates, and means for resiliently and pivotably mounting said rear view and front view mirrors on respectives of said support plates, a third reflecting mirror mounted within said casing facing in a generally rearwardly direction and adapted to reflect the image of said front view mirror rearwardly, at least the transparent portion of said front wall of said casing being removably for manual manipulation of support plates and each of said mirrors and the rear edges of said side top and bottom walls extending rearwardly of said rear view mirror to shelter the same and permit access to said

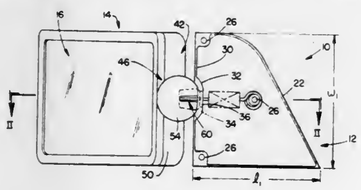
front and rear view mirrors for adjustment while being protected from the elements.

4,268,121
FULL VIEW DUAL-USE MIRROR APPARATUS
Samuel Peskin, 18700 Walkers Choice Rd., Gaithersburg, Md. 20760
Filed Apr. 28, 1980, Ser. No. 144,582
Int. Cl.³ G02B *7/18*
U.S. Cl. 350—306 **10 Claims**



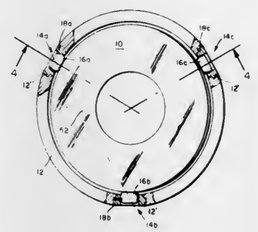
1. Full view dual-use mirror apparatus comprising:
a pair of upright rectangular frames each having a reflecting surface on the front side thereof;
said frames being interconnected by telescopically extendible and retractible rod means enabling said apparatus to be unfolded to a spread, open position and folded to a compact, closed position;
said frames when in said open position being spaced horizontally apart with the planes of their reflecting surfaces diverging forwardly and outwardly at acute angles relative to a common rear vertical plane for use as dual mirrors;
said frames being pivotally connected to the ends of said rod means about spaced, parallel vertical axes parallel to said vertical plane;
said frames when in said closed position being positioned one in front of and contiguous to the other parallel to said rear vertical plane with the reflecting surface of the front frame facing forwardly for use as a single mirror; and
means supporting said frames uprightly in both said open and closed positions.

4,268,122
OUTSIDE REAR VIEW MIRROR
Walter R. Deshaw, Sparta, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.
Filed Jun. 21, 1979, Ser. No. 50,703
Int. Cl.³ B60R *1/06;* **G02B** *5/08*
U.S. Cl. 350—307 **20 Claims**



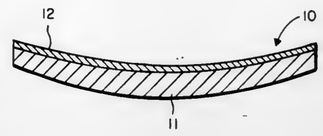
1. An adjustable breakaway rear view mirror support assembly for use with a vehicle, said mirror support assembly comprising:
a low profile mounting bracket adapted to be fixedly secured to the vehicle;
a mirror carrying member; and
means securing said mirror carrying member to said mounting bracket for permitting manual adjustment of the mirror carrying member for viewing purposes and for achieving breakaway action by permitting the carrying member to rotate to a position generally parallel to the mounting bracket when a force is exerted on the forward surface of the mirror carrying member, said means including:
one of said bracket and said member including a portion defining a concave bearing surface and the other of said bracket and said member including a portion defining a convex and at least partially spherical bearing surface engaging said concave surface, said surfaces dimensioned to permit rotation of said carrying member relative to said mounting bracket; and
tension spring means connected at one end to said mounting bracket and at the other end to said carrying member and being stretched between said bracket and said carrying member for pulling said surfaces into frictional engagement and permitting said carrying member to be adjusted to a plurality of stationary positions for viewing, yet permitting said carrying member to rotate to a position generally parallel to and generally in the same plane and envelope as said mounting bracket.

4,268,123
KINEMATIC MOUNT
Bernard Mesco, Playa Del Rey, CA, assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Feb. 26, 1979, Ser. No. 15,271
Int. Cl.³ G02B *7/02, 7/18*
U.S. Cl. 350—310 **10 Claims**



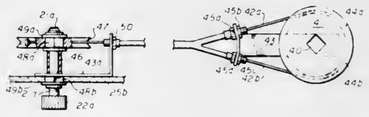
1. Apparatus including a mounting and aligning device comprising:
an element lying generally in a plane;
a support surrounding said element;
a plurality of retaining sleeves positioned in said support and about said element; and
a plurality of disc members positioned in the plane of and engageably supporting said element and respectively mounted within said sleeves, each said disc member having a center and a spherically curved outer surface in both sliding linear and rotatable engagement with said sleeve, respectively along a longitudinal axis of said sleeve passing through the disc member center and about three orthogonal axes passing through the disc member center.

4,268,124
OPTICAL REFLECTOR HAVING A NICKEL-IRON ALLOY REFLECTING SURFACE
Kenneth Lui, Fountain Valley, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Division of Ser. No. 917,779, Jun. 21, 1978, Pat. No. 4,231,847, which is a continuation-in-part of Ser. No. 775,310, Mar. 7, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 83,184
Int. Cl.³ G02B *7/18, 5/10*
U.S. Cl. 350—310 **1 Claim**



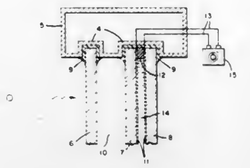
1. An optical mirror comprising a face sheet bonded to a lightweight substrate, said face sheet consisting essentially of a substantially homogeneous admixture of nickel and iron having a temperature expansion coefficient of less than about 5×10^{-6}, said homogeneous admixture containing substantially no iron oxide, and said lightweight substrate consisting essentially of graphite epoxy composite having substantially the same temperature coefficient of expansion as said face sheet.

4,268,125
METHODS OF FORMING AND METHODS OF CONTROLLING A PIVOTAL MIRROR ASSEMBLY
Walter L. Carter, 21429 84th West, Edmonds, Wash. 98020
Filed Feb. 1, 1979, Ser. No. 8,596
Int. Cl.³ G02B *7/18*
U.S. Cl. 350—320 **8 Claims**



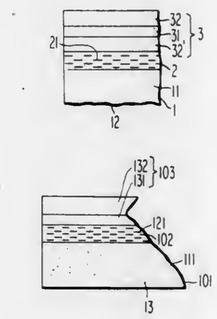
1. A method for viewing by the driver of the blind area opposite a first vehicle side opposite to the driver, as for detecting a second vehicle approaching from a position behind the normal to the first vehicle longitudinal axis through a side mirror pivotally mounted on the first vehicle side, comprising the steps of,
(a) Connecting a manually operable cable means from a first pulley wheel on the first vehicle near the driver to the pivotally mounted mirror on a second pulley wheel in a first position with the mirror aligned with the first line of focus normal to the vehicle longitudinal axis and substantially through the side mirror and the driver,
(b) Connecting one end of the manually operable cable means to the first pulley wheel on the other end of the cable means to the second pulley wheel on the movably mounted mirror for movement through a sector immediately behind the first line of focus to a second position with the mirror aligned with the second line of focus,
(c) Viewing through the pivotally mounted side mirror focused on the first line extending outwardly from the same vehicle side as the normal to the vehicle longitudinal axis through the side mirror, and
(d) Viewing through the side mirror as its line of focus is pivoted rearwardly through at least 70° for covering the blind area for detecting the second vehicle approaching from behind said normal to the first vehicle longitudinal axis.

4,268,126
THERMAL-PANE WINDOW WITH LIQUID CRYSTAL SHADE
Robin B. Mumford, Colts Neck, N.J., assignor to Allied Chemical Corporation, Morris Township, N.J.
Filed Dec. 20, 1978, Ser. No. 971,298
Int. Cl.³ G02F *1/133*
U.S. Cl. 350—331 R **5 Claims**



1. A thermal-pane window unit resistant to radiative heat transfer as well as conductive heat transfer, comprising:
three parallel, spaced window panes, mounted in a window frame, delimiting therebetween a first space providing a thermal break and a second space containing an electro-optical liquid crystal cell providing a selected light transmittance.

4,268,127
LIGHT TRANSMITTING AND REFLECTING POLARIZER
Nobuo Oshima, and Sajiro Maeda, both of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Ibaraki, Japan
Filed Apr. 20, 1979, Ser. No. 31,798
Claims priority, application Japan, Sep. 29, 1978, 53-120664; Jan. 31, 1979, 54-10795
Int. Cl.³ G02F *1/13*
U.S. Cl. 350—337 **24 Claims**



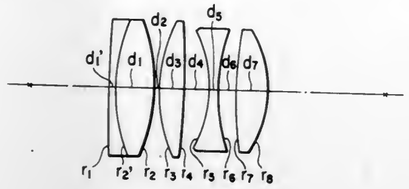
1. A light transmitting and reflecting polarizer comprising a transparent or semi-transparent resin film, an adhesive layer having uniformly dispersed therein transparent and/or semi-transparent particles, and a polarizing layer, said resin film and said polarizing layer being bonded through said adhesive layer.

4,268,128

OCULAR OF LARGE VISUAL FIELD

Toshifumi Uetake, and Masaki Matsubara, both of Hachiouji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 21, 1979, Ser. No. 40,871
Claims priority, application Japan, May 25, 1978, 53-62598
Int. Cl.³ G02B *3/00, 9/34*
U.S. Cl. 350—410 **4 Claims**



1. An ocular having wide visual field comprising a front lens group consisting only of a first lens component having positive refractive power and a rear lens group which is a triplet consisting of a second positive lens component, a third biconcave lens component and a fourth positive lens component, said ocular being so designed as to satisfy the following conditions:

$$1.65 < n_3 \quad (1)$$

$$0.7 < f_A/f_B < 1.3 \quad (2)$$

$$0.004f < d_2 < 0.25f \quad (3)$$

$$r_4 < -3f \quad (4)$$

$$0.08f < d_1 + d_1' < 0.36f \quad (5)$$

$$0.06f < d_6 < 0.2f \quad (6)$$

wherein the reference symbol f represents the equivalent focal length of the total lens system, the symbol f_A represents the equivalent focal length of the first lens component, the symbol f_B represents the equivalent focal length of the second through fourth lens components, the symbol d_2 represents the axial air space between the first and second lens components, the symbol $d_1 + d'_1$ represents the axial thickness of the first lens component, the symbol r_4 represents the radius of curvature of the lens surface at the eye side of the second lens component, the reference symbol d_6 represents the axial air space between the third and fourth lens components and the symbol n_3 represents the refractive index of the third lens component, respectively.

4,268,129

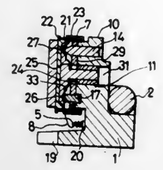
MIRROR FOR OPTICAL RECORDING SYSTEM

Yositugu Araki, Tokorozawa, Japan, assignor to Universal Pioneer Corporation, Tokyo, Japan

Filed Jun. 21, 1979, Ser. No. 50,859
Claims priority, application Japan, Jun. 21, 1978, 53-75193; Aug. 17, 1978, 53-100340; Aug. 17, 1978, 53-100341; Aug. 17, 1978, 53-100342; Aug. 17, 1978, 53-100343; Aug. 17, 1978, 53-100344; Aug. 17, 1978, 53-100345; Aug. 17, 1978, 53-100346; Aug. 17, 1978, 53-100347; Aug. 17, 1978, 53-100348; Aug. 17, 1978, 53-100349
Int. Cl.³ G05D *25/00*
U.S. Cl. 350—486 **15 Claims**

1. A movable mirror device for an optical information recording and reproducing system comprising, a base portion having a bottom section and an upstanding section extending from said bottom section, said upstanding section having an opening therein adapted to receive a core member, a permanent magnet having opposite magnetic poles at opposite ends thereof and fixedly mounted on said bottom section of said base portion, a pair of yokes each having one end engaged with said opposite ends of said magnet, respectively, a plate member supported by said upstanding section of said base portion and being positioned between the other ends of said yokes,

and a movable portion having a core, a mirror substrate supported by an end plate formed on one end of said core, a mirror fixed to said mirror substrate, a supporting portion provided on the other end of said core for pivotally supporting said core in said opening in said up-standing section and, a coil portion wound around said mirror substrate, said movable portion being disposed such that said coil portion of said movable portion is positioned in a magnetic field formed in gaps between said plate member and the other ends of said yokes.

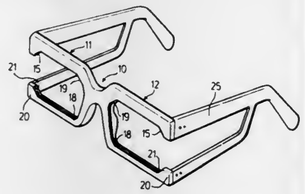


4,268,130

EYE GLASS FRAMES

Michael Vinocur, 5 Fisherville Rd., #509, Willowdale, Ontario, Canada

Filed Jun. 12, 1978, Ser. No. 914,685
Claims priority, application Canada, Jun. 21, 1977, 281048
Int. Cl.³ G02C *5/14*
U.S. Cl. 351—121 **10 Claims**



1. A lens supporting structure for use with viewing lenses of a generally rectangular shape having a pair of parallel diametrically opposed corner edge surfaces, inclined with respect to adjacent lens edges, said structure comprising: a nose bridge, a pair of rim sections connected to said bridge on either side thereof, a pair of legs, and hinge means for connecting said legs to said rim section; each of said rim sections comprising: a first frame part extending from the upper end of said nose bridge substantially horizontal having a lens-receiving channel, and a corner part at its end remote from the nose bridge inclined downwardly with respect to the horizontal, said nose bridge having a lens receiving channel and a corner part at its lower end inclined parallel to and diametrically opposed to the corner part on said first frame part on said first frame part, each of said rims being open at least a portion of their remaining periphery, to permit said corner parts to compressively grasp and maintain the lens in said lens-receiving channel.

4,268,131

FIBER COLLAGEN CONTACT LENS

Teruo Miyata, Tokyo, Japan; Albert L. Rubin; Kurt H. Stenzel, both of Englewood, N.J., and Michael W. Dunn, New Rochelle, N.Y., assignors to Opticol Corporation, Stamford, Conn.

Filed Apr. 11, 1979, Ser. No. 29,091
The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.
Int. Cl.³ C08H *1/06;* **C09H** *1/04;* **G02C** *7/04*
U.S. Cl. 351—160 H **7 Claims**

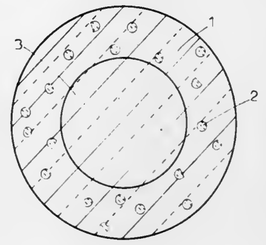
1. As an article of manufacture a soft contact lens consisting of a lens-shaped, subsequently crosslinked gel of defatted fiber collagen, said gel comprising 1.0 to 30.0 wt. % collagen and the balance water.

4,268,132

OXYGEN GENERATING CONTACT LENS

Charles W. Neefe, P.O. Box 429, Big Spring, Tex. 79720

Filed Sep. 24, 1979, Ser. No. 78,171
Int. Cl.³ G02C *7/04*
U.S. Cl. 351—160 H **3 Claims**



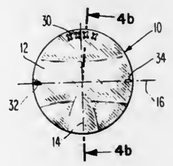
1. A contact lens of concave-convex form in section of a curvature substantially the same as the eye to which it is applied, having a plurality of oxygen emitting light receptors imbedded within the lens structure.

4,268,133

PREFERENTIAL ORIENTATION OF CONTACT LENSES

David J. Fischer, Sarasota; Idella B. Wooten, Bradenton; John C. Thomas, and James A. Reid, both of Sarasota, all of Fla., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Continuation of Ser. No. 924,719, Jul. 14, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 84,055
Int. Cl.³ G02C *7/04*
U.S. Cl. 351—161 **20 Claims**



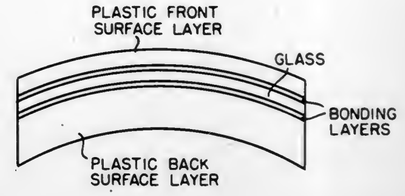
1. A soft contact lens having an optical power which varies radially and circumferentially about the optic axis of the lens comprising at least one character formed in relief upon a surface of the lens, said character being disposed in the peripheral portion of the lens adjacent the periphery without intersecting the periphery and symmetric about the 90th meridian thereof for causing said lens to maintain a predetermined orientation upon the eye of a wearer, said character being substantially smaller than the effective optical zone of the lens.

4,268,134

LIGHTWEIGHT LAMINATED PHOTOCHROMIC LENSES

Suresh T. Gulati, Elmira; Norman A. Smith, Corning, and Anton A. Spycher, Big Flats, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Mar. 7, 1979, Ser. No. 18,107
Int. Cl.³ G02C *7/10*
U.S. Cl. 351—163 **8 Claims**



1. A curved glass-plastic laminated lens comprising a plastic front surface layer, a photochromic glass core, and a plastic back surface layer, each plastic surface layer being bonded to the glass core by an adhesive bonding layer, wherein:

(a) the ratio of the thickness of the plastic front surface layer to the thickness of the plastic back surface layer is in the range of about 1:8 to 8:1 at all peripheral portions of the lens within about 2 lens thicknesses of the lens edge;

(b) the plastic front and back surface layers are composed of a polymerized allyl diglycol carbonate resin; and

(c) each adhesive bonding layer is composed of an adhesive having a tensile strength of at least about 4000 psi and a shear strength of at least about 2000 psi, and comprises a region at least about 0.002 inches in thickness wherein the elastic modulus of the adhesive does not exceed about 10,000 psi.

4,268,135

IMAGE FOCUSING APPARATUS

Eino M. Lehto, Juneau, Wis., assignor to Bell & Howell Company, Chicago, Ill.

Filed Sep. 27, 1979, Ser. No. 79,419
Int. Cl.³ G03B *3/10*
U.S. Cl. 353—27 R **8 Claims**

1. In an optical system having a lens, an image focusing apparatus for said optical system comprising:

lens holding means mounted to a frame for universal pivotal movement relative to said frame;

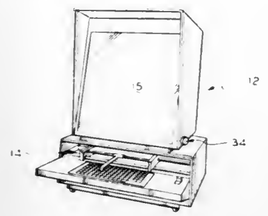
rotating lens adjusting means associated with said lens holding means for adjusting said lens, said rotating lens adjusting means including a barrel having a socket disposed therein and key slot means disposed along the length of said socket;

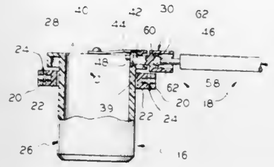
shaft means associated with said rotating lens adjusting means for turning and controlling said rotating lens adjusting means, said shaft means including a partially-spherical portion on one end thereof for slidably fitting into said socket of said rotating lens adjusting means and further including key means for slidably fitting into said key slot means, said key means extending from said partially-spherical portion in a radial direction with respect to said shaft means; and

means associated with said shaft means for movably securing a part of said shaft means to said frame;

whereby said shaft means is slidably and pivotally connected to said rotating means and whereby said rotating lens

adjusting means may be turned and controlled by said shaft means to adjust said lens regardless of the angular





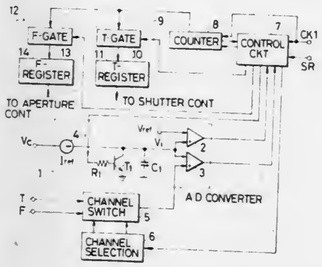
disposition of said lens holding means and said rotating lens adjusting means with respect to said shaft means.

4,268,136

CAMERA HAVING AN AUTOMATIC EXPOSURE CONTROL MEANS

Haruji Ishihara, Kodaira; Ryushi Shimokawa, Fuchu; Michio Yagi, Hachioji; Kazuo Shiozawa, Hino; Kijiro Suzuki, Tokyo, and Kazuhisa Aratame, Hachioji, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd. and Hitachi, Ltd., both of Tokyo, Japan

Filed Jul. 12, 1978, Ser. No. 924,009
Claims priority, application Japan, Jul. 18, 1977, 52-85076
Int. Cl.[1] G03B *7/091*
U.S. Cl. 354—23 D **21 Claims**



1. An automatic exposure control circuit for a camera for automatically controlling the exposure value of a photographic film in accordance with plural types of exposure control information comprising:

a first signal supply means for supplying a first analog signal corresponding to a first type of exposure control information irrespective of the illumination of an object to be photographed, said first signal supply means being energized by a power source at the same time that a shutter release for said camera is operated;

a second signal supply means for supplying a second analog signal corresponding to a second type of exposure control information in accordance with said illumination of said object to be photographed, said second signal supply means being energized simultaneously with said first signal supply means by said power source;

an analog to digital converter for converting an analog signal into a digital signal;

a signal selection means coupled to said first and second signal supply means and said analog to digital converter for transmitting said first analog signal to said analog to digital converter during a first predetermined period immediately after said energizing of said first and second signal supply means, and transmitting said second analog signal to said analog to digital converter during a second predetermined period succeeding said first predetermined period; and

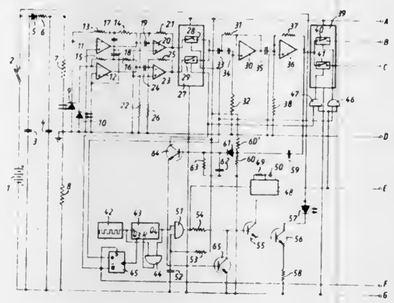
a control circuit means for controlling said exposure value with first and second digital output signals of said analog to digital converter respectively corresponding to said first and second analog signals which are produced through said analog to digital converter.

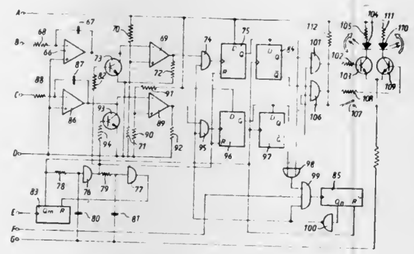
4,268,137

RADIATION-EMISSIVE FOCUSSING SYSTEM WITH INTEGRATION OF THE SIGNALS PRODUCED BY THE SYSTEM'S DETECTOR ARRANGEMENT

Istvan Cocron; Theodor Huber, and Wolfgang Ruf, all of Munich, Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Apr. 9, 1979, Ser. No. 28,186
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2815150
Int. Cl.[1] G03B *13/18;* **G01J** *1/36*
U.S. Cl. 354—23 D **19 Claims**





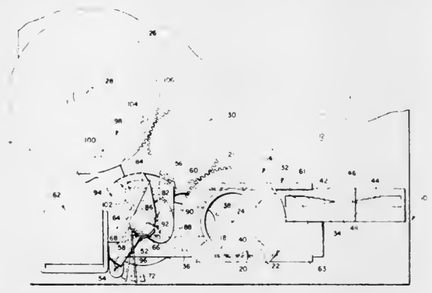
1. A focusing system for use in cameras and the like, comprising a clocked radiation transmitter transmitting a single beam of radiation pulses towards a photographic subject; a radiation detector detecting such radiation pulses after their reflection from the subject and producing a pulsed received signal in response thereto; an integrator integrating the received signal and generating an integral signal which is an integral thereof; a first means connected to the integrator and operating in such a manner as to derive focus-control information from the integral signal, whereby camera focus can be adjusted to correspond with distance between the camera and the subject; and a transmission means and a transmission means control connected thereto, the transmission means being interposed between the radiation detector and passing and blocking received signals generated by the radiation detector and from the integrator in accordance with commands issued by the transmission means control, whereby received signals are blocked from transmission to the integrator except during intervals which are substantially concurrent with detection of radiation pulses by the radiation detector, said first means being responsive to the intergral signal only after the integrator has integrated a plurality of pulses in the received signal and the integrator continuing to integrate the received signal until the integral signal reaches a predetermined value, at which time said plurality is counted, whereby focus-control information can be derived from the plurality of pulses which are so counted.

4,268,138

FOLLOW FOCUS FLASH ARRANGEMENT

Richard J. Coppa, Westwood; Seymour Ellin, Chestnut Hill, and John W. Stempeck, Reading, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed May 29, 1979, Ser. No. 42,912
Int. Cl.[1] G03B *7/14, 7/16, 15/03*
U.S. Cl. 354—27 **11 Claims**



1. A photographic camera apparatus of the type suitable for use with a source of artificial illumination and having means for defining a film plane and an optical path for transmitting light from a scene along the optical path to expose photosensitive film located in the film plane, said apparatus comprising:

a blade mechanism;

means for mounting said blade mechanism for displacement from an initial closed arrangement wherein said blade mechanism precludes scene light from being transmitted along the optical path to the film plane to an open arrangement wherein said blade mechanism defines a maximum aperture so as to allow the passage of scene light along the optical path to the film plane and then to a final closed arrangement wherein said blade mechanism again precludes scene light from being transmitted along the optical path to the film plane, wherein said blade mechanism defines a range of varying exposure apertures as it is displaced from its said open arrangement to its said final closed arrangement;

means responsive to the actuation thereof for effecting the displacement of said blade mechanism from its said initial closed arrangement to its said open arrangement and then into its said final closed arrangement to define an exposure interval during which scene light is incident upon the film plane; and

control means for effecting the firing of the source of artificial illumination at any one of a plurality of aperture sizes from said range of aperture sizes defined by said blade mechanism as it is displaced from its said maximum aperture open arrangement to its said final arrangement.

4,268,139

CAMERA FOR DAYLIGHT AND FLASH PHOTOGRAPHY

Takashi Uchiyama; Tokuichi Tsunekawa, both of Yokohama, and Takehiko Kiyohara, Zama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 638,084, Dec. 5, 1975, abandoned. This application Feb. 9, 1979, Ser. No. 10,904
Claims priority, application Japan, Dec. 10, 1974, 49/141740
Int. Cl.[3] G03B *15/05*
U.S. Cl. 354—34 **7 Claims**



1. Apparatus for synchronizing an electronic flash means with a camera including a film gate and a focal plane shutter having leading and trailing shutter curtains, comprising:

(a) a first switch electrically connected to the electronic flash device to trigger flash illumination thereof after a full-open condition of the film gate has been established;

(b) termination means for terminating the flash illumination by detecting the light amount of the flash illumination reflected by the object when the light amount reaches a predetermined value;

(c) light measuring means connected to the electronic flash means to start delay action in response to the termination of the flash illumination, said light measuring means producing a control signal after a time corresponding to brightness of the object; and

(d) control means functionally connected to the light measuring means to enable movement of the trailing shutter curtain in response to the control signal.

4,268,140

ELECTRICALLY-CONTROLLED SHUTTER FOR AUTOMATIC EXPOSURE CAMERA

Isao Kondo, and Yukio Nakajima, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,284
Claims priority, application Japan, Jul. 6, 1978, 53-82240
Int. Cl.[3] G03B *15/05*
U.S. Cl. 354—34 **3 Claims**



1. An electrically-controlled shutter circuit for use in an

automatic exposure camera being coupled with an electronic flash unit, comprising:

a shutter speed set circuit for setting a shutter speed in accordance with an amount of light incident onto a camera to produce a shutter control signal, said shutter speed set circuit including an integrating circuit having a light sensing element for receiving the light incident onto the camera when a shutter is open to produce an integrated output signal in accordance with the amount of the incident light, and a comparing circuit for comparing the integrated output signal produced from said integrating circuit with a reference signal;

a switching circuit operating in response to a shutter control signal produced by said shutter speed setting circuit;

an electromagnetic device which is connected to said switching circuit to operate in response to the operation of said switching circuit to drive a shutter mechanism;

light control signal producing means connected to said electromagnetic device to produce a light control signal in response to the operation of said electromagnetic device;

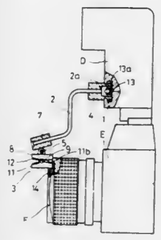
a gate circuit which is connected between said light control signal producing means and said electronic flash unit and open in response to a signal of said flash unit to permit the light control signal to supply said flash unit.

4,268,141

PHOTO-DETECTION ADAPTER FOR AN AUTOMATIC FLASH DEVICE

Ryutaro Mori, Hirakata, and Akira Iwamoto, Osaka, both of Japan, assignors to West Electric Company, Ltd., Osaka, Japan

Filed Nov. 9, 1979, Ser. No. 93,139
Claims priority, application Japan, Nov. 14, 1978, 53-140881
Int. Cl.³ G03B *15/05*
U.S. Cl. 354—35 **12 Claims**



1. A photo-detection adapter for a strobe comprising

a light conduction means for conducting light therethrough,

a mounting means attachable to a barrel of a photographic lens,

an external photo-detection means in which an input end of said light conduction means is disposed and which is movably supported by said mounting means, said external photo-detection means being for receiving a reflection light from a photographic object at said input end, and

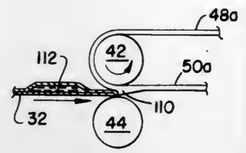
a coupling means for holding an output end of said light conduction means in front of a photo-detector of an automatic strobe thereby to give output light conducted through said light conduction means to said photo-detector.

4,268,142

CAMERA EMPLOYING WEB FOR FILM EJECTION AND PROCESSING

John M. Reynard, Framingham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 31, 1979, Ser. No. 109,124
Int. Cl.³ G03B *17/50*
U.S. Cl. 354—86 **15 Claims**



10. A photographic film unit processing and ejection system for instant cameras having means defining a pressure nip through which an exposed fiom unit is passed from the camera interior for processing and discharge to the camera exterior, said system comprising:

a feed web having a flight portion extending through the pressure nip in the direction of film unit travel from the camera interior;

means located in the camera for advancing at least the leading edge of an exposed film unit into pressure contact with a portion of said feed web in the pressure nip;

means on the exterior of said camera for pulling said feed web flight portion to draw the exposed film unit through the pressure nip due to engagement thereof by said feed web; and

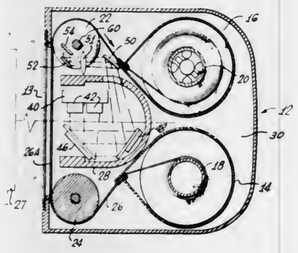
means carried on said feed web for augmenting frictional engagement of said feed web and a film unit, said frictional engagement augmenting means comprising means carried by said feed web to temporarily enlarge the size of the pressure nip to the approximate thickness of at least the leading edge of the film unit.

4,268,143

PHOTOGRAPHIC CAMERA WITH PROVISION FOR RECORDING SUPPLEMENTAL DATA

Le Roy M. Dearing, Studio City, and Edgar D. Wiegand, Sherman Oaks, both of Calif., assignors to L. M. Dearing Associates, Inc., Studio City, Calif.

Filed Oct. 31, 1979, Ser. No. 90,053
Int. Cl.³ G03B *17/24*
U.S. Cl. 354—106 **16 Claims**



1. A photographic camera comprising:

a camera lens for recording a primary image;

a film supply spool;

a film take-up spool;

a pair of film guide rollers so disposed that when said camera is loaded with film the back of said film defines a space behind said camera lens, a frame of said film being held between said rollers to be exposed through said camera lens, one of said rollers being divided into two axially separated roller sections with a gap therebetween; and

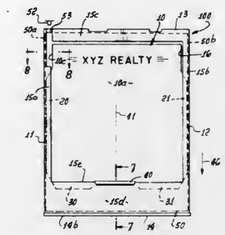
display means within said space for providing an illuminated data image to be recorded through the back of said film within said gap.

4,268,144

IMAGE BEARING TEMPLATE FOR INSTANT CAMERA FILM PACKS

Alton D. Wheeler, Pasadena, Tex., assignor to KW Research and Development, San Marino, Calif.

Filed Feb. 7, 1980, Ser. No. 119,416
Int. Cl.³ G03B *17/24*
U.S. Cl. 354—108 **15 Claims**



1. A device for use in conjunction with exposure of a photographic film carried by structure including a frame bounding a light passing zone, and comprising

(a) a template in the form of a substantially transparent, generally planar and rectangular sheet adapted to carry an image to be reproduced on the film,

(b) the template having multiple retainer tabs projecting at multiple edge portions of the sheet to removably fit beneath said frame to retain the template to said structure so that the main extent of the template overlies film carried by said structure,

(c) the template having a limit tab projecting at one edge portion of the sheet and outside the plane of said sheet to engage an edge of said frame for preventing removal of the template in response to endwise removal of exposed film from the carrier structure, whereby the sheet remains in the path of light transmission to unexposed film carried by said structure,

(d) said multiple tabs include two laterally elongated tabs at said one end of the template, said two laterally elongated tabs being in lateral alignment, and spaced apart, said limit tab located generally between said two laterally elongated tabs.

4,268,145

FILM CARTRIDGE ASSEMBLY

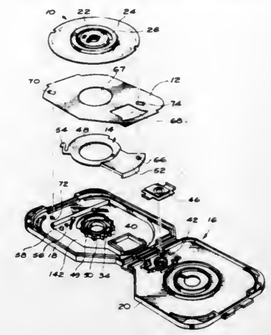
Frederick W. Harvey, Webster; Gurdip S. Sethi, and Stephen L. Sikorski, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,272
Int. Cl.³ G03B *1/00*
U.S. Cl. 354—121 **6 Claims**

1. In a photographic cartridge assembly of the type having an opaque casing with an exposure window in one wall for rotatably housing a disk of photographic film movable about a fixed axis such that different film portions are moved successively into alignment with the exposure window; the improvement comprising:

a cover member including an opaque region; and

means for mounting said cover member in the casing between the one wall and the film disk for oscillatory movement about an axis, different than the axis of rotation of the film disk, back and forth between a closing position in which said opaque region is in alignment with and closes the exposure window and an opening position in which



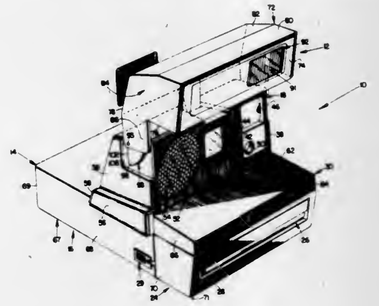
said opaque region is out of alignment with and opens the exposure window.

4,268,146

CAMERA WITH FOLDING FLASH UNIT

Bruce K. Johnson, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jul. 3, 1979, Ser. No. 54,598
Int. Cl.³ G03B *15/05, 17/04;* **E05D** *11/10, 15/50*
U.S. Cl. 354—145 **4 Claims**



1. A camera having a foldable flash unit comprising:

a camera housing defined, at least in part, by a plurality of camera housing wall exterior surfaces including a forwardly facing lens mount wall surface, an apron wall surface extending forwardly from a bottom portion of said lens mount wall surface and cooperating with said lens mount wall surface to define a camera housing recess and a pair of laterally spaced side wall surfaces extending rearwardly from lateral edges of said lens mount wall surface, each of said side wall surfaces including a flash unit mounting section having a mounting surface;

an objective lens, mounted on said camera housing with its optical axis directed outwardly from said lens mount wall surface, for forming an image of a subject to be photographed in its field of view;

a flash unit housing defined, at least in part, by a plurality of flash unit housing wall exterior surfaces including an illumination source face surface, an adjacent rearwardly extending bottom wall surface and a pair of laterally spaced side walls joining lateral edges of said face and bottom wall surface and each including an integrally formed depending resiliently displaceable mounting leg, said mounting legs being laterally spaced so that a bottom section of each said leg overlaps a corresponding one of

said mounting sections when said mounting legs are in an unstressed state;

a source of illumination for illuminating a subject in the field of view of said lens to facilitate exposure and being mounted on said flash unit housing so that light emitted from said source is directed outwardly from said illumination source face surface;

cooperating coupling means, integrally formed with said mounting sections and facing portions of said mounting leg bottom sections and operatively engageable in coupling relation by displacing said mounting legs outwardly and releasing them when aligned with said coupling means on said mounting section to return said mounting legs to said unstressed state, for coupling said flash unit housing to said camera housing for pivotal movement relative thereto between an erect position, wherein said illumination source is located to direct light therefrom toward said lens field of view, and a folded storage position wherein a major portion of said flash unit housing fits into said recess, said lens mount wall surface and said bottom wall surface are in face-to-face relation, said illumination source face surface and said apron wall surface are also in face-to face relation, and these surfaces and at least some of the other of said plurality of exterior surfaces of said camera housing and said flash unit housing cooperate to form an enclosure for protectively covering said lens and said illumination source; and

cooperating latching means, integrally formed with at least one of said mounting sections and a corresponding one of said mounting legs, for automatically releasably latching said flash unit housing in each of said erect and storage positions, said latching means including, on said one mounting section, a latching cam having separate erect and storage position latching cam faces thereon, an erect position stop spaced from said erect position cam face and a storage position stop spaced from said storage position cam face, and, located on said corresponding mounting leg bottom section, a cam follower having oppositely disposed erect and storage position follower latching faces thereon so that when said flash housing is in said erect position said follower is located between said erect position cam face and stop with said erect position follower face in engagement with said erect position cam face and said storage position follower face in engagement with said erect position stop and, when said flash housing is in said storage position, said follower is located between said storage position cam face and stop with said storage position follower face in engagement with said storage position cam face and said erect position follower face is in engagement with said storage position stop, said latching cam being formed to project outwardly from said mounting surface and including a raised exterior cam face that is substantially parallel to said mounting surface, said erect and storage position latching cam faces extending between edges of said exterior cam face and said mounting surface, said cam follower being configured to be positioned in side-by-side relation to said latching cam when in said erect and storage positions and to be displaced outwardly for movement over said raised cam face when moved between said erect and storage positions and said one resiliently displaceable mounting leg being unstressed and locating said follower in said side-by-side relation when said one leg is in said erect and storage positions and resiliently deflecting outwardly to allow said follower to follow the contours of said latching cam and pass over said raised exterior cam face when moved between said erect and storage positions while maintaining said coupling means thereon in operatively coupled relation with said cooperating coupling means on said one mounting section.

4,268,147

FOCAL PLANE SHUTTER DEVICE

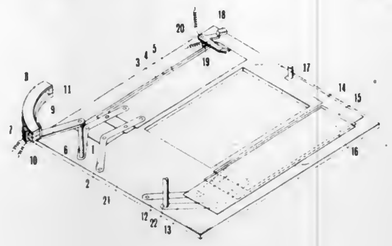
Nobuaki Date, Kawasaki; Michio Senuma, Tokyo, and Syozo Yoshida, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 23, 1980, Ser. No. 162,324

Claims priority, application Japan, Jun. 22, 1979, 54-78950

Int. Cl.³ G03B *15/03, 9/08, 9/40*

U.S. Cl. 354—147 **5 Claims**



1. A focal plane shutter device comprising:

(a) leading blades arranged to previously block an aperture for photographic light path when in an initial position and upon actuation of a shutter release to move in a first direction away from said aperture;

(b) trailing blades arranged to previously unblock said aperture when in said initial position and upon termination of a predetermined time interval from the start of movement of said leading blades in said first direction to start movement in said first direction and then to block said aperture;

(c) braking means arranged at least near the terminal end of movement of said leading blades in said first direction upon engagement with said moving leading blades to brake said leading blades so that said blades get stopped in a predetermined position; and

(d) brake releasing means consisting of a member cooperative with said trailing blade and arranged to take said braking means out of the braking engagement with said leading blades when said trailing blades near the terminal end of movement thereof in said first direction.

4,268,148

MOTOR DRIVE MECHANISM

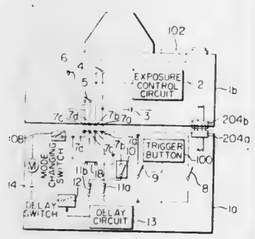
Hiroshi Wakabayashi, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed May 15, 1979, Ser. No. 39,203

Claims priority, application Japan, May 17, 1978, 53-64957[U]

Int. Cl.³ G03B *1/18*; **B03B** *7/26*

U.S. Cl. 354—173 **3 Claims**



1. In a motor drive mechanism for driving a camera having an automatic exposure control circuit comprising a trigger button depressable for rotating the motor to cause shutter releasing operation and wind-up operation, a first switch being closed in response to the depression of the trigger button to actuate said automatic exposure control circuit, the improvement comprising means for detecting the rotation of the motor for the shutter release operation and rotation of the motor for the winding-up operation; and a second switch connected in parallel with said first switch and closed or opened by the output of said detecting means; the second switch being closed when the detecting means detects the rotation of the motor for the shutter release operation and opened when the detecting means detects the rotation of the motor for the winding-up operation.

4,268,149

LATCH FOR COLLAPSIBLE PHOTOGRAPHIC CAMERA

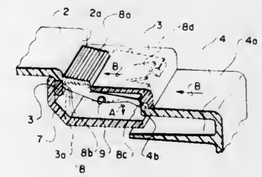
Helmut Ettischer, Ostfildern, Fed. Rep. of Germany, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 30, 1980, Ser. No. 154,711

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1979, 7916012[U]

Int. Cl.³ G03B *17/04*

U.S. Cl. 354—187 **5 Claims**



1. In a photographic camera including a camera body portion for supporting photographic film in an exposure plane; a first tubular member fixed to the camera body; a movable lens carrier supporting a taking lens and supported by the fixed member and comprising two interconnected tubular members telescopically movable from respective forward extended positions wherein the lens may be positioned to form an image in the exposure plane, to respective rearward collapsed positions wherein the camera is more compact, one of the two interconnected members comprising an intermediate tubular member supported by the fixed tubular member, and the other a front tubular member supported by the intermediate member, the improvement comprising:

means for latching the interconnected members in their extended positions, including a two armed lever supported on the intermediate member and positionable in a latching position wherein one arm of the lever rests against a frontwardly facing surface of the fixed tubular member and the other arm of the lever rests against a rearwardly facing surface of the front tubular member to secure the lens carrier in its extended position; and spring means for urging the lever into its latching position.

4,268,150

DISPOSABLE CAMERA WITH SIMPLIFIED FILM ADVANCE AND INDICATOR

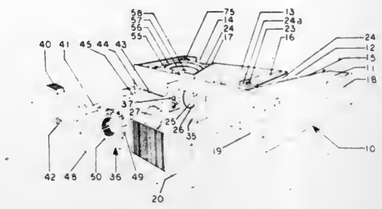
Laurence Chen, 1116 Via Zumaya, Palos Verdes Estates, Calif. 90274

Filed Jan. 28, 1980, Ser. No. 115,932

Int. Cl.³ G03B *17/42, 17/36*

U.S. Cl. 354—206 **8 Claims**

1. A disposable camera including a spring biased, rotatable film wind up roll; an end piece mounted on the wind up roll and bearing a circular groove thereon, and a plurality of equidistant stops spaced within the groove; a film supply roll for feeding the wind up roll; a downwardly biased member attached to the camera body and including a spring biased sheet with an engagement finger adapted to provide a sliding fit with the groove of the end piece to releasably engage the stops within the grooves and prevent rotation of the film wind up roll when thus engaged; a lens; a shutter; a spring biased shutter actuator, indluding a retaining finger having a shallow indent, the retaining finger being adapted to elevate the engagement finger out of contact with a groove stop upon release of the shutter until the downwardly biased member engages a succeeding stop in the groove, and continued elevation of the



shutter causes the retaining finger and downwardly biased member to separate, and the engagement finger to re-enter the groove and prevent further film windup when the engagement finger contacts a succeeding stop; an edge portion of the downwardly biased member being sized to contact the indent of the retaining finger and stabilize movement of the engagement finger within the groove.

4,268,151

VIEWFINDER DIOPTRY ADJUSTING DEVICE FOR SINGLE-LENS REFLEX CAMERAS

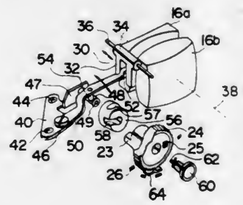
Toshio Kobori, and Takayoshi Miyamoto, both of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Aug. 20, 1979, Ser. No. 67,967

Claims priority, application Japan, Aug. 23, 1978, 53-116094[U]

Int. Cl.³ G03B *13/06*

U.S. Cl. 354—219 **5 Claims**



1. A view-finder system for a single lens reflex camera comprising:

an eyepiece lens system having a positive power as a whole and including a negative lens element movable in the view finder along the optical axis thereof and a positive lens element located stationary at the eye side of said negative lens element;

guide means for guiding said negative lens element for translational movement thereof along said optical axis;

a lever having an arm engageable with said negative lens element to determine the axial position of the lens as a function of angular position of the lever;

a manual member; and

control means for controlling the angular position of said lever in accordance with the operation of said manual member, said control means including a cam member engageable with said lever, a ratchet gear, a resilient member for resiliently restraining the rotational position of said ratchet gear, and a claw member engaging with said ratchet gear and responsive to the operation of said manual member for advancing said ratchet wheel, said ratchet gear being interlocked with said cam member.

4,268,152

BULB PHOTOGRAPHY CONTROL SYSTEM FOR CAMERA

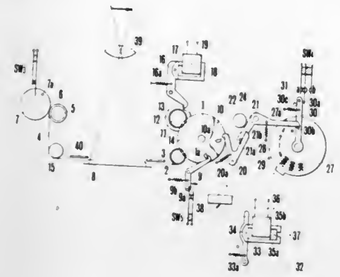
Hiroshi Aizawa, Kawasaki; Masanori Uchidoi; Kazunobu Urushibara, both of Yokohama; Nobuyuki Suzuki, and Masami Shimizu, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 27, 1979, Ser. No. 107,552

Claims priority, application Japan, Dec. 28, 1978, 53/165846

Int. Cl.³ G03B *7/08, 9/34, 9/08*

U.S. Cl. 354—234 **6 Claims**



1. Bulb photography control system for a camera comprising:

a shutter opening member for actuating a shutter opening operation;

a shutter closing member for actuating a shutter closing operation;

a first holding member for holding the shutter opening member so as to check the shutter opening operation;

a first magnet operatively arranged with the first holding member for releasing the first holding member from holding the shutter opening member;

a second holding member for holding the shutter closing member so as to check the shutter closing operation;

a second magnet operatively arranged with the second holding member for releasing the second holding member from holding the shutter closing member;

a first circuit to which the first magnet is connected for supplying current to the control system from a power source;

a second circuit connected to the first circuit for controlling the second magnet;

first switch means arranged to be changed over into a first state wherein the first circuit and the second circuit are supplied with current and a second state wherein the first and the second circuits are not supplied with current, said first switch means being arranged to change from the first state into the second state after the shutter opening member is operated;

second switch means arranged to be changed over into a first state wherein the first circuit and the second circuit are supplied with current and a second state wherein the first and the second circuits are not supplied with current;

a movable control member operatively coupled to the second holding member and arranged to be movable between a position at which the operation of the shutter closing member is checked by the second holding member and a position at which the shutter closing member operation is not checked; and

a release member for moving the movable member between the position at which the operation of the shutter closing member is checked and the position at which the shutter closing member operation is not checked, said release member being arranged to simultaneously move the movable member into the position at which the operation of the shutter closing member is checked and change over the second switch means out of its first state into its second state in accordance with the actuation of the release member when bulb photographing operation is selected.

4,268,153

ELECTROMAGNETICALLY DRIVEN SHUTTER

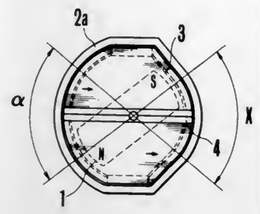
Yoji Sugiura, and Masayoshi Kiuchi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 20, 1980, Ser. No. 161,434

Claims priority, application Japan, Jun. 22, 1979, 54-78949

Int. Cl.³ G03B *9/08*

U.S. Cl. 354—234 **4 Claims**



1. An electromagnetically driven slit exposure shutter comprising:

a rotary electromagnetic drive source; and

shutter blades with are mounted on the rotation shaft of said electromagnetic drive source and are arranged to travel by an electromagnetic force for effecting an exposure and for returning to the original position thereof, a rotor of said electromagnetic drive source being mounted on said rotation shaft to have the center of gravity thereof located on one side opposite to said shutter blades relative to said rotation shaft, said rotor being arranged to rotate to an extent not exceeding a half turn for causing the shutter blades to travel.

4,268,154

SELF-TIMER DEVICE FOR A CAMERA

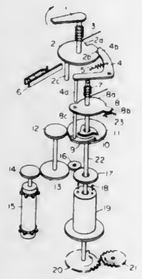
Koichi Daitoku, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Feb. 1, 1980, Ser. No. 117,806

Claims priority, application Japan, Mar. 16, 1979, 54-32976[U]

Int. Cl.³ G03B *9/64*

U.S. Cl. 354—238 **5 Claims**



1. A self-timer device for a camera having a self-timer circuit including manually operated first switch means and adapted to start a time count upon operation of said first switch means and to release a shutter when a predetermined time has elapsed, and a set member movable by manual operation between a first position for rendering said circuit capable of counting time and a second position for rendering said circuit incapable of counting time, the improvement comprising:

reset means for moving said set member from said first position to said second position in response to film advance operation.

4,268,155

PHOTOGRAPHIC APPARATUS FOR PLATE THERMOGRAPHY

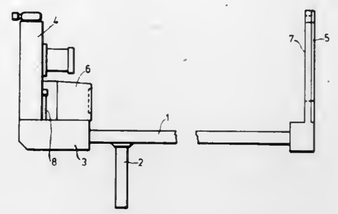
Günther Lehnert, Leverkusen, and Rainer Schiffer, Bergisch-Gladbach, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 13, 1979, Ser. No. 48,297

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 7819870[U]

Int. Cl.³ G03B *17/00*

U.S. Cl. 354—293 **5 Claims**



1. Photographic apparatus for plate thermography, comprising an elongated support receptive of electrical energy and having a handle, a holder for a thermographic plate at one end and means for mounting a photographic camera with flashlight at the opposite end comprising an adaptor for the attachment of different camera systems and means for simultaneously releasably connecting electrically and mechanically the adaptor on the support in response to relative sliding movement of the support and adaptor along the longitudinal axis of the support comprising bus bars receptive of the electrical energy and arranged on the support and bus bars in the adaptor, where electrical connection is established between the flashlight and the electrical energy when the adaptor is mounted in position.

4,268,156

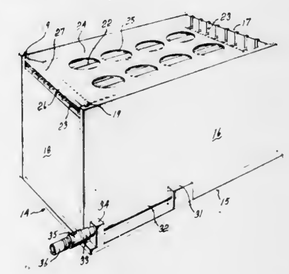
WASHING APPARATUS FOR PHOTOGRAPHIC MATERIALS

Edward Kostiner, 218 Oakridge Dr.,, Baie D'Urfe, Quebec, H9X 2N4, Canada

Filed Jul. 3, 1979, Ser. No. 54,623

Int. Cl.³ G03D *3/04*

U.S. Cl. 354—324 **6 Claims**



1. A washing apparatus for washing photographic materials comprising:

a tank for holding photographic materials, the tank having a generally rectangular shape with a rectangular bottom and rectangular sides, one side having a lower height than the other three sides to form a weir for water overflow, the top of the one side determining the water level in the tank,

a raised flow within the tank,

a plurality of parallel spaced apart partitions extending across the tank from the raised floor to the height of the one side,

a plurality of fluid entrance holes in the raised floor of the tank between the partitions,

a cover having a plurality of holes therein extending over the partitions and the one side adapted to allow the water level to rise in the holes above a bottom surface of the cover and keep the photographic materials in the tank below the water level,

a fluid distribution system connecting the plurality of fluid entrance holes to an aperture below the raised floor,

a removable aerator means removably connected to the aperture of the fluid distribution system where removal of said aerator allows said tank to drain, the aerator means having a connection to a water supply, a replaceable water jet within a tubular housing to allow different sized jets to be used, and an air control means for varying a flow of air into the aerator means downstream of the water jet, to mix with the water from the water jet.

4,268,157

TONER IMAGE TRANSFER METHOD AND APPARATUS FOR ELECTROSTATIC PHOTOGRAPHY

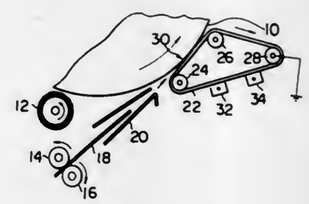
Yutaka Ebi; Koji Hirakura; Fuyuhiko Matsumoto; Wasaburo Ohta, and Satoru Tomita, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 693,441, Jun. 7, 1976, abandoned. This application Aug. 28, 1978, Ser. No. 937,637

Claims priority, application Japan, Jun. 20, 1975, 50/75316

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 TR **4 Claims**



1. An electrostatographic apparatus for increasing the number of copies produced from a single electrostatic image through repeated development and transfer comprising:

a photoconductive member having a photoconductive dielectric layer for formation of an electrostatic image and development of the electrostatic image by means of a toner substance to form a toner image;

a transfer member having a dielectric layer to press a copy sheet between the dielectric layers of the photoconductive member and transfer member to transfer the toner image to the copy sheet; and

charging means to apply an electric potential to the dielectric layer of the transfer member of the same polarity as the electrostatic image on the photoconductive member, the electric potential having a magnitude less than the magnitude at which charge transfer between the dielectric layers occurs due to dielectric breakdown through the copy sheet and field emission from the copy sheet, preferably in the range of 480 to 3000 volts, the thickness and dielectric constant of the dielectric layer of the transfer member and of the photoconductive member and thickness and dielectric constant of the copy sheet being selected according to a predetermined relationship such that the magnitude of the electric potential is less than:

$$\sqrt{7737.6D_1} + 312 + 6.2D$$

where $D_1 = \frac{L_D}{K_D} + \frac{L_S}{K_S} + \frac{L_P}{K_P}$

$$D = \frac{L_D}{K_D} + \frac{L_S}{K_S}$$

L_D is the thickness of the dielectric layer of the transfer member;
K_D is the dielectric constant of the dielectric layer of the transfer member;
L_S is the thickness of the dielectric layer of the photoconductive member;
K_S is the dielectric constant of the dielectric layer of the photoconductive member;
L_P is the thickness of the copy sheet; and
K_P is the dielectric constant of the copy sheet.

4,268,158

DRY PLANOGRAPHIC PRINTING APPARATUS

Tsutomu Naganuma, Funabashi; Hisao Hoshi, Tokorozawa; Hiroji Kumagai, Narashino, and Kaneki Yoshida, Kodaira, all of Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Division of Ser. No. 862,607, Dec. 20, 1977, Pat. No. 4,175,958. This application Dec. 21, 1978, Ser. No. 971,913
Claims priority, application Japan, Dec. 23, 1976, 51/155474[U]; Sep. 8, 1977, 52/108196[U]
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 R **7 Claims**

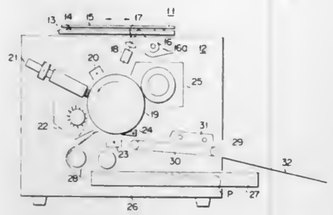
1. A dry planographic printing apparatus comprising a photosensitive plate feed mechanism for feeding photosensitive plate including an electrically conductive support and a photoconductive layer formed on said support, said photoconductive layer comprising a resin binder and a photoconductive powder dispersed in said binder; a charging mechanism for electrically charging said photosensitive plate; an exposure mechanism for selectively exposing said photosensitive plate to normal or reverse image; a development mechanism for developing by means of a conductive toner said photosensitive plate with a latent electrostatic image formed thereon by said exposure mechanism; a fixation mechanism for fixing the conductive toner, a divergence mechanism for separately distributing the normal or reverse-image-fixed photosensitive plates to a normal-image-fixed photosensitive plate delivery mechanism and to a reverse-image-fixed photosensitive plate attaching mechanism for attaching the reverse-image-fixed photosensitive plate to a plate cylinder, said reverse-image-fixed photosensitive plate acting as a dry planographic printing plate, a further charging mechanism for electrically charging the attached dry planographic printing plate; a toner-development mechanism for reversal-developing a latent electrostatic image obtained by said charging by means of a toner with a charge of the same polarity as that of the charge on said latent electrostatic image; a transfer material feed mechanism for feeding sheets of transfer material; a transfer mechanism for transferring the toner to the fed transfer material; a toner-fixation mechanism for fixing the toner; a delivery mechanism for delivering the transfer material having the fixed toner; and a plate takeout mechanism for taking out said dry planographic printing plate after printing of a fixed quantity.

4,268,159

ELECTROGRAPHIC COPYING APPARATUS

Tsuneo Tashiro, Sagamihara, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 10, 1979, Ser. No. 56,306
Claims priority, application Japan, Jul. 18, 1978, 53-87260
Int. Cl.³ G03G *15/00*; G01D *15/14*
U.S. Cl. 355—3 R **6 Claims**



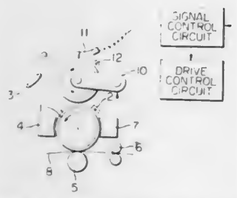
1. An electrographic copying apparatus comprising:
a scanner for scanning individual documents and providing document information;
means for generating retrieval code data corresponding to the documents;
memory means for (a) storing the retrieval code data from said retrieval code data generating means and (b) storing document information from said scanner in correspondence with said retrieval code data;
means for selecting a desired one of said retrieval code data and for reading out from said memory means the document information corresponding to the selected retrieval code data; and
an electrographic printer including means for converting said selected retrieval code data and said document information read-out from said memory means into a corresponding optical image.

4,268,160

ELECTROPHOTOGRAPHIC COPYING APPARATUS CAPABLE OF REPRODUCING ELECTRIC SIGNAL IMAGE

Toshio Muramatsu, Hino, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Aug. 2, 1979, Ser. No. 62,961
Claims priority, application Japan, Aug. 4, 1978, 53-94645
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 R **6 Claims**



1. In an electrophotographic copying apparatus for normally producing a copy of an original and including a photosensitive medium rotatable at a predetermined speed, means for projecting onto the photosensitive medium an image of an original to be copied to produce an electrostatic latent image thereof on the medium, means for developing the latent image on the medium, and means for moving a copy sheet into transferable relation with the medium so as to transfer the developed image of the original onto the copy sheet; secondary means for receiving an image represented by an electric signal concurrently and without interfering with normal electrophotographic copying operations of the apparatus and at a rate independent of the operative speed of the normal copying operation, said secondary means comprising:
an electric charge carrying medium movable between a first position spaced from the surface of the photosensitive medium and a second position in transferable relationship with the surface of the medium;
an electric signal generating means;
means for producing an electrostatic latent image on the charge carrying medium in said first position thereof in accordance with electric signals of the electric signal generating means and at a rate independent of the predetermined rotative speed of the photosensitive medium, the formation of said latent image on the charge carrying medium at said first position thereof enabling concurrent, independent use of the photosensitive medium for electrostatic; and
means for selectively moving said charge carrying medium from said first to said second position and for driving said charge carrying medium in the same direction as and at the predetermined rotative speed of the photosensitive medium during times when the photosensitive medium is not involved in normal electrophotographic copying operations so as to transfer an electrostatic latent image on said charge carrying medium onto the photosensitive medium for subsequent development and transfer to a copy sheet;
whereby the movability of said electric charge carrying medium from said second position in transferable relation with the photosensitive medium to said first position spaced therefrom permits the receipt and storage on the charge carrying medium of an electrostatic latent image from a secondary source while the photosensitive medium is concurrently utilized in normal electrophotographic copying operations such that transfer of the stored image to the photosensitive medium for subsequent development and transfer to a copy sheet can be effected at a selectable time when the photosensitive medium is not involved in electrophotographic copying.

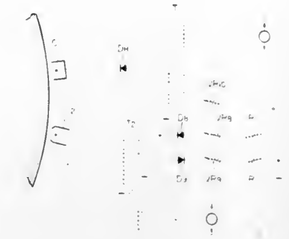
4,268,161

ELECTROPHOTOGRAPHIC APPARATUS WITH CORONA DISCHARGE CONTROL

Kimio Nakahata, Kawasaki; Yoshinori Aguro, Fuchu, and Yasuyuki Tamura, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 872,779, Jan. 27, 1978, abandoned. This application Oct. 4, 1979, Ser. No. 81,850
Claims priority, application Japan, Feb. 9, 1977, 52-13388
Int. Cl.³ G03G *15/02*
U.S. Cl. 355—3 CH **10 Claims**

1. An electrophotographic apparatus comprising a photosensitive member including an electroconductive layer, a photoconductive layer and an insulating layer; a variably controlled primary corona discharge means for applying a charge of a predetermined potential onto the surface of said photosensitive member; a secondary corona discharge means for applying a corona discharge containing a component of opposite polarity to that of said primary corona discharge; an imagewise exposure means for exposing said photosensitive member to a light image substantially simultaneously with the corona discharge by said secondary corona discharge means; high-voltage supply means including high voltage transformers for supplying predetermined high-voltages to said primary and secondary corona discharge means, at least one of said transformers having the drooping characteristic, and being provided with a primary input coil, a secondary high-voltage output coil and a tertiary coil associated with a variable load impedance; and a corona discharge link control means for a linked control of the



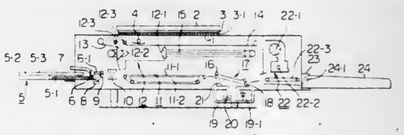
amounts of corona discharge from said primary and secondary corona discharge means to provide an electrostatic latent image having a predetermined potential at the light areas of the image.

4,268,162

ELECTROGRAPHIC COPYING APPARATUS

Kiyohito Ebisawa, Tokyo; Satoshi Hisabayashi, Hachioji; Kazuyuki Hashimoto, Hachioji; Mitsuo Kuromori, Hachioji, and Toshio Koike, Hachioji, all of Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Apr. 23, 1979, Ser. No. 32,250
Claims priority, application Japan, Apr. 25, 1978, 53/48327; Apr. 25, 1978, 53/54169[U]
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 R **4 Claims**



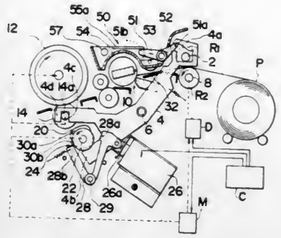
1. An electrographic copying apparatus comprising:
(a) a paper feeding device which inserts a photosensitive paper, stored within a paper box, into the copying apparatus;
(b) a charging device which charges the paper surface;
(c) an exposure device which exposes the paper corresponding to an original;
(d) a paper detector arranged at an inlet for the photosensitive paper;
(e) a liquid developing device which comprises a developer vessel and a liquid developer feed pump;
(f) a paper conveyor which transports the exposed paper to the developing device; and
(g) a control device comprising a plurality of switching means which are arranged to be actuated in sequence in response to a signal from the paper detector,
in which said developer feed pump is connected to said control device so as to be actuated by one of said switching means.

4,268,163

PAPER FEEDING DEVICE FOR A COPYING MACHINE

Yasuhiko Doi; Soichi Iwao, and Takaharu Takagishi, all of Toyokawa, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Jul. 5, 1979, Ser. No. 54,915
Claims priority, application Japan, Jul. 7, 1978, 53-94300[U]
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 SH **10 Claims**



1. In an electrostatic copying apparatus having at least a device for nipping a leading end of a strip of paper as paid off from a roll and for feeding the paper during a copying operation of the apparatus, and a driving motor for operating the apparatus, said device comprising:

a pair of feed rollers for nipping the leading end of the strip of paper and being movable out of contact with one another;

means for holding down the leading end of the strip of paper at least while said pair of feed rollers are moved out of contact with one another, whereby the leading end is maintained in readiness for the copying operations during the inoperation of said driving motor;

means for moving said pair of feed rollers out of contact with one another;

means for actuating said moving means; and

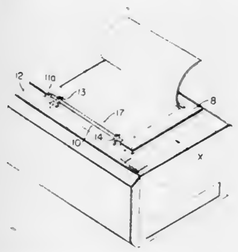
means for controlling at least the operation of said feed rollers, said driving motor and said actuating means so as to maintain said rollers in contact with one another during the copying operation of the apparatus, said actuating means being arranged for effecting movement of said rollers out of contact with one another during inoperation of said driving motor.

4,268,164

COMPOSITE INFORMATION RECORDING APPARATUS AND ORIGINAL POSITION DESIGNATING MECHANISM THEREFOR

Tatsuo Yajima, and Hiroya Nakamura, both of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jun. 25, 1979, Ser. No. 51,965
Claims priority, application Japan, Jun. 26, 1978, 53/77259
Int. Cl.³ G03B *27/52*
U.S. Cl. 355—41 **9 Claims**



1. A composite information recording apparatus in which an optical system projects the image of an original positioned on a slidable copy board onto a moving photosensitive surface, the improvement comprising:

a slidable means mounted adjacent said copy board for selectively delineating the beginning and end of that portion of the original to be copied;

means projecting a secondary source of information onto said photosensitive surface;

means normally interrupting the projection of the image of the original along the path of said optical system; and

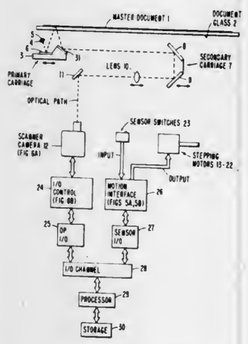
means operated by said slidable means for actuating said interrupting means to enable projection of the image of the original along the path of the optical system and substantially simultaneously deenergize said secondary source of information at the beginning of that portion of the original to be copied, and actuating said interrupting means to interrupt the projection of the image of the original along the path of the optical system and substantially simultaneously energize said secondary source of information at the end of that portion of the original to be copied.

4,268,165

APPARATUS AND METHOD FOR CONTROLLING THE ADJUSTMENT OF OPTICAL ELEMENTS IN AN ELECTROPHOTOGRAPHIC APPARATUS

Paul J. Bradmon, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,206
Int. Cl.³ G03B *27/52*
U.S. Cl. 355—55 **16 Claims**



1. An apparatus for optimumly adjusting the optical elements of a copier to positions forming images of lines, on an illuminated background, which have the greatest background-to-line illumination contrast; including an electronic scanner for examining, at different optical adjustments, point-by-point, target line and background images and generating at an output signals identifying the amount of light reflected at each point; wherein the invention is characterized by means for indicating the adjustment at which there is greatest contrast, comprising:

stack means, connected to the electronic scanner output for retaining, in each of a plurality of positions, one of the light level representations;

first means interconnecting the scanner and stack means for sequentially entering into the same one of said positions the light level representations at each current target point as the scanner repeatedly progresses across a target line and causing the contents of each position to be placed into an adjacent position;

a storage register for retaining background light level representations;

comparison means, connected to the stack storage register and scanner, for comparing background light level representation in the storage register with the average of the representations in all of the stack positions and supplying at an output a first comparison signal if average is less than the background and a second comparison signal if it is more;

second means, interconnecting the scanner, the stack and storage register, operable by a first comparison signal from the comparison means output, to enter into the storage register aforesaid average of the representations in all of the positions;

recognition means, connected to the comparison means output and to the scanner, operable upon the occurrence of a second signal following a first signal, to supply an indication that the lowest light level representation has occurred; and

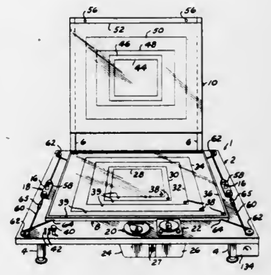
utilization means, connected to the recognition means and to the scanner, for supplying at an output signals identifying the optical adjustment giving the lowest amount of reflected light.

4,268,166

APPARATUS AND METHOD FOR MODIFYING IMAGES ON PHOTOGRAPHIC FILM

Thomas L. Byers, 3000 SW. 60, Oklahoma City, Okla. 73159

Filed Jan. 22, 1979, Ser. No. 5,617
Int. Cl.³ G03B *27/10*
U.S. Cl. 355—84 **7 Claims**



1. In a graphics modifier having a planar base, a stationary film supporting face plate overlying the base and a transparent superposed film supporting carriage panel movably supported relative to the face plate and having pulley and cable means maintaining marginal edges of the carriage panel parallel with the respective marginal edges of the face plate during movement of the carriage panel, the improvement comprising: orbital and linear motion guide means mounted on said base and selectively connected with said carriage panel for moving said carriage panel in a predetermined path; and, motor means drivably connected with said motion guide means.

4,268,167

DISTANCE MEASURING SYSTEM

Robert J. Alderman, 812 59th St. N.W., Bradenton, Fla. 33505

Filed Jan. 8, 1979, Ser. No. 1,582
Int. Cl.³ G01C *3/00, 5/00*
U.S. Cl. 356—1 **8 Claims**

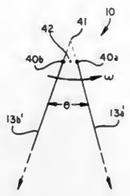
1. System for determining the distance between a first location and a second location, comprising:

means at said first location for providing a pair of separate beams of radiation which have a predetermined angular relation to each other and which traverse said second location at a predetermined angular velocity;

said beams of radiation rotating about an axis of rotation at said first location; and

said beams diverging at a fixed angle in relation to a point of divergence which is not coincident with said axis of rotation;

means at said second location for detecting the presence of said beams of radiation; and



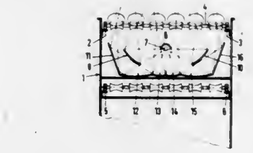
means at said second location responsive to said detecting means to provide a signal corresponding to the elapsed time between detection of said separate beams as said pair of beams traverses the second location.

4,268,168

EGG CANDLING DEVICE

Daniel C. C. Dewaele, Winterswijk, Netherlands, assignor to Staalkat B.V., Aalten, Netherlands

Filed Nov. 21, 1978, Ser. No. 962,801
Claims priority, application Netherlands, Jan. 5, 1978, 7800150
Int. Cl.³ G01N *33/08*
U.S. Cl. 356—58 **2 Claims**



1. An egg candling device comprising a conveyor for conveying eggs in a plurality of lanes, a partly open housing mounting guiding means for guiding the conveyor, and illuminating means for the candling of eggs to be transported by means of said conveyor, the illuminating means including at least one reflector mounted in said housing for each lane of the conveyor, and at least one lamp disposed between the conveyor and the reflectors, the reflectors being so constructed and arranged as to converge the light from the lamp to respective points which are located in the respective lane for the eggs to be candled.

4,268,169

FLAW DETECTION PROBE FOR CYLINDRICAL BORES

Charles Stenning, 671 Enchanted Way, Pacific Palisades, Calif. 90272

Filed Apr. 16, 1979, Ser. No. 30,093
Int. Cl.³ G01B *11/22*
U.S. Cl. 356—241 **6 Claims**

1. An assembly for visually inspecting light reflecting cylindrical surfaces that define transverse bores in devices of like demensions, which devices have sidewalls and flat bottom surfaces, said assembly including:

a. a horizontal platform having an upper surface on which

said bottom surface of one of said devices rests, said platform having a transverse opening therein;

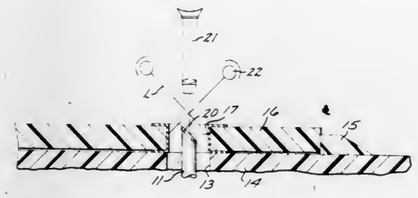
b. stop means on said platform that when engaged by said sidewalls of one of said devices dispose said bore thereof in vertical alignment with said transverse opening;

c. a tubular microscope disposed a substantial distance above said platform and axially aligned with said opening;

d. light emitting means for illuminating one of said cylindrical surfaces when one of said devices is disposed on said platform with said bore therein axially aligned with said opening in said platform;

e. an elongate probe of smaller diameter than that of said bore that is axially aligned in a vertical position with said bore and opening, said probe including a lower end and an upper end, said upper end being light reflective and angularly disposed;

f. a vertical shaft that has an upper end and a lower end, both



of which are disposed below said platform, with said lower end of said probe removably secured to said upper end of said shaft;

g. first means that rotatably support said shaft for longitudinal movement towards and away from said platform;

h. second means that at all times tend to maintain said shaft in a first position where said light reflective upper end of said probe is disposed below said upper surface of said platform;

i. third means for moving said shaft upwardly to a second position where said light reflective upper end of said probe is within said bore to permit a section of the surface of said device that defines said bore to be viewed in said microscope; and
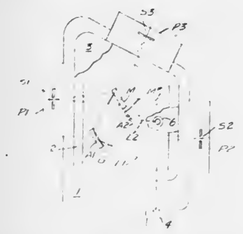
j. fourth means for rotating said shaft and probe to permit the entire surface that defines said bore to be sequentially viewed when said shaft is in said second position and said shaft is rotated through three hundred and sixty degrees.

4,268,170

MULTI-PATH MONOCHROMATOR

Bruce K. Flint, Lancaster, Mass., assignor to Acton Research Corporation, Acton, Mass.

Filed Sep. 18, 1979, Ser. No. 76,612
Int. Cl.³ G01J *3/18*
U.S. Cl. 356—334 **3 Claims**



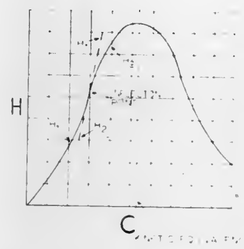
1. A monochromator comprising a housing having at least three ports including at least one entrance and one exit port; and a diffraction grating and a single reflector defining a first folded path between two of said ports on opposite sides of the housing, the reflector intercepting a second path from the third of said ports to the grating at an angle to the first path, and the reflector being moveable out of the second path to complete the second path directly to the grating and thence to one of the first two ports.

4,268,171

METHOD DETERMINING CONCENTRATION IN RATE NEPHELOMETRIC IMMUNOCHEMICAL ANALYSIS

James C. Sternberg, Fullerton, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Continuation of Ser. No. 816,414, Jul. 18, 1977, abandoned. This application May 14, 1979, Ser. No. 38,978
Int. Cl.³ G01N *21/00*
U.S. Cl. 356—341 **1 Claim**



1. For use with a nephelometric measuring system, a method of rate nephelometric immunochemical analysis in which an antigen is reacted with a reagent containing an antibody and the antigen concentration C is determined according to the formula

$$H = \frac{MEC^2(1 - AC)}{1 + (E - A)C}$$

where A is an empirical constant inversely related to the titer of the antigen, E is an empirical constant related to avidity, M is an empirical constant determining the overall scaling and sensitivity of the measuring system, and H is the peak rate of change of a nephelometric signal produced by the antigen-antibody reagent reaction, said method comprising the steps of:

(1) calibrating the measuring system by the sub-steps of:

(a) initiating a reaction between a known concentration of a single antigen sample (calibrator) and the antibody reagent to be used in unknown concentration sample analysis;

(b) monitoring the rate of change with respect to time of the nephelometric signal produced by the calibrator antigen-antibody reaction to determine the peak rate H; and

(c) solving the foregoing equation for M using the E and A constants of the reagent, the known C of the single calibrator antigen and the observed peak rate H; and

(2) analyzing an unknown sample by the further sub-steps of:

(d) initiating a reaction between an unknown concentration of antigen sample and the antibody reagent;

(e) monitoring the rate of change with respect to time of the nephelometric signal produced by the unknown antigen-antibody reaction to determine the peak rate H; and

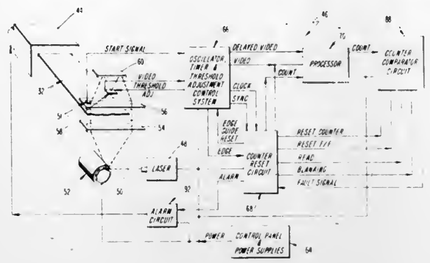
(f) solving the foregoing equation for the unknown antigen concentration C from the value of H determined in step (e), the known values of E and A, and the value of M determined in step (c) from the single calibrator antigen-antibody reaction of step (a).

4,268,172

METHOD OF AND SYSTEM FOR AUTOMATICALLY ADJUSTING A THRESHOLD LEVEL OF A PULSE GENERATING CIRCUIT TO INSPECT A WEB

Frank H. Blitchington, Richmond, Va., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Apr. 15, 1980, Ser. No. 140,560
Int. Cl.³ G01N *21/86, 21/89*
U.S. Cl. 356—431 **14 Claims**



1. A method of automatically adjusting a threshold level of a pulse generating circuit in response to light emanating from a light-emittable area in a web, which comprises the steps of:

passing successive scans of light from a light source over the light-emittable area of the web with repetitive scan cycles;

sensing the amount of light emanating from the light-emittable area;

developing a light pulse having a level proportional to the amount of light sensed;

establishing a threshold level;

comparing the level of the light pulse with the threshold level;

producing a threshold pulse when the light pulse level exceeds the threshold level; and

reducing the threshold level in response to the threshold pulse so that subsequent light pulses produce threshold pulses when the reduced threshold level is exceeded.

4,268,173

REFLECTOMETERS

William R. Barnard, Horsham, and Phillip W. Francis, Crawley Down, both of England, assignors to Direct Power Limited, London, England

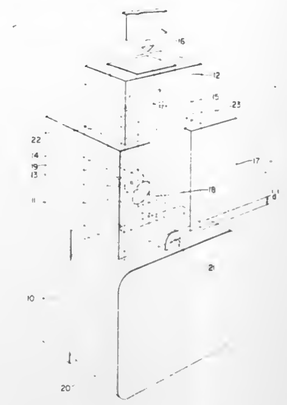
Filed Dec. 18, 1978, Ser. No. 970,117
Claims priority, application United Kingdom, Dec. 22, 1977, 53606/77; Mar. 15, 1978, 10283/78
Int. Cl.³ G01N *21/55*
U.S. Cl. 356—445 **13 Claims**

1. An optical reflectometer, comprising:

means, including at least a front wall, for defining a chamber;

means defining an incident light path extending from said front wall of said chamber-defining-means to said chamber;

carrier means, removably disposed within said chamber and having means for accommodating said incident light path defined within said chamber-defining-means, for removably guiding a test object relative to said carrier means and for carrying said test object, along a fixed path intercepting said incident light path, to a fixed position located within said incident light path; and



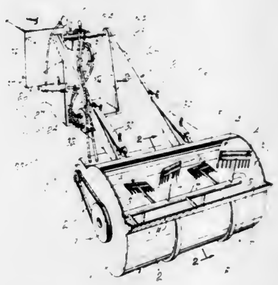
photoresponsive means for receiving light reflected from said test object.

4,268,174

CONCRETE MIXER

Fidel Falardeau, 4851 Laurier Boulevard, La Plaine, Canada (J0N 1B0)

Filed Jun. 25, 1979, Ser. No. 51,484
Int. Cl.³ B28C *7/04;* **B01F** *7/04*
U.S. Cl. 366—18 **6 Claims**



1. A concrete mixer and the like adapted to be attached to the lifting system of a tractor or the like vehicle, comprising a bucket made of a cylindrical drum having an end wall at each end of a cylindrical wall, the latter having an aperture extending from one end wall to the other end wall with longitudinal edges extending straight and substantially parallel to the longitudinal axis of the drum, the angle defined by said aperture with the longitudinal axis of the drum as center being a maximum of a quarter of a circle, a shaft mounted in the drum along the longitudinal axis of the latter and carried for rotation by the two end walls, drive means mounted on the drum and connected to the shaft to rotate the same, radial arms fixed to the shaft and spaced from each other, and mixing blades fixed to the outer end of the arms, the drum having a first pair of bearings fixed to the cylindrical wall and spaced along a pivot axis of the drum parallel to the shaft, the first pair of bearings connecting the drum to the lifting system to support the drum in a substantially horizontal position, the drum having a second pair of bearings fixed to the cylindrical wall and spaced along an axis parallel to the pivot axis of the drum to connect to drive means forming part of the lifting system and used to pivot the

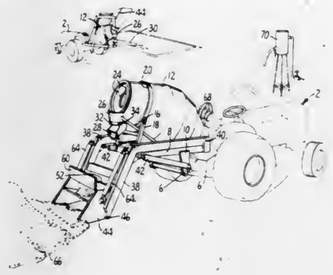
drum around the pivot axis thereof between a loading position with the aperture upwardly facing and an unloading position with the aperture facing downward, each mixing blade comprising a bar transversely fixed to the outer end of each of the radial arms, a flexible strip fixed to the outer edge of said bar and in sweeping engagement with the internal surface of the drum and a row of spaced-apart fingers fixed to the inner edge of said bar.

4,268,175

TRACTOR MOUNTED SELF-LOADING CONCRETE MIXING APPARATUS

Robert N. Norlie, P.O. Box 824 Shelter Bay, La Conner, Wash. 98257, and Bruce D. Norlie, Rte. 1, Box 348, Durham, Calif. 95938

Filed Feb. 7, 1980, Ser. No. 119,527
Int. Cl.³ B28C 7/08
U.S. Cl. 366—19 **7 Claims**



1. Tractor-mounted, self-loading mixing apparatus, comprising

a mounting frame attachable to a standard three-point hitch mounting at the rear of a tractor for support from the tractor;

a mixing drum rotatably mounted to said frame with the axis of rotation inclined from horizontal with the end of said drum which projects upwardly being open for receiving and discharging material therethrough;

means for rotatably driving said drum; and

scoop means pivotally connected to said support frame and including

at least one support arm having one end pivotally connected to said frame for movement between a lowered position with the other end of said arm proximal the ground and a raised position with said other end proximal said drum open end;

means for selectively moving said support arm between said lowered position and said raised position;

bucket means including a bucket pivotally mounted to said arm adjacent said other end thereof, said bucket having an open first end for scooping material thereinto and a second end generally opposed to said first end and including selectively openable gate means for selectively opening and closing off said second end, and said bucket being selectively pivotable between a first position with said first end facing generally downwardly and a second position with said second end facing generally downwardly, and

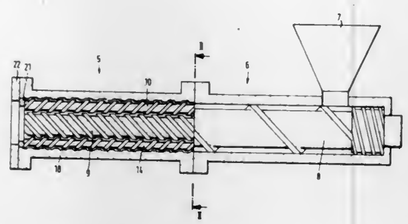
means for selectively pivoting said bucket between said first position and said second position and for holding said bucket at pivotal positions intermediate said first position and said second position, whereby the bucket may be positioned intermediate the first and second positions with the open first end facing generally horizontally for scooping material such as gravel into the bucket when the support arm is in its lowered position, and then the arm may be raised and the bucket may be pivoted to either the first position for dumping the material out the first end of the bucket, or the second position for dumping the material out the second end of the bucket.

4,268,176

PLANETARY EXTRUDER FOR THERMOPLASTICS MATERIAL

Werner Muller, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed Jan. 9, 1980, Ser. No. 110,684
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2900988
Int. Cl.³ B29B 1/10
U.S. Cl. 366—83 **2 Claims**



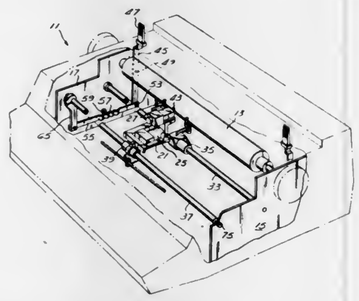
1. In a planetary roller extruder for thermoplastic material, which said extruder has a main screw threaded spindle, a plurality of screw threaded planetary spindles meshed with said main spindle and a feed screw, at an intake end of said extruder, with said main spindle secured against relative rotation with respect to said feed screw, the improvement comprising providing said planetary spindles in groups with each of said groups comprising at least three of said planetary spindles and with said planetary spindles of each of said groups successively shorter, considered in a direction around said main spindle opposite to the direction in which said planetary spindles orbit around said main spindle in operation, to form receiving chambers for said material fed by said feed screw and to be extruded.

4,268,177

PAPER THICKNESS ADJUSTING MECHANISM FOR IMPACT PRINTER

John R. Veale, Manhattan Beach, Calif., assignor to Plessey Peripheral Systems, Irvine, Calif.

Filed Nov. 1, 1978, Ser. No. 956,738
Int. Cl.³ B41J 11/20
U.S. Cl. 400—55 **4 Claims**



1. A high speed printer, comprising:

a frame;

a platen mounted in an axially fixed position on said frame;

a print head mounted on a carriage;

a pair of guide rods mounted on said frame for reciprocally supporting said carriage, one of said rods being adjustable relative to said frame in a direction tangential to the other one of said rods, said adjustability permitting said carriage to rotate about the other of said rods to alter the space between said print head and said platen to accommodate a variety of paper thicknesses in said printer; and

means for compensating for movement of said one of said rods in a radial direction relative said other one of said rods to prevent alteration of the space between said print head and said platen due to such radial movement, said compensating means comprising:

a bushing rotatable on said one of said rods, said bushing having a depression therein;

a ball joint member attached to said carriage and rotatable in said depression on said bushing; and

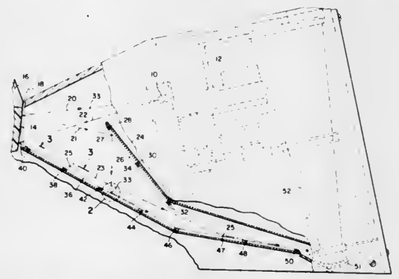
a clamp for securing said ball joint member to said bushing.

4,268,178

ANTI-BOUNCE PROJECTILE COLLECTING SURFACE FOR MICROBALLISTIC PRINTER

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Dec. 28, 1979, Ser. No. 107,884
Int. Cl.³ B41J 3/02
U.S. Cl. 400—118 **6 Claims**



2. In a microballistic printer in which solid projectiles are propelled against a printing medium supported against a platen and the projectiles collected for recycling by a collector, said collector having a wall normally struck by projectiles rebounding from the platen, the improvement comprising a thin and flexible sheet of material and means for supporting said sheet in spaced relationship with said wall of the collector to inhibit bouncing of projectiles therefrom.

4,268,179

METHOD AND SYSTEM FOR REPRODUCING IDENTIFICATION CHARACTERS

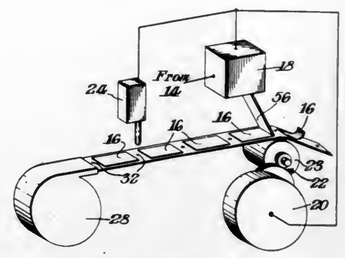
George R. Long, Newark, and Michael C. Smayling, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 29, 1979, Ser. No. 88,840
Int. Cl.³ B41J 3/20
U.S. Cl. 400—120 **13 Claims**

1. A method of reproducing identification characters from a first substrate on a second substrate that are both man and machine readable using a dot matrix printer and an optical character reader comprising the steps of:

scanning the characters on said first substrate with said optical character reader to obtain information as to said identification characters,

transmitting said information to control said dot matrix printer in accordance with said information on said first substrate to form characters of a matrix of dots, at least some of which overlap, so that said characters have apparent solid lines that are capable of being read with an optical character reader.

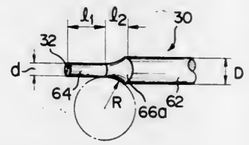


4,268,180

DOT PRINTER WIRE

Hiroshi Honma, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 15, 1979, Ser. No. 84,577
Claims priority, application Japan, Oct. 20, 1978, 53-144337[U]; Oct. 20, 1978, 53-144339[U]
Int. Cl.³ B41J 3/12
U.S. Cl. 400—124 **3 Claims**



1. A dot printer wire which comprises a round rod shaped forward section, intermediate section and a base section integrally and concentrically formed in the order mentioned as counted from one end to the other, and wherein the forward section is provided with a printing portion at the foremost end; the base section has a larger diameter than the forward section; the intermediate section has the same diameter as the smaller diameter forward section at the junction therewith and the same diameter as the larger diameter base section at the junction therewith, and the intermediate section is shaped to a form whose peripheral surface is inwardly curved.

4,268,181

INK AND ERROR CORRECTION RIBBON ASSEMBLY

Herbert Decker, Lauf, Fed. Rep. of Germany, assignor to Triumph-Werke Nurnberg A.G., Nuremberg, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,651
Claims priority, application Fed. Rep. of Germany, Sep. 3, 1979, 2909231
Int. Cl.³ B41J 35/28
U.S. Cl. 400—208 **4 Claims**

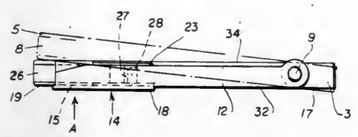
1. In combination,

an inked ribbon casette having spaced guide arms extending therefrom and supporting an inked ribbon for movement across said spaced arms,

means supporting said cassette for bodily movement about a horizontal axis, and

a correction ribbon holder having spaced guides and supporting an error correction ribbon for movement across said spaced guides outwardly of said inked ribbon arms,

said correction ribbon holder including support arms embracing and pivotally supported about said horizontal axis



whereby said ink ribbon cassette can be pivoted independently of said correction ribbon holder.

4,268,182

DEVICE FOR DETECTING TRAVEL CONDITION OF INKRIBBON FOR PRINTERS

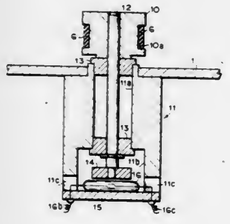
Nagao Mizutani, Hachiouji; Yasuo Okawara, Sayama, and Toshikazu Shimazaki, Tanashi, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 834,295, Sep. 19, 1977, abandoned. This application Aug. 6, 1979, Ser. No. 63,778

Claims priority, application Japan, Sep. 28, 1976, 51-115054

Int. Cl.³ B41J *35/36*

U.S. Cl. 400—247 **9 Claims**



1. In a printer having:

a pulse motor rotatable by a particular angle responsive to a driving pulse;

pulse generating means for generating driving pulses for said pulse motor; and

carrier means for a printer head, the carrier means reciprocated adjacent a printing medium by said pulse motor;

the improvement comprising:

a device for detecting a travel condition of an inkribbon comprising:

(a) means associated with said carrier means for feeding said inkribbon in response to reciprocation of said carrier by said pulse motor;

(b) means for generating a detection signal responsive to each predetermined amount of travel of said inkribbon, said means for generating a detection signal being engaged by and movable in response to travel of said inkribbon,

(c) preset counter means for comparing the number of said driving pulses generated between successive ones of said detection signals with a predetermined value, said preset counter means having:

(1) a first count input receiving said driving pulses,

(2) a second reset input receiving said detection signal for resetting a count number while counting; and

(3) an output for transmitting a signal upon said preset counter means reaching a preset value;

(d) a gate circuit connected between said pulse generating means and means responsive to said output signal of said preset counter means for detecting a return operation of said carrier and for preventing said driving pulses from being input to said preset counter means;

whereby an output signal is generated by said preset counter means whenever a predetermined number of driving pulses is generated for reciprocating said carrier means and for feeding said inkribbon without generation of a detection signal indicative of inkribbon travel.

4,268,183

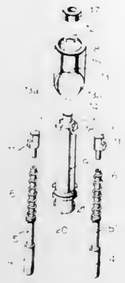
COMPOSITE WRITING INSTRUMENT

Kazuhiko Sekiguchi, Tokyo, Japan, assignor to Zebra Co., Ltd., Tokyo, Japan

Filed Sep. 10, 1979, Ser. No. 74,405

Int. Cl.³ B43K *27/14*

U.S. Cl. 401—30 **2 Claims**



1. A composite writing instrument comprising:

a tubular casing having an opening in the lower end thereof;

two writing units accommodated within said casing and spaced from each other by about 180° and movable between an advanced writing position in which the tip of the unit projects through said opening in the lower end of said tubular casing and a retracted position in which the unit is fully withdrawn into said lower tubular casing;

an upper tubular casing rotatably mounted on said lower tubular casing for rotation around the longitudinal axis of said lower tubular casing; and

a cam mechanism within said upper tubular casing and rotatable around the axis of said lower tubular casing with said upper tubular casing through a limited angle of rotation and engaged with both of said writing units for alternately shifting said units in the axial direction between the advanced writing position and the retracted position, said cam mechanism comprising a curved casing within said upper tubular casing and rotatable with said upper tubular casing, a guide casing within said curved casing and fixed relative to said lower tubular casing and around which said curved casing is rotatable and having lengthwise grooves therein in which said two writing units are engaged for guiding said writing units in the axial direction of said instrument, and said curved casing having a cam face with an upper flat portion and two inclined portions extending symmetrically downward from both ends of said flat portion to a pointed tip, a slider on the upper end of each of said writing units and engaged with said cam face, and rotation limiting means operatively associated with said curved casing and said guide sleeve to slightly more than 90° in opposite rotational directions from a position in which both writing units are in an intermediate position within said lower tubular casing and said sliders are engaged with the respective inclined portions, the flat portion being about 90° along said cam face from said pointed tip, whereby when the curved casing is rotated in either direction from said position, one of said sliders is caused to slide downwardly along the associated inclined portion and just past the pointed tip to engage the other inclined portion, and the other slider is caused to slide upwardly along the associated inclined portion and to engage said upper flat portion, and the writing unit on which said one slider is mounted is moved to the writing position and held there and the writing unit on which the other slider is mounted is moved to the retracted position.

4,268,184

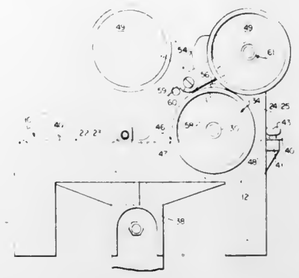
TWIN ROLLER PAINT APPLICATOR

Wah Sheck, 18304 Wachs Ter., Olney, Md. 20832, and Al Lukevics, 7814 Baxter Ct., Annandale, Va. 22003

Filed Jun. 8, 1979, Ser. No. 46,671

Int. Cl.³ B43M *11/02*

U.S. Cl. 401—218 **11 Claims**



1. A manually operated fountain feed coating device having a surface coating applicator roller and a fountain feeder roller in peripheral contact with the exterior surface of the coating applicator roller, said rollers each having a drive shaft, a reservoir for supplying a coating product to said fountain feeder, said reservoir having side, end and bottom portions, one side of said reservoir being provided with a projection, said shaft of each roller having bearing ends journalled to rotate in said side portions, said applicator roller being rotatable by its own traction on a surface to be coated when manually pressed against said surface and manually moved with said reservoir over the surface, a traction wheel journalled in at least one of said side portions outboard of said reservoir, and a link coupled at a first end to said traction wheel and to said reservoir at a second end, and off-center spring means connected at one end intermediate said link, the other end of said spring being connected to said projection, said link and spring facilitating the disconnection of said traction wheel from said applicator roller, said traction wheel being engageable with the dry uncoated surface at the side of a fresh wet coated area of the surface being traversed and coated by said applicator roller, said traction wheel being coupled to the drive shaft of said applicator roller to impart rotation thereto;

said traction wheel being in driving contact with an idler wheel keyed to the shaft end of said fountain feeder roller drive shaft;

said traction wheel being provided with a quick disconnect means for disengaging said traction wheel from said applicator roller drive shaft and for disconnecting said traction wheel from said idler wheel to thereby permit said applicator roller to be rotated independently from said traction wheel.

4,268,185

MOUNTING ATTACHMENT

Ralph Müllenberg, Im Wiesengrund 6, 4048 Grevenbroich, Fed. Rep. of Germany

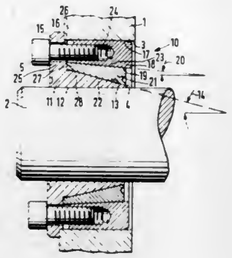
Filed Aug. 3, 1978, Ser. No. 930,872

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1977, 27347848

Int. Cl.² F16D *1/06*

U.S. Cl. 403—16 **17 Claims**

1. Clamping assembly for physical connection of a cylindric recess of an outer member, especially of a hub, to an inner member, especially a shaft, in coaxial relation to the recess, the inner member having a cylindric outer surface, the assembly comprising: an inner taper ring having a cylindric inner peripheral surface and an outer peripheral surface formed as a taper surface, an outer taper ring having a cylindric outer peripheral surface and an inner peripheral surface formed as a taper surface, and an intermediate taper ring with inner and outer peripheral surfaces formed as taper surfaces interacting with the inner and outer taper surfaces of the other taper rings to provide at least two pairs of interacting taper surfaces, there being a self-locking angle which defines a self-locking range within which self-locking of the taper surfaces takes place, the taper angle of one of said pairs of taper surfaces being less than the self-locking angle by a certain angular amount while the taper angle of the other of said pairs of taper surfaces is greater than



the self-locking angle by a particular angular amount, so that, of the inner and outer taper rings, one has a taper surface at an angle within the self-locking range and the other has a taper surface at an angle greater than such range and so that the intermediate taper ring has one taper surface at an angle within the self-locking range and another taper surface at an angle greater than such range, said particular angular amount being greater than said certain angular amount; and axially oriented clamping bolts axially clamping the intermediate taper ring against the inner and outer taper rings, the vertexes of the taper angles of the intermediate taper ring both being located on the same side of the taper ring and the clamping bolts grip that one of the inner and outer taper rings having the taper angle located within the self-locking range.

4,268,186

ROAD GUARD BELT

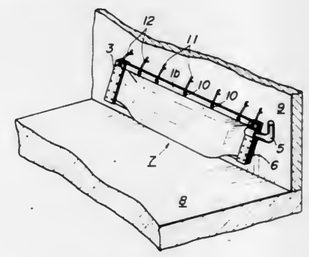
Kuninori Aramaki, and Shigeo Ueda, both of Yokohama, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Oct. 16, 1979, Ser. No. 85,348

Claims priority, application Japan, Oct. 20, 1978, 53-144406[U]; Jul. 11, 1979, 54-95260[U]

Int. Cl.³ E01F *15/00*

U.S. Cl. 404—6 **3 Claims**



1. A road guard belt comprising; a hollow belt-shaped body composed of an inflatable portion molded into one integral belt and adapted to be inflated into an elongated tubular body by

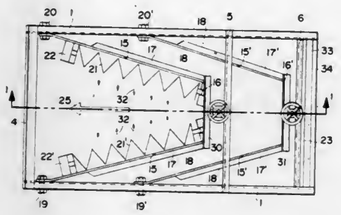
introducing fluid therein, said hollow belt-shaped body being closed at its both ends and fitted to a road wall side facing a road, said inflatable portion being provided at a proper position with a throttle hole, whereby fluid filling said inflated portion is discharged therefrom through said throttle hole when said inflated portion is subjected to outside pressure.

4,268,187

DRAG-TYPE SPREADING APPARATUS FOR ROAD CONSTRUCTION MIXTURES

Ulrich Krause, Prinz Christianweg 13, and Peter Krause, Park Rosenhoehe 4, both of 61 Darmstadt, Fed. Rep. of Germany

Filed Oct. 27, 1978, Ser. No. 955,622
Claims priority, application Austria, Nov. 7, 1977, 7949/77
Int. Cl.[3] E01C *19/22*
U.S. Cl. 404—118 **3 Claims**



1. A drag-type spreading apparatus for placing road mixtures in a road surface by advancing the apparatus in a working direction, comprising skid means extending substantially in parallel to the working direction, frame means including connecting means rigidly connecting and spacing said skid means to said frame means, said apparatus further comprising screeding means, securing means operatively attaching said screeding means to said frame means whereby said screeding means are adjustable, said screeding means comprising first and second screeding members each with screeding wall means including lateral screeding wall means and rear screeding wall means forming a configuration opening in the working direction, first and second worm type conveyor means operatively connected to and extending in parallel to the respective one of said lateral screeding wall means of at least one of said screeding members, and drive means operatively connected to said first and second worm type conveyor means for rotating said first and second worm type conveyor means in opposite directions, said first and second worm type conveyor means being constructed to have a feed direction (32) inwardly away from said screeding wall means (15), whereby said first and second worm type conveyor means advance said road mixture in the working direction and inwardly away from said lateral screeding wall means to reduce the pressure of the road mixture at the gap between the road surface and the lower edge of the screeding wall means where the road mixture passes into grooves or holes in the road surface.

4,268,188

PROCESS FOR REDUCING POSSIBILITY OF LEACHING OF HEAVY METALS FROM USED PETROLEUM CRACKING CATALYST IN LAND FILLS

Dwight L. McKay, Brent J. Bertus; and John S. Roberts, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 6, 1979, Ser. No. 64,282
Int. Cl.[3] B09B *1/00*
U.S. Cl. 405—128 **5 Claims**

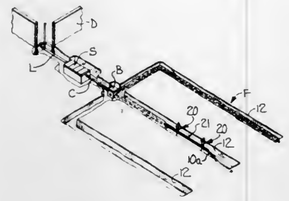
1. A process for discarding a used catalyst or contact mass to be discarded and having thereon metal resulting from its use as a petroleum conversion catalyst, said metal being leachable therefrom with water, which comprises treating said catalyst just prior to its discard with at least one of tin, indium, a compound of tin, and a compound of indium in an amount sufficient and in a manner to stabilize against leaching of metals thereon by ground water and then discarding said catalyst to a place at which ground water exists.

4,268,189

APPARATUS AND METHOD FOR SUPPORTING AND POSITIONING PIPE DURING THE CONSTRUCTION OF DRAIN FIELDS AND THE LIKE

William C. Good, Rte. 1, Great Falls, S.C. 29005

Filed Sep. 26, 1979, Ser. No. 79,117
Int. Cl.[3] B63B *35/04*
U.S. Cl. 405—154 **19 Claims**



1. An apparatus for supporting pipe sections in desired position during construction of drain fields and the like which construction includes the laying of connected pipe sections with surrounding aggregate on a grade surface below ground level, said apparatus comprising:

(a) an elongate, generally horizontally disposed support member;

(b) clamping means carried by said support member at spaced apart locations along the length thereof for receiving and clampingly supporting at least one pipe section parallel to and suspended from said support member; and

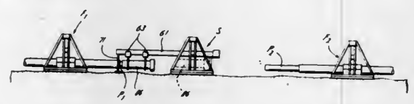
(c) positioning means disposed at spaced points along said support member and adapted to penetrate into the grade surface for positioning said support member at the proper height above grade and for anchoring said support member in position during clamping of the pipe section, pouring and spreading of the aggregate, and releasing of the embedded pipe section.

4,268,190

PIPE HANDLING METHOD AND APPARATUS

Prosper A. Tesson, 11942 Summerdale, Houston, Tex. 77079

Division of Ser. No. 842,237, Oct. 14, 1977. This application Jan. 18, 1980, Ser. No. 113,704
Int. Cl.[3] B23P *19/04*; B23K *37/04*; F16L *1/04*
U.S. Cl. 405—169 **3 Claims**



1. A pipe stabber frame for engaging a tubular coupler with a pipe comprising:

a pair of vertical legs spaced apart so as to accomodate between them a pipe to be handled;

a cross-header beam extending between and rigidly attached to the upper ends of said legs;

base means for supporting the lower end of each of said legs from the ocean floor;

a horizontal traveling beam extending between said legs parallel to said cross-header beam and adjustable vertically;

hydraulic power means for adjusting said horizontal traveling beam vertically relative to said legs;

stabber beam support means carried by said traveling beam;

hydraulic power means for moving said stabber beam support means horizontally across said horizontal traveling beam between said legs;

elongated stabber beam means extending generally perpendicular to said horizontal travel beam supported at one end by said stabber beam support means and having support means at its other end for alignment and supporting said other end of said stabber beam in relation to a pipe in connection with which said stabber frame is used; and

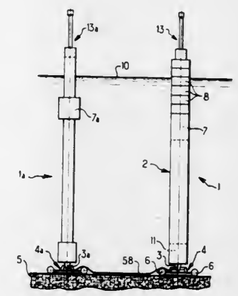
trolley means movable longitudinally along said stabber means for carrying and selectively positioning a tubular coupler carried thereby with respect to said pipe.

4,268,191

STAND-BY SERVICE STRUCTURE FOR CASUAL OFF-SHORE ATTENDANCE

Samuel Tuson, Mesnil-Le-Roi, France, assignor to Entreprise d'Equipments Mecaniques et Hydraulics, France

Filed Jun. 23, 1978, Ser. No. 918,688
Claims priority, application France, Jul. 1, 1977, 77 20392
Int. Cl.[3] B63C *11/00, 11/52*
U.S. Cl. 405—195 **18 Claims**



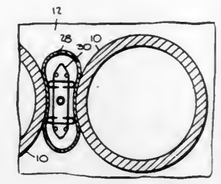
1. A service structure for attendance work on the sea-bed, of the type comprising an emergent articulate column having an emergent upper portion, said column being pivotally connected through a connecting device at its submerged bottom end to a base member resting on said sea-bed; said column including a hollow shaft extending between the emergent portion and base member of the column to constitute means for accomplishing transfer functions between the sea-bed and the water surface; said base members being provided with a workshop caisson for allowing work to be performed on sections of an underwater pipeline resting on the sea-bed or within an excavation thereof, said workshop caisson including at least one bottom opening providing access to the sea-bed and means for sealing said caisson in fluid-tight relationship so that it directly communicates at least temporarily with the outer atmosphere at the water surface through said hollow shaft which forms a ventilating duct; wherein said workshop caisson is of a substantially elongated shape and includes a bottom in which said bottom opening is formed, means extending over substantially the entire length of said bottom for sealingly closing said bottom opening, two transverse opposed end walls, each of which is formed with an opening which merges downwardly into the bottom opening, means for sealingly closing said end wall openings, said workshop caisson further comprising movable gripping members for gripping and inserting into the caisson through said bottom and end wall openings at least one portion of a pipe-line section.

4,268,192

CONCRETE WALL CONSTRUCTION

Ervin R. Colle, Haddon Field, N.J., assignor to Raymond International Builders, Inc., Houston, Tex.

Filed Sep. 11, 1978, Ser. No. 940,967
Int. Cl.[3] E02D *29/00, 27/16*
U.S. Cl. 405—239 **21 Claims**



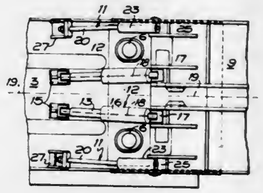
1. A concrete wall structure comprising a plurality of concrete piles of cylindrical cross section positioned adjacent each other and extending into and supported by a supporting bed in the earth and elongated filler elements arranged in the spaces between adjacent ones of said piles and above said supporting bed, each filler element including a framework cage and a hardenable substance encased within an elongated tubular bag, said framework cage being arranged and configured with portions positioned on the opposite sides of the smallest span between adjacent cylinder piles and having a greater dimension on each side of said span than the span itself, said filler elements also having an hourglass shaped cross section which conforms to the shape of and abuts against the outer wall surfaces of adjacent ones of said concrete piles.

4,268,193

MINE ROOF SUPPORTS

John C. Smith, Wakefield, England, assignor to Fletcher Sutcliffe Wild Limited, Great Britain

Filed Nov. 29, 1979, Ser. No. 99,009
Int. Cl.[3] E21D *15/44*
U.S. Cl. 405—292 **7 Claims**



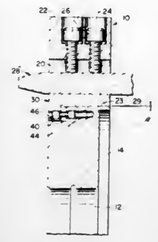
1. A mine roof support comprising at least one roof beam and at least one base member, a plurality of hydraulically extensible chock legs articulated at upper ends thereof to said roof beam and at lower ends to said base member, a shield pivotally connected to a rearward part of said base member and also pivotally connected to a rearward part of said roof beam, permanently pressurised rams, both located between a pair of said chock legs which are laterally spaced and one located to each side of the center line of said support, said rams being mutually inclined with respect to said center line and reacting via said shield on said roof beam in such a manner that said rams resist displacement of said roof beam and, upon retraction of said chock legs from a mine roof, restore displaced chock legs to a predetermined position, and a pair of tie bars located one towards each side of said support and both connected between said roof beam and said shield, said tie bars readily allowing mutual convergence of said roof beam and said shield, and also determining the length of effectiveness of said rams and hence maximum allowable separation between said roof beam and said shield at each side of said support.

4,268,194

INDEPENDENT AXIAL AND RADIAL ADJUSTMENT FOR A GEAR CUTTER

Harry W. Bloink, Redford, and Walter G. Huber, St. Clair Shores, both of Mich., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed May 21, 1979, Ser. No. 40,816
Int. Cl.³ B26D *1/12*
U.S. Cl. 407—22 **9 Claims**



1. In a roughing milling cutter for machining hypoid gears and the like, said cutter having a generally cylindrical body with a substantially planar front face and having a plurality of slots for receiving a plurality of sets of cutter blades having their cutting edges projecting laterally outwardly from the body front face with no portion of the blades extending radially beyond the periphery of the cylindrical body, each respective set of blades being specially designed to machine a specific portion of a gear tooth, said milling cutter being mountable for rotation about its longitudinal central axis and the slots having a radially inward tapered surface forming an acute angle with the central axis, the improvement comprising means to permit adjustment of each cutter blade in a direction generally parallel to the axis of the cutter body and independently adjustable means to permit limited adjustment of each blade in a direction which is generally perpendicular to said axis, each said independently adjustable means including a recess radially inward of the slot and adjacent the body forward surface, an adjustment block having a tapering main portion and a laterally extending attaching finger, said main portion having a first planar surface for engaging a blade and a second planar surface opposite said first surface for engaging the slot tapered surface and forming an acute angle with a plane perpendicular to said first surface and which is complementary to the acute angle of the slot tapered surface to extend said first surface and the blade generally parallel to the cutter longitudinal axis, said attaching finger being received within said recess so as to be behind or coplanar with said body forward surface and including a first aperture therein extending generally parallel to the axis of the adjustment block and being tapped with a thread, a second aperture within said cutter body which is aligned with said first aperture and tapped in a direction opposite the tap of said first aperture, and a differential screw in threaded engagement in both said first and second apertures and countersunk within said first aperture so as to be behind said body forward surface, whereby, in operation, rotation of said differential screw causes axial displacement between the cutter body and adjustment block and, due to the complementary tapers thereon, causes radial displacement of the adjustment block first surface and, correspondingly, of the cutter blade.

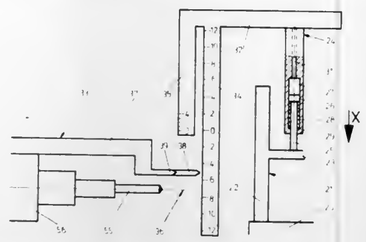
4,268,195

APPARATUS FOR MAKING HOLES IN ARM SECTIONS OF STRUCTURAL COMPONENTS

Ludwig Regenbrecht, Gevelsberg, Fed. Rep. of Germany, assignor to Rolf Peddinghaus, Ennepetal, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,074
Int. Cl.³ B23B *49/00;* **B26D** *5/00, 7/27*
U.S. Cl. 408—16 **5 Claims**

1. Apparatus for making holes in arm sections of structural components which are transportable by a conveyor device which constitutes a reference plane for a web section of a structural component, with reference to the top side of which a sensor element of a sensing device is vertically movable which is connected to an indicator device for the indication of an interval, if any, existing between the web section of the structural component and the reference plane, whilst a perforating device for making a hole in an arm section of the structural component is movable into a desired relative position to



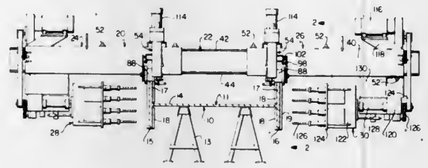
the indicator device and is precisely alignable with reference to the web section in proximity of the arm section of the structural component, characterised in that a vertical gauge (**34**) of the indicator device is firmly connected to the sensing device and extends parallel at an interval beside the latter, and that there is associated with the gauge (**34**) an index (**38**) which is attached to the perforating device at a specific interval from and parallel to its tool axis (**36**).

4,268,196

WORK-PIECE SUPPORTED TOOL APPARATUS PARTICULARLY ADAPTED FOR USE WITH LARGE STRUCTURAL MEMBERS

James E. Harrow, Overland Park, and Robert T. Kenney, II, Olathe, both of Kans., assignors to Kansas City Structural Steel Co., Kansas City, Kans.

Filed Aug. 3, 1979, Ser. No. 63,522
Int. Cl.³ B23B *39/22, 41/00*
U.S. Cl. 408—39 **9 Claims**



1. Work-piece supported apparatus for performing machine tool operations upon a work-piece having a pair of spaced, upstanding, flange portions presenting a pair of substantially parallel, elongate, track surfaces, said apparatus including:

elongate beam means disposable transversely to said track surfaces;

carrier means shiftably mounted on said beam means for selective positioning along the length of the latter, said carrier means including a pair of carrier assemblies independently shiftable on said beam means for selective positioning along the length of the latter;

machine tool means supported by said carrier means and having powered, movable parts for operatively engaging said work-piece to perform machine tool operations on the latter, said machine tool means including a pair of tool assemblies each supported by a corresponding carrier assembly; and

wheel means, said wheel means including a pair of sets of wheels and means for mounting each of said sets of wheels upon a corresponding carrier assembly,

said carrier assemblies being selectively shiftable to positions along said beam means for disposing each of said sets of wheels in supported engagement upon a corresponding one of said track surfaces, whereby said beam means, said carrier means and said tool means are shiftably supported by said wheel means upon said track surfaces of said work-piece for selective positioning thereof along the length of the latter,

said means for mounting each of said sets of wheels upon the corresponding carrier assembly including powered extensible means for vertically shifting the positions of each of said sets of wheels relative to the corresponding carrier assembly, whereby the positions of said beam means, said carrier means and said tool means are vertically adjustable relative to said work-piece,

each of said sets of wheels including a pair of wheels each provided with a separate and independently controllable extensible means for shifting its relative vertical positioning with respect to the associated carrier assembly, whereby said beam means, said carrier means and said tool means may be selectively tilted about an axis transverse to said track surfaces.

4,268,197

DEEP DRILLING TOOL

Karl Burgsmüller, Haus Hainberg, 3350 Kreiensen, Fed. Rep. of Germany

Filed May 19, 1978, Ser. No. 907,865
Claims priority, application Fed. Rep. of Germany, May 28, 1977, 2724266
Int. Cl.³ B23B *51/04*
U.S. Cl. 408—59 **14 Claims**



1. In a deep drilling tool for workpieces including a tubular drill bit and a tubular drill stem connectable to the drill bit and having an inner wall, a combination comprising a longitudinal partition having lateral surfaces and dividing the interior of said stem in at least two separate passages, at least one of said passages forming a pressure fluid feeding passage communicating with an exterior surface of said tool, and another of said passages forming a discharge passage for a mixture of said pressure fluid and the drilling chips and communicating with the interior of said drill bit; and an elastic sealing member at each of said lateral surfaces of said partition and in slidable contact with the inner wall of said drill stem.

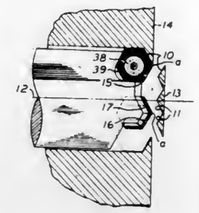
4,268,198

INDEXABLE INSERT DRILL

Robert W. Peters, Saegertown, Pa., assignor to Greenleaf Corporation, Saegertown, Pa.

Filed Mar. 26, 1979, Ser. No. 23,707
Int. Cl.³ B23B *51/00*
U.S. Cl. 408—186 **6 Claims**

1. A drill having shank with chip removing flutes respectively on opposite sides of the forward end of the shank, indexable inserts mounted in one and the other of said flutes, each insert having a forwardly projecting cutting point in active cutting position, said cutting points being different radial distances from the axis of the shank and comprising a radially outermost cutting point having the greatest radial distance from the axis of the shank and a radially innermost cutting point having the least radial distance from the axis of the shank, each point having an inner active work engaging cutting edge inclined toward the axis of the shank and an outer active work engaging cutting edge inclined away from the axis of the shank, said edges diverging rearwardly from each point and generating inner and outer annular surfaces of revolution by rotation of the shank about its axis, the outer annular surface of revolution of the radially outermost cutting point having a maximum outside diameter equal to the outside diameter of the hole to be drilled, the inner annular surface of revolution of the



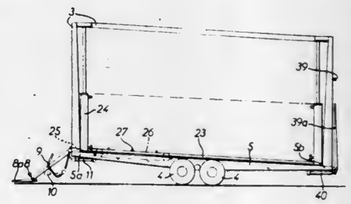
radially innermost cutting point partially overlapping the axis of the shank, the other surfaces of revolution each partially overlapping a surface of revolution of the next adjacent insert, each insert being oriented so the non-overlapping portions of the inner and outer edges of its cutting point machines inner and outer sides of a different one of a plurality of radially spaced adjoining concentric grooves having sides corresponding to the non-overlapping portions of said inner and outer annular surfaces of revolution, the non-overlapping portions of the cutting edges which generate said outer annular surfaces each exerting a radial cutting thrust on the shank, and means for equalizing said radial cutting thrusts.

4,268,199

TRAILER FOR THE AUTOMATIC LOADING AND UNLOADING OF ROUND BALES

Albert D. Fontrier, c/o Benac-Berdoues, France, assignor to Ets Benac & Fils S.A., France

Filed Apr. 2, 1979, Ser. No. 25,993
Claims priority, application France, Apr. 11, 1978, 78 10603; Sep. 4, 1978, 78 25371
Int. Cl.³ A01D *87/12;* **B60P** *1/50*
U.S. Cl. 414—24.5 **7 Claims**



1. A loader for automatically loading forage bales comprising a frame supported by wheels, a main platform carried by said frame, at least one secondary platform movable parallel to said main platform, a bale pick-up fork pivoted to the front edge of said main platform and movable from a lower position for picking up bales lying on the ground to an upper position in which the bales are loaded on said main platform, a pivotably mounted lever, spring means for normally urging said lever to an inoperative position ahead of said fork for detecting the presence of a bale, a hydraulic valve responsive to the movement of said lever, a tipping cylinder responsive to said valve and operably connected to said fork to actuate same, a rake pivotably mounted on the front of said frame and above said fork and adapted to retain the bales on said fork, said rake

being operably connected to said lever and responsive to the movement of said lever at the very beginning of the pivotal movement of said fork to drop upon the forage bale, and means for transferring the loaded bales towards said platforms.

4,268,200

APPARATUS FOR STACKING NOTE BOOKS OR THE LIKE

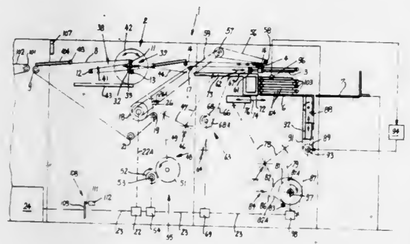
Paul Fabrig, Neuffen, Fed. Rep. of Germany, assignor to Womako Maschinenkonstruktionen GmbH, Nürtingen, Fed. Rep. of Germany

Filed Nov. 13, 1978, Ser. No. 959,831

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1977, 2752372

Int. Cl.³ B65G *57/081*

U.S. Cl. 414—31 **3 Claims**



1. Apparatus for manipulating substantially flat commodities, particularly pads each of which has a first portion whose thickness deviates from the thickness of at least one second portion thereof, comprising a stacking device; means for transporting a succession of commodities in identical orientation in a predetermined direction and along a predetermined path onto said stacking device where successive commodities descend on top of each other to form a growing stack, including at least one endless flexible element; stop means disposed above said device and positioned to arrest successive commodities prior to descent onto said device; means for moving said stop means between first and second positions; orientation changing means adjacent said path ahead of said device and actuatable to change the orientation of selected commodities in said path, said orientation changing means including a pocket having an opening and being movable between a first position in which said opening is located in the path of an oncoming commodity and a second position in which said opening allows the commodity to leave said pocket by moving in said direction, and pulleys for said flexible element, said pulleys being mounted in said pocket to confine successive portions of said flexible element to movement first into and thereupon from said pocket so that said element entrains an oncoming commodity into said pocket by way of said opening in the first position of said pocket and from said pocket via said opening in the second position of said pocket; means for actuating said orientation changing means, including means for pivoting said pocket about an axis which is substantially normal to said direction; and control means for synchronizing the operation of said actuating and moving means so that said stop means assumes one of said positions prior to engagement with commodities whose orientation remained unchanged and the other of said positions prior to engagement with commodities whose orientation has been changed by said orientation changing means.

4,268,201

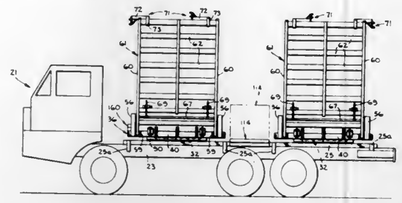
UNITIZING SYSTEM FOR PRODUCE CARTONS AND THE LIKE

David W. Cayton, Cupertino, Calif., assignor to Bud Antle, Inc., Salinas, Calif.

Filed May 7, 1979, Ser. No. 36,564

Int. Cl.³ B65G *57/24;* **B60P** *7/06*

U.S. Cl. 414—35 **19 Claims**



1. Apparatus for facilitating organization and transport of a plurality of generally parallelepiped shaped cartons comprising a rectangular platform defining a carton supporting surface and having first and second mutually parallel side edges and a pair of mutually parallel end edges perpendicular to the side edges, means for mounting the platform on a vehicle bed for rotative movement about a generally vertical axis between a loading position at which the side edges are oriented longitudinally of the vehicle bed and an unloading position at which the end edges are oriented longitudinally of the vehicle bed, first and second generally planar side walls being mounted to respective said side edges of said platform for movement between an inward upright position to support cartons disposed on said platform and an outward position at which said side walls disengage said cartons, and means for controllably moving said side walls between the upright position and the outward position.

4,268,202

BALE WAGON

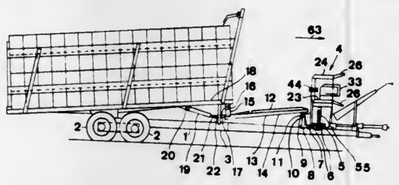
Serge J. C. Verdenne, Marcilly-Tille; Jean-Marie L. Petitpas, Longvic, and Jean-Claude A. E. Boirin, Binges, all of France, assignors to Sperry Corporation, New Holland, Pa.

Filed Aug. 9, 1979, Ser. No. 64,950

Claims priority, application United Kingdom, Aug. 16, 1978, 33517/78

Int. Cl.³ A01D *87/12;* **B60P** *1/36;* **B65G** *57/32*

U.S. Cl. 414—39 **8 Claims**



1. In a bale wagon having a mobile frame; a bale loader pivotally mounted on said frame and being selectively positionable between an operating position adjacent the ground to receive and elevate bales and a raised transport position, said bale loader having a bale pick-up end positioned adjacent the ground when in said operating position and a discharge end elevated above said bale pick-up end when in said operating position; a bale receiving table mounted on said frame transverse to the direction of travel of said bale wagon, said bale receiving table having a first end positioned adjacent to said discharge end of said bale loader to receive bales discharged therefrom and a remote second end; a conveyor associated with said first end of said bale receiving table and being operable to convey bales along said bale receiving table from said

first end toward said second end; and drive means for powering said bale loader and said conveyor, the improvement comprising:

said conveyor being fixedly mounted with said bale loader and pivotable about a first pivot axis between said first end of said bale receiving table and said second end such that said discharge end of said bale loader maintains a fixed positional relationship with said conveyor during pivotal movement of said bale loader between said operating position and said transport position, said bale loader being pivotable with said conveyor about said first pivot axis between said first end and said second end.

4,268,203

RECEIVING AND COLLECTING PIECES OF STOCK SUCH AS RODS OR TUBES

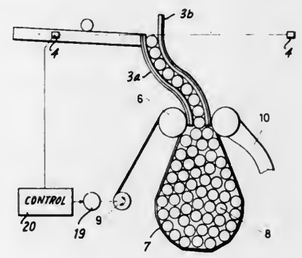
Walter Huber, and Wolfgang Stratenhoff, both of Muelheim, Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Duesseldorf, Fed. Rep. of Germany

Filed Aug. 6, 1979, Ser. No. 63,752

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1978, 2834874

Int. Cl.³ B65G *1/08*

U.S. Cl. 414—100 **4 Claims**



1. Low-noise, tube- or rod-collecting and bundling device to be placed adjacent to the end of a slanted track means, comprising:

means, defining a curved duct and having its upper entrance disposed at said end and having members being stationary during operation and covered with a noise-attenuating material, the duct having a width corresponding to the diameter of the tubes or rods and further having a lower exit;

a plurality of extendable belts disposed for extending adjacent to said exit, there being means for paying out the belts to obtain loops below the exit; and

means for increasing the size of the loops so that the belt loops receive the tubes or rods as they arrive on the track and through the duct.

4,268,204

CONTINUOUS SHIP UNLOADER

Samuel K. Stellfox, and Hermann Urban, both of Pittsburgh, Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Mar. 29, 1979, Ser. No. 24,991

Int. Cl.³ B65G *63/00*

U.S. Cl. 414—139 **7 Claims**

1. In a continuous unloader of the type especially useful for transferring bulk cargo from the hold of a ship positioned alongside the unloader to shore, the unloader comprising a gantry movable on a track generally parallel with a ship positioned alongside the track for unloading, the gantry having a vertical support mounted thereon, the invention wherein:

(a) there is a lever pivotally mounted between its ends on the support for movement in a vertical arc with one end extending toward the shipside of the track and the other end disposed on the opposite or landside of the track, the landside of the lever having a counterweight thereon;

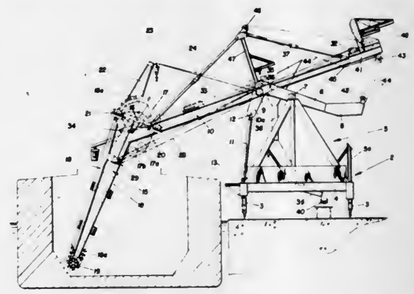
(b) a boom pivotally supported between its ends on the shipside end of said lever for movement on the lever about an axis parallel with the pivotal axis of the lever on the support whereby the boom will be moved with the lever on which it is carried when said lever is rocked about its pivotal axis and which also may be rocked about its own pivotal axis on the shipside end of the lever;

(c) means arranged for controllable rocking and holding of the lever in an adjusted position relative to the gantry and means arranged for controllably adjusting the boom about its pivotal axis on the lever and holding it in adjusted position relative to the lever;

(d) a digging arm pivotally suspended from the shipside end of the boom for movement in an arc crosswise of the hold of a ship being unloaded;

(e) means arranged to controllably effect said arcuate movement of the digging arm relative to the boom;

(f) said lever and boom being movable through an operating range where the digging arm may enter and be moved



crosswise of the ship's hold and be lowered and raised relative to said hold as required to remove material from the hold to an inoperative position where the digging arm hangs vertically clear of the ship and closer inshore toward the gantry;

(g) a counterweight on the landside end of the boom, the arrangement thereby assuring that as the shipside ends of said lever and boom are raised to lift the digging arm clear of the ship and move it inwardly toward the gantry, the respective counterweights on the lever and boom will swing inwardly toward the support to maintain the center of balance close to the vertical center line of the support; and

(h) the digging arm having a continuous elevating conveyor arranged to gather bulk material at its lower end when it is in operating position and discharge said bulk material at its upper end, the boom having a conveyor arranged to receive bulk material from the upper end of the elevating conveyor when it is in operating position and discharge it at any angle in its operating range to fixed receiving means on the gantry.

4,268,205

METHOD AND APPARATUS FOR REMOVING MATERIAL FROM THE ENDS OF A ROTARY AIR LOCK

Miguel Vacca, South Euclid, and James C. Morris, Twinsburg, both of Ohio, assignors to Mayfran, Div. of Fischer Industries, Inc., Cleveland, Ohio

Filed Jun. 7, 1979, Ser. No. 46,239

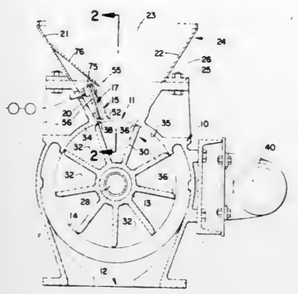
Int. Cl.³ B65G *53/40*

U.S. Cl. 414—219 **17 Claims**

1. A method of preventing particles of material being handled by a rotary vane air lock, having an inlet opening and a discharge opening and vane ends sealingly engaging with leading and trailing lands on the air lock housing, from coming between the vane ends and the lands as the vanes rotate, com-

prising the steps of: covering the said end of each vane for a portion of its arc of movement across said inlet opening just before the vane end comes into contact with the leading land; and, in such movement portion of the vane end just before it contacts the leading land, exerting a removing force on any particles which may be clinging to the vane end.

6. In a rotary vane air lock for delivering granular material to a chamber under pressure, the air lock being comprised of: a housing having an inlet opening and a discharge opening, a vaned rotor rotatable in the housing, and the housing having a



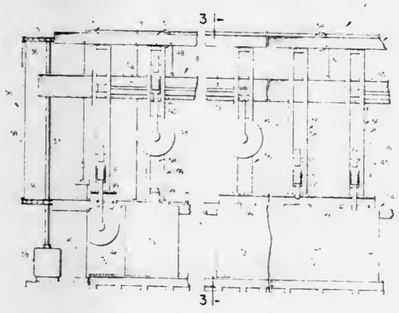
leading and a trailing land surface on the leading and trailing sides of the inlet opening adapted to be in sealing relationship with the ends of the vanes as the vane rotor rotates, the improvement which comprises: first means spaced from the leading land in a direction opposite to the direction of rotation of the rotor and located just before the leading land for preventing impingement of particulate material on the vane ends; and second means for exerting a removing force on any particles which might cling to the vane ends after the said vane ends pass the first mentioned means but before they engage the leading land.

4,268,206

ARTICLE TREATING MACHINE

Charles M. Johnson, Terryville, Conn., assignor to Napco, Inc., Terryville, Conn.

Filed Aug. 30, 1979, Ser. No. 71,109
Int. Cl.³ B65H *49/02, 15/00*
U.S. Cl. 414—222 **13 Claims**



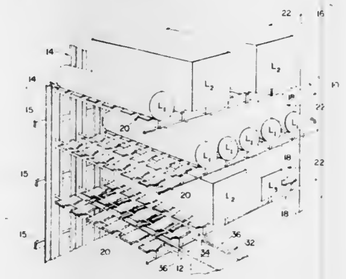
1. In an article treating machine having a series of article treating tanks defining a succession of article treating stations therein, and an elevator-conveyor system including a plurality of arms for carrying articles to be treated, guide rails supporting the arms in general horizontal cantilever position for vertical reciprocal movement between raised and lowered positions, an elevator mechanism for raising and lowering the arms associated with at least some of the treating stations to move articles carried thereby into and out of the tanks defining the latter treating stations, a conveyor operable to intermittently advance the guide rails and the arms carried thereby along an endless path having at least one rectilinear segment to convey the articles to be treated to the various treating stations, a plurality of barrels, bracket means for supporting each of the barrels on an associated one of the arms for rotation about a generally horizontal axis, a plurality of pinions equal in number to the barrels, means drivingly connecting each pinion to an associated one of the barrels, and rack means supported for rectilinear reciprocating movement along a path parallel to said rectilinear segment for engaging said pinions of associated barrels when said associated barrels are in said lowered positions, the improvement comprising oscillating means for reciprocating said rack means including a drive motor having a stationary part and a movable part operably connected to said rack means to move said rack means with a reciprocating stroke and to rotate the pinions engaged with said rack means whereby to axially oscillate said associated barrels and means for controlling said drive motor to gradually accelerate said rack means at the beginning of each stroke and gradually decelerating said rack means at the end of each stroke.

4,268,207

LOAD SUPPORT AND SHUTTLE

George R. Pipes, Salt Lake City, Utah, assignor to Eaton Corporation, Cleveland, Ohio

Filed Jul. 6, 1979, Ser. No. 55,260
Int. Cl.³ B65G *1//27*
U.S. Cl. 414—277 **12 Claims**



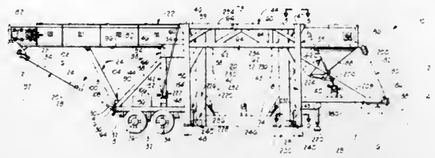
1. In a material handling system including a rack structure having a plurality of material storage bays opening into an aisle, load handling means movable horizontally and vertically in said aisle and including load handling shuttle means selectively movable into and out of said bays to transfer loads between said bays and said load handling means; at least one elongated load storage assembly fixed within a storage bay with its longitudinal axis perpendicular to said aisle, said load storage assembly including a plurality of first load supporting members spaced apart along said longitudinal axis; and load handling means mounted on said shuttle means, said load handling means including a plurality of second load supporting members spaced apart along a horizontal axis parallel to the longitudinal axis of said load storage assembly and alignable with the spaces between said first load supporting members; the improvement wherein one of said load storage assembly or load handling means comprises a beam member, and a plurality of load supporting plate members angled upwardly and outwardly from said beam member and having their outer ends bent downwardly to a substantially horizontal position to define opposed substantially horizontally oriented load supporting elements; vertical movement of said load handling means being effective to transfer loads between said load storage assembly and said load handling means as said second load supporting members pass through said spaces.

4,268,208

PORTABLE SELF-ERECTING SILO APPARATUS

Ronald G. Hankins, and Jimmie J. Butcher, both of Yukon, Okla., assignors to CMI Corporation, Oklahoma City, Okla.

Filed Dec. 13, 1979, Ser. No. 103,384
Int. Cl.³ B65G *65/32*
U.S. Cl. 414—332 **29 Claims**



1. A portable, self erecting silo apparatus for temporarily storing and dispensing asphaltic mix, the apparatus comprising:
- a chassis having a first end portion and an opposed second end portion, the first end portion being spaced a distance from the opposed second end portion;
- a support frame disposed between the first end portion and the opposed second end portion of the chassis, the support frame having a laterally extending upper frame, the support frame defining a passageway between the first end portion and the second end portion of the chassis for passage therethrough of a vehicle;
- a container having an upper end portion and a lower end portion, the container being movable from a first position wherein the container is telescopically received in the support frame to a raised second position wherein the container is disposed generally above the passageway defined by the support frame;
- a conveyor having an inlet end portion, a medial portion, and an opposed outlet end portion; and
- pivot means for pivotally connecting the inlet end portion of the conveyor to one of the first and opposed second end portions of the chassis, the pivot means permitting movement of the conveyor between a stored position, an intermediate position and an operative position, in the stored position the container is maintained in the first position and the conveyor is positioned on the support frame such that the medial portion of the conveyor is supported by the support frame, in the intermediate position the container is substantially maintained in the first position, the inlet end portion of the conveyor is adjacent a support surface for the apparatus, and the outlet end portion of the conveyor is in a first raised position with relation to the support frame, in the operative position the container is maintained in the raised second position and the outlet end portion of the conveyor is maintained in a second raised position such that the outlet end portion of the conveyor is substantially centrally disposed above the upper end portion of the container.

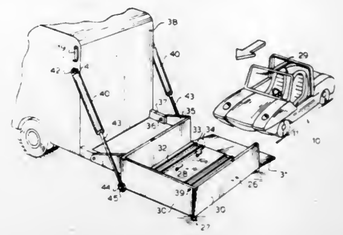
4,268,209

VEHICLE CARRIER FOR COLLAPSIBLE VEHICLE

William J. Westerman, 2625 W. 4th St., Waterloo, Iowa 50701

Continuation of Ser. No. 906,331, May 16, 1978, abandoned, which is a division of Ser. No. 714,339, Aug. 16, 1976, Pat. No. 4,089,542. This application Jun. 12, 1979, Ser. No. 47,865
Int. Cl.³ B60P *3/06;* **B60R** *9/06*
U.S. Cl. 414—462 **6 Claims**

1. A vehicle carrier for a second vehicle comprising in combination:
- a first vehicle having a plurality of wheels and a body defining an interior and an exterior of said vehicle;
- a container having a bottom and plurality of sides at least one said side being movably attached to the bottom to swing down;
- a second wheeled vehicle having a chassis and being of predetermined design for collapsing to fit substantially in said container and to be attached to said container when collapsed therein, said second wheel having means to lower said chassis in relation to said wheels for collapsing said vehicle;
- movable attaching means hinging said container to said first vehicle, said attaching means being operatively connected to the body exterior of said vehicle and to said container to allow said vehicle to swing thereon;



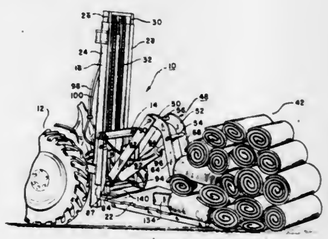
- lifting means attached between said vehicle and said attaching means to swing said container from a generally horizontal loading position to a generally vertical storage position adjacent said vehicle exterior; and
- latching means for latching said second vehicle of predetermined design to said container to hold said second vehicle in position during storage thereof in said container adjacent said first vehicle exterior.

4,268,210

PALLET UNLOADER FOR FORK LIFTS

Charles O. Ferguson, and John W. Ferguson, both of South Bend, Ind., assignors to Ferguson Welding and Spring Fabrication, Inc., South Bend, Ind.

Filed Mar. 19, 1979, Ser. No. 21,923
Int. Cl.³ B60P *1/00*
U.S. Cl. 414—497 **7 Claims**



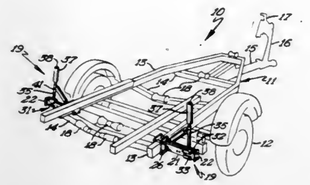
1. An unloading mechanism for a fork lift having a carriage, comprising a push plate slidable over a pallet on the fork lift, two arms, each consisting of a first arm section and a second arm section pivotally connected to each other, the first of said arm sections being pivotally connected to the frame of the carriage, a pivot means disposed on a horizontal axis and connecting said second arm to said push plate, a power means for moving said first and second arm sections apart, pivoting them relative to each other at their connection point for sliding said push plate across the pallet, and guide members mounted on the back of said push plate and disposed inwardly from the ends thereof for engaging the pallet to maintain said push plate in a substantially vertical position as it moves across the pallet.

4,268,211

GUIDE DEVICE FOR BOAT TRAILERS

Donald D. Schwebke, P.O. Box 302, Hampton, Iowa 50441

Filed Jun. 18, 1979, Ser. No. 49,308
Int. Cl.³ B60P *3/10*
U.S. Cl. 414—535 **6 Claims**



1. A boat guide mechanism for mobile boat trailers having front and rear ends, ground engaging wheels, and longitudinally extending members, comprising:

a pair of guide devices each including an elongate support member, each support member having means on one end thereof releasably engaging a longitudinally extending frame member of a boat trailer adjacent the rear end thereof to orient the support member in horizontally, laterally extending relation,

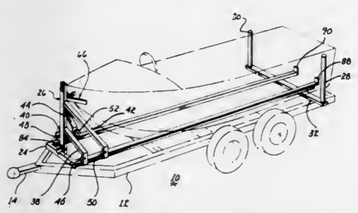
each guide device comprising a roller assembly including mounting means secured to said support member and being longitudinally adjustable relative thereto, a vertically disposed roller mounted on said mounting means and being vertically adjustable relative thereto, an elongate, oblique roller having one end thereof secured to said mounting means and having the other end thereof connected with said support member, said oblique roller having a rotational axis disposed in inclined relation relative to said support member and being shiftable with said mounting means in a direction longitudinally of the support member.

4,268,212

BOAT CART FOR TRAILERS

Robert D. Weary, 520 E. Carter Dr., Tempe, Ariz. 85282

Filed May 14, 1979, Ser. No. 38,531
Int. Cl.³ B60P *3/10*
U.S. Cl. 414—539 **8 Claims**



1. Apparatus for aiding the loading and unloading of a boat upon and off of supports on a boat trailer, said apparatus comprising in combination:

(a) rail means secured to the boat trailer and extending in general longitudinal alignment therewith;

(b) a cart translatable along said rail means for engaging and capturing the bow of the boat which bow includes a forwardly extending eyelet, said cart including:

i. roller means for supporting and maintaining said cart upon said rail means during translation of said cart,

ii. means for precluding lateral and vertical movement of said cart relative to said rail means,

iii. upwardly extending stanchion means for interconnecting the bow of the boat, with said cart,

iv. lock means for retaining the bow of the boat in engagement with said stanchion means, said lock means including a vertically oriented slot extending downwardly in said stanchion means for penetrably receiving the eyelet at the bow of the boat a lock member having at least one leg dimensioned to penetrably engage the eyelet upon insertion of the eyelet through said slot, said lock member being pivotally secured to said stanchion and pivotally responsive to vertical downward and upward movement of the eyelet through said slot and including means for engaging and disengaging, respectively, said one leg with the eyelet and preclude, on engagement, fore and aft motion of the boat with respect to said cart;

(c) uprights extending from the trailer for guiding the boat along the trailer during translation of said cart along said rail means;

whereby, said cart and said uprights guide the boat on to and off of the trailer and the supports thereof during loading and unloading of the boat.

4,268,213

VEHICLE HOIST AND TOWING DEVICE

Scott M. Obbink, Armstrong, Iowa, assignor to Obbink Industries, Inc., Armstrong, Iowa

Filed Apr. 11, 1979, Ser. No. 28,980
Int. Cl.³ B60P *3/00*
U.S. Cl. 414—563 **8 Claims**

1. A vehicle hoist and towing device for a truck having a bed comprising:

a mounting frame mounted on the truck bed,

an elongate, track means fixedly secured to said mounting frame and extending longitudinally thereof, and located generally centrally of the truck bed;

a hoist frame pivotally secured to said mounting frame for vertical swinging movement relative to the mounting frame between lowered and elevated positions,

an elongate hoist boom slidably mounted on said hoist frame for longitudinal movement relative thereto between a retracted position and extended position, said boom being positioned generally centrally of the truck bed, said boom when in said retracted position being disposed within the confines of said mounting frame, and when in said extended position projecting longitudinally from the rear of the mounting frame and associated truck,

linkage means interconnected with said boom and engaging said track means,

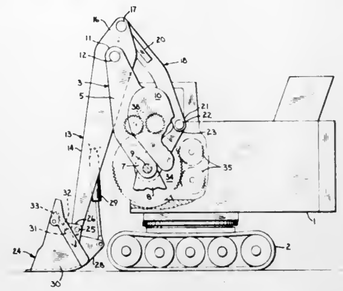
a reversible hydraulic cylinder and piston unit connected with said mounting frame and to said linkage means, said hydraulic cylinder and piston unit when shifting said boom from said fully retracted position in an extension direction, to move said boom rectilinearly throughout the major portion of its extension stroke and thereafter causing said hoist frame to swing from a lowered to an elevated position to elevate the boom.

4,268,214

EXCAVATOR FRONT END

Maurice I. Zeldman, Pittsburgh, Pa., assignor to Bucyrus-Erie Company, South Milwaukee, Wis.

Filed Mar. 26, 1979, Ser. No. 23,694
Int. Cl.³ E02F *3/42*
U.S. Cl. 414—694 **29 Claims**



1. In a front end mechanism for excavators and the like, the combination comprising:

a. a boom member pivotally mounted at its foot;

b. a dipper stick pivoted to said boom that extends from the boom;

c. a moment arm forming a part of said dipper stick that presents a turning radius extending from the pivoted connection of the dipper stick and boom;

d. a rotatable hoist member having a pivoted mounting and extending radially from its pivot to present a radius arm;

e. a coupling member cooperatively engaged between said moment arm and said hoist member radius arm at a position outwardly of its pivoted mounting;

f. said boom member, moment arm, hoist member, and coupling member forming a pivoted four element motion control assembly supporting said dipper stick;

g. a crowd drive positioned between elements of said motion control assembly and operable to develop relative movement between said boom and the other assembly elements to crowd said dipper stick; and

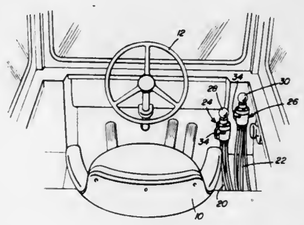
h. a hoist drive in driving relation to said hoist member to rotate said hoist member about its pivoted mounting and pivot said boom about said boom foot.

4,268,215

AIR SHIFTING DEVICE

Martin J. Spicer, 430 Union St., and Howard G. Spicer, 392 E. Bluff St., both of Marseilles, Ill. 61341

Filed Feb. 6, 1979, Ser. No. 9,959
Int. Cl.³ E02F *3/85*
U.S. Cl. 414—715 **11 Claims**



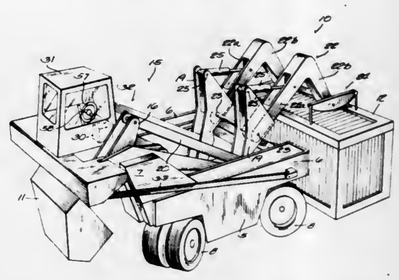
1. In a vehicle utilizing a power shift transmission and including first and second auxiliary function control levers, the combination of: a first control means mounted on said first lever and connected to said transmission for causing said transmission to shift between gears, said first control means and said first lever being individually actuatable; and second control means mounted on said second lever for causing said transmission to shift between a forward and a reverse mode of operation, said second control means and said second lever being individually actuatable.

4,268,216

LOAD LIFTING AND CARRYING MACHINE

Fernand Copie, RayGo, Inc., 9401 85th Ave. N., Minneapolis, Minn. 55445

Filed Jul. 3, 1978, Ser. No. 921,762
Claims priority, application United Kingdom, Jul. 4, 1977, 27963/77
Int. Cl.³ B66C *23/72*
U.S. Cl. 414—719 **7 Claims**



1. A load lifting and transporting machine comprising:

A. a movably mounted base;

B. load engaging means;

C. load counterbalancing means;

D. structure by which the load engaging means is mounted on the base for elevation and descent and for projection and retraction thereof with respect to the base, said structure comprising

(1) a boom having inner and outer ends,

(2) pivot means connecting the inner end of the boom with the base, the axis of said pivot means being fixed with respect to the base and being horizontal so that the boom is constrained to up and down swinging motion with its outer free end traveling in an arcuate path,

(3) a rigid arm having the load engaging means attached thereto, and

(4) means connecting said rigid arm with the outer free end of the boom in a manner accommodating relative movement therebetween with the load engaging means traveling towards or from said horizontal axis about which the boom swings;

E. means by which the load counterbalancing means is mounted on the base for projection and retraction thereof relative to the base;

F. a connecting rod capable of transmitting force in either direction along a path parallel with its longitudinal dimension;

G. means joining one end of the connecting rod with said means by which the load counterbalancing means is mounted on the base and its other end with said rigid arm, so that the boom, the connecting rod, and portions of said rigid arm and of said means by which the load counterbalancing means is mounted on the base, form elements of a linkage assembly of alternate geometry that connects the load engaging means with the load counterbalancing means, and by such connection constrains the same to concomitant projection or retraction with respect to the base, and by alteration of its geometry effects such concomitant projection or retraction, regardless of the position of elevation of the boom, whereby tilting movements

respectively produced by a load on the load engaging means and by the load counterbalancing means at all times oppose one another; and

H. controllable power means operable

(1) to raise the boom and control its descent, and

(2) to alter the geometry of the linkage assembly, so that by controlled operation of said power means the machine can be caused to lift or lower a load, place a load on its base or lift a load off its base without significantly shifting the location of the center of gravity of the machine.

4,268,217

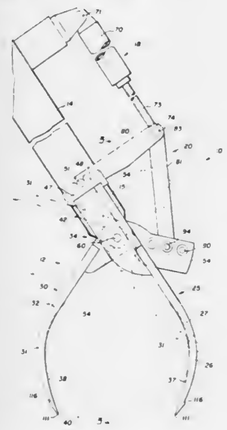
LOAD CARRYING APPARATUS

Arthur W. Perreault, 1125 Thomas Ave., Coquitlam, British Columbia, Canada (V3K 2L1), and Leo H. Dupre, 305 Cutler, Coquitlam, British Columbia, Canada (V3K 5C1)

Filed Feb. 23, 1979, Ser. No. 14,504

Int. Cl.[3] B66C *1/22*

U.S. Cl. 414—740 **3 Claims**



1. Load carrying apparatus comprising an articulated boom having a outer end, a fluid operated ram pivotally secured at one end to the boom and having an opposite end adjacent the outer end, a grapple assembly including a fixed frame and a swingable frame, mounting means securing the grapple assembly to the outer end and permitting the swingable frame to swing about a transverse axis normal to a longitudinal axis of the boom, said mounting means including a transverse shaft removably supported in a bore formed in the outer end, said transverse shaft having opposite ends projecting laterally of side edges of the boom, said opposite ends providing journals for the swingable frame, said fixed and swingable frames each having side members providing crank portions near the outer end and opposed load-gripping portions projecting beyond said outer end, said load-gripping portions of the fixed and swingable frames being curved towards one another and transversely spaced apart whereby to cross when in fully closed position, holding means securing the crank portions of the fixed frame against movement relative to the boom, said holding means including a quadrant on each crank portion of the fixed frame, said quadrants each having spaced notches extending into an edge thereof, a stop member secured to the boom for entering into a selected notch of each quadrant, said crank portions of the swingable frame having spaced openings located at progressively increasing distances from the holding means, and linkage means pivotally connecting the crank portions of the swingable frame to the opposite end of the ram and to the boom whereby operation of said ram will move the grapple assembly between open and closed positions, said linkage means including a pair of links and a pivot pin carried thereby for entry through selected ones of said spaced openings in the crank portions of the swingable frame.

4,268,218

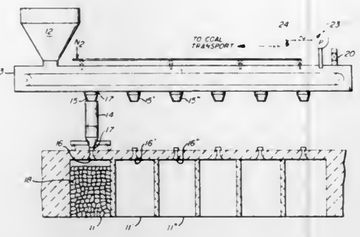
PREVENTING THE OVERCHARGING OF COKE OVENS

Charles A. Price, Portage, Ind., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Feb. 22, 1979, Ser. No. 13,953

Int. Cl.[3] C10B *31/04*; G01F *23/14*

U.S. Cl. 414—786 **6 Claims**



1. In the charging of coke ovens with coal from a coal storage container, wherein the coal is transported from the container by a conveyor system overlying a coal inlet, said inlet communicating with an opening in the roof of the coke oven; said storage container, said conveyor, said inlet and said oven being interconnected to form a substantially enclosed system pressurized with a non-deleterious gas, said coke oven having a standpipe for the removal of coal coking gases, the lower extremity of said standpipe being located in the upper portion of the oven,

the improvement for preventing the overcharging of said oven which comprises, during at least the latter portion of the charging period monitoring a variable which is a function of the pressure in said enclosed system, determining when said variable shows an increase substantially greater than the normal variation thereof encountered during charging, generating a signal in response to such substantial variable increase and stopping the charging of coke in response to said signal.

4,268,219

GREEN TIRE CONVEYING METHOD AND APPARATUS

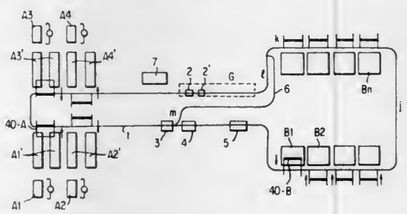
Kazuhiko Nakagawa, Kobe; Yasuhiko Fujieda, Akashi; Shozo Hara, Kobe; Toshikazu Tanaka, Kobe, and Akira Taira, Kobe, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

Continuation-in-part of Ser. No. 678,755, Apr. 21, 1976, abandoned. This application Nov. 2, 1978, Ser. No. 956,977

Claims priority, application Japan, Apr. 21, 1975, 50-48992; Apr. 25, 1975, 50-51157

Int. Cl.[3] B65H *1/00*

U.S. Cl. 414—786 **6 Claims**



1. A conveying method for withdrawing green tires from storing devices for storing green tires, disposed near building machines, conveying them to curing machines while held on conveying apparatus, and loading them onto the curing machines, comprising the steps of:

sending a first green tire delivery demand signal from a particular curing machine of a plurality of curing machines, to a control system which stores the relationships between each of the curing machines and the corresponding respective storing devices, and the quantities and kinds of green tires stored in the storing devices, each curing machine having a timing means set for that particular machine which sends the demand signal to the control system in advance of the curing time of a green tire is completed in the machine, taking into consideration the time it takes to deliver a green tire from a storing device through various intermediate stages and to the machine, whereby the machine receives a green tire to be cured immediately upon completion of curing of a preceeding tire and without a waiting time;

sending a second signal from the control system which receives said first demand signal for indicating the curing machine which has emitted the green tire delivery demand signal and the corresponding storing device, to an automatic truck supporting and carrying thereon a mechanism having the function of withdrawing a green tire from one of the storing devices, suspending it thereon, and carrying and loading it onto one of the curing machines, said automatic truck having control means responsive to said second signal for operating the automatic truck, and said automatic truck running on rails laid and supported at a suitable height above said storing devices and said curing machines; and

on receipt of said second signal, moving said automatic truck to said corresponding storing device for picking up a green tire therefrom;

automatically operating conveying means at each storing device to deliver a green tire from the storing device to the truck in response to arrival of an automatic truck at the storing device to pick up a green tire from the storing device; and

suspending the green tire on the automatic truck, moving said automatic truck to said particular curing machine, and loading the green tire onto the particular curing machine.

4,268,220

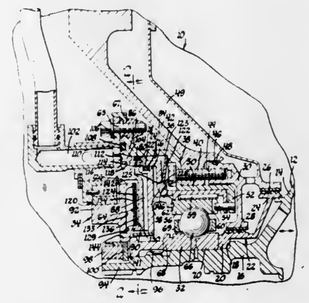
THRUST BALANCING

Richard C. Malott, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 5, 1979, Ser. No. 17,608

Int. Cl.[3] F01D *3/04*

U.S. Cl. 415—104 **2 Claims**



1. A rotor thrust compensating assembly for association with a gas turbine engine comprising: a rotor axially movable in response to variable gas loads on a rotor element of a gas turbine engine, a thrust bearing having inner and outer races with anti-friction means therebetween, one of said races being fixed to said rotor for both axial and rotary movement therewith, bearing support means for the other of said races, variable axial load integrating means including a pair of relatively rotating pistons having a cavity therebetween, oil supply means for directing oil into said load integrating means in accordance with rotor thrust loads acting on the said one of said races, means on one of said relatively rotating pistons to define a plurality of separate circumferentially spaced pockets thereon, the other of said pair of relatively rotating pistons having an inboard surface, a cover on said one of said pistons with an open end thereon for directing oil from said oil supply means into each of said pockets, said cover having pores therethrough rotated with respect to said inboard surface for distributing liquid from said pockets to uniformly fill said cavity between said surface and said cover for producing a uniformly distributed resultant dynamic hydraulic force on said rotor to compensate variable gas loadings thereon.

4,268,221

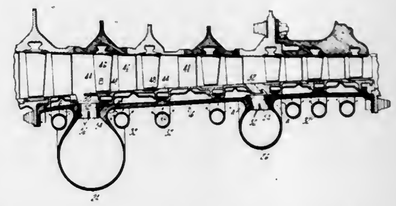
COMPRESSOR STRUCTURE ADAPTED FOR ACTIVE CLEARANCE CONTROL

William G. Monsarrat, and William F. Neal, both of South Windsor, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Mar. 28, 1979, Ser. No. 24,636

Int. Cl.[3] F02C *7/16*

U.S. Cl. 415—116 **3 Claims**



1. In an axial flow gas turbine engine of the type having rotor and stator elements and wherein the stator element includes a longitudinally split compressor case, the improvement comprising:

a compressor case having an integrally formed manifold of circular cross section extending circumferentially about the exterior of the case and across the longitudinal split in the case and having a plurality of circumferentially spaced ports extending into the manifold from the interior of the case;

a liner extending through each of said ports for shielding the case from medium gases flowing into the manifold; and

means for thermally controlling the diameter of the case including apparatus capable of discharging cooling air against the case beneath the circular cross section manifold.

4,268,222

EQUIPMENT FOR FOLDING THE BLADES OF A MAIN HELICOPTER ROTOR

Louis A. Bernard, Saint-Victoret, France, assignor to Societe Nationale Industrielle Aerospatiale, France

Filed Apr. 12, 1979, Ser. No. 29,510

Claims priority, application France, Apr. 17, 1978, 78 11177

Int. Cl.[3] B64C *11/28*

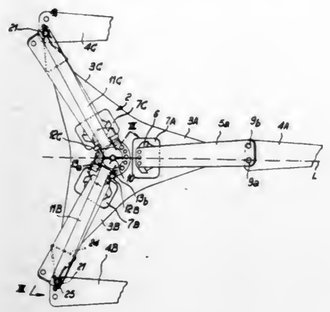
U.S. Cl. 416—1 **15 Claims**

1. Equipment for folding the blades of a main helicopter rotor, in particular of the type having a star-shaped hub with a rigid central part and provided with arms which are flattened in the plane of the star and flexible perpendicularly to this plane, a blade root being joined to the end of each arm of said hub by means of members having at least one link shaft which

is substantially perpendicular to the plane of the star, said equipment essentially comprising

a housing adapted to be fitted over said rigid central part of said hub,

and rigid elongate supports linked by one end to said housing,



and a folding shaft linking the other end of each of said elongate supports to one of said blade roots with the number of supports at most equal in number to the number of blades of the helicopter rotor.

4,268,223

VIBRATION SUPRESSION FOR TURBINE BLADES

Emil Anner, Neuenhof; Harry Brunner, Fislisbach, and Hans J. Meister, Wettingen, all of Switzerland, assignors to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed Sep. 14, 1978, Ser. No. 942,143

Claims priority, application Switzerland, Sep. 14, 1977, 11220/77

Int. Cl.³ F01D *5/24*

U.S. Cl. 416—196 R **3 Claims**



1. In a turbine or compressor of the type having stator and rotor members formed with adjacent radial blades arranged in a row about a central axis of the turbine or compressor, a vibration suppressed blade arrangement comprising:

a damping tube including a plurality of curved damping tube segments which extend through a plurality of blades arranged in a blade ring;

at least two adjacent blades having apertures therein, the damping tube extending through and being both closely and directly received by said apertures and having a thickness adjacent said apertures that is greater than the size of said apertures to securely position the damping tube with respect to said blades, each of the damping tube segments including enlarged end portions which are provided in close proximity to a respective one of the apertures of one of the blades, said enlarged end portions being wider than the size of the respective one of the apertures to securely position the tube segment with respect to the one blade; and

a wire extending through the damping tube, the wire including a plurality of wire segments, each wire segment extending through a corresponding one of said curved damping tube segments along a longitudinal axis of the damping tube, the wire being secured to the damping tube intermediate adjacent blades of the blade ring.

4,268,224

METHOD OF AND MEANS FOR CONVEYING AND MEASURING GASES FOR GAS ANALYSIS OPERATIONS

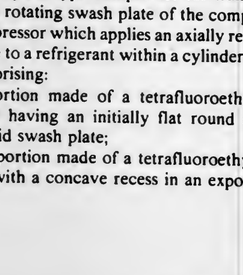
Wolfram Breuer, and Klaus Siemer, both of Leverkusen, Fed. Rep. of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 836,008, Jun. 24, 1969, abandoned, which is a continuation of Ser. No. 251,846, May 5, 1972, abandoned. This application Jul. 23, 1976, Ser. No. 708,154

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1969, 1973796

Int. Cl.³ F04B *49/06;* **H02P** *5/28*

U.S. Cl. 417—32 **2 Claims**



1. In gas analysis apparatus, wherein a gas stream is delivered to gas analysis means via a pump having a constant volume throughput per working cycle and an electric motor for driving the pump and having a controllable speed of rotation upon which the frequency of the pump is dependent, the improvement comprising:

(a) measuring means for measuring the pump inlet temperature of said gas stream and

(b) a frequency transmitter responsive to the measuring means to vary the frequency thereof as a function of said temperature, and for controlling the speed of rotation of said electric motor to vary same in response to changes in said temperature and thereby varying the volume delivered by said pump per unit time to compensate for changes in said temperature whereby a constant mass flow per unit time is delivered by the pump to the gas analysis means.

4,268,225

STRUCTURE OF A SHOE FOR A SWASH PLATE TYPE COMPRESSOR

Shozo Nakayama; Kimio Kato, and Tomoo Fujii, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

Filed Dec. 20, 1978, Ser. No. 971,210

Claims priority, application Japan, Dec. 27, 1977, 52/159736

Int. Cl.³ F04B *1/14;* **F16C** *27/04, 7/00*

U.S. Cl. 417—269 **10 Claims**

1. A round disc-shaped shoe having a given axial thickness, for use in a swash plate type compressor for transmitting an axial force from a rotating swash plate of the compressor to a piston of the compressor which applies an axially reciprocating compression force to a refrigerant within a cylinder bore of the compressor, comprising:

a first main portion made of a tetrafluoroethylene resin material, and having an initially flat round surface for contacting said swash plate;

a second main portion made of a tetrafluoroethylene resin, and formed with a concave recess in an exposed surface thereof for receiving a ball bearing operatively connected to said piston; and

a bowl-shaped reinforcing member made of a metallic material, and embedded between said first and second main portions, said reinforcing member being axially positioned close to said concave recess of said second main portion and far from said flat round surface of said first main portion, said reinforcing member surrounding said recess and curving away from said initially flat round surface, thereby restricting thermal expansion of only the central part of said first main portion of said shoe, so that thermal expansion causes said initially flat round surface to assume an arcuate shape curving in the same direction as said reinforcing member.

4,268,226

TUBE TYPE PUMP AND WAVE MOTOR

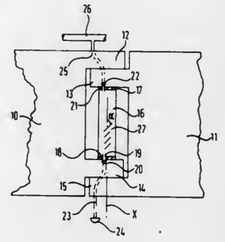
Ralph F. Morris, Fenny Drayton near Nuneaton, England, assignor to Dunlop Limited, London, England

Filed Jul. 26, 1978, Ser. No. 928,190

Claims priority, application United Kingdom, Aug. 6, 1977, 33061/77

Int. Cl.³ F04B *17/00, 43/08*

U.S. Cl. 417—332 **5 Claims**



1. A wave energy conversion apparatus comprising:

a pair of members interconnected by a hinge adapted to undergo relative angular movement under the influence of waves in a body of water; and,

a pump comprising a length of hose, end closures for said hose, means connecting opposite ends of said hose to said end closures in a fluid tight manner, fluid inlet and outlet means communicating with the hose interior, and non-return valves respectively provided in said fluid inlet and outlet, said hose being reinforced by a substantially inextensible reinforcement wound helically about said hose and arranged so that when said end closures are relatively angularly moved fluid within said hose is subject to a constricting action by said reinforcement, said end closures being connected to said pair of pivoted members with said end closures being substantially coaxial with said hinge members such that said hose is twisted and untwisted in response to relative angular movement of said members to vary the internal volume of said hose, said hose drawing fluid through said inlet and associated non-return valve when untwisting and expelling water through said outlet and associated non-return valve when twisting.

4,268,227

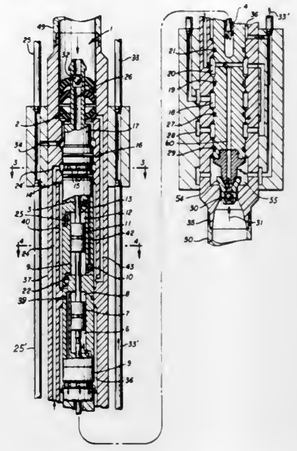
DOWNHOLE, HYDRAULICALLY-ACTUATED PUMP AND CAVITY HAVING CLOSED POWER FLUID FLOW

George K. Roeder, P.O. Box 4335, Odessa, Tex. 79760

Filed Jun. 11, 1979, Ser. No. 47,127

Int. Cl.³ F04B *47/10*

U.S. Cl. 417—358 **12 Claims**



1. A free-type, hydraulically-actuated pump assembly for use downhole in a wellbore for pumping fluid from the bottom of the borehole to the surface of the ground, comprising:

an elongated cavity located downhole in the borehole within which said free-type pump assembly is received therewithin; said cavity having an upper terminal end by which it can be connected to the lower end of a tubing string; a shoe at the bottom of the cavity;

a lower seat means formed at the lower extremity of the pump assembly by which the pump assembly is seated against said shoe, and by which formation fluid flows along an isolated flow path and into the lower intake end of the pump assembly;

a packer nose assembly at the upper extremity of the pump by which power fluid can be directed along an isolated flow path and into the upper inlet end of the pump assembly;

said pump assembly includes an engine end having a piston and a valve means, said valve means having an inlet and a spent power oil outlet; and, a production end having a double acting piston therein, a formation fluid intake, and a produced fluid outlet;

a hollow connecting rod interconnecting the piston of the engine and the piston of the production end;

means by which power oil is transferred directly from said packer nose assembly into one end of said hollow rod; said valve means being connected to receive power oil from the interior of said hollow rod, and to deliver power oil to either side of the piston of the engine;

said cavity being of a size to admit the free-type pump assembly to be circulated from the surface of the ground, downhole through the tubing string, and into seated relationship respective to the shoe;

a spent power fluid flow conduit connected to said spent power oil outlet of said valve means by which spent power fluid is returned to the surface;

a produced fluid flow conduit connected to said produced fluid outlet of said production end by which produced

fluid is forced from the pump assembly uphole to the surface of the ground;

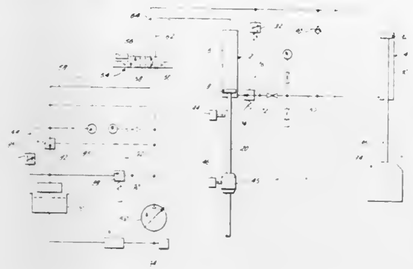
whereby power fluid flows along a closed circuit from the ground, downhole to the pump assembly to thereby actuate the engine end, while spent power fluid flows along one fluid conduit back uphole to the surface of the ground; and, produced fluid flows along another fluid conduit back uphole to the surface of the ground.

4,268,228

HYDRAULIC PUMPING UNIT

Fount E. McKee, Houston, Tex., assignor to Delta-X Corporation, Houston, Tex.

Filed Aug. 13, 1979, Ser. No. 65,813
Int. Cl.³ F04B *9/10*
U.S. Cl. 417—390 **6 Claims**



1. A hydraulic pumping unit for vertically actuating a downhole pump comprising,

a first vertically positioned hydraulic piston and cylinder assembly, said piston having a piston rod adapted to be connected to said pump for actuating said pump,

a second vertically positioned hydraulic piston and cylinder assembly, said second piston having a piston rod,

a vertically movable weight connected to the piston rod of the second piston,

a first hydraulic line connected between the first and second cylinders at a position below said first and second pistons whereby downwardly movement of one piston causes upward movement of the other piston,

a hydraulic pump,

switching means connected between hydraulic pump and said first and second cylinders for alternately supplying hydraulic fluid to and from said first and second cylinders above said pistons whereby downward movement of the first piston stores energy in the second assembly for assisting in moving the first piston upwardly, and

a valve connected between said first cylinder and said first hydraulic line which is normally closed but actuated to an open position by the pressure in the first hydraulic line whereby a failure in the first line will not allow free fall of the first piston.

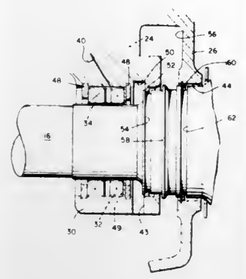
4,268,229

TURBOCHARGER SHAFT SEAL ARRANGEMENT

Paul H. Berg, Van Nuys, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Apr. 19, 1979, Ser. No. 31,685
Int. Cl.³ F16J *15/42*
U.S. Cl. 417—407 **19 Claims**

11. In a turbocharger having a center housing with a bearing boss defining a bearing bore receiving bearing means rotatably supporting a turbocharger shaft, a sump for collecting for recirculation lubricant supplied to the bearing means, and a turbine wheel mounted on said shaft within a turbine housing, means for sealing passage of the shaft into the turbine housing through a shaft opening in a center housing side wall to prevent leakage of lubricant into the turbine housing, comprising a first seal ring mounted on the shaft within the bearing boss in a position spaced axially in an outboard direction from the bearing means; a first vent formed in said center housing within the bearing boss circumferentially about the shaft and axially between said first seal ring and the bearing means, and in open



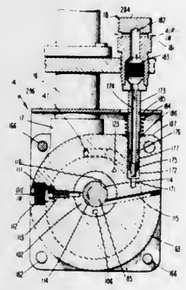
communication with the sump; a second seal ring mounted on the shaft within the side wall shaft opening; and a second vent formed in said center housing circumferentially about the shaft and axially between said first and second seal rings, and in open communication with the sump.

4,268,230

GAS BALLAST FOR OIL SEALED MECHANICAL VACUUM VANE PUMP

Benjamin Bassan, Framingham, Mass., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Apr. 26, 1979, Ser. No. 33,628
Int. Cl.³ F04C *25/02, 27/02, 29/00*
U.S. Cl. 418—15 **6 Claims**



1. A gas ballast device for an oil sealed mechanical rotary vane vacuum pump to prevent vapor condensation in the oulet port region of the low vacuum stage of the pump as a vane cyclically approaches the outlet port, whereby molecules of condensed vapor in the oil do not flow back to the inlet port of the low vacuum stage through the oil seal between the inlet and outlet ports, the gas ballast device providing a flow path for atmospheric air leading to the outlet port region, said flow path including means for enabling air to flow into the outlet port region through an orifice only during a small portion of each vane cycle immediately after each vane passes the orifice as the vane approaches the outlet port, the orifice being positioned near the outlet port region so that no direct flow path exists from the orifice to the inlet port of the atmospheric air flowing through the orifice, an air filter body including a passage leading to said air flow enabling means, said air filter body being normally inserted in and removable from a housing for the pump, said means for enabling air to flow being in an air flow structure located in the housing, said air flow structure including a plug attached to the end of the structure remote from the air filter body, said air flow structure being engaged by the air filter body so movement of the body drives the structure in the housing to cause said plug to be selectively engaged against a seat in the housing to close the flow path, and means for enabling the air flow structure to be moved in the housing so the plug moves in both directions relative to the seat while enabling removal of the air filter body from the housing without removal of the air flow structure from the housing.

4,268,231

MULTI-UNIT ROTARY PISTON MECHANISM AND MAINSHAFT COUPLING THEREFOR

Howard R. Corwin, Montclair, and Charles Jones, Hillsdale, both of N.J., assignors to Curtiss-Wright Corporation, Wood-Ridge, N.J.

Filed Apr. 4, 1979, Ser. No. 27,147
Int. Cl.³ F01C *11/00, 21/04;* **F16D** *3/18*
U.S. Cl. 418—60 **4 Claims**

1. A multi-unit, rotary mechanism wherein each unit consists of at least two rotors supported by a mainshaft in a housing cavity for planetary rotative movement relative to the housing cavity, the mechanism comprising

(a) counterweight means for separately, rotatively, dynamically balancing each mainshaft of each unit;

(b) a coupling means for interconnecting each mainshaft so as to permit radial and endwise axial flexibility relative to the mainshaft axes of the units and provide torsional stiffness for torque transmission between said connected mainshafts while eliminating transmission of dynamic bending moments; and

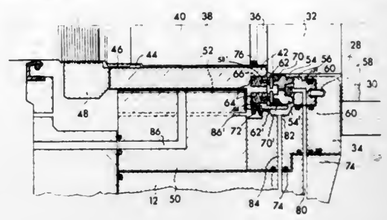
(c) said coupling means including diaphragm elements of diametral dimensions substantially larger than the diameter of the mainshafts and connected to the endfaces of the mainshafts of next adjacent units, the diaphragm elements of the adjacent units being secured at their respective peripheries to effect torque transmission from one to the other and to the endfaces of their respective mainshafts to provide a frictional force between said diaphragm element and its associated mainshaft sufficient to transfer full torque load between the mainshaft and diaphragm element.

4,268,232

INTERMESHING GEAR PUMP WITH SEALING MEANS COMPRISING TWO CONCENTRIC SLIDE RINGS

Fritz Haupt, Regensdorf, Switzerland, assignor to Maag Gearwheel & Machine Company Ltd., Zürich, Switzerland

Filed Mar. 19, 1979, Ser. No. 21,786
Claims priority, application Switzerland, Apr. 7, 1978, 3757/78
Int. Cl.³ F04C *2/18, 15/00;* **F16J** *15/40, 15/34*
U.S. Cl. 418—135 **9 Claims**



1. A gear pump for pumping highly viscous medium at high pressures comprising:

a housing providing a pump chamber therein;

two intermeshing, fluid-conveying gears arranged in said pump chamber;

a respective shaft upon which there is mounted a related one of said gears;

each said shaft being provided to one side of the related gear with shaft bearing means and between said shaft bearing means and the related gear a sliding ring sealing means adjoining the pump chamber;

said sliding ring sealing means comprising two essentially concentric slide rings arranged at least approximately in a common radial plane;

said two slide rings coacting with one another so as to form therebetween an intermediate space;

means for supplying a blocking fluid to said space;

a respective axially mounted bushing arranged in the shaft bearing means of the related shaft and secured to the shaft for conjoint rotation therein;

means for loading in axial direction each of the bushings with its related shaft into a rigid unit;

a counter ring fixedly retained against rotation within the housing;

both of said concentric slide rings being arranged between end surfaces of said bushing and said counter ring; and

spring means for loading said slide rings in axial direction against the force of the pumped fluid medium and the blocking fluid.

4,268,233

HAND HELD ROTARY MACHINE TOOL WITH VIBRATION INSULATING MEANS

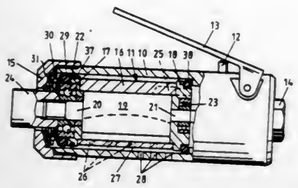
Harry G. Fernström, Saltsjö-Boo, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed May 15, 1979, Ser. No. 39,294
Claims priority, application Sweden, May 16, 1978, 7805546
Int. Cl.³ F01C *13/02, 21/02*
U.S. Cl. 418—270 **11 Claims**

1. In a hand held machine for grinding and like operations, comprising:

a housing (**10**); a motor (**16–19**) mounted in the housing (**10**) and rotating a tool carrying spindle (**19–21, 24**), said motor (**16–19**) including a rotor (**19**) and a stator (**16**); a forward bearing means (**22, 29, 30**) between the housing and the motor, and including a vibration insulating means (**29**) which is resilient to radial displacement of the spindle (**19–21, 24**); and a rear bearing means (**23, 38**) between the housing and the motor, and which is substantially non-resilient to radial spindle displacement,

the improvement wherein:
said tool carrying spindle is rigid and mainly formed by the rotor (19) of the motor (16–19);
said vibration insulating means (29) comprises at least one resilient element located between the housing (10) and the stator (16) of the motor (16–19); and
said forward bearing means (29, 30) includes an axial thrust bearing (30) arranged to transfer axial load between the



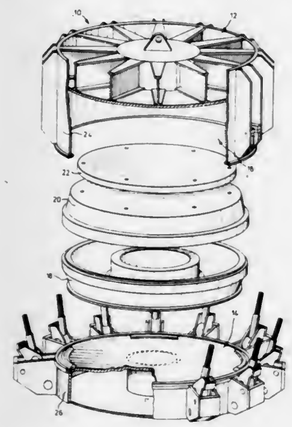
stator (16) and the housing (10) substantially without applying said axial load to said at least one resilient element and to permit a universal radial displacement of the forward end of the stator (16) relative to the housing (10) notwithstanding the magnitude of the axial load on the motor, said axial thrust bearing (30) comprising a ball bearing having balls (34) and ungrooved ball races (32, 33) so as to permit a universal displacement of the balls (34) relative to the ball races (32, 33).

4,268,234

TIRE CURING ASSEMBLY WITH IMPROVED SEAL

David L. Tsang, Cobourg, and Wlodzimierz I. Majewicz, Toronto, both of Canada, assignors to United Tire & Rubber Co. Limited, Rexdale, Canada

Filed May 6, 1980, Ser. No. 147,250
Int. Cl.³ B29H *5/02*
U.S. Cl. 425—32 **13 Claims**



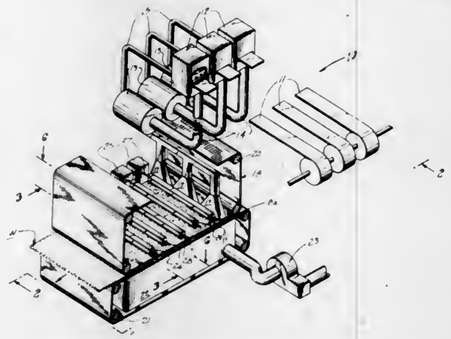
1. A tire curing press comprising,
(a) a tire curing chamber formed by housing members which comprise a base member and a cover member, said base and cover members having oppositely disposed sealing faces extending about a perimeter of said chamber,
(b) a seal member having an outer peripheral edge and an inner peripheral edge and a flexible body extending in a convex arc of curvature therebetween to define a pressure chamber inwardly thereof,
(c) seal retaining means comprising,
(i) a first retaining wall on one of said housing members and disposed outwardly from said outer peripheral edge for retaining said sealing member against displacement outwardly from said chamber,
(ii) a second retaining wall on the other of said housing members arranged to extend laterally across said flexible body of said sealing member when said cover is operably located on said base to form said chamber,
(d) passage means communicating between said pressure chamber and said tire curing chamber to permit the pressure which is generated within said curing chamber in use to generate pressure within said pressure chamber which urges said seal member into engagement with said first and second retaining walls, thereby to seal said curing chamber.

4,268,235

APPARATUS FOR THE MANUFACTURE OF FIBROUS WEBS

William C. Bean, Larsen, and Thomas M. Tao, Neenah, both of Wis., assignors to American Can Company, Greenwich, Conn.

Filed Dec. 21, 1979, Ser. No. 105,897
Int. Cl.³ B29C *17/08*
U.S. Cl. 425—83.1 **9 Claims**



1. Apparatus for manufacturing fiber webs, comprising: delivery means for dry fibers; an endless screen including a planar section linearly movable beneath said delivery means and effective to permit passage of fibers therethrough onto a forming wire provided therebeneath, and also linearly movable in the direction of movement of said planar section of said screen; vacuum box means disposed beneath said forming wire; and a plurality of banks of elongate brushes in parallel array, each extending transversely of the direction of movement of said screen and said forming wire and operative to oscillate longitudinally, thereby to engage and uniformly distribute said fibers as they pass through said screen onto said forming wire.

4,268,236

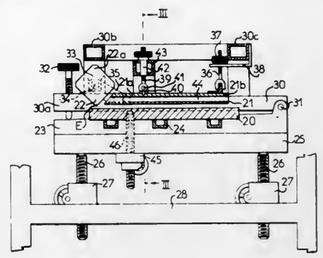
DISTRIBUTION AND CALIBRATION SYSTEM FOR EXPANDED PLASTIC PANEL MANUFACTURE

Jean M. R. Peille, Esperaza, France, assignor to Societe Industrielle de Stratifies, Esperaza, France

Filed Jan. 14, 1980, Ser. No. 111,979
Claims priority, application France, Jan. 15, 1979, 79 00847
Int. Cl.³ B29D *27/04*
U.S. Cl. 425—115 **9 Claims**

1. A distributing and calibrating system for liquid reactant mixture for continuous manufacturing installations of panels of expandable synthetic material, in which the expandable synthetic material is delivered by pouring in the liquid state upon a support sheet which may or may not be liquid-tight and which is in continuous movement, said material being preferably delivered by a pouring system comprising plural fixed pouring heads distributed along a line perpendicular to the direction of movement of the support sheet, the said installation further comprising means for applying to the top of the

synthetic material delivered by pouring a cover sheet which may or may not be liquid-tight, the support sheet and the cover sheet making it possible to subject the synthetic material to a calibrating action when this material is still present in the liquid state, said system comprising:
a reference plate below the plane of movement of the support sheet upon which said support sheet is displaced, and
a distribution plate above the plane of movement of the support sheet and of the cover sheet,
said distribution plate being elastically deformable and adjustable in spacing and inclination relative to the reference plate, and



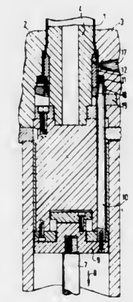
said distribution plate being positioned immediately upstream from a calibrating bar which is adjustable in displacement relative to either one of said plates, whereby the material is subjected consecutively to the action of the distribution plate and of the calibrating bar,
the distribution plate comprising adjusting means for locally deforming said distribution plate along a line transverse to the direction of movement of the support and cover sheets of the panel being formed, in such manner that said local adjustable deformations of said plate equalize the local excess thicknesses attributable to the pouring lines of said pouring head.

4,268,237

APPARATUS FOR MANUFACTURING A TUBULAR BODY PROVIDED WITH A SEALING RING

Hendrik W. Wolters, Diepenheim, Netherlands, assignor to Hawo B.V., Goor, Netherlands

Filed Mar. 26, 1980, Ser. No. 134,096
Int. Cl.³ B29C *1/14*; **B29D** *9/00, 23/02*; **B29F** *1/022*
U.S. Cl. 425—116 **8 Claims**



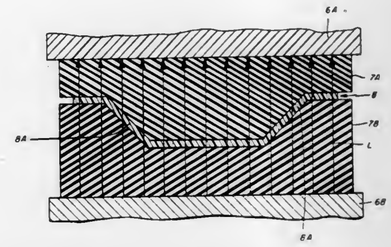
1. Apparatus for making a tubular article having an annular groove in an inner surface thereof and for forming an annular seal ring in said groove, the combination comprising:
a core element surrounded by a shell member, said core element and said shell member having therebetween an at least partly cylindrical mold cavity, an axially displaceable annular element at least partly defining an outer wall of said mold cavity and said core element at least partly defining an inner wall of said mold cavity and also at least partly defining a channel, which can be closed, communicating with said mold cavity and an injection port in said displaceable annular element.

4,268,238

FLOW MOLDING

Michel Marc, Wellesley, Mass., assignor to Clint, Inc., Natick, Mass.

Continuation-in-part of Ser. No. 886,055, Mar. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 853,127, Nov. 21, 1977, abandoned. This application Oct. 29, 1979, Ser. No. 88,776
Int. Cl.³ B29H *5/26*
U.S. Cl. 425—174.8 E **13 Claims**



1. Flow molding apparatus comprising;
means defining an electrically conductive mold having a non-planar cavity therein for receiving a material that is to be finally formed into a non-planar three-dimensional finished piece,
a diaphragm disposed in the cavity having a material on one side thereof for forming at least one surface of the piece,
and means for establishing an electromagnetic heating field across the mold,
said mold comprising a pair of electrode means having facing surfaces that extend in parallel along the length of the cavity so as to establish heat field lines substantially perpendicular to piece at points therealong,
said facing surfaces of the electrode means and both surfaces of the diaphragm all being congruent.

4,268,239

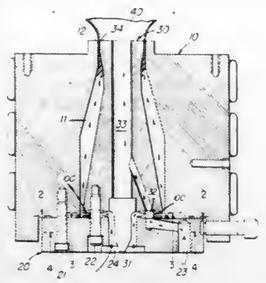
TUBULAR EXTRUSION DIE

F. John Herrington, Jr., Holcomb, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 910,953, May 30, 1978, abandoned. This application Nov. 27, 1979, Ser. No. 97,769
Int. Cl.³ B29F *3/04*
U.S. Cl. 425—467 **2 Claims**

1. A die for extruding a tubular sheet of thermoplastic film material comprising:
(a) a housing having a longitudinal opening therethrough defining a first axis;
(b) an elongated mandrel positioned within said housing opening and spaced therefrom to form an annular conduit extending in the direction of said axis;
(c) a base plate connected to said housing at the upstream end thereof;
(d) a plurality of means for spacing said mandrel from said base plate to provide a space therebetween, each of said spacing means having an axis parallel to said first axis whereby said mandrel and said base plate have spaced apart juxtaposition walls extending radially from said first axis and in communication with said annular conduit;
(e) each of said spacing means having a first groove formed in one of said mandrel and said base plate walls extending

substantially radially from said first axis to one side of said one of said spacing means and tangentially from said one of said spacing means, each of said spacing means having a second groove formed in one of said mandrel and said base plate walls extending substantially radially from said first axis to another side of said spacing means and tangen-



tially from said spacing means, whereby the tangential extensions of each one of said grooves intersect; and

(f) means for introducing molten thermoplastic material through said base plate into said space between said mandrel and said base plate whereby such thermoplastic material flows radially outwardly from said first axis to said annular conduit.

4,268,240

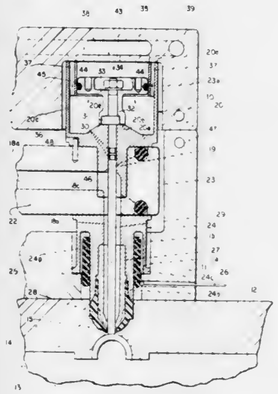
ACTUATING MECHANISM FOR GATE VALVE OF INJECTION NOZZLE

Herbert Rees, Willowdale, and Robert D. Schad, Schomberg, both of Canada, assignors to Husky Injection Molding Systems, Bolton, Canada

Division of Ser. No. 867,506, Jan. 6, 1978, Pat. No. 4,173,448. This application May 25, 1979, Ser. No. 42,348

Int. Cl.³ B29F *1/03, 1/08*

U.S. Cl. 425—548 **4 Claims**



1. In an injection-molding machine including a hot-runner structure with a sprue channel for conveying liquefied plastic material from a pressure chamber to a plurality of heated nozzles, each nozzle defining an injection gate within a mold plate, and a like number of valves for alternately blocking and unblocking respective injection gates,

the improvement wherein said structure comprises:

a distributing plate traversed by part of said sprue channel and provided with heating means for maintaining the fluidity of said plastic material;

a backing plate spaced from said distributing plate supporting said mold plate, each of said nozzles having a body spacedly surrounded by a thin-walled cylindrical skirt, said body traversing an aperture in said backing plate formed with a transverse shoulder, said skirt resting on said shoulder for holding said backing and distributing plates separated from each other;

heating means in the space between the body of each nozzle and the surrounding skirt, said heating means being in contact with said body but separated from said skirt; and

a cover plate spaced from said distributing plate on the side opposite said backing plate, said valves each including a thin-walled cylinder in line with the respective nozzle lodged in said cover plate and abutting said distributing plate for holding them separated with limited thermal contact therebetween, said valves and the skirts of said nozzles constituting the only support for said distributing plate on said backing and cover plates.

4,268,241

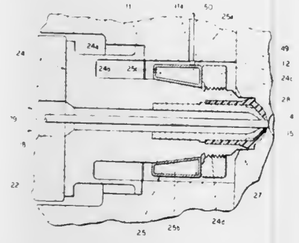
HEATED INJECTION NOZZLE

Herbert Rees, Willowdale, and Robert D. Schad, Schomberg, both of Canada, assignors to Husky Injection Molding Systems, Bolton, Canada

Continuation of Ser. No. 867,505, Jan. 6, 1978, abandoned. This application Jul. 12, 1979, Ser. No. 56,855

Int. Cl.³ B29F *1/03, 1/08*

U.S. Cl. 425—549 **8 Claims**



1. In an injection-molding machine including a hot-runner structure with a sprue channel for conveying liquefied plastic material to an injection gate of a mold plate, said sprue channel being formed in part by a nozzle with a tubular body of good thermal conductivity having a downstream extremity in engagement with said mold plate, and heater means closely surrounding said body in the vicinity of said gate,

the improvement wherein said nozzle is provided with a highly heat-conductive tubular insert defining a terminal part of said sprue channel, said insert being received in an annular recess of said body and having a tip separated from said extremity by a surrounding clearance occupied by an annular heat shield;

said heater means comprising an annular shell externally seated on a portion of said body adjacent said extremity and spacedly surrounded by the wall of a bore formed in a cooled supporting member, said nozzle being provided at an end remote from said extremity with a skirt separated by a substantially cylindrical air gap from said body and bearing upon said supporting member, said air gap having an outer diameter exceeding that of said shell and substantially corresponding to that of said bore whereby an annular space accommodating said shell in spaced relationship with said supporting member is formed around said body.

4,268,242

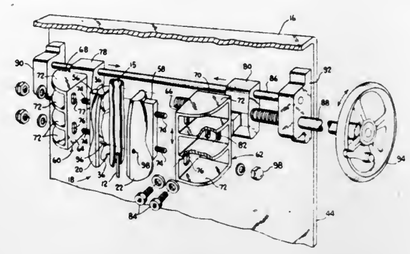
PEDAGOGIC MOLDING APPARATUS

Howard Natter, c/o Honatech, 400 Walnut St., Yonkers, N.Y. 10701

Filed Mar. 17, 1977, Ser. No. 778,680

Int. Cl.³ B29C *17/07*

U.S. Cl. 425—182 **6 Claims**



1. A pedagogic molding apparatus for instruction in the techniques of blow molding, said apparatus comprising means for extruding a hollow cylindrical parison along a vertical axis, at least one mold set, the mold set including a pair of thin walled mold segments, the apparatus further including mold supporting means including a pair of carriages, means providing horizontal translational movement of the carriages toward and away from each other, a pair of jaws, each jaw having two perpendicularly oriented panels, one panel abutting one of the mold segments and the other panel abutting a respective carriage, means adjustably securing each jaw to its respective carriage, and means adjustably mounting each mold segment to the one panel, each jaw further including a plurality of web means for cooling the mold segments, each web means extending from the one panel to the other panel, the mold set further including pilot means adapted to assist registration of the mold segments in a closed position whereby a student can set up the apparatus, practice and observe the techniques of blow molding.

4,268,243

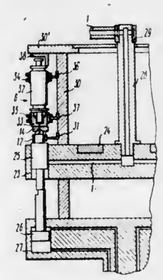
MACHINE FOR MOULDING ARTICLES FROM THERMOPLASTIC POLYMERIC MATERIALS

Lev N. Koshkin, 3 Samotechny pereulok, 23, kv. 54, Moscow; Valery M. Semenov, ulitsa Fevralskaya, 11, kv. 11, Klimovsk Moskovskoi oblasti; Jury A. Repin, ulitsa Simferopolskaya, 19, kv. 59, Klimovsk Moskovskoi oblasti; Anatoly M. Pozdnyakov, ulitsa Simferopolskaya, 19, kv. 71, Klimovsk Moskovskoi oblasti, and Nikolai Z. Lutskov, p/o Znamya Oktyabrya, 5, kv. 12, Podolsk Moskovskoi oblasti, all of U.S.S.R.

Continuation of Ser. No. 859,098, Dec. 9, 1977. This application Jul. 25, 1979, Ser. No. 60,721

Int. Cl.³ B29F *1/00*

U.S. Cl. 425—575 **3 Claims**



1. A machine for molding articles from thermoplastic polymeric materials comprising a continuously driven endless first conveyor transporting a first plurality of mold halves each having a gate, said continuously driven endless first conveyor transporting a second plurality of other mold halves in synchronism with the first plurality of mold halves for effectively continuously selectively placing individual paired mold halves into registry for forming jointly individual travelling molds for molding individual articles therein, a second driven conveyor having gate-defining means spaced thereon defining gate passages positioned in registry with the individual gates of the molds of said first conveyor selectively for delivery of a melted thermoplastic polymeric material into the individual molds therethrough and means including rotors over which the second conveyor passes to place the gate-defining means in and out of registry with the individual molds during travel of said driven first conveyor and said second conveyor, a rotor driven synchronously with both conveyors and over which both conveyors pass having injection cylinders for injecting said melted thermoplastic polymeric material into the individual molds through the individual gate passages when in registry with said molds, means for delivery of said melted thermoplastic polymers material to said injection cylinders, means for actuating the cylinders individually into positions for alternately receiving the melted thermoplastic polymeric material and for injecting the melted thermoplastic polymeric material into the molds when a corresponding gate-defining means defining a gate passage is in registry with a corresponding mold means comprising a rotor over which the first conveyor passes for opening the molds automatically during travel thereof after removal of the gate-defining means from said molds for removal of the molded articles therein, and the gate-defining means being less in number than the number of molds.

4,268,244

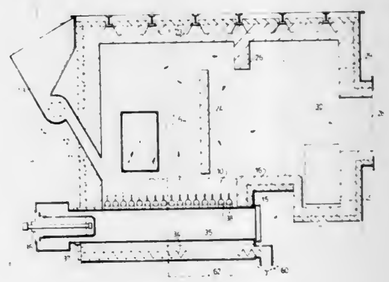
FLUID BED FURNACES

Harry Dawson, Rochdale, England, assignor to G. P. Worsley & Company Limited, England

Filed Apr. 2, 1979, Ser. No. 26,383

Int. Cl.³ F23D *19/02*

U.S. Cl. 431—170 **12 Claims**



1. A fluid-bed furnace having, in a combustion chamber, a fluidised bed of incombustible particulate material within which fuel is to be burnt, and a removable elongate chamber having a single extension surrounded by and extending through the bed material from one end of the bed, said single extension housing a bed preheating burner extending from said one end of the chamber and said chamber being connected to spaced upstanding discharge pipes or ducts extending from upper parts of the chamber extension into the bed material to supply fluidising combustion promoting gas into the bed material substantially over the whole bed.

4,268,245

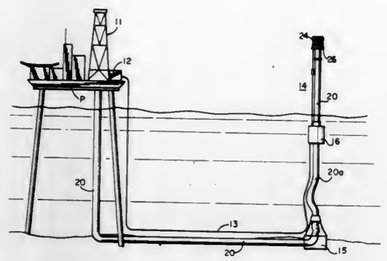
OFFSHORE-SUBSEA FLARES

John F. Straitz, III, Meadowbrook, Pa., assignor to Combustion Unlimited Incorporated, Elkins Park, Pa.

Continuation-in-part of Ser. No. 868,711, Jan. 11, 1978, abandoned. This application Sep. 12, 1979, Ser. No. 74,783

Int. Cl.³ F23D *13/20*

U.S. Cl. 431—202 **20 Claims**



1. In combination,

an offshore platform having a supply of combustible waste gas and means for supplying fuel gas,

an offshore flare for combustion of waste gas in spaced relation to said platform and having a burner at its free end,

said flare having a pilot to which fuel gas is supplied for igniting the waste gas delivered to said burner,

means on said platform for activating said pilot,

control means on said flare for said pilot,

a submerged conduit for delivery of waste gas to said burner for combustion, and

submerged connecting means between said platform and said flare comprising

means for delivery of fuel gas to said pilot,

and

connecting means between said activating means on said platform and said control means on said flare.

4,268,246

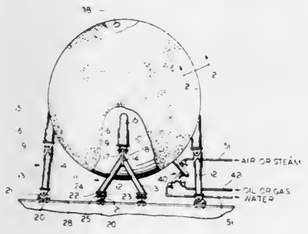
METHOD AND APPARATUS FOR METAL OBJECT HEAT TREATMENT

Orwill G. Sikora, Houston, Tex., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Sep. 21, 1979, Ser. No. 77,606

Int. Cl.³ F27D *7/00, 3/00;* **C21D** *1/62*

U.S. Cl. 432—4 **16 Claims**



9. A method comprising:

applying a low heat retention, thermal shock resistant insulation on one substantially entire surface of a metal shell enclosing a space,

heating the space enclosed by the metal shell by means of hot gases with venting of the hot gases from the shell-enclosed space,

supplying atomized water into the shell-enclosed heated space to controllably cool said space, and

venting steam from the cooling shell-enclosed space.

4,268,247

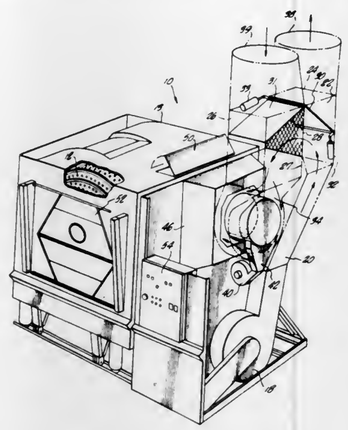
METHOD FOR DRYING FABRICS

Benjamin H. Freze, Garden Grove, Calif., assignor to Challenge-Cook Bros., Incorporated, Industry, Calif.

Filed May 24, 1979, Ser. No. 42,134

Int. Cl.³ F26B *5/04;* **F26D** *7/04*

U.S. Cl. 432—21 **36 Claims**



1. A method for drying fabrics comprising the steps of:

(a) introducing a hot drying gas into a drying zone containing wet fabrics and moisture-laden gas, the drying gas being maintained at a sufficiently high temperature of from about 300° to about 600° F., a sufficiently low relative humidity of less than about 10%, and a sufficiently high pressure greater than atmospheric pressure so that (i) moisture is evaporated from the fabrics, (ii) the pressure of the moisture-laden gas in the drying zone is greater than atmospheric pressure, and (iii) the relative humidity of the moisture-laden gas in the drying zone is from about 15% to about 65%;

(b) tumbling the fabrics in the drying zone;

(c) discharging a portion of the moisture-laden gas from the drying zone directly to the atmosphere;

(d) withdrawing the remainder of the moisture-laden gas from the drying zone; and

(e) forming the hot drying gas by the steps of (i) increasing the pressure of the withdrawn gas, (ii) heating the withdrawn gas, and (iii) combining the withdrawn gas with a dilution gas in an amount sufficient to about equal the amount of moisture-laden gas discharged from the drying zone, said amount of dilution gas which is combined with the withdrawn gas comprising from about 5 to about 20% by volume of the hot drying gas introduced into the drying zone.

4,268,248

PORTABLE PREHEATER

Robert L. Wilbur, Southwest Harbor, and Carl R. Pearson, Manset, both of Me., assignors to Lincoln A. Wilbur, Rangeley, Me.

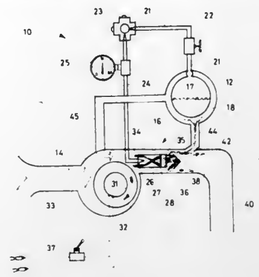
Filed Nov. 5, 1979, Ser. No. 91,595

Int. Cl.³ C21D *9/70;* **F24J** *3/02;* **F02M** *15/00;* **F24H** *1/00*

U.S. Cl. 432—62 **18 Claims**

18. In an engine preheater or preheater for other uses, using fuel of the gas cylinder type for delivering hot air, the improvement comprising:

warming receptacle means for receiving and supporting a fuel gas cylinder said receptacle including means for heating at least a portion of the fuel cylinder to maintain fuel



in the cylinder at a sufficient temperature for rapid vaporization and delivery of fuel from the cylinder, said heating means including electrical heating element means.

4,268,249

ORTHODONTIC BRACKET AND METHOD OF RETAINING A WIRE THEREIN

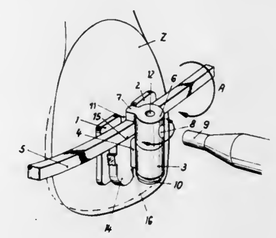
Rolf Förster, Pforzheim, Fed. Rep. of Germany, assignor to Bernhard Förster GmbH, Pforzheim, Fed. Rep. of Germany

Filed Apr. 7, 1980, Ser. No. 138,219

Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919640

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—10 **5 Claims**



1. In an orthodontic bracket comprising flange means adapted to be secured to a tooth of a patient, a bearing member having a neck portion connected to said flange means and a through hole on an axis which is transversely spaced from said flange means, and a rotary catch member mounted in said through hole for rotation on said axis and defining with said neck portion and said flange means a channel which is disposed on one side of said bearing member and open opposite to said neck portion and adapted to receive a wire so that the latter is engageable with said flange means, said rotary catch member being formed with actuating means which are peripherally spaced from said channel and engageable by an implement for rotating said rotary catch member, said rotary catch member being rotatable on said axis to a retaining position and in said retaining position being adapted to retain a wire in said channel,

the improvement residing in that

a U-shaped member is detachably fitted over said neck portion and has a crosspiece extending in said channel,

said channel is adapted to receive a square-section wire in engagement with said U-shaped member, and

said rotary catch member is adapted in said retaining position to retain said square-sectionwire in said channel and in engagement with said U-shaped member.

4,268,250

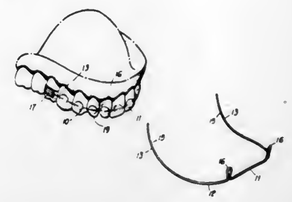
ORTHODONTIC APPLIANCE

James J. Reeve, 545 Pharr Rd., NE., Atlanta, Ga. 30305

Continuation of Ser. No. 797,985, May 18, 1977, abandoned. This application Jul. 2, 1979, Ser. No. 54,253

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—20 **13 Claims**



1. An orthodontic arch wire for use with orthodontic brackets comprising a unitary spring wire section which is substantially U-shaped in the plane of the natural dental arch and includes laterally spaced arms which are curved throughout the majority of their distal length in a plane substantially perpendicular to the said plane of the said arch, said curves being sloped in one direction only, whereby said arch wire can apply gentle and consistent pressure to all teeth in the dental arch simultaneously.

4,268,251

BORING NEEDLE DEVICE FOR TREATMENT OF A DENTAL ROOT CANAL

Mitsuo Takasugi, 74 Kuritaya, Kanagawa-ku, Yokohama, Japan 221, and Yoshio Okuyama, 13-7 Shimouma 3-chome, Setagaya-ku, Tokyo 154, Japan

PCT No. PCT/JP78/00026, § 371 Date Jul. 17, 1979, § 102(e) Date Jul. 16, 1979, PCT Pub. No. WO79/00300, PCT Pub. Date May. 31, 1979.

This PCT application filed Jul. 16, 1979, Ser. No. 101,862

Claims priority, application Japan, Nov. 17, 1977, 52-153480; Sep. 13, 1978, 53-113261

Int. Cl.³ A61C *5/02*

U.S. Cl. 433—75 **8 Claims**



1. A boring needle device for treatment of a dental root canal, comprising a grip member (4) having a head portion (2) and a shaft portion (3) centrally depending from said head portion, a needle (1) having its proximal end coaxially embedded and secured in said shaft portion, and a sleeve member (6) closely fitted on said grip member (4) in an elastic relationship therewith, the fitting surfaces of said grip and said sleeve members (4) and (6) having a plurality of axially spaced annular grooves and ridges (5), (7) formed thereon spaced from each other at a determined distance, thus providing means permitting said grip member (4) to closely slide relative to said sleeve portion (6) stepwisely by a minute amount and be self-retained

in one of a plurality of desired positions defined by respective ones of said grooves and ridges formed on said sleeve member.

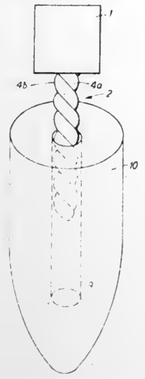
4,268,252
CONTRA-ANGLE HEAD FOR DENTISTRY
Leopold P. Lustig, 304 Greenwood St., Newton Centre, Mass. 02159
Filed Sep. 13, 1979, Ser. No. 75,013
Int. Cl.³ A61C *1/14*
U.S. Cl. 433—128 **8 Claims**



1. A contra-angle head for a dental handpiece comprising a rigid tubular housing member elongated axially to provide an alley open at a first end for receiving a drive shaft and having at the second end a chamber with an access opening through a side of said housing member for receiving a dental tool rotatable on a tool axis that is transverse to said housing axis, a latch member in the form of a thin-walled tubular shell slidingly enclosing a portion of said housing member including said second end and being movable relative to said housing member, said latch member having a two-part aperture in its wall overlying said access opening of said tool chamber, said two-part aperture having a first part which is large enough to allow a tool to pass into and out of said access opening, and a second part which is an elongated relatively narrow extension from said first part and has a dimension that is smaller than said access opening for retaining a tool in said chamber, retaining means for keeping said latch member on said housing member and operative to restrict motion of said latch member relative to said housing member between a first limit in which said first part of said aperture is in register with said access opening, and a second limit in which said second part of said aperture overlies said access opening.

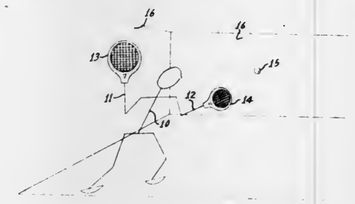
4,268,253
DOWEL POST FOR DENTAL AND MEDICAL PROSTHETIC DEVICES
Michael J. Gross, 14 Edith Rd., London, England (W 14), and Christopher H. Turner, Cherry Tree Cottage, Hursley, Nr. Winchester, Hampshire, England
Filed Dec. 26, 1979, Ser. No. 107,270
Int. Cl.³ A61C *5/08*
U.S. Cl. 433—221 **6 Claims**

1. A dowel post for anchoring a dental or medical prosthetic device comprising a head on which said device may be formed or mounted and a shaft extending therefrom for insertion into a previously prepared parallel-sided blind hole, and secured therein by a cement, wherein said shaft is of substantially constant diameter along its length and is provided with a plurality of concave flutes helically intertwined about the axis of said shaft and co-extending substantially along the length thereof at a pitch angle of 70° or less to the axis of the shaft, said concave flutes being contiguous around the circumference



of the shaft, and providing said shaft with a substantially uniform polygonal section along its length.

4,268,254
METHOD OF ENHANCING BIMANUAL DEXTERITY
Everett N. McCormick, 5049 River Point Rd., Jacksonville, Fla. 32207
Filed Dec. 14, 1979, Ser. No. 103,611
Int. Cl.³ A63B *23/00*
U.S. Cl. 434—247 **7 Claims**

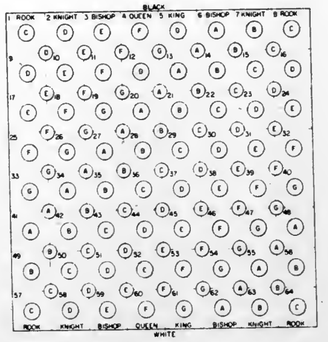


1. Method of enhancing bimanual dexterity of a person having a dominant hand and arm and a nondominant hand and arm which comprises the person participating in an athletic exercise wherein a bouncing ball is projected toward the person equipped in each hand with an implement for striking the ball and returning it in the direction from which it was projected, the implement employed in the nondominant hand having substantially better physical characteristics for striking the ball than the implement employed in the dominant hand.

4,268,255
AURAL REPRESENTATION OF EVENTS
Clifford J. Gillis, 121 Avon St., Malden, Mass. 02148, and Alfred B. Ramage, 35 Charles St., Winthrop, Mass. 02152
Filed Sep. 17, 1979, Ser. No. 75,902
Int. Cl.³ G09B *19/22*
U.S. Cl. 434—128 **6 Claims**

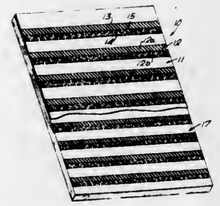
1. The method of providing an aural representation of a past sequence of movements of chess pieces which comprises:
forming a grid key having musical notes representing areas of the grid associated therewith, said grid being so constructed as to provide a visual perception of the said sequence of movements of chess pieces; and

aurally representing said sequence of movements of chess pieces by the representative musical notes associated with



said grid key which define the sequence of movements of said chess pieces.

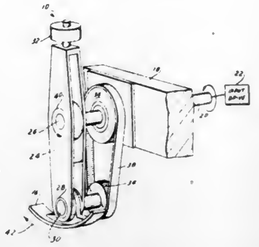
4,268,256
INSTRUCTIONAL WRITING PAPER FOR PERCEPTUALLY IMPAIRED CHILDREN
Ilene J. Moskowitz, 2611 NW. 56th Ave., Apt. 407, Lauderhill, Fla. 33313
Filed Dec. 14, 1979, Ser. No. 103,960
Int. Cl.³ G09B *11/04*
U.S. Cl. 434—162 **4 Claims**



1. An instructional writing paper system for perceptually impaired children comprising, in combination:
a. a plurality of sheets of paper,
b. a plurality of spaced parallel bands on each of said sheets of paper,
c. each band comprising a pair of co-extensive contiguous stripes,
d. a first sub-plurality of said bands being of mutually different colors differing from the color of said sheets of paper,
e. said first sub-plurality of bands being sub-divided into a plurality of second sub-pluralities of bands, the stripes of which are of mutually gradated color intensities from vivid to complete fade-out, and
f. the outer edges of said stripes and contiguous edges of the stripes of each of said bands being defined by contrastingly dark lines.

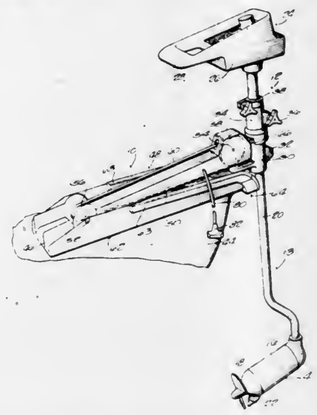
4,268,257
WHEEL SIMULATOR
Luis F. Villar, Westbury, N.Y., assignor to Servo Corporation of America, Hicksville, N.Y.
Filed Dec. 17, 1979, Ser. No. 104,072
Int. Cl.³ G09B *25/00*
U.S. Cl. 434—373 **6 Claims**

1. A wheel movement simulator comprising:
a frame: a drive shaft mounted for rotation to said frame;
a rotor secured to said shaft for rotation therewith;
a wheel sector secured for rotation to said rotor;
means for rotating said drive shaft; and



means for rotating said wheel sector in the direction opposite to the rotation of said drive shaft as said drive shaft rotates.

4,268,258
MOUNTING ARRANGEMENT FOR ELECTRIC OUTBOARD MOTOR
W. Wayne Beem, Zion, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed Sep. 27, 1979, Ser. No. 79,488
Int. Cl.³ B63H *21/26*
U.S. Cl. 440—63 **13 Claims**



1. A mounting arrangement for an outboard motor including an upper unit, a lower unit carrying a propeller and means connecting the upper and lower units including an elongated member, said mounting arrangement comprising a mounting bracket adapted to be mounted on a boat hull, a support bracket mounted on the elongated member for rotational and axial movement of the elongated member relative to said support bracket, a support arm pivotally connected to said support bracket and to said mounting bracket for pivotal movement of the outboard motor relative to said mounting bracket between a storage position and an operating position, a steering friction member mounted on the elongated member for adjustable frictional engagement therewith so as to frictionally restrain rotational movement of the elongated member relative to said steering friction member, means for releasably holding said steering friction member in a stationary position wherein rotation of said steering friction member about the axis of the elongated member is prevented when the outboard motor is in the operating position, and means for moving said steering friction member, in response to movement of said support arm from the operating position toward the storage position, from

the stationary position to a second position wherein rotation of said steering friction member about the axis of the elongated member is permitted.

4,268,259

MULTI-SPEED SPROCKETS FOR A BICYCLE AND THE LIKE

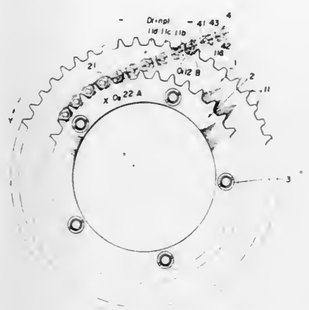
Takashi Segawa, and Tadashi Ueno, both of Sakai, Japan, assignors to Shimano Industrial Company Limited, Osaka, Japan

Filed Aug. 17, 1978, Ser. No. 934,619

Claims priority, application Japan, Aug. 25, 1977, 52/114127[U]; Aug. 25, 1977, 52/114128[U]

Int. Cl.³ F16H *55/30*

U.S. Cl. 474—160 **8 Claims**



1. Multi-speed sprockets for a bicycle and the like, comprising at least one small diameter sprocket having at the outer periphery thereof a large number of teeth and, at least one larger diameter sprocket having at the outer periphery thereof a larger number of teeth than said number of teeth at the smaller diameter sprocket, each of said sprockets being assembled in such a manner that: the center of a space between the teeth of one pair of adjacent teeth at said larger diameter sprocket is positioned on a tangent line with respect to the smaller diameter sprocket, said tangent line being drawn from the center of a space between teeth of one of a pair of adjacent teeth at the smaller diameter sprocket and along the travel of a driving chain when switched to the larger diameter sprocket from the smaller diameter sprocket in mesh with said chain; and a distance between said center of the space between said teeth at the smaller diameter sprocket and said center of the space between said teeth at the larger diameter sprocket is made substantially equal to an integer multiple of the pitch of said chain, said larger diameter sprocket including a first group of teeth among the large number of teeth of a first configuration different from the configuration of a second group of the larger number of teeth to receive a chain moving towards the edge of said larger diameter sprocket with less interference with the chain during shifting than is experienced by said second group.

4,268,260

FEEDING MECHANISM OF BAG MANUFACTURING MACHINE

Sohei Kobayasi, Yokohama, Japan, assignor to Modern Machinery Company, Ltd. and Small Business Promotion Corporation, both of, Japan

Filed Jun. 29, 1979, Ser. No. 53,346

Claims priority, application Japan, Jun. 29, 1978, 53-77975

Int. Cl.³ B31B *1/16, 1/64*

U.S. Cl. 493—194 **3 Claims**

1. A feeding mechanism for a bag manufacturing machine, comprising:

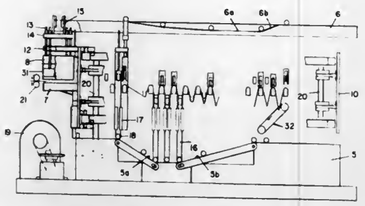
(a) a circulation path mounted in parallel to a film conveyance path on a horizontal plane,

(b) a plurality of transfer bodies which are rotatably supported and suspended in said circulation path;

(c) each of said transfer bodies having:

(i) a carrier bar projecting almost horizontally from the side of said circulation path to the outside to form the film conveyance path with mutually adjacent carrier bars;

(ii) a tension bar projecting to the outside of said circulation path, mounted to move vertically at the side of said carrier bar to draw the film supported by mutually adjacent carrier bars, thereby forming loops in the film between mutually adjacent carrier bars; and



(iii) a clamp block movable to descend into pressured contact with the upper surface of said carrier bar; and

(d) said circulation path being provided with a first cam rail for guiding the vertical movement of said tension bar, and a second cam rail for guiding the vertical movement of said clamp block according to the vertical movement of said tension bar, said first and second cam rails being disposed in parallel.

4,268,261

MACHINE FOR THE PRODUCTION OF PACKAGING WRAPPERS

Karl-Heinz Kohmann, and Wolfgang Heiber, both of Dusseldorf, Fed. Rep. of Germany, assignors to Firma Kohmann GmbH & Co., Mettmann, Fed. Rep. of Germany

Filed Dec. 27, 1978, Ser. No. 973,664

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1977, 2758968; Dec. 2, 1978, 2852257

Int. Cl.³ B31B *21/14*

U.S. Cl. 493—231 **33 Claims**



1. An apparatus for the continuous production of phonograph record covers from cut rectangular blanks of flat material comprising:

a passageway for traveling of the blanks along a track in their longitudinal direction, said passageway equipped with

a pair of abrading devices, each abrading device arranged on one side of the passageway to reduce the longitudinal edge portions of the blanks of flat material,

a folding station adjacent the abrading devices for folding at least one longitudinal edge portion of the blank,

a means for coating at least one longitudinal edge portion with adhesive material said means disposed adjacent to the folding station,

a means for folding the blank about a transverse line,

a bonding station for securing the longitudinal edge portions together, and

a swivel mount for adjusting the height of each abrading device without affecting the lateral or angular position of each abrading device having a swivel axis located parallel to the abrading surface of each abrading device,

wherein the edge portions bonded together form a layer having a thickness in the area of the bonding of the same thickness at the unabraded blanks of material.

4,268,262

CLEAR, COLD-STABLE LIQUID WASHING AGENT CONCENTRATES

Wolfgang Bechstedt, Dusseldorf-Garath, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,478

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847438

Int. Cl.³ C11D *9/08, 10/04, 17/08, 9/30*

U.S. Cl. 8—137 **12 Claims**

1. A clear, cold-stable liquid washing agent concentrate consisting essentially of:

(A) from 25% to 30% by weight of a potassium soap of C_{12-18}-fatty acids having from 60% to 100% of the fatty acid of acids selected from the group consisting of C_{12-14}-alkanoic acids, oleic acid, and mixture thereof, wherein the amount of saturated C_{16-18}-fatty acids is from 1% to 15% by weight of the fatty acids and the amount of stearic acid does not exceed 3% by weight of the fatty acids,

(B) from 5% to 9% by weight of an ethoxylate of from 6 to 8 ethoxylate units onto a primary alcohol selected from the group consisting of linear C_{9-12}-alkanols and C_{9-12}-2-methylated alkanols,

(C) from 6% to 8% by weight of a sodium C_{10-14}-alkyl-benzenesulfonate,

(D) from 0.1% to 0.7% by weight of an alkali metal salt of substituted stilbenesulfonic acid optical brighteners,

(E) from 0.7% to 4% by weight of potassium hydroxide,

(F) from 0 to 6% by weight of triethanolamine,

(G) from 12% to 18% by weight of alcohols selected from the group consisting of C_{1-3}-alkanols and mixtures of C_{1-3}-alkanols with up to 35% by weight of the mixture of hydrotropes selected from the group consisting of C_{1-4}-alkoxy-C_{2-3}-alkanols, C_{1-4}-alkoxy-C_{2-3}-alkoxy-C_{2-3}-alkanols and alkali metal salts of alkylbenzenesulfonates having from 1 to 2 alkyl groups with a total of 1 to 3 carbon atoms, and

(H) the remainder up to 100% of water, where the amount of water is from 30% to 50% by weight and the concentration of the total compounds A to E does not exceed 50% by weight of the concentrate.

12. A method of washing soiled textiles consisting of the steps of adding a clear, cold-stable liquid washing agent concentrate consisting essentially of:

(A) from 22.5% to 35% by weight of a potassium soap of C_{12-18}-fatty acids having from 60% to 100% of the fatty acid of acids selected from the group consisting of C_{12-14}-alkanoic acids, oleic acid, and mixtures thereof,

(B) from 5% to 9% by weight of an ethoxylate of from 5 to 10 ethoxylate units onto a primary alcohol selected from the group consisting of linear C_{8-14}-alkanols and C_{8-14}-2-methylated alkanols,

(C) from 4% to 10% by weight of a sodium C_{10-14}-alkylbenzenesulfonate,

(D) from 0.05% to 1% by weight of an alkali metal salt of substituted stilbenesulfonic acid optical brighteners,

(E) from 0.1% to 5% by weight of potassium hydroxide,

(F) from 0 to 6% by weight of triethaolamine,

(G) from 8% to 20% by weight of alcohols selected from the group consisting of C_{1-3}-alkanols and mixtures of C_{1-3}-alkanols with up to 35% by weight of the mixture of hydrotropes selected from the group consisting of C_{1-4}-alkoxy-C_{2-3}-alkanols, C_{1-4}-alkoxy-C_{2-3}-alkoxy-C_{2-3}-alkanols and alkali metal salts of alkylbenzenesulfonates having from 1 to 2 alkyl groups with a total of 1 to 3 carbon atoms, and

(H) the remainder up to 100% by water, where the amount of water is at least 30% by weight and the concentration of the total of components A to E does not exceed 50% by weight of the concentrate, to softened water containing soiled textiles in an automatic washer in such amounts that from 3 to 10 gm of said concentrate are present per kilogram of dry textiles, agitating said textiles in said concentrate-containing softened water, draining, rinsing and mangling said textiles and recovering clean textiles.

4,268,263

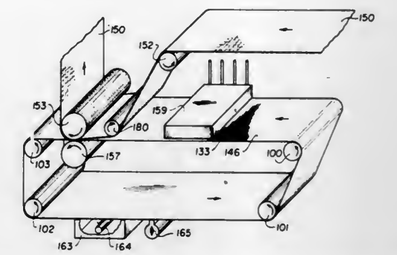
METHOD AND APPARATUS FOR IMMERSION PRINTING OF PILE FABRICS

James E. Meredith, Summerville, Ga., assignor to Bigelow-Sanford, Inc., Greenville, S.C.

Filed Feb. 27, 1980, Ser. No. 125,150

Int. Cl.³ D06B *1/10, 11/00*

U.S. Cl. 8—149 **15 Claims**



1. In a process of applying a coloring agent to a fabric having pile on one face thereof wherein an area of pile on the face of the fabric is introduced into a receptacle comprising a movable belt having a multiplicity of compartments with upstanding side walls therebetween and containing a coloring agent in liquid form, and the receptacle and the fabric are brought into mutual engagement by exerting pressure against the back of the fabric, the improvement comprising the steps of:

driving said belt in a generally horizontal direction at a predetermined speed;

feeding said fabric toward said region of engagement;

rotating a pressure roller having a protuberance-bearing surface adjacent said belt, at a peripheral speed equal to said predetermined speed and in synchronism with the movement of said belt, adjacent said region of engagement, so that the protuberances of said pressure roller urge said fabric toward each of said compartments; and

supplying said coloring agent to said compartments upstream of said region of engagement in accordance with a desired color pattern to be printed on said fabric.

6. An apparatus for applying a coloring agent to a fabric having pile on one face thereof wherein an area of pile on the face of the fabric is introduced into a receptacle, comprising a movable belt having a multiplicity of compartments with upstanding side walls therebetween for containing a coloring agent in liquid form, and means for bringing the receptacle and the fabric into mutual engagement by exerting pressure against the back of the fabric, the improvement comprising:

means for driving said belt in a generally horizontal direction at a predetermined speed;

a plurality of rollers for feeding said fabric toward said region of engagement;

a counter roller for supporting said belt at said region of engagement;

a pressure roller disposed adjacent said belt opposite said counter roller, said pressure roller having a protuberance-bearing surface;

means for rotating said pressure roller at a peripheral speed equal to said predetermined speed and in synchronism with the movement of said belt, so that the protuberances of said pressure roller urge said fabric toward each of said compartments; and

means for supplying said coloring agent to said compartments upstream of said region of engagement in accordance with a desired color pattern to be printed on said fabric.

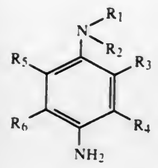
4,268,264

COMPOSITION FOR HAIR DYEING WHICH CONTAINS A PARA BASE AND AN ORTHO BASE

Jean F. Grollier, Paris; Andree Bugaut, Boulogne-Billancourt; Patrick Andrillon, Aulnay-sous-Bois, and Chantal Fourcadier, Paris, all of France, assignors to L'Oreal, Paris, France

Filed Apr. 5, 1979, Ser. No. 27,363
Claims priority, application France, Apr. 6, 1978, 78 10278
Int. Cl.³ A61K *7/12, 7/135*
U.S. Cl. 8—410 **25 Claims**

1. A composition suitable for dyeing keratin fibres, which comprises, as the sole oxidative dyestuffs, at least one oxidative dyestuff precursor of the para type and at least one oxidative dyestuff precursor of the ortho type, said at least one oxidative dyestuff precursor of the para type either having the formula:



in which:

(i) R_1 and R_2 are both a hydrogen atom, and R_3, R_4, R_5 and R_6 are a hydrogen atom, a lower alkyl group or a lower alkoxy group with the proviso that at least two of R_3, R_4, R_5 and R_6 are a lower alkyl group or a lower alkoxy group; or

(ii) one of R_1 and R_2 is hydrogen, and the other is an alkyl-O-alkyl group substituted by a hydroxyl group, or an alkyl group substituted by an acylamino, ureido, mesylamino, furfuryl or sulphonamido group or by a sulphoamido group which is substituted by one or two lower alkyl groups, and R_3, R_4, R_5 and R_6 are all hydrogen or at least one of them is a halogen atom or a lower alkyl group and the remainder; or

(iii) one of R_1 or R_2 is a lower alkyl group or a lower alkyl group substituted by a hydroxyl, alkoxy, furfuryl or tetrahydrofurfuryl group, R_3 is a hydrogen atom, a lower alkyl group, a halogen atom or a lower alkoxy group, R_4 is hydrogen, or a halogen atom if R_3 is hydrogen, and R_5 and R_6 are hydrogen; or

(iv) R_1 is hydroxyalkyl or alkyl and R_2 is hydroxyalkyl, or alkyl substituted by an acylamino, mesylamino, carbamyl, sulphonamido or piperidino group, or R_1 and R_2 form, together with the nitrogen atom to which they are bonded, a piperidino or morpholino group, and R_3, R_4, R_5 and R_6 are all hydrogen or at least one of them is a lower alkyl group or a halogen atom and the remainder are hydrogen; or

(v) R_1 and R_2 are both an alkyl group, R_4 is a halogen atom or an alkyl or alkoxy group, and R_3, R_5 and R_6 are hydrogen;

or being a bis-condensed precursor which is an N,N'-diarylalkylenediamine in which the aryl groups are substituted in the para position relative to the carbon bonded to the amine group by a OH, an amino group or an amino group which is substituted by an alkyl, hydroxyalkyl or aminoalkyl group, or a salt of said precursor;

and said at least one oxidative dyestuff precursor of the ortho type is an ortho-aminophenol, orthodiphenol or ortho-phenylenediamine in which the 4- and 5-positions relative to the OH group of the aromatic nuclei of the ortho-aminophenol and the ortho-diphenol are substituted by a hydrogen atom, and in which the nitrogen atom of the ortho-aminophenol or one of the nitrogen atoms of the ortho-phenylenediamine is substituted or substituted by an alkyl group or an alkyl group substituted by a hydroxyl or alkoxy group, or a cosmetically acceptable salt of said precursor.

4,268,265

NATURAL DYESTUFFS FOR GELATINE CAPSULES

Andre R. Von Wattenwyl, Reinach, Switzerland, assignor to Parke, Davis & Company, Morris Plains, N.J.

Filed Jul. 13, 1979, Ser. No. 57,485
Claims priority, application Switzerland, Jul. 24, 1978, 7976/78
Int. Cl.³ C09B *61/00*
U.S. Cl. 8—438 **8 Claims**

1. A process for stabilizing a natural dyestuff for gelatine capsules against degradation by light or oxidation which comprises

A. dissolving said dyestuff in a suitable solvent;

B. contacting the resulting dyestuff solution with a finely divided adsorbent and immobilizing said dyestuff on said adsorbent thereby stabilizing said dyestuff;

C. separating the resulting stabilized dyestuff from said solution; and

D. drying said stabilized dyestuff

and E. adding said stabilized dyestuff into gelatin for capsules.

4,268,266

PROCESS FOR DYEING AND PRINTING CELLULOSE FIBRES WITH REACTIVE DYESTUFFS

Udo-Winfried Hendricks; Dietrich Hildebrand, both of Odenthal, and Robert Kuth, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 69,691
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838274
Int. Cl.³ D06P *3/66, 1/613, 1/607, 1/38*
U.S. Cl. 8—543 **2 Claims**

1. In the dyeing and printing of fibres and textile materials containing cellulose wherein the fibres or textile materials are contacted with a padding liquor or printing paste containing a water-soluble reactive dyestuff in the absence of alkali or alkaline compounds, the improvement which comprises incorporating in the padding liquor or printing paste at least one compound of the formula

$$Z_1[(-O-CH_2-CH_2)_n-O-CH_2-\underset{\backslash\ /}{CH}-CH_2]_p$$
$$O$$

wherein

Z_1 is a monovalent to tetravalent aliphatic hydrocarbon radical with 1–5 carbon atoms,

n is 0–10, and

p is 1–4.

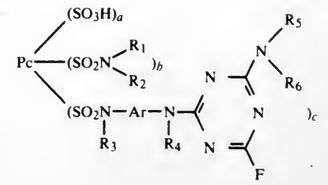
4,268,267

PHTHALOCYANINE REACTIVE DYESTUFFS

Karl H. Duchardt; Manfred Groll, both of Cologne, and Klaus Wunderlich, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,611
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849068
Int. Cl.³ C09B *62/06, 47/04*
U.S. Cl. 8—549 **11 Claims**

1. Phthalocyanine dyestuffs which, in the form of the free acid, have the formula



wherein

Pc is the radical of a copper phthalocyanine or nickel phthalocyanine,

R_1 and R_2 are hydrogen or optionally substituted alkyl, or R_1+R_2 together with N are a 5-membered or 6-membered heterocyclic ring,

R_3 and R_4 are hydrogen or optionally substituted alkyl,

Ar is arylene substituted by SO_3H or/and COOH and optionally by other atoms or groups of atoms,

R_5 and R_6 are hydrogen, optionally substituted alkyl, cycloalkyl or aralkyl or an optionally substituted aryl radical which is free from sulphonic acid and carboxylic acid groups, or R_5+R_6 together with N are a 5-membered or 6-membered heterocyclic ring,

a is 1 to 3,

b is 0 to 2,

c is 1 or 2 and

$a+b+c \leqq 4$,

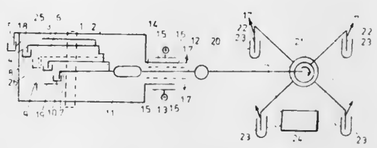
and mixtures thereof.

4,268,268

METHOD AND APPARATUS FOR CHARACTERIZATION OF CELLS, PARTICLES, AND LIQUIDS

Alvin S. Blum, 2350 Del Mar Pl., Fort Lauderdale, Fla. 33301

Continuation-in-part of Ser. No. 972,670, Dec. 26, 1978, and Ser. No. 968,907, Dec. 13, 1978, and Ser. No. 898,998, Apr. 21, 1978. This application May 16, 1979, Ser. No. 39,377
Int. Cl.³ G01N *33/56, 35/08*
U.S. Cl. 23—230 B **24 Claims**



22. A method of analyzing suspensions of cells, particles and the like or for analyzing solutions by the use of suspensions of cells, particles and the like, which comprises the steps of:

(a) forming a plurality of flowing reaction mixtures, each of said mixtures comprising a liquid phase and a particulate suspension phase including a suspension of particulate material such as cells, cell membranes, bacteria, viruses, and the like, reaction taking place in said mixture to form a reaction product, at least, on said particulate material;

(b) flowing each said reaction mixture in turn continuously along a conduit;

(c) flowing each said reaction mixture in turn through electrical separation means to separate reacted particulate material from certain other constituents of said reaction mixture by movement of said constituents across at least one permeable membrane means and into at least one other separate flowing recipient stream under the force of electrical field means;

(d) and determining at least one constituent of interest by analysis of the separated particulate suspension and/or the separated recipient fluid stream by determining means downstream of said electrical separation means.

4,268,269

FIELD TEST METHOD FOR ESTIMATION OF CONCENTRATION OF ORGANIC MATERIALS IN WATER

Clare B. Proudfoot, Munster, Ind., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 71,821, Sep. 4, 1979, abandoned. This application Jan. 25, 1980, Ser. No. 115,518
Int. Cl.³ G01N *31/04, 31/08, 33/00*
U.S. Cl. 23—230 M **8 Claims**

1. An analytical process for quantitatively identifying concentrations of triazoles in aqueous solutions which comprises:

(a) a separation step which comprises:

(1) passing an aqueous solution containing at least one triazole through an adsorbing medium wherein said adsorbing medium preferentially adsorbs said triazoles; and

(2) eluting said triazole from said adsorbing medium by addition of an effective amount of a suitable eluting solvent; and

(b) a quantification step which comprises:

(1) passing the eluate containing said triazole through an ion exchange resin wherein said ion exchange resin is in metal ion form and wherein said metal ions react with said triazole to form a colored product; and

(2) eluting excess metal ions from said ion exchange resin by addition of an effective amount of an aqueous inorganic salt to expose the adsorbed metal ion triazole colored product; and

(3) comparing said product to a visual standard to determine concentration.

4,268,270

GLYCOSYLATED HEMOGLOBIN MEASUREMENT

Kenneth H. Gabbay, and Paul M. Gallop, both of Chestnut Hill, Mass., assignors to Children's Hospital Medical Center, Boston, Mass.

Filed Apr. 30, 1979, Ser. No. 34,755
Int. Cl.³ G01N *33/52, 33/66, 33/72, 33/58*
U.S. Cl. 23—230.3 **40 Claims**



1. In the process of measuring glycosylated hemoglobin, the steps comprising:

providing a sample containing hemoglobin including an unknown quantity of glycosylated hemoglobin,

oxidizing said glycosylated hemoglobin thereby to generate aldehydic compounds, and

determining the quantity of aldehydic compounds so generated, said quantity of aldehydic compounds being directly proportional to said unknown quantity of glycosylated hemoglobin.

18. A combination of test equipment and reagents for measuring glycosylated hemoglobin, comprising in combination
a container for receiving a liquid sample containing hemoglobin including an unknown quantity of glycosylated hemoglobin,
a first chemical reagent selected to oxidize said glycosylated hemoglobin upon addition to said container containing said sample, to generate aldehydic compounds in said container, and
a second chemical reagent selected to react with said aldehydic compounds upon addition to said container to produce products having a measurable characteristic uniquely distinctive of said unknown quantity.

4,268,271
REDUCTION OF THE FOULING POTENTIAL OF HIGH SODIUM COAL
Daniel J. Curtin, Danville, Calif., assignor to Atlantic Richfield Company, Los Angeles, Calif.
Filed Nov. 26, 1979, Ser. No. 97,116
Int. Cl.³ C10L 9/00
U.S. Cl. 44—1 R **8 Claims**

1. Method for reducing the potential of sodium-containing coal to foul coal-burning equipment, which comprises:
selectively crushing said coal so that the resulting particles thereof have a diameter of no more than about 4 inches, a portion of said particles have a diameter of more than 1 inch and another portion of said particles have a diameter of 1 inch or less,
separating said crushed coal into a low potential fouling fraction containing primarily particles of more than 1 inch in diameter and a high potential fouling fraction containing primarily particles of 1 inch or less in diameter, and
recovering the coal fraction having a low potential for fouling.

5. Method of claim 1 which includes the steps of removing sodium from said high potential fouling fraction and subsequently combining said fractions.

4,268,272
EXOTHERMIC COMPOSITION AND WARMING BAG CONTAINING THE SAME
Miyako Taura, Chigasaki, Japan, assignor to Eiichi Ito and Teruchika Taura, both of, Japan
Filed May 22, 1979, Ser. No. 41,344
Int. Cl.³ F24J 1/00, 3/04
U.S. Cl. 44—3 R **3 Claims**

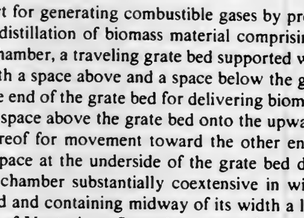
1. An exothermic composition for warming bags characterized by being prepared by mixing 20 to 25 parts by weight of an iron powder with a mixed fibrous and carbonaceous powder as impregnated with a solution prepared by dissolving a proper amount of a neutral salt in 8 to 15 parts by weight of an aqueous solution of a 0.05 to 1-normal alkali or alkaline weak acid salt and leaving the mixture as sealed to mature.

3. A warming bag characterized by containing the exothermic composition according to claim 1 in a nonventilative inner bag provided on a part of the surface with a ventilating hole group of pinholes and a nonventilative label covering the hole group and containing said inner bag in a nonventilative outer bag.

4,268,273
KINDLE MAKER
Eugene S. Schneider, 574 Skippack Creek Rd., Collegeville, Pa. 19426, and Kent A. Schneider, Rte. 7, Box 478A, Gainesville, Ga. 30501
Filed Oct. 9, 1979, Ser. No. 82,711
Int. Cl.³ C10L 11/08
U.S. Cl. 44—35 **10 Claims**

1. A kindling-making apparatus comprising:
(a) hollow, open-ended container means having at least one longitudinal slit therealong and having cutout portions therethrough into the interior thereof for receiving a lining material and kindling material thereinside; and
(b) fastening means connected to said container means along said slit for securely closing said container means at said slit.

2. An apparatus as claimed in claim 1, further comprising:

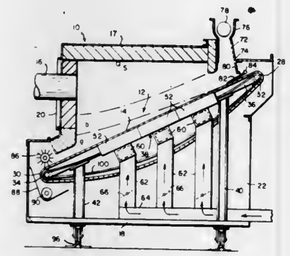


(a) retaining means at the ends of said container means for retaining a lining material folded outward around the ends of said container means.

8. An apparatus as claimed in claim 1, wherein said container means is comprised of two halves and hinge means for connecting said two halves.

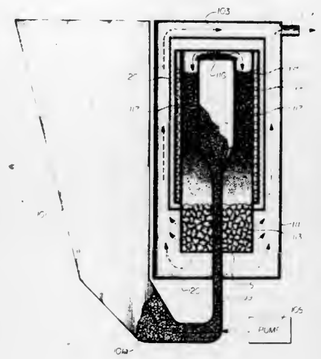
9. An apparatus as claimed in claim 1, further comprising a carrying means affixed to said container means.

4,268,274
GASIFICATION RETORT
Robert A. Caughey, Antrim, N.H., assignor to Forest Fuels, Inc., Marlborough, N.H.
Filed Jul. 9, 1979, Ser. No. 55,386
Int. Cl.³ C10J 3/20; C10S 3/40
U.S. Cl. 48—111 **39 Claims**



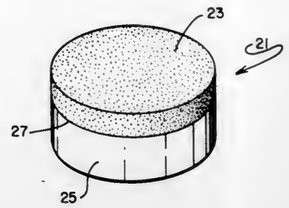
1. A retort for generating combustible gases by progressive destructive distillation of biomass material comprising means defining a chamber, a traveling grate bed supported within the chamber with a space above and a space below the grate bed, means at one end of the grate bed for delivering biomass material into the space above the grate bed onto the upwardly-facing side thereof for movement toward the other end, means within the space at the underside of the grate bed defining a distribution chamber substantially coextensive in width with the grate bed and containing midway of its width a longitudinal opening of Venturi configuration, means for controllably supplying air to the distribution chamber through said opening in an amount to effect destructive distillation and generation of combustible gases, said means for supplying air including a plenum chamber located below said distribution chamber, and means for collecting the combustible gases within the space above the grate bed for distribution.

4,268,275
APPARATUS FOR CONVERTING ORGANIC MATERIAL INTO FUEL
Donald E. Chittick, Newberg, Oreg., assignor to Pyrenco, Inc., Grandview, Wash.
Filed Mar. 7, 1979, Ser. No. 18,118
Int. Cl.³ C10J 3/00
U.S. Cl. 48—111 **8 Claims**



1. An apparatus for converting organic material into a gaseous fuel, comprising:
a chamber which includes a first portion which is adapted to receive the organic material, and a second portion which is adapted to receive a base material, such as charcoal, said chamber including a first subchamber, and a second subchamber surrounding said first subchamber, said first subchamber extending upwards into said second subchamber, said apparatus further including means forcing the organic material into said first subchamber near the lower end thereof, so that the organic material tends to move upward through said first subchamber, said first portion being located entirely within said first subchamber, said second portion being located at least partially in said second subchamber, said second subchamber including gas exit means located near the bottom thereof;
means heating the first portion of said chamber sufficiently that the organic material therein undergoes a pyrolysis reaction, wherein pyrolysis volatiles, including hydrogen, carbon monoxide, water vapor and tars, are driven off from the organic material; and
means for maintaining a region in the second portion of said chamber, and the base maerial present therein, at a reaction temperature which is substantially higher than the pyrolysis temperature of said first portion, wherein the second portion of said chamber is located and arranged relative to the first portion thereof such that the pyrolysis volatiles driven off from the organic material in the first portion of said chamber move through said region of said second portion, the pyrolysis volatiles and the char moving upward and out of the first subchamber into said second subchamber, said reaction temperature being sufficiently high that the tars and water vapor react further to form product gases, comprising substantially hydrogen and carbon monoxide, and an essentially non-tar residue, wherein the product gases exiting from said chamber are characterized by the essential absence of tars.

4,268,276
COMPACT OF BORON-DOPED DIAMOND AND METHOD FOR MAKING SAME
Harold P. Bovenkerk, Worthington, Ohio, assignor to General Electric Company, Worthington, Ohio
Continuation of Ser. No. 899,780, Apr. 25, 1978, abandoned.
This application Feb. 13, 1979, Ser. No. 11,771
Int. Cl.³ B24D 3/08
U.S. Cl. 51—295 **21 Claims**



1. In a process for making a compact comprising:
(a) placing within a charge assembly (i) a mass comprised of diamond particles and (ii) a source of diamond catalyst-solvent material; and
(b) subjecting said charge assembly and the contents thereof to thermodynamically stable conditions for the diamond content thereof at temperatures in the range of 1300° C. to 1600° C. and pressures in excess of about 45 kilobars; the improvement which comprises using boron doped diamond particles in step (a).

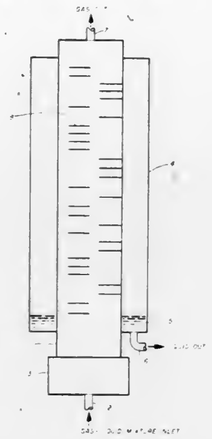
16. A compact comprising:
(a) a porous mass of self-bonded, boron-doped diamond particles, said mass comprising at least 90% by volume diamond, said particles containing a boron-dopant level between about 0.01% to 0.5% of the doped particle weight; and
(b) a catalyst-solvent material dispersed in the pores of said mass, said material selected from the group consisting of:
(i) a catalytic metal, in elemental form, selected from the group consisting of Group VIII metals Cr, Mn, Ta;
(ii) a mixture of alloyable metals of the catalytic metal(s) and non-catalytic metal(s);
(iii) an alloy of at least two of said catalytic metals; and
(iv) an alloy of the catalytic metal(s) and non-catalytic metal(s).

4,268,277
MULTI-TUBULAR CENTRIFUGAL LIQUID SEPARATOR AND METHOD OF SEPARATION
Mitchel L. Rooker, Tulsa, Okla., assignor to Combustion Engineering, Inc., Windsor, Conn.
Continuation-in-part of Ser. No. 942,256, Sep. 14, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 79,017
Int. Cl.³ B01D 45/12
U.S. Cl. 55—1 **5 Claims**

1. A liquid-gas separator, including,
a tube adapted to receive in its first end a gas in which liquid is entrained,
means at the first end of the tube for forming a vortex of the liquid and gas entering the first end of the tube which forces the liquid to the internal wall of the tube,
elongated openings through the wall of the tube wherein each elongated opening has a width substantially $\frac{1}{8}$" and is extended in a plane normal the axis of the tube and wherein the elongated openings are distributed along a substantial length of the tube and wherein the total area of all the openings is at least ten times that of the area of a continuous circumferential opening $\frac{1}{8}$" wide through the wall of a tube of the same diameter,
a casing sealed substantially gas tight to the external wall of the tube above and below the elongated openings through

the tube wall and wherein the casing forms a chamber with the external tube wall in which the liquid passing through the elongated openings collects,
the tube having a second end providing a gas outlet from which gas is withdrawn after the liquid has been forced through the tube wall openings,
and a conduit connected to the chamber through which the liquids collected in the chamber are withdrawn.

5. A method for separating gas and entrained liquid with a tube having first and second ends and having elongated openings through the wall of the tube wherein each elongated opening has a width substantially $\frac{1}{8}$" and is extended in a plane normal the axis of the tube and wherein the elongated openings are distributed along a substantial length of the tube and



wherein the total area of all the openings is at least ten times that of the area of a continuous circumferential opening $\frac{1}{8}$" wide through the wall of a tube of the same diameter, including,
conducting gas and entrained liquid into the first end of the tube,
vortexing the gas and liquid to force the liquid through the elongated openings in the wall of the tube,
applying a pressure to the external surface of the tube which is substantially equal to the pressure inside the tube,
collecting the liquid flowing through the wall openings of the tube,
withdrawing the liquids from the collection,
and withdrawing the gas from the second end of the tube.

4,268,278

INORGANIC ANISOTROPIC HOLLOW FIBERS

Emerick J. Dobo, Cary, and Tommy E. Graham, Raleigh, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 906,502, May 16, 1978, Pat. No. 4,175,153.
This application Feb. 5, 1979, Ser. No. 9,579
Int. Cl.³ B01D *53/22;* **C04B** *35/64*
U.S. Cl. 55—16 **10 Claims**



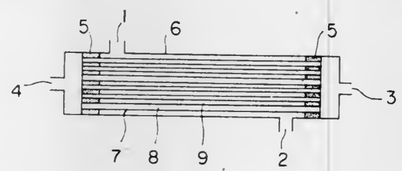
1. A process comprising
(a) preparing a solution of an organic fiber-forming polymer, containing, in a uniformly dispersed form, a sinterable inorganic material;
(b) extruding the inorganic material-containing polymer solution through a hollow fiber spinneret;
(c) forming a polymeric precursor hollow fiber, laden with the inorganic material, having a radially anisotropic internal void volume wall structure;
(d) treating the polymeric precursor hollow fiber to remove the organic polymer; and
(e) sintering the resulting inorganic material; provided that steps (d) and (e) are conducted under conditions that maintain a radially anisotropic internal void volume wall structure in the hollow fiber.

4,268,279

GAS TRANSFER PROCESS WITH HOLLOW FIBER MEMBRANE

Mizuo Shindo; Takashi Yamamoto, both of Ootake, and Kensuke Kamada, Chiba, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1979, Ser. No. 45,868
Claims priority, application Japan, Jun. 15, 1978, 53-72431
Int. Cl.³ B01D *13/00, 53/22*
U.S. Cl. 55—16 **4 Claims**



1. In a gas transfer process by using the microporous wall membrane of a microporous hollow fiber as contacting wall membrane and placing a liquid inside the hollow fiber and a fluid outside, thereby allowing the gaseous components to transfer to the inside or outside of the hollow fibers, an improved method wherein the improvement comprises using a hollow fiber having
(i) an average micropore diameter in the range of from 0.01 to 0.5μ,
(ii) an internal diameter of the hollow fiber in the range of from 50 to 5,000μ,
(iii) a porosity of the membrane of 10% by volume or more,
(iv) a micropore surface area of the membrane of 5 m^2/g or more, and
(v) an oxygen permeability of the membrane of 1×10^{-6} $cm^3(STP)\cdot cm/cm^2\cdot sec\cdot cmHg$ or more,
and wherein the microporous hollow fiber is polypropylene.

4,268,280

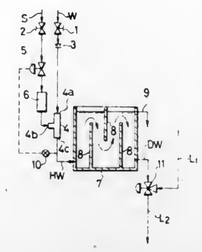
METHOD OF CONTINUOUSLY DEGASSING WATER

Shinichi Fujii, and Hiroshi Hata, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 7, 1979, Ser. No. 46,281
Claims priority, application Japan, Jul. 21, 1978, 53-89168
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—54 **8 Claims**

1. In a method of continuously degassing water in which vapor phase components melted in water are continuously degassed by heating and reducing the pressure of the water, the improvement comprising introducing water into a diffuser at one end thereof, mixing saturated steam into the water in said diffuser along portions between inlet and exhaust thereof

to heat said water and accelerate foaming of said vapor phase components by cavitation created in the water by local drop in



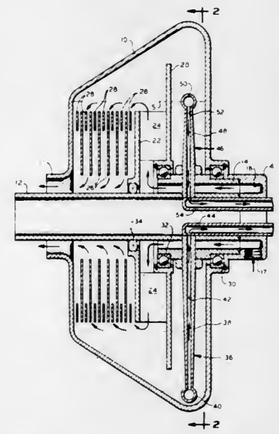
pressure and, pooling said water under atmospheric pressure to allow said water to degass.

4,268,281

METHOD OF REMOVING PARTICULATE CONTAMINANTS FROM A GAS STREAM

John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., City of Commerce, Calif.

Division of Ser. No. 23,208, Mar. 23, 1979, Pat. No. 4,198,218.
This application Jul. 27, 1979, Ser. No. 61,211
Int. Cl.³ B01D *47/18*
U.S. Cl. 55—92 **2 Claims**



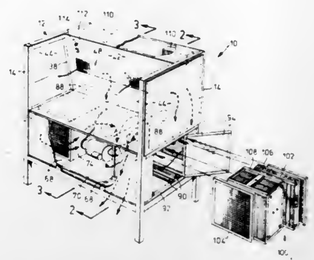
1. A method of removing particulate contaminants from a stream of transient gas comprising the steps of: wetting the particulate contaminants in the transient gas stream with a liquid; causing the gas stream and wetted particulate contaminants to travel along a first path to a rotating impeller; accelerating the gas stream and the wetted particulate contaminants therein by the action of the impeller and imparting movement of the gas stream and wetted particulate contaminants along a second path at substantially right angles to the first path; exposing the accelerated gas stream and the wetted particulate contaminants therein to a centrifugal force by a rotating chamber to effect a separation of the wetted particulate contaminants from the gas stream and to effect a separation of the liquid from the particulate contaminants; and directing the gas stream to a clean gas outlet along a third path offset from and in opposition to the second path through an energy absorbing means including a series of spaced-apart extended surface plates adapted to rotate about an axis parallel to the first path wherein the third path is generally parallel to the extended surfaces of the plates to effect removal of the remaining particulate contaminants from the gas stream.

4,268,282

WORK BENCH WITH SELF-CONTAINED AIR CLEANER

Harold L. MacKenzie, Etobicoke, Canada, assignor to Riverwood Enterprises & Manufacturing, Ltd., Toronto, Canada

Filed Nov. 19, 1979, Ser. No. 95,212
Int. Cl.³ B03C *3/04;* **B01D** *50/00*
U.S. Cl. 55—101 **7 Claims**



1. A work bench comprising,
(a) a frame,
(b) a work platform supported by said frame at a predetermined work height in a generally horizontal plane, said work platform having a pair of oppositely disposed end edges, a front edge and a back edge, the front and back edges extending longitudinally between the end edges,
(c) a platform enclosure comprising a first back wall projecting upwardly and forwardly from said back edge of said platform and side walls projecting upwardly from each end edge of said platform, said first back wall being inclined forwardly with respect to the work platform at an angle in the range of 70° to 80°,
(d) a vent passage opening through said first back wall, said vent passage being spaced a substantial distance above said work platform and extending longitudinally of said first back wall along a major portion of the length thereof,
(e) an air filter chamber disposed below said work platform and extending longitudinally between the end edges of the platform, said chamber having at least two filter compartments arranged at longitudinally spaced intervals along said chamber, said filter compartments being spaced from one another by an air extraction compartment, each of said filter compartments having an input passage opening therefrom at said back edge of said work platform, said air extraction compartment having a discharge passage opening outwardly therefrom,
(f) an air plenum disposed rearwardly from said first back wall and communicating between said vent passage and said input passages of said filter compartments,
(g) an air filter unit removably mounted in each filter compartment, each air filter unit having an input end connecting with the input passage of the compartment in which it is housed and an outlet passage communicating with said air extraction compartment,
(h) an air extraction unit mounted in said air extraction compartment and operable to extract air from within said platform enclosure through said vent passage and through said filter units in parallel to discharge through said discharge passage of said extraction compartment.

7. A work bend comprising,
(a) a frame,
(b) a work platform supported by said frame, said work platform having a front to back transverse extent between a front end and a back end thereof and a longitudinal extent between oppositely disposed sides thereof,
(c) a platform enclosure disposed above said platform and comprising a first back wall projecting upwardly from the

back end of the platform and a pair of oppositely disposed side walls projecting upwardly from opposite sides of the platform,

(d) a vent passage opening through said back wall,

(e) an air plenum disposed rearwardly from said back wall and communicating with said vent passage,

(f) a pair of air filter compartments disposed below said platform and each having a through passage extending in the direction of the transverse extent of said platform, said through passage having an input end at the back end of the platform and an output end at the front end of the platform, the input end of the through passage communicating with said air plenum,

(g) an air extraction compartment disposed below said platform and extending between said air filter compartments in the direction of the transverse extent of said platform, said output ends of said air filter compartments communicating with said air extraction compartment, said air extraction compartment having a discharge passage opening outwardly therefrom,

(h) an air filter unit mounted in each of said air filter compartments,

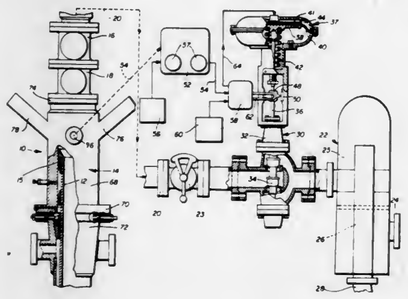
(i) an air extraction unit mounted in said air extraction compartment and operable to withdraw air from said platform enclosure through said vent passage, said air plenum, and each of said air filter compartments and said air extraction compartment to discharge it through said discharge passage.

4,268,283

FLUID CONTROL MEANS FOR GEOTHERMAL WELLS

Allen L. Roberts, Castle Rock, Colo., assignor to W-K-M Wellhead Systems, Inc., Shreveport, La.

Filed Dec. 31, 1979, Ser. No. 108,763
Int. Cl.³ B01D *19/00*; E21B *43/00*
U.S. Cl. 55—189 **6 Claims**



2. In a geothermal production system, a steam separator, a generally Y-shaped wellhead having a main body and a pair of integral auxiliary body portions diverging from the main body, a casing string mounted within said wellhead below said auxiliary body portions, a fluid supply line extending from said wellhead to said steam separator, a control valve in said supply line to control the fluid flow from the wellhead to the steam separator;

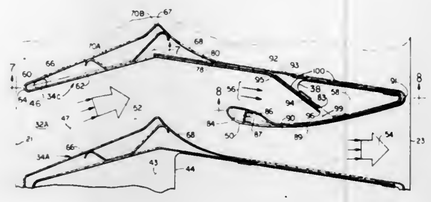
a tubing head in one of said auxiliary body portions, and a flexible tubing supported from said tubing head and extending within the casing string for the injection of selected fluids; the other auxiliary body portion being adapted to receive a test steam probe for acquiring a steam sample from the associated well.

4,268,284

MULTICHANNEL PARTICLE SEPARATOR OF THE ANTI-ICING TYPE

Peter Kent; Richard M. Norris, both of Stratford, Conn., and Alan J. Charlton, Boxford, Mass., assignors to Avco Corporation, Stratford, Conn.

Continuation of Ser. No. 849,239, Nov. 7, 1977, abandoned, which is a continuation-in-part of Ser. No. 692,654, Jun. 4, 1976, abandoned. This application Apr. 23, 1979, Ser. No. 32,604
Int. Cl.³ B01D *45/16*
U.S. Cl. 55—269 **4 Claims**



1. A particle separator of the anti-icing type useful for separating and removing foreign particles from an airstream supplied to an engine air intake passage, said particle separator comprising:

a housing mounted on said engine, said housing having an open interior with an inlet and an outlet through which air is permitted to pass, said outlet being in communication with said engine air intake passage;

a plurality of channel assemblies mounted in parallel side-by-side relationship within the open interior of said housing and extending from the inlet to the outlet of said housing, said channel assemblies being formed such that adjacent assemblies divide the open interior of said housing into separate passageways each having a turn intermediate its length, said passageways extending from the inlet to the outlet of the housing, said turn of the passageways causing an inertial separation of the foreign particles in the airstream;

each of said channel assemblies being constructed of a plurality of joined walls and further having a projection at its outlet end extending upstream and into the adjacent passageway formed thereby to form a particle collection chamber, said chamber being located downstream of the turn and having an upstream facing opening defined by the walls of the channel assembly and an air dividing upstream facing edge of the projection;

said walls of each of said channel assemblies forming a first cavity within the inlet end of the channel assembly and a first duct within the assembly connecting said first cavity with the particle collection chamber;

said walls also forming a second cavity within the airstream dividing edge and a second duct within the projection connecting said second cavity with the particle collection chamber;

a source of heated air connected to the particle separator housing;

an intake manifold mounted on the housing to receive the heated air and distribute said air to the first and second interior cavities of each of the channel assemblies, said heated air flowing through the first and second ducts to the particle collection chambers; and

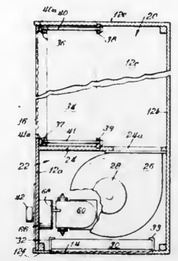
a scavenge manifold mounted on said housing in communication with each of the particle collection chambers for receiving and exhausting the foreign particles and heated air therefrom.

4,268,285

AIR FRESHENING APPARATUS

Donald G. Mason, Park Ridge, Ill., assignor to Mason Engineering & Designing Corporation, Rosemont, Ill.

Filed Feb. 11, 1980, Ser. No. 120,665
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—271 **6 Claims**



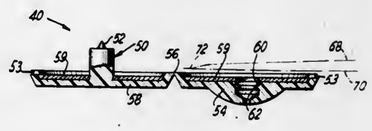
1. In combination with an air filtering apparatus having a cabinet, means for filtering the air as it is moved through said cabinet, and a fan for forcibly moving air through the cabinet and filtering means; the improvement comprising a container of volatile air freshener, means for positioning said container in a predetermined location within the interior of said cabinet in the path of the air being forcibly moved therethrough by said fan, a lid for said container mounted at one side of said container positioning means for swinging movement about a pivotal axis between a first position covering said container to prevent the escape of the volatile air freshener into the air and a second position uncovering the container to permit the escape of the volatile air freshener into the air, and control means including a timer operable from the exterior of said cabinet and selectively energizable for a preselected variable period of time, said timer having an element positioned for operative engagement with said lid, said timer element when said timer is deenergized being in a first position to permit said lid to rest in its first position covering said container, said element being movable to a second position when said timer is energized to effect corresonding movement of said lid to its second position, whereby the escape of volatile air freshener into the air passing through the cabinet may be adjustably regulated in accordance with the setting of said timer.

4,268,286

ATTACHABLE FILTER AND OSTOMY BAG INCLUDING SAME

Peter L. Steer, and John V. Edwards, both of East Grinstead, England, assignors to Kingsdown Medical Consultants Limited, England

Filed Jul. 24, 1980, Ser. No. 171,676
Int. Cl.³ B01D *46/00*; A61F *5/44*
U.S. Cl. 55—278 **8 Claims**



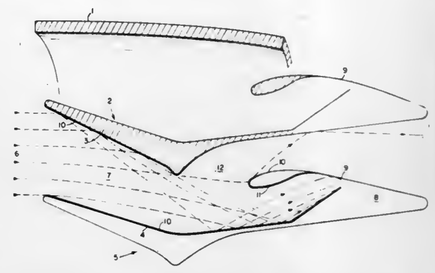
1. An attachable and detachable filter for use with an ostomy bag, said filter comprising a plastics housing member having two sections, each of said sections having a peripheral wall, said sections being joined by an integral hinge between the top of said peripheral walls, one of said sections having at least one recess and the other section carrying at least one sharp-pointed and resilient-headed stud which is a push fit through said recess in the other to clamp together the two sections, there being at least one layer of gas filtering material contained within one or both of said housing sections.

4,268,287

APPARATUS FOR IMPROVING PARTICLE SEPARATOR EFFICIENCY

Richard M. Norris, Stratford, Conn., assignor to Avco Corporation, Stratford, Conn.

Continuation-in-part of Ser. No. 2,070, Jan. 8, 1979, abandoned. This application Sep. 21, 1979, Ser. No. 77,528
Int. Cl.³ B01D *46/00*
U.S. Cl. 55—306 **1 Claim**



1. A system for separating particles from an airflow comprising:

a duct having a passage constructed therein to direct the airflow in the desired path;

at least one deflecting surface fixed in the duct in the path of the airflow to deflect said airflow through an angle, thereby creating an inertial separation effect for particles of high mass within the airflow;

means mounted in the duct downstream of the deflecting surface constructed with a wall positioned and shaped to divide the particles of greater inertia within the airflow; and

a compliant coating applied to those portions of the deflecting surface and the dividing wall to form a compliant surface having a low coefficient of friction directly exposed to impingement by the airflow, said coating comprising significant amounts of cellulous nitrate contained in a medium which promotes adherence to the surfaces of the particle separation system.

4,268,288

CYCLONE VACUUM CLEANING APPARATUS

Peter J. Coombs, 89 N. Parker Way, Bountiful, Utah 84010

Filed Jul. 12, 1979, Ser. No. 57,158
Int. Cl.³ B01D *45/12*
U.S. Cl. 55—337 **8 Claims**

1. A cyclone separator for a central vacuum cleaning system comprising:

a housing having tangential inlet means and exhaust outlet means, said inlet means directing the incoming dirt-laden air in a circular path so as to provide centrifugal separation of dirt from the incoming air;

suction means mounted in said housing for drawing the dirt-laden air through said inlet means;

first baffle means mounted in said housing adjacent to said tangential inlet means and communicating with said suction means, said first baffle means being funnel-shaped, its walls being downwardly and inwardly inclined so as to direct the incoming dirt-laden air inwardly in a circular path of decreasing cross-sectional area, said first baffle means terminating at its lower end in a vertical cylindrical outlet member; and

second baffle means including a vertical sleeve member telescopically connected to the vertical cylindrical outlet member of said funnel-shaped first baffle means, said first

and second baffle means together forming an exhaust path through their center and leading to said exhaust means, said second baffle means additionally comprising an outwardly-flared skirt member connected to the base of said vertical sleeve member, said skirt extending toward the walls of said housing so as to redirect the descending circulating air outwardly toward the walls of said housing thereby channeling the circulating air away from the exhaust path provided through the center of said first and second baffle means so as to permit further separation of dirt prior to exhausting the circulating air through said exhaust means.

4,268,289

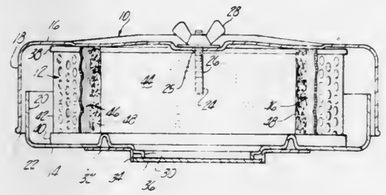
FLAME ARRESTING AIR FILTER ELEMENT

Mardy Polaner, Birmingham, Mich., assignor to Barbron Corporation, Detroit, Mich.

Continuation of Ser. No. 28,949, Apr. 11, 1979, abandoned, which is a continuation of Ser. No. 825,807, Aug. 19, 1977, abandoned, which is a continuation of Ser. No. 649,144, Jan. 14, 1976, abandoned. This application Jan. 28, 1980, Ser. No. 115,828

Int. Cl.³ B01D *50/00, 46/24, 46/52*

U.S. Cl. 55—486 **5 Claims**



1. An improved air filter element of the type having an annulus of porous material for the filtering of particulate contaminants in air entering a carburetor intake or the like, wherein the improvement comprises: an annulus formed by longitudinally folding an elongated section of expanded metal foil, stretching the folded section by applying opposed longitudinal forces, rolling the stretched section into annular form and pressing the section to reduce its axial dimension and increase its density, the metal annulus being concentrically disposed within the annulus of porous material in order to provide flame arresting capabilities of the filter element.

4,268,290

AIR FILTERS

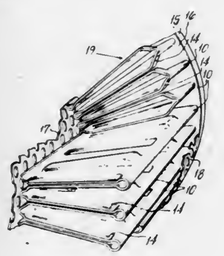
Ross B. Barrington, Berkhamstead, England, assignor to Engineering Components Limited, England

Filed May 31, 1979, Ser. No. 44,294

Claims priority, application United Kingdom, May 31, 1978, 25329/78

Int. Cl.³ B01D *46/10*

U.S. Cl. 55—521 **5 Claims**



1. A paper filter frusto-conical element having a frusto-conical sloping wall with pleats extending lengthwise thereof, said pleats including dimples embossed into the paper from which the pleat is formed and arranged to abut an adjacent pleat for control of separation of adjacent pleats, the height of said dimples situated at positions spaced along said sloping wall being graduated lengthwise of the element so as to provide controlled pleat separation over at least most of the length of the filter element.

4,268,291

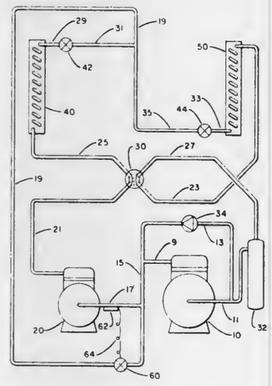
SERIES COMPRESSOR REFRIGERATION CIRCUIT WITH LIQUID QUENCH AND COMPRESSOR BY-PASS

Peter L. Cann, Canastota, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 25, 1979, Ser. No. 88,259

Int. Cl.³ F25B *5/00*

U.S. Cl. 62—117 **5 Claims**



1. A refrigeration circuit having a low stage compressor with a compressor discharge line and suction line, high stage compressor having a compressor suction line and a discharge line, an interconnecting line connecting the compressor discharge line of the low stage compressor to the compressor suction line of the high stage compressor, an evaporator and a condenser which comprises:

a by-pass conduit connecting the low stage compressor suction line to the interconnecting line such that gaseous refrigeration may by-passs the low stage compressor; and

a check valve mounted in the by-pass conduit to prevent flow therethrough from the low stage compressor discharge line to the low stage compressor suction line such that during operation of low stage compressor the low stage compressor discharge line is at a higher pressure than the low stage compressor suction line and the check valve then prevents refrigeration flow through the by-pass conduit and when the low stage compressor is not operating refrigerant may freely flow through the by-pass conduit to the high stage compressor suction line without impediment from the check valve; and

a quench conduit connecting the condenser to the interconnecting line for supplying liquid refrigerant thereto; and

a control device for regulating the amount of liquid refrigerant flowing through the quench conduit as a function of the temperature of the gaseous refrigerant entering the high stage compressor, said liquid refrigerant flashing to a gas as it is metered through the control device.

4,268,292

METHOD AND APPARATUS FOR FORMING GLASS FILAMENTS

Donald T. Johnson, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sep. 24, 1979, Ser. No. 77,972

Int. Cl.³ C03B *37/02*

U.S. Cl. 65—2 **3 Claims**



3. In a method of forming glass filaments by:

(a) establishing a plurality of forming operations wherein each forming operation is comprised of:

(i) supplying a plurality of streams of glass to be attenuated into continuous filaments, the paths of the free falling streams defining a zone;

(ii) positioning the filaments advancing from the feeder external to the zone;

(iii) gathering the filaments into a strand by a first guide means external to said zone;

(iv) positioning an applicator means external to the zone;

(v) applying a coating to the filaments at a region external to the zone at said applicator means, said region being along the path of advancement of the filaments intermediate the streams and the point of gathering the filaments into a strand; and

(vi) positioning a secondary attenuation means external to the zone to attenuate the streams into filaments and advance the filaments as waste;

(b) providing a primary attenuation means adapted to simultaneously attenuate the streams from the feeders into filaments, the primary attenuation means having a roll associated therewith; and

(c) positioning the feeders, applicator means, first guide means, and secondary attenuation means such that all of the advancing strands are moved along paths external to such zones and in the absence of contact between the waste and any other of said strands;

the improvement comprising: providing a second guide means having a plurality of grooves adapted to orient said strands as a spaced apart array at said primary attenuation means wherein each of said grooves is vertically and laterally spaced from the groove adjacent thereto such that each of said strands initially contacts the surface of said roll at a point radially spaced from each of the adjacent strands.

4,268,293

STABILIZATION OF GLASS FEED IN FIBERIZATION BY TORATION

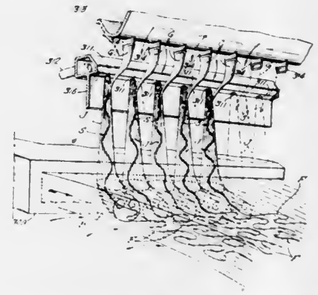
Marcel Levecque, deceased, late of Birchrunville, Pa.; by Marc Levecque, administrator, Paris, France; Jean A. Battigelli, and Dominique Plantard, both of Rantigny, France, assignors to Saint-Gobain Industries, Neuilly-sur-Seine, France

Continuation-in-part of Ser. No. 926,954, Jul. 20, 1978, Pat. No. 4,199,338, and Ser. No. 917,480, Jun. 21, 1978, Pat. No. 4,194,897, which is a continuation of Ser. No. 762,789, Jan. 25, 1977, Pat. No. 4,102,662, which is a continuation-in-part of Ser. No. 676,755, Apr. 14, 1976, Pat. No. 4,118,213, and Ser. No. 557,282, Mar. 11, 1975, Pat. No. 4,015,964, which is a continuation-in-part of Ser. No. 353,984, Apr. 24, 1972, Pat. No. 3,885,940, said Ser. No. 676,755, is a continuation-in-part of Ser. No. 557,282, , said Ser. No. 926,954, is a continuation-in-part of Ser. No. 834,530, Sep. 17, 1977, Pat. No. 4,145,203, which is a continuation-in-part of Ser. No. 762,789,. This application Oct. 31, 1979, Ser. No. 90,078

Claims priority, application France, Dec. 22, 1978, 78 36189

Int. Cl.³ C03B *37/04*

U.S. Cl. 65—5 **16 Claims**



1. A method for making fibers from attenuable material, comprising generating a gaseous blast, generating a gaseous jet directed in a path toward the blast, the jet being generated in a region spaced laterally from the blast thereby inducing ambient gas into the jet flow in the space between said region and the blast, preventing induction of ambient gas at one side of the jet by shielding that side with a shielding element having a shielding surface which is extended substantially rectilinearly along the path of the jet in a zone intermediate the blast and the region of generation of the jet, the jet flow downstream of the shielded zone being of cross-sectional dimension smaller than the blast and having kinetic energy per unit of volume higher than that of the blast and the jet penetrating the blast and thereby creating a zone of interaction with the blast, and delivering a stream of attenuable material in attenuable condition into the influence of the ambient gas being induced by the jet toward the side thereof opposite to the shielded side thereby providing for delivery of the stream of attenuable material into the zone of interaction of the jet with the blast.

4,268,294

METHOD AND APPARATUS FOR PRODUCING FIBER PRODUCT

Sidney J. Laughlin, 2411 S. 61st, Apt. H4, Temple, Tex. 76501, and Ralph J. Claypool, 8010 Greenslope, Austin, Tex. 78759

Filed Nov. 15, 1979, Ser. No. 94,470

Int. Cl.³ C03B *37/04*

U.S. Cl. 65—10 **4 Claims**

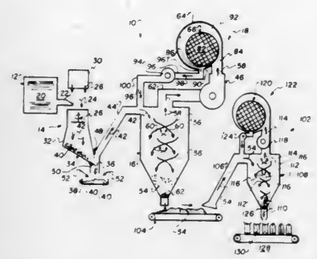
1. Apparatus for producing mineral fiber product from a stream of molten slag, said apparatus comprising in combination:

means for attenuating the slag to produce mineral fiber product and flywool;

a separator including a settling chamber for separating the fiber product from the flywool for delivery through a discharge outlet for further processing;

a collector conduit for conveying fiber product and flywool from the attenuating means to the separator;

a filter for recovering flywool from the air exhausted from the settling chamber including a filter housing and a drum mounted for rotation therein, the drum having a screen surface for accumulating a lint deposit, the housing forming an air stream inlet, a lint discharge outlet, and a clean air outlet, the filter housing outwardly surrounding the screen surface and defining an annular lint accumulation zone extending from the inlet port downstream to the lint



discharge port, the rotatable screen surface being interposed between the air stream inlet and the clean air outlet whereby the airborne lint is accumulated on the screen surface of the rotatable drum as the air stream flows through the screen and out of the clean air outlet, and whereby the accumulated flywool lint deposit is presented to the lint discharge outlet as the screen drum turns; and,

means for entraining flywool in a moving air stream from the separator chamber to the filter inlet port and for producing a relatively low pressure condition at the lint discharge outlet whereby the screen is cleaned as the accumulated flywool is suctioned from the screen, entrained in the moving air stream, and reintroduced into the settling chamber.

4,268,295

METHOD FOR MANUFACTURING CRUSHED SANDS FROM BLAST FURNACE WATER GRANULATED SLAGS

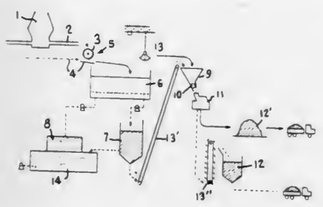
Katsuji Yamamoto, Suita; Yuichiro Iwasaki, Ibaraki; Akira Adachi, Takatsuki; Toshiro Kawata, Tonclabayashi; Keisuke Nagano, Nara; Seiichi Fujita, Takaishi, and Mikio Harada, Sakai, all of Japan, assignors to Nakayama Steel Works, Limited, Osaka, Japan

Continuation of Ser. No. 876,119, Feb. 8, 1978, abandoned. This application Jul. 6, 1979, Ser. No. 55,456

Claims priority, application Japan, Oct. 13, 1977, 52-123341

Int. Cl.³ C03B *19/10*

U.S. Cl. 65—19 **8 Claims**



1. A continuous flow method for manufacturing hard and heavy crushed sands from ferrous blast furnace melted slags comprising the steps of continuously cooling ferrous blast furnace melted slags flowing from a blast furnace by heat exchange with a cooling media to a temperature between 850° C. to 1300° C. while maintaining the ferrous blast furnace melted slags out of direct contact with water and then immediately rapidly further cooling the cooled slags by direct contact with water thereby producing coarse grain hard quality water processed slags.

4,268,296

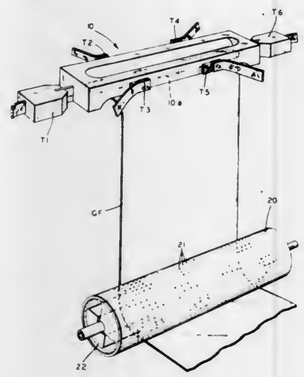
METHOD AND APPARATUS FOR MANUFACTURE OF GLASS FILM

Lawrence V. Pfaender, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 3, 1979, Ser. No. 99,457

Int. Cl.³ C03B *5/02, 17/06*

U.S. Cl. 65—90 **6 Claims**



1. An apparatus for drawing glass film of a thickness less than 0.003 inch, comprising a block of hot glass-resistant material, means mounting said block in underlying relationship to a pool of molten glass, said block defining an elongated slot like orifice having a width in the range of 0.10 inch to 0.40 inch through which a film of glass may be continuously drawn, the walls of said orifice being electrically conductive, a plurality of electrical junctions connected to spaced areas of said walls, and power means for flowing electric current through said junctions and said orifice walls to maintain the lateral end portions of said orifice walls at a lower temperature than the central portions, thereby maintaining both edge areas of the drawn film at a lower temperature than the center area.

5. A method of controlling the temperature of a thin film of glass drawn from a slot-like metallic walled orifice, the orifice having a width not exceeding 0.40 inches, comprising the steps of passing separate electrical currents through the central portions of the orifice walls and through each of the lateral end portions of the orifice walls, and controlling said electrical currents to produce a temperature differential of the central portions of the orifice walls in excess of the temperature of the lateral end walls of the orifice, and drawing a film of glass of a final thickness not in excess of 0.003 inches through said orifice.

4,268,297

METHOD OF PRESTRESSING AT LEAST ONE BENT SHEET OF A SANDWICH TYPE SAFETY GLASS

Julius K. Gorner, Witten, Fed. Rep. of Germany, assignor to BFG Glassgroup, France

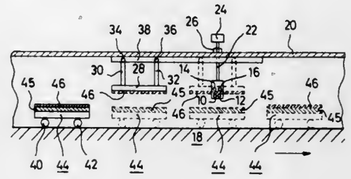
Filed Aug. 29, 1979, Ser. No. 70,788

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840834

Int. Cl.³ C03B *27/04*

U.S. Cl. 65—104 **19 Claims**

1. In a process for pre-stressing at least one of the individual panes of a compound safety pane, which panes are laid on top of one another on a bending die, including the steps of traversing the bending die with said panes lying thereon through a bending furnace in a direction of travel which is parallel to the bending axis of the compound safety pane after traveling through a bending zone, heating said panes to the softening temperature in the bending furnace, bending said heated panes through the influence of gravity, and effecting the glazing of the uppermost individual pane with cool air in a temperature zone above the transformation point but below the deformation point of glass, the improvement consisting of the step of treating exclusively and uniformly only the upper outside surface of the upper bent individual pane with cool air to effect glazing of said upper pane.



2. In a process for pre-stressing at least one of the individual panes of a compound safety pane, which panes are laid on top of one another on a bending die including the steps of traversing the bending die with said panes lying thereon through a bending furnace in a direction of travel which is parallel to the bending axis of the compound safety pane after traveling through the bending zone, heating said pane to the softening temperature in the bending furnace, bending said heated panes through the influence of gravity, and effecting the glazing of the uppermost individual pane with cool air in a temperature zone above the transformation point but below the deformation point of glass, the improvement consisting of the steps of lifting the topmost pane up from the bottom pane and treating the upper outer surface and lower inner surface of the lifted pane with cool air to effect glazing thereof.

4,268,298

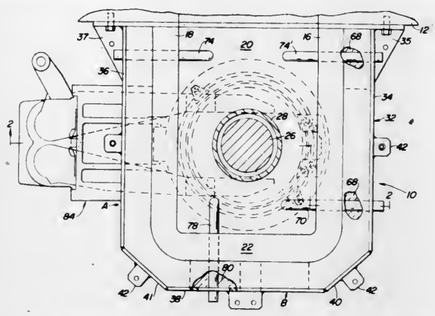
MOLTEN GLASS FEEDING BOWL

Chester K. Rhett, Bainbridge Island, Wash., assignor to Maul Technology Corporation, Millville, N.J.

Filed Nov. 25, 1977, Ser. No. 854,940

Int. Cl.³ C03B *7/06, 7/08*

U.S. Cl. 65—327 **7 Claims**



1. A molten glass feeder comprising a metal housing, a refractory bowl in said housing, insulation between said housing and bowl, said bowl having means defining a discharge orifice in the bottom wall of said bowl for discharge of glass therefrom, said bowl and housing having straight parallel side walls connected to a front wall, at least one electrode extending through aligned openings in said front or side walls of said bowl and housing at an elevation above the elevation of said bottom wall of said bowl, each electrode being perpendicular to the wall supporting the same, each electrode projecting into said bowl for electrically heating molten glass in said bowl, each electrode being removable outwardly along its longitudinal axis, said housing and bowl having two electrode holes in each of said front and side walls thereby defining six electrode positions, the number of electrode holes exceeding the number of electrodes, the electrode holes not containing an electrode being plugged, whereby the number and position of electrodes may be selectively varied.

4,268,299

METHOD AND COMPOSITION FOR PLANT GROWTH REGULATION CONTAINING TRIFLUOROMETHYL 1,3,4 OXADIAZOL BENZOATES

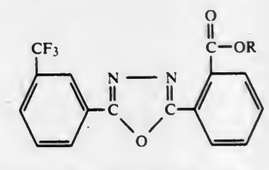
Robert K. Howe, Bridgeton, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 934,440, Aug. 17, 1978, Pat. No. 4,210,762. This application Nov. 8, 1979, Ser. No. 92,313

Int. Cl.³ A01N *43/82;* **C07D** *271/10*

U.S. Cl. 71—76 **9 Claims**

1. A method of regulating the natural growth and development of plants which method comprises applying to said plants or their habitat an effective plant growth regulating amount of a compound of the formula



wherein R is H, lower alkyl or agriculturally acceptable cations.

4,268,300

TRI/PENTA/AZA-TETRACYCLO-DODECA/ENES/DIENES OR-DECAENES

Rolf Platz, Mannheim; Werner Fuchs, Ludwigshafen; Norbert Rieber, Mannheim; Ulf-Rainer Samel, Mutterstadt; Johann Jung, and Bruno Wuerzer, both of Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

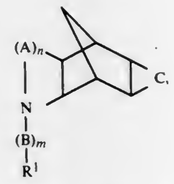
Division of Ser. No. 781,767, Mar. 28, 1977, Pat. No. 4,189,434. This application Jan. 16, 1980, Ser. No. 112,789

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1976, 2615878

Int. Cl.³ A01N *43/80;* **C07D** *487/04*

U.S. Cl. 71—76 **2 Claims**

1. A polycyclic nitrogen-containing compound of the formula



where A denotes the radical —N=N—, B denotes the radicals —SO_2—,



—S—, C denotes the radicals —N=N— or



n denotes one of the integers 0 and 1, m denotes one of the integers 0 and 1, and R^1 denotes 1,2-benzisothiazol-5-yl, and R^2 and R^3 are identical or different and each denotes $(B)_m$-R^4, R^4 having the same meanings as R^1, and salts of these compounds.

2. A process for reducing crop plant growth height wherein the plants or the soil are treated with an effective amount of a polycyclic nitrogen-containing compound of the formula of claim 1 to reduce crop plant growth height.

4,268,301

1,4-BENZOTHIAZINES

Tamon Uematsu, Toyonaka; Shunichi Hashimoto, Takarazuka, and Hiromichi Oshio, Minoo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

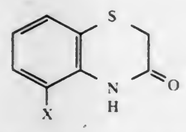
Filed Apr. 10, 1979, Ser. No. 28,801

Claims priority, application Japan, Apr. 17, 1978, 53-45766; Oct. 13, 1978, 53-126378

Int. Cl.³ C07D *279/163*; A01N *43/84*

U.S. Cl. 71—90 **7 Claims**

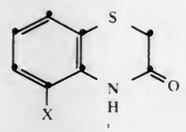
1. A compound of the formula (II)



(II)

wherein X is a bromine or fluorine atom.

7. A method for combating weeds which comprises applying a herbicidally effective amount of the compound of the formula (II),



(II)

wherein X is a halogen atom to the weeds.

4,268,302

METHOD OF PRODUCING ACICULAR METAL CRYSTALS

Robert J. Deffeyes, and Wesley R. Tyler, both of Arlington, Tex., assignors to Graham Magnetics Incorporated, North Richland Hills, Tex.

Division of Ser. No. 595,067, Jul. 11, 1975, Pat. No. 4,170,602, which is a division of Ser. No. 401,636, Sep. 28, 1973, Pat. No. 3,902,240. This application Jul. 2, 1979, Ser. No. 53,952

Int. Cl.³ B22F *1/00*

U.S. Cl. 75—0.5 AA **4 Claims**

1. Metal oxide particles of ferromagnetic metal, said particles being formed of a process comprising the steps of

(a) reacting, in a solution containing an organic metal-complexing agent for at least one said metal, with an organic acid to form at least one soluble metal-complex compound

(b) initiating growth at organometallic salt crystals of said organic acid in the presence of said metal complex compound, said agent being incorporated in sufficient quantity to enhance an acicular the growth of salt crystals, and then

(c) decomposing said salt crystals to form said metal particles.

4,268,303

DIRECT REDUCTION PROCESS FOR PRODUCING REDUCED IRON

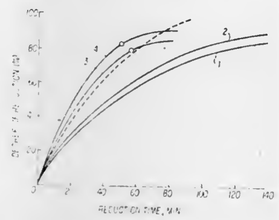
Dentaro Kaneko, Kobe; Mamoru Onoda, Miki; Yoshio Kimura, Akashi; Yutaka Inada, Yokohama, and Masahiro Tomita, Kobe, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

Filed Mar. 29, 1979, Ser. No. 25,100

Claims priority, application Japan, Apr. 10, 1978, 53/42439

Int. Cl.² C21B *13/02*

U.S. Cl. 75—34 **7 Claims**



1. A direct reduction process for producing reduced iron by reducing iron ores and/or pellets with reducing gases in a shaft furnace comprising the steps of:

(1) reducing the iron ores and/or pellets to a degree of reduction of 30–80% with a first reducing gas heated to a temperature of more than 950° C. in a first reduction zone, said first reducing gas containing 15–40% by volume of methane, and

(2) further reducing the iron ores and/or pellets thus reduced with a second reducing gas at a temperature below 1000° C. in a second reduction zone, said second reducing gas containing a high proportion of carbon monoxide and/or hydrogen and a proportion of methane between zero and a proportion which is less than the proportion which causes heavy carbon deposition within the burden or retardation of the rate of reduction.

4,268,304

DIRECT REDUCTION PROCESS IN A ROTARY KILN

Harry Serbent, Hanau; Friedrich Rosenstock, Frankfurt am Main, and Günter Kötzschke, Bruchköbel, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 17, 1979, Ser. No. 58,353

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1978, 2831827

Int. Cl.³ C21B *13/00*

U.S. Cl. 75—36 **6 Claims**

1. In a process for directly reducing iron oxide-containing material to produce sponge iron in a rotary kiln by treatment with solid carbonaceous reducing agent having a high content of volatile combustile components, in which the charge is moved through the rotary kiln opposite to the direction of flow of the kiln atmosphere, oxygen-containing gases are blown at controlled rates through nozzle blocks into the charge disposed over nozzle blocks in the heating-up zone in that region thereof which begins with the occurrence of ignitable particles of the solid reducing agent and terminates before the reducing zone, and oxygen-containing gases are blown in at controlled rates through shell tubes into the free kiln space at least in that region, the improvement wherein at least a portion of the solid carbonaceous reducing agent comprises disintegrated waste rubber.

4,268,305

PROCESS FOR TREATING LIQUID STEEL INTENDED IN PARTICULAR FOR MANUFACTURING MACHINE WIRE

Jacques Leclerc, Valenciennes; Rene Cormet, Herserange, and Guy Marcus, Mont-Saint-Martin, all of France, assignors to Union Siderurgique du Nord et de l'est de la France, Paris, France

Filed Mar. 29, 1978, Ser. No. 891,453

Claims priority, application France, Mar. 31, 1977, 77 09737

Int. Cl.² C21C *7/00*

U.S. Cl. 75—48 **6 Claims**

1. A process for the preparation of a steel which contains a minimum amount of oxidized inclusions and which exhibits improved wiredrawing properties comprising the steps of:

refining steel to produce an extra-mild steel;

adding sufficient manganese to a liquid mass of said refined steel to provide a steel containing greater than 0.3 percent by weight of manganese;

thereafter adding sufficient carbon to said liquid mass of steel to provide a steel containing greater than 0.2 percent by weight of carbon, said manganese and carbon being added in amounts sufficient to substantially deoxidize the steel; and

thereafter adding silicon and then aluminum to said liquid mass of steel in amounts sufficient to provide a composition of oxidized inclusions in the steel within the range of maximum plasticity defined by zone A of the FIGURE.

4,268,306

PROCESS FOR REMOVING MERCURY FROM SOLID WASTE MATERIAL

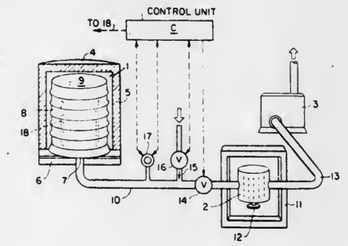
Karl-Ake G. Björkman, Karlskrona, Sweden, assignor to Lumalampan AB, Karlskrona, Sweden

Division of Ser. No. 58,278, Jul. 17, 1979, which is a continuation-in-part of Ser. No. 27,901, Apr. 6, 1979, abandoned. This application Feb. 25, 1980, Ser. No. 123,971

Claims priority, application Sweden, Apr. 12, 1978, 7804104

Int. Cl.³ C22B *43/00*

U.S. Cl. 75—81 **7 Claims**



1. A process for removing mercury from mercury-containing solid waste material comprising in combination

heating said mercury-containing solid waste material in a vacuum chamber to a temperature above the vaporization temperature of mercury,

lowering the pressure in said vacuum chamber to about 40 kPa, and then introducing an inert gas into said vacuum chamber and raising the pressure therein to a value which is not in excess of about 80 kPa, and

withdrawing mercury vapor from said chamber while at the same time decreasing the pressure therein to a value of about 40 kPa, followed by the introduction of said inert gas to raise the pressure up to a maximum of about 80 kPa, and repeating said sequence of mercury vapor withdrawal and addition of inert gas until the desired amount of mercury has been removed from said vacuum chamber.

4,268,307

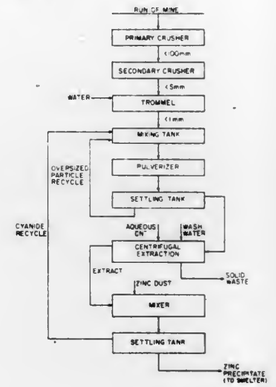
METHOD OF EXTRACTION OF METALS FROM LOW GRADE ORES

Robert Michel, 9457 Las Vegas Blvd. South, #151, Las Vegas, Nev. 89119

Filed Nov. 8, 1979, Ser. No. 92,377

Int. Cl.³ C22B *11/08*

U.S. Cl. 75—101 R **14 Claims**



1. A method for the recovery of metal from an ore containing a minor amount of said metal, comprises pulverizing the ore to a particle size of less than 5 microns, continuously contacting a slurry of pulverized particles with a liquid comprising a solvent for said metal to form a colloidal mixture having substantially all of the particles less than 5 microns in size, continuously centrifugally separating from the mixture a first product comprising a substantially solid-free liquid containing dissolved metal and a second product comprising pulverized ore, and processing said first product to recover metal.

4,268,308

DENTAL ALLOYS

Pei Sung, Lawrenceville; Irving Klaus, Highland Park, and James Lee-You, Cranbury, all of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Division of Ser. No. 546,642, Feb. 3, 1975, abandoned, which is a continuation-in-part of Ser. No. 376,767, Jul. 5, 1973, abandoned. This application Sep. 13, 1976, Ser. No. 722,942

Int. Cl.³ C22C *19/05*

U.S. Cl. 75—171 **4 Claims**

1. A alloy adapted for use in dental application consisting essentially of, on a weight percent basis, about 65 to 75% nickel, about 15 to 23.5% chromium, about 3.5 to 6% silicon, about 3 to 5% molybdenum, and about 0.2 to 2% boron, said alloy having a fusion temperature within the range of 2050° to 2350° F., a tensile strength of at least 90,000 p.s.i., and a coefficient of expansion in the range of from about 13.5×10^{-6} in/in/°C. to 13.8×10^{-6} in/in/°C.

4,268,309

WEAR-RESISTING SINTERED ALLOY

Yoichi Serino, Toyota; Tetsuya Suganuma, Nagoya, and Yoshitaka Takahashi, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Nov. 14, 1978, Ser. No. 960,637

Claims priority, application Japan, Jun. 23, 1978, 53-076107

Int. Cl.³ B22F *5/00*

U.S. Cl. 75—230 **10 Claims**

1. A wear-resisting iron base sintered alloy comprising a

sintering of more than 7.3 g/cm^3 density, of a metal powder composed of Cr, 15-25%; Mo, 0-3%; Cu, 1-5%, P, 0.3-0.8%; and C, 2.0-4.0%; the balance being Fe and less than 2% impurities.

4,268,310

DENTAL COMPOSITIONS OF IMPROVED PROPERTIES

William R. Nemeth, Highland Heights, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Apr. 28, 1980, Ser. No. 144,605
Int. Cl.^{3} B28B *7/34*
U.S. Cl. 106—38.35 **10 Claims**

1. A dental composition consisting essentially of calcined gypsum, magnesium aluminum silicate, and a surfactant selected from the group consisting of a condensation product of formaldehyde and naphthalene sulfonic acid and a condensation product of formaldehyde and melamine sulfonic acid.

4,268,311

HIGH STRENGTH CORDIERITE CERAMIC

Dennis M. VerDow, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio

Filed Nov. 1, 1979, Ser. No. 90,470
Int. Cl.^{3} C04B *33/24*
U.S. Cl. 106—45 **12 Claims**

1. A high strength ceramic body containing cordierite as the predominant crystal phase, said body having an oxide analysis comprising:

SiO_2: 33-46 wt.%
Al_2O_3: 37-57 wt.%
MgO: 5.5-15 wt.%
ZnO: 0.4-1.7 wt.%
Na_2O+K_2O: 1.0-3.0 wt.%
ZrO_2: 0-5 wt.%

said oxides totalling at least 97% of the total,
said body being essentially free of Li_2O,
said body having a modulus of rupture greater than 10,000 psi and being suitable for glazing with a non-Li_2O containing glaze; the cordierite crystals developing as the predominant crystal phase in said body in a single firing, and the modulus of rupture being substantially higher and the percent absorption substantially lower than that of a ceramic body without ZnO and otherwise of the same composition.

4,268,312

OPTICAL GLASS

Kazufumi Ishibashi, Sagamihara, and Takeo Ichimura, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 82,883
Claims priority, application Japan, Oct. 24, 1978, 53-129972
Int. Cl.^{3} C03C *3/14*
U.S. Cl. 106—47 Q **9 Claims**

1. A thorium free, high refractive index and low dispersion optical glass composition having a refractive index (nd) in the range of from 1.85 to 1.97 and an Abbe number (νd) in the range of from 28 to 38, said optical glass composition consisting essentially of, in percent by weight,:

B_2O_3	6-21
La_2O_3	27-50
ZrO_2	1-9
Ta_2O_5	1-31
WO_3	10-35
SiO_2	0-11
ZnO	0-3
Alkaline earth metal oxide	0-9
Al_2O_3	0-5
GeO_2	0-11
PbO	0-8
TiO_2	0-11
Nb_2O_5	0-4

4,268,313

SODIUM RESISTANT SEALING GLASSES

Dong-Sil Park, Clifton Park, and Louis Navias, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,477
Int. Cl.^{3} C03C *3/08*
U.S. Cl. 106—54 **4 Claims**

1. Sodium resistant borosilicate sealing glasses consisting essentially of 36 to 50 weight percent silicon dioxide, 15 to 35 weight percent boron oxide, 5 to 20 weight percent alumina, 6 to 16 weight percent of mixtures of alkali oxides of 2 to 8 weight percent calcium oxide, 2 to 8 weight barium oxide, 2 to 8 weight percent strontium oxide, 2 to 6 weight percent sodium oxide, 0 to 4 weight percent lithium oxide, and 0 to 5 weight percent magnesium oxide.

4,268,314

HIGH DENSITY REFRACTORY COMPOSITES AND METHOD OF MAKING

Lionel C. Montgomery, Bay Village, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 21, 1979, Ser. No. 106,026
Int. Cl.^{3} C04C *35/58*
U.S. Cl. 106—65 **23 Claims**

1. In a method of processing a mixture consisting essentially of AlN, TiB_2 and BN powders by pressing and heating to form a high density sintered refractory composite, the improvement which consists of adding to said mixture at least 0.5 weight percent of nickel powder.

4,268,315

BRIQUETTE FORMING PROCESS AND COMPOSITION

Michael T. Burke, 1614 Monroe St., Waukegan, Ill. 60048

Filed Mar. 31, 1980, Ser. No. 135,515
Int. Cl.^{3} C04B *35/00*
U.S. Cl. 106—84 **15 Claims**

10. An improved briquette for use in heating wherein the briquette consists essentially of a predetermined quantity of sand and the following materials by weight of the sand:

5%-15% ball clay, bentonite, or suitable equivalent;
0.25% to 2% iron oxide;
3%-8% sodium aluminate; and
5%-12% sodium silicate.

4,268,316

MASONRY CEMENT COMPOSITION

Milton H. Wills, Jr., Catonsville, Md., assignor to Martin Marietta Corporation, Bethesda, Md.

Filed Jul. 27, 1979, Ser. No. 61,536
Int. Cl.^{3} C04B *7/02*
U.S. Cl. 106—97 **20 Claims**

12. A mixture consisting essentially of portland cement in an amount of from 25 to 55 percent by dry weight, cement kiln dust in an amount of from 25 to 65 percent by dry weight, and fly ash in an amount of from 10 to 25 percent by weight.

4,268,317

LIGHTWEIGHT INSULATING STRUCTURAL CONCRETE

Layton L. Rayl, 1865 S. State St., Salt Lake City, Utah 84115

Filed Dec. 22, 1978, Ser. No. 972,611
Int. Cl.^{3} C04B *15/02*
U.S. Cl. 106—98 **35 Claims**

1. A hardened lightweight insulative cementitious product having a 28-day cure compressive strength of at least about 2500 psi a thermal resistance (R) value of at least about 2.5/inch and a density of less than about 110 pounds per cubic foot, said cementitious product comprising lightweight aggregates bonded together with a hydrated Portland cement, said lightweight aggregates comprising a lightweight fine aggregate having an amorphous SiO_2 content of at least about 75% by weight, a density of less than about 60 pounds per cubic foot, and from about 60 to about 85% by volume of void space.

4,268,318

ASPHALT AND EMULSIONS THEREOF FOR PAVEMENTS

Eugene M. Stone, Denver, Colo., assignor to Penelizer Corporation, Denver, Colo.

Filed Jul. 10, 1979, Ser. No. 56,347
Int. Cl.^{3} C08L *95/00*
U.S. Cl. 106—277 **14 Claims**

1. In an asphalt base stock for pavements having the following properties: a penetration in the range of 25 to 50 (77° F.); a softening point below 150° F. and a ductility exceeding 100 cm., wherein said base stock is formed by blending an asphalt pitch and a hard base asphalt cement, the pitch being an asphalt with the general characteristics of a solvent refined asphalt having a penetration below 25 and the softening point is in the approximate range of 185° F. minus 3 times the penetration and the asphalt cement has a penetration between 60 and 300.

4,268,319

HIGH TEMPERATURE SOLAR ABSORBER COATING AND METHOD OF APPLYING SAME

Adolf H. Muenker, Somerset, and Archie R. Young, II, Montclair, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 882,438, Mar. 1, 1978, Pat. No. 4,211,210, which is a continuation-in-part of Ser. No. 764,851, Feb. 2, 1977, abandoned. This application Dec. 26, 1979, Ser. No. 107,363
Int. Cl.^{3} C09D *5/32*
U.S. Cl. 106—288 B **7 Claims**

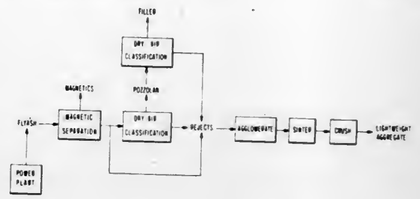
1. A composition capable of forming solar absorbing coating having a solar absorptance greater than 0.90 on solar absorbers for solar collectors of the type operable at temperatures above 550° F. comprising: an optical filler and a binder in the weight ratio ranging from about 1 to 1 to about 3 to 1, said optical filler having a particle size in the range of from about −100 mesh to about −325 mesh, said optical filler being an inorganic oxide which is thermally stable at operating temperatures above 550° F. and which has a solar absorptance greater than about 0.90 at wavelengths of from about 0.35 microns to about 3.0 microns, said inorganic oxide being selected from the group consisting of ferrites, oxides of nickel, cobalt, iron, molybdenum and strontium and mixtures thereof, said binder being an alkyl polysilicate.

4,268,320

PYROPLASTOID PARTICLES, COMPOSITION AND METHOD OF PRODUCTION

Richard M. Klingaman, Tonawanda, and Leo C. Ehrenreich, Amherst, both of N.Y., assignors to Penn Virginia Corporation, Philadelphia, Pa.

Continuation of Ser. No. 921,523, Jul. 3, 1978, abandoned, which is a continuation of Ser. No. 786,513, Apr. 11, 1977, abandoned. This application Feb. 29, 1980, Ser. No. 126,152
Int. Cl.^{3} C04B *31/00*
U.S. Cl. 106—288 B **25 Claims**



1. Particulate material, useful as a filler for polymeric media, composed of particles:

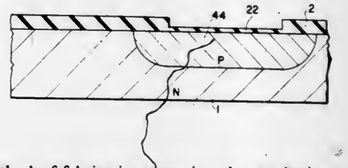
at least about 85% of which (number basis) have a well-defined, regular, ellipsoidal shape;
having a particle size less than about 25μ, with at least about 90% by weight of the particles having a size less than about 15μ, and at least about 50% being less than about 10μ,
the specific surface of the particles being in the range of about 0.75 to about 2.5 square meters per gram;
said particles having a specific gravity of about two to three, and
being composed substantially of alumino-silicate glass.

4,268,321

METHOD OF FABRICATING A SEMICONDUCTOR DEVICE HAVING CHANNEL STOPPERS

Satoshi Meguro, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 23, 1979, Ser. No. 69,062
Claims priority, application Japan, Aug. 23, 1978, 53/101791
Int. Cl.^{3} H01L *21/26*
U.S. Cl. 148—1.5 **16 Claims**



14. A method of fabricating a semiconductor device comprising the steps of:

forming a semiconductor body including a semiconductor substrate, first and second films formed on the surface of said semiconductor substrate and spaced from each other, and a third film selectively formed on the portion of said surface of said semiconductor substrate between said first and second films;
introducing first impurities into the portion of said surface of said semiconductor substrate on which said first, second and third films are not formed; and
introducing second impurities to the portion of said surface of said semiconductor substrate between said first and second films.

4,268,322

STRESS RELIEF OF ALUMINIUM RINGS

Alan W. Willis, Hagley, England, assignor to Daniel Doncaster & Sons Limited, Wadsley Bridge, England

Filed Jul. 16, 1979, Ser. No. 58,033

Claims priority, application United Kingdom, Jul. 19, 1978, 30276/78

Int. Cl.³ C22F *1/04*

U.S. Cl. 148—12.7 A **11 Claims**

1. A continuous nonhydraulic stress-relieving process for the production of aluminium alloy rings, the process comprising ring rolling a hot ring blank of the aluminum alloy to a diametric size between 1% and 3% smaller than the desired dimensions of the finished ring, heating the ring to above the solidus point of the alloy, quenching the ring, cold ring rolling the ring to the desired dimension to relieve residual stresses in the alloy, and aging the ring prior to final machining.

4,268,323

PROCESS FOR CASE HARDENING STEEL

Thomas M. Jakubowski, Salem, Oreg., and William G. Wood, Grosse Pointe Farms, Mich., assignors to Kolene Corp., Detroit, Mich.

Continuation-in-part of Ser. No. 27,306, Apr. 5, 1979, abandoned. This application Jul. 1, 1980, Ser. No. 165,002

Int. Cl.³ C21D *1/48*

U.S. Cl. 148—15.5 **11 Claims**

1. A process for forming a hardened case on a ferrous metal comprising the steps of maintaining, at a temperature from about 540° C. (1000° F.) to about 950° C. (1750°), a fused chemical salt bath consisting essentially of a first material selected from the group consisting of alkali halides, or alkaline earth halides, or mixtures thereof; and a second material selected from the group consisting of alkali oxides, alkaline earth oxides, alkali carbonates, alkaline earth carbonates, or mixtures thereof; said bath being maintained free of cyanide and cyanate salts, suspending the metal workpiece to be case hardened in said bath; thereafter adding to said bath a third material or combination of materials selected from the group consisting of urea, dicyanodiamide, and any of the pyrolysis/condensation products of urea or dicyanodiamide; or combinations thereof at a rate which will not produce cyanide or cyanate salts whereby to form in situ active case producing ingredients to thereby produce a case on said workpiece, removing said workpiece, and thereafter maintaining said bath free of cyanide and cyanate salts, with the original first and second material.

4,268,324

FABRICATION OF SPECTRALLY SELECTIVE SOLAR SURFACES BY THE THERMAL TREATMENT OF AUSTENITIC STAINLESS STEEL AISI 321

Vinod C. Sharma, B28, Ugbowo Campus, Uniben, Nigeria

Filed Apr. 20, 1979, Ser. No. 16,571

Int. Cl.³ B32B *15/18*

U.S. Cl. 148—31.5 **1 Claim**

1. Spectrally selective solar absorber coatings blue in colour having values of solar absorptance of 0.92 ± 0.02 and thermal emittance of 0.22 ± 0.02 are obtained by heating unpolished austenitic stainless steel AISI 321 at 843 for 10 to 20 minutes under normal atmospheric conditions; the type of selective coatings depending upon the combined effect of firing temperature and firing time.

4,268,325

MAGNETIC GLASSY METAL ALLOY SHEETS WITH IMPROVED SOFT MAGNETIC PROPERTIES

Robert C. O'Handley, Bedford Hills, N.Y., and Michael O. Sullivan, Bloomfield, N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jan. 22, 1979, Ser. No. 5,045

Int. Cl.³ C21D *1/04*

U.S. Cl. 148—108 **15 Claims**

1. In a method of annealing a magnetic glassy metal alloy sheet by heat treatment in a magnetic field, the improvement comprising applying a magnetic field of at least about 1,000 Oersteds at an elevated temperature ranging from above about 225° C. to below the glass transition temperature of said metal alloy in a direction substantially normal to the sheet surface to induce a magnetization inside the sheet essentially in said direction, whereby said alloy remains glassy after said annealing.

4,268,326

PROCESS FOR PRODUCING GRAIN ORIENTED ELECTRICAL SILICON STEEL SHEET

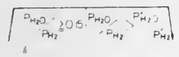
Kenzo Iwayama, Kitakyushu, and Osamu Tanaka, Nougata, both of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,801

Claims priority, application Japan, Jun. 9, 1978, 53-69416

Int. Cl.³ H01F *1/04*

U.S. Cl. 148—113 **6 Claims**



1. A process for producing a grain oriented electrical silicon steel sheet comprising: subjecting a cold-rolled silicon steel sheet, after it has been cold-rolled, to a continuous two-stage decarburization annealing procedure in an oxidation atmosphere, in an initial stage of which procedure a ratio of PH_2O/PH_2, wherein PH_2O represents the partial pressure of water vapor in said oxidation atmosphere and PH_2 represents the partial pressure of hydrogen in said oxidation atmosphere, is adjusted to a value of 0.15 or more, and a decarburization annealing temperature is adjusted to a value of from 750° through 880° C. and; in a final stage of said procedure the ratio of PH_2O/PH_2 is adjusted to a value smaller than that in said initial stage, and said decarburization annealing temperature is adjusted to a value of from 750° through 1200° C., the total decarburization annealing time for both stages being 200 seconds or less.

4,268,327

METHOD FOR GROWING SEMICONDUCTOR EPITAXIAL LAYERS

Tamotsu Uragaki, Osaka; Morio Inoue, Takatsuki; Susumu Koike, Kawachinagano, and Hitoo Iwasa, Ibaraki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 7, 1980, Ser. No. 109,915

Claims priority, application Japan, Jan. 17, 1979, 54-4381

Int. Cl.³ H01L *21/208*

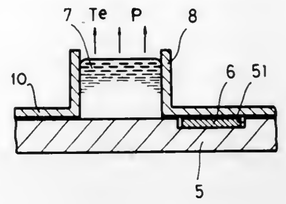
U.S. Cl. 148—171 **4 Claims**

1. A method of growing semiconductor epitaxial layers on a substrate in an enclosed space, said method comprising the successive steps of:

(a) forming a first epitaxial layer on said substrate by contacting a solution of a solvent, a solute and an impurity that determines the conductivity type with said semiconductor substrate for a predetermined period of time until a first epitaxial layer of the desired conductivity type is grown on said substrate;

(b) evacuating the space in which said semiconductor substrate and said solution are contained and removing at least a portion of said impurity from the solution of step (a); and thereafter

(c) forming a second epitaxial layer on the first epitaxial layer formed in step (a) by contacting the impurity-depleted solution from step (b) with the first-formed epitaxial



layer on said substrate for a predetermined period of time until a second epitaxial layer is formed on said first epitaxial layer.

4,268,328

STRIPPED NITRIDE MOS/MNOS PROCESS

Yukun Hsia, Santa Ana, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Division of Ser. No. 898,649, Apr. 21, 1978. This application Jan. 25, 1980, Ser. No. 115,186

Int. Cl.³ H01L *21/22*

U.S. Cl. 148—187 **8 Claims**

1. A method for fabricating a semiconductor device to develop a plurality of discrete transistor elements on a common substrate by providing a body of silicon having a region of one conductivity type, diffusing regions of opposite conductivity type adjacent a gate region, providing a thin oxide layer over said gate region, providing a thick field oxide layer over the remainder of said silicon, layering silicon nitride over said oxide and providing contacts for said gate regions and said diffused regions wherein the improvement comprises: the additional step of stripping the silicon nitride from selected portions of the surface of the device such that the nitride remains on the surface of the device in a strip extending through the gate regions of a plurality of the transistor elements prior to fixing contacts thereon.

4,268,329

PROCESS FOR PREPARING A HERMETICALLY SEALED ASSEMBLY

James E. Jervis, Menlo Park, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 943,196, Sep. 18, 1978, abandoned, which is a continuation of Ser. No. 717,695, Aug. 25, 1976, abandoned. This application Oct. 1, 1979, Ser. No. 80,544

Claims priority, application United Kingdom, Oct. 31, 1975, 45222/75

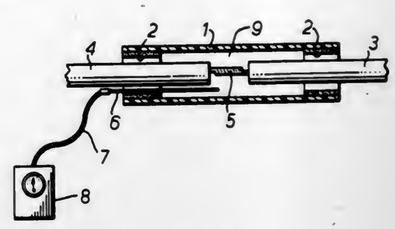
Int. Cl.³ H01B *13/06, 17/50*

U.S. Cl. 156—51 **13 Claims**

11. A process for preparing an assembly comprising a splice case which is hermetically sealed around a splice between pressurized cables, which process comprises:

bringing together around the splice a closure article comprising first and second members forming a generally tubular structure having a central cavity portion and with a rigid dimensionally stable container member positioned therein, the first member being heat-recoverable and the second member being non-heat-recoverable, the closure article being provided with means for maintaining said members together during heat recovery of said first member;

inserting between the first member and the substrate a probe connected to a detection device for detecting increased air pressure;



heating said structure to cause heat recovery of said first member and hermetic sealing of said first and second members to each other and to the pressurized cable; and

detecting the formation of the hermetic seal at the time of said formation via the detection device which detects increased air pressure in a space within said rigid container member which is open to the atmosphere before hermetic sealing has taken place but which becomes closed to the atmosphere when said hermetic sealing has taken place, the air in said space being heated by the heating of said structure.

4,268,330

GREEN TIRE BUILDING PROCESS AND APPARATUS

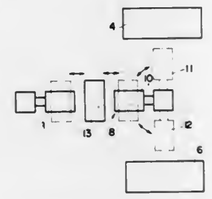
Tadaaki Komatsu, Kodaira; Yuusuke Araki, Higashimurayama, and Kanji Inoue, Higashiyamato, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 106,727

Claims priority, application Japan, Dec. 29, 1978, 53-165170; Dec. 29, 1978, 53-165171; Dec. 29, 1978, 53-165172; Dec. 29, 1978, 53-165173

Int. Cl.³ B29H *17/20*

U.S. Cl. 156—111 **6 Claims**



1. A green tire building process, comprising: the steps of:

jointing both longitudinal ends of a belt-like tread rubber for producing an endless tread band which has a circumferential length substantially equal to a final circumferential length at a time when said endless tread band is to be assembled with a cylindrical green case having at least a carcass ply and a pair of beads embedded in both axial end portions of said carcass ply, and applying said endless tread band on an inner periphery of an annular face;

jointing both longitudinal ends of a belt-like breaker ply for producing an endless breaker band which has a circumferential length shorter than a final building circumferential length at a time when said endless breaker ply is to be applied on an inner periphery of said endless tread band,

and disposing said endless breaker band within said endless tread band with its mid-circumferential plane being aligned with that of said endless tread band;

expanding said endless breaker band radially to its final building circumferential length and applying said endless breaker band on the inner periphery of said endless tread band for building a tread breaker assembly;

disposing said cylindrical green case within and in coaxial relation with said tread breaker assembly;

deforming said cylindrical green case toroidally to be applied on the inner periphery of said endless breaker band for integrally building said cylindrical green case and said tread breaker assembly.

4,268,331

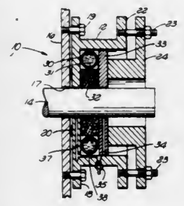
METHOD FOR MAKING A FLUID FILLED RING

James N. Stevens, 1811 N. Orleans St., Chicago, Ill. 60614

Continuation-in-part of Ser. No. 916,081, Jun. 16, 1978, Pat. No. 4,194,746. This application Jan. 19, 1979, Ser. No. 4,980

Int. Cl.³ F16J *15/46*

U.S. Cl. 156—145 **6 Claims**



1. The method of fabricating a liquid filled bubble rings ring comprising the steps of:

(1) providing an elastomeric tube

(2) cooling a quantity of liquid to a first temperature for decreasing its volume,

(3) filling the tube with the quantity of cooled liquid at its decreased volume,

(4) confining the cooled liquid in the tube using clamps on the ends of the tube for defining a confined closed ended chamber entirely filled with the quantity of cooled liquid,

(5) increasing the temperature of the quantity of the cooled liquid from the first temperature to a second temperature for expanding the volume of the liquid thereby causing the tube to expand to accommodate the increased volume of the liquid according to the coefficient of expansion of the liquid,

(6) fusing the ends of the tube together with an adhesive, and

(7) removing the clamps for creating an enclosed non-obstructed ring chamber, whereupon the tube relaxes from its expanded state and the quantity of liquid flows into the previously clamped region of the ring chamber for filling the entire enclosed ring chamber.

4,268,332

METHOD OF MAKING PRECISION PARABOLIC REFLECTOR APPARATUS

Gordon R. Winders, Raleigh, N.C., assignor to Sun Trac Industries, Inc., Oak Ridge, Tenn.

Continuation-in-part of Ser. No. 904,226, May 8, 1978, abandoned, which is a division of Ser. No. 747,334, Dec. 3, 1976, abandoned. This application Nov. 26, 1979, Ser. No. 97,215

Int. Cl.³ B32B *31/04;* **G02B** *5/10*

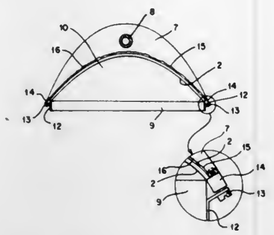
U.S. Cl. 156—160 **6 Claims**

1. A method of making trough-shaped high precision parabolic reflectors, comprising the steps of:

bending a sheet of inelastic flexible material over a precision parabolically contoured trough-shaped rigid, convex mold fixture;

forcing said sheet of material into continuous and intimate contact with said mold fixture to tension said sheet of inelastic flexible material at the edges thereof which are parallel to the focal axis of said mold fixture, thereby conforming said sheet into a high precision parbolically curved trough-shape;

centering a plurality of spaced apart, non-precision, reinforcing ribs to the convex surface of said flexible material with a flowable and hard-curable cement while it is so bent and forced into high precision conformality with said mold fixture, said ribs being affixed perpendicularly to said focal axis of said parabolic trough and perpendicularly to said convex surface at regular intervals along the axis of said trough shape;



curing said cement whereby the intersticies between said non-precision support ribs and the back surface of said precision formed sheet of flexible material are intimately bonded together and completely filled by the said hard-curable cement so that even, strong and continuous contact is achieved;

removing the resulting parabolic trough-shaped sheet, maintained in high precision configuration by said reinforcing ribs, from said mold fixture; and

providing the concave precision curved parabolic surface of said sheet with light reflective capability, thus completing the formation of said high precision parabolically curved trough-shaped reflector.

4,268,333

PROCESS OF MAKING HIGHLY ADHESIVE PLASTIC TOP COATINGS ON METALLIC SUBSTRATES

Hans G. Schwarz, Weimarerstrasse 8, 6940 Weinheim-Waid, Fed. Rep. of Germany

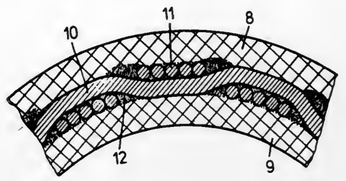
Filed Dec. 15, 1978, Ser. No. 969,941

Claims priority, application Fed. Rep. of Germany, Aug. 12, 1978, 2835401

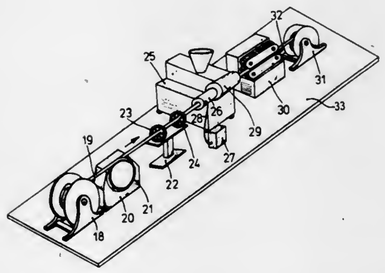
Int. Cl.³ B32B *81/00;* **B29C** *25/00, 19/00;* **B31C** *39/00*

U.S. Cl. 156—161 **9 Claims**

1. A process of making highly adhesive plastic top coatings of polyurethane on metallic substrates of braided wire layers having openings as a pressure substrate, having an inner core of thermoplastic plastic, surrounded by said substrate, characterized in that said substrate having openings is prestressed mechanically by a braking device and then heated to approximately the temperature of the extrudate of an extruder head so that there is generated in the inner core a radially directed prestress which forces at least part of the material thereof, while softening, through the openings in said substrate, thereafter creating a vacuum around said substrate, extruding said plastic top coating onto said substrate from the extruder head, so that simultaneously with, or immediately after, the creation of said vacuum said top coating fuses intimately with and







bonds together with the material of said inner core that passes through said openings in said substrate.

4,268,334

PIPE WRAPPING ADHESIVE TAPE METHOD

George M. Harris, Bolton, and Samuel J. Thomas, Hamilton, both of Mass., assignors to The Kendall Company, Walpole, Mass.

Filed Oct. 31, 1979, Ser. No. 90,000

Int. Cl.³ B65H *81/00*

U.S. Cl. 156—187 **7 Claims**

1. In the method of coating steel pipe by wrapping it with a tape comprising a polyolefin backing and an adhesive layer comprising a blend of virgin butyl rubber with reclaimed butyl rubber and a tackifying agent, the procedure for increasing the strength of the adhesive bond which comprises incorporating in the adhesive layer a cross-linking agent selected from the group consisting of (A) 0.15 to 1.0% by weight of p-dinitrosobenzene, (B) 1.0 to 2.5% by weight of p-quinonedioxime, and (C) a mixture of (A) and (B) based on the total weight of said adhesive layer, together with an activator.

4,268,335

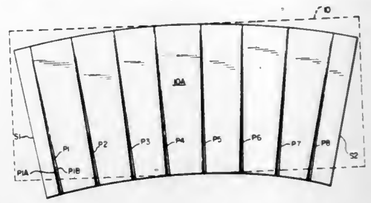
TWO-PIECE PLEATED FOAM CUP

David H. Herbst, Reisterstown, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.

Filed Jul. 13, 1976, Ser. No. 704,940

Int. Cl.³ B31F *00/00;* **B65D** *3/00*

U.S. Cl. 156—218 **7 Claims**



1. The method of forming a two-piece plastic foam cup comprising the steps of:

providing a rectangular blank of plastic foam sheet material;

forming a plurality of pairs of divergent pleat lines across the width dimension of said blank;

overlapping one pleat line with the other to form triangular double layers in said blank, thereby constraining said blank to assume an arcuate shape;

overlapping the opposite edges of said blank in a side seam configuration to form a multi-sided, substantially frusto-conical cup sidewall assembly;

placing said sidewall assembly in a conforming mold means;

providing a bottom blank in said mold means at one end of said sidewall assembly; and

applying heat thereto to fuse said overlapping areas and heat seal said side seam configuration and said bottom blank to said sidewall assembly to provide a unitary cup structure.

4,268,336

METHOD OF MANUFACTURING CONTAINERS

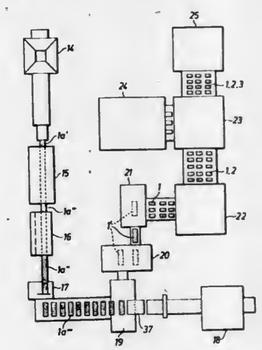
Lars-Eric Piltz, Dalby; Bo T. Quist, Bjärred; Folke Kiellarson, Barsebäck; Siwer Mansson, Lund, and Bengt Nilsson, Södra Sandby, all of Sweden, assignors to AB Akerlund & Rausing, Sweden

Division of Ser. No. 721,866, Sep. 9, 1976. This application Apr. 2, 1979, Ser. No. 25,766

Claims priority, application Sweden, Sep. 12, 1975, 7510169; Sep. 12, 1975, 7510170

Int. Cl.³ B29D *23/04*

U.S. Cl. 156—244.13 **8 Claims**



1. A method for manufacturing a gas-tight package comprising the steps of:

(a) extruding a round seamless tube of plastic;

(b) reshaping the round tube into a desired cross-section;

(c) exposing the outside of the tube to an outer vacuum simultaneously with the step of reshaping;
(d) lubricating and cooling the tube with water;
(e) laminating a layer of metallic substantially gas-tight material to the outside of said tube;
(f) laminating a plastic layer to the layer of metallic material;
(g) cutting the laminated tube into pieces of predetermined lengths;
(h) providing top and bottom parts, each comprising a laminate of a first plastic layer, an intermediate layer of metallic substantially gas-tight material, and a second plastic layer; and,
(i) joining such top and bottom parts to one of said cross-cut lengths of tubing to produce a substantially gas-tight package.

4,268,337

SHEET MOLDING MATERIAL PRODUCED BY ASSOCIATING A LAYER COMPRISING A PHOTOPOLYMERIZABLE MATERIAL WITH LAYERS COMPRISING THERMOSETTING RESINS

Jyoji Ibata, Fuki; Hisaaki Fukui, Nobeoka; Takeo Yuasa, and Michio Katoh, both of Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 936,551, Aug. 24, 1978, Pat. No. 4,214,026. This application Nov. 9, 1979, Ser. No. 93,095
Int. Cl.[3] B29D *7/02, 7/20;* **B32B** *31/20, 31/28*
U.S. Cl. 156—244.17 **10 Claims**

1. A process for continuously producing a sheet molding material comprising (1) an interlayer containing a photopolymerizable resin and a photocuring agent for the photopolymerizable resin and (2) a surface layer of a thermosetting resin containing a heat curing agent for the thermosetting resin on both surfaces of the interlayer (1), which comprises

extruding a composition containing a photopolymerizable resin and a photocuring agent for the polymerizable resin as the interlayer (1) using an extruder and a sheet die,

adhering a surface layer of a thermosetting resin containing a heat curing agent for the thermosetting resin to both surfaces of the interlayer (1) to form surface layers (2) thereon, and irradiating the assembly with light to cure the interlayer (1).

6. A process for continuously producing a metal-clad laminate comprising (1) an interlayer containing a photopolymerizable resin and a photocuring agent for the photopolymerizable resin, (2) a surface layer of a thermosetting resin containing a heat curing agent for the thermosetting resin on both surfaces of the interlayer (1), and (3) a metal layer on one surface layer (2), which process comprises

extruding a composition containing a photopolymerizable resin and a photocuring agent for the photopolymerizable resin as the interlayer (1) using an extruder and a sheet die,

adhering a surface layer of a thermosetting resin containing a heat curing agent for the thermosetting resin to both surfaces of the interlayer (1) to form surface layers (2) thereon,

irradiating the assembly with light to cure the interlayer (1), and

laminating on at least one of the surface layers (2) a metal layer (3).

4,268,338

METHOD AND APPARATUS FOR RF SEALING OF THERMOPLASTIC LAYERS

Everett A. Peterson, Roslyn Heights, N.Y., assignor to Peterson Electronic Die Co., Mineola, N.Y.

Filed Aug. 20, 1979, Ser. No. 67,738
Int. Cl.[3] B29C *27/04*
U.S. Cl. 156—251 **24 Claims**

1. A method of bonding layers of thermoplastic material to one another to form a seal comprising the steps of,

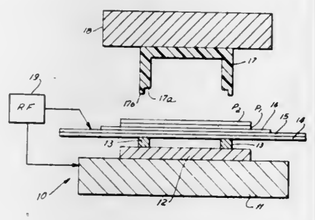
pressing said layers of thermoplastic material against an electrode plate, supporting said electrode plate on a conductive electrode die, separating said electrode plate and electrode die by a thin sheet of dielectric material, said conductive die having a configuration to define the shape of the seal formed between said layers;

applying an RF current to a circuit formed by said electrode plate and said electrode die, thereby causing localized heating of the portions of said thermoplastic material overlying said electrode die until said thermoplastic material has softened sufficiently to form the seal; and

removing said RF current while maintaining pressure between said layers of thermoplastic material and said electrode plate until said thermoplastic material has cooled sufficiently to set.

23. Apparatus for bonding two or more layers of thermoplastic material to one another to form a seal therebetween comprising,

upper and lower superposed conductive electrode dies having generally complementary configuration in plan to



define the shape of the seal formed between said layers of thermoplastic material;

upper and lower sheets of dielectric material each supported on a respective one of said conductive dies;

upper and lower electrode plates each disposed on a respective one of said dielectric sheets;

means for moving at least one of said upper and lower dies, together with its respective dielectric sheet and electrode plate toward and away from the other for selectively pressing the sheets against said layers of thermoplastic material; and

means for applying an RF current to a circuit formed by said upper electrode die and electrode plate and to a circuit formed by said lower electrode die and electrode plate, so that sufficient localized heat is formed in the portions of said dielectric sheets overlying the respective dies to cause said thermoplastic material to soften sufficiently to form a seal.

4,268,339

PROCESS FOR RADIATION CURED CONTINUOUS LAMINATES

Raymond C. Urban, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 17, 1979, Ser. No. 58,248
Int. Cl.[3] B05D *3/06*
U.S. Cl. 156—272 **1 Claim**

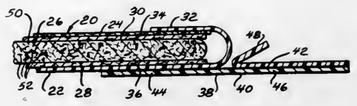
1. A method of making a continuous laminate comprising providing a continuous layer of a radiation curable substrate selected from the group consisting of polyethylene, ethylene/-propylene/diene rubber, and polypropylene, said substrate including a layer of stiffener selected from the group consisting of glass cloth, glass mat and glass paper and a continuous layer of copper foil, forming said substrate, said layer of stiffener and said foil into a sandwich, and continuously passing said sandwich through radiation from a radiation source selected from the group consisting of electrons, X-rays and ultraviolet rays.

4,268,340

METHOD OF FORMING AN ABSORBENT ARTICLE

Harry G. Fitzgerald, Green Bay, Wis., and Donald Patience, Barrington, Ill., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation of Ser. No. 841,091, Oct. 11, 1977, abandoned, which is a continuation of Ser. No. 669,423, Mar. 23, 1976, abandoned, which is a division of Ser. No. 603,071, Aug. 5, 1973, Pat. No. 3,976,074. This application Mar. 7, 1979, Ser. No. 18,179
Int. Cl.[3] D04H *1/04*
U.S. Cl. 156—296 **10 Claims**



1. The method of making a disposable absorbent pad comprising the steps of:

collecting a quantity of raw materials including both hydrophilic and hydrophobic materials, said hydrophobic materials being at least in part thermoplastic sheet material;

simultaneously comminuting said raw materials together to provide a mixture of non-fibrous hydrophobic particles and hydrophilic fibers;

forming said mixture of particles and fibers into a fibrous web comprising a mass of said hydrophilic fibers and a matrix of said non-fibrous hydrophobic particles dispersed throughout said web in interfiber spaces defined by said fibers;

simultaneously heating and compressing said web to fuse said hydrophobic particles to said hydrophilic fibers without completely destroying said particles;

winding said web into a feed roll;

providing a second feed roll containing compressed hydrophilic materials;

unwinding webs from said first and said second feed rolls;

simultaneously comminuting portions of said webs into a fibrous mass; and,

forming said fibrous mass into sections as pads,

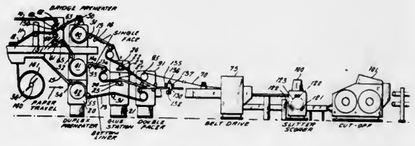
said unwinding and simultaneous comminuting being controlled such that said pads include 1 to 15 percent by weight said non-fibrous hydrophobic particles and 85 to 99 percent by weight said hydrophilic fibers.

4,268,341

ZERO WASTE ORDER CHANGE SYSTEM FOR A CORRUGATOR

Paul Huhne, Amsterdam, Netherlands, assignor to S&S Corrugated Paper Machinery Co. Inc., Brooklyn, N.Y.

Continuation-in-part of Ser. No. 886,941, Mar. 15, 1978, abandoned. This application Jul. 12, 1978, Ser. No. 923,714
Int. Cl.[3] B32B *31/00;* **B31F** *1/20;* **B26D** *5/20;* **B32B** *31/18*
U.S. Cl. 156—353 **11 Claims**



1. In a corrugating machine having means for moving and combining a plurality of webs including at least a web for forming an outer liner and a web for forming a currugated medium, rotary drive means in said corrugator for converting said last mentioned web into a corrugated medium and means for applying and securing said currugated medium to said web for forming an outer liner; a supply roll for each web and a heated table for receiving said combined webs; said rotary means moving said combined web onto said heated table; and a continuous belt in engagement with said combined web on said heated table along said heated table; the surface of said table engaged by said combined web having a transverse gap adjacent the section of the table first engaged by said combined web;

a knife member operable transversely in said gap and brake members for said rotary drive means and said supply rolls for each web;

said knife member being located outside of the path of said combined web on said table while said web is moving along said table;

means for operating said brake members to halt the movement of said webs and said combined web;

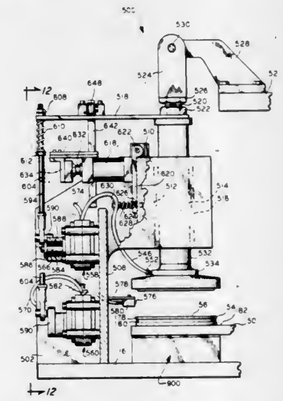
and means operable, upon operation of said brake members, to move said knife member in said gap across said table and combined web to sever said combined web.

4,268,342

APPARATUS FOR ASSEMBLING CLOSURES AND CONTROL SYSTEMS THEREFOR

Jerry W. Young, Weston, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,247
Int. Cl.[3] B32B *31/00*
U.S. Cl. 156—357 **32 Claims**



1. In an apparatus for assembling closures, each closure including a generally cylindrically shaped ring and a generally circular disc, said apparatus being of the type which includes a plate having an upper surface and a plurality of ring receiving means on the upper surface equally spaced along a circle on said plate and each adapted for receiving one of said rings thereon; plate drive means operatively related to said plate for rotating said plate about an axis of rotation concentric with the circle along which said ring receiving means are equally spaced; ring feed means positioned adjacent said plate for sequentially positioning said rings on respective ones of said ring receiving means as said plate is rotated past said ring feed means; disc feed means positioned adjacent said plate for sequentially positioning said discs within respective ones of said rings on said ring receiving means as said plate is rotated past said disc feed means; adhesive dispensing means positioned adjacent said plate for dispensing a quantity of adhesive within respective ones of said rings on said ring receiving means as said plate is rotated past said adhesive dispensing means; lubricant dispensing means positioned adjacent said plate for dispensing a quantity of lubricant on respective ones of said rings on said ring receiving means as said plate is rotated past said lubricant dispensing means; and ejecting means positioned

adjacent said plate for ejecting respective ones of said closures assembled by said apparatus from said ring receiving means as said plate is rotated past said ejecting means, a control system comprising:

first ring sensing means positioned intermediate said ring feed means and said disc feed means for sensing the presence of one of said rings on one of said ring receiving means passing thereby and providing a signal indicating the presence of said ring on said ring receiving means; and

means responsive to said signal from said first ring sensing means and operatively related to said disc feed means for automatically allowing the positioning of one of said discs by said disc feed means within one of the open ends of said ring sensed by said first ring sensing means, and, alternately, in the absence of said signal from said first ring sensing means, preventing action by said ring feed means to position one of said discs on one of said ring receiving means not having one of said rings thereon.

4,268,343

MACHINE FOR WORKING ON A WEB OF MATERIAL BY MEANS OF A WELDING TOOL

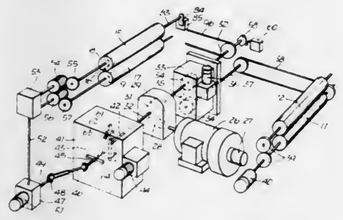
Ehrbart Schulze, Fellbach, Fed. Rep. of Germany, assignor to Karl Heinz Stiegler, Stuttgart, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,317

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 2810127; Mar. 9, 1978, 2810204

Int. Cl.[1] **B32B** *31/00*

U.S. Cl. 156—361 **21 Claims**



1. Apparatus comprising:

means for moving a web at a substantially uniform speed;

a tool disposed transverse to motion of said web;

means for driving said tool in a rotational path at a cyclically non-uniform angular velocity, said rotational path being effective to contact said web with said tool once per rotational cycle thereof; and

control means for controlling said substantially uniform speed to a speed substantially equal to a speed of said tool when said tool contacts said web.

4,268,344

METHOD AND APPARATUS FOR COUPON INSERTION

Elwyn D. Jones, Kingston, Canada, assignor to Glopak Industries Limited, Montreal, Canada

Filed Aug. 20, 1979, Ser. No. 68,064

Int. Cl.[1] **B32B** *31/00, 3/00, 31/04;* **B65C** *9/40*

U.S. Cl. 156—383 **3 Claims**

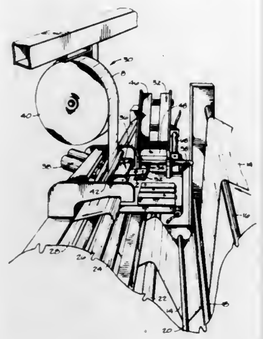
1. Apparatus for positioning and securing coupons intermittently and sequentially on a travelling web of plastic sheet bag material which is subsequently folded and sealed to form a bag comprising at least first and second rollers supporting the web of bag material for movement in one direction,

and a supply roll of plastic cover strip material for travelling overlay of the bag material with coupons intermittently positioned therebetween,

the strip material passing around a third roller positioned above the first roller to overlay the cover strip material, the bag material and the overlaid strip material then together passing around the second roller,

the third roller being mounted for movement between a raised position spaced above the first roller to a lowered position bringing the travelling strip material into contact with the travelling bag material,

and a supply magazine for coupons and a coupon transfer assembly for transferring single coupons sequentially from the magazine to a position where a leading edge of a coupon is between the first roller and the third roller when the latter roller is in its raised position, and means to lower the third roller to its lowered position where the



leading edge of the coupon is engaged between the travelling webs and the coupon is carried along therebetween and around the second roller,

and heat sealing means for sealing the strip material to the bag material with the coupons positioned therebetween during travel around the second roller, the heat sealing means comprising sealing heads having heated air discharge nozzles positioned adjacent the second roller, the heated air sealing the bag material and overlaid cover strip material together along parallel lines of securement, two of the lines of securement being adjacent and parallel to side edges of the cover strip.

4,268,345

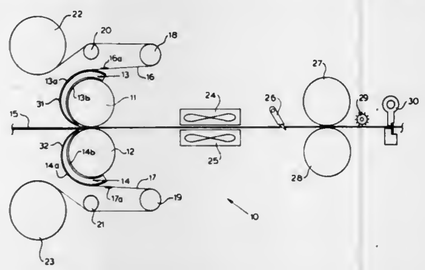
CONTINUOUS LAMINATING SYSTEM

Mario E. Semchuck, Buffalo Grove, Ill., assignor to General Binding Corporation, Northbrook, Ill.

Filed Oct. 18, 1979, Ser. No. 86,153

Int. Cl.[1] **B30B** *15/34*

U.S. Cl. 156—499 **10 Claims**



1. A continuous laminating system, comprising: a pair of rotating laminating rollers in contact to form a laminating nip through which a product to be laminated is fed; a pair of driven pull rollers spaced downstream from the laminating rollers and also forming a nip; a pair of laminating film supply rollers each supplying a continuous strip of laminating film positioned through the nip of the laminating rollers rearwardly to and through the nip of the pull rollers; a heating member adjacent each laminating roller and having a concave inner surface adjacent to and having a surface curvature corresponding to a peripheral portion of the respective laminating roller, and a convex heating surface over which the respective laminating film slides prior to entering the nip formed by the laminating rollers; and a layer of Teflon-coated fiberglass covering at least all portions of the convex heating surface directly over which the laminating film would otherwise slide whereby scratching of the laminating film is reduced, squealing caused by movement of the laminating film over the heating member is prevented, and effective heat transfer is maintained.

4,268,346

APPARATUS FOR MAKING TANK TOP BAGS FROM A WEB OF TUBULAR PLASTICS FILM PROVIDED WITH SIDE FOLDS

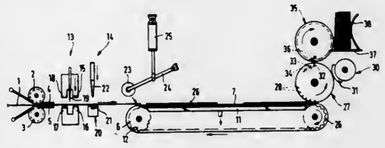
Fritz Achelpohl, Lengerich of Westphalia, Fed. Rep. of Germany, assignor to Windmoller & Holscher, Lengerich, Fed. Rep. of Germany

Filed Jul. 24, 1979, Ser. No. 60,204

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833232

Int. Cl.[1] **B31B** *1/86, 21/14, 21/16*

U.S. Cl. 156—510 **8 Claims**



1. Apparatus for making tank top bags from an intermittently fed web of tubular plastics film provided with side folds, comprising: cyclically operating transverse welding and separating means for severing tube sections from an intermittently fed web and for forming weld seams at both ends of the severed tube sections; first conveyor means for taking the tube sections away from said welding and separating means; and stamping means for cutting out tank top cut-outs from the welded tube sections, said first conveyor means comprising a suction belt conveyor means (**7**) comprising at least one belt (**8, 9, 10**) provided with a first plurality of suction holes (**30**') spaced apart by a larger distance than the length of the severed tube sections (**29**), direction-changing drum means (**6**) for changing the conveying direction of said suction belt conveyor means disposed at and encompassed within a receiving end of the suction belt conveyor means (**7**), said direction-changing drum means being provided with a suction channel for providing the suction holes of said suction belt conveyor means with suction air, a raisable and lowerable pressure roller (**23**) positioned above said direction-changing drum means, drive means (**25**) for moving said pressure roller towards said direction-changing drum means (**6**) as suction holes pass said direction-changing drum means, jaw means (**20, 21, 22**) provided on both sides of a feeding plane of the tubular web (**1**) for clamping a severed tube section (**29**) upstream of the direction-changing drum means (**6**) and for releasing the clamped severed section when the pressure roller (**23**) is lowered; suction drum means (**27**) rotatably mounted above a delivery end of said suction belt conveyor means having a second plurality of suction holes at the same spacing along its circumference as the spacing between suction holes in said at least one belt (**8, 9, 10**), the second plurality of suction holes (**28**) suction-attracting leading edges of tube sections for taking attracted tube sections from the suction belt conveyor means (**7**), said stamping means comprising means movable towards and cooperating with said suction drum means (**27**) for cutting out tank top cut-outs (**43**) from said tube sections; said suction drum means (**27**) carrying projectable folding blade means (**32**) for transferring the tank top bags; means for controlling movement of said blade means; and second conveyor means (**35**) for receiving transferred tank top bags and for conveying received bags away from said suction drum means.

4,268,347

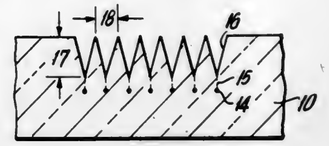
LOW REFLECTIVITY SURFACE FORMED BY PARTICLE TRACK ETCHING

Richard B. Stephens, New Providence, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jan. 26, 1979, Ser. No. 6,549

Int. Cl.[1] **B44C** *1/22;* **C03C** *15/00, 25/06;* **B29C** *17/08*

U.S. Cl. 156—628 **7 Claims**



1. A process for forming a surface having a low reflectivity to incident radiation in a wavelength region whose lower and upper bounds are defined by λ min about equal to 0.1 micron and λ max about equal to 2.0 microns respectively, which comprises (a) bombarding a dielectric material with high energy particles, thereby generating damage tracks, and (b) etching said damage tracks to form cavities of average depth D and average spacing S such that λ min is greater than about 10S and λ max is less than about 6D whereby incident radiation transits a gradient change in dielectric constant, substantially reducing the reflectivity of said surface.

4,268,348

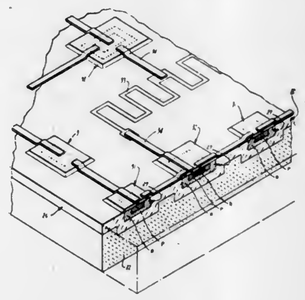
METHOD FOR MAKING SEMICONDUCTOR STRUCTURE

David F. Allison, Palo Alto, and David A. Maxwell, San Jose, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Division of Ser. No. 391,704, Aug. 24, 1964, abandoned, which is a continuation-in-part of Ser. No. 338,802, Jan. 20, 1964, abandoned, which is a continuation-in-part of Ser. No. 330,697, Dec. 16, 1963, abandoned. This application Aug. 1, 1966, Ser. No. 569,368

Int. Cl.[3] **H01L** *21/22, 21/304, 21/308*

U.S. Cl. 156—645 **23 Claims**



1. In a method for forming a semiconductor structure utilizing a semiconductor body, forming a grid structure in the semiconductor body, forming a support structure upon the grid structure, removing only a portion of the semiconductor body to provide a semiconductor body which has a substantially uniform thickness in the vicinity of the grid structure and

in which the grid structure does not intercept the exposed surface of the semiconductor body, and forming additional grid structure in the semiconductor body joining the first named grid structure so that islands of semiconductor material are formed in the semiconductor body which are isolated from each other and from the support structure.

23. In a method for forming a semiconductor structure utilizing a semiconductor body having a surface, forming a layer of insulating material on the surface of the semiconductor body, forming a recessed grid in the layer of insulating material and extending into the semiconductor body, forming a layer of insulating material on the recessed grid adhering to said surface and having a depth which is insufficient to fill the recessed grid to form a grid structure in a semiconductor body prior to the formation of a semiconductor device in the semiconductor body, forming a support structure upon the grid structure, removing a portion of the semiconductor body and diffusing isolation fences into the semiconductor body which extend and make contact with the layer of insulating material to form a plurality of islands of semiconductor material isolated from each other and from the support structure.

4,268,349

PROCESS FOR THE PRODUCTION OF PRINTED CIRCUITS WITH SOLDER REJECTING SUB-ZONES

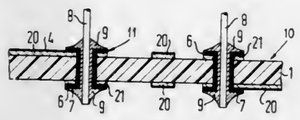
Hans-Juergen Hacke, and Hans Hadersbeck, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 15, 1976, Ser. No. 723,582

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1975, 2541280

Int. Cl.³ H05K *3/06*

U.S. Cl. 156—656 **4 Claims**



1. In a process for the production of a printed circuit board having first sub-zones of a wiring pattern for receiving solder and second sub-zones provided with a solder rejecting property so that they do not receive solder, said process including providing a workpiece comprising a substrate with a conductive metal layer on at least one surface, etching each of the layers to form the desired wiring pattern, the improvement comprising prior to the step of etching, applying a positively acting photo layer on each of the conductive metal layers, subjecting each of the photo layers to a first exposure and development process to expose the first sub-zones of each of the conductive metal layers, then galvanically applying a solderable, etch-resistant metal layer onto the exposed first subzones of each of the conductive metal layers, subsequently subjecting each of the photo layers to a second exposure and development process to produce an etching mask of a pattern of the second sub-zones on each of the conductive metal layers, and subsequent to the etching step, removing each of the etching masks from the second sub-zones and dipping the workpiece in an aqueous solution of liver of sulfur to form a passivation layer with a solder rejection property on each of exposed second sub-zones without impairing the solderability of the etch-resistant metal layer of the first sub-zone.

4,268,350

METHOD OF TREATING PULP BLEACHING EFFLUENTS

Inge G. Månsson, Kungälv, Sweden, assignor to EKA Aktiebolag, Surte, Sweden

Filed Sep. 18, 1979, Ser. No. 76,745

Claims priority, application Sweden, Oct. 25, 1978, 7811089

Int. Cl.³ D21C *11/00*

U.S. Cl. 162—29 **9 Claims**

1. A method of cleaning effluents from pulp bleaching plants, containing high molecular weight organic chlorine compounds, comprising ultrafiltering the effluent to produce a permeate and a concentrate containing high molecular weight chlorine compounds, contacting the concentrate with alkali to split a portion of the high molecular weight chlorine compounds in the concentrate into phenols and alkali chloride, and again ultrafiltering the alkali-treated material.

4,268,351

MODIFIED UREA FORMALDEHYDE RESIN FIBER PAPER

Richard G. C. Henbest, and Kenneth McGregor, both of Norton Hall, The Green, Norton, Stockton-on-Tees, Cleveland, England

Continuation-in-part of Ser. No. 857,972, Dec. 5, 1977, Pat. No. 4,202,959. This application Aug. 31, 1979, Ser. No. 71,570

Claims priority, application United Kingdom, Dec. 8, 1976, 51199/76

Int. Cl.³ D21H *5/12*

U.S. Cl. 162—146 **7 Claims**

1. A wet-laid paper in which at least 1% by weight of the fibrous constituents comprise urea-formaldehyde resin fibres made from a modified urea-formaldehyde resin, alone or in admixture with an unmodified urea-formaldehyde resin, said modified urea-formaldehyde resin being made by reacting urea and formaldehyde in the presence of a source of inorganic oxyacid radicals selected from the group consisting of sulphite, phosphate, phosphite, and borate radicals, the amount of said source being such that there are 0.2 to 15 of said inorganic oxyacid radicals per 100 methylene radicals in said urea-formaldehyde resin fibres.

4,268,352

METHOD OF REDUCING SOLUBLE STARCH IN BROKE REPULPING USING A DUAL POLYMER COMBINATION

David R. Cosper, Downers Grove, and Patricia R. Soll, Buffalo Grove, both of Ill., assignors to Nalco Chemical Company, Oak Brook, Ill.

Continuation of Ser. No. 886,490, Mar. 14, 1978, abandoned. This application May 30, 1979, Ser. No. 44,669

Int. Cl.³ D21F *1/82*

U.S. Cl. 162—191 **6 Claims**

1. A method of increasing the amount of retention of deposited starch and pigment on fibers in broke liquid which consists of adding to said liquid a combination dosage of a dimethylamine-epichlorohydrin polymer together with a second polymer selected from a group consisting of copolymers of acrylamide with (1) acrylic acid, (2) sodium acrylate, (3) dimethylamino ethyl methacrylate quaternary salt wherein the dosage to broke liquid is 0.96–16.8 lbs/ton of the dimethylamine epichlorohydrin polymer together with 0.14–2.24 lbs/ton of acrylamide copolymer, both dosages being based on dry weight of starch.

4,268,353

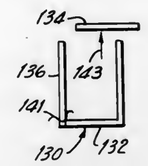
DEMOUNTABLE EXTERNALLY ANCHORED LOW-STRESS MAGNET SYSTEM AND RELATED METHOD

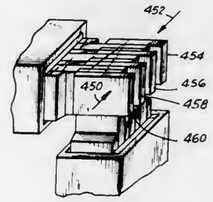
James Powell, Wading River; Shih-Yung Hsieh, Centereach, both of N.Y., and John R. Lehner, Rocky Hill, Conn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 23, 1978, Ser. No. 880,680

Int. Cl.³ G21B *1/00*

U.S. Cl. 176—3 **43 Claims**





20. A nuclear fusion reactor comprising means for containing plasma, including blanket and shield means in toroidal form, a plurality of superconducting coils radially disposed relative to and engaged with said blanket and shield means, each of said coils further comprising:

(a) at least two coil segments, said segments each further comprising a plurality of parallel conducting elements including end portions in a spaced relation one to the other, said spaced end portions of adjacent segments being interdigitated to provide electrical connections between said conducting elements of said adjacent segments so that said conducting elements form a helix;

(b) means for demountably connecting said interdigitated end portions of said adjacent segments to form conducting joints enabling facile assembly and disassembly of said coil segments, whereby installation, replacement, repair and maintenance are facilitated;

(c) external means for supporting said coil segments and said joints to prevent stresses in said coil from exceeding the level at which said coil would revert to a state of normal conductivity, said support means and said connecting means being constructed to enable relative motion between said support means and said interdigitated end portions, said support means being attached to the joined coil segments at a predetermined plurality of locations around the perimeter of said coil.

4,268,354

NUCLEAR REACTOR IN CORE FLUX MAPPING SYSTEM

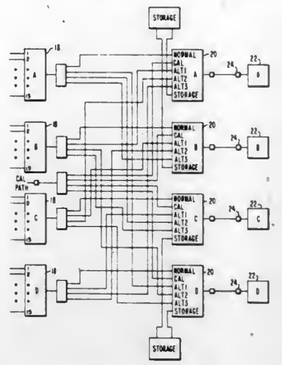
William W. Wassel, Trafford, and Gilbert W. Remley, Sharpsburg, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 12, 1978, Ser. No. 950,651

Int. Cl.³ G21C *17/00*

U.S. Cl. 176—19 EC **12 Claims**

1. An improved nuclear reactor flux mapping system including a plurality of neutron detectors operable to be driven into and out of the reactor core along any one of a number of pre-established paths wherein the improvement comprises the detectors, corresponding drives and drive controllers being arranged into at least two physically separate and functionally independent channels, each channel respectively arranged to scan complementary paths through the core and at least two redundant, functionally independent and physically separate



"command and processing" channels each independently, redundantly, alternatively operable to automatically sequence the detector scans and process the detector output data on all of the detector channels while being electrically buffered from each detector channel in a manner to prevent faults on any of the detector channels from disabling either command and processing channel.

4,268,355

PARASEISMIC DEVICE FOR THE HANDLING HOOD OF A NUCLEAR REACTOR

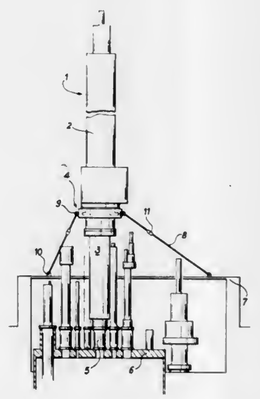
Jacqui Buret, Saulx-Les-Chartreux, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 28, 1978, Ser. No. 937,610

Claims priority, application France, Sep. 8, 1977, 77 27189

Int. Cl.³ G21C *19/20*

U.S. Cl. 176—30 **7 Claims**



1. A paraseismic device for a handling hood of a nuclear reactor, comprising an enclosure with a vertical axis connected to a lock communicating with a passage provided in a slab located in the upper part of the reactor, an elastic connecting device having an annular shape, mounted on the enclosure and the lock and permitting the enclosure to perform a gimballing movement around a centre located on the vertical axis of the

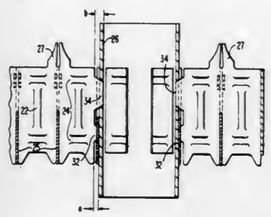
lock, and a plurality of regulatable tension tie attachment means located between the connecting device and the slab and regularly distributed around the vertical axis, said means each having an attachment point on the connecting device disposed in the vicinity of a horizontal plane passing through the centre of the connecting device.

4,268,356

NUCLEAR REACTOR FUEL ASSEMBLY GRID

Stanley Kmonk, Plum Borough, Pa.; John L. Alder, Pocatello, Id., and Francis R. Racki, O'Hara Township, Allegheny County, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 14, 1978, Ser. No. 924,542
Int. Cl.³ G21C *3/34*
U.S. Cl. 176—78 **5 Claims**



1. A grid for a nuclear reactor fuel assembly comprising:
a multiplicity of interleaved straps which form a grid of egg-crate configuration having multiple cells therein;
at least two intersecting and transversely extending straps in said grid being interrupted along their length to provide a space equal to four cells;
at least one control rod guide thimble sleeve of a size sufficient to fit in said space;
means accurately positioning said sleeve in said space in the grid and orienting it in a direction such that the axis of said sleeve lies in a plane parallel to said straps;
said means including tabs on the facing ends of at least one of said straps which has been interrupted along its length to provide the space for said sleeve, said tabs being located on opposite sides of said sleeve and extending through the wall of transversely extending straps and into opposite sides of said sleeve;
means securing said facing strap ends to said sleeves to thereby provide the desired orientation and direction of said sleeve in the grid.

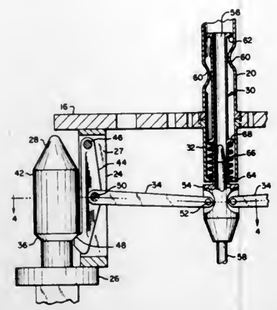
4,268,357

POSITIVE LOCK HOLDDOWN DEVICE

Frank J. Formanek, West Suffield, and Glen E. Schukei, South Windsor, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Nov. 24, 1978, Ser. No. 963,625
Int. Cl.³ G21C *3/30*
U.S. Cl. 176—78 **13 Claims**

1. A nuclear fuel assembly to be locked into first mating surfaces on a core support stand, comprising:
a lower end fitting having a plurality of posts for resting on the stand;
elongated latch means pivotally connected at one end to the lower end fitting and having second mating surface at the other end adapted to engage the first mating surface;
actuating means located between two of the posts and being vertically movable relative to the end fitting; and
rigid link means pivotally attached at one end to the latch means intermediate the connection of the latch means to the end fitting and the second mating surface and pivotally attached at the other end to the actuating means thereby forming a toggle mechanism, the link means having a length between the pivoted connections such that the second mating surface on the latch locks into engagement



with the first mating surface on the stand as the link pivots approach the horizontal.

4,268,358

METHOD OF REDUCING THE SULFUR CONTENT OF COAL REDUCED TO DUST

Ernst Schuster, Gummersbach, Fed. Rep. of Germany, assignor to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

Continuation of Ser. No. 866,479, Jan. 3, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 79,093
Claims priority, application Fed. Rep. of Germany, Dec. 31, 1976, 2659752
Int. Cl.³ C01B *53/04;* C10L *9/08;* C10B *57/00*
U.S. Cl. 201—9 **1 Claim**

1. The method for desulfurizing coal, comprising:
(a) grinding coal and screening to coal dust of particle size of less than 0.1 mm in diameter;
(b) preoxidizing said coal dust with oxygen-containing gas for a period of one to four seconds and at a temperature of 350° to 450° C.;
(c) introducing the preoxidized coal dust granules axially into a reaction chamber with a carrier gas; and
(d) treating said coal dust granules for a period of from one to six seconds while raising the temperature thereof to a range of 700° to 1100° C. by introducing heated hydrogen containing gas containing no more than 0.3% hydrogen sulfide into said chamber tangentially from at least two locations on the periphery of said reaction chamber and in the direction of flow of said coal dust to produce desulfurized coke granules ten times the original size of the coal dust particles fed.

4,268,359

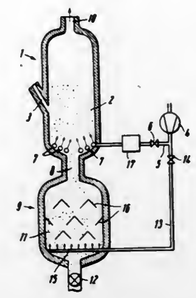
METHOD FOR COOLING DUSTLIKE OR FINE-GRAINED SOLIDS

Roland Rammler, Königstein; Ingo Dreher, Oberursel, and Rainer Rudisch, Bruchköbel, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 29, 1979, Ser. No. 7,441
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1978, 2805244
Int. Cl.³ C10B *49/10, 39/00*
U.S. Cl. 201—31 **11 Claims**

1. A method of cooling hot, dustlike or fine-grained reaction residue having a particle size below 5 mm and emanating from a reactor which method comprises passing said reaction residue in the form of a pile of bulk material downwardly through at least one cooling shaft, maintaining a pressure in said reactor and said cooling shaft of 20 to 200 bars, passing upwardly through said cooling shaft in counter-current flow to said

reaction residue a cooling gas and conducting said cooling gas into said reactor, the velocity of said counter-current flow of



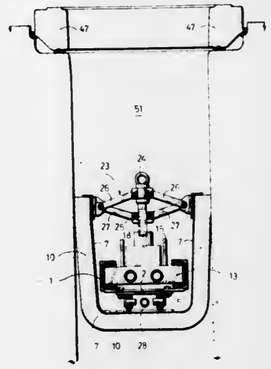
gas being insufficient to fluidize said residue in said cooling shaft.

4,268,360

TEMPORARY HEAT-PROOF APPARATUS FOR USE IN REPAIRING COKE OVENS

Akira Tsuzuki, Yokohama, and Hiroshi Tobitani, Kukisaki, both of Japan, assignors to Koritsu Machine Industrial Limited, Tokyo, Japan

Filed Mar. 3, 1980, Ser. No. 126,884
Int. Cl.³ C10B *25/00, 45/00*
U.S. Cl. 202—270 **14 Claims**



1. Heat-proofing apparatus for use in repairing a coke oven gate or the vicinity thereof, which comprises:
a heat-proofing unit including;
a vertical adiabatic member of substantially "C" shaped cross-section having a rear wall and two side walls, and receivable within a coke oven chamber through a gate opening;
vertical frame means positioned within the adiabatic member and fastened thereto;
means for expanding said side walls outwardly adjacent the front ends thereof to pressure-contact the sides of a coke oven chamber; and
upper and lower adiabatic members mounted to said frame means;
whereby the coke oven chamber can be substantially sealed off at a point to the rear of the gate opening during repair work in the vicinity of the opening, insulating said vicinity from the hot air within the chamber.

4,268,361

INHIBITING POLYMERIZATION IN EXTRACTIVE DISTILLATION OF C-4 HYDROCARBONS USING ALKOXYNITRILE-CONTAINING SOLVENT

Pradeep V. Patel, Parma, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed May 19, 1980, Ser. No. 150,848
Int. Cl.³ B01D *3/40;* C07C *7/08*
U.S. Cl. 203—9 **7 Claims**

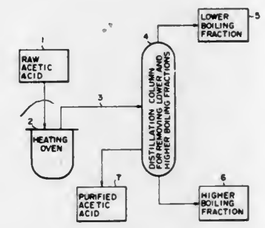
4. In an extractive distillation process for separating butadiene-1,3 from a C-4 hydrocarbon stream containing C-4 hydrocarbons more saturated than butadiene-1,3 which process includes the steps of (a) introducing a selective solvent to an extractive distillation column (b) introducing said C-4 hydrocarbon stream to said column at a point below the point of introduction of said selective solvent (c) selectively extracting butadiene-1,3 from said C-4 hydrocarbon stream to form a liquid solvent fraction richer in butadiene-1,3 (d) withdrawing overhead from said column a vaporous C-4 hydrocarbon fraction richer in hydrocarbons less saturated than butadiene-1,3 (e) withdrawing said liquid solvent fraction richer in butadiene-1,3 from the bottom of said column (f) introducing said withdrawn liquid solvent fraction to a stripping column to remove said butadiene-1,3 and (g) recycling the lean solvent to said extractive distillation column, and in which process the selective solvent contains from 50 to 90 weight percent of an alkoxynitrile of the structure $R_1—O—R_2—CN$ wherein R_1 is an alkyl and R_2 is an alkylene group each containing from 1 to 3 carbon atoms, the improvement which consists of including in the selective solvent composition a combination of 0.05 to 0.5 percent by weight of 2,4 dinitrophenol and 0.05 to 0.5 percent by weight of phosphoric acid.

4,268,362

METHOD FOR PURIFYING ACETIC ACID

Tetsuya Ogawa, Futsushi; Norio Yoshizaki, Ichiharashi; Tadakatsu Katsuragi, Ichiharashi; Makoto Nakamura, Ichiharashi, and Kiyonori Shiiba, Ichiharashi, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Dec. 28, 1976, Ser. No. 754,911
Claims priority, application Japan, Dec. 29, 1975, 50-155982
Int. Cl.³ B01D *3/00;* C07C *51/44*
U.S. Cl. 203—28 **6 Claims**



1. The method for substantially reducing the formaldehyde content of concentrated acetic acid which comprises
(a) feeding a solution containing at least 95% raw acetic acid obtained from a synthetic reaction and having a formaldehyde content substantially greater than 30 ppm into a heating zone, said synthetic reaction being selected from the group consisting of the oxidation of acetaldehyde, the oxidation of butane, and oxidation of naphtha and the reaction of methanol with carbon monoxide,
(b) maintaining said raw acetic acid in said heating zone at a temperature at about the boiling point of the acetic acid or higher,
(c) removing the heated product from step (b) and delivering it to a distillation zone, and
(d) operating said distillation zone so as to obtain
(1) a lower boiling fraction,

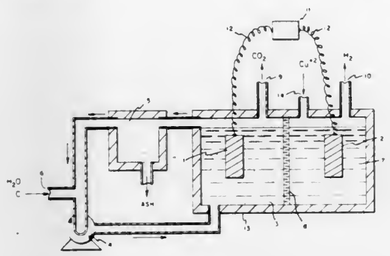
(2) a higher boiling fraction; and
(3) an intermediate acetic acid fraction that has a boiling point intermediate said lower and higher boiling fractions, said intermediate acetic acid fraction having a formaldehyde content of 30 ppm or lower.

4,268,363

METHOD FOR ELECTROWINNING METALS

Robert W. Coughlin, 49 Storrs Heights Rd., Storrs, Conn. 06268

Continuation-in-part of Ser. No. 840,567, Oct. 11, 1977. This application Aug. 20, 1979, Ser. No. 67,769
Int. Cl.³ C25B *1/00, 1/08, 1/12*
U.S. Cl. 204—39 **18 Claims**



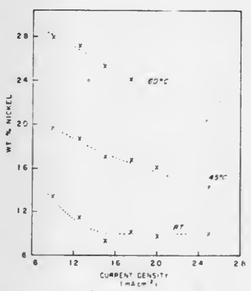
1. A method of electrowinning a metallic element from an electrolyte containing a metallic component as a cationic component, comprising the steps of:
introducing carbonaceous solids and said electrolyte into an electrolysis cell having a cathode electrode and an anode electrode; and
applying an electromotive force across said electrodes;
whereby said carbonaceous solids react at said anode and said metallic component is deposited at said cathode.

4,268,364

NICKEL-ZINC ALLOY DEPOSITION FROM A SULFAMATE BATH

Dale E. Hall, Monroe, N.Y., assignor to Inco Research & Development Center Inc., Suffern, N.Y.

Filed Mar. 18, 1980, Ser. No. 131,448
Int. Cl.³ C25D *3/56*
U.S. Cl. 204—43 Z **8 Claims**



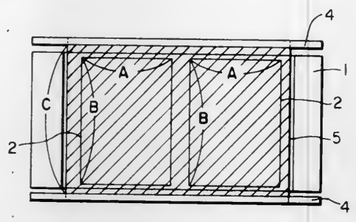
5. An electroplating bath for electrodepositing nickel-zinc alloy containing about 50 to 60 gpl of divalent nickel added as the sulfamate, about 5 to about 14 gpl of zinc added as the sulfate, about 20 to 35 gpl of boric acid with the balance being essentially water and free acid sufficient to adjust the pH of the plating bath to within the range of 2.5 to 4.0.

4,268,365

METHOD OF ELECTROLYSIS OF AN ALKALI METAL CHLORIDE

Tokuzo Iijima, Kobe; Toshiharu Yamamoto, Akashi; Kazuo Kishimoto; Takamichi Komabashiri, both of Takasago, and Toshiji Kano, Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 944,790, Sep. 22, 1978, abandoned. This application Oct. 30, 1978, Ser. No. 955,793
Claims priority, application Japan, Sep. 22, 1977, 52/114107; Dec. 26, 1977, 52/159732
Int. Cl.³ C25B *1/34*
U.S. Cl. 204—98 **9 Claims**



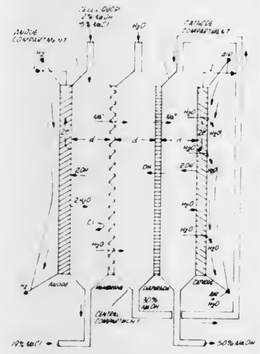
1. In a method of electrolysis of alkali metal chloride using a cation exchange membrane, the improvement which comprises positioning the cation exchange membrane intermediate the anode and cathode in such a way that the respective surfaces of both the anode and the cathode are in intimate contact with the cation exchange membrane.

4,268,366

METHOD OF CONCENTRATING ALKALI HYDROXIDE IN THREE COMPARTMENT HYBRID CELLS

Bogdan M. Broniewski, Newport Beach, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 32,151, Apr. 23, 1979, abandoned. This application Dec. 27, 1979, Ser. No. 107,688
Int. Cl.³ C25B *1/35*
U.S. Cl. 204—98 **27 Claims**



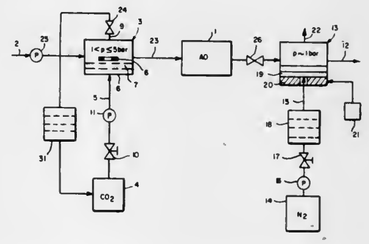
1. A process for the production of alkali metal hydroxide and electrical energy which comprises:
(a) introducing flow of an aqueous solution of at least one alkali metal hydroxide as anolyte to an anode compartment of at least one hybrid cell, the hybrid cell comprising a gas diffusion type anode having first and second surfaces, a membrane selectively permeable to cations and having first and second surfaces, a diaphragm permeable to cations and anions and having first and second surfaces, and a gas diffusion type cathode having first and second surfaces, the first surface of said anode and the first surface of said membrane defining said anode compartment, a central compartment defined by the second surface of said membrane, opposite said first membrane surface, and the first surface of said diaphragm, and a cathode compartment defined by the first surface of said gas diffusion type cathode and the second surface of said diaphragm, opposite said first diaphragm surface; the anode, central and cathode compartments each having an inlet and an outlet, said anolyte flowing from the inlet to the outlet of said anode compartment, the outlet of said central compartment being in flow communication with the inlet of said cathode compartment;
(b) introducing flow of an aqueous fluid medium receptive to alkali metal ions as catholyte into the inlet of said central compartment;
(c) withdrawing flow of the catholyte from said central compartment outlet;
(d) introducing flow of the catholyte withdrawn from the central compartment into the inlet of the cathode compartment;
(e) passing a flow of current through an external load between said gas diffusion type cathode and said gas diffusion type anode, said current generated by oxidation of hydrogen supplied to the second surface of said gas diffusion type anode and generation of hydroxide ion by reduction of an oxygen-containing gas supplied to the second surface of said gas diffusion type cathode, said current flow causing said alkali metal ions to selectively pass from the flowing anolyte through said membrane to the catholyte flowing through said central and cathode compartments to form a catholyte more concentrated in alkali metal hydroxide solution than the aqueous fluid medium introduced to said central compartment;
(f) withdrawing catholyte from the outlet of said cathode compartment; and
(g) withdrawing from the outlet of said anode compartment anolyte depleted in alkali metal ions.

4,268,367

ELECTROLYTIC PROCESS FOR THE STERILIZATION OF LIQUIDS

August K. Reis, Munich; Norbert L. Kirmaier, Aschheim; Helmut Determann, Starnberg; Joachim Thiery, Mannheim; Rolf Haker, Frankenthal, and Dietrich Krüger, Schriesheim, all of Fed. Rep. of Germany, assignors to Institut fur Biomedizinische Technik, Munich, Fed. Rep. of Germany

PCT No. PCT/DE78/00024, § 371 Date May 11, 1979, § 102(e) Date May 11, 1979, PCT Pub. No. WO79/00145, PCT Pub. Date Mar. 22, 1979.
This PCT application filed May 11, 1979, Ser. No. 51,625
Int. Cl.³ C02F *1/46*
U.S. Cl. 204—149 **5 Claims**



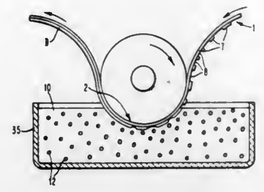
1. Process for the sterilisation of liquids having a very low conductivity by means of anodic oxidation, characterised in that a gas which increases the conductivity of the liquid is fed thereto and the anodic oxidation is then carried out.

4,268,368

ELECTROPHORETICAL METHOD FOR SELECTIVELY REINKING RESISTIVE RIBBON THERMAL TRANSFER PRINTING RIBBONS

Ari Aviram, Yorktown Heights; Keith S. Pennington, Somers, both of N.Y., and Lawrence Kuhn, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,152
Int. Cl.³ C25D *13/06, 13/16*
U.S. Cl. 204—181 C **10 Claims**



1. A method for selectively reinking a resistive ribbon thermal transfer printing ribbon, comprising:
(1) positioning a used resistive ribbon thermal transfer printing ribbon in a colloidal dispersion of electrophoretically depositable ink, prepared by
(a) heating a water-insoluble polymeric binder having a melting point in the range of 85° C. to 100° C. until the polymeric binder has been melted to a liquid state,
(b) adding and blending a pigment into the melted polymeric binder,
(c) adding and mixing a heated dilute aqueous solution of a carboxylic acid to the composition formed in (b), to adjust the pH and
(d) adding and blending a colloid charge-forming compound to the pH adjusted composition formed in (c), to form an aqueous dispersion of electrically-charged pigment-containing polymeric colloid,
(e) cooling the colloidal dispersion formed in (d); and
(2) passing an electric current through said colloidal dispersion, with an electrically conductive layer of said ribbon serving as one electrode, to electrophoretically deposit the pigment-containing polymeric colloid on areas of said ribbon that have been depleted of ink, to form an ink layer of uniform thickness.

4,268,369

PROCESS OF MAKING SILICON DIOXIDE FILMS FOR USE AS WEAR RESISTANT COATINGS IN VIDEO AND DIGITAL MAGNETIC RECORDING

Malcolm Barlow, Sunnyvale, and Jerry R. Lundquist, San Jose, both of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Division of Ser. No. 817,004, Jul. 18, 1977. This application Aug. 30, 1979, Ser. No. 71,269
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 D **1 Claim**

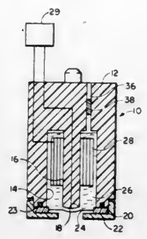
1. The process of making a wear resistant magnetic recording medium comprising the following steps:
a. providing a metallic, non-magnetic substrate,
b. forming a metal magnetic film selected from cobalt-nickel, cobalt and cobalt-nickel-phosphorus over said substrate,
c. oxidizing said magnetic film to provide a graded surface thereon by heating said metallic magnetic film in air at a temperature of from 100°-200° C. to form an oxidized interface layer over said metallic magnetic layer and,
c. sputtering a film having a thickness of 1-20 microinches of silicon dioxide over the oxydized surface of said magnetic film.

4,268,370

HIGH TEMPERATURE, CO_2 INTERFERENCE FREE, ELECTROCHEMICAL O_2 SENSOR

Radhakrishna M. Neti, Brea, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jan. 11, 1980, Ser. No. 111,404
Int. Cl.[1] G01N *27/46*
U.S. Cl. 204—195 P **35 Claims**



1. In an electrochemical sensor for determining the oxygen content of a fluid of the type comprising an electrode body forming a reservoir therein and having an opening at one end thereof, a cathode and anode mounted within said body, said cathode and anode being electrically connected by an electrolyte within said reservoir, a gas permeable membrane extending across said one end of said body and separating said cathode and anode and said electrolyte from a sample to be analyzed, the improvement comprising:

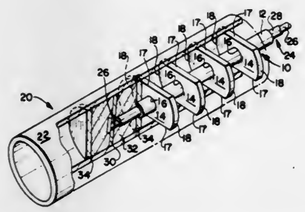
said electrolyte being selected from a group consisting of amino alcohols having from 2 to 12 carbon atoms, morpholine, and mixtures thereof.

4,268,371

CABLE GUIDE FOR A TUBULAR ANODE

Bernard T. Brun, Dayton, and John W. McKinney, Jr., Xenia, both of Ohio, assignors to The Duriron Company, Inc., Dayton, Ohio

Filed Mar. 13, 1980, Ser. No. 129,950
Int. Cl.[1] C23F *13/00*
U.S. Cl. 204—196 **3 Claims**



1. An improved tubular anode of the type having a tubular anode body including an interior wall which defines a hollow cavity, a contact plate packed in a mastic and sealed by caps within a portion of the cavity, and a cable joined to the contact plate, the improvement comprising:

a conduit enclosing and hermetically sealing the cable and having an outside diameter less than the diameter of the cavity; and

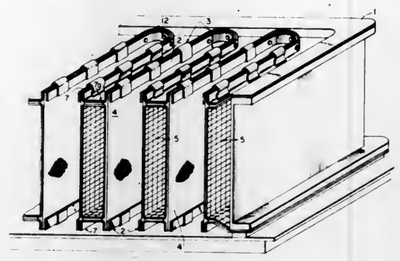
a plurality of spacers sized to fit in abutting relationship with the interior wall of the anode and shaped to form an open space with the interior wall to permit the escape of gases from the cavity, the spacers removably mounted along the conduit at spaced apart locations such that the conduit cannot be deflected to contact the interior wall.

4,268,372

METHOD AND APPARATUS FOR INSTALLING A MEMBRANE TO AN ELECTROLYTIC CELL

Tokuzo Iizima, Kobe; Yasushi Samejima, Kakagawa; Kazuo Kishimoto; Takamichi Komabashiri, both of Takasago, and Toshiji Kano, Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 20, 1978, Ser. No. 971,429
Claims priority, application Japan, Aug. 3, 1978, 53-107197[U]
Int. Cl.[1] C25B *9/00*
U.S. Cl. 204—252 **23 Claims**



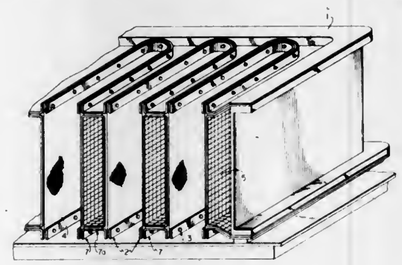
1. Method of installation of a membrane to a finger type electrolytic cell for the production of chlorine, hydrogen and an alkali metal hydroxide by electrolysis of an aqueous alkali metal chloride solution which cell comprises a plurality of anodes and a cathode box providing a cathode between adjacent anodes, and a membrane between adjacent anodes and cathodes, which comprises covering the upper and lower horizontal surfaces of the cathode not opposing the anodes with upper and lower membrane installation frames having collars; positioning cation exchange membranes in a cylindrical shape substantially parallel to the vertical surfaces of said cathodes; and installing and securing the membranes to the collars by clipping.

4,268,373

METHOD AND APPARATUS FOR INSTALLATION OF A MEMBRANE TO AN ELECTROLYTIC CELL

Tokuzo Iijima, Kobe; Toshiharu Yamamoto, Akashi; Kazuo Kishimoto; Takamichi Komabashiri, both of Takasago; Toshiji Kano, Kobe, and Akinori Hisanaga, Kakogawa, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 20, 1978, Ser. No. 971,430
Claims priority, application Japan, Dec. 26, 1977, 52/178714[U]
Int. Cl.[1] C25B *9/00*
U.S. Cl. 204—252 **25 Claims**



1. Method of installation of a membrane to a finger type electrolytic cell for the production of chlorine, hydrogen and an alkali metal hydroxide by electrolysis of an aqueous alkali

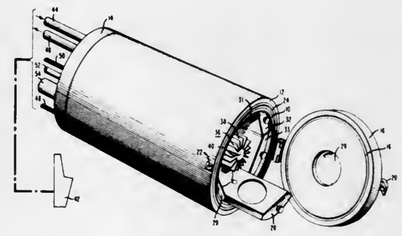
metal chloride solution which cell comprises a plurality of anodes and a cathode box providing a cathode between adjacent anodes, and a membrane between adjacent anodes and cathodes, which comprises covering the upper and lower horizontal surfaces of the cathode not opposing the anodes with upper and lower membrane installation frames having collars; positioning cation exchange membranes in a cylindrical shape substantially parallel to the vertical surfaces of said cathodes, and installing and securing the membranes to the collars by bolting.

4,268,374

HIGH CAPACITY SPUTTER-ETCHING APPARATUS

Martin P. Lepselter, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 9, 1979, Ser. No. 65,185
Int. Cl.[3] C23C *15/00*
U.S. Cl. 204—298 **8 Claims**



2. Apparatus for simultaneously etching multiple workpieces, comprising

a cylindrical cathode element,

a large-surface-area anode element centrally positioned within said cathode element,

small-surface-area means for mounting multiple workpieces to be etched on the inner surface of said cathode element, the anode element-to-mounting means surface area ratio being in the range 1.5 to 10,

means for establishing a specified gaseous atmosphere within said apparatus in the space between said anode and cathode elements,

means connected to said cathode element for capacitively coupling a-c potential thereto,

and means for connecting said anode element to a point of reference potential,

whereby, in response to a-c excitation of said apparatus, a dark space is established in the immediate vicinity of said mounting means and a plasma is established between said dark space and said anode element.

4,268,375

SEQUENTIAL THERMAL CRACKING PROCESS

Axel R. Johnson, 657 Benjamin Rd., North Babylon, N.Y. 11703, and Herman N. Woebcke, 41 Quaker Riadge Rd., Stamford, Conn. 06903

Filed Oct. 5, 1979, Ser. No. 82,049
Int. Cl.[1] C10G *9/16, 9/30*
U.S. Cl. 208—72 **13 Claims**

1. A process for cracking hydrocarbon feed to produce olefins comprising:

a. delivering hydrocarbon feed to a first zone;

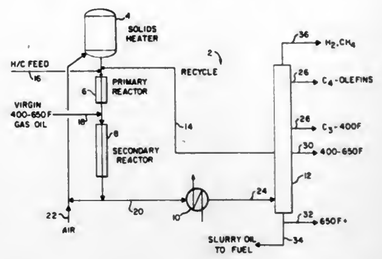
b. thermally cracking the hydrocarbons in the first zone at temperatures above 1,500° F.;

c. discharging the cracked effluent from the first zone to a second zone;

d. delivering a second hydrocarbon feed to the entry of the second zone; and

e. mixing the cracked effluent from the first zone and the second hydrocarbon feed in the second zone;

whereby the cracked effluent from the first zone is quenched and the second hydrocarbon feed is cracked at low severity in the second zone at a residence time of the hydrocarbon be-



tween 150 and 2,000 milliseconds, a hydrocarbon temperature of 1,200° to 1,500° F. and a pressure of 10 to 100 psig.

4,268,376

CRACKING CATALYST REJUVENATION

Michael S. Foster, Oakland, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Mar. 23, 1979, Ser. No. 23,483
Int. Cl.[1] C10G *11/05*
U.S. Cl. 208—120 **4 Claims**

1. A process for cracking hydrocarbons comprising:

(a) circulating between a cracking zone and a catalyst regeneration zone a particulate solid cracking catalyst comprising an acidic zeolitic crystalline aluminosilicate having a faujasite crystal structure;

(b) cracking hydrocarbons in contact with said catalyst and depositing coke on said catalyst in said cracking zone at cracking conditions including the absence of added hydrogen and burning coke from said catalyst with molecular oxygen in said regeneration zone at catalyst regeneration conditions, whereby the cracking activity of said catalyst is decreased;

(c) increasing the cracking activity of particles of said catalyst by contacting said particles with an aqueous liquid containing cations of at least one rare earth metal at ion-exchange conditions, said liquid having a pH of less than 7; and

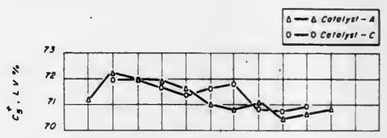
(d) contacting the resulting catalyst particles with hydrocarbons at catalytic cracking conditions including the absence of added hydrogen.

4,268,377

HYDROCARBON CONVERSION WITH AN ACTIVATED MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 848,699, Nov. 4, 1977, Pat. No. 4,183,804. This application Oct. 5, 1979, Ser. No. 82,436
The portion of the term of this patent subsequent to Jan. 15, 1997, has been disclaimed.
Int. Cl.[1] C10G *35/08*
U.S. Cl. 208—139 **20 Claims**



1. A process for converting a hydrocarbon which comprises contacting said hydrocarbon at hydrocarbon conversion conditions with a catalytic composite comprising the pyrolyzed

reaction product of a catalytically effective amount of a ruthenium carbonyl component with a porous carrier material containing a uniform dispersion of catalytically effective amounts of a platinum group component, which is maintained in the elemental metallic state during the incorporation and pyrolysis of the ruthenium carbonyl component, and of a rhenium component.

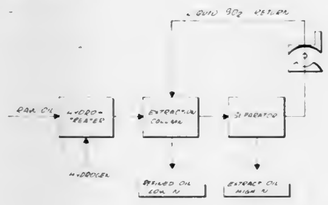
18. The process of claim 1 wherein said hydrocarbon comprises a gasoline fraction, said conversion comprises reforming of said gasoline fraction in the presence of hydrogen and said hydrocarbon conversion conditions comprise reforming conditions.

4,268,378

METHOD FOR REMOVING NITROGEN FROM SHALE OIL BY HYDROGENATION AND LIQUID SULFUR DIOXIDE EXTRACTION

Leslie E. Compton, Claremont, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 55,285, Jul. 5, 1979, abandoned. This application Apr. 8, 1980, Ser. No. 138,559
Int. Cl.³ C10G *21/06*
U.S. Cl. 208—254 R **14 Claims**



1. A method for reducing the nitrogen content of shale oil comprising the steps of:

hydrogenating a shale oil having a first nitrogen content under conditions for effecting saturation of substantially all olefinic hydrocarbons present in the shale oil without substantially hydrogenating the nitrogen-containing compounds present in the shale oil;

extracting the hydrogenated shale oil with liquid sulfur dioxide for forming a shale oil phase having a second nitrogen content less than the first nitrogen content of the unhydrogenated shale oil and a liquid sulfur dioxide phase containing nitrogen-containing compounds; and

separating the shale oil phase having a second nitrogen content from the liquid sulfur dioxide phase.

4,268,379

SELECTIVE FLOCCULATION FOR INCREASED COAL RECOVERY BY FROTH FLOTATION

Andrew C. Poulos, Lakeland, Fla., and John D. Hightower, Abingdon, Va., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 23, 1977, Ser. No. 864,132
Int. Cl.³ B03B *1/04*
U.S. Cl. 209—5 **11 Claims**

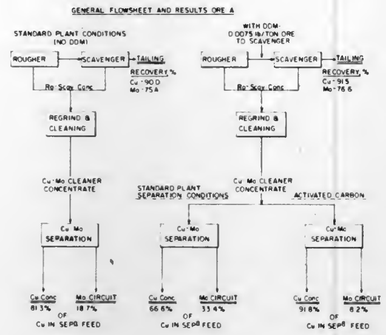
10. A process for improving the recovery of clean coal which comprises adding an effective amount of a water soluble cationic polymer to the coal being processed to decrease the amount of clay in the aqueous coal suspension being treated.

4,268,380

FROTH FLOTATION PROCESS

Douglas R. Shaw, Tucson, Ariz., assignor to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 934,132, Aug. 15, 1978, abandoned. This application Jul. 30, 1979, Ser. No. 62,092
Int. Cl.³ B03D *1/06*
U.S. Cl. 209—167 **7 Claims**



1. In the method for recovery of metal values by froth flotation from metallic sulfide mineral ores comprising copper and molybdenum, including the steps of:

(A) forming an aqueous mineral pulp from the ore;

(B) subjecting the pulp to rougher flotation to provide a scavenger feed and a rougher concentrate;

(C) adding an effective amount of an alkyl mercaptan of the formula $C_nH_{2n+1}SH$ in which n is at least 12 to the rougher flotation stage (B) or to the scavenger feed resulting therefrom, as a collector, and subjecting the scavenger feed to flotation to provide a scavenger tailing and a scavenger concentrate;

(D) combining, regrinding, and cleaning the concentrates from the rougher and scavenger flotation states (B) and (C) to provide a copper-molybdenum cleaner concentrate; and then

(E) subjecting the cleaner concentrate of step (D) to component mineral stage flotation separation; the improvement which comprises deactivating a substantial amount of the mercaptan collector on the mineral of the ore in the cleaner concentrate of step (D) prior to the component mineral stage flotation separation in step (E), said deactivating comprising adding a deactivating effective amount of activated carbon to the cleaner concentrate prior to flotation in step (E); to provide more effective mineral separation of said copper and molybdenum.

4,268,381

ROTARY PULP SCREENING DEVICE OF THE VERTICAL PRESSURE TYPE

Anthony W. Hooper, Montreal, Canada, assignor to Uniweld Inc., West Sherbrooke, Canada

Filed May 3, 1979, Ser. No. 35,515
Int. Cl.³ B07B *1/20*
U.S. Cl. 209—273 **19 Claims**

1. A rotary pulp screening device of the vertical pressure type comprising

cylindrical housing having an upper inlet chamber and a lower screening chamber with a disc ring dividing the upper chamber from the lower chamber,

inlet aperture in the upper chamber,

cylindrical screen mounted within the lower chamber,

said disc ring providing an entrance inlet to said lower screening chamber, said entrance inlet being of substantially the same diameter as said cylindrical screen,

rotary impeller mounted for rotation about a central vertical axis within the screen, the impeller having an approximately paraboloid shaped body,

said paraboloid shaped body directing pulp stock against the cylindrical screen along the full length of the screen,

means for rotating the impeller,

impeller blades radiating from at least a portion of the paraboloid shaped body and extending to within a short distance of the screen over the length of the screen,

dilution means disposed within the cylindrical screen for controlling the consistency of pulp stock along the vertical length of the screening chamber,

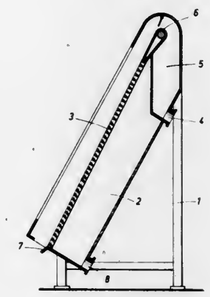
and pulp discharge outlet from the lower chamber outside the pulp screen.

4,268,382

SIEVE AND SIEVING APPARATUS FOR SEPARATING SOLIDS FROM A SUSPENSION

Reinhard Hanke, Leoben, and Kornel Jahn, Vienna, both of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Oct. 29, 1979, Ser. No. 89,241
Claims priority, application Austria, Nov. 7, 1978, 7942/78
Int. Cl.³ B07B *1/04*
U.S. Cl. 209—273 **4 Claims**



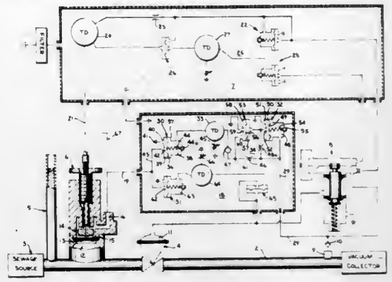
1. A sieve having an upper feed end and a lower discharge end for separating solids from a suspension, comprising a plurality of parallel sieve bars transversely spaced apart in a plane having a constant angle of inclination, each sieve bar having an upwardly facing side face enclosing an angle with the plane, all side faces being disposed on the same side of the sieve and diverging from the plane in the same direction whereby they constitute a stepped sieve surface on said upwardly facing side of the sieve, and the angles enclosed by the side faces with the plane increasing progressively in the direction of divergence of the side faces from said feed end to said discharge end.

4,268,383

FLOW SYSTEM CONTROL WITH TIME DELAY OVERRIDE MEANS

Arnold G. Trobaugh, Milwaukee, Wis., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Mar. 26, 1979, Ser. No. 23,679
Int. Cl.³ C02C *1/00*
U.S. Cl. 210—103 **12 Claims**



1. A sewerage flow control system having an accumulating means for storing of sewerage and means for establishing a predetermined differential pressure in a line connected to said accumulating means and to said collector means and having a normally closed main valve means in said line upstream of said collector means for deliverying of accumulated fluid medium to said collector means, comprising a controller having sensing means to sense the pressure condition upstream of said valve means and having valve control means actuated by said sensing means for selectively opening said normally closed valve means to apply said pressure to the opposite side of the valve means and to establish a predetermined flow cycle for delivery of said fluid medium, and pressure control means to sense the pressure in the downstream side of the valve means with the valve means closed and connected to actuate said valve control means of said controller to open said valve means to initiate said flow cycle in response to an abnormal pressure condition between the valve means and the collector means and operating independently of the sensing means, and said pressure control means including a time delay means to restrict the response thereof to a time period in excess of transient abnormal pressure condition created between the valve means and the source means, whereby said valve control means is independently actuated by said sensing means and by said pressure control means.

4,268,384

SPIN-OFF FILTER HEAD ASSEMBLY

Borje O. Rosaen, 4031 Thornoaks Dr., and Dale P. Fosdick, 3000 Hunting Valley Dr., both of Ann Arbor, Mich. 48104

Filed Mar. 21, 1977, Ser. No. 779,329
Int. Cl.³ B01D *35/14*
U.S. Cl. 210—133 **9 Claims**

1. A head for a spin-off filter comprising:

a stamped housing, said housing having an annular sidewall, a closed top wall and being open at its bottom, said housing having means formed along its bottom adapted to sealingly engage a spin-off filter;

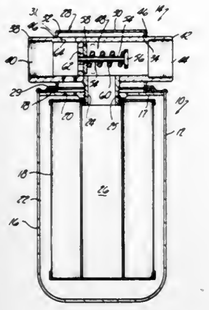
a first tubular cylindrical pipe extending through the sidewalls of said housing wherein one end of the first pipe forms a fluid inlet while the other end of the first pipe forms a fluid outlet;

means for sealing said first pipe to said housing;

a second tubular cylindrical pipe positioned in an aperture formed through said first pipe, said second pipe being fixedly secured to said first pipe so that said second pipe

extends downwardly through the open bottom of said housing;

means formed on the free end of the second pipe for detachable connection with the spin-off filter; and



fluid passage means formed through said first pipe for diverting fluid flow into the fluid inlet through the spin-off filter and from the filter to said fluid outlet.

4,268,385

CENTRIFUGAL ROTATING DISC ASSEMBLY FOR BIOLOGICAL WASTE WATER TREATMENT APPARATUS

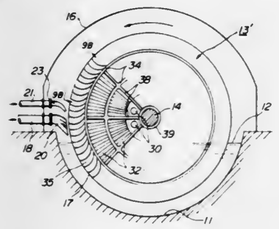
Norihiro Yoshikawa, Yokohama, Japan, assignor to Dengyosha Engineering Co., Inc., Tokyo, Japan

Filed Mar. 1, 1979, Ser. No. 16,555

Claims priority, application Japan, Mar. 14, 1978, 53-28867

Int. Cl.³ B01D *21/26, 33/26;* **C02F** *3/10*

U.S. Cl. 210—150 **8 Claims**



1. In a centrifugal rotating disc assembly for a biological waste water treatment, apparatus including a plurality of rotating dual discs vertically fixed to a main shaft, each said rotating dual disc consisting of a main plate, a side plate parallel thereto and a plurality of radial blades arranged therebetween to form a centrifugal impeller having at its center a suction opening, the improvement comprising respective suction openings in opposition to each other formed in said main and side plate of each sectorbox-shaped structure surrounded by said main and side plates of said dual discs to form a suction chamber into which air and waste water enter through the suction openings, a number of radial pleats formed in said main and side plates extending radially outwardly from each said suction chamber to form a number of polygonal tubular channels open to the circumference of the disc when said main and side plates are assembled to allow air and waste water to flow from the suction chambers and to exit at the circumference of the disc, said pleats serving as spacers between adjacent plates, thereby increasing surface areas for attaching microorganisms, jet impinging on said impeller for rotating said disc assembly, and at least one communicating passageway formed in each said main and side plates and circumferentially traversing said tubular channels and blades, thereby improving permeabilities and discharge of waste water from said channels as the discs rotate to obtain a higher efficiency of aerobic treatment and reduce the driving force for the assembly.

4,268,386

SWIMMING POOL ACCESSORY

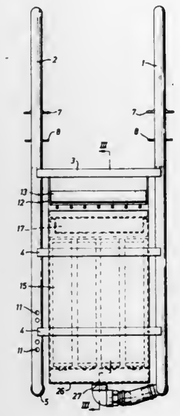
Michael A. May, Gay Bowers Farm, West Hanningfield, Chelmsford, Essex, England

Filed Feb. 2, 1979, Ser. No. 8,879

Claims priority, application United Kingdom, Feb. 7, 1978, 4840/78

Int. Cl.³ E04H *3/20;* **B01D** *35/02*

U.S. Cl. 210—169 **5 Claims**



1. A swimming pool accessory comprising a pool ladder having hollow stiles suitable for use as conduits for water flowing to and from the pool, a unitary skimmer box and filter unit mounted on the ladder and connected to said stiles so that in use water skimmed off the skimmer box passes into one of the stiles and is returned to the pool via the other stile, the water passing through the filter before returning to the pool, the unitary skimmer box and filter unit being mounted on the ladder so that in use it is positioned between the ladder and the wall of the pool and the top of the skimmer box has a removable lid that abuts the top rung of the ladder.

4,268,387

FILTRATION SYSTEM

John E. Hall, Carmel, N.Y., assignor to John E. Hall, Carmel and Hall Decker McKibbin & Singer, Inc., New York, both of, N.Y., part interest to each

Continuation-in-part of Ser. No. 621,932, Mar. 19, 1979, abandoned. This application Oct. 31, 1979, Ser. No. 90,012

Int. Cl.³ E04H *3/20*

U.S. Cl. 210—169 **11 Claims**

1. A filtration system for disposition under gravel on the bottom of a tank containing liquid to be filtered, and operable to be connected to a suction pump whereby liquid is drawn therethrough, comprising in combination:

(a) a closed first chamber;

(b) a closed second chamber;

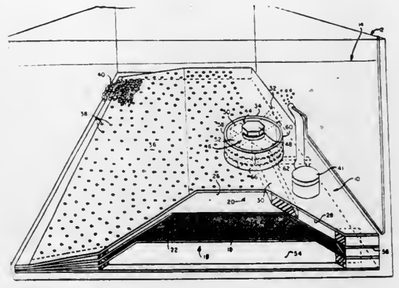
(c) microfilter means forming a filter conduit between said first and said second chambers and being operable to filter particles from liquid passing through said filter conduit;

(d) a third chamber including an outer wall, said outer wall being perforated to permit the liquid to pass therethrough but to prevent gravel from passing thereinto;

(e) a pump conduit including a pump outlet operable to communicate with the suction pump;

(f) a valve connected to said first, second and third chambers and to said pump conduit and being operable between a filtering first position and a cleaning second position, said

valve, in its filtering first position, simultaneously forming first and second liquid conduits, said first conduit being connected to, and providing liquid communication between said third chamber and said second chamber, and said second conduit being connected to and providing liquid communication between said pump conduit and said first chamber, whereby operation of the pump to remove liquid from said pump conduit will cause liquid to be drawn first through the gravel and the perforations in said outer wall into said third chamber, thereafter through said first conduit of said valve to said second chamber, then in a first flow direction through said microfilter means filter conduit into said first chamber from which it passes through said second conduit of said valve to said pump conduit to be discharged by the pump; and



said valve, in its cleaning second position, simultaneously forming third and fourth liquid conduits, said third conduit being connected to and providing liquid communication between said third chamber and said first chamber, and said fourth conduit being connected to and providing liquid communication between said pump conduit and said second chamber, whereby operation of the pump to remove liquid from said pump conduit will cause liquid to be drawn first through the gravel and the perforations in said outer wall into said third chamber, thereafter through said third conduit into said first chamber, then in a second flow direction opposite to said first flow direction through said microfilter means filtering conduit into said second chamber from which it passes through said fourth conduit of said valve to said pump conduit to be discharged by the pump.

4,268,388

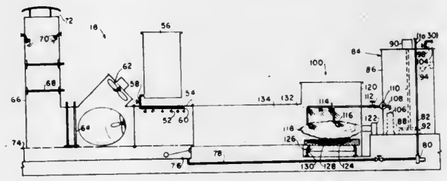
SYSTEM FOR WASTE DISPOSAL

Samuel T. Romeo, 100 Tower Dr., Stevensville, Md. 21666

Continuation-in-part of Ser. No. 101,831, Dec. 10, 1979. This application Jan. 29, 1980, Ser. No. 116,537

Int. Cl.³ B01D *37/02;* **F23G** *7/04*

U.S. Cl. 210—180 **3 Claims**



1. In a system for concurrently treating both flammable and nonflammable waste material, including in sequence: means for mixing waste material with liquid, means for heating waste material when mixed with liquid and reducing at least a portion thereof to gaseous material, means for forcing said gaseous material to flow, means for treating said flowing gaseous material with liquid, means for filtering said flowing gaseous material, and means for recycling through the system filtrate from said filtering, the improvement comprising: the means for heating including means for projecting flame horizontally in a chamber and means for spraying said waste material mixed with liquid onto said flame substantially counter to the direction of said flame projection; the means for mixing include first means for mixing liquid with nonflammable waste and second means for mixing liquid with flammable waste, wherein the means for heating include a heated plate and means for spraying nonflammable waste onto the heated plate; wherein means for continuing combustion of waste material sprayed onto said flame is provided, said means for continuing combustion comprising a bed of sand under said flame in position for receiving waste material falling through the flame and in proximity to the flame promoting continued combustion; a car supporting the bed of sand and means for rolling the car from beneath said flame to a cleanout location; a first chamber around said heated plate; a second chamber around said flame and the means for forcing including each of said first and second chamber being an enclosure limiting outward flow of gaseous material to a single exhaust therefrom; said means for treating flowing gaseous material including chemical spray means disposed in the path of said flowing gaseous material; said means for forcing further including fanning means for inducing said waste material to flow; said means for treating including first and second filtering means and means spraying liquid at said first and second filter means; a sump, the first filtering means being vertically disposed and said liquid sprayed having means for carrying any filtrate downward into said sump; an upright duct having exhaust to the atmosphere, the second filtering means mounted horizontally across said upright duct in position for said gaseous material to flow upward therethrough and said means spraying liquid disposed for spraying liquid downwardly through said second filtering means counter to said flow of gaseous materials and into said sump; and the means for recycling having connection for returning all said filtrate from the sump to said first mixing means.

4,268,389

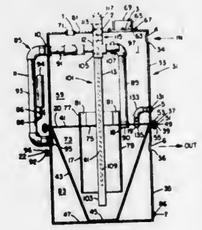
SEWAGE TREATMENT

Walter W. Rapp, and Gary A. Crosby, both of New Iberia, La., assignors to Red Fox Industries Inc., New Iberia, La.

Filed Nov. 16, 1979, Ser. No. 95,107

Int. Cl.³ C02F *3/20, 3/22*

U.S. Cl. 210—195.3 **10 Claims**



1. A sewage treater comprising an aerator, a clarifier, and a disinfector,

said clarifier being disposed beneath said aerator and the top of the clarifier with a common wall therebetween forming the bottom of the aerator,

first passage means to conduct fluid from the aerator to the clarifier,

said first passage means comprising a central port in said common wall and circular guide baffle means around said port,

and second passage means to conduct fluid from the clarifier to disinfector, said aerator having an influent inlet, said disinfector having an effluent outlet,

said treater being distinguished in that said aerator includes

a vessel and nozzle means for admitting air to the vessel in a direction to cause fluid in the vessel to move orbitally about a vertical axis,

said nozzle means being disposed at a level below the top of said guide baffle means.

10. A sewage treater comprising an aerator, a clarifier, and a disinfector,

said clarifier being disposed beneath said aerator and the top of the clarifier with a common wall therebetween forming the bottom of the aerator,

first passage means to conduct fluid from the aerator to the clarifier,

said first passage means comprising a central port in said common wall,

and second passage means to conduct fluid from the clarifier to disinfector, said aerator having an influent inlet, said disinfector having an effluent outlet,

said treater being distinguished in that said aerator includes a vessel and nozzle means for admitting air to the vessel in a direction to cause fluid in the vessel to move orbitally about a vertical axis,

said nozzle means being disposed at a level proximate the common wall between said aerator and clarifier.

4,268,390

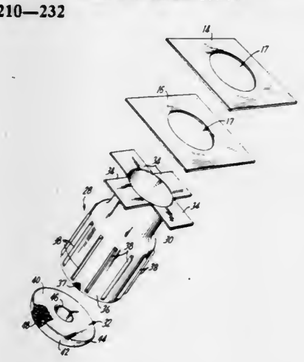
STORM DRAIN SUMP FILTER

William T. J. Cunningham, 528 E. 43rd St., Brooklyn, N.Y. 11203

Continuation-in-part of Ser. No. 960,618, Jan. 2, 1979, abandoned. This application Sep. 10, 1979, Ser. No. 74,091

Int. Cl.³ B01D *23/04*

U.S. Cl. 210—232 **5 Claims**



1. A filter for use with a drain having a sump and a fluid outlet through a wall of the sump, said filter comprising:

a bag-like member having a cylindrical body portion and a relatively circular base portion secured to a bottom wall of said cylindrical body portion;

said bag-like member including upper support means for positioning on an upper perimeter of the sump to align said bag-like member in a downwardly depending relationship in the sump, said support means having opening means for communicating with an interior portion of said cylindrical body portion;

said bag-like member being fabricated from a resilient mesh-like synthetic material which is relatively non-degradable by water or organic matter, said mesh-like synthetic material providing filtering openings through said bag-like member;

spacer means secured to an outer surface of said cylindrical body portion of said bag-like member to prevent said cylindrical body portion from abutting against a wall of the sump;

said spacer means including a plurality of longitudinally extending spacer fins disposed parallel to each other and spaced around said cylindrical body portion, said spacer fins being fabricated from a synthetic material which is relatively non-degradable by water or organic matter;

said base portion having an opening in a bottom portion thereof to provide a toroid-shaped outer portion;

weighted means disposed in said toroid-shaped outer portion for maintaining said cylindrical body portion of said bag-like member in a relatively expanded configuration, said weighted means being reshapeable to permit said base portion to be fitted in various sized sumps, said weighted means including a plurality of weighted materials each having a larger dimension than said filtering openings through said bag-like member to retain said weighted materials in said toroid-shaped outer portion.

4,268,391

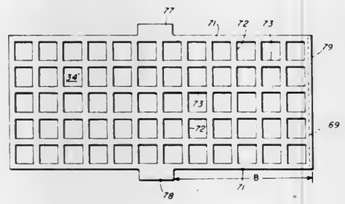
LEAK PROOF FILTER PLATE SYSTEM FOR SLIDE PLATE FILTERS

James P. Paquette, Uxbridge, Mass., assignor to The Berlyn Corporation, Worcester, Mass.

Filed Nov. 28, 1979, Ser. No. 98,061

Int. Cl.³ B01D *25/12*

U.S. Cl. 210—236 **6 Claims**



1. In slide filter apparatus for filtering contaminants from a fluid working material flowing in a defined path, the apparatus having rigid filter plate means for carrying on an up-stream surface replaceable filter media means from an inlet port passageway across the path of fluid flow to an outlet port passageway, said filter plate means being in sections which are butted end to end in a continuing progression across said path, each said section carrying a separate portion of said filter media, the space between each pair of abutting sections forming a gap into which fluid working material can escape from said path, the improvement comprising open frame means overlying said separate portion of filter media on said up-stream surface of each of said sections, each said frame means being off-set end-wise on the underlying filter plate section so as to form between abutting frame ends a second gap which is off-set from the gap between the underlying abutting filter plate sections, said second gap overlying a portion of the filter media carried by one of said underlying filter plate sections, whereby a path through said gaps contains said portion of filter media.

4,268,392

DISPOSABLE PLASTIC TRAP BAG

John Hayes, Aurora, Colo., assignor to Tiger Manufacturing Company, Englewood, Colo.

Filed Jun. 1, 1979, Ser. No. 44,578

Int. Cl.³ B01D *43/00;* **E03C** *1/18*

U.S. Cl. 210—238 **4 Claims**

1. a trap interposed in a fluid path of a sink drain to remove particles from the fluid and provide for quick and efficient disposal of the particles, comprising:

a receptacle having a rim formed at the top thereof and an opening formed adjacent the top of said receptacle;

a trap bag having an aperture and being held in said receptacle to remove and contain particles from the fluid, said trap bag including an upper segment, a bottom segment sealingly connected to said upper segment and a mouth formed at the top portion of said upper segment, said upper segment having a raised longitudinal seal portion

and a flat seal portion located along the path of said raised seal portion while being positioned to overlie said rim, said raised seal portion having a greater width than portions of said upper segment of said trap bag overlying said rim while said flat seal portion being of substantially the same width as portions of said upper segment of said trap bag overlying said receptacle rim;

a generally flat cover member to which the rim of said receptacle is connected to form a closure for the top of said receptacle, said cover member having an inlet connectable to a first pipe to receive fluid which carries particles and an outlet connectable to a second pipe to discharge the fluid after the particles have been deposited in said trap bag;

a gasket member connected to said cover member and positioned contiguously adjacent said flat seal portion of said upper segment of said trap bag overlying said receptacle rim so that, when connecting said cover member to said receptacle, said gasket member provides a tight, uniform seal between said gasket member and said trap bag to substantially prevent leakage of fluid therefrom;



clamping means for releasably fastening said receptacle to said cover; and

a valve member sealingly connected to said trap bag overlying said trap bag aperture and being insertable through said opening in said receptacle when said trap bag is placed in said receptacle, said valve member being openable to permit fluid contained in the top portion of said trap bag to drain when said trap bag is filled with particles prior to the removal of said receptacle from said cover member.

4,268,393

APPARATUS FOR CENTRIFUGAL SEPARATION OF PLATELET-RICH PLASMA

Maxim D. Persidsky, San Francisco, and Nan-Sing Ling, San Rafael, both of Calif., assignors to The Institutes of Medical Sciences, San Francisco, Calif.

Filed May 5, 1980, Ser. No. 146,462

Int. Cl.³ B01D *21/26*

U.S. Cl. 210—516 **3 Claims**

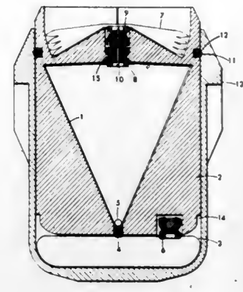
1. Apparatus for separating platelets from a blood sample comprising

(a) a body adapted to be subjected to centrifugal force and containing a cavity with a volume of displacing liquid in the cavity,

(b) a piston mounted in the body for movement into the cavity in response to centrifugal force on the piston with the piston containing a centrifugal chamber having inner and outer ends with a blood sample in the chamber from which platelets are to be withdrawn, and injection passageway means for movement of displacing liquid from the cavity to the centrifugal outer end of the chamber in response to movement of the piston into the cavity,

(c) a discharge passageway at the centrifugally inner end of the chamber for discharging platelet rich plasma in response to injection of displacing liquid into the chamber,

(d) a collapsible bag in the cavity surrounding the body of displacing liquid and communicating with the injection passageway means,



(e) means for preventing flow of displacing liquid from the cavity to the chamber before centrifugal stratification of blood cells in the chamber.

4,268,394

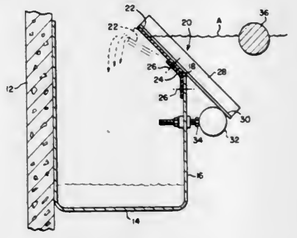
BEACH FOR THE SCUM TROUGH OF A SEWAGE SETTLING TANK OR THE LIKE

Gerald D. Wolfe, Zelienople, Pa., assignor to Sybron Corporation, Rochester, N.Y.

Filed Mar. 28, 1980, Ser. No. 134,852

Int. Cl.³ B01D *23/20*

U.S. Cl. 210—525 **7 Claims**



1. A beach for controlling spill over of liquid from a settling tank into a scum trough comprising:

(a) an upright wall separating the scum trough from the liquid in the settling tank, the upper edge of said wall being normally below the level of liquid in the settling tank;

(b) a beach plate hinged to and extending substantially the full length of the upper edge of said upright wall, said beach plate extending upward and inward toward said scum trough;

(c) a member extending from said beach plate downward and into the liquid in the settling tank; and

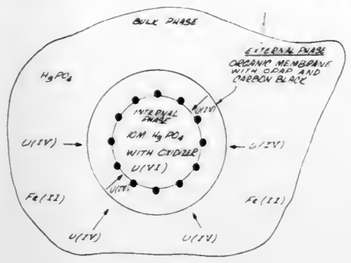
(d) bias means operating on said member for urging said member toward said wall, said bias means being of sufficient strength to overcome the head of liquid in the settling tank above the upper edge of said wall, said bias means acting to maintain said beach plate generally upright and extending above the level of liquid in the settling tank to prevent spill over of liquid from the settling tank and into the scum trough.

4,268,395

EXTRACTION BY SOLID STABILIZED EMULSIONS

Robert D. Stewart, Yorba Linda, Calif., assignor to Babcock-Brown Boveri Reaktor GmbH, Mannheim, Fed. Rep. of Germany

Filed Oct. 4, 1978, Ser. No. 948,618
Int. Cl.³ B01D *11/00*
U.S. Cl. 210—634 **15 Claims**



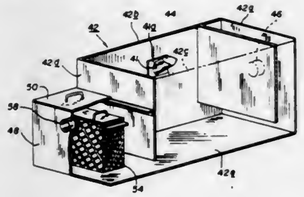
1. An extraction process for transfer of at least one species from a fluid phase to a first liquid phase receptive to such species which comprises intimately contacting the fluid phase with an emulsion of the first liquid phase in a second particulate solids-containing liquid phase which is permeable with respect to such species and substantially immiscible in the first liquid phase and containing at least one substantially insoluble particulate solid which is substantially nonreactive to constituents contained in each of such phases and present in an amount sufficient to form a stable emulsion of the first liquid phase in the second particulate solids-containing liquid phase for a time sufficient for transfer of such species to the second particulate solids-containing liquid phase of such emulsion.

4,268,396

OIL RECOVERY APPARATUS AND METHOD

John G. Lowe, Pequannock, N.J., assignor to Lowe Engineering Company, Lincoln Park, N.J.

Continuation-in-part of Ser. No. 59,595, Jul. 23, 1979, abandoned. This application Jul. 3, 1980, Ser. No. 165,741
Int. Cl.³ B01D *15/02, 25/38*
U.S. Cl. 210—670 **48 Claims**



1. A recovery apparatus adapted for removing grease and/or oil in an essentially liquid condition from a contaminated fluid such as dishwasher which dishwater has grease and/or oil floating on or near the surface, said apparatus including:

(a) a container having at least two compartments, said container having an influent passageway into an end in a first compartment which contains at least one strainer and an effluent passageway through an opposite end of a recovery compartment, said compartments having fluid conducting means leading from the strainer compartment to the recovery compartment;

(b) a strainer disposed in said strainer compartment, and a flow means for carrying an influent flow of contaminated fluid to this strainer, said strainer adapted to remove from the contaminated water flowing therethrough larger particles of food, cigarette butts and like debris which flows to the strainer and after straining said influent flow the contaminated water including grease and/or oil is fed to said recovery compartment;

(c) a rotating plastic disk mounted on a rotating shaft and disposed intermediate the end walls of the recovery compartment and disposed so that the disk is substantially normal to the surface of the contaminated fluid in said recovery compartment and as this disk is rotated it is partially immersed in the contaminated fluid with the grease and/or oil floating thereon and with said grease and/or oil being attracted to the sides of the disk sufficiently for the grease and/or oil to be lifted from the contaminated fluid by the rotating disk;

(d) at least one baffle carried in said recovery compartment, said baffle spaced from and adjacent a rear wall thereof and having a top edge normally above the fluid in the recovery compartment, this baffle disposed so as to inhibit the flow of any contaminated fluid over the top of the baffle while said baffle provides an opening thereunder for the flow of clear water after the removal of grease and/or oil, said clear water from said recovery compartment as the effluent flow;

(e) a readily removable bridge member carried in said recovery compartment and having a midportion formed with a cutout, this cutout positioned so that said cutout in the mounted bridge member straddles the disk as it is rotated, said bridge member in a mounted condition having its mounting midportion disposed in a substantially normal position to the surface of the fluid and removable from the disk by upward movement from the recovery compartment, the bridge member carried by support means within said compartment;

(f) a pair of scraper blades made of flexible plastic and mountable on the bridge member, each of said scraper blades when in engagement with the sides of the disk bent to provide a bias causing the disk engaging edges of said pair of blades to scrape the attracted grease and/or oil from the sides of the rotated disk after this disk emerges from the fluid and prior to the reentry of the rotated disk into the contaminated fluid, said scraper blades in mounted condition being substantially vertical and near the zenith of the disk, said scraper blades in a mounted condition adapted to engage the sides of the disk and to substantially equally restrain the rotating disk from unwanted movement;

(g) motive power means for rotating the disk at a desired speed and direction;

(h) means for removably securing the scraper blades to the bridge member so that the blades straddle the disk as it is rotated and when replacement is desired for repair said bridge member is removed from the second compartment, and

(i) fluid conductor pipe adapted to receive the scrapings of grease and/or oil from a downward end of the blade and to retain the distal end of the scraper blade as it is curved into a scraping condition and to carry said scrapings by gravity to and through a wall of the recovery compartment.

4,268,397

METHOD OF TREATING WASTE WATER

Toshio Horie, Yokohama; Shouji Tomioka, and Nobuyoshi Mine, both of Kitakyushu, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed Jul. 27, 1979, Ser. No. 61,263
Claims priority, application Japan, Jul. 29, 1978, 53-92063; Apr. 6, 1979, 54-41057
Int. Cl.³ C02F *1/72*
U.S. Cl. 210—746 **5 Claims**

1. A waste water-treating method, which comprises the steps of: adjusting the pH value of an aqueous solution containing a nitrous acid radical within a range of 2 to 5;

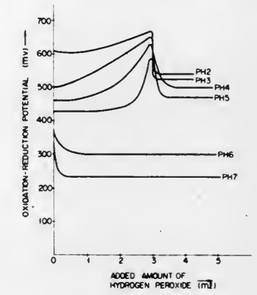
intermittently adding to a quantity of said thus adjusted aqueous solution hydrogen peroxide in an amount far smaller than that which is sufficient but not excessive for complete oxidation of the nitrous acid radical contained in said aqueous solution into a nitric acid radical;

measuring, by means of an oxidation-reduction potentiometer, the oxidation-reduction potential of the aqueous solution thus treated with hydrogen peroxide when said potential is in a stable state after each charge of hydrogen peroxide;

amplifying the measured potential by an amplifier;

when a measurement timer issues a measurement-commencing instruction after addition of the respective amounts of hydrogen peroxide, converting the measured amplified voltage into a digital signal by an analog-digital converter;

causing the digital data to be stored in an up-down counter;



computing in said up-down counter a variation between the digitally expressed oxidation-reduction potentials measured at the respective adjacent points of time;

comparing by means of a comparator a variation between the oxidation-reduction potentials measured at the respective adjacent points of time which indicates a decrease in said potential with a predetermined amount preset in a digital presetter;

stopping the addition of hydrogen peroxide when a variation between the oxidation-reduction potentials measured at the respective adjacent points of time is larger than said predetermined amount, thereby indicating a decrease in said oxidation-reduction potential; and

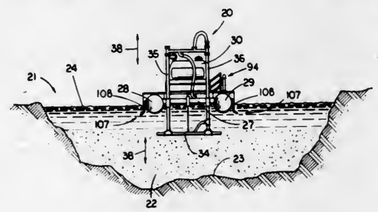
throwing away the aqueous solution in the neutralized form.

4,268,398

SLUDGE AGITATING METHOD

William D. Shuck, 4610 Ingleside La., Indianapolis, Ind. 46227; Frederick D. Lind, R.R. 1, Box 110B, Whiteland, Ind. 46184, and John W. Cole, 5212 Bluff Rd., Indianapolis, Ind. 46217

Division of Ser. No. 921,257, Jul. 3, 1978, Pat. No. 4,191,479. This application Feb. 21, 1979, Ser. No. 13,323
Int. Cl.³ C02F *1/74*
U.S. Cl. 210—758 **10 Claims**



1. A method of agitating accumulated sludge in a sludge deposit covered by a blanket of water in a waste water treatment facility lagoon in order to condition the sludge so that the sludge can be pumped from the lagoon and comprising the steps of:

lowering a fluid dispensing device from a raised submerged position in the accumulated sludge in the deposit in the lagoon to a further submerged position in the sludge where the dispensing device is further below the surface of the sludge; and

sending high-velocity streams of fluid out of said fluid dispensing device and into said sludge.

4,268,399

PURIFICATION OF POLLUTED WATER

E. O. Box, Jr., and Floyd E. Farha, Jr., both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 877,539, Feb. 13, 1978, abandoned. This application Nov. 21, 1979, Ser. No. 96,715
Int. Cl.³ C02F *1/74*
U.S. Cl. 210—762 **34 Claims**

1. A process for the purification of an aqueous stream containing dissolved and/or suspended organic materials therein, which process comprises contacting said aqueous stream with an oxygen-containing gas and a catalyst consisting essentially of zinc titanate under oxidative conditions including a temperature and a ratio of water to oxygen sufficient to convert said organic materials to innocuous materials and said aqueous stream into a potable aqueous product.

4,268,400

AQUEOUS DRILLING FLUID ADDITIVE, COMPOSITION AND PROCESS

James M. Lucas; Alphonse C. Perricone, and Dorothy P. Enright, all of Houston, Tex., assignors to Milchem Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 946,227, Sep. 27, 1978, abandoned. This application Mar. 18, 1980, Ser. No. 131,327
Int. Cl.³ C09K *7/02*
U.S. Cl. 252—8.5 C **16 Claims**

1. In a method of drilling a well into a subterranean formation in which an aqueous drilling fluid containing clayey material is circulated into the well, the steps of forming a filter cake on the wall of the well to decrease loss of fluid from the drilling fluid which comprises: (1) admixing with said drilling fluid an amount of at least about 0.25 pounds per 42 gallon barrel of a terpolymer of: (a) a monovalent alkali metal salt of acrylic acid; (b) an hydroxy alkyl acrylate selected from the class consisting of 2-hydroxyethylacrylate, 2-hydroxybutylacrylate and 2-hydroxypropylacrylate; and (c) acrylamide, a 0.2% by weight aqueous solution of said terpolymer having a viscosity at about 25° C. of from between about 6 centipoises and about 85 centipoises, as determined at a shear rate of 511 reciprocal seconds, the amount of said monovalent alkali metal salt of acrylic acid utilized in said terpolymer being from between about 5 mole percent and about 62 mole percent, the amount of said hydroxy alkyl acrylate utilized in said terpolymer being from between about 2 mole percent and about 40 mole percent, the amount of said acrylamide utilized in said terpolymer being from between about 31 mole percent and about 91 mole percent; and (2) circulating said drilling fluid in said well.

4,268,401

LIQUID DETERGENT COMPOSITIONS HAVING WASHING AND SOFTENING PROPERTIES

Ursula Meschkat, Wiesbaden-Biebrich, and Rudolf Bimczok, Mainz-Gonsenheim, both of Fed. Rep. of Germany, assignors to Blendax-Werke R. Schneider GmbH & Co., Mainz, Fed. Rep. of Germany

Continuation of Ser. No. 678,655, Apr. 20, 1976, abandoned. This application Sep. 16, 1977, Ser. No. 833,971
Int. Cl.² C11D *1/62, 1/835*; D06M *13/46*
U.S. Cl. 252—8.8 **14 Claims**

1. An aqueous-based liquid washing agent having good

washing and fabric softening action, comprising (a) from about 7 to about 40% by weight of at least one nonionic surface active agent, (b) from about 3 to about 15% by weight of at least one C_8-C_{20}-fatty acid polyglycol diester and (c) from about 1 to about 7.5% by weight of at least one quaternary ammonium compound with textile-softening properties.

4,268,402

LIQUEFACTION OF AQUEOUS TEXTILE SOFTENERS

Joachim Kurze, Hirschberg; Rolf Fikentscher, Ludwigshafen, and Georg Krusche, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

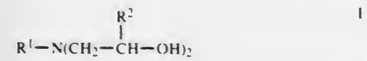
Filed Sep. 17, 1979, Ser. No. 76,413

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1978, 2841076

Int. Cl.³ D06M *13/36, 13/46*

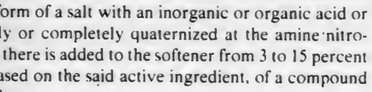
U.S. Cl. 252—8.8 **10 Claims**

1. A process for liquefying an aqueous textile softener which contains, as the active ingredient, from 15 to 40 percent by weight of a condensate of 1 mole of a bis- or tris-hydroxyalkylamine of the formula



I

where R^1 is H, alkyl of 1 to 4 carbon atoms, hydroxyethyl or 2-hydroxypropyl and R^2 is H or CH_3, with from 0.8 to 2 moles of a fatty acid of 16 to 18 carbon atoms, the said condensate being in the form of a salt with an inorganic or organic acid or being partially or completely quaternized at the amine nitrogen, wherein there is added to the softener from 3 to 15 percent by weight, based on the said active ingredient, of a compound of the formula



II

where n is an integer from 1 to 4, R^3 and R^4 independently of one another are methyl, ethyl or propyl, R^5 is hydrogen or methyl and R^6 is alkyl of 7 to 13 carbon atoms including a chain of at least 7 carbon atoms, as a salt with an inorganic or organic water-soluble acid, and the pH of the formulation is brought to 2.5 to 6.

4,268,403

OIL RECOVERY USING A DIMETHYLAMIDE IN A FLUID CARRIER

Robert H. Buckman, Memphis, Tenn.; Peter J. Young, Calgary, Canada, and Miguel L. Pulido, Memphis, Tenn., assignors to Buckman Laboratories, Inc., Memphis, Tenn.

Filed Oct. 25, 1979, Ser. No. 88,260

Int. Cl.³ E21B *43/22*

U.S. Cl. 252—8.55 D **20 Claims**

1. A method for recovering oil from an oil-bearing formation which comprises introducing into said formation to displace the oil contained therein a fluid carrier wherein said fluid carrier is water, steam, or a hydrocarbon fluid selected from the group consisting of light distillate, naphtha, reformate, pale oil, toluene, and diesel fuel containing from about 0.25 to about 100 parts by weight of an N,N-dimethylamide of a straight chain carboxylic acid per million parts of said fluid carrier, characterized in that said carboxylic acid contains from 12 to 18 carbon atoms.

4,268,404

ADDITIVE FOR USE IN METAL WORKING

Michael Ahlgrim, Erftstadt; Gerhard Mietens, Hürth-Efferen; Franz-Josef Dany, and Joachim Kandler, both of Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

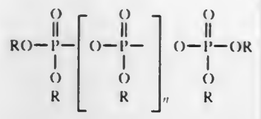
Filed Nov. 13, 1979, Ser. No. 93,895

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850244

Int. Cl.³ C10M *1/10, 3/02, 3/04, 5/04*

U.S. Cl. 252—25 **5 Claims**

1. An oil-based composition for use in metal working containing as an additive an ammonium polyphosphate of the general formula



in which n is a whole number of 50 to 1000 and R stands for an ammonium group, the amount of said additive being sufficient to impart to said composition improved high pressure and wear-retarding properties.

4,268,405

METHOD FOR FORMING GLAUBER'S SALT CRYSTALS WITH REDUCED ENCAPSULATION BY THE ADDITION OF ETHYLENE GLYCOL MONOBUTYL ETHER

Carlyle S. Herrick, Alplaus, and Kenneth P. Zarnoch, Clifton Park, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 3, 1979, Ser. No. 63,372

Int. Cl.³ C09K *5/06*

U.S. Cl. 252—70 **6 Claims**

1. In the method of storing thermal energy in and retrieving thermal energy from a liquid-solid phase-change material for which sodium sulfate decahydrate is the solid form, wherein said phase-change material is maintained in a container and fluid is circulated over the outer surface of said container to effectuate heat exchange between said fluid and said material, the improvement comprising the steps of:

(A) including ethylene glycol monobutyl ether in admixture with said phase-change material in said container, said ethylene glycol monobutyl ether being included in an amount effective to effect at least a decrease in average thickness of the Na_2SO_4-encapsulating wall of sodium sulfate decahydrate crystals relative to the average thickness of the Na_2SO_4-encapsulating wall thereof which would be formed in the absence of ethylene glycol monobutyl ether, and

(B) subjecting said container to motion which will induce interparticle-motion of crystals present in said phase-change material.

4,268,406

LIQUID DETERGENT COMPOSITION

Thomas P. O'Brien, Loveland, and Lawrence Benjamin, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Feb. 19, 1980, Ser. No. 122,143

Int. Cl.³ C11D *7/56, 7/54*

U.S. Cl. 252—105 **7 Claims**

1. A liquid detergent composition consisting essentially of:

(a) from about 15% to about 50% of an anionic surfactant selected from the water-soluble salts of organic sulfuric reaction products having in their molecular structure an alkyl radical containing from about 8 to about 22 carbon atoms and a radical selected from the group consisting of sulfonic acid, sulfuric acid ester radicals and mixtures thereof

(b) from about 2.5% to about 10% of an amide of a fatty acid having the general formula

$$R_1—CO—N(H)_m(R_2OH)_{2-m}$$

wherein R_1 is an aliphatic hydrocarbon radical having from about 7 to about 21 carbon atoms, R_2 is an aliphatic hydrocarbon radical having from 1 to 3 carbon atoms and m is zero, 1 or 2,

(c) from about 2% to about 25% of a reducing agent selected from the group consisting of water-soluble salts of sulfites, bisulfites, thiosulfates, metabisulfites, salts of phosphorus and hypophosphorous acids, salts of hydrazine and hydroxylamine, stannites and mixtures thereof,

(d) from about 2% to about 20% of a protein denaturant selected from the group consisting of urea, guanidine and its salts, thiourea, biuret, thiobiuret, ammonia, monoethanolamines, triethanolamine, and mixtures thereof, and

(e) from about 20% to about 88.5% water,

said detergent composition providing a pH of at least 9.5 in a 0.4% solution in water at 20° C.

4,268,407

CLEANING COMPOSITION

David G. Hey, Northwich, and Robert W. Wheelhouse, Runcorn, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Feb. 20, 1980, Ser. No. 123,074

Claims priority, application United Kingdom, Mar. 2, 1979, 7387/79

Int. Cl.³ C11D *7/50, 7/30, 7/32;* **C23G** *5/02*

U.S. Cl. 252—171 **6 Claims**

1. A cleaning composition consisting essentially of 92 to 95 weight percent of 1,1,2-trichloro-1,2,2-trifluoroethane, 5 to 7 weight percent of methanol and 0.05 to 1 weight percent of methyl acetate.

4,268,408

SOLID CYANURIC CHLORIDE HANDLING IMPROVEMENTS WITH TRICALCIUM PHOSPHATE

Thomas M. Raspet, Greensboro, N.C., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 25, 1979, Ser. No. 51,554

Int. Cl.³ C09K *3/00*

U.S. Cl. 252—182 **4 Claims**

1. A non-lumping, free-flowing cyanuric chloride composition comprising cyanuric chloride having admixed therewith and distributed therethrough 0.1 to 5% of finely divided tricalcium phosphate of the formula $Ca_3(PO_4)_2$.

4,268,409

PROCESS FOR TREATING RADIOACTIVE WASTES

Eiichi Ga; Koichi Chino; Makoto Kikuchi; Akira Oda, and Susumu Horiuchi, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 17, 1979, Ser. No. 58,174

Claims priority, application Japan, Jul. 19, 1978, 53-88654; Jul. 19, 1978, 53-88656

Int. Cl.³ G21F *9/08*

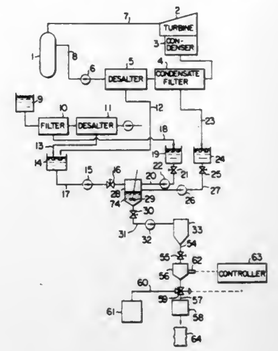
U.S. Cl. 252—301.1 W **11 Claims**

1. A process for treating radioactive wastes, which comprises:

a step of heating a first slurry containing granular ion exchange resin as a radioactive waste generated from a radioactive material-handling facility, thereby making the granular ion exchange resin into powder;

a step of heating a second slurry containing a filter aid as a radioactive waste generated from said radioactive material-handling facility, thereby making the filter aid into powder;

a step of obtaining mixed powder of the powder of the granular ion exchange resin and the powder of the filter aid as a binder, a ratio of the powder of the granular ion



exchange resin to the mixed powder being not more than 90% by weight; and

a step of shaping the mixed powder into pellets.

4,268,410

POLYETHER POLYESTER SURFACTANTS, THEIR PRODUCTION AND USES

John J. Allan, Bramley; Richard G. Foster, Warlingham, and Paul L. Leversidge, Epsom Downs, all of Great Britain, assignors to Honeywill-Atlas Limited, Great Britain

Filed Jul. 17, 1979, Ser. No. 58,542

Claims priority, application United Kingdom, Jul. 31, 1978, 31730/78

Int. Cl.³ B01F *17/34;* **C07C** *69/40, 69/66;* **C11C** *3/10*

U.S. Cl. 252—312 **5 Claims**

1. An aqueous solution containing from 10 to 90% by weight of a surfactant prepared by the reaction of

(a) an ethoxylated C_{9-22} fatty acid ester of sorbitan, ethoxylated with 4 to 40 mols of ethylene oxide per mol of ester, provided that up to 20 mol percent of ethylene oxide may be replaced by propylene oxide and

(b) a di- or tri- basic acid in which the amount of acid used in the reaction is such as to provide from 0.5 to 1.8 times the number of acid groups needed to esterify half the hydroxyl groups present in the ethoxylated sorbitan ester.

5. An emulsion of a water-immiscible oil in water, in which 5–15% by weight of the total emulsion weight is provided by a surfactant containing an aqueous solution said surfactant being prepared by the reaction of

(a) an ethoxylated C_{9-22} fatty acid ester of sorbitan, ethoxylated with 4 to 40 mols of ethylene oxide per mol of ester, provided that up to 20 mol percent of ethylene oxide may be replaced by propylene oxide and

(b) a di- or tri- basic acid in which the amount of acid used in the reaction is such as to provide from 0.5 to 1.8 times the number of acid groups needed to esterify half the hydroxyl groups present in the ethoxylated sorbitan ester.

4,268,411

MICROCAPSULES HAVING A WALL OF INORGANIC SUBSTANCE AND PROCESS FOR THE PREPARATION THEREOF

Masahiro Iwata, Saitama, and Yuichi Taka, Soka, both of Japan, assignors to Pentel Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 29, 1979, Ser. No. 25,066

Claims priority, application Japan, Mar. 30, 1978, 53/37332; Apr. 11, 1978, 53/42347; May 29, 1978, 53/64020; Jan. 22, 1979, 54/6262

Int. Cl.[3] B01J *13/02*

U.S. Cl. 252—316 15 Claims

1. A process for preparing microcapsules comprising a core of highly viscous liquid substances and a wall of a fine silica powder aggregate, which process comprises adding the highly viscous liquid substance into a powder bed of the fine silica powder under stirring with a cutter rotating at a rate in the range of 500 to 20,000 rpm.

9. Microcapsules having a structure such that a core of highly viscous liquid substance is coated with a wall of fine silica powder aggregate having gelatinization action upon said high viscous liquid substance and a gelatinized layer disposed between the wall and the liquid core substance, said gelatinized layer being formed by the gelatinization of the liquid core substance placed in contact with the wall due to the gelatinization action of the fine silica powder of the wall, said microcapsules produced by the process of claim 1.

4,268,412

METHOD FOR CONTINUOUSLY MANUFACTURING HIGH-TEMPERATURE REDUCING GAS

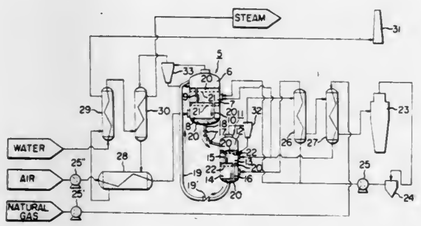
Tsuneo Miyashita, Yokohama; Yoshio Sato, Kamakura, and Yoshitsugu Ando, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1979, Ser. No. 91,561

Claims priority, application Japan, Nov. 30, 1978, 53-147209

Int. Cl.[3] C10K *3/06;* C01B *2/22;* C10B *2/28*

U.S. Cl. 252—373 4 Claims



1. A method for continuously manufacturing a high-temperature reducing gas, which comprises:

using a reducing gas manufacturing equipment including a heat medium heating apparatus and a gas reforming apparatus provided below said heat medium heating apparatus, said heat medium heating apparatus comprising a heat exchange chamber for heating of the upper stage and a combustion chamber for heating of the lower stage, said gas reforming apparatus comprising a reaction chamber for reforming of the upper stage and a heat exchange chamber for reforming of the lower stage;

burning a fuel gas in said combustion chamber for heating to continuously produce a high-temperature combustion exhaust gas, and, causing said produced high-temperature combustion exhaust gas to continuously flow upwardly from said combustion chamber for heating into said heat exchange chamber for heating;

on the other hand, introducing heat medium particles having an average particle size within the range of from 50 to 500 μm into said heat exchange chamber for heating, to preheat and fluidize said particles through heat exchange with said high-temperature combustion exhaust gas, then,

introducing said preheated and fluidized particles into said combustion chamber for heating, to heat said preheated and fluidized particles further to a prescribed temperature through heat exchange with said high-temperature combustion exhaust gas;

continuously blowing a gas to be reformed containing CO_2 and H_2O and a hydrocarbon-containing gas into said heat exchange chamber for reforming, and, causing said gas to be reformed and said hydrocarbon-containing gas to continuously flow upwardly from said heat exchange chamber for reforming into said reaction chamber for reforming, while continuously introducing said heated fluidized particles from said combustion chamber for heating into said reaction chamber for reforming;

thereby heating said gas to be reformed and said hydrocarbon-containing gas through heat exchange with said heated fluidized particles in said reaction chamber for reforming, to continuously reform by reaction said gas to be reformed and said hydrocarbon-containing gas into a high-temperature reducing gas rich in H_2 and CO; then,

introducing said heated fluidized particles from said reaction chamber for reforming into said heat exchange chamber for reforming, to preheat said gas to be reformed and said hydrocarbon-containing gas in said heat exchange chamber for reforming; and then,

feeding said fluidized particles cooled through said heat exchange with said gas to be reformed and said hydrocarbon-containing gas in said reaction chamber for reforming and said heat exchange chamber for reforming back into said heat exchange chamber for heating;

thereby continuously manufacturing a high-temperature reducing gas while using said fluidized particles in recycle.

4,268,413

BODIES WITH REVERSIBLY VARIABLE TEMPERATURE-DEPENDENT LIGHT ABSORBENCE

Wolfgang Dabisch, Groosstr.11, 6228 Eltville, Fed. Rep. of Germany

Filed Aug. 9, 1978, Ser. No. 932,126

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1977, 2738253

Int. Cl.[3] G01K *11/06, 11/16, 11/18;* C09K *3/00*

U.S. Cl. 252—408 12 Claims

1. A body with reversibly variable temperature dependent light absorbence made of at least a polymeric or resinous material, comprising a substantially optically transparent polymeric or resinous matrix material (A), which contains, embedded as a dispersed second phase, at least one organic substance (B), which is at least partially insoluble in the former and which, after being embedded in the matrix material, melts or congeals at the goal temperature of light-absorbence variation, and the refractive index of which, either above or below the goal temperature of light-absorbence variation, agrees substantially with the refractive index of the matrix material.

4,268,414

METHOD FOR REMOVING AND TREATING WASTE CATALYST

Katsuhiko Kawakami, Koganei; Kenji Komori, and Hiroshi Megumi, both of Kurashiki, all of Japan, assignors to Nippon Mining Co., Ltd., Tokyo, Japan

Filed Oct. 29, 1979, Ser. No. 88,923

Claims priority, application Japan, Nov. 2, 1978, 53-135383

Int. Cl.[3] B01J *21/20, 23/92, 23/94;* C10G *45/08*

U.S. Cl. 252—412 10 Claims

1. A method for removing and treating a waste catalyst resulting from the desulfurization and/or cracking of hydrocarbons, characterized by wetting said catalyst with water or a mineral oil containing one or more lactones.

4. The method of claim 1, wherein said water or mineral oil contains about 0.005 to 20 wt% of lactones.

4,268,415

REGENERATION OF SPENT HYDRODESULFURIZATION CATALYSTS WITH HETEROPOLY ACIDS AND HYDROGEN PEROXIDE

Raam R. Mohan, Berkley Heights; Bernard G. Silbernagel, Scotch Plains, and Gopal H. Singhal, Westfield, all of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 938,797, Sep. 1, 1978, abandoned. This application Jul. 19, 1979, Ser. No. 59,071

Int. Cl.[3] B01J *23/94, 23/92, 21/20;* C10G *23/02*

U.S. Cl. 252—413 19 Claims

1. An improved process for regenerating spent hydrofining catalysts which comprises contacting spent catalyst with an aqueous solution of a heteropoly acid containing about 1 to 50 wt.% hydrogen peroxide, based on the amount of heteropolyacid, impregnating with a water soluble cobalt or nickel salt and calcining at a maximum temperature of about 450° C.

4. The process of claim 1 in which the impregnation and calcination are repeated at least once.

6. The process of claim 1 in which the heteropoly acid is represented by the general formula $H_x(YM_{12}O_{40})$, where Y is at least one element selected from the group consisting of phosphorus, silicon, titanium, germanium, arsenic zirconium, thorium and cerium, M is at least one element selected from the group consisting of molybdenum, tungsten, niobium and tantalum and x is 3 when Y is pentavalent and 4 when y is tetravalent.

4,268,416

GASEOUS PASSIVATION OF METAL CONTAMINANTS ON CRACKING CATALYST

Laurence O. Stine, Western Springs, and Steven I. Richter, Arlington Heights, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 48,956, Jun. 15, 1979, abandoned. This application Sep. 28, 1979, Ser. No. 79,769

Int. Cl.[3] B01J *29/38, 21/20;* C10G *11/05, 11/04*

U.S. Cl. 252—416 7 Claims

1. A process for passivating a metal on a crystalline zeolite fluidized cracking catalyst which has been contaminated with said metal due to the use of said catalyst in fluidized cracking system not involving the introduction of hydrogen and wherein said catalyst is cycled between a cracking zone, in which said catalyst is contacted at an elevated temperature with a hydrocarbon feedstock containing said metal contaminant which deposits on said catalyst, and a regeneration zone, in which carbon is oxidized and thereby removed from said catalyst, said metal being included in the group comprising nickel, vanadium or iron, which process comprises contacting said catalyst at reduction reaction conditions with reducing gas consisting essentially of hydrogen that has been saturated prior to its contact with said catalyst with water in a liquid phase at a temperature of about 70° F. to about 200° F. so as to effect a reduction reaction with said metal and thereby reduce the quantity of coke generated in the cracking zone.

6. A process in accordance with claim 1 wherein said contacting of said catalyst with said reducing gas consisting essentially of hydrogen occurs in a passivation zone with said catalyst being cycled from said regeneration zone to said passivation zone and from said passivation zone to said cracking zone.

7. A process in accordance with claim 1 wherein said reduction reaction conditions comprise a temperature of from about 1100° F. to about 1350° F. and a pressure of from about atmospheric to about 35 psig.

4,268,417

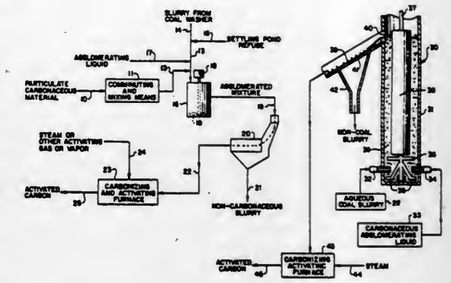
METHOD OF MAKING ACTIVATED CARBON

Leonard Messer, Pittsburgh, Pa., assignor to American Minechem Corporation, Coraopolis, Pa.

Continuation of Ser. No. 836,278, Sep. 26, 1977, abandoned, which is a continuation-in-part of Ser. No. 818,636, Jul. 25, 1977, abandoned, which is a continuation of Ser. No. 592,762, Jul. 3, 1975, abandoned. This application Mar. 7, 1979, Ser. No. 17,995

Int. Cl.[3] C01B *31/10, 31/14;* B01J *20/30, 21/18*

U.S. Cl. 252—421 7 Claims



1. A method of making activated carbon from an organic solid having carbonaceous and non-carbonaceous fine particles selected from the group consisting of coal, lignite and peat, said fine particles having a geometric mean particle size of less than 150 microns, comprising the steps of:

A. dispersing the carbonaceous and non-carbonaceous fine particles in water to form a slurry of at least 60 percent water by weight;

B. adding to the slurry a light hydrocarbon liquid being liquid at below 20° C., and being lyophilic to the carbonaceous fine particles and lyophobic to the water and the non-carbonaceous fine paraticles to form a mixture where less than 20 percent by weight of the light hydrocarbon liquid and the carbonaceous and non-carbonaceous fine particles is the light hydrocarbon liquid;

C. agitating the mixture to selectively agglomerate the carbonaceous fine particles into discrete agglomerates, while the non-carbonaceous fine particles remain substantially unagglomerated in the mixture;

D. separating discrete agglomerates of carbonaceous fine particles from the mixture;

E. carbonizing the discrete agglomerates by heating to at least 400° C.; and

F. activating the carbonized discrete agglomerates of carbonaceous fine particles to form activated carbon.

2. A method of making activated carbon as set forth in claim 1 wherein:

less than 10 percent by weight of the light hydrocarbon liquid and the carbonaceous and non-carbonaceous fine particles in the mixture formed in Step B is the light hydrocarbon liquid.

4. The method of making activated carbon of claim 1 wherein the light hydrocarbon liquid contains up to 50 percent of a heavy hydrocarbon liquid.

4,268,418

POLYMERIZATION CATALYST

Raymond E. Hoff, Palatine, Ill., assignor to Chemplex Company, Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 912,874, Jun. 5, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,470

Int. Cl.[3] C08F *4/02, 4/64*

U.S. Cl. 252—429 B 34 Claims

1. A supported olefin polymerization and copolymerization catalyst active in the presence of an organometallic co-catalyst prepared by mixing reactive materials comprising a lower alkyl aluminum halide, a dialkyl magnesium compound and a

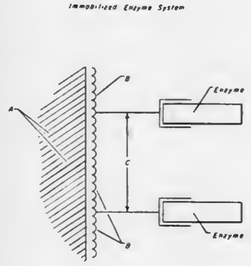
reducible titanium compound of the formula $Ti(OR)_nX_{4-n}$ where R is an alkyl group, X is a halogen atom, and n is an integer between 0 and 4, inclusive, in the presence of a solvent and a particulate organic polymer to form a reaction product supported on said particles, said particulate organic polymer comprising a graft copolymer of about 70–99.95 weight percent of a polyolefin polymer and about 30–0.05 weight percent of at least one monomer selected from the group consisting of polymerizable cyclic and polycyclic ethylenically unsaturated carboxylic acids and carboxylic acid anhydrides, and evaporating said solvent at a temperature which is less than the softening temperature of said organic polymer.

4,268,419

SUPPORT MATRICES FOR IMMOBILIZED ENZYMES

Ronald P. Rohrbach, Forest Lake, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Nov. 16, 1979, Ser. No. 95,020
Int. Cl.[1] B01J *31/06;* **C12N** *11/08, 11/14*
U.S. Cl. 252—430 **3 Claims**



1. A method for preparing a support matrix for immobilization of an enzyme which comprises:
   (a) depositing a polyamine binding layer selected from the group consisting of aminopolystyrene and polyethyleneimine on an alumina support in an aqueous solution;
   (b) removing excess polyamine from said alumina support;
   (c) drying said alumina support of step (b) prior to contacting said alumina support with glutaraldehyde in step (d) to provide a final water content of from about 1% to about 30% by weight of said alumina support;
   (d) contacting said dried alumina support of step (c) with a solution containing an excess of glutaraldehyde to provide crosslinkage between said glutaraldehyde and said polyamine binding layer; and
   (e) recovering the resultant support matrix for immobilization of said enzyme.

2. The method of claim **1** wherein said drying of said matrix is continued until the water content of said matrix ranges from about 1% to about 10% by weight of the weight of said alumina support.

3. The method of claim **1** wherein said enzyme is selected from the group consisting of glucose isomerase, glucoamylase, cholesteroloxidase, alcohol dehydrogenase, amino acid oxidase, arginse, asparaginase, catalase, chymotrypsin, cellulase, collagenase, deoxyribonuclease, ficin, histidase, lactase, peroxidase, lysozyme, gamma amylase, papain, rennin, ribonuclease and urease.

4,268,420

HYDROCARBON-CONVERSION CATALYST AND ITS METHOD OF PREPARATION

Marvin R. Klotz, Batavia, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 897,360, Apr. 18, 1978, which is a continuation-in-part of Ser. No. 733,267, Oct. 18, 1976, abandoned, Ser. No. 819,974, Jul. 28, 1977, abandoned, and Ser. No. 836,403, Sep. 26, 1977, abandoned. This application Jul. 3, 1979, Ser. No. 54,958
Int. Cl.[1] B01J *21/02*
U.S. Cl. 252—432 **46 Claims**

1. A catalytic composition which comprises a crystalline borosilicate and a porous refractory inorganic oxide, said borosilicate and said inorganic oxide having been intimately admixed with one another, said borosilicate comprising a molecular sieve material providing an X-ray diffraction pattern comprising the following X-ray diffraction lines and assigned strengths:

d(A)	Assigned Strength
11.2 ± 0.2	W-VS
10.0 ± 0.2	W-MS
5.97 ± 0.07	W-M
3.82 ± 0.05	VS
3.70 ± 0.05	MS
3.62 ± 0.05	M-MS
2.97 ± 0.02	W-M
1.99 ± 0.02	VW-M

and having the following composition in terms of mole ratios of oxides:

$$0.9\pm0.2M_{2/n}O:B_2O_3:YSiO_2:ZH_2O,$$

wherein M is at least one cation having a valence of n, Y is between 4 and about 600, and Z is between 0 and about 160.

4,268,421

PREPARATION OF FURAN COMPOUNDS

Donald I. Garnett, Hockessin, Del., and Marvin L. Peterson, Woodstown, N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 24,098, Mar. 26, 1979, abandoned. This application Mar. 7, 1980, Ser. No. 128,112
Int. Cl.[1] B01J *27/10, 27/08;* **C07D** *307/36*
U.S. Cl. 252—441 **6 Claims**

1. A reaction medium comprising
   (a) iodine from an alkali metal iodide,
   (b) copper having an average oxidation state between 1 and 2,
   (c) a solubilizing agent for cuprous ion which is soluble in water and forms a water-soluble complex with cuprous ion, and
   (d) at least 20 moles per liter of water, the medium having a pH value of less than about 2.

2. The medium of claim **1** wherein the solubilizing agent is an alkali metal chloride, an alkaline earth metal chloride, or ammonium chloride.

6. A reaction medium comprising
   (a) 1×10^{-12}–0.5 gram mole per liter of iodine from sodium iodide or potassium iodide,
   (b) 0.1–10 gram moles per liter of copper from cuprous chloride and cupric chloride, the copper having an average oxidation state between 1 and 2, and
   (c) 0.01–5 gram moles per liter of sodium chloride, calcium chloride or ammonium chloride,

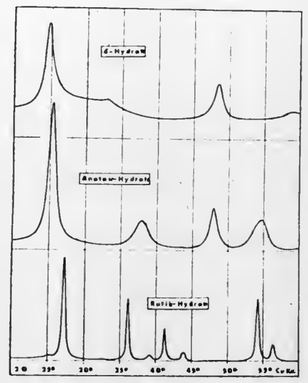
the medium having a pH value of less than about 0.5.

4,268,422

TITANIUM DIOXIDE HYDRATE OF A PARTICULAR STRUCTURE AND PROCESS OF MANUFACTURE THEREOF

Heinrich Becker, Leverkusen; Edgar Klein, Odenthal-Osenau; Franz Rosendahl, Leverkusen, and Helmut Weber, Odenthal-Osenau, all of Fed. Rep. of Germany, assignors to Kronos Titan G.m.b.H., Leverkusen, Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,172
Claims priority, application Fed. Rep. of Germany, Apr. 21, 1978, 2817551
Int. Cl.[1] B01J *21/06;* **C01G** *23/047*
U.S. Cl. 252—461 **13 Claims**



1. δTitanium dioxide hydrate having an X-ray diffraction diagram taken by means of Cu-Kα rays which exhibits main peaks at $2\theta=24.6\pm0.4°$ and $48\pm0.4°$.

3. A process for producing δ titanium dioxide hydrate having an X-ray diffraction diagram taken by means of Cu-Kα rays which exhibits main peaks at $2\theta=24.6°\pm0.4°$ and $48°\pm0.4°$, and mixtures of titanium dioxide hydrates containing at least 20% of said δ titanium dioxide hydrate which comprises: hydrolyzing a titanium sulfate solution by heating to form colloidal δ titanium dioxide hydrate, said solution containing up to 150 g/l TiO_2, and having a molar ratio of TiO_2 to free sulphuric acid between 1:1 and 1:2, and a bivalent iron content between 0 and 1 gram Fe per gram TiO_2; removing the colloidal δ titanium dioxide hydrate by flocculation by the adding of a monobasic acid or its salt; and separating the flocculated δ titanium dioxide hydrate from the solution.

4,268,423

SUPPORT MATRICES FOR IMMOBILIZED ENZYMES

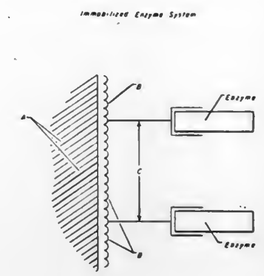
Ronald P. Rohrbach, Forest Lake, and Mary Maliarik, Lake Forest, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Nov. 16, 1979, Ser. No. 95,019
Int. Cl.[1] B01J *31/06;* **C12N** *11/14, 11/08*
U.S. Cl. 252—430 **7 Claims**

1. A method of preparing a support matrix useful for immobilization of an enzymatic material which comprises depositing a polyamine to an inorganic oxide support via a solution containing at least 5% by weight of polyamine per weight of said support wherein said addition of said polyamine is performed in the presence of an aqueous solution of a surfactant selected from the group consisting of cationic and nonionic surfactants having a surface tension of less than 30 dynes per centimeter to produce a polyamine coated-support, removing excess polyamine from said support, and contacting said polyamine-coated support with a solution containing an excess of a bifunctional monomeric material to provide a cross-linkage of said bifunctional monomer with said polyamine of said polyamine-coated support to produce said support matrix.

2. The method of claim **1** wherein the support matrix is comprised of an inorganic oxide support to which is attached a polyamine binding layer, a pendant functional group anchored at the non-functional end to said binding layer, and wherein said functional group is capable of covalently bonding to enzymes.

7. The method of claim **1** wherein said enzyme is selected



from the group consisting of glucose isomerase, glucoamylase, cholesteroloxidase, alcohol dehydrogenase, amino acid oxidase, arginase, asparaginase, catalase, chymotrypsin, cellulase, collagenase, deoxyribonuclease, ficin, histidase, lactase, peroxidase, lysozyme, gamma amylase, papain, rennin, ribonuclease and urease.

4,268,424

DETERGENT BARS CONTAINING DI-, HYDROXY AND/OR AMINO-CARBOXYLIC ACID MOISTURIZERS

Norman Hall, Wirral; Alexander Martin, Warrington, and Alan D. Tomlinson, Neston, all of England, assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 953,338, Oct. 20, 1978, abandoned, which is a continuation of Ser. No. 858,123, Dec. 6, 1977, abandoned, which is a continuation of Ser. No. 731,171, Oct. 12, 1976, abandoned, which is a continuation of Ser. No. 432,120, Jan. 9, 1974, abandoned. This application Oct. 30, 1979, Ser. No. 89,681
Claims priority, application United Kingdom, Jan. 15, 1973, 1994/73; Jul. 25, 1973, 35528/73
Int. Cl.[1] C11D *3/33, 3/20, 17/00*
U.S. Cl. 252—546 **4 Claims**

1. A detergent bar for increasing the water retention properties of skin containing
   (a) from about 20% to about 55% by weight of a moisturizing component selected from the group consisting of:
      (i) dicarboxylic acids of the formula:

$$COOH—R—COOH$$

and the water soluble salts thereof, wherein R is a hydrocarbon chain containing from 2 to 8 carbon atoms and is branched or unbranched, and saturated or unsaturated;
      (ii) the hydroxy acids tartaric acid, citric acid, acetonic acid, glycollic acid and malic acid
and the water soluble salts thereof;
      (iii) amino acids of the formula:

$$R_3R_4C(NH_2)COOH$$

in which R_3 and R_4 are each hydrogen, alkyl, hydroxyalkyl, $—CH_2COOH$, amino-alkyl, or the water soluble salts thereof, the alkyl in each of said groups having 1 to 4 carbon atoms; and wherein the hydrocarbon chain is branched or unbranched, and saturated or unsaturated; and
      (iv) mixtures of the compounds defined in paragraphs i, ii or iii, and
   (b) from about 45% to about 80% by weight of an anionic, cationic, nonionic or amphoteric detergent active material for use in said detergent bar.

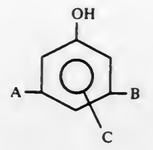
4,268,425

PHENOLIC RESIN-POLYISOCYANATE BINDER SYSTEMS CONTAINING A DRYING OIL AND USE THEREOF

John J. Gardikes, Worthington, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed May 14, 1979, Ser. No. 39,016
Int. Cl.³ B22C *1/22, 9/02;* **B28B** *7/34;* **C08L** *91/00*
U.S. Cl. 260—19 A **27 Claims**

1. A binder composition comprising in admixture a resin component, a hardener component, a curing component and a drying oil; said resin component including a non-aqueous phenolic resin which comprises a condensation product of a phenol having the general formula:



wherein A, B and C are hydrogen, hydrocarbon radicals, or halogen, with an aldehyde having the general formula R'CHO wherein R' is a hydrogen or a hydrocarbon radical of 1 to 8 carbon atoms; said hardener component comprising liquid polyisocyanate containing at least two isocyanate groups, and said drying oil is selected from the group of ester of ethylenically unsaturated fatty acid, heat bodied modification thereof, air-blown modification thereof, oxygen-blown modification thereof, or mixtures thereof.

4,268,426

WATER-DISPERSIBLE URETHANE POLYMERS, AQUEOUS POLYMER DISPERSIONS AND HALF-ESTERS USEFUL THEREIN

Roy C. Williams, East Amherst, and David R. Rogemoser, Tonawanda, both of N.Y., assignors to Textron, Inc., Providence, R.I.

Continuation-in-part of Ser. No. 36,506, May 7, 1979, abandoned. This application Jun. 1, 1979, Ser. No. 44,674
Int. Cl.³ C08G *18/48;* **C09D** *3/72*
U.S. Cl. 260—22 TN **64 Claims**

1. A carboxylic group-containing, isocyanate-terminated urethane comprising the reaction product of hydrocarbon diisocyanate and urethane-forming polyol in which a substantial amount of the reacted hydroxyl functionality is provided by a carboxylic group-containing, half-ester of anhydride of a polycarboxylic acid selected from the group consisting of aromatic carboxylic acids having at least three carboxylic acid groups and aliphatic dicarboxylic acids of 4 to 5 carbon atoms, and a diol in which the hydroxy groups are primary and secondary or tertiary, or are secondary and tertiary, and when primary and secondary, the secondary hydroxyl group is attached to at least one tertiary or quaternary carbon atom.

4,268,427

PROCESS FOR PRODUCING NOVEL MODIFIED RESIN

Akinori Miyaguchi, Yokohama; Yasuomi Morita, Samukawa, and Yasuyoshi Chino, Yokohama, all of Japan, assignors to Nippon Zeon Co. Ltd. and Morimura Chemetron Ltd., both of Tokyo, Japan

Filed Oct. 2, 1979, Ser. No. 81,199
Claims priority, application Japan, Oct. 6, 1978, 53-123229
Int. Cl.³ C09D *3/727, 3/733, 11/10*
U.S. Cl. 260—23.7 C **14 Claims**

1. A process for producing a modified resin, which comprises reacting

(I) the reaction product of 98 to 35% by weight of a cyclopentadiene resin, 2 to 65% by weight of a higher fatty acid ester having a conjugated double bond and 0 to 30% by weight of an α,β-unsaturated dicarboxylic acid anhydride, with

(II) at least one vinyl monomer selected from the group consisting of vinyl aromatic compounds and unsaturated monocarboxylic acid esters.

4,268,428

ASPHALTIC MATERIAL AND METHOD

Robert R. Green, 3306 NW. Oakcrest Dr., Kansas City, Mo. 64151

Filed Jul. 12, 1979, Ser. No. 56,865
Int. Cl.³ C08L *91/00*
U.S. Cl. 260—28.5 AS **8 Claims**

1. An asphalt material for use with concrete or the like, comprising:

from about 50 to 95% by weight of an aqueous asphaltic emulsion; and

respective quantities of a vinyl acetate-acrylic copolymer and a latex having chloroprene as the primary monomer therein and having a solids content of from 40 to 60%, said respective quantities together totaling from about 5 to 50% by weight of the material,

said copolymer and latex serving to give the asphalt material a degree of resiliency for sealing purposes.

4,268,429

NOVEL FLAME RETARDANT POLYCARBONATE COMPOSITIONS

Jimmy L. Webb, Ballston Lake, N.Y., and Joseph B. Williams, Mt. Vernon, Ind., assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 18, 1975, Ser. No. 597,005
Int. Cl.³ C08K *3/30, 5/02, 5/06*
U.S. Cl. 260—37 PC **10 Claims**

1. A polycarbonate comprising an aromatic polycarbonate and a flame retardant additive combination consisting of a halogenated organic compound and an alkali or alkaline earth metal salt of an inorganic sulfite, thiosulfate, dithionite, or a pyrosulfite, and mixtures thereof.

4,268,430

FERRITE COMPOSITION HAVING HIGHER INITIAL PERMEABILITY AND PROCESS FOR PREPARING MOLDING PRODUCT THEREFROM

Kazuo Suzuki, and Kenichi Yokota, both of Otsu, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 28, 1980, Ser. No. 115,702
Claims priority, application Japan, Jan. 31, 1979, 54-10620
Int. Cl.³ C08L *81/00*
U.S. Cl. 260—37 R **7 Claims**

1. A composition consisting essentially of 92% to 99% by weight of a spinel ferrite and 8% to 1% by weight of a polyphenylene sulfide.

4,268,431

COLORANT-THICKENER DISPERSIONS FOR UNSATURATED POLYESTER RESIN COMPOSITIONS

Martin L. Feldman, East Brunswick, and James T. De Groff, Oldwick, both of N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Filed Jun. 1, 1979, Ser. No. 44,724
Int. Cl.³ C08K *3/20;* **C08L** *67/06*
U.S. Cl. 260—40 R **14 Claims**

1. A colorant-thickener dispersion for unsaturated polyester resin compositions that comprises

(a) 20% to 50% by weight of a thickener comprising a Group II-A metal oxide or hydroxide,

(b) 5% to 20% by weight of a pigment component, and

(c) 30% to 75% by weight of an unsaturated polyester vehicle that comprises

(1) 80% to 98% by weight of at least one unsaturated polyester that is the product of the reaction of a dicarboxylic acid component containing 80 to 90 mole % of at least one unsaturated aliphatic dicarboxylic acid having 4 to 8 carbon atoms and 10 to 20 mole % of at least one saturated aromatic dicarboxylic acid with an alcohol component containing 40 to 60 mole % of at least one glycol having 2 to 6 carbon atoms and 40 to 60 mole % of at least one monohydric alcohol having 6 to 12 carbon atoms, in the amount of 0.4 mole to 0.6 mole of the dicarboxylic acid component per mole of the alcohol component, and

(2) 2% to 20% by weight of an unsaturated monomer capable of reacting with said unsaturated polyester to form cross-linkages.

4,268,432

POLYAMIDE COMPOSITIONS

John Maslen, Hoddesdon, and Eric Nield, Watton-at-Stone, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 803,234, Jun. 3, 1977, abandoned. This application Jun. 15, 1979, Ser. No. 48,772
Claims priority, application United Kingdom, Jun. 21, 1976, 25641/76
Int. Cl.³ C08L *77/00;* **C08K** *5/02, 5/03*
U.S. Cl. 260—45.75 B **13 Claims**

1. A polyamide masterbatch composition comprising at least 10%, based on the total weight of the composition, of a high molecular weight fibre forming polyamide with a melting point of 230° C. or below and at least 60%, based on the total weight of the composition, of fire retardant additives selected from the group consisting of halogenated fire retardant organic compounds and a mixture of halogenated fire retardant organic compounds and at least one synergist for the halogenated compounds.

4,268,433

1,2-POLYBUTADIENE COMPOSITIONS AND CURED FLAME RETARDED 1,2-POLYBUTADIENE RESIN MATERIALS

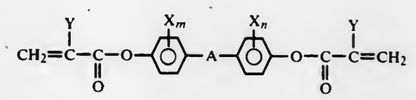
Norio Sawatari; Isao Watanabe, both of Kawasaki; Kazumasa Saito, Atsugi, and Katsura Adachi, Sagamihara, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Aug. 29, 1979, Ser. No. 70,609
Claims priority, application Japan, Aug. 29, 1978, 53-104455; Aug. 29, 1978, 53-105174; Mar. 24, 1979, 54-34913; Mar. 24, 1979, 54-34914; Mar. 24, 1979, 54-34917; Mar. 24, 1979, 54-34918
Int. Cl.³ C08L *33/16, 9/00*
U.S. Cl. 525—193 **26 Claims**

1. A composition curable to a flame-retarded resin material, comprising:

(A) a polybutadiene polymer wherein at least 50% of the recurring units consist of 1,2-butadiene units;

(B) 40 to 200 parts by weight, based on 100 parts by weight of said butadiene polymer, of at least one reactive flame retardant selected from the group consisting of bisphenol bisacrylate compounds having the formula:



wherein X is Br or Cl, Y is H or $-CH_3$, m and n each is an integer from 1 through 4, and A is a direct bond, —O—, —CO—, $-SO_2-$, $-CH_2-_b$, wherein b is an integer from 1 through 4, —CH=CH— or



and

polymers of such bisphenol bisacrylate compounds, and;

(C) a curing-promoting amount of an organic peroxide.

4,268,434

IMMUNOSUPPRESSIVE EXTRACELLULAR PRODUCT FROM ORAL BACTERIA

Thomas B. Higerd, 922 Regatta Rd., Charleston, S.C. 29412, and Jean-Michel C. Goust, 29 27th Ave., Isle of Palms, S.C. 29451

Filed Jan. 9, 1979, Ser. No. 2,234
Int. Cl.³ A61K *35/74;* **C12P** *21/00*
U.S. Cl. 260—112 R **17 Claims**

12. A proteinaceous extracellular product of *Streptococcus intermedius* having immunosuppressive activity, a molecular weight of about 160,000, as measured by gel filtration, an isoelectric point pI of about 4.8 and an ultraviolet absorption spectrum with a peak absorbance of 280 nm, said agent having inhibitory activity against fibroblastoid cells and against blast transformation of PHA-stimulated human lymphocytes.

4,268,435

CHORIONIC GONADOTROPIN DERIVED ANTIGEN FOR EARLY PREGNANCY TEST AND CONTRACEPTIVE VACCINE

Om P. Bahl, Williamsville, N.Y., assignor to Research Corporation, New York, N.Y.

Division of Ser. No. 875,497, Feb. 6, 1979, abandoned. This application Apr. 17, 1979, Ser. No. 30,772
Int. Cl.³ A61K *35/50, 39/385, 39/395, 39/44*
U.S. Cl. 260—112 R **20 Claims**

1. A process for producing an antiserum which is generally selective in reactivity to human chorionic gonadotropin to a distinguishing degree from luteinizing hormone which comprises:

administering a first antigen to a host animal, wherein said first antigen has been produced by isolating the β-subunit of human chorionic gonadotropin, reducing the cleaving five of the intrachain disulfide bonds of said β-subunit, alkylating the thus reduced intrachain disulfide groups, and isolating the antigen produced thereby,

thereafter administering to the same said host animal, a second antigen produced in the same manner except that six intrachain disulfide groups were reduced and cleaved, and extracting an antiserum, produced by the administration of said first and second antigens, from said animal.

4,268,436

PROCESS FOR PREPARING DIAZONIUM SALTS OF 3-AMINO-PYRAZOLE

Giampiero Pieri, Saronno; Enzo Rosati, Seregno; Ruggero Battisti, Novara, and Giovanni Burei, Seregno, all of Italy, assignors to Aziende Colori Nazionali Affini Acna S.p.A., Milan, Italy

Filed May 23, 1979, Ser. No. 41,550
Claims priority, application Italy, May 24, 1978, 23725 A/78
Int. Cl.³ C07C *107/00, 107/04, 107/08, 113/04*
U.S. Cl. 260—141 **5 Claims**

1. A process for preparing 3-diazopyrazole salts by oxidative diazotization of 3-aminopyrazolines, comprising treating said 3-aminopyrazolines with an oxidizing-diazotization agent selected from the group consisting of nitroxylsulphuric acid, alkaline metal nitrites, alkyl nitrites and isoalkyl nitrites, at a temperature from −10° C. to +20° C. in an acid medium.

4,268,437

CONTINUOUS DIAZOTIZATION OF AMINES

Hartmut Behringer, and Kurt Karrenbauer, both of Erftstadt, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,698

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1978, 2825655

Int. Cl.[3] C07C *113/04*

U.S. Cl. 260—141 **8 Claims**

1. In a process for the continuous diazotization of primary aromatic amines by reacting a suspension of the amine in aqueous mineral acid with an aqueous sodium nitrite solution, the improvement which comprises: supplying continuously the lower portion of a cylindrical diazotization zone placed in upright position with an aqueous mineral acid suspension of a diazotizable primary aromatic amine and supplying the vessel simultaneously, via one or more inlets arranged one above the other so as to open laterally thereinto, with an aqueous sodium nitrite solution, the amine and nitrite being used in stoichiometric proportions, or the nitrite being used in a stoichiometric deficiency and the acid being used in an excess of about 1 to 3 equivalents per amine equivalent in the mineral acid suspension; reacting the resulting mixture with agitation and cooling and while producing a laminar flow of liquid matter at temperatures of about 5° to 30° C., the reaction mixture resulting from readily diazotizable amines being allowed to remain in the diazotization zone over a period of about 1 to 10 minutes, and that resulting from difficultly diazotizable amines being allowed to remain in the diazotization zone over a period of about 10 to 30 minutes; removing reaction mixture, in accordance with the diazotization velocity of the particular amine used, from the upper portion of the diazotization zone at a place where the reaction mixture is substantially free from nitrous acid, said place being situated in said zone at a level which is the higher the lower the diazotization velocity of the amine used; filtering the reaction mixture removed and delivering diazonium salt-containing solution to a sojourn zone.

4,268,438

CATIONIC 1,3,4-THIADIAZOLE DYESTUFFS

Hauke Fürstenwerth, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

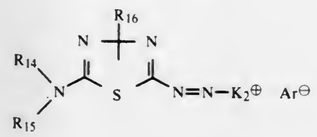
Filed Mar. 13, 1979, Ser. No. 20,161

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1978, 2811258

Int. Cl.[3] C09B *29/22*

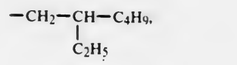
U.S. Cl. 260—158 **9 Claims**

1. A cationic dyestuff of the formula

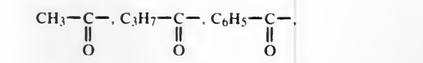


wherein

R_{14} denotes H, $-CH_3$, C_2H_5, $-C_3H_7$, iso$-C_3H_7$, $-C_4H_9$, iso$-C_4H_9$, sec.$-C_4H_9$, tert.$-C_4H_9$,

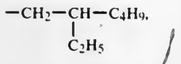


$-C_2H_4OH$, $-CH_2-CHOH-CH_3$, $-C_2H_4CN$, $-C_6H_{11}$, $-C_5H_9$, $-CH_2-C_6H_5$, $-C_6H_5$, $-C_6H_4Cl$—(p), $C_6H_3Cl_2$—(2,5), $C_6H_4-CH_3$—(o, m or p), $-C_6H_4-OCH_3$—(p), $-C_2H_4-O-CH_3$, $C_2H_4-O-C_2H_5$,



4—Cl—C_6H_4—CO,
4—CH_3—C_6H_4—CO, C_2H_5OCO-, CH_3OCO-, C_2H_5NHCO-, $(C_2H_5)_2NCO-$, $(C_2H_5)_2NSO_2-$, CH_3NHSO_2- or H_2NCO-,

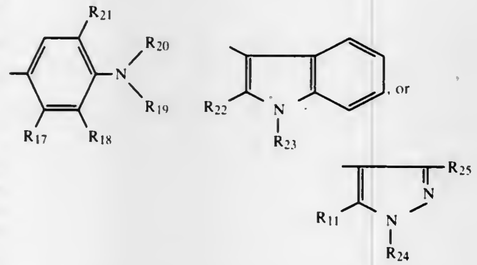
R_{15} denotes $-CH_3$, $-C_2H_5$, $-C_3H_7$, iso$-C_3H_7$, $-C_4H_9$, iso$-C_4H_9$, sec.$-C_4H_9$, tert.$-C_4H_9$,



$-C_2H_4OH$, $-CH_2-CHOH-CH_3$, $-C_2H_4CN$, $-C_6H_{11}$, $-C_5H_9$, $-C_2H_4-O-CH_3$ or $-C_2H_4-O-C_2H_5$,

R_{16} denotes alkyl with 1-4 C atoms, 2-cyanoethyl, 2-carbamoylethyl, 2-hydroxyethyl or benzyl,

K_2 is a coupling component of the formula



wherein

R_{17} denotes hydrogen, methyl, ethyl, methoxy, ethoxy, chlorine or bromine,

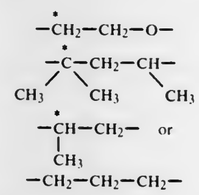
R_{18} denotes hydrogen, fluorine, chlorine, bromine, methyl, ethyl, methoxy or ethoxy,

R_{19} denotes hydrogen, alkyl with 1-4 C atoms, alkyl with 1-4 C atoms substituted by hydroxy or C_{1-4}-alkoxy, or benzyl and

R_{20} denotes hydrogen, alkyl with 1-4 C atoms, alkyl with 1-4 C atoms substituted by hydroxy or C_{1-4}-alkoxy, benzyl or phenyl, or

R_{19} and R_{20}, together with the N atom bonded to them, represent a saturated heterocyclic ring which can contain further hetero-atoms, or

R_{18} and R_{19} and/or R_{20} and R_{21} together form a radical of the formula



(a)
(b)
(c)
(d)

wherein

the C atom marked x is bonded to the N atom,

R_{21} denotes hydrogen, fluorine, chlorine, bromine, methyl, ethyl, methoxy or ethoxy

R_{22} denotes methyl, ethyl or phenyl,

R_{23} denotes hydrogen, methyl, β-cyanoethyl, β-carbamoylethyl and β-carboxyethyl,

R_{24} denotes hydrogen, methyl, ethyl, benzyl or phenyl

which is optionally substituted by chlorine, methyl, methoxy or nitro,

R_{25} denotes hydrogen, methyl, halogen, cyano or methoxycarbonyl, and

Anθ denotes an anion.

4,268,439

BASIC AZO DYESTUFFS HAVING BENZYLAMMONIUMAMINE SUBSTITUENT IN THE COUPLING COMPONENT

Winfried Kruckenberg, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

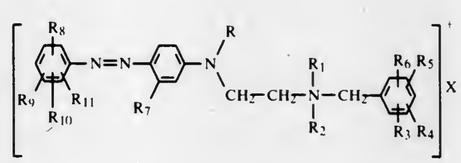
Continuation-in-part of Ser. No. 741,692, Nov. 15, 1976, abandoned, which is a continuation of Ser. No. 142,386, May 11, 1971, abandoned. This application Mar. 7, 1977, Ser. No. 775,053

Claims priority, application Fed. Rep. of Germany, May 16, 1970, 2024184; Aug. 21, 1970, 2041690

Int. Cl.[3] C07C *107/06;* C09B *44/02, 44/04*

U.S. Cl. 260—205 **13 Claims**

1. Azo dyestuffs which are free of sulfonic acid groups and carboxylic acid groups and correspond to the formula



in which

R stands for hydrogen, methyl, ethyl, n-propyl, iso-propyl or n-butyl;

R_1 is hydrogen, methyl or ethyl;

R_2 is methyl or ethyl;

R_3 is hydrogen, chlorine, bromine, nitro, methyl, ethyl, n-propyl, iso-propyl, n-butyl, tert.-butyl, methoxy, ethoxy, n-propoxy, iso-propoxy, n-butoxy, benzyl or phenyl;

R_4 is hydrogen, chlorine, bromine, nitro, methyl, ethyl, n-propyl, iso-propyl, n-butyl, tert.-butyl, methoxy, ethoxy, n-propoxy, iso-propoxy, n-butoxy, benzyl or phenyl;

R_5 is hydrogen, chlorine, bromine, nitro, methyl, ethyl, n-propyl, iso-propyl, n-butyl, tert.-butyl, methoxy, ethoxy, n-propoxy, iso-propoxy, n-butoxy benzyl or phenyl;

R_6 is hydrogen, chlorine, bromine, nitro, methyl, ethyl, n-propyl, iso-propyl, n-butyl, tert.-butyl, methoxy, ethoxy, n-propoxy, iso-propoxy, n-butoxy, benzyl or phenyl;

R_7 is hydrogen or methyl;

R_8 is hydrogen, chlorine, bromine, cyano, nitro, carbomethoxy, methoxy, methyl or N,N-dimethylsulphamoyl;

R_9 is hydrogen, chlorine, bromine, cyano, nitro, carbomethoxy, methoxy, methyl or N,N-dimethylsulphamoyl;

R_{10} is hydrogen, chlorine, bromine, cyano, nitro, carbomethoxy, methoxy, methyl or N,N-dimethylsulphamoyl;

R_{11} is hydrogen, chlorine, bromine, cyano, nitro, carbomethoxy, methoxy, methyl or N,N-dimethylsulphamoyl; and

X^{31} is an anion.

4,268,440

PREPARATION OF CAPROLACTAM

Joachim Werther, Bobenheim-Roxheim; Hugo Fuchs, Ludwigshafen; Uwe Brand, Rosengarten, and Friedrich R. Faulhaber, Mutterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 13, 1980, Ser. No. 129,827

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915360

Int. Cl.[3] C07D *201/04*

U.S. Cl. 260—239.3 A **3 Claims**

1. A two-stage process for the preparation of caprolactam which comprises:

(a) heating cyclohexanone-oxime, in the presence of inert gases, in contact with a fluidized bed of inert solid particles at a temperature of from 180° to 220° C., in a first-stage to vaporize cyclohexanone-oxime;

(b) passing the vaporized cyclohexanone-oxime mixed with the inert gases to a second-stage, and

(c) heating the mixture of vaporized cyclohexanone-oxime and inert gases in contact with a fluidized bed of catalyst containing boron trioxide, to a temperature of from 230° to 450° C., to form caprolactam by re-arrangement in said second-stage.

4,268,441

PRODRUGS FOR IMPROVED BIOAVAILABILITY OF CERTAIN Δ^4-3-KETOSTEROIDAL SEX HORMONES

Nicholas S. Bodor, Gainesville, Fla., and Kenneth B. Sloan, Eudora, Kans., assignors to INTERx Research Corporation, Lawrence, Kans.

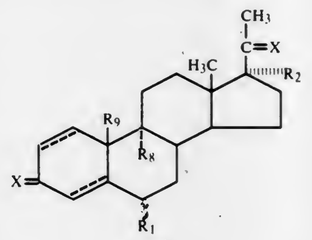
Continuation-in-part of Ser. No. 886,589, Mar. 14, 1978, abandoned. This application Jul. 13, 1979, Ser. No. 57,324

Claims priority, application Australia, Mar. 13, 1979, 45084/79; Canada, Mar. 13, 1979, 323352

Int. Cl.[3] A61K *31/58;* C07J *33/00*

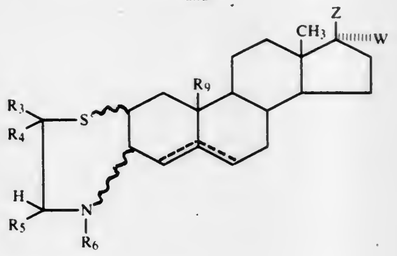
U.S. Cl. 260—239.5 **144 Claims**

1. A compound selected from the group consisting of compounds having the structural formulae:



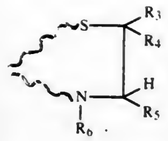
(I)

and



(II)

wherein each =X is =O or



with the proviso that both =X's cannot at the same time be =O, albeit either one or both can comprise the depicted thiazolidine nucleus;

R_1 is H, C_1-C_8 alkyl or halogen;

R_2 is H, OH, halogen, C_1-C_{10} alkyl or $-OCOR_7$ wherein R_7 is defined as below;

R_3 is H or C_1-C_8 alkyl;

R_4 is H or C_1-C_8 alkyl;

R_5 is H or $-COOR_7$ wherein R_7 is defined as below;

R_6 is H, $-COR_7$ or $-COOR_7$, with the proviso that, when R_6 is H, then the compound of formula (I) or (II) can also be in the form of a pharmaceutically acceptable acid addition salt;

R_7 is H, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_5-C_7 cycloalkyl, C_5-C_7 cycloalkyl-C_6-C_{10} aryl, phenyl or C_1-C_4 alkylphenyl;

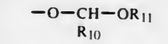
R_8 is H, Cl or F;

R_9 is H or C_1-C_8 alkyl;

R_{10} is H, C_1-C_8 alkyl, C_2-C_8 alkenyl, CCl_3, CBr_3, phenyl, C_6H_5—CH=CH— or substituted phenyl wherein the phenyl substituents are selected from the group consisting of lower alkyl, halo and lower alkoxy;

R_{11} is H or COR_7 wherein R_7 is defined as above;

Z is OH, $OCOR_7$ or



wherein R_7, R_{10} and R_{11} are defined as above;

W is H, C_1-C_{12} alkyl, C_2-C_8 alkenyl or C_2-C_8 alkynyl;

the dotted line at the 1(2)-position in formula (I) indicates the presence of a single or a double bond; and the dotted lines at the 4(5)- and 5(6)-positions indicate the presence of a double bond at either the 4(5)- or the 5(6)-position.

4,268,442

PROCESS FOR PREPARING AROMATIC ACETIC ACID

Kiyosi Kondo; Tamotsu Fujimoto, both of Yamato; Minoru Suda, and Daiei Tunemoto, both of Sagamihara, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,818

Claims priority, application Japan, Nov. 14, 1978, 53-139364; Nov. 14, 1978, 53-139365

Int. Cl.[3] **C07C** *53/132;* **C07D** *207/337, 307/54, 333/24*

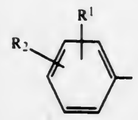
U.S. Cl. 260—326.2 **22 Claims**

1. A process for preparing an aromatic acetic acid represented by the formula

$ArCH_2COOH$

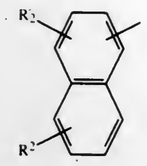
wherein Ar is a substituted or unsubstituted aromatic selected from the group consisting of the following groups (a), (b) and (c):

(a) a group of the formula



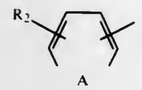
wherein R^1 and R^2 may be at the same or different and each represent a hydrogen atom, a lower alkyl group, a lower alkoxy group, a halogen atom, a phenoxy group, a benzyloxy group or R^1 and R^2 may cooperate to form a lower alkylidenedioxy group;

(b) a group of the formula:



wherein R^1 and R^2 are the same as defined above; and

(c) a group of the formula



A

wherein A represents an oxygen atom (O), a sulfur atom (S) or a $>NR^6$ group in which R^6 is a hydrogen atom or a lower alkyl group having 1 to 4 carbon atoms, and R^3 represents a hydrogen atom or a lower alkyl substituted benzoyl group;

which comprises reacting an aromatic aldehyde represented by the formula

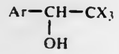
ArCHO

wherein Ar has the same meaning as defined above, with a trihalomethane represented by the formula

HCX_3

wherein X represents at least one halogen selected from the group consisting of chlorine and bromine atoms,

in the presence of a base in a mixed medium of water and an aprotic polar solvent to form an alcohol derivative represented by the formula



wherein Ar has the same medium as defined above,

and then reacting the thus formed alcohol derivative with an alkanethiol represented by the formula

RSH

wherein R is an alkyl group,

in the presence of a base in a mixed medium of water and an aprotic polar solvent, wherein the volume ratio of said water and said aprotic polar solvent is 1:0.2-1:5.

4,268,443

13,15-DIOXABICYCLO[10.5.0]HEPTADECANES, THEIR PREPARATION, AND THEIR USE IN PERFUME COMPOSITIONS AND AS AN ODORANT

Klaus Bruns, Krefeld-Traar, and Peter Meins, Mettmann, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Düsseldorf-Holthausen, Fed. Rep. of Germany

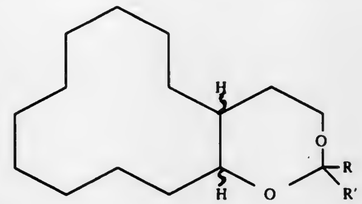
Filed Jun. 14, 1979, Ser. No. 48,504

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2827979

Int. Cl.[3] **C07D** *319/08*

U.S. Cl. 260—340.3 **2 Claims**

1. A 13,15-dioxabicyclo[10.5.0]heptadecane of the formula



wherein R and R^1 are independently hydrogen or a methyl radical.

4,268,444

PREPARATION OF POLYENE-ALDEHYDES

Hagen Jaedicke, Ludwigshafen, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

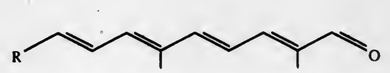
Filed Nov. 16, 1979, Ser. No. 94,986

Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851051

Int. Cl.[3] **C07C** *45/45;* **C07D** *319/04*

U.S. Cl. 260—340.7 **5 Claims**

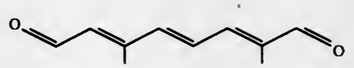
1. A process for the preparation of a polyene-aldehyde of the formula I:



(I)

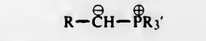
where R is selected from the group consisting of a saturated or unsaturated C_1C_{40} hydrocarbon,, and a radical having the carbon skeleton of vitamin A or fragments thereof, which radical may or may not be substituted by methyl, ethyl and ether groups, may or may not be conjugated throughout, and may be unsaturated or partially or completely saturated; which comprises:

reacting 2,6-dimethyl-octa-2,4,6-triene-1,8-dial of the formula



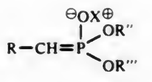
(II)

with an equimolar or about equimolar amount of a compound selected from the group consisting of an ylide of the formula III:



(III)

and a compound of the formula IV:



(IV)

wherein

R', R'' and R''' are the same or different alkyl, cycloalkyl, aralkyl or aryl radicals;

and X^+ is the cationic component of a strong base.

4,268,445

PREPARATION OF BICYCLIC ENOL-ETHERS, AND NOVEL ETHERS OF 2-(3-HYDROXYPROP-L-YL)-CYCLOALKANONES

Rudolf Kropp, Limburgerhof; Frank Thoemel, Weinheim; Axel Nuerrenbach, Gruenstadt; Werner Hoffman, Neuhofen; Franz Wenisch, Frankenthal, and Hartwig Fuchs, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

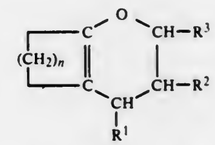
Filed Jan. 31, 1980, Ser. No. 117,128

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1979, 2906296

Int. Cl.[3] **C07D** *311/44, 311/94*

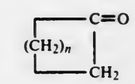
U.S. Cl. 260—345.2 **1 Claim**

1. A process for the preparation of a bicyclic enol-ether of the general formula (I)



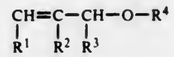
(I)

where n is from 3 to 12 and R^1, R^2 and R^3 are hydrogen or C_1-C_4-alkyl, by free radical adduct formation of an allyl compound with a cyclic ketone of the general formula (IV)



(IV)

and subsequent acid-catalyzed cyclization to give (I), wherein the allyl compound used is an allyl ether of the general formula (III)



(III)

where R^4 is tert.-butyl, tetrahydrofuran-2-yl or tetrahydropyran-2-yl.

4,268,446

PREPARATION OF CHROMANE DERIVATIVES

Michael Horner, Neustadt, and Axel Nissen, Leimen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

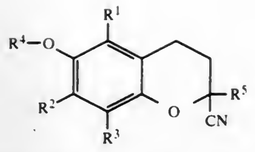
Filed Feb. 13, 1980, Ser. No. 121,170

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909601

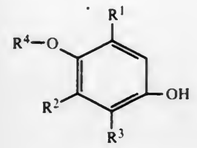
Int. Cl.[3] **C07D** *311/58*

U.S. Cl. 260—345.5 **3 Claims**

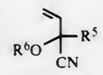
1. A process for the preparation of a chromane derivative of the formula I



where R^1, R^2 and R^3 are hydrogen or alkyl of 1 to 8 carbon atoms, R^4 is hydrogen or alkyl or acyl of 1 to 8 carbon atoms and R^5 is alkyl of 1 to 8 carbon atoms, which comprises: reacting a hydroquinone of the formula II



with 10–300 mole %, based on II, of a Lewis acid or of a Lewis acid adduct with a weak Lewis base or of a Lewis acid adduct with a proton acid, and with a nitrile of the formula III



where R^6 is hydrogen or acyl or alkyl of 1 to 4 carbon atoms, in the presence of an inert solvent.

4,268,447

PROCESS FOR PRODUCING TETRAHYDROFURAN AND 1,4-BUTANEDIOL

Yoshinori Yoshida, Yokohama, and Hiroshi Oka, Tokyo, both of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Dec. 12, 1979, Ser. No. 102,658
Claims priority, application Japan, Dec. 12, 1978, 53/152724
Int. Cl.[1] C07D *307/08;* **C07C** *31/20*
U.S. Cl. 260—346.11 **15 Claims**

1. A process for producing simultaneously tetrahydrofuran and 1,4-butanediol at any desired proportion which comprises (a) reacting the diacetic ester of 1,4-butanediol with a theoretical or smaller quantity, based on said diacetic ester, of water in the presence of an acidic catalyst, (b) separating, in a first distillation column, the reaction mixture obtained into a distillate comprising tetrahydrofuran as major constituent and a bottom stream comprising the diacetic ester of 1,4-butanediol as major constituent, and (c) subjecting, in the second reaction-distillation column, at least a part of said bottom stream to a counter-current gas-liquid contact reaction with methanol in the presence of an acidic or basic catalyst and separating the reaction mixture into a bottom stream comprising 1,4-butanediol as major constituent and a distillate comprising methyl acetate as major constituent.

4,268,448

PROCESS FOR THE PRODUCTION OF MALEIC ANHYDRIDE

Gerhard Franz; Franz Nierlich, and Hans-Josef Ratajczak, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jan. 22, 1980, Ser. No. 114,448
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902986
Int. Cl.[1] C07D *307/60*
U.S. Cl. 260—346.75 **6 Claims**

1. In a process for the production of maleic anhydride by the high temperature catalyzed oxidation of ethylenically unsaturated n-C_4-hydrocarbons with an oxygen-containing gas, the improvement wherein the catalyst is a compound of the formula

$$W_aMo_bSb_cY_dX_eO_x$$

wherein y represents phosphorus and/or silicon; X is at least one of vanadium, bismuth, tellurium and an alkali metal; a and b are integers from 1 to 12; c is an integer from 2 to 20; d is an integer from 0.2 to 2; e is an integer from 0 to 10; and x is the number of oxygen atoms required to satisfy the remaining valences of the other elements present, which catalyst is produced by mixing a compound of trivalent antimony and, when e is other than 0, at least one of a vanadium, bismuth, tellurium and alkali metal compound, with a solution of a mixture of the heteropoly acids of molybdenum and of tungsten to form a blue, gel-like precursor, drying, and then calcining.

4,268,449

METHOD FOR THE PREPARATION OF FURAN-2-CARBOXYLIC ACID AMIDE AND THE CORRESPONDING FURAN-2-CARBOXYLIC ACID

Gerhard O. Kuehnhanss, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Feb. 22, 1980, Ser. No. 123,809
Int. Cl.[1] C07D *307/54*
U.S. Cl. 260—347.3 **8 Claims**

1. A method for the preparation of furan-2-carboxylic acid-amide which comprises contacting carbamoyl chloride and furan without a catalyst at a temperature in the range of from about 10° C. to about 30° C. in an inert, liquid reaction medium.

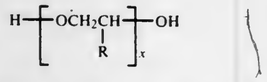
4,268,450

ENERGETIC HYDROXY-TERMINATED AZIDO POLYMER

Milton B. Frankel, Tarzana, and Joseph E. Flanagan, Woodland Hills, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 822,490, Aug. 8, 1977, abandoned. This application Jan. 8, 1979, Ser. No. 4,978
Int. Cl.[1] C07C *117/00;* **C08G** *65/32, 65/22, 65/24*
U.S. Cl. 260—349 **4 Claims**

1. A hydroxy-terminated aliphatic polyether having pendant alkyl azide groups has a general structural formula of:



wherein x is an integer from 10 to 60 and wherein R is selected from the group consisting of $-(CH_2)_nN_3$, and $-CH_2CHN_3CH_2N_3$, and wherein n is an integer from 1 to 5.

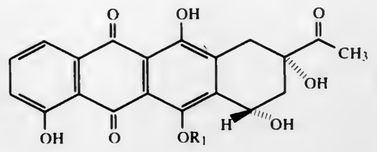
4,268,451

DAUNOMYCIN DERIVATIVES, THEIR AGLYCONES AND THE USE THEREOF

Paolo Masi; Antonino Suarato; Luigi Bernardi, and Federico Arcamone, all of Milan, Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Division of Ser. No. 901,359, May 1, 1978, Pat. No. 4,191,756. This application May 14, 1979, Ser. No. 38,688
Claims priority, application United Kingdom, May 5, 1977, 18777/77
Int. Cl.[1] C07C *50/16*
U.S. Cl. 260—376 **2 Claims**

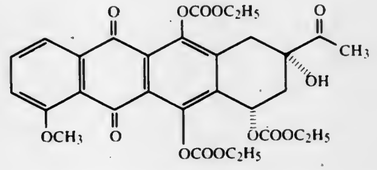
1. A compound of the formula II:



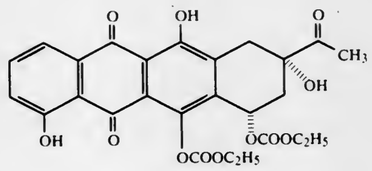
wherein R_1 is a lower alkyl group having from 1 to 4 carbon atoms.

2. A process for the preparation of aglycones of daunomycin comprising:

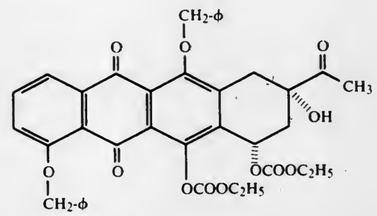
(a) reacting a compound of the formula:



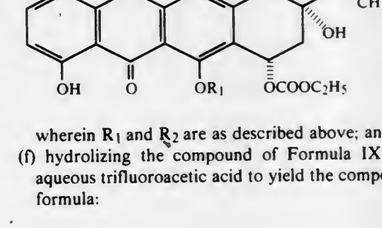
with aluminum trichloride in an organic solvent selected from the group consisting of dichloromethane and chloroform to yield the bis-phenolic compound of the formula:



(b) reacting the compound of Formula V with a benzyl halide in the presence of a base selected from the group consisting of silver oxide and potassium carbonate in an organic solvent at a temperature of from about 20° C. to about 100° C. to yield a dibenzylic compound of the formula:

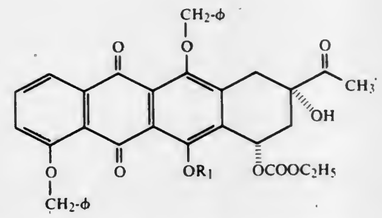


(c) treating the compound of Formula VI with alkaline hydroxide or an activated basic resin in a solvent selected from the group consisting of water and alcohol to yield the monophenolic compound of the formula:



wherein R_2 is hydrogen when the reaction is carried out in aqueous medium and an alkyl group when the solvent is alcohol;

(d) reacting the compound of Formula VII wherein R_2 is an alkyl group with a halide of the general formula R_1—Y, wherein R_1 is a lower alkyl having 1 to 4 carbon atoms and Y is selected from the group consisting Cl, Br or I; in a boiling organic solvent selected from the group consisting of dichloromethane, chloroform and dichloroethane in the presence of a base selected from the group consisting of silver oxide and potassium carbonate to yield the ether of the formula:

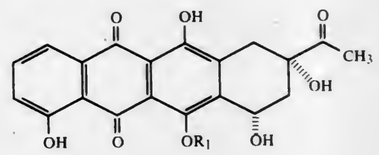


wherein R_1 and R_2 are as described above;

(e) treating the compound of Formula VIII with trifluoroacetic acid at room temperature to yield the bis-phenolic compound of the formula:

wherein R_1 and R_2 are as described above; and

(f) hydrolizing the compound of Formula IX in boiling aqueous trifluoroacetic acid to yield the compound of the formula:



wherein R_1 is as defined above.

4,268,452

NONCURABLE SEALING MATERIALS

Katsutoshi Mine, Ichihara; Yoshitaka Kubota, Chiba, and Tsuneo Maruyama, Ichihara, all of Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Mar. 10, 1980, Ser. No. 128,604
Int. Cl.³ C08L *83/04*
U.S. Cl. 260—37 SB **18 Claims**

1. A noncurable sealing material comprising a composition which increases in viscosity on contact with moisture, does not cure and substantially maintains its initial viscosity when stored in a container which does not substantially allow moisture to penetrate, consisting essentially of a product obtained by mixing the following ingredients under substantially anhydrous conditions

(a) 100 parts by weight of a polydiorganosiloxane having silicon-atom-bonded hydroxyl groups at the terminus of the molecular chains, the organic groups of the polydiorganosiloxane being substituted or unsubstituted monovalent hydrocarbon radicals and said polydiorganosiloxane having a viscosity of 0.5 m^2/s or less at 25° C.,

(b) from 1 to 500 parts by weight of a filler and

(c) an amount of an organosilicon compound sufficient to supply silicon-bonded nitrogen groups or groups having silicon-oxygen-nitrogen bonds in at least the same molar amount as the total molar amount of silicon-atom-bonded hydroxyl groups in (a), said organosilicon compound having two moisture hydrolyzable groups per molecule and said groups being selected from the group consisting of silicon-bonded nitrogen groups and groups having silicon-oxygen-nitrogen bonds.

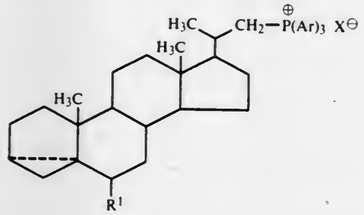
4,268,453

PROCESS FOR THE MANUFACTURE OF CHOLESTENE DERIVATIVES AND NOVEL INTERMEDIATES IN THEIR MANUFACTURE

Richard Barner, Witterswil, and Josef Hübscher, Seon, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 5, 1980, Ser. No. 146,880
Claims priority, application Switzerland, May 18, 1979, 4676/79
Int. Cl.³ C07J *1/00*
U.S. Cl. 260—397.5 **2 Claims**

1. Compounds of the general formula



wherein R^1 is lower alkoxy; Ar is aryl; and $X^{\ominus}$ is an anion.

4,268,454

ANIONIC GROUP VIII METAL HYDRIDE CATALYSTS

Guido P. Pez, Boonton, and Roger A. Grey, Denville, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 972,147, Dec. 21, 1978, abandoned. This application Aug. 29, 1979, Ser. No. 70,583
Int. Cl.³ C07F *15/02, 15/00*
U.S. Cl. 260—439 R **11 Claims**

1. Anionic Group VIII metal hydride complex having 1 to 3 ligands per Group VIII metal atom, all ligands being selected from triphenyl phosphine, diphenyl phosphide, and methyldiphenylphosphine; wherein the Group VIII metal is an element selected from the first and second transition series; and the charge of the complex anion is neutralized by cations selected from Group IA and Group IIA metals.

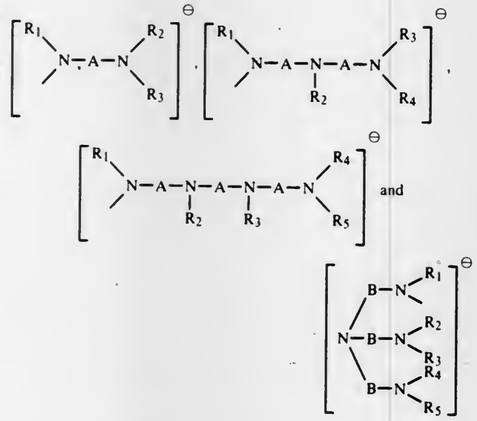
4,268,455

CHELATING TERTIARY AMINO METAL AMIDES

Arthur W. Langer, Jr., Watchung, and Thomas A. Whitney, Roselle, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Aug. 12, 1976, Ser. No. 713,902
Int. Cl.³ C07F *5/06*
U.S. Cl. 260—448 R **21 Claims**

2. Chelating tertiary amino metal amides selected from the group consisting of [Chel N]$^{\ominus}M^{\oplus}$ and [Chel N]$^{\ominus}M^{\oplus}$-$M'H_mR_nX_p$ wherein M is a Group IA metal, M' is a metal selected from the group consisting of lithium, sodium, magnesium, beryllium, zinc, cadmium, boron, aluminum, gallium, indium, zirconium, titanium, tin and copper, and m and n equal 0 to 4, p equals 0 to 3 and (m+n+p) equals the valence of M' and (m+n) equals at least 1 and X is a nonreactive group selected from the group consisting of chlorine, bromine, iodine, C_1-C_{20} alkoxide, C_1-C_{20} thioalkoxide, C_2-C_{40} hydrocarbyl secondary amide and C_2 to C_{40} hydrocarbyl secondary phosphide, R is a hydrocarbyl group selected from the group consisting of C_1-C_{30} alkyl, C_6-C_{30} aryl, C_7-C_{30} aralkyl, C_3 to C_{30} naphthenic, C_2 to C_{30} alkenyl, C_2-C_{30} alkynyl and cyclopentadienyl; Z is selected from the group consisting of R, X or H and [Chel N]$^{\ominus}$ is selected from the group consisting of compounds of the formulae:



wherein R_1 is a C_1 to C_{20} hydrocarbyl radical, R_2, R_3, R_4 and R_5 are the same or different alkyl or aryl radicals of 1 to 7 carbon atoms inclusive, A is selected from the group consisting of a nonreactive group containing 2 to 3 methylenic radicals having 0 to 6 monovalent substituents containing 1 to 10 carbon atoms or a cycloaliphatic radical and their lower alkyl or naphthenic derivatives having ring structures containing 5 to 7 members wherein said radicals are attached to the nitrogen atoms at adjacent positions on the rings and B is selected from the group consisting of a nonreactive group containing 2 to 3 methylenic radicals having 0 to 3 monovalent substituents containing 1 to 10 carbon atoms.

4,268,456

PROCESS FOR PREPARING CHLOROTHIOLFORMATES

William A. Keim, and James A. Cook, Jr., both of Barberton, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 24, 1979, Ser. No. 78,328
Int. Cl.³ C07C *154/00*
U.S. Cl. 260—455 R **17 Claims**

1. In the process of preparing organic chlorothiolformate by reaction of an organic mercaptan having the formula R'—SH with phosgene, wherein R' is alkyl, cycloalkyl, cycloalkylmethyl, lower alkenyl, aryl, alkaryl, aralkyl, haloaryl, haloaralkyl, carboalkoxy alkyl, the improvement which comprises conducting said reaction in the presence of a catalytic amount of a quaternary ammonium salt of the formula:

$$(R_1R_2R_3R_4N)^+X$$

wherein R_1, R_2, R_3 and R_4 are each selected from the group consisting of C_1-C_{22} alkyl, C_2-C_8 alkenyl, phenyl, C_6-C_9 alkaryl, and C_6-C_9 aralkyl, and X is a monovalent anion normally associated with quaternary ammonium salts.

4,268,457

PROCESS FOR THE PREPARATION OF PARAPHENOXYBENZOYLCHLORIDE

James G. Colson, Williamsville; Victor F. G. Cooke, Youngstown; F. Howard Day, and Michael J. Fifolt, both of Grand Island, all of N.Y., assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Jun. 28, 1979, Ser. No. 52,712
Int. Cl.³ C07C *51/093, 41/22, 43/275*
U.S. Cl. 260—544 P **17 Claims**

1. p-phenoxybenzotrichloride.

2. A process for the preparation of p-phenoxybenzoylchloride which comprises reacting p-phenoxybenzotrichloride with a hydrolyzing reactant selected from water, aqueous mineral acids, carboxylic acids, sulfonic acids, mixtures of lewis acids with water or carboxylic acids and mixtures thereof.

15. A process for the preparation of p-phenoxybenzoylchloride which comprises reacting p-phenoxytoluene with chlorine in the presence of actinic light to produce a product containing p-phenoxybenzotrichloride and thereover hydrolyzing said p-phenoxybenzotrichloride with a hydrolysis reactant selected from water, aqueous mineral acid, carboxylic acid, mixtures of lewis acids with water or carboxylic acids and mixtures thereof to produce a p-phenoxybenzoyl chloride product.

4,268,458

PROCESS FOR THE PREPARATION OF N-ALKYLATED AROMATIC AMINES

Werner Schulte-Huermann, and Heinz P. Hemmerich, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 16, 1980, Ser. No. 140,913
Claims priority, application Fed. Rep. of Germany, May 4, 1979, 2918023
Int. Cl.³ C07C *85/06*
U.S. Cl. 564—305 **6 Claims**

1. In a process for the preparation of an N-alkylated aromatic amine by contacting an aromatic amine with an aliphatic or cycloaliphatic alcohol at an elevated temperature and under increased pressure, in the presence of catalysts, the improvement wherein the reaction is carried out in the presence of a phosphorus oxyhalide.

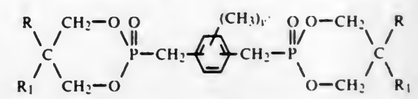
4,268,459

CYCLIC DIPHOSPHONATES

Joseph A. Hoffman, Bridgewater, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 700,996, Jun. 29, 1976, abandoned. This application Sep. 28, 1979, Ser. No. 79,689
Int. Cl.³ C07F *9/15*; C08K *5/53*
U.S. Cl. 260—927 R **7 Claims**

1. A compound having the formula



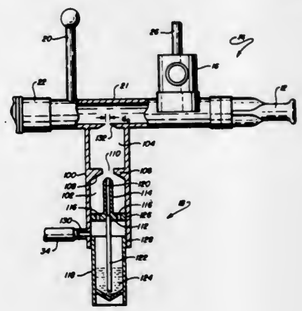
wherein R is hydrogen or methyl; R_1 is hydrogen, methyl, or ethyl; and y is an integer from 0 to 2 inclusive.

4,268,460

NEBULIZER

Anthony A. Boiarski, Columbus, and Ross G. Luce, Westerville, both of Ohio, assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation of Ser. No. 860,006, Dec. 12, 1977, abandoned. This application Mar. 5, 1980, Ser. No. 127,350
Int. Cl.³ A61M *11/02*
U.S. Cl. 261—1 **10 Claims**



1. Nebulizer apparatus, connectable with a source of gas and with a liquid source comprising:

a first atomizer stage chamber for simultaneously communicating with a source of pressurized gas and with said source of liquid for forming by the Bernoulli effect a first particulate dispersion of said liquid entrained with said gas, the liquid particles of said first particulate dispersion exhibiting an average diameter, D_1, and a surface tension, S, and said gas exhibiting a density ρg;

a containment chamber embodying a second atomizer stage communicating through an input aperture narrower than the chamber with said first atomizer stage and having an input zone for receiving said first particulate dispersion at a stagnation pressure, P_o, and including a knife-edge exit orifice having diameter, d_o, to effect the expulsion through said exit orifice of said first particulate dispersion to impart supersonic velocities to said gas under flow conditions according to the expression:

$$\rho_g u_r^2 \geq W_e S/D_f, \text{ where}$$

u_r is the relative velocity between a given said liquid particle and the velocity of said gas, and W_e is Weber number of value effective to effect a breakdown of said liquid particles to form a second gas entrained particulate dispersion of said liquid having an average particle diameter, D_S, less than said diameter, D_f; and

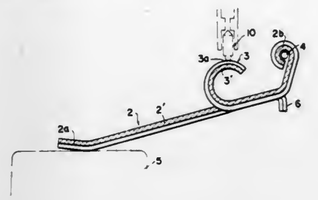
a flexible tube communicating at one end with a source of gas under relatively low positive pressure, at the other end with a mouthpiece, and between the ends with said exit orifice whereby the second gas entrained particulate dispersion and low positive pressure gas are delivered to the mouthpiece.

4,268,461

TEMPERATURE COMPENSATING FLOAT ARM FOR USE IN CARBURETORS

Shigeru Onishi, Kanazawa, and Satoshi Kato, Ibaragi, both of Japan, assignors to Nippon Clean Engine Laboratory Co., Japan

Filed Jan. 8, 1980, Ser. No. 110,370
Claims priority, application Japan, Jan. 14, 1979, 54-3486[U]
Int. Cl.³ F02M 5/12
U.S. Cl. 261—39 B **4 Claims**



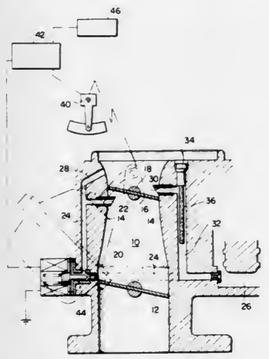
1. A float arm for use in a carburetor for internal combustion engines, the carburetor having a float valve and a float operatively interconnected thereto by said float arm, comprising:
an elongate first arm portion having one end adapted to be operatively associated with said float;
a second arm portion fixed to said first arm portion and adapted to be operatively associated with said float valve; and
wherein said second arm portion has a substantially arcuate configuration and wherein said first and second arm portions are substantially entirely formed of a bimetallic construction.

4,268,462

VARIABLE VENTURI CARBURETOR

Tadaki Ota; Katsushi Yoshikawa, both of Yokohama, and Masaaki Saito, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 8, 1980, Ser. No. 110,440
Claims priority, application Japan, Jan. 18, 1979, 54-4904[U]
Int. Cl.³ F02M 7/22
U.S. Cl. 261—40 **4 Claims**



1. A variable venturi carburetor comprising a fuel reservoir, a through passage-way mixture conduit (**10**), a throttle plate (**12**) swingably disposed for opening and closing the outlet end of said mixture conduit (**10**) and thereby metering the amount of mixture that exits from said mixture conduit (**10**), said mixture conduit (**10**) formed with a fixed venturi (**14**) upstream of said throttle plate (**12**), a vacuum sustaining plate (**16**) swingably disposed for opening and closing the throat of said fixed venturi (**14**) for controlling admission of air and for generating venturi effects in said mixture conduit (**10**) that are variable with the swingable positions of said vacuum sustaining plate (**16**), a first fuel nozzle (**22**) opening into said mixture conduit (**10**) at a point on one side of said fixed venturi (**14**) and on the downstream side of said vacuum sustaining plate (**16**), said first fuel nozzle connected through a fuel conduit (**24**) to said fuel reservoir, an opening sensor (**40**) associated with said vacuum sustaining plate (**16**) for sensing the opening of the throat of said fixed venturi (**14**), a control circuit (**42**) associated with said opening sensor for providing a drive pulse signal with its duty factor varying in accordance with the degree of opening of said vacuum sustaining plate (**16**) but held at a level when the degree of opening of said vacuum sustaining plate (**16**) is over a predetermined level, an electromagnetic valve (**44**) provided for opening and closing said fuel conduit (**24**) so as to control the amount of fuel drawn from said first fuel nozzle (**22**) in response to the drive pulse signal applied thereto from said control circuit (**42**), a second fuel nozzle (**30**) connected to said reservoir and opening into said mixture conduit (**10**) at a point on the opposite side of said fixed venturi (**14**) and on the upstream side of said vacuum sustaining plate (**16**).

4,268,463

METHOD OF PRODUCING A FILM OF HIGH MOLECULAR SUBSTANCE

Juuro Aoyagi, Naritanishi, and Toshizi Ichikawa, Tokyo, both of Japan, assignors to Terumo Corporation, Japan

Filed Aug. 4, 1978, Ser. No. 931,266
Claims priority, application Japan, Aug. 12, 1977, 52-96724
Int. Cl.³ H05B 1/00
U.S. Cl. 264—22 **11 Claims**

1. A method of producing a membrane of a high molecular substance, comprising forming a solution containing a hydroxy oligomer and a styrene-based oligomer into a thin layer, and irradiating radioactive rays or an electron beam to said thin layer so as to cause crosslinking between said hydroxy oligomer and styrene-based oligomer, said hydroxy oligomer being derived from a hydroxy monomer selected from the group consisting of hydroxy lower alkyl acrylate, hydroxy lower alkyl methacrylate, hydroxy lower alkoxy lower alkyl acrylate and hydroxy lower alkoxy lower alkyl methacrylate, and the styrene-based oligomer being selected from the group consisting of homooligomers of styrenes and cooligomers of styrenes with unsaturated dicarboxylic acids.

4,268,464

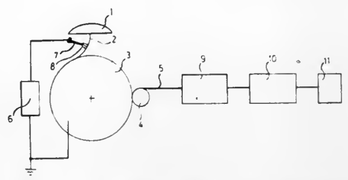
ELECTROSTATIC PINNING OF EXTRUDED POLYAMIDE FILM

Yasutomi Yoshino; Fumio Nishimura; Haruhiko Watanabe; Masahiro Kobayashi; Kunio Takeuchi, and Haruo Okudaira, all of Inuyama, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Japan

Filed Aug. 16, 1979, Ser. No. 67,485
Int. Cl.³ B29D 7/02, 7/24
U.S. Cl. 264—22 **12 Claims**

1. A process for production of a sheet of a polyamide material which comprises extruding the polyamide material in a melt state in the form of sheet and bringing the extruded sheet in a melt state into contact with the surface of a moving chill body for quenching to give an undrawn film, characterized in that a direct current of high voltage is applied between an electrode having discharge points arranged discontinuously and the extruded sheet so as to produce a discharge in a

steamer corona state onto the extruded sheet, whereby the extruded sheet is brought into tight and close contact with the



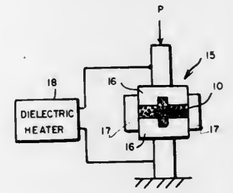
surface of the moving chill body electrically grounded so as to be chilled quickly.

4,268,465

METHOD OF ACCELERATING THE COOLING OF POLYMERIC ARTICLES

Nam P. Suh, Sudbury, and Lewis Erwin, II, Belmont, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 872,752, Jan. 27, 1978, abandoned, which is a continuation of Ser. No. 628,964, Nov. 5, 1975, abandoned. This application Jun. 22, 1979, Ser. No. 51,181
Int. Cl.³ H05B 1/00
U.S. Cl. 264—25 **15 Claims**



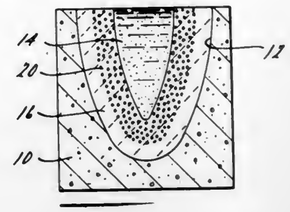
1. A method of forming a solid article from a plurality of polymeric particles, each of said particles having at least one selected region substantially responsive to heating by the application of high frequencey wave energy and at least one remaining region substantially unresponsive to the application of said energy, said method comprising:
a. applying pressure and said wave energy to all of said particles in a mold, the selected region of each of substantially all of said particles responding to said applied energy substantially simultaneously so that said selected regions are heated substantially simultaneously by said applied energy to a temperature such that the selected regions of adjacent particles are capable of fusing, the remaining region of each of substantially all of said particles being substantially unresponsive to said applied energy so that said remaining regions are only insubstantially heated by said applied energy, whereby a heterogeneous temperature distribution is produced within each of substantially all of said particles, said selected regions of adjacent particles fusing together; and
b. stopping the application of said energy to permit said heterogeneous temperature distribution to proceed to equilibrium by internal heat dissipation within each of substantially all of said particles from said selected regions to said remaining regions, so that said particles become firmly bonded together to from said solid article.

4,268,466

METHOD OF FORMING A SLIP CAST ARTICLE OF CELLULAR CONSTRUCTION

Andre Ezis, Grosse Ile, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 25, 1977, Ser. No. 781,376
Int. Cl.³ C04B 35/58
U.S. Cl. 264—42 **12 Claims**



1. A method of forming a slip cast article having at least one zone of cellular construction which comprises:
providing a slip casting mold having (a) a casting volume formed therein in the configuration of the article to be formed, and (b) a capability of withdrawing a vehicle from a casting slip poured into said casting volume;
providing a stabilized casting slip including water as said vehicle and an oxidizable metal as a casting material;
pouring said stabilized casting slip into said casting volume of said casting mold, said casting mold acting on said stabilized casting slip to slowly withdraw said vehicle from said stabilized casting slip;
increasing the pH of said stabilized casting slip held within said casting volume until a hydrolysis reaction takes place between said vehicle and said casting material resulting in the evolution of gases, portions of said gases evolved being trapped within said slip to develop a zone of cellular construction of said casting material;
permitting continued contact between said casting slip and said casting volume so that said vehicle of said casting slip is withdrawn into said slip casting mold thereby to produce an article of casting material which is removable from said casting volume; and
removing said article having a zone of cellular construction from said casting mold.

4,268,467

PROCESS FOR MAKING FRICTION PRODUCTS

Harry H. Wagner, Ridgeway, Pa., assignor to Carlisle Corporation, Cincinnati, Ohio

Filed Oct. 12, 1979, Ser. No. 84,354
Int. Cl.³ B29G 1/00
U.S. Cl. 264—111 **6 Claims**

1. In a process for molding a shaped article of thermally-resistant, fiber-reinforced, friction material from a composition comprising an effective quantity of inorganic heat-resistant fiber reinforcement admixed with an effective quantity of a thermo-setting resin binder system, the improvement comprising:
(a) enclosing a quantity of said composition to be molded to said desired shape within a thermally decomposable container of flexible encapsulating material,
(b) sealing said container,
(c) placing said sealed container and contents therein within a curing mold having a shape for said shaped article,
(d) heating and pressing said composition within said mold to cure said resin binder to bond the composition into said shaped article, wherein said heating within said mold thermally decomposes said container; and
(e) opening said mold and removing said molded article.

4,268,468

METHOD OF MAKING A MEDICAL PROSTHESIS

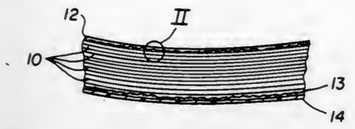
Friedrich J. Esper, Leonberg, and Hans-Martin Wiedenmann, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Division of Ser. No. 761,372, Jan. 21, 1977, abandoned. This application Jul. 13, 1978, Ser. No. 923,934

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1977, 2603456

Int. Cl.[1] **B29C** *27/00, 27/22;* **B29D** *9/00;* **B29G** *7/00*

U.S. Cl. 264—131 **10 Claims**



1. Method to make a bone replacement prosthetic structure or appliance of a biologically compatible material suitable as a bone replacement prosthetic implant including a core element made of a fiber-reinformed thermosetting material; and

a surface element made of a biologically compatible fiber reinforced thermoplastic material completely surrounding said core element and internally interlocked with the core element

comprising steps of

providing an inner support structure of at least one material selected from the group consisting of:

elongated essentially parallel positioned fibers, woven fiber fabric, fiber mats, matted fibers and felted fibers;

soaking the support structure in a thermo-setting resin;

surrounding said soaked inner support structure with a surface structure comprising a biologically compatible thermoplastic resin, at least a portion of the thermoplastic resin being at the side remote from the thermosetting resin soaked support structure to form a sub-assembly, said thermosetting resin being a resin that will cure at a temperature which overlaps in the temperature range of from 160° C. to 200° C. with the temperature range of softening of said thermoplastic resin;

introducing said sub-assembly into a mold having the desired shape of the prosthetic structure or appliance;

simultaneously heating to a temperature of from 160° C. to 200° C. at which said thermosetting resin cures and said thermoplastic resin softens and compressing the mold to compress the sub-assembly and cure the thermosetting resin and thereby form said core element and mold the thermoplastic resin and thereby causing the outer thermoplastic structure to interlock with the inner support structure and forming the surface structure with an outer surface consisting essentially only of thermoplastic resin; and

removing the mold after cooling to a temperature at which the outer surface of the thermoplastic resin has solidified.

4,268,469

METHOD OF ENVELOPING ARTICLES WITH THERMOPLASTIC STRIP MATERIAL

Jan Bouwknegt; Hendrik J. Verbeek, and Gerard J. Scholten, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

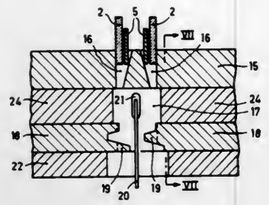
Continuation of Ser. No. 805,966, Jun. 13, 1977, abandoned, which is a continuation of Ser. No. 509,479, Sep. 26, 1974, abandoned. This application Jun. 15, 1979, Ser. No. 48,949

Claims priority, application Netherlands, Oct. 4, 1973, 7313628

Int. Cl.[3] **B29C** *27/00;* **B29D** *27/00*

U.S. Cl. 264—138 **3 Claims**

1. A method of permanently enveloping an electrical component in a thermoplastic material, which consists essentially in providing two longitudinal strips of a closed-cell cellular thermoplastic material in parallel spaced relationship to each other, initially heating such parallel strips to a temperature below the softening or melting temperature of the thermoplastic material, thereafter additionally heating only the facing surface of each strip to a temperature above the softening or melting temperature of said thermoplastic material while maintaining the temperature of the remainder of each strip below said softening or melting temperature, introducing said heated strips and said electrical component into a mould in such a manner that the electrical component is positioned between the heated facing surfaces of the strips, the width of the strips



being greater than the width of the electrical component, and closing said mould about the strips with the electrical component therebetween so as to encase the electrical component within the strips and to plastically deform the strips to the shape of the mould, the facing surfaces of the strips having been heated only to an extent that, at the time the mould is closed to encase the electrical component within the strips, the temperature gradient resulting from said heating extends from the facing surface of each strip over less than half the thickness thereof.

4,268,470

POLYMER MATERIALS

Giancarlo Capaccio, Leeds, and Ian M. Ward, Bramhope, both of England, assignors to National Research Development Corporation, London, England

Continuation of Ser. No. 739,074, Nov. 5, 1976, abandoned. This application Sep. 19, 1978, Ser. No. 943,856

Claims priority, application United Kingdom, Nov. 5, 1975, 45920/75

Int. Cl.[3] **C08F** *10/02*

U.S. Cl. 528—502 **12 Claims**

1. A process for the preparation of an oriented polymer material comprising the steps of providing a crystallisable polypropylene homopolymer having a weight average molecular weight greater than 300,000 and a ratio of weight average molecular weight to number average molecular weight greater than 5, and attenuating said polymer at a temperature from 95° C. to 140° C. and at a rate such that the deformation ratio is greater than 18 such that said oriented polymer material has a creep strain at room temperature of less than 3% after 15 hours under stress which produces an initial strain of 1% after 10 seconds.

4,268,471

METHOD OF PRODUCING A REINFORCED ENDLESS TOOTHED BELT OF SYNTHETIC PLASTICS MATERIAL HAVING A MINUS TOLERANCE OF THE BELT CIRCUMFERENTIAL LENGTH

Rudolf Breher, Porta Westfalica, Fed. Rep. of Germany, assignor to Breco Kunststoffverarbeitungs-GmbH & Co. KG, Porta Westfalica, Fed. Rep. of Germany

Filed May 23, 1980, Ser. No. 152,730

Claims priority, application Fed. Rep. of Germany, May 23, 1979, 2920916

Int. Cl.[2] **B29C** *6/00, 7/00;* **B29F** *1/00*

U.S. Cl. 264—229 **3 Claims**

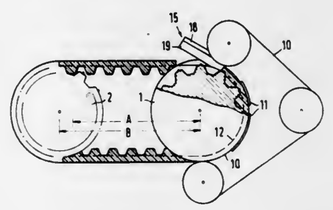
1. A method of producing an endless toothed belt which is made of synthetic plastics material or similar extrudable material and is reinforced by a wire insert which extends in the circumferential direction of said belt and exists with a minus tolerance of the belt circumferential length when said belt is in the unstretched state, said method comprising the steps of:

providing a molding wheel, the circumference of which is provided with an annular depression which is profiled in a gear wheel manner and corresponds in cross section to the cross section of the belt to be produced, covering means associated with said molding wheel and being placeable upon a portion of the circumference thereof for closing said depression in the region of this portion to form an arcuate mold cavity;

providing a tensioning wheel locatable at a variable distance from said molding wheel and having a circumference profiled in a gear wheel manner;

providing a wire coil helically wound from a reinforcing wire;

placing said wire coil on said molding wheel and said tensioning wheel after setting the interaxial distance between said molding wheel and said tensioning wheel below the intended distance in such a way that the circumferential length of said wire coil is smaller by a predetermined minus tolerance than the intended circumferential length of said wire insert in the belt to be produced when the latter is in its tensioned state;



fixing said wire coil in position to prevent receding of any portion thereof in the circumferential direction of said coil;

increasing the interaxial distance between said molding wheel and said tensioning wheel to the intended distance to increase the circumference of said wire coil, accompanied by elastic stretching of the turns of said wire coil, to the intended circumferential length to thus place said wire coil in a tensioned state;

closing said depression with said covering means to form said mold cavity;

turning said wire coil through one revolution by rotating said molding wheel and said tensioning wheel;

introducing synthetic plastics material or similar extrudable material into the beginning of said mold cavity throughout said wire coil revolution to form a material strand;

fusing the beginning of said material strand with the end thereof as said strand beginning starts to re-enter the beginning of said mold cavity at the conclusion of said wire coil revolution;

hardening said material;

shortening the interaxial distance between said molding wheel and said tensioning wheel to relax the embedding reinforcing insert and thereby contract the finished endless toothed belt; and

axially stripping said endless belt from said molding wheel and said tensioning wheel.

4,268,472

VALVE

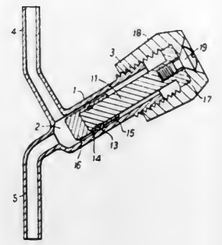
Douglas D. J. Nightingale, St. Albans, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 964,356, Nov. 28, 1978, which is a continuation of Ser. No. 617,510, Sep. 29, 1975, abandoned, which is a continuation of Ser. No. 482,983, Jun. 25, 1974, abandoned. This application Oct. 24, 1979, Ser. No. 88,057

Claims priority, application United Kingdom, Jul. 3, 1973, 31564/73

Int. Cl.[1] **B29C** *13/00*

U.S. Cl. 264—230 **1 Claim**



1. A method for the production of a spindle for a fluid flow control valve comprising a body having a valve seat with a flow passage passing through the seat and a spindle slideable within the valve body to bring one end into engagement with the valve seat for occluding the flow passage during operation of the valve, the method comprising

forming a mandrel with an end portion thereof having a substantially cylindrical surface with an annular groove therearound,

locating in said annular groove a resilient annulus having an external diameter greater than that of the cylindrical surface,

shaping a sheath from polytetrafluoroethylene to comprise side walls and an integral closed end shaped to engage the valve seat for occlusion of the flow passage therethrough, the side walls being formed with an internal diameter less than or equal to the external diameter of the cylindrical surface of the mandrel,

warming at least the side walls of the sheath until they are able to receive the mandrel and resilient annulus therewithin, and

sliding the warm sheath over the end of the mandrel until the side walls extend over the resilient annulus;

whereby on cooling, the sheath conforms to the shape of the mandrel's cylindrical surface to form a raised annular ridge which in the assembled valve is biased against the valve body by the resilient annulus to thereby form a gland seal for preventing loss of fluid from the flow passage.

4,268,473

ALUMINUM-FILLED EPOXY EMBOSSING CAUL AND MEANS FOR PRODUCTION

Richard K. Bower, New Milford, Conn.; August H. Rauch, Stayton, and John F. Richard, Lebanon, both of Oreg., assignors to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 824,827, Aug. 15, 1977, abandoned. This application Oct. 30, 1978, Ser. No. 955,584

Int. Cl.[3] **B29C** *25/00*

U.S. Cl. 264—234 **7 Claims**

1. A method for forming a high-strength, temperature resistant caul capable of embossing a textured surface onto a preformed panel, overlaid with a resin impregnated paper, at temperatures of from 270° to 320° F. and pressures of from 175 to 250 psi, comprising the steps of:

forming a mold from a textured hardboard panel;

applying a sealer to the panel;

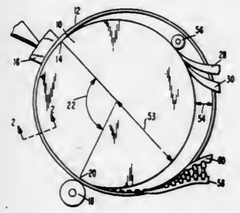
coating the sealed panel with a release agent;
preheating an aluminum filled epoxy resin to approximately 80°-90° F., said resin having a viscosity no higher than about 100,000 centipoise at room temperature;
impregnating at least one layer of glass fiber cloth with said preheated resin admixed with a catalyst, the ratio of resin to catalyst being approximately 17.5 to 1 respectively;
placing said layer of catalyzed resin impregnated glass fiber cloth in said mold;
pouring additional preheated catalyzed resin onto said mold containing said catalyzed resin impregnated fiberglass cloth layer;
partially curing the caul formed from the catalyzed resin for approximately 4 to 5 hours at a temperature of about 150° F., such that the caul assumes the relief configuration of the textured panel; and
baking the caul for about 8 hours at a temperature of approximately 350° F. such that the caul is fully cured and the configuration of the textured panel assumed by the caul is permanently maintained.

4,268,474

METHOD OF MOLDING USING A MOLDING WHEEL AND FLEXIBLE BELT

George B. Moertel, Conneautville, Pa., assignor to Textron, Inc., Providence, R.I.

Continuation of Ser. No. 826,542, Aug. 22, 1977, abandoned. This application Dec. 27, 1979, Ser. No. 107,759
Int. Cl.³ B29D 5/00; B29C 5/00
U.S. Cl. 264—252 7 Claims



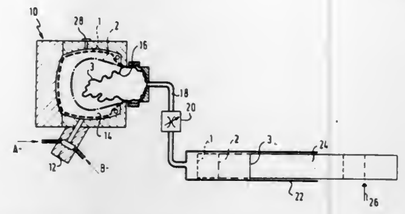
1. A method of continuously molding polymer elements comprising the steps of
simultaneously rotating in the same direction a cylindrical molding wheel and a continuous flexible steel band which has a thickness greater than 0.002 times the diameter of the molding wheel and which encircles the molding wheel,
continuously engaging the flexible steel band against a portion of the periphery of the molding wheel between an engaging point and a disengaging point as the molding wheel and the flexible steel band rotate from the engaging point to the disengaging point wherein the engaged portion of the wheel periphery at all times is less than a 160° arcuate portion of the circumference of the molding wheel with the band being spaced from the remaining portion of the wheel periphery,
injecting molten polymer material after the engaging point into cavity means formed between the steel band and the molding wheel with at least a portion of the cavity means formed in the metal band,
solidifying the polymer within the cavity means after injection but prior to reaching the disengaging point to form solid elements,
removing the solid elements after passing the disengaging point, and
maintaining the flexible steel band with a substantial inward radius of curvature equal to or greater than the molding wheel radius throughout every point of the band,
said maintaining including preventing the steel band from becoming straight at any point thereof, and preventing the steel band from having an outward radius of curvature at any point thereof.

4,268,475

METHOD OF PRODUCING HOLLOW MOULDED MEMBERS

Günter Willmerding, Inning, Fed. Rep. of Germany, assignor to Metzeler Kautschuk Aktiengesellschaft, Munich, Fed. Rep. of Germany

Division of Ser. No. 46,861, Jun. 8, 1979, Pat. No. 4,219,317. This application Mar. 27, 1980, Ser. No. 134,363
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826340
Int. Cl.³ B29C 5/00; B29H 5/18, 5/02, 17/00
U.S. Cl. 264—315 6 Claims



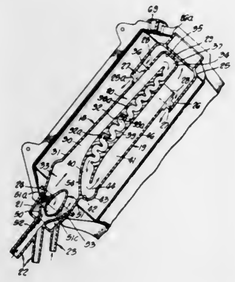
1. Method for the production of hollow shaped bodies made of pourable and hardenable material in a mold cavity which comprises, disposing a core with a deformable membrane into the mold cavity, before introducing said material, expanding the membrane to a volume that substantially fills the mold cavity and expels gas contained therein, thereafter introducing into the mold cavity an amount of hardenable material corresponding to amount of material required to produce the shaped body, and concomitantly contracting the membrane to the form of the core, thereby minimizing the inclusion of air in the shaped body.

4,268,476

BLOOD OXYGENATOR

Donald A. Raible, Orange, Calif., assignor to Bentley Laboratories, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 584,464, Jun. 6, 1975, abandoned. This application May 26, 1976, Ser. No. 689,971
Int. Cl.³ A61M 1/03
U.S. Cl. 422—46 16 Claims



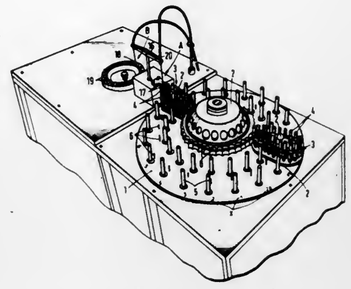
1. A bubble-type oxygenator having therein a bubble column having a first end and a second end, said bubble column being provided with at least one segment having a serpentine passageway formed therein to promote secondary flow of blood bubbles passing therethrough, said serpentine passageway comprising a series of arcuate sections, said sections being contiguous to the wall of said passageway and forming a plurality of opposing sets of spaced-apart protrusions extending outwardly, each protrusion from said opposing sets being offset from each other to form a substantially unrestricted passageway therethrough.

4,268,477

APPARATUS FOR DISTRIBUTION OF LIQUID TEST SAMPLES THROUGH VARIOUS TEST STATIONS

Curt Herzstark, Vaduz, Liechtenstein, assignor to BNA-Augustin GmbH & Co. KG, Grafenhausen, Fed. Rep. of Germany

Filed Jun. 14, 1979, Ser. No. 48,613
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1978, 2826275
Int. Cl.³ G01N 1/14, 35/06
U.S. Cl. 422—64 12 Claims



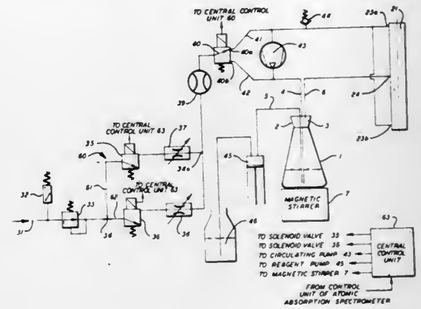
1. Apparatus for distribution of portions of many samples of liquids, obtained from different sources, to a plurality of destinations according to a set of destinations individually prescribed for each sample, so that a set of said samples is identifiable for each of said destinations for delivery of a sample portion to the particular destination, comprising:
means for mounting each of a multiplicity of said samples of liquids, each in an individual vessel, in a distinctive and addressable position on a first movable carrier (1);
means for actuating said first carrier controllably so as to present any predetermined set of said samples selected from among all the samples on said carrier, in succession, to a liquid transfer station at a fixed location alongside said carrier, with a period of dwell at said station to permit liquid transfer at each presentation of a sample to said station, and to do so substantially without intermediate stopping of said first carrier between said dwell periods and without intermediate presentation to said station of any sample not belonging to said predetermined selected set;
means for transferring a portion of each liquid sample of said set, while said samples are respectively presented by said first carrier at said station, into an individually identified container of a set of containers having a common destination and held on a second carrier for transfer to said destination; and
means for causing said actuation means, after the actuation of said first carrier thereby for presentation of a first set of samples to said liquid transfer station for transfer of sample portions to containers having a first common destination, to execute the presentation of a second set of said samples on said first carrier, possibly but not necessarily different from said first set, to said liquid transfer station for transfer of sample portions to containers having a second common destination and held on a third carrier for transfer to said second destination, and so on, until containers for all waiting destinations have been supplied with prescribed sample portions,
whereby the respective sets of containers for said destinations are ready for removal to said destinations in sequence, while time is saved by omission of nugatory presentations of samples to said transfer station, and reliable preservation of sample identity is also provided.

4,268,478

METHOD AND APPARATUS FOR GENERATING AND TRANSFERRING A GASEOUS TEST SAMPLE

Bernhard W. Huber, Uberlingen, Fed. Rep. of Germany, assignor to Bodenseewerk Perkin-Elmer & Co. GmbH, Uberlingen, Fed. Rep. of Germany

Division of Ser. No. 835,070, Sep. 21, 1977, Pat. No. 4,138,215, which is a continuation of Ser. No. 808,004, Jun. 20, 1977, abandoned. This application Jul. 19, 1978, Ser. No. 5,541
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1976, 2627255
The portion of the term of this patent subsequent to Feb. 6, 1995, has been disclaimed.
Int. Cl.³ G01N 27/64
U.S. Cl. 422—68 8 Claims



1. A device for generating a gaseous test sample from a liquid sample and for transferring this test sample into a measuring cuvette of an atomic absorption spectrometer comprising:
a measuring cuvette;
a sample vessel;
inert gas inlet passage means and an inert gas outlet conduit, each having one end respectively in fluid flow communication with the interior of said sample vessel;
inert gas inlet conduit means for connecting said inert gas inlet passage means to an inert gas source;
said inert gas outlet conduit being arranged to form fluid flow communication between the interior of said sample vessel and said measuring cuvette;
said inert gas inlet conduit means including a pair of branch lines disposed in operative parallel relationship, the first branch line containing first restriction means and the second branch line containing second restriction means, first valving means for selectively directing the flow of inert gas to one or the other or both of said branch lines to thereby selectively provide a first flow rate of gas and a second substantially lower rate of flow of inert gas;
control means for automatically controlling said first valving means; and
means for adding a reagent to said sample vessel.

4,268,479

FLUID ANALYZER

Milo E. Webster, Braintree, Mass., assignor to Instrumentation Laboratory Inc., Lexington, Mass.

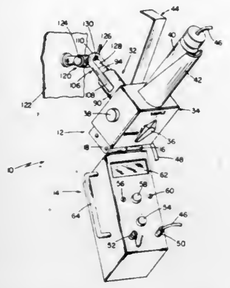
Filed Jan. 10, 1980, Ser. No. 111,015
Int. Cl.³ G01N 1/10
U.S. Cl. 422—68 12 Claims

1. A portable fluid analyzer for attachment to a zwickel fitting or the like comprising
a sampling section comprising flow passage structure having a fluid inlet at one end thereof, a sealing surface carried by said flow passage structure for sealing engagement with a discharge port of the fitting.

retainer structure for engagement with said fitting, said retainer structure being movable between a retaining position, and a released position spaced further from said fluid inlet then said retaining position,

biasing means for urging said retainer structure towards said retaining position,

spaced handle and lever portions that are manually movable towards one another for moving said retainer structure towards said released position,



an analysis chamber connected to said flow passage structure,

monitoring means in monitoring relation to said analysis chamber for providing an output as a function of a constituent of the fluid to be analyzed, and

an analysis section for processing the output of said monitoring means and producing an output.

4,268,480

DEVICE FOR MEASURING A PHYSICAL OPERATING CHARACTERISTIC OF AN OZONIZER

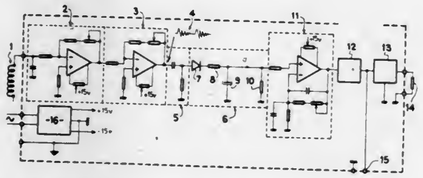
Maurice Marets, Sevran, France, assignor to Trailigaz, Compagnie Generale de l'Ozone, Garges les Gonesse, France

Filed May 21, 1979, Ser. No. 40,824

Claims priority, application France, May 23, 1978, 78 15259

Int. Cl.³ B01D *11/00;* **B01F** *1/00*

U.S. Cl. 422—98 **8 Claims**



1. An apparatus for measuring a physical operating characteristic of an ozonizer which is related to the ozonization power, the production of ozone or the concentration of ozone in the air, said apparatus comprising an ozonizer and a medium or high-frequency sensor placed in the vicinity of the ozonizer for detecting the medium or high-frequency signal emitted by the ozonizer, and an electronic processing ciruit which delivers an electrical signal the voltage of which is proportional to the mean energy content of the medium or high-frequency signal received by the sensor.

4,268,481

PIPETTE

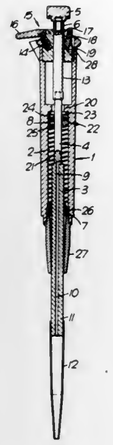
Osmo A. Suovaniemi, and Jukka Tervamäki, both of Helsinki, Finland, assignors to Kommandittiyhtio Finnpipette Osmo A. Suovaniemi, Finland

Filed Mar. 13, 1980, Ser. No. 129,987

Claims priority, application Finland, Mar. 23, 1979, 790992

Int. Cl.³ B01L *3/02*

U.S. Cl. 422—100 **3 Claims**



1. A pipette comprising:

a frame having an aperture at its upper portion and a cylinder at its lower portion, said cylinder including upper and lower portions;

a piston slidably mounted within said cylinder, said piston having a lower end extending out of the lower portion of said cylinder and out of the lower portion of said frame;

means for providing an air-tight seal between said piston and said cylinder at the lowermost portion of the cylinder;

a piston rod joined to an upper portion of said piston, said piston rod having a thinner cross section than the piston and extending through said aperture in said frame;

means for providing an air-tight seal between said piston rod and said cylinder;

means for manual operation of said piston rod;

a channel disposed within said piston, said channel extending along the length of the piston from an upper portion thereof and passing through its lower end coupling for fluid communication said cylinder and the surrounding atmosphere; and

a vacuum being created in said cylinder when said piston is displaced downwardly by said piston rod to thereby intake fluid into said piston through said channel.

4,268,482

CATALYTIC REACTOR

Norio Arashi; Tadayoshi Murakami, both of Hitachi; Kiyoshi Narato, Ibaraki; Masaaki Shiga, Oharasakainishi, and Tomihisa Ishikawa, Kure, all of Japan, assignors to Hitachi, Ltd. and Babcock-Hitachi K.K., both of Tokyo, Japan

Filed Aug. 7, 1978, Ser. No. 931,400

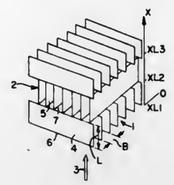
Claims priority, application Japan, Aug. 5, 1977, 52-93423

Int. Cl.³ B01J *8/02;* **F01N** *3/15*

U.S. Cl. 422—171 **11 Claims**

1. A catalytic reactor in which is produced a catalytic reaction of a gas to be treated, comprising:

a reaction chamber; inlet means for passing said gas into one end of said reaction chamber, outlet means for removing gases from an opposite end of said reaction chamber, whereby said gas flows in a direction through said reaction chamber from said inlet means to said outlet means; a plurality of catalyst groups disposed in the reaction chamber, and stacked on one another in the direction of gas flow, each of said catalyst groups including a plurality of sheet catalysts arranged in parallel to each other and separated from each other a sufficient distance such that drafting resistance is minimized, thereby to provide a plurality of gas passages, the gas passages extending parallel to the gas flow direction; each of said sheet catalysts having a length and a width, the length extending in a direction parallel to the gas flow direction, the width extending in a direction perpendicular to the gas flow



direction, with each sheet catalyst being thin in comparison to its length and width, the width being larger than the length, with the edge of each sheet catalyst which the gas initially contacts as it flows in the gas flow direction being the leading edge of the sheet, with one of the edges extending along the width constituting said leading edge, and with the width directions of said sheet catalysts in each of said catalyst groups extending in a direction traversing the width directions of the sheet catalysts in the immediately adjacent catalyst groups, whereby the Sherwood number of the gas increases as the gas passes the leading edge of the sheets in each of said catalyst groups.

4,268,483

IMPROVEMENTS IN AND RELATING TO THE GROWTH OF CRYSTALLINE MATERIAL

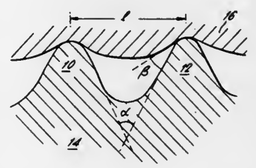
Keith S. A. Davey, Cambridge, and Rowland M. Ware, Cottenham, both of England, assignors to Metals Research Limited, Hartfordshire, England

Filed Mar. 14, 1977, Ser. No. 777,352

Claims priority, application United Kingdom, Mar. 17, 1976, 10643/76

Int. Cl.³ C30B *15/34*

U.S. Cl. 422—246 **29 Claims**



1. A shape forming member having a passage for defining the meniscus of a melt which is to be crystallized and through which the crystallized material is drawn and in which at least the surface of the passage is formed from a material having an angle of contact θ with the liquid melt of less than 90°, (θ measured outside the liquid): wherein at least the passage is formed with a rough surface (as herein defined) so as to reduce the angle of contact θ.

4,268,484

APPARATUS FOR EFFECTING LIQUID-LIQUID CONTACT IN A PLURALITY OF STAGES

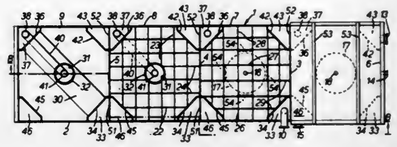
Edward Gavin, Wimborne, England, assignor to Davy International (Minerals & Metals) Ltd., Cleveland, England

Filed Aug. 2, 1979, Ser. No. 63,089

Claims priority, application United Kingdom, Aug. 4, 1978, 32231/78; Jan. 29, 1979, 03033/79

Int. Cl.³ B01D *11/04*

U.S. Cl. 422—259 **9 Claims**



1. Apparatus for effecting liquid-liquid contact in a plurality of stages between an aqueous liquid medium and an organic hydrophobic liquid medium capable of undergoing mass transfer with the aqueous liquid medium, comprising:

a first mixer-settler;

a second mixer-settler adjacent the first mixer-settler;

each mixer-settler comprising:

a mixing chamber;

agitator means in the mixing chamber for mixing the aqueous and organic hydrophobic liquid media so as to form a dispersion of globules on one medium dispersed in the other, which globules are of a size such that, upon standing under gravity, the dispersion is capable of disengaging substantially completely into two separate layers;

first conduit means for feeding the lighter medium of the two to the mixing chamber;

second conduit means for feeding the heavier medium of the two to the mixing chamber;

an upper settling chamber above the mixing chamber;

a lower settling chamber below the mixing chamber;

upper and lower baffle means extending across the mixer-settler so as to divide the mixing chamber from the upper settling chamber and the lower settling chamber respectively, each baffle means being adapted to provide a plurality of flow paths for liquid between the mixing chamber and the respective settling chamber and to permit maintenance in the respective settling chamber of conditions favouring dispersion disengagement despite turbulent mixing conditions in the mixing chamber;

outlet means for disengaged heavier medium from the lower settling chamber; and

offtake means for disengaged lighter medium from the upper settling chamber;

means for supplying heavier medium to the first mixer-settler communicating with the second conduit means thereof;

means for removing disengaged heavier medium from the second mixer-settler communicating with the outlet means therefrom;

means for supplying lighter medium to one of the first and second mixer-settlers communicating with the first conduit means thereof; and

means for removing disengaged lighter medium from the other one of the first and second mixer-settlers communicating with the offtake means thereof;

the outlet means for disengaged heavier medium of the first mixer-settler being arranged to communicate directly with the second conduit means of the second mixer-settler so as to enable disengaged heavier medium from the first mixer-settler to pass directly to the second mixer-settler; and

the offtake for lighter medium of the said one mixer-settler

comprising a weir for lighter medium between the first and second mixer-settlers which is positioned adjacent the first conduit means of the said other mixer-settler so as to enable disengaged lighter medium to flow from the said one mixer-settler over the weir to the said other mixer-settler.

4,268,485

PROCESS FOR THE SEPARATION OF RADIOACTIVE IMPURITIES OF BADDELEYITE

Klaus Deneke, Troisdorf, and Arnold Lenz, Cologne, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Dec. 3, 1976, Ser. No. 747,137

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1975, 2554651

Int. Cl.[2] C01G *43/00, 25/02, 27/02*

U.S. Cl. 423—3 **10 Claims**

1. A process for the separation of radioactive impurities from ground baddeleyite containing zirconium dioxide and which has been preliminarily purified to a concentrate containing more than 98% by weight of zirconium dioxide plus hafnium dioxide, comprising treating finely ground baddeleyite with an aqueous alkali hydroxide solution at elevated temperatures below the boiling point of said solution for removal of radioactive impurities form the ground baddeleyite and thereafter isolating said zirconium dioxide from said solution.

4,268,486

SELECTIVE CHROMATE REMOVAL FROM A CHLORATE SOLUTION

Manfred G. Noack, Northford, and Steven A. Manke, Wallingford, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Jul. 2, 1979, Ser. No. 54,333

Int. Cl.[1] C01G *37/00;* **C07F** *11/00*

U.S. Cl. 423—55 **18 Claims**

1. A process for removing hexavalent chromium from an impure aqueous solution which comprises:

(a) reacting a hydrazine compound with said impure aqueous solution, said impure aqueous solution containing from about 100 to about 750 grams of alkali metal chlorate per liter and from about 20 to about 400 grams of alkali metal chloride per liter, said reaction being carried out at a pH in the range from about 6.0 to about 7.5 to form an aqueous slurry of solid particles of trivalent chromium compound in an aqueous solution of alkali metal chlorate, alkali metal chloride, and a nitrogen-containing compound; and

(b) separating said solid particles of trivalent chromium compound from said aqueous solution; and

wherein said hydrazine compound selectively reduces hexavalent chromium to trivalent chromium to achieve hexavalent chromium removal without reducing said alkali metal chlorate or said alkali metal chloride.

4,268,487

METHOD OF MINIMIZING MANGANESE DIOXIDE SLUDGE FORMATION

Manuel G. Hicks, 1927 S. 8th St., Omaha, Nebr. 68108

Continuation-in-part of Ser. No. 947,360, Oct. 2, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,636

Int. Cl.[1] B01D *53/34*

U.S. Cl. 423—210 **2 Claims**

1. In a method of treating air containing gaseous oxidizable pollutants wherein the air is contacted with an aqueous scrubbing solution comprising potassium permanganate and wherein a manganese dioxide sludge is formed, the improvement comprising minimizing the formation of said sludge by incorporating into said scrubbing solution a sufficient quantity of a sodium silicate solution containing a substantial quantity of $Na_2Si_3O_7$.

4,268,488

PROCESS FOR THE CATALYTIC REDUCTION OF NITROGEN OXIDES IN GASEOUS MIXTURES

Edward A. Ginger, Northbrook, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed May 10, 1979, Ser. No. 37,615

Int. Cl.[1] B01D *53/34*

U.S. Cl. 423—239 A **11 Claims**

1. A process for the reductive removal of a nitrogen oxide from a gaseous stream containing said oxide which comprises contacting, at a reductive reaction temperature and pressure, said stream and ammonia with a physical mixture of a first catalyst and a second catalyst, said first catalyst comprising on an elemental basis from about 1 to about 15 wt % copper or a copper compound supported on a first porous carrier material, and said second catalyst comprising on an elemental basis from about 4 to about 10 wt % of a first component selected from the group consisting of vanadium, chromium, molybdenum and tungsten, and compounds thereof, in combination with on an elemental basis from about 4 to about 10 wt % of a second component selected from the group consisting of iron, cobalt and nickel, and compounds thereof, said combination being supported on a second porous carrier material.

4,268,489

PROCESS FOR THE REMOVAL OF SULFUR DIOXIDE FROM GASES

Egon Haese, Bochum, Fed. Rep. of Germany, assignor to Dr. C. Otto & Comp. GmbH, Bochum, Fed. Rep. of Germany and Sidmar N.V., Ghent, Belgium

Filed Sep. 5, 1978, Ser. No. 939,718

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1977, 2741116

Int. Cl.[1] C01B *17/00*

U.S. Cl. 423—242 **3 Claims**

1. A process for the removal of sulfur dioxide from exhaust gases comprising (a) treating said gases in a scrubber with a solution containing ammonium sulfite and ammonium bisulfite to absorb said sulfur dioxide, (b) drawing off a portion of said solution, (c) oxidizing said portion of the solution to form ammonium sulfate, and (d) further treating the gas with the oxidized solution while maintaining the dew point of said further treated gas beneath the temperature of the gas; whereby the escape of ammonia in the further treating process is prevented.

4,268,490

PROCESSES OF MAKING PRILLED AMMONIUM NITRATE COMPOSITIONS

Robert S. Neville, Merewether Heights, Australia, assignor to ICI Australia Limited, Victoria, Australia

Continuation-in-part of Ser. No. 921,515, Jul. 3, 1978, abandoned. This application Jul. 12, 1979, Ser. No. 57,004

Int. Cl.[1] C01C *1/18*

U.S. Cl. 423—266 **27 Claims**

1. In a process for the manufacture of prilled or granulating material comprising ammonium nitrate which process comprises a process wherein a solution of ammonium nitrate is made by the reaction of ammonia and nitric acid in a neutraliser, said solution is concentrated by evaporation to the concentration required for prilling or granulating, and the thus formed concentrate is subjected to a prilling or granulating process to form prills or granules which are optionally dried and cooled, the improvement comprising the addition of at least one water soluble aluminium salt to the said solution of ammonium nitrate at any stage before said concentrate is formed.

4,268,491

PRODUCING SULPHUR-NITROGEN GROUPS

Arthur J. Banister, Durham; Andrew J. Fielder, High Shincliffe; Zdenek V. Hauptman, Bishop Auckland, and Nigel R. M. Smith, Packington, Nr. Ashby de la Zouch, all of England, assignors to National Research Development Corporation, London, England

Filed Oct. 26, 1979, Ser. No. 88,813

Int. Cl.[1] C01B *17/00, 17/45*

U.S. Cl. 423—406 **15 Claims**

1. A compound of the formula $(S_3N_bI_c)_x$ where b is from 1.9 to 2.3, and c is from 0.4 to 1.3.

8. A method of producing poly(sulphur nitride), comprising contacting S_4N_3Cl vapour with silver sulphide and allowing the contacted vapour to condense to give S_2N_2, which is then allowed to polymerise at room temperature.

4,268,492

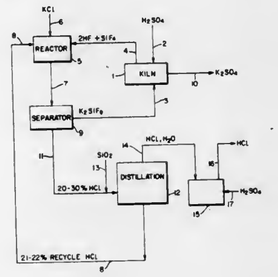
PROCESS FOR PRODUCTION OF POTASSIUM SULFATE AND HYDROCHLORIC ACID

John B. Sardisco, Shreveport, La., and Erhart K. Drechsel, Houston, Tex., assignors to Pennzoil Company, Houston, Tex.

Filed Aug. 6, 1979, Ser. No. 64,182

Int. Cl.[1] C01B *7/03*

U.S. Cl. 423—482 **12 Claims**



1. A process for the production of about 20–30 wt. % hydrochloric acid and alkali metal sulfate comprising

reacting an alkali metal fluosilicate with sulfuric acid at 250°–300° C. in the presence of SiO_2, to produce an alkali metal sulfate as a product and to form a gaseous mixture of HF and SiF_4; said SiO_2 being present in a molar ratio of about 0.50–0.62, based upon the alkali metal fluosilicate;

reacting in a second reactor, the gaseous mixture with about 21–22 wt. % aqueous HCl solution, and a solid alkali metal chloride to form filterable crystals of an alkali metal fluosilicate in about 20–30 wt. % hydrochloric acid; and

recovering the about 20–30 wt. % hydrochloric acid by separating the alkali metal fluosilicate from the about 20–30 wt. % hydrochloric acid, and recycling the alkali metal fluosilicate for reaction with sulfuric acid, wherein the alkali metal in the fluosilicate and alkali metal chloride are the same.

4,268,493

COMPOSITION AND METHOD FOR IMPROVING MEAT PRODUCTION AND QUALITY AS WELL AS FEED UTILIZATION BY ANIMALS

Walter Rosenthal, 150 E. 74th St., New York, N.Y. 10021

Filed Nov. 2, 1978, Ser. No. 956,853

Int. Cl.[1] A61K *43/00;* **A23K** *1/165*

U.S. Cl. 424—1 **4 Claims**

1. In a method of improving meat production and meat quality as well as feed utilization by animals, the step which comprises administering to said animals an effective amount of a radio-active iodine isotope compound so as to partly inactivate the glandular thyroid tissue.

4,268,494

AUTOMATED DIRECT SERUM RADIOASSAY

Max Reese, Salt Lake City, Utah, assignor to Becton Dickinson & Company, Paramus, N.J.

Continuation-in-part of Ser. No. 774,390, Mar. 4, 1977, Pat. No. 4,108,976. This application Jun. 30, 1978, Ser. No. 920,801

The portion of the term of this patent subsequent to Aug. 22, 1995, has been disclaimed.

Int. Cl.[2] G01N *33/16;* **A61K** *43/00*

U.S. Cl. 424—1 **7 Claims**

1. In a process for automated radioassay of a ligand sample by flowing the sample through a chamber containing an immobilized binder composed of a solid substrate and binder specific to the ligand and wherein the sample contains proteins tending to plug the substrate, the improvement comprising:

diluting the sample to a consistency for free unplugged flow through the immobilized binder;

preincubating the sample with a binder specific to the ligand in said sample being assayed together with a known amount of a radioactive labeled ligand to form a mixture including

(a) unlabeled ligand bound to the binder,

(b) labeled ligand bound to the binder,

(c) free unbound unlabeled ligand, and

(d) free unbound labeled ligand;

providing a chamber containing a binder specific to the ligand supported on a solid substrate to bind free unbound labeled and unlabeled ligand;

flowing said mixture through said chamber to bind free unbound labeled and unlabeled ligand to the solid supported binder in the chamber with the bound labeled and unlabeled ligand passing through the chamber;

flowing an eluting solution through said chamber to effect release of labeled and unlabeled ligand from the solid supported binder in the chamber;

counting the radioactivity of at least one or both of the labeled ligand which passed through the chamber and the labeled ligand eluted from the chamber to determine the quantity of the ligand sought to be assayed in said sample; and

rinsing the chamber for subsequent assays of other samples of the same ligand.

4,268,495

INJECTABLE EMBOLIZATION AND OCCLUSION SOLUTION

Hans Muxfeldt, Norderstedt, and Hermann Dahlke, Hamburg, both of Fed. Rep. of Germany, assignors to Ethicon, Inc., Somerville, N.J.

Filed Jan. 8, 1979, Ser. No. 1,802

Int. Cl.[1] A61K *29/00;* **G01N** *33/48*

U.S. Cl. 424—1 **15 Claims**

1. A method for occluding the vascular or duct system of a living organ by injecting into the organ at the site to be occluded a solution comprising prolamine in a physiologically compatible solvent.

4,268,496

SUSTAINED-RELEASE SOLID PHARMACEUTICAL DOSAGE FORMS AND PREPARATION THEREOF

Shigeru Ohno, Kamakura, and Fujio Sekigawa, Omiya, both of Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Continuation of Ser. No. 956,351, Oct. 31, 1978, abandoned, which is a continuation of Ser. No. 675,819, Apr. 12, 1976, abandoned. This application Apr. 7, 1980, Ser. No. 138,122

Claims priority, application Japan, Apr. 12, 1975, 50-48880

Int. Cl.[3] A61K *9/24, 9/32*

U.S. Cl. 424—19 **16 Claims**

1. A solid pharmaceutical dosage form of sustained release with a coating layer consisting essentially of an organopolysiloxane curable by crosslinking and a water-soluble ether of

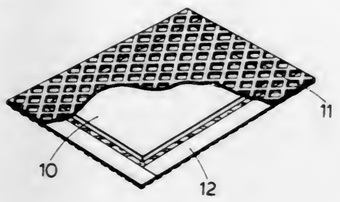
cellulose, said organopolysiloxane and said ether of cellulose being present in a ratio of from 5:95 to 95:5 by weight in said coating layer.

4,268,497

SUSTAINED DRUG RELEASE DEVICE

Gerald J. L. Griffin, London, and Malcolm D. Brewer, Crawley, both of England, assignors to Beecham Group Limited, Great Britain

Filed Nov. 7, 1979, Ser. No. 92,178
Claims priority, application United Kingdom, Nov. 7, 1978, 43555/78
Int. Cl.³ A61K *9/70;* **A61J** *3/00, 3/07;* **A61K** *9/52*
U.S. Cl. 424—27 **2 Claims**



1. In a device for administration to a ruminant of a veterinary medicament in which the medicament is dispersed in a resilient sheet comprising ethylene-vinyl acetate copolymer of a size and composition such that the sheet is capable of constraint in a rolled-up configuration permitting oral administration and of a subsequent assumption of an unrolled configuration when unconstrained in the rumen, the improvement wherein said sheet is enclosed in an apertured flexible envelope.

4,268,498

CLEAR COSMETIC STICKS

Harvey Gedeon, Monsey; James F. Joyce, Brooklyn, and David Kellner, Hollis, all of N.Y., assignors to Revlon, Inc., New York, N.Y.

Filed Jul. 16, 1979, Ser. No. 57,568
Int. Cl.³ A61K *7/42, 7/44*
U.S. Cl. 424—59 **6 Claims**

1. A substantially clear cosmetic stick consisting essentially of as essential ingredients in parts by weight:

polyoxyethylene (17-23)-glucose-fatty acid ester	2-5
polyoxyethylene (20-60) ether of a long chain alcohol	2-5
polyoxypropylene (2-5) ether of a long chain alcohol	24-72
sodium salt of a fatty acid	5-8
propylene glycol	5-10
lower alkyl ester of a fatty acid	5-10
water	2-5
cosmetically active ingredient	3-40

wherein the fatty acid moiety in the salts or esters contains from 12 to 20 carbon atoms, the long chain alcohol moieties contain from 10 to 20 carbon atoms, the lower alkyl moieties contain from 1 to 6 carbon atoms, and the cosmetically active ingredient is selected from the group consisting of fragrances, sunscreens, and deodorants.

4,268,499

ANTIPERSPIRANT EMULSION COMPOSITIONS

Joseph W. Keil, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jun. 7, 1979, Ser. No. 46,590
Int. Cl.³ A61K *7/38, 31/695*
U.S. Cl. 424—68 **4 Claims**

1. A water-in-oil antiperspirant emulsion composition having improved efficacy consisting essentially of

(a) 30 to 60 parts by weight of an aqueous solution of an astringent as a discontinuous phase,

(b) 27 to 67.5 parts by weight of a volatile liquid having a normal boiling point of less than 250° C. as a continuous phase, said volatile liquid being selected from the group consisting of methylsiloxane fluids having the average unit formula

$$(CH_3)_aSiO_{(4-a)/2}$$

wherein a has an average value of from 2 to 3, inclusive, and paraffinic hydrocarbon fluids,

(c) 0.5 to 3 parts by weight of an organic water-in-oil surfactant having an HLB value of from 2 to 10, inclusive,

(d) 1 to 5 parts by weight of a polydiorganosiloxane-polyoxyalkylene copolymer containing at least one polydiorganosiloxane segment and at least one polyoxyalkylene segment, said polydiorganosiloxane segment consisting essentially of

$$R_bSiO_{(4-b)/2}$$

siloxane units wherein b has a value of from 0 to 3, inclusive, there being an average value of approximately 2 R radicals per silicon for all siloxane units in the copolymer, and R denotes a radical selected from the group consisting of methyl, ethyl, vinyl, phenyl and a divalent radical bonding said polyoxyalkylene segment to the polydiorganosiloxane segment, at least 95 percent of all R radicals being methyl; and said polyoxyalkylene segment having an average molecular weight of at least 1000 and consisting of from 0 to 50 mol percent polyoxypropylene units and from 50 to 100 mol percent polyoxyethylene units, at least one terminal portion of said polyoxyalkylene segment being bonded to said polydiorganosiloxane segment, any terminal portion of said polyoxyalkylene segment not bonded to said polydiorganosiloxane segment being satisfied by a terminating radical; the weight ratio of polydiorganosiloxane segments to polyoxyalkylene segments in said copolymer having a value of from 2 to 8, and

(e) 1 to 5 parts by weight of an organic oil-in-water surfactant having an HLB value of from 11 to 17, inclusive, the total of (a) plus (b) plus (c) plus (d) plus (e) being 100 parts by weight.

4,268,500

METHOD FOR TREATING HAIR TO PREVENT DRYNESS

Grace Cloninger, 15932 Georgia Ave., Paramount, Calif. 90723

Filed Feb. 19, 1980, Ser. No. 122,367
Int. Cl.³ A61K *7/06*
U.S. Cl. 424—70 **3 Claims**

1. A method for treating the scalp to combat dryness and produce lustrous hair comprising:

rubbing about one-half cup of yogurt onto to the scalp and hair;

covering the treated scalp and hair with an airtight cap;

maintaining the hair in a covered condition for at least five minutes;

removing the cap; and

rinsing the scalp and hair to remove the residual yogurt.

4,268,501

SUPPOSITORIES CONTAINING A COMPOUND HAVING BRONCHODILATOR ACTIVITY

Yutaka Konno, Omiya, and Shigeo Kawamura, Urawa, both of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Dec. 5, 1979, Ser. No. 101,012
Claims priority, application Japan, Dec. 29, 1978, 53-165426
Int. Cl.³ A61K *31/79, 31/225*
U.S. Cl. 424—80 **7 Claims**

1. A stable suppository comprising:

(A) an anti-asthmatic effective amount of 3-formylamino-4-hydroxy-α-benzyl alcohol.½fumarate mono-hydrate as the active ingredient, compounded with

(B) a stabilizing effective amount of stabilizing components comprising polyvinyl pyrrolidone and at least one member selected from the group consisting of cyclodextrin, dextran and magnesium metasilicate aluminate, and

(C) a suppository base.

4,268,502

COSMETIC TONIC FORMULATION

Joe O. Martin, Martinsville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 20, 1980, Ser. No. 179,625
Int. Cl.³ A61K *31/745*
U.S. Cl. 424—83 **1 Claim**

1. A skin tonic formulation consisting essentially of, in percent by weight:

Ingredients	Percent
deionized water	80.12
polyethylene and polypropylene glycol	2.00
glyoxyldiureide	0.20
polyethylene glycol (300)	9.00
imidazolidinyl urea	0.40
denatured alcohol	7.00
methyl p-hydroxybenzoate	0.10
propyl p-hydroxybenzoate	0.05
polyoxyethylene (60) sorbitan fatty acid ester	0.30
polyoxyethylene (10) oleyl ether	0.50
menthol	0.03
fragrance	0.30

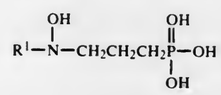
4,268,503

ANTIBACTERIAL COMPOSITION

Hiroshi Imanaka, Osaka, and Minoru Nishida, Kyoto, both of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Kyoto, Japan

Continuation-in-part of Ser. No. 942,364, Sep. 14, 1978, which is a continuation-in-part of Ser. No. 877,944, Feb. 15, 1978. This application Aug. 14, 1979, Ser. No. 66,314
Int. Cl.³ H61K *35/00*
U.S. Cl. 424—114 **7 Claims**

1. An antibacterial composition comprising a phosphonic acid or derivative of the formula:



wherein R^1 is formyl, or its pharmaceutically acceptable salt and an aminoglycoside antibiotic selected from the group consisting of gentamicin, tobramycin, dibekacin, amikacin, bekanamycin or their pharmaceutically acceptable salts, wherein the phosphonic acid derivative and the aminoglycoside are contained in the composition in a ratio of 1:1 to 4:1.

4,268,504

COMPOSITION AND METHOD FOR THE TREATMENT OF ANIMAL HOOVES

John G. Harrington, 58913 Carmelita Cir., Yucca Valley, Calif. 92284, and William W. Hornbeck, P.O. Box 461, Mira Loma, Calif. 91752

Continuation-in-part of Ser. No. 841,301, Oct. 12, 1977, abandoned. This application Sep. 28, 1979, Ser. No. 80,080
Int. Cl.³ A61K *33/34, 33/00*
U.S. Cl. 424—143 **12 Claims**

1. A composition for the treatment of animal hooves, that is suitable for indirect application to said hooves by ground seeding techniques, comprised of a blend of an inert carrier selected from the group consisting of salt, sand and dirt, and a mixture of effective amounts of copper sulfate, zinc sulfate, and iron sulfate.

3. A method of treating the hooves of numerous animals at one time comprised of: seeding a composition composed of a blend of an inert carrier and a mixture of effective amounts of copper sulfate, zinc sulfate, and iron sulfate onto the surface of an area where said animals will be allowed to walk, sprinkling said area with water, and causing said animals to walk or stand upon said surfaces at intermittent time intervals whereby the active ingredients of said mixture will contact said hooves.

4,268,505

PHARMACEUTICAL COMPOSITION COMPRISING A NITROGEN-CONTAINING POLYSACCHARIDE AND AN ANTIBIOTIC AGENT, AND A METHOD OF TREATING AN INFECTIOUS DISEASE THEREWITH

Chikao Yoshikumi, Kunitachi; Yoshio Omura, Tanashi, and Tetsuya Hotta, Hoya, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 896,209, Apr. 13, 1978, abandoned. This application Aug. 31, 1979, Ser. No. 71,482
Int. Cl.³ A01K *31/70*
U.S. Cl. 424—180 **15 Claims**

1. A pharmaceutical composition for the treatment of a bacterial infection due to a strain of a pathogenic bacterial species which has come to be resistant to treatment with conventional antibiotics, which comprises an antibacterially effective amount of an antibiotic and a nitrogen-containing polysaccharide obtainable by extracting mycelia of a fungus belonging to the genus Coriolus from the family Polyporaceae of Basidiomycetes with an aqueous solvent, having a molecular weight of from 5,000 to 300,000, as determined by the ultracentrifugal method and an elementary composition of 42.0 to 46.0% of carbon, 5.3 to 7.0% of hydrogen, 0.5 to 8.0% of nitrogen and the balance of oxygen, easily soluble into water, however, not soluble into acetone, pyridine, chloroform and hexane, showing characteristic absorption bands at 840 cm^{-1} and 890 cm^{-1} in an infrared spectrum, and a specific rotation $[\alpha]_D^{25}$ of 0° to 50° and having a ratio of saccharide portion to protein portion within a range of 62:38 to 97:3 as indicated by proton nuclear magnetic resonance spectroscopy, said antibiotic being capable of combatting said bacterial infectious disease when administered together with said nitrogen-containing polysaccharide.

13. A method for treating a bacterial infection induced by a strain of a bacteria species, which has developed a resistance to a specific antibiotic, which comprises administering to a host in need of such treatment an antibacterially effective amount of an antibiotic in combination with a nitrogen-containing polysaccharide obtainable by extracting mycelia of basidiomycetes belonging to the genus Coriolus of Polyporaceae with an aqueous solvent, said polysaccharide having a molecular weight of from 5,000 to 300,000 as determined by ultracentifugation, containing 42.0 to 46.0% carbon, 5.3 to 7.0% hydrogen and 0.5 and 8.0% nitrogen, having a specific rotatory power of 0° to +50.0°, having good solubility in water but being insoluble in acetone, pyridine, chloroform and hexane, showing characteristic absorption at 840 cm^{-1} and 890 cm^{-1} in the infrared spectrum and having a ratio of saccharide portion to protein portion of from 62/38 to 97/3 as indicated by nuclear

magnetic resonance spectroscopy, said antibiotic being capable of combatting said strain of bacteria species when administered with said nitrogen-containing polysaccharide.

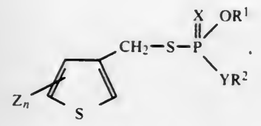
4,268,506

THIENYLMETHYL-THIOPHOSPHORIC ACID ESTERS

Annegrit Baumann, Mannheim, and Heinrich Adolphi, Limburgerhof, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Federal Republic of Germany

Filed Jul. 5, 1979, Ser. No. 54,862
Int. Cl.³ A61K *31/38;* **C07D** *333/14*
U.S. Cl. 424—202 **5 Claims**

1. A thienylmethyl-thiophosphoric acid ester of the formula



where R^1 denotes methyl or ethyl, R^2 is linear or branched alkyl of a maximum of 5 carbon atoms, X denotes oxygen or sulfur, Y denotes sulfur, Z denotes halogen, and n denotes one of the integers 0, 1, 2 and 3.

4. A pesticide comprising a solid or liquid carrier and at least one thienylmethyl-thiophosphoric acid ester of the formula I.

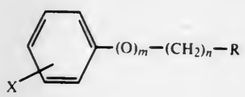
4,268,507

MONOPHOSPHONATE COMPOUNDS AS HYPOGLYCEMIC AND/OR ANTIARTHEROGENIC AGENTS

Lan Nguyen Mong, Nyon, Switzerland, assignor to Symphar S.A., Geneva, Switzerland

Filed Jan. 30, 1980, Ser. No. 116,809
Claims priority, application United Kingdom, Feb. 13, 1979, 04992/79
Int. Cl.³ A61K *31/66;* **C07F** *9/38, 9/40*
U.S. Cl. 424—217 **8 Claims**

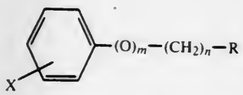
1. Monophosphonate compounds of formula (I),



(I)

where R is $—PO_3Me_2$, $—PO_3Et_2$, $—PO_3H_2$ or $—PO_3Na_2$; X is an halogen; m is 0 or 1; and n is 2, 3, 4, 5 or 6.

5. Hypoglycemic and/or antiatherogenic composition which comprises as active ingredient an effective amount of a monophosphonate compound of formula (I),



(I)

where R is $—PO_3Me_2$, $—PO_3Et_2$, $—PO_3H_2$ or $—PO_3Na_2$; X is a halogen; m is 0 or 1; and n is 0, 1, 2, 3, 4, 5 or 6.

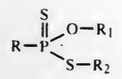
4,268,508

O-ALKYL-S-BRANCHED ALKYL-ALKYLPHOSPHONODITHIOATE

Mohamed A. Fahmy, Edison, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

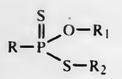
Filed Dec. 28, 1979, Ser. No. 107,819
Int. Cl.³ A01N *57/20;* **C07F** *9/40*
U.S. Cl. 424—222 **26 Claims**

1. A compound of the formula



in which
R is an alkyl of 1 to 8 carbon atoms;
R_1 is an alkyl of 1 to 8 carbon atoms; and
R_2 is alpha branched alkyl of 4 to 8 carbon atoms.

11. A method for controlling insects and nematodes which comprises applying thereto a pesticidal amount of a compound of the formula



in which
R is an alkyl of 1 to 8 carbon atoms;
R_1 is an alkyl of 1 to 8 carbon atoms; and
R_2 is alpha branched alkyl of 4 to 8 carbon atoms.

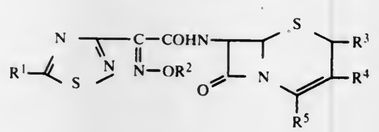
4,268,509

NEW CEPHEM COMPOUNDS AND PROCESSES FOR PREPARATION THEREOF

Tsutomu Teraji, Osaka; Kazuo Sakane, Amagasaki, and Jiro Goto, Suita, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Jun. 20, 1979, Ser. No. 50,216
Claims priority, application United Kingdom, Jul. 10, 1978, 29357/78; Dec. 29, 1978, 50334/78
Int. Cl.³ A61K *31/545;* **C07D** *501/56*
U.S. Cl. 424—246 **76 Claims**

1. Syn-isomer of cephem compounds of the formula:



wherein
R^1 is amino or a protected amino,
R^2 is lower alkyl,
R^3 is hydrogen,
R^4 is a heterocyclicthio(lower)alkyl moiety selected from the group consisting of thiadiazolylthio(lower)alkyl, thiazolinylthio(lower)-alkyl, tetrazolylthio(lower)alkyl, triazolylthio(lower)alkyl, pyrazinylthio(lower)alkyl, tetrazolopyridazinylthio(lower)alkyl or dihydrotriazolopyridazinylthio(lower)alkyl, each of which may be substituted with one or two lower alkyl, lower alkenyl, hydroxy(lower)alkyl, amino(lower)alkyl, protected amino(lower)alkyl, lower alkenylthio, lower alkoxy(lower)alkyl, lower alkylthio(lower)alkyl, lower alkanesulfonyl(lower)alkyl, carboxy, esterified carboxy, sulfo(lower)alkyl, di(lower)alkylamino(lower)alkyl, carboxy(lower)alkyl, amino, carboxy(lower)alkylthio, oxo, halo(lower)alkyl or lower alkylamino, in each the thio being linked to a carbon atom of the heterocyclic moiety, and

R^5 is a carboxy or a protected carboxy, and pharmaceutically acceptable salt thereof.

76. A pharmaceutical antibacterial composition comprising a compound of claim **1** or pharmaceutically acceptable salt thereof in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

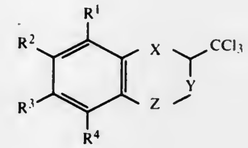
4,268,510

1,3-BENZOXAZINE TRICHLOROMETHYL DERIVATIVES, COMPOSITIONS AND USE

Francis T. Boyle, and Michael A. Taylor, both of Congleton, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Aug. 28, 1979, Ser. No. 70,492
Claims priority, application United Kingdom, Sep. 12, 1978, 36532/78
Int. Cl.³ A61K *31/535;* **C07D** *265/22*
U.S. Cl. 424—248.53 **10 Claims**

1. A heterocyclic trichloromethyl compound of the formula:



I

wherein:
X is an oxygen atom, Y is a radical of the formula $—NR^5—$ wherein R^5 is a hydrogen atom, a 1–4C alkyl or alkanoyl radical or a phenyl radical which is optionally substituted by one or more halogen atoms, nitro radicals or 1–4C alkyl, alkoxy or halogenoalkyl radicals, Z is a carbonyl radical;
and R^1, R^2, R^3 and R^4, which may be the same or different, are each a hydrogen or halogen atom, an cyano, formyl, hydroxy, hydroxyiminomethyl, nitro or sulfo radical, a carboxy radical or an alkali metal, alkaline earth metal or ammonium salt thereof, or a radical of the formula R^7, OR^7, $O.CH_2R^{10}$, $CO.OR^7$, $O.COR^7$, $O.COR^{10}$, $CO.NR^8R^9$, $NH.SO_2R^{10}$, NR^8R^9, $NR^8.COR^9$, $NH.CH_2R^{10}$, $SO_2.NR^8R^9$ or $SO_2.OR^7$ wherein R^7 is a 1–4C alkyl radical, R^8 and R^9, which may be the same or different, are each a hydrogen atom or a 1–4C alkyl radical and R^{10} is a phenyl radical optionally substituted as defined above for R^5; but excluding those compounds wherein:
(i) X is an oxygen atom, Y is an imino radical and R^1, R^2, R^3 and R^4 are all hydrogen atoms; or
(ii) X is an oxygen atom, Y is an imino radical and either R^2 and R^4 are hydrogen atoms and R^1 and R^3 are chlorine atoms, or R^3 is an acetamido radical and R^1, R^2 and R^4 are hydrogen atoms; or
(iii) X is an oxygen atom, Y is an acetylimino radical, R^3 is an acetamido radical and R^1, R^2 and R^4 are all hydrogen atoms.

7. A method for reducing ruminal methane production and/or for increasing the proportion of propionic acid in the ruminal fluid, in domesticated ruminant animals, which comprises orally administering to the animals an effective amount of a heterocyclic trichloromethyl compound of the formula I wherein R^1, R^2, R^3, R^4, X, Y and Z have any of the meanings defined in claim **1**.

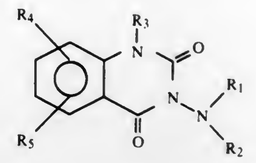
4,268,511

3-AMINO(1H,3H)QUINAZOLINE-2,4-DIONE DERIVATIVES AND THEIR THERAPEUTIC APPLICATIONS

Rene Baronnet, Garches, and Raymond Callendret, Le Pecq, both of France, assignors to Berri-Balzac, Suresnes, France

Filed Mar. 11, 1980, Ser. No. 130,176
Int. Cl.³ A61K *31/47;* **C07D** *239/80, 413/04*
U.S. Cl. 424—248.57 **9 Claims**

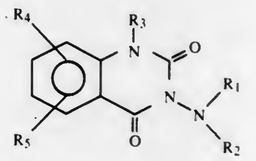
1. A compound selected from the compounds having the formula:



(I)

in which R_1 and R_2 represent independently from each other a member of the group selected from a hydrogen atom, a C_{1-4} alkyl group, an acetyl group and a benzoyl group, R_1 and R_2 not being simultaneously hydrogen, and, when taken together with the nitrogen atom to which they are attached, R_1 and R_2 may form a morpholino radical; R_3 represents a C_{1-4} alkyl; and R_4 and R_5 represent independently a member of the group selected from a hydrogen atom, a halogen atom, a C_{1-4} alkyl group and a C_{1-4} alkoxy group; and the therapeutically acceptable acid addition salts of the above compounds.

7. Therapeutic composition, having particularly an anxiolytic and diuretic action, and also a spasmolytic action of non-α-adrenalytic nature on the unstriated muscle fibres, comprising a therapeutically effective amount of a compound selected from the compounds having the formula:



(I)

in which R_1 and R_2 represent independently from each other a member of the group selected from a hydrogen atom, a C_{1-4} alkyl group, an acetyl group and a benzoyl group, R_1 and R_2 not being simultaneously hydrogen, and, when taken together with the nitrogen atom to which they are attached, R_1 and R_2 may form a morpholino radical; R_3 represents a C_{1-4} alkyl; and R_4 and R_5 represent independently a member of the group selected from a hydrogen atom, a halogen atom, a C_{1-4} alkyl group and a C_{1-4} alkoxy group; and the therapeutically acceptable acid addition salts of the above compounds, together with a pharmaceutically acceptable carrier.

4,268,512

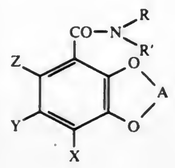
SUBSTITUTED 2,3-ALKYLENE BIS (OXY) BENZAMIDES AND DERIVATIVES AND METHOD OF PREPARATION

Michel Thominet; Gerard Bulteau, both of Paris; Jacques Acher, Itteville, and Claude Collignon, Saint Remy les Chevreuse, all of France, assignors to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

Division of Ser. No. 821,123, Aug. 2, 1977, Pat. No. 4,186,135. This application Feb. 23, 1979, Ser. No. 14,680
Claims priority, application France, Aug. 4, 1976, 76 23835
Int. Cl.³ A61K *31/505;* **C07D** *405/14;* **A61K** *31/495;* **C07D** *405/12*
U.S. Cl. 424—250 **36 Claims**

1. Substituted 2,3-alkylene bis(oxy)benzamides, their pharmaceutically acceptable acid addition salts, their quaternary

ammonium salts, their oxides, and their dextrorotatory and levorotatory isomers, having the formula:



wherein:

A is a C_{2-3} alkylene group;

X is selected from the group consisting of hydrogen, halogen, C_{1-4} alkoxy, nitro, amino, acetamino and azimido when joined to Y,

Y is selected from the group consisting of hydrogen, halogen, nitro, amino, acetamino, C_{1-4} alkylsulfonyl, sulfamoyl, C_{1-4} alkylsulfamoyl, C_{1-4} dialkylsulfamoyl, adamantylsulfamoyl and azimido when joined to X or Z;

Z is selected from the group consisting of hydrogen, halogen, nitro, amino, acetamino and azimido when joined to Y; and

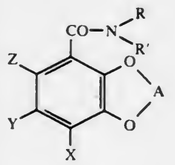
R is a hydrogen atom and R′ is a pyrimidinyl group, or

R is a 4-alkylpiperazinyl group and R′ is a hydrogen atom, or



is a diazabicyclononyl, a 4-alkylpiperazinyl or a 4-(2-pyrimidinyl) piperazinyl group.

19. A method of treatment of a psychofunctional disorder comprising administering to a patient suffering from said psychofunctional disorder a therapeutically effective amount of a substituted 2,3-alkylene bis(oxy)benzamide, a pharmaceutically acceptable acid addition salt, a quaternary ammonium salt, an oxide, or a dextrorotatory or levorotatory isomer thereof, having the formula:



wherein:

A is a C_{1-3} alkylene group;

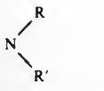
X is selected from the group consisting of hydrogen, halogen, C_{1-4} alkoxy, nitro, amino, acetamino and azimido when joined to Y,

Y is selected from the group consisting of hydrogen, halogen, nitro, amino, acetamino, C_{1-4} alkylsulfonyl, sulfamoyl, C_{1-4} alkylsulfamoyl, C_{1-4} dialkysulfamoyl, adamantylsulfamoyl and azimido when joined to X or Z;

Z is selected from the group consisting of hydrogen, halogen, nitro, amino, acetamino and azimido when joined to Y; and

R is a hydrogen atom and R′ is a pyrimidinyl group, or

R is a 4-alkylpiperazinyl group and R′ is a hydrogen atom, or



is a diazabicyclononyl, a 4-alkylpiperazinyl or a 4-(2-pyrimidinyl) piperazinyl group.

4,268,513

PYRROLO [3,4-c]QUINOLINE COMPOUNDS AND PHARMACEUTICAL COMPOSITIONS, METHODS FOR THEIR USE AND PREPARATION

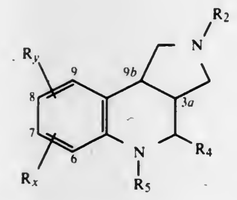
Howard S. Shapiro, Wilmington, Del., assignor to ICI Americas Inc., Wilmington, Del.

Filed Oct. 22, 1979, Ser. No. 87,458

Int. Cl.[3] **A61K** *31/47;* **C07D** *215/00*

U.S. Cl. 424—258 **16 Claims**

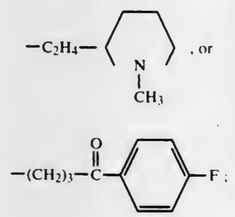
1. A pharmaceutical composition in the form of a tablet, capsule or injectable which comprises a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a hexahydropyrrolo [3,4-c]quinoline of the following Formula (I):



(I)

wherein

R_2 is hydrogen, C_1–C_6 normal alkyl, C_3–C_6 cycloalkyl, C_1–C_6 hydroxyalkyl, C_3–C_6 hydroxycycloalkyl, phenyl, benzyl,



R_4 is hydrogen, C_1–C_3 alkyl or phenyl;

R_5 is hydrogen, C_1–C_6 alkyl, C_3–C_6 cycloalkyl, acetyl, benzyl or CH_2CF_3,

or when R_4 and R_5 are alkyl, they combine to form a 5-, 6- or 7-membered ring; and

R_x and R_y, which may be the same or different, are hydrogen, halogen, trifluoromethyl, C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_1–C_3 alkoxy, C_1–C_3 alkylthio, hydroxy or cyano, or when R_x and R_y are alkoxy on adjacent carbons, they combine to form a 5-membered methylene dioxy or a 6-membered ethylene dioxy ring,

and the pharmaceutically-acceptable acid addition salts thereof.

4,268,514

1′-SUBSTITUTED XANTHENE-9-SPIRO-4′-PIPERIDINE DERIVATIVES AND ANALGESIC COMPOSITIONS THEREOF

Ronald H. B. Galt, and Robert J. Pearce, both of Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 539,742, Jan. 9, 1975, Pat. No. 4,001,419. This application Oct. 14, 1976, Ser. No. 732,293

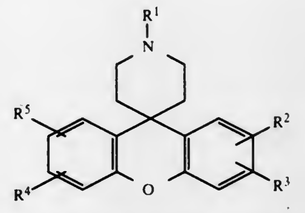
Claims priority, application United Kingdom, Feb. 4, 1974, 5016/74

The portion of the term of this patent subsequent to Jan. 4, 1994, has been disclaimed.

Int. Cl.[3] **A61K** *31/445;* **C07D** *491/107*

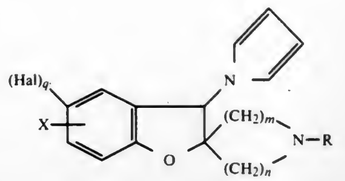
U.S. Cl. 424—267 **3 Claims**

1. A compound selected from the group consisting of xanthene derivatives of the formula:

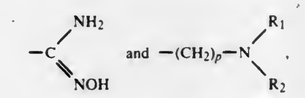


wherein R^1 is selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms, alkenyl of 3 to 4 carbon atoms wherein the double bond is separated from the nitrogen atom of the spiropiperidine ring by at least one carbon atom, haloalkenyl of 3 carbon atoms wherein the double bond is separated from the nitrogen atom of the spiropiperidine ring by a carbon atom, phenylalkyl of 7 to 8 carbon atoms, and hydroxyalkyl of 2 to 3 carbon atoms wherein the oxygen atom is separated from the nitrogen atom of the spiropiperidine ring by at least two carbon atoms, and R^2, R^3, R^4 and R^5 are selected from the group consisting of hydrogen, halogen, trifluoromethyl, methoxy, methylthio, hydroxy, acetoxy, cinnamoyloxy and methylsulphinyl, provided that at least two of R^2, R^3, R^4 and R^5 stand for hydrogen, or a pharmaceutically-acceptable acid-addition salt thereof.

3. An analgesic pharmaceutical composition which comprises as active ingredient an analgesically-effective amount of a xanthene derivative, or a non-toxic pharmaceutically-acceptable acid-addition salt thereof, claimed in claim **1**, in association with a major amount of a non-toxic, pharmaceutically-acceptable diluent or carrier.

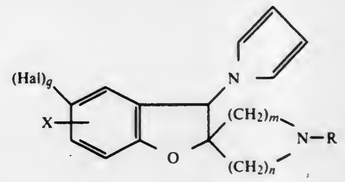


wherein R is hydrogen, alkyl of 1 to 6 carbon atoms, alkoxycarbonyl where the alkoxy moiety has 1 to 6 carbon atoms, phenoxycarbonyl, cyano, phenylalkyl where the alkyl moiety has 1 to 6 carbon atoms, alkanoyl of 1 to 6 carbon atoms, phenylalkanoyl where the alkanoyl moiety has 1 to 6 carbon atoms, hydroxyalkyl of 1 to 6 carbon atoms, benzoylalkyl where the alkyl moiety has 1 to 6 carbon atoms,

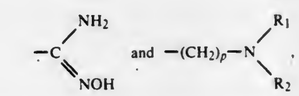


where p is an integer of 2 or 3; and R_1 and R_2 are the same or different and are hydrogen and lower alkyl of 1 to 6 carbon atoms; X is hydrogen and alkyl of 1 to 6 carbon atoms; Hal is halogen; q is an integer of 0 or 1; m is an integer of 1 or 2 and n is an integer of 1, 2 or 3 where the sum of m and n is 3 or 4; and the pharmaceutically acceptable acid addition salts thereof.

25. A method of alleviating pain in a mammal which comprises administering to a mammal a pain alleviating effective amount of a compound of the formula



wherein R is hydrogen, alkyl of 1 to 6 carbon atoms, alkoxycarbonyl where the alkoxy moiety has 1 to 6 carbon atoms, phenoxycarbonyl, cyano, phenylalkyl where the alkyl moiety has 1 to 6 carbon atoms, alkanoyl of 1 to 6 carbon atoms, phenylalkanoyl where the alkanoyl moiety has 1 to 6 carbon atoms, hydroxyalkyl of 1 to 6 carbon atoms, benzoylalkyl where the alkyl moiety has 1 to 6 carbon atoms,



where p is an integer of 2 or 3 and R_1 and R_2 are the same or different and are hydrogen and lower alkyl of 1 to 6 carbon atoms; X is hydrogen and alkyl of 1 to 6 carbon atoms; Hal is halogen; q is an integer of 0 or 1, m is an integer of 1 or 2 and n is an integer of 1, 2 or 3, where the sum of m and n is 3 or 4; and the pharmaceutically acceptable acid addition salts thereof.

4,268,515

SPIRO[DIHYDROBENZOFURAN-PIPERIDINES AND-PYRROLIDINES], PHARMACEUTICAL COMPOSITIONS THEREOF AND METHODS OF USE THEREOF

Richard C. Effland, Bridgewater; Larry Davis, Sergeantsville, and Joseph T. Klein, Bridgewater, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Filed Feb. 4, 1980, Ser. No. 118,146

Int. Cl.[3] **C07D** *521/00;* **A61K** *31/445, 31/395*

U.S. Cl. 424—267 **25 Claims**

1. A compound depicted by the formula

4,268,516

[1]BENZOTHIOPYRANO[4,3-C]PYRAZOLES AS IMMUNOREGULATORY AGENTS

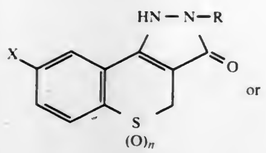
Joseph G. Lombardino, Niantic; Ivan G. Otterness, Ledyard, both of Conn., and James F. Muren, Lee's Summit, Mo., assignors to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 950,386, Oct. 11, 1978, abandoned. This application Mar. 24, 1980, Ser. No. 133,652

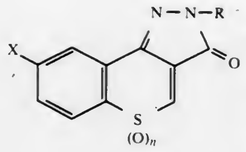
Int. Cl.[3] **A61K** *31/415;* **C07D** *495/04, 487/00*

U.S. Cl. 424—273 P **22 Claims**

1. A compound of structure:



or



wherein

n is an integer of value from 0 to 2;

R is phenyl; phenyl monosubstituted with chloro, bromo, fluoro, methyl, methoxy, nitro or trifluoromethyl; or phenyl disubstituted with chloro in other than 2,6-position; and

X is hydrogen or chloro.

17. A method of suppressing body immune responses in a mammal, other than a rabbit, in need of such treatment comprising orally or parenterally administering a body immune suppressing amount of a compound of claim 1 to said mammal.

4,268,517

PHARMACEUTICAL COMPOSITION AND THERAPEUTICAL METHOD FOR TREATING DEGENERATIVE AFFECTIONS OF THE ARTICULAR CARTILAGE

Paul J. Niebes, Grez Doiceau; Andras B. Vincze, Brussels; Joseph L. Roba, Ciernont-Houyet; Georges E. Lambelin, Brussels; Daniel M. Matagne, Taviers; Etienne T. Hanon, and Michel R. Franz, both of Brussels, all of Belgium, assignors to Continental Pharma, Brussels, Belgium

Filed Aug. 30, 1979, Ser. No. 71,077

Int. Cl.[3] **A61K** *31/35*

U.S. Cl. 424—283 **4 Claims**

1. A method for treating a degenerative disease of the articular cartilage which comprises administering to a host suffering from said degenerative disease, an effective amount of (+)-catechin.

4,268,518

METHOD OF TREATING CYSTITIS

David M. Turner, Quorn, England, assignor to Fisons Limited, Suffolk, England

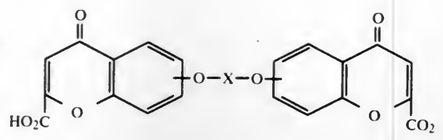
Filed May 7, 1980, Ser. No. 147,497

Claims priority, application United Kingdom, May 19, 1979, 17483/79

Int. Cl.[3] **A61K** *31/35*

U.S. Cl. 424—283 **10 Claims**

1. A method of treatment of mammalian cystitis, which method comprises oral administration or instillation into the bladder of an effective amount of a compound of the formula I,



I

wherein X is a polymethylene chain containing 3 to 7 carbon atoms inclusive, which chain may be substituted by an —OH group,

or a pharmaceutically acceptable salt, alkyl C 1 to 10 ester, mono-alkyl C 1 to 10 amide, di-alkyl C 1 to 10 amide or unsubstituted amide thereof, as active ingredient, to a patient having cystitis.

4,268,519

METHOD OF TREATING OTITIS MEDIA

David M. Turner, Quorn, England, assignor to Fisons Limited, Suffolk, England

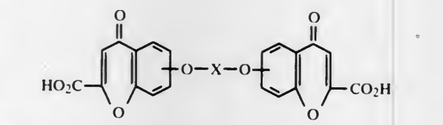
Filed May 8, 1980, Ser. No. 147,917

Claims priority, application United Kingdom, Jun. 5, 1979, 19516/79

Int. Cl.[3] **A61K** *31/35*

U.S. Cl. 424—283 **7 Claims**

1. A method of treatment or secretory otitis media, which method comprises administration of a compound of the formula I:



I

wherein X is a polymethylene chain containing 3 to 7 carbon atoms inclusive, which may be substituted by an —OH group,

or a pharmaceutically acceptable salt, alkyl C 1 to 10 ester, mono-alkyl C 1 to 10 amide, di-alkyl C 1 to 10 amide or unsubstituted amide thereof, as active ingredient, to a patient having secretory otitis media.

4,268,520

INSECTICIDAL AND NEMATICIDAL CARBAMATES

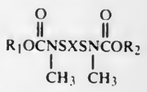
Gary D. Grantham, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 899,298, Apr. 24, 1978, Pat. No. 4,225,615. This application May 21, 1980, Ser. No. 151,901

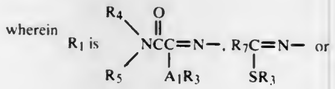
Int. Cl.[2] **A01N** *43/12;* **C07D** *307/86*

U.S. Cl. 424—285 **9 Claims**

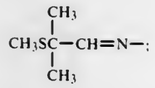
1. A compound of the formula



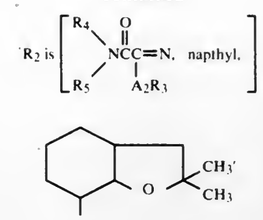
wherein



or

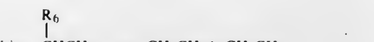


-continued





wherein



R_3 is alkenyl, alkynyl of three or four carbons, or alkyl of one to four carbons;

R_4 and R_5 are independently alkyl of one to four carbons, CH_3O, or cycloalkyl of three to five carbons or R_4 and R_5 are taken together to form an alkylene bridge of four to six carbons;

provided that R_4 and R_5 contain a total of not more than seven carbons and that R_4 and R_5 are not both simultaneously OCH_3 or both cycloalkyl;

R_6 is hydrogen or methyl;

R_7 is alkyl of 1-4 carbons; and

A_1 and A_3 are independently oxygen or sulfur.

7. A method for control of insects or nematodes which comprises applying to a locus to be protected an insecticidally or nematicidally effective amount of a compound of claim 1.

4,268,521

SYNERGISTIC INSECTICIDAL COMBINATIONS COMPRISING METHOMYL AND 2-DIHALOVINYL-3,3-DIMETHYLCYCLO-PROPANECARBOXYLATES

James J. Knabke, Pinole, Calif., assignor to FMC Corporation, Philadelphia, Pa.

Filed Dec. 22, 1976, Ser. No. 753,039

Int. Cl.[3] **A01N** *37/00, 37/08, 37/02, 37/06*

U.S. Cl. 424—298 **4 Claims**

1. A synergistic insecticidal composition consisting essentially of about 10 parts methomyl per 1 part 3-phenoxybenzyl 2-(2,2-dichlorovinyl)-3,3-dimethylcyclopropanecarboxylate.

4,268,522

13,14-DIHYDRO-15-ALKENYL- AND 13,14-DIHYDRO-15-ALKYNYL PROSTAGLANDINS AND ANALOGS THEREOF

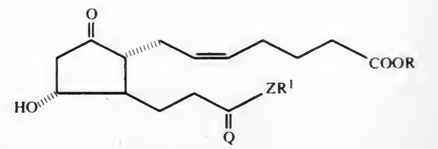
James F. Eggler, Stonington, and Hans-Jurgen E. Hess, Old Lyme, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 695,420, Jun. 14, 1976, abandoned. This application Oct. 18, 1979, Ser. No. 85,907

Int. Cl.[3] **G07C** *171/00*

U.S. Cl. 424—305 **5 Claims**

1. A compound of the formula



wherein

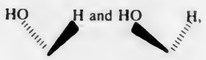
R is hydrogen or biphenylyl;

R^1 is a member selected from the group consisting of hydrogen and alkyl having from one to eleven carbon atoms;

Q is a member selected from the group consisting of oxygen,



and mixtures of



and Z is -C≡C-.

4,268,523

1,9-DIHYDROXYOCTAHYDROPHENANTHRENES AND INTERMEDIATES THEREFOR

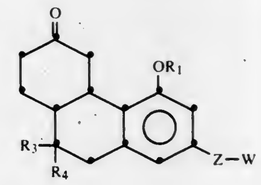
Thomas H. Althuis, Groton; Charles A. Harbert, Waterford; Michael R. Johnson, and Lawrence S. Melvin, Jr., both of Gales Ferry, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 851,503, Nov. 14, 1977, Pat. No. 4,188,495. This application Sep. 24, 1979, Ser. No. 78,476

Int. Cl.[3] **A01N** *35/00;* **C07C** *49/788*

U.S. Cl. 424—308 **14 Claims**

1. A compound selected from the group consisting of those having the formula



wherein R_1 is hydrogen, benzyl, benzoyl or alkanoyl of 1 to 5 carbon atoms;

R_3 is selected from hydrogen, methyl and ethyl;

R_4 is selected from hydrogen, alkyl of 1 to 6 carbon atoms and benzyl;

Z is selected from:

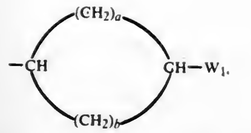
(a) alkylene having from one to nine carbon atoms;

(b) $—(alk_1)_m—X—(alk_2)_n—$ wherein each of (alk_1) and (alk_2) is alkylene having from 1 to 9 carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than 9;

m and n are each 0 or 1;

X is selected from O, S, SO and SO_2; and

W is selected from hydrogen, methyl, phenyl, monochlorophenyl, monofluorophenyl and



wherein W_1 is selected from hydrogen, phenyl, monochlorophenyl and monofluorophenyl; a is an integer from 1 to 5 and b is 0 or an integer from 1 to 4, with the proviso that the sum of a and b is not greater than 5.

13. A process for producing analgesia in a mammal which comprises administering to the mammal an analgesia producing quantity of a compound of claim **1**.

4,268,524

METHOD OF TREATING ABNORMAL LIPOPROTEIN RATIOS WITH ACYLCARNITINE

Claudio Cavazza, 35, Via Marocco, 00144 Rome, Italy

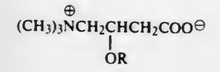
Continuation-in-part of Ser. No. 8,392, Feb. 1, 1979. This application Jul. 2, 1980, Ser. No. 165,351

Claims priority, application Italy, Feb. 3, 1978, 47900 A/78; May 15, 1978, 49354 A/78

Int. Cl.[1] **A61K** *31/22, 31/23*

U.S. Cl. 424—311 **5 Claims**

1. The method of increasing the level of high density lipoproteins so as to selectively reduce the ratio of (a) low density and very low density lipoproteins to (b) high density lipoprotein in the plasma of a patient in which said ratio is abnormally high which comprises orally or parenterally administering to said patient in a single or multiple dose administration regimen an amount of an acylcarnitine of the formula



wherein **R** is acetyl, propionyl, butyryl, hydroxybutyryl, hexanoyl, octanoyl, decanoyl, palmitoyl, stearoyl, acetoacetyl, succinyl, isovaleryl, crotonyl, linoleyl, linolenyl or arachidonyl or a pharmaceutically acceptable salt thereof which is sufficient upon administration according to said regimen to reduce said abnormally high ratio.

4,268,525

AMIDOXIMETHER INSECTICIDES

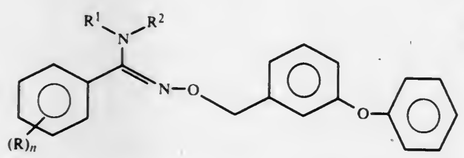
Jill H. Paul, Edgewater, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,758

Int. Cl.[1] **A01N** *37/52;* **C07C** *123/00*

U.S. Cl. 424—326 **18 Claims**

1. Insecticidal compounds having the formula:



wherein **R** is halogen, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_2-C_6 alkenyl, C_1-C_6 alkylthio, C_1-C_6 haloalkyl, trifluoromethyl, trifluoromethoxy, difluoromethoxy, trifluoromethylthio, difluoromethylthio, C_1-C_6 alkylamino, cyano; nitro, C_1-C_6 carboalkoxy, C_1-C_6 alkylsulphonyl, C_1-C_6 alkoxy C_1-C_6 alkyl, C_2-C_6 haloalkenyl, or C_1-C_6 acyl; n is 0-5, R^1 and R^2 are hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_1-C_6 alkylcycloalkyl (C_3-C_6), or C_2-C_6 alkenyl.

13. The method of combatting insects that comprises contacting them with an insecticidal amount of a compound of claim **1**.

4,268,526

COSMETIC CREAM FORMULATION

Ovidio Vargas, Carmel, and Anne M. Herrold, Brownsburg, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 20, 1980, Ser. No. 179,626

Int. Cl.[1] **A61K** *7/02*

U.S. Cl. 424—358 **1 Claim**

1. A skin cream formulation consisting essentially of, in percent by weight:

Ingredients	Percent
light mineral oil	4.45
polyethylene homopolymer (1500 m. wt., density 0.91 g/cc)	2.50
undecanoic triglyceride	2.00
squalane	5.00
distilled lanolin alcohol	0.55
white beeswax	1.00
polydimethyl cyclosiloxane	9.00
triglyceryl diisostearate	4.00
isopropyl myristate	5.00
propyl p-hydroxybenzoate	0.10
quaternary bentonite	0.40
deionized water	59.00
methyl p-hydroxybenzoate	0.20
70% sorbitol solution	5.00
imidazolidinyl urea	0.30
urea	0.50
glyoxyldiureide	0.20
DL-pantothenyl alcohol	0.50
cis-1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	0.10
fragrance	0.20

4,268,527

METHOD FOR PRODUCING CACAO BUTTER SUBSTITUTE

Takaharu Matsuo; Norio Sawamura, both of Osaka; Yukio Hashimoto, Kishiwada, and Wataru Hashida, Osaka, all of Japan, assignors to Fuji Oil Company, Ltd., Japan

Filed Nov. 7, 1979, Ser. No. 92,096

Claims priority, application Japan, Nov. 21, 1978, 53-144736

Int. Cl.[1] **A23D** *5/02;* **C12P** *7/64*

U.S. Cl. 426—33 **7 Claims**

1. In a method for producing a cacao butter substitute by transesterifying fats and oils comprising glycerides containing the oleyl moiety at the 2-position with one or more fatty acids, by using a lipase having reaction specificity to 1,3-position of triglycerides, the improvement which comprises transesterifying said fats and oils with an aliphatic alcohol ester of stearic acid, palmitic acid or mixtures thereof in the presence of not more than 0.18% by weight of water based on the total weight of the reaction mixture.

4,268,528

PREPARATION OF CHEESE FROM ULTRAFILTERED MILK

Jean Montigny, St. Hilaire Saint Mesmin, France, assignor to Harle & Lechopiez, France

Filed Oct. 17, 1977, Ser. No. 842,806

Claims priority, application France, Oct. 18, 1976, 76 31257

Int. Cl.[1] **A23C** *19/02*

U.S. Cl. 426—40 **18 Claims**

1. Process for producing an acidified partially decalcified

dairy raw material useful in the manufacture of cheeses from a starting milk which comprises the steps of:

(1) Coagulating the starting milk and flocculating the casein therein by acidifying the milk by lactic fermentation to a pH of about 4.4 or less

(2) Ultrafiltering the acidified coagulated milk to produce a flowable acidified retentate which contains the flocculated casein and whose dry extract corresponds to that of the cheese to be made, and

(3) Cooling the retentate after step (2) to a temperature between 0° and 4° C. and stirring the same while avoiding foam production to deflocculate the flocculated casein in said acidified retentate to produce a starting milk suitable for coagulation with rennet to produce cheese.

4,268,529

NUTRITIVE COMPOSITION AND METHOD OF PREPARING SAME

Rachel D. Davis, deceased, late of Kinston, N.C., and by First Citizens Bank & Trust Co., executor, P.O. Box 849, Kinston, N.C. 28501

Continuation-in-part of Ser. No. 830,122, Sep. 2, 1977, abandoned, which is a continuation-in-part of Ser. No. 634,667, Nov. 25, 1975, Pat. No. 4,070,488. This application Jun. 18, 1979, Ser. No. 49,431

The portion of the term of this patent subsequent to Jan. 24, 1995, has been disclaimed.

Int. Cl.[1] **A23L** *1/30*

U.S. Cl. 426—72 **3 Claims**

1. The method of preparing a highly stable nutritive composition in water miscible dry form, and suitable for mixing in a conventional beverage or adding to other food products, and comprising the steps of preparing an aqueous solution comprising water, gelatin, and metabolically available iron, drying the solution to produce a dried product, adding dry ascorbic acid to the dried product, with the iron and ascorbic acid being present in such quantities as are suitable for supplementing the human diet and materially assisting in assuring the intake of the recommended daily allowances thereof, and the gelatin being present in such quantity to effectively retard the deterioration of the ascorbic acid in the presence of the iron and without gelling the solution.

4,268,530

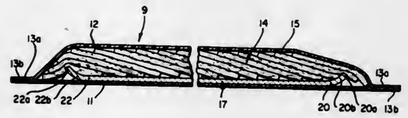
PACKAGE FOR SLICED COMESTIBLE

Ihor Wyslotsky, 5328 W. 123rd Pl., Alsip, Ill. 60658

Filed Oct. 4, 1979, Ser. No. 81,647

Int. Cl.[1] **B65D** *85/72*

U.S. Cl. 426—121 **8 Claims**



1. An improved package for containing a slab of a sliced comestible product with the slices disposed in an overlapping array to display a portion of each slice, said package comprising:

a backing board formed from a semi-rigid material for supporting slices of the comestible product, said backing board being generally rectangular and planar in shape and having rounded corners with a smooth radius, said rounded corners being angled upwardly and extending towards and embedded in the supported sliced comestible product when in assembled configuration, said backing board having one dimension which is less than the longitudinal dimension of the slab of sliced comestible product and a second dimension transverse to said first dimension which is less than the width of the overlapping array of sliced comestible product thereby overlapping and embedding said rounded, upwardly angled and extending corners of said backing board; and

an enveloping film of substantially transparent flexible sheet material disposed tightly around and snugly enclosing said backing board and the overlapping array of sliced comestible product borne thereon, with the overlapping array of sliced comestible interveningly cooperating with the edges of said rounded, upwardly-angled and extending corners of said backing board to shield and cushion said edges from said film, thereby to permit said film to substantially conform to the contours of the overlapping array of sliced comestible product without being punctured by said edges of said upwardly-angled and extending corners of said backing board.

4,268,531

CONDIMENT PACKAGE AND MATERIAL FOR MAKING SAME

Philip C. Whiting, Jr., Holyoke, Mass., assignor to Ludlow Corporation, Needham Heights, Mass.

Filed Nov. 10, 1976, Ser. No. 740,429

Int. Cl.[1] **B65D** *65/40, 85/72*

U.S. Cl. 426—126 **7 Claims**



1. In a package comprising a condiment and formed of a flexible, heatsealable web consisting of

(1) an outer printable surface ply

(2) a metallic foil ply and

(3) an innermost heat-sealable ply in contact with said condiment

the improvement wherein said innermost ply is less than about 0.0015 inches in thickness and is formed of

(a) an ionomer making up a minor portion of said thickness and placed nearest said foil,

(b) low density polyethylene forming the major portion of said thickness and placed remote from said foil.

4,268,532

PROCESS FOR EXTRUDING AND FORMING PORTION CONTROLLED FROZEN FOOD PRODUCTS

Vincent E. Bernard, Richardson, Tex., assignor to The Jimmy Dean Meat Company, Inc., Dallas, Tex.

Continuation of Ser. No. 832,200, Sep. 12, 1977, abandoned, which is a continuation of Ser. No. 610,301, Sep. 4, 1975, Pat. No. 4,124,339, and a continuation-in-part of Ser. No. 526,146, Nov. 22, 1974, abandoned. This application Feb. 12, 1979, Ser. No. 11,531

The portion of the term of this patent subsequent to Dec. 18, 1995, has been disclaimed.

Int. Cl.[1] **A01K** *43/00*

U.S. Cl. 426—231 **2 Claims**

1. The method of producing discrete food products having a selected weight comprising:

forming a semi-fluid mixture of the product,

pumping said mixture to an extrusion location,

sensing the flow of said fluid pumped to the extrusion location by a sealed bladder mounted in the flow of said fluid mixture to the extrusion location,

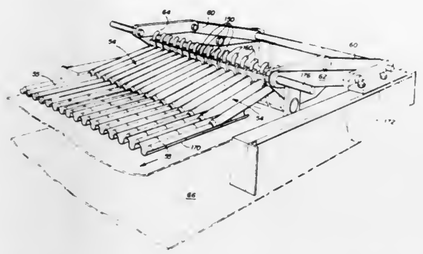
communicating changes in pressure in the sealed bladder to a fluid filled bellows means to move the bellows means,

generating an electrical signal in response to the movement of the bellows means,

operating the pump in response to the electrical signal to provide a uniform flow of said fluid mixture to the extrusion location,

extruding said mixture into and through a plurality of nozzles onto a moving conveyor, thereby forming the mixture into elongated continuous lengths having a preselected uniform cross-section,

directing said continuous lengths of said semi-fluid mixture through a chilling location to chill and firm the preselected cross-sectional shape of said lengths until said lengths maintain their cross-sectional shape without support,



supporting the uniform cross-section after extrusion from said nozzles and during passage through said chilling location by the use of a structure connected to said conveyor which conforms to the shape of the bottom and at least a portion of the sides of the uniform cross-section of said extruded mixture, said structure extending along a length of and moving with the cross-section to maintain the cross-section until the mixture is firmed by chilling, and

dividing said lengths at periodic intervals to form a plurality of products having the same selected weight.

4,268,533

QUICK-SET LOW METHOXYL PECTIN COMPOSITION

Richard A. Williams, Putnam Valley; Andre J. Eydt, New York; Charles E. Lambert, Dobbs Ferry; Michael T. McGuire, Elmhurst; Walter W. Schulok, Stony Point, and Reuben H. Waitman, Pearl River, all of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Nov. 21, 1979, Ser. No. 96,590

Int. Cl.³ A23L *1/06*

U.S. Cl. 426—577 **22 Claims**

1. A single packet dry mix low methoxyl pectin composition which is convertible to an edible, quick-setting smooth, uniform and continuous gel, free from grit and localized agglomeration upon dissolution in cold or ambient temperature water of varying water hardness which comprises:

(a) a low methoxyl pectin which has been co-dried with an amount of a buffer with a monovalent cation effective to protect the pectin from calcium ions present in the water and in the dry mix and a solubilizing amount of a readily soluble carrier;

(b) a slowly soluble calcium ion source in an amount sufficient for gel formation; and,

(c) a slowly dissolving edible acid in an amount which will provide a final pH of from about 3.5 to about 4.5 upon dissolution of the mix in water.

4,268,534

METHOD FOR PRODUCING HARD BUTTER

Tsukasa Kawada, Yachiyo, and Yukitaka Tanaka, Funabashi, both of Japan, assignors to Kao Soap Company, Tokyo, Japan

Filed Aug. 23, 1979, Ser. No. 69,086

Claims priority, application Japan, Aug. 25, 1978, 53-104204

Int. Cl.³ A23D *5/00*

U.S. Cl. 426—607 **13 Claims**

1. A process for manufacturing hard butter which comprises the steps of;

(I) interesterifying an oil-and-fat material mixture comprising

(i) about 20 to 40% by weight of myristic acid triglyceride, and

(ii) about 60 to 80% by weight of at least one vegetable oil selected from the group consisting of rapeseed oil, soybean oil and corn oil, or a mixture of said vegetable oil and palm oil, and

(II) hydrogenating the interesterified oil-and-fat material obtained in step (I) under conditions wherein transunsaturated fatty acid triglycerides are produced as the major product until the melting point of the mixture reaches 34° to 40° C.

4,268,535

PROCESS FOR GROWING A SUPERFICIAL DIELECTRIC STRUCTURE UPON A SUBSTRATE, MADE OF A CHEMICAL COMPOUND, COMPRISING AT LEAST TWO ELEMENTS

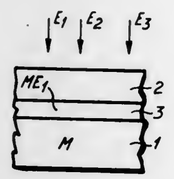
Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Continuation of Ser. No. 940,664, Sep. 8, 1978, abandoned. This application Aug. 27, 1979, Ser. No. 70,043

Claims priority, application France, Sep. 12, 1977, 77 27470

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—38 **5 Claims**



1. A process for growing a superficial dielectric structure on a gallium arsenide substrate comprising the steps of:

(a) depositing on said gallium arsenide substrate an oxygen permeable layer of zirconia doped with calcium oxide and thus forming a solid electrolyte, oxygen-permeable layer on said substrate, and thereafter;

(b) subjecting the layer-coated substrate to treatment in an atmosphere comprising oxygen,

the layer-coated substrate substantially completely devoid of oxides produced on the gallium arsenide layer.

4,268,536

METHOD FOR DEPOSITING A METAL ON A SURFACE

William M. Beckenbaugh, East Amwell Township, Hunterdon County, N.J.; Patricia J. Goldman, Naugatuck, Conn., and Ted D. Polakowski, Jr., Bergenfield Township, Bergen County, N.J., assignors to Western Electric Company, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 967,549, Dec. 7, 1978, abandoned. This application Jan. 2, 1980, Ser. No. 108,996

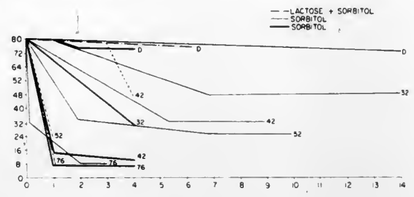
Int. Cl.³ B05D *3/06*

U.S. Cl. 427—54.1 **9 Claims**

1. A method of depositing a metal on a substrate which comprises:

(a) coating the substrate with a sensitizing solution compris-

ing a reducible salt of non-noble metal, a primary reducing agent selected from the group consisting of 2,7 anthraquinone disulfonic acid, alkali metal salts of 2,7 anthraquinone disulfonic acid and mixtures thereof, and a secondary reducing agent;



(b) drying the coated substrate;

(c) storing the dried substrate for at least 3 days at relative humidities of at least 32%; and

(d) exposing the dried substrate to ultraviolet light to form a catalytic layer.

4,268,537

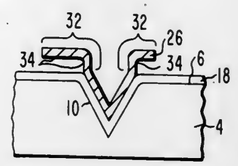
METHOD FOR MANUFACTURING A SELF-ALIGNED CONTACT IN A GROOVED SEMICONDUCTOR SURFACE

Lawrence A. Goodman, Plainsboro, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,598

Int. Cl.³ H01L *21/28*

U.S. Cl. 427—88 **13 Claims**



1. A method for fabricating a contact aligned within a groove, comprising:

providing a semiconductor substrate having a first major surface;

forming an apertured mask on the first surface;

generating a groove in the first surface in an area exposed by the aperture;

forming a layer of electrode material on the groove surface, said layer extending beyond the groove and onto the mask;

stripping the mask; and

removing the electrode material which extends beyond the groove.

4,268,538

HIGH-PRESSURE, HIGH-TEMPERATURE GASEOUS CHEMICAL METHOD FOR SILICON OXIDATION

Monte M. Toole, Mill Valley, and Raphael Klein, Los Altos, both of Calif., assignors to Atomel Corporation, Mountain View, Calif.

Division of Ser. No. 775,963, Mar. 9, 1977, Pat. No. 4,167,915. This application Mar. 29, 1979, Ser. No. 24,989

Int. Cl.³ H01L *21/316*

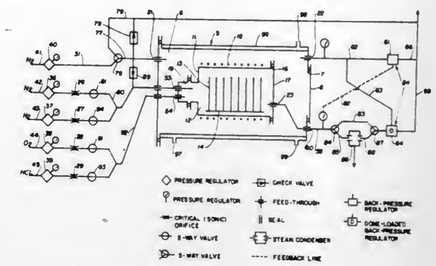
U.S. Cl. 427—93 **8 Claims**

1. A high-pressure, high-temperature silicon oxidation process comprising:

mounting silicon wafers to be oxidized in an enclosed quartz-walled reaction chamber mounted within a pressure chamber;

heating said reaction chamber;

pressurizing said reaction chamber with oxygen and hydrogen gases; and



pressurizing said pressure chamber with a gas to equalize the pressure across the wall of said reaction chamber.

4,268,539

LIQUID COATING COMPOSITION FOR FORMING TRANSPARENT CONDUCTIVE FILMS AND A COATING PROCESS FOR USING SAID COMPOSITION

Muneo Nakayama, Tokyo; Toshihiro Nishimura, Kawasaki; Akira Hashimoto, Yokohama; Hisashi Nakane, and Teruo Kimura, both of Kawasaki, all of Japan, assignors to Tokyo Denshi Kagaku Kabushiki Kaisha, Kanagawa, Japan

Filed Nov. 14, 1978, Ser. No. 960,652

Claims priority, application Japan, Nov. 24, 1977, 52/140871

Int. Cl.³ B05D *5/12*; C03C *17/23*; B05D *3/02, 1/02*

U.S. Cl. 427—108 **32 Claims**

1. A liquid coating composition for forming a transparent conductive film, which comprises a solution of:

(a) an incomplete reaction product of indium nitrate with a β-diketone in which the reaction may be allowed to proceed until a yellowish, yellow, brownish or brown color is obtained;

(b) an activator for imparting a high electrical conductivity to said transparent conductive film; and

(c) an organic solvent other than a β-diketone.

4,268,540

PARTICLES FOR MAGNETIC RECORDING

Lawrence M. Scott, Newark; Irving W. Wolf, Los Altos, and Yu C. Lee, Newark, all of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Continuation of Ser. No. 945,276, Sep. 25, 1978, abandoned, which is a continuation of Ser. No. 837,837, Sep. 29, 1977, abandoned. This application Feb. 13, 1980, Ser. No. 121,196

Int. Cl.³ B05D *5/12*

U.S. Cl. 427—127 **2 Claims**

1. The process of making magnetic particles consisting essentially of the following steps:

a. forming a suspension of acicular gamma ferric oxide in an aqueous solution of a salt of a metal selected from the group consisting of barium, strontium, lead and calcium, and a soluble trivalent iron salt, adding an alkali to form a precipitate and drying the resulting mixture of the precipitated decomposition products of said salts and acicular gamma ferric oxide,

b. heating said dry mixture in an atmosphere containing oxygen at a temperature of at least 300° F. to produce a magnetic particle having a core of acicular gamma ferric oxide and a coating comprising a mixture of an oxide of metal selected from barium, strontium, lead and calcium and trivalent iron oxide.

4,268,541

PROCESS FOR PRODUCING A MATERIAL HAVING A VAPOR-DEPOSITED METAL LAYER, AND PROCESS FOR PRODUCING A RECORDING MATERIAL

Tomoaki Ikeda; Satoshi Yoshida; Hideaki Takeuchi; Fumiaki Shinozaki, and Keishiro Kido, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 921,540, Jul. 3, 1978, abandoned, which is a continuation of Ser. No. 768,671, Feb. 14, 1977, abandoned.
This application Oct. 2, 1979, Ser. No. 81,221
Claims priority, application Japan, Feb. 16, 1976, 51-16036; Sep. 17, 1976, 51-111516
Int. Cl.[1] B05D *1/36, 7/04*
U.S. Cl. 427—177 **14 Claims**

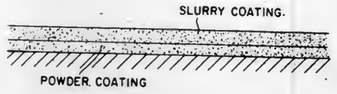
1. A process for producing an image recording material which comprises, in sequence, a layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound which is free from pinholes and scratches, an organic material layer and a layer of an organic resin or an organic resin composition, which process comprises sequentially vapor depositing a layer of a member selected from the group consisting of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound on a moving support by evaporating a member selected from said group into the vapor state and then condensing the same on said moving support to form the layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound having a thickness of about 30 to about 600 nm on said support, then evaporating said organic material into the vapor state and then condensing the same on the thus deposited layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound on the moving support to form the organic material layer having a thickness of about 30 to about 600 nm, wherein said organic material is a compound selected from the group consisting of homopolymers and copolymers having a recurring unit derived from a member selected from the group consisting of acrylic acid or methacrylic acid; rosin, abietic acid, neoabietic acid, dihydroabietic acid, tetrahydroabietic acid, d-pimaric acid, phthalic acid, isophthalic acid, terephthalic acid, succinic acid, sulfanilic acid, Rhodamine B, saturated fatty acids containing 14 to 29 carbon atoms, a phthalocyanine, a monosaccharide and an oligosaccharide, winding up the support having the layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound and the organic material layer, unwinding said support, and subsequently forming a layer of a member selected from the group consisting of an organic resin or an organic resin composition on the organic material layer, wherein the vapor depositing is carried out in a vapor deposition chamber for forming and depositing vapors from the evaporating material for forming the layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound being vapor deposited on said moving support in a manner such that the layer selected from the group consisting of a layer of a metal, a layer having different metals in contact with each other, a layer of a metal alloy, a layer having a metal and a metal compound in contact with each other and a layer of a metal compound is not in contact with any material other than the support.

4,268,542

PROCESS FOR FORMING MULTI-LAYER COATINGS

Takao Sakakibara, Kasugai, and Haruhiko Okazaki, Iwakura, both of Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 752,086, Dec. 20, 1976, Pat. No. 4,137,349. This application Jan. 25, 1979, Ser. No. 6,803
Claims priority, application Japan, Dec. 26, 1975, 50-155964
Int. Cl.[1] B05D *3/02, 3/08, 3/10*
U.S. Cl. 427—195 **4 Claims**



1. A process for forming a multilayer coating including at least two layers on a metal substrate which consists of coating at least portions of said substrate with an undried lower coating layer of a powder coating composition which is at least one member selected from the group consisting of (A) a thermoplastic resin which is selected from the group consisting of vinyl chloride homopolymers and copolymers, polyethylene or polypropylene resins, nylon resins, linear saturated polyesters, cellulose derivatives and chlorinated polyethers, and (B) a thermosetting resin which is selected from the group consisting of an epoxy resin composition comprising (1) at least one epoxy resin selected from bisphenol type, novolak type and alicyclic type epoxy resins and (2) a curing agent selected from dicyandiamide or derivative thereof, acid anhydride, aromatic diamine, BF_3-amine complex, imidazole and dihydrazide, a polyester resin composition comprising (a) a polyester which is prepared by a condensation reaction of polyhydric alcohol and at least one of a saturated polybasic acid and an unsaturated polybasic acid, and (b) a curing agent selected from acid anhydrides, melamine resins, blocked isocyanate compounds, a compound having at least two glycidyl groups in the molecule, and ethylenic crosslinking monomers, acrylic resins and curing agents, and self-crosslinking acrylic resins, and before melting said powder coating applying thereon at least once a slurry paint comprising thermosetting synthetic resin particles to form a laminate coating, the slurry paint comprising 10 to 70% by weight of resin particles dispersed in a medium composed mainly of water, said resin particles having an average particle size of 4 to 30μ and a softening point of 5° to 120° C., and baking the resulting laminate coating at a temperature higher than the film-forming temperature of the coating layer having the highest film-forming temperature among respective coating layers.

4,268,543

PROCESS AND DEVICE FOR PRODUCING THE REFRACTORY LINING OF METALLURGICAL VESSELS

Erich Höffken; Dinslaken, and Karl-Dieter Beckers, Neunkirchen-Seelscheid, both of Fed. Rep. of Germany, assignors to Martin & Pagenstecher GmbH, Köln-Mülheim, Fed. Rep. of Germany

Filed Sep. 19, 1978, Ser. No. 943,840
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1977, 2742415
Int. Cl.[1] B05D *7/22*
U.S. Cl. 427—230 **10 Claims**

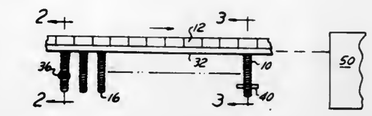
1. A process for forming a refractory liner on the interior wall of a vessel which interior wall is co-axial to the principal axis of the vessel which comprises initially shaping a refractory mass into lumps, thereafter slinging said lumps centrifugally onto said interior wall in a direction normal thereto while said vessel is at a standstill, the refractory mass being slung in rapid succession to form a mass jet.

4,268,544

METHOD OF APPLYING FRICTION MATERIALS TO THREADED ARTICLE

Richard B. Wallace, Bloomfield Hills, Mich., assignor to The Oakland Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 892,505, Apr. 3, 1978. This application Sep. 17, 1979, Ser. No. 76,335
Int. Cl.[1] B05D *1/02, 5/00, 7/00*
U.S. Cl. 427—264 **14 Claims**



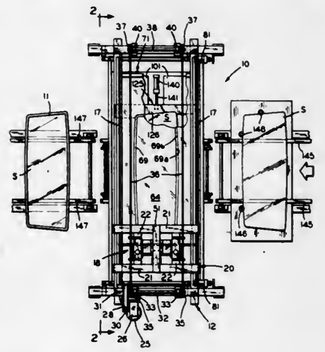
1. The method of making a threaded metal article having a circumferentially uniform tightly adhered solid shaped deposit of a friction-producing resin in the thread grooves in which the deposit fills the bottom of the thread groove, has a depth sufficient to interfere with and frictionally engage at least the crests of the thread of a mating article, and extends completely around the threaded portion of the article, which comprises applying an extremely thin film of a very dilute solution of a flow-promoting polymer in a volatile solvent uniformly over the area on which the resin is to be deposited, supporting the article with its thread axis vertical and applying at a limited zone within said area a quantity of a flowable essentially aqueous fluid mixture of a powder of a cured thermoplastic friction-producing resin, the flow-promoting polymer film operating to cause the fluid mixture to flow along the thread grooves to form a circumferentially uniform deposit of the fluid mixture extending completely around the threaded portion of the article and which fills the bottom of the thread groove to a depth sufficient to engage the crests of the threads of a mating article, thereafter drying the deposit to eliminate substantially all of the water to leave the shaped deposit in the form of a mass of cohered discrete resin particles, heating the article to fuse the resin particles into a substantially continuous shaped mass, and cooling the article.

4,268,545

METHOD OF AND APPARATUS FOR PRINTING A PATTERN ON A SUBSTRATE

Joseph W. Hodulik, Genoa, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Jul. 30, 1979, Ser. No. 61,616
Int. Cl.[1] B05D *1/32*
U.S. Cl. 427—282 **10 Claims**



1. A method of applying a peripheral band onto a flat substrate comprising: positioning a substrate on a supporting surface, engaging at least the opposite edge portions of said substrate with segments having edges complementary to and engageable with the entirety of said substrate opposite edge portions, placing a stencil screen having a pattern formed therein on said substrate, positioning said pattern to orient a portion thereof projecting slightly outwardly past the marginal edge of said substrate, supporting said projecting portion of said pattern on said segments to maintain said pattern and screen in a horizontal plane while applying coating material through said pattern onto the upper surface of said substrate to form a peripheral band thereon.

5. Apparatus according to claim 4, wherein said substrate engaging means comprises at least a pair of segments having opposed edges complementary to said opposite edge portions of said substrate.

4,268,546

METHOD OF MAKING NON-WOVEN FABRICS FROM SYNTHETIC FIBERS

James E. Schwartz, and Kent B. McReynolds, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 4,418, Jan. 18, 1979, abandoned. This application Jun. 25, 1980, Ser. No. 162,708
Int. Cl.[1] B05D *3/02*
U.S. Cl. 427—393.5 **5 Claims**

1. A method for making non-woven fabrics having a soft, cloth-like feel from synthetic fibers in which a polymer in the form of an aqueous dispersion is incorporated into a web of synthetic fibers, water is removed and the retained polymeric binder is cured which comprises impregnating the synthetic fibers with an aqueous binder system containing a polymer, the solids of which consist essentially of from 35 to 60 weight percent of a hard monomer, 0 to 45 weight percent of butadiene or isoprene, 10 to 50 weight percent of an acrylate ester having from 1 to 8 carbon atoms in the ester portion and 1 to 5 weight percent of an ethylenically unsaturated mono- or dicarboxylic acid.

4,268,547

COATING PROCESS

Alan J. Backhouse, South Ascot, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 897,172, Apr. 17, 1978, abandoned. This application Aug. 13, 1979, Ser. No. 66,298
Claims priority, application United Kingdom, Jul. 19, 1977, 30236/77
Int. Cl.[1] B05D *1/02, 7/16*
U.S. Cl. 427—385.5 **6 Claims**

1. A process for the production of a surface coating upon a substrate which comprises applying by spray to the substrate surface a composition comprising:

(a) a film-forming polyester resin which is selected from the group consisting of products of condensation of a polyhydric alcohol and a polycarboxylic acid and products of condensation of a polyhydric alcohol, a polycarboxylic acid and a constituent supplying the residue of a fatty acid derived from a natural drying, semi-drying or non-drying oil;

(B) a volatile organic liquid diluent in which the polyester resin (A) is dissolved;

(C) polymer microparticles of diameter 0.01 to 10 microns which are insoluble in the solution of the polyester rein (A) in the diluent (B) and are stably dispersed therein in a non-flocculated state by means of a steric barrier around the particles of polymer chains which are solvated by the said solution, in an amount of at least 3% of the aggregate weight of the resin (A) and the microparticles, which are insoluble in and stably dispersed in the solution of the polyester resin in the diluent (B),

said microparticles being further associated with an auxiliary polymer which is soluble in the volatile organic liquid constituent (B) of the composition and which also is compatible with the film-forming resin (A), and subsequently evaporating the

volatile diluent (B) and forming a polymer film upon the surface.

4,268,548

POLYVINYL CHLORIDE-PLASTISOL HAVING IMPROVED ADHESION

Christian Burba, Ascheberg-Herbern; Hans-Günter Volland, Unna, and Norbert Esper, Bergkamen, all of Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Sep. 26, 1979, Ser. No. 79,089

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2841923

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—387 **12 Claims**

1. A method which comprises applying to a substrate material a plastisol composition comprising a polymer of vinyl chloride and then baking the composition onto the substrate material at a temperature between about 100° C. and 200° C., said plastisol composition further comprising from 0.05 to 5 percent, by weight of said plastisol composition, of an adhesion improver which is a compound or compounds having an azomethine group and a silane group and wherein, if said azomethine group and said silane group are separately present in different compounds, then said compound having a silane group is an aminosilane.

8. A plastisol composition comprising a polymer of vinyl chloride together with an adhesion improver which is a compound or compounds having an azomethine group and a silane group and wherein, if said azomethine group and said silane group are separately present in different compounds, then said compound having a silane group is an aminosilane.

4,268,549

SYNTHETIC RESIN POWDER AND COATING AGENTS CONTAINING THE SAME

Herbert Fink, Bickenbach; Norbert Suetterlin, Ober-Ramstadt; Horst Dinklage, Darmstadt-Arheilgen, and Willi Tilch, Reinheim, all of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,541

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—393.5 **7 Claims**

1. A synthetic resin powder of latex particles having an average particle size between 1 micron and 5 microns, which particles can be partially or completely loosely aggregated to form larger particles, said synthetic resin being a cross-linked copolymer of 75 to 99.5 percent by weight of a monomer mixture of methyl methacrylate and isobutyl methacrylate in a weight ratio of 1:3 to 3:1, 0.5 to 10 percent by weight of a cross-linking comonomer having at least two polymerizable double bonds, and 0 to 24.5 percent by weight of a further different ethylenically-unsaturated comonomer copolymerizable therewith.

2. A coating agent containing a volatile liquid component, a film-forming binder, and a synthetic resin powder of latex particles as in claim **1**.

6. A method for the preparation of a non-blocking and non-tacky coating on a solid substrate, which method comprises coating said substrate with a coating agent as in claim **2** and evaporating the volatile component thereof to form a film on the substrate.

4,268,550

METERED FINISH

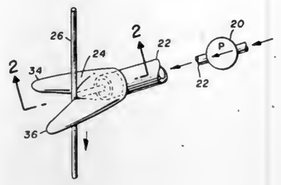
Louis B. Williams, Jr., Walnut Hill, Fla., assignor to Monsanto Company, St. Louis, Mo.

Filed Jul. 2, 1979, Ser. No. 54,386

Int. Cl.³ B05D *1/28*

U.S. Cl. 427—429 **12 Claims**

1. In a process for applying finish to a yarn running at least 2500 meters per minute wherein said finish is metered through a passageway just prior to application to said yarn, the improvement comprising inhibiting the variable influence of air travelling with said running yarn upon said finish in said passageway.



2. In combination with a finish applicator wherein finish is metered through a passageway just prior to application to a yarn, the improvement comprising means for inhibiting the variable influence of air travelling with said running yarn upon said finish in said passageway.

4,268,551

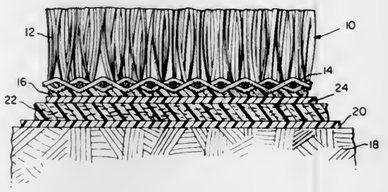
ARTIFICIAL GRASS SURFACE AND METHOD OF INSTALLATION

Mack W. Moore, Jr., Dalton, Ga., assignor to Cavalier Carpets, Dalton, Ga.

Filed Oct. 24, 1979, Ser. No. 87,671

Int. Cl.³ E01C *7/00*

U.S. Cl. 428—17 **16 Claims**



1. A method for adhering an artificial grass carpet product to a soil surface comprises preping a predetermined area of the soil surface to remove all debris and provide a defined compact surface within said predetermined area, coating said compact surface with a first stabilizing layer of plastic resin, allowing said first layer to cure and thereafter applying to said first cured stabilizing layer a second layer of resin reinforced with a fiberglas component, allowing said second layer to cure and thereafter applying a third adhesive layer to said cured reinforced layer of resin and applying to said adhesive layer the artificial grass carpet product so as to cause said carpet product to be bonded to said cured reinforced layer of resin.

4,268,552

AUTOMOTIVE FASCIA

Ilan Duvdevani, Leonia, and Lawrence Spenadel, Westfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 16, 1979, Ser. No. 30,078

Int. Cl.³ B60R *13/00*

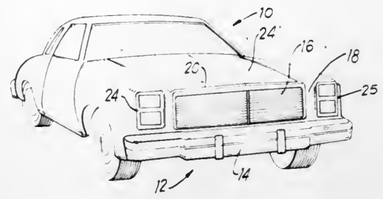
U.S. Cl. 428—31 **25 Claims**

1. A rear or front automotive fascia for a motor vehicle formed from a polymeric composition which comprises:

(a) a neutralized sulfonated elastomeric polymer having about 10 to about 60 meq. of neutralized sulfonate groups per 100 grams of said neutralized sulfonated elastomeric polymer;

(b) about 10 to about 300 parts by weight of a crystalline polyolefinic resin having an Mn of about at least 2000 per 100 parts by weight of said neutralized sulfonated elastomeric polymer; and

(c) about 10 to about 50 parts by weight of a preferential plasticizer per 100 parts by weight of said neutralized sulfonated elastomeric polymer, wherein said preferential plasticizer has a melting point of at least 25° C. and is selected from the group consisting of amides having about 10 to 22 carbon atoms, ureas and thioureas, carboxylic acids having at least 8 carbon atoms and metallic salts of said carboxylic acids and mixtures thereof.



4,268,553

METHOD FOR DOUBLE GLAZING UNITS

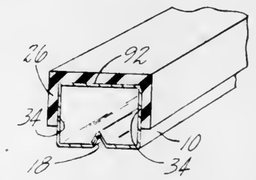
Taieb Marzouki, Chonberg, and Bernd Schweisser, Oberursel, both of Fed. Rep. of Germany, assignors to USM Corporation, Farmington, Conn.

Filed Apr. 2, 1979, Ser. No. 26,065

Claims priority, application United Kingdom, Apr. 5, 1978, 13235/78

Int. Cl.³ E06B *3/24, 3/64*

U.S. Cl. 428—34 **30 Claims**



24. A multi glass pane unit comprising two panes of glass separated by a spacer frame with peripheral portions of the panes bonded to the frame surface(s) by the cured residue of a sealant composition provided by combining two separate parts of the sealant composition and where one part comprises a tertiary amine and a polymeric composition having a softening point between about 50° C. to about 190° C. and the polymeric composition comprises a block copolymer having two polystyrene end blocks linked to a substantially saturated polyolefin rubber midblock, a heat reactive phenolic resin and a tackifying resin and where the other part comprises an epoxy resin, and a polymeric composition which is non-tacky at temperatures up to about 50° C. and can be applied as a hot melt at temperatures between about 150° C. to about 190° C. and the polymeric composition comprises a block copolymer having two polystyrene end blocks linked to a substantially saturated polyolefin rubber midblock, a tackifying resin and a liquid polybutene having a molecular weight of about 10,000 or less.

4,268,554

PROCESS FOR THE COATING OF GLASS SURFACES

Rainer Gras, An der Ziegelei 91, 4690 Herne 2, Fed. Rep. of Germany

Filed Sep. 29, 1978, Ser. No. 947,043

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1977, 2746006

Int. Cl.³ B65D *23/00;* **B32B** *7/02;* **B05D** *3/00, 3/02*

U.S. Cl. 428—35 **16 Claims**

1. A process for the coating of glass surfaces, to prevent the strewing of glass particles in case of bursting, with a transparent, duroplastic protective layer of more than 50 microns which comprises

first treating the clean glass surface with an aqueous or alcoholic silane skim coat,

drying said treated surface, and then

coating said dry surface with a mass of aliphatic or cycloaliphatic diisocyanates or mixtures thereof, or their reaction products with water in a mole ratio of 2:≦1 and a mixture of hydroxy-group-containing compounds comprising

40–80 wt.% trifunctional, hydroxy group-containing polyesters made of ω-hydroxy-carboxylic acids or their lactones with at least 4 C-atoms with an average molecular weight of 300 to 1400,

15–50 wt.% bifunctional, hydroxy group-containing polyesters made of ω-hydroxy carboxylic acids or their lactones with at least 4 C-atoms with an average molecular weight of 400 to 2000 and

2.5–20 wt.% aliphatic or cycloaliphatic diols, or mixtures thereof with respect to the total quantity of the polyols, and

optionally hardening said coated surface with additional heat.

9. The process of claim **1** wherein said glass surfaces are glass bottles.

10. Coated glass bottles with a transparent, duroplastic protective layer, prepared according to claim **9**.

4,268,555

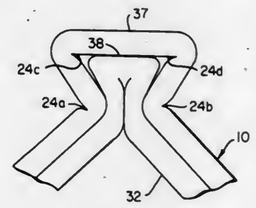
WIDE-FOLDING HINGE

John F. Kantz, Oxford, N.J., assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,085

Int. Cl.³ B65D *5/36;* **S11F** *1/08*

U.S. Cl. 428—35 **5 Claims**



1. A wide-folding, linearly-hinged assembly of sheet members secured to each other in areas other than in the vicinity of the hinge comprising: an inner sheet member having at least one ply and a female linear score on the inner side thereof; and an outer sheet member having at least one ply and at least four linear female scores arranged in pairs on opposed sides of said member, each of said outer scores bridging its paired inner score and said opposed pairs bridging said score of said inner sheet member.

4,268,556

RIGID MAGNETIC RECORDING DISKS LUBRICATED WITH FLUORINATED TELECHELIC POLYETHER

Doulas G. Pedrotty, Baldwin, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 1,446, Jan. 8, 1979, abandoned. This application Dec. 18, 1979, Ser. No. 100,700

Int. Cl.³ G11B *5/82*

U.S. Cl. 428—65 **8 Claims**

1. One or a stack of spaced-apart rigid magnetic recording disks, each recording surface of which is lubricated by a very thin coating of a fluorinated telechelic polyether polymer having a backbone comprising repeating $-C_aF_{2a}-O-$ units wherein a is an integer from 1 to 4, which backbone is terminated by at least one polar group, the μ^2/MW of the polymer being at least 19×10^{-4} Debye²-moles/g, which coating resists removal upon cleaning the recording surfaces with isopropyl alcohol.

4,268,557

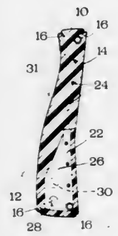
PROCESS AND MOLD FOR PRODUCING PADDED SEAT BACKS, AND THE PRODUCT OBTAINED

Roberto Bracesco, Corso Siracusa 123/2, Turin, Italy

Filed Jul. 5, 1979, Ser. No. 55,465

Int. Cl.³ B32B *5/20;* **B29D** *27/00;* **A47C** *7/40*

U.S. Cl. 428—71 **15 Claims**



1. A process for producing the padded back portion of a motor vehicle seat having a framework with positioning means incorporated therein, comprising the steps of forming a covering of fluid-tight material having a slit extending over a length at least as great as the smallest width of the framework and a hole provided with a filler nozzle, inserting the framework through said slit into the covering, sealing the slit, placing the covering into a mold having the desired shape of the padded part to be produced, closing the mold, injecting polyurethane foam through the filler nozzle into the covering until the latter is completely filled, permitting the polyurethane foam to polymerize so that said framework is completely embedded in said polyurethane foam, and extracting the padded back part from the mold.

13. A padded back portion of a motor vehicle seat produced by the process of claim 1.

4,268,558

THERMAL STORAGE MATERIAL AND PROCESS FOR MAKING

Bryan J. Boardman, Chadds Ford, Pa., assignor to Boardman Energy Systems, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 812,420, Jul. 1, 1977, abandoned. This application Nov. 19, 1979, Ser. No. 95,462

Int. Cl.³ B32B *5/18;* **B05D** *7/00;* **F24H** *7/00*

U.S. Cl. 428—71 **24 Claims**

1. A thermal storage structure comprising an inorganic latent heat storage component capable of storing thermal energy by way of its heat of fusion when heated at its melting point and wherein said latent heat storage component is essentially uniformly distributed throughout an inorganic open celled hydrophillic rigid foam component characterized in that said latent heat storage component is constrained to exhibit non-deteriorating latent heat storage capacity by virtue of its distribution throughout said inorganic open celled hydrophillic rigid foam component and wherein said structure is encapsulated with a material impervious to moisture.

4,268,559

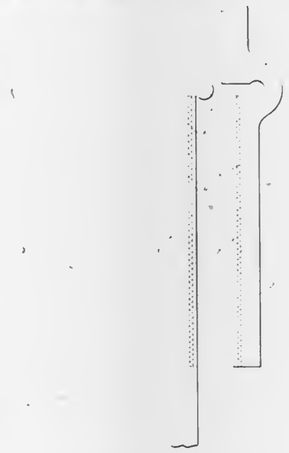
HEAT-SHRINKABLE ARTICLE

Jack H. Smuckler, Marblehead, Mass., assignor to Electronized Chemicals Corporation, Burlington, Mass.

Filed Sep. 22, 1978, Ser. No. 944,887

Int. Cl.³ B65D *65/42;* **B32B** *3/02*

U.S. Cl. 428—99 **7 Claims**



1. A heat-shrinkable article comprising a heat-shrinkable sheet having two edges adapted to form a closure, said edges being heat-stable, at least one of said edges having thereon a silicone-based pressure sensitive adhesive adapted, after compression against the other of said edges to form a closure, to maintain said closure at a temperature sufficiently high to shrink said heat-shrinkable sheet.

6. A process for making a heat-shrinkable article comprising the following steps: forming a heat-shrinkable sheet having two edges adapted to form a closure, said edges being heat-stable, and pressing against at least one of said edges a silicone-based pressure-sensitive adhesive adapted, after compression against the other of said edges to form a closure, to maintain said closure at a temperature sufficiently high to shrink said heat-shrinkable sheet.

7. A process for ensleeving an article comprising the following steps: wrapping about an article to be ensleeved a heat-shrinkable article comprising a heat-shrinkable sheet having two edges adapted to form a closure, said edges being heat-stable, at least one of said edges having thereon a silicone-based pressure sensitive adhesive adapted, after compression against the other of said edges to form a closure, to maintain said closure at a temperature sufficiently high to shrink said heat-shrinkable sheet, compressing said two edges together so as to form a closure, and heating said heat-shrinkable article to a temperature sufficiently high to shrink said heat-shrinkable sheet.

4,268,560

THREE-DIMENSIONAL STRUCTURE HAVING A PREFERENTIAL DIRECTION

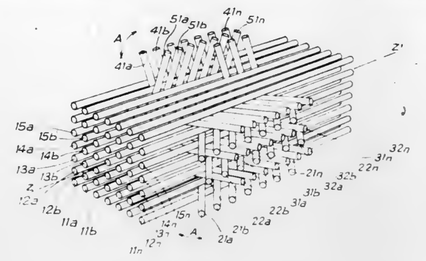
Michel Maistre, Bordeaux, France, assignor to Societe Europeenne de Propulsion, Puteaux, France

Filed Mar. 20, 1979, Ser. No. 22,195

Claims priority, application France, Jun. 2, 1978, 78 16610

Int. Cl.³ B32B *5/12;* **E04H** *12/00*

U.S. Cl. 428—105 **10 Claims**



1. A three-dimensional structure having a preferential direction, consisting of a main bundle and four connecting bundles, said main bundle being constituted by main, rectilinear, filiform elements parallel to the preferential direction and disposed in parallel, regularly spaced apart rows extending along planes parallel to each other so as to form, in cross-section perpendicular to the preferential direction a network of square meshes, and each connecting bundle being constituted by rectilinear filiform connecting elements parallel to one another, the directions of the connecting bundles being different from one another and diagonal to the preferential direction, a first and a second connecting bundle being formed of elements disposed in first rows extending along first planes parallel to said planes defined by said rows of the main bundle, said first rows of the first and second bundles being disposed alternately in first gaps between successive ones of said rows of elements of the main bundle, and a third and a fourth connecting bundle being formed of elements disposed in second rows extending along second planes perpendicular to said first planes and parallel to the planes defined by alignments formed of opposite elements belonging to successive different ones of said rows of the main bundle, said second rows of the third and fourth bundles being disposed alternately in second gaps between successive ones of said alignments of elements of the main bundle.

4,268,561

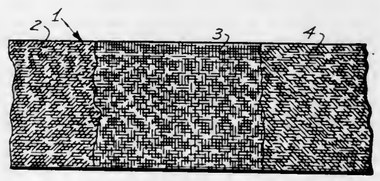
MEANS AND METHOD OF MANUFACTURING A HIGH STRENGTH BAR

James D. Thompson, and Dennis E. Gates, both of 998 Weaver Rd., Bronson, Mich. 49028

Continuation of Ser. No. 888,351, Mar. 20, 1978, abandoned. This application Jun. 29, 1979, Ser. No. 53,426

Int. Cl.³ B32B *5/12*

U.S. Cl. 428—111 **9 Claims**



1. A high strength bonded fiber member, comprising:
a set of woven laminations formed of high strength fibers, each lamination having longitudinally extending warp strands parallel to opposite sides thereof;
the laminations having woof strands at respectively different angles to their sides;
said set of laminations being continuous and repeatedly folded upon itself at opposite extremities of the fiber member;
the laminations being fully permeated with a bonding agent.

4,268,562

LASER RESISTANT CERAMIC COMPOSITE

James F. Bacon, Manchester, and Karl M. Prewo, Vernon, both of Conn., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 30, 1979, Ser. No. 72,734

Int. Cl.³ B32B *5/12;* **B29G** *5/00*

U.S. Cl. 428—113 **7 Claims**

5. A hot pressed, biaxially oriented, alumina fiber reinforced ceramic composite comprising at least a first and second series of alumina fibers, wherein

a. said first series of alumina fibers are oriented in a parallel relationship to one another along a predetermined direction;

b. said second series of alumina fibers are juxtapositioned to said first series of fibers and are oriented in a parallel relationship to one another along a direction at right angles to that direction of said first series of fibers; and

c. a ceramic impregnant comprising about 95% by weight fused silica glass and about 5% by weight borosilicate glass permeating the interstices of said first and second series of fibers.

4,268,563

RADIATION MASK FOR PRODUCING STRUCTURAL CONFIGURATIONS IN PHOTO-SENSITIVE RESISTS BY X-RAY EXPOSURE

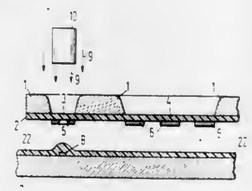
Dietrich Widmann, Unterhaching, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 501,692, Aug. 29, 1974, abandoned. This application May 25, 1979, Ser. No. 42,533

Claims priority, application Fed. Rep. of Germany, Sep. 17, 1973, 2346719

Int. Cl.³ B32B *3/24, 7/02, 17/10, 33/00*

U.S. Cl. 428—138 **4 Claims**



1. A multilayer radiation mask useful in controlling the selective activation of a photosensitive layer with X-ray radiation, in which registration of a first mark, associated with the mask, with a cooperable second mark, associated with the photosensitive layer, is visually effected by the use of incident radiation in the visible part of the spectrum to illuminate such registration marks through the mask, comprising:
a silicon dioxide carrier layer of approximately 1 to 10 micrometers in thickness, said silicon dioxide carrier layer being permeable to X-rays and visible light;
a silicon layer carried on a first surface of said carrier layer, said silicon layer including openings therethrough exposing areas of the adjacent first surface of said carrier layer;
an X-ray absorptive polyimide resin layer carried on an

opposite second surface of said carrier layer at an area thereof spanning an opening in said silicon layer; and

a first registration mark carried by said absorptive layer layer and adapted to cooperate with a similar second registration mark carried by the photosensitive layer,

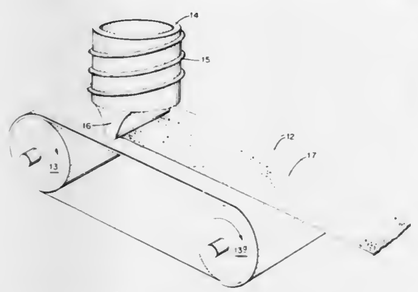
exposure with visible light through said mask causing the images of the first and second registration marks to be transmitted through said carrier layer so that the marks may be visually observed at the exposed face of said carrier layer to enable visual determination of the relative positions of the registration marks.

4,268,564

STRIPS OF METALLIC GLASSES CONTAINING EMBEDDED PARTICULATE MATTER

Mandayam C. Narasimhan, Flanders, N.J., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Dec. 22, 1977, Ser. No. 863,114
Int. Cl.³ B32B *15/16, 5/16*
U.S. Cl. 428—143 **5 Claims**



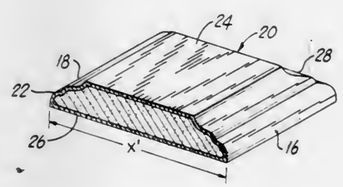
1. A strip of amorphous metal containing embedded particulate matter which protrudes from the top surface of the strip.

4,268,565

POST-PRESS MOLDING OF MAN-MADE BOARDS TO PRODUCE CONTOURED FURNITURE PARTS

Allan J. Luck, Marengo; John T. Clarke, and Michael R. Hoffman, both of St. Charles, all of Ill., assignors to Masonite Corporation, Chicago, Ill.

Division of Ser. No. 819,876, Jul. 28, 1977, Pat. No. 4,175,105, which is a continuation-in-part of Ser. No. 739,184, Nov. 5, 1976, Pat. No. 4,175,150. This application May 7, 1979, Ser. No. 36,759
The portion of the term of this patent subsequent to Nov. 20, 1996, has been disclaimed.
Int. Cl.³ B32B *3/30, 5/14*
U.S. Cl. 428—161 **7 Claims**



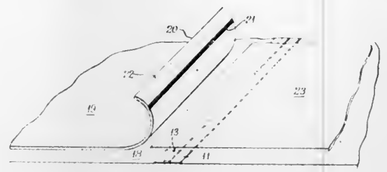
1. An embossed, molded furniture part having contours therein comprising a base layer comprising cellulosic fibers and a binder, said base layer having a density in the range of 10–35 pounds/ft^3, and an integral skin disposed on at least one face of said base layer, said skin having surface contours and having a density in the range of 40–55 pounds/ft^3 and formed by contacting the surface fibers of said base layer with urea, in an amount of 5–35% based on the dry weight of fibers contacted therewith, and molding said contacted surface fibers, under pressure, at a temperature of at least 525° F.

4,268,566

MARKING TAPE AND METHOD

Jack E. Ebert, 103 W. Stratford Pl., Mt. Prospect, Ill. 60056

Filed Jul. 25, 1977, Ser. No. 818,386
Int. Cl.³ B32B *3/00;* B05D *5/00*
U.S. Cl. 428—195 **8 Claims**



1. A product for use in marking a unit of material which is to be positioned with its backside against a surface and the material is to be cut to correspond to a feature at a location on said surface which feature is concealed when said unit is in position and, when in position, said surface renders said backside inaccessible for the marking of the unit, said product comprising:

a length of thin, inexpensive, flexible material with two sides;

a pressure sensitive, transferable marking means on one of said sides, said marking means having a characteristic defining a line; and

an adhesive covering at least part of the other of said sides, for affixing the product to the surface, with said defined line at said location;

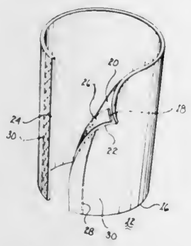
whereby the product may be affixed to said surface with said line at said location and when said unit of material is placed in position with respect to said surface and pressed toward said surface, the marking means then transfers the characteristic defining the line to said backside of said unit.

4,268,567

INSULATOR FOR CANNED DRINKS

Richard C. Harmony, 3426 N. Forgeus Ave., Tucson, Ariz. 85716

Continuation of Ser. No. 946,362, Sep. 27, 1978, Pat. No. 4,181,765. This application Aug. 27, 1979, Ser. No. 70,121
The portion of the term of this patent subsequent to Jan. 1, 1997, has been disclaimed.
Int. Cl.³ B32B *3/26*
U.S. Cl. 428—195 **8 Claims**



1. A removable reuseable thermal insulator for containers, said insulator comprising in combination:

(a) a sheet of foam for circumscribingly engaging the container and thermally insulating the portions of the container proximate said sheet from heat transfer intermediate the container and the ambient environment, said sheet including opposed ends; and

(b) adhesive means for non-permanently securing said opposed ends in positional relationship to one another upon engagement of said insulator about the container and thereby maintaining said insulator mounted upon the container;

whereby, said insulator is removably engageable about and maintainable upon the container to insulate thermally the container from the ambient environment.

3. The insulator as set forth in claim 2 wherein a surface of said insulator includes printing visible upon mounting of said insulator about the container.

4,268,568

LUBRICATED ELECTRICAL CONTACTS

Richard Sard, Birmingham, Mich., and Kenneth R. Walton, Fanwood, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 14, 1979, Ser. No. 38,570
Int. Cl.³ B32B *15/20, 27/32, 15/04*
U.S. Cl. 428—209 **3 Claims**

1. An electrical contact device comprising

(a) electrical portion which carries current to an electrical contact surface, said electrical portion comprising a metal selected from the group consisting of copper and nickel;

(b) an electrical contact surface layer comprising a metal deposit on said electrical contact surface which consists essentially of gold;

(c) a lubricant that covers at least part of the electrical contact surface layer, said lubricant consisting essentially of a fluorocarbon polymer; and said lubricant having a thickness between 10 and 30 Angstroms.

4,268,569

COATING UNDERLAYERS

Thomas E. Hale, Warren, Mich., assignor to General Electric Company, Detroit, Mich.

Filed Feb. 7, 1979, Ser. No. 10,145
Int. Cl.³ B32B *7/02, 9/04, 31/06, 33/00*
U.S. Cl. 428—215 **44 Claims**

1. A coated cemented carbide product comprising:

a cemented carbide substrate wherein any titanium contained therein is essentially in carbide form;

an interlayer disposed on said substrate, said interlayer being selected from the group consisting of hafnium nitride, titanium nitride, zirconium nitride and a titanium nitride-titanium carbide combination, said titanium nitride-titanium carbide combination consisting of a first layer of titanium nitride and a second layer of titanium carbide overlying said first layer of titanium nitride; and

a fully dense coating of hafnium carbonitride, said coating being firmly and adherently bonded to said interlayer and said substrate, said hafnium carbonitride coating having an X-ray diffraction lattice parameter within the range of about 4.55 to 4.64 angstrom units.

4,268,570

METAL-COATED PLASTIC PRODUCT

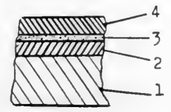
Hiroshi Imanaka, and Yoshihiko Kijima, both of Otsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Japan

Filed Jul. 6, 1979, Ser. No. 55,434
Claims priority, application Japan, Jul. 7, 1978, 53-83194
Int. Cl.³ B32B *15/08;* C08L *67/06*
U.S. Cl. 428—216 **13 Claims**

1. A metal-coated plastic product, which comprises a molded product of a mixture of:

(a) 95 to 20% by weight of a polyester block copolymer consisting essentially of polyester segments having a high melting point, a component of which can singly form a high polymer having a melting point of 150° C. or higher, and polymer segments having a low melting point and a molecular weight of 400 to 6,000, selected from the group consisting of a polyalkylene ether glycol, a mixture of polyalkylene ether glycols and a copolyether glycol, a component of which has a melting or softening point of 80° C. or lower; and

(b) 5 to 80% by weight of a copolymer comprising 10 to 80% by weight of an acrylic monomer selected from the group consisting of an alkyl ester of acrylic acid having 1 to 10 carbon atoms in the alkyl moiety, an alkyl ester of methacrylic acid having 1 to 10 carbon atoms in the alkyl moiety, acrylonitrile and metacrylonitrile, 10 to 70% by weight of butadiene and 10 to 60% by weight of styrene; and a layer of a metallic coating thereon.

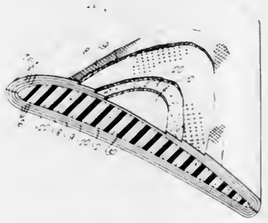


4,268,571

FOAM-CONTAINING STRUCTURES

Roy F. J. McCarthy, Cheltenham, England, assignor to Dowty Rotol Limited, Gloucester, England

Filed Aug. 30, 1979, Ser. No. 71,385
Claims priority, application United Kingdom, Sep. 16, 1978, 37125/78
Int. Cl.³ B32B *5/20;* B64C *11/26;* B29D *27/04*
U.S. Cl. 428—236 **13 Claims**



1. A method of making a foam-containing structure comprising: (a) placing and suitably retaining a respective shaped sheet in each of first and second complementary parts of an open mould which parts present impervious moulding surfaces, each said sheet including at least one layer of fibrous material and, on that face of said one layer remote from the respective mould part, at least one filter layer having substantially uniform porosity throughout, (b) closing said two mould parts together with said sheets still retained therein so that said sheets together define a cavity therebetween, (c) introducing a foamable material into said cavity, (d) causing said foamable material within said cavity to expand to a foamed state, so that some of that material during expansion thereof passes by way of the filter layers over the entire surface area of the filter layers thereby to penetrate said fibrous material to a substantial depth, said filter layers serving to limit the extent to which the expanded material penetrates said fibrous material and serving also to ensure that such penetration takes place to a substantially uniform depth over the entire area of the fibrous material thereby to integrate the expanded material and the fibrous material, and, (e) removing the formation of sheets and expanded material so produced from the mould.

13. A blade, suitable for a propeller, produced by a method as claimed in claim 1.

4,268,572

SULFUR-BASED ROOF SHINGLES

William G. Toland, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 949,704, Oct. 10, 1978, abandoned, which is a continuation of Ser. No. 781,593, Mar. 28, 1977, abandoned. This application Nov. 23, 1979, Ser. No. 97,084

Int. Cl.³ B32B *11/00;* **D06N** *7/00*

U.S. Cl. 428—281 **10 Claims**

1. A non-asphaltic sulfur-based roof shingle having good fire resistance consisting essentially of a fibrous base mat impregnated with a plasticized-sulfur composition comprising from about 30% to about 98% by weight sulfur.

4,268,573

REINFORCING CORDS

Freddy Baillievier, Zwevegem, Belgium, assignor to N.V. Bekaert S.A., Zwevegem, Belgium

Filed Mar. 12, 1979, Ser. No. 19,570

Claims priority, application Luxembourg, Mar. 13, 1978, 79218

Int. Cl.³ D02G *3/36*

U.S. Cl. 428—295 **13 Claims**

1. A metal cord having a core filament of filaments for reinforcement of rubber articles comprising a plurality of bundles of grouped filaments wherein the direction of lay of the filaments in the bundles is the same as the direction of lay of the bundles in the cord, each of each filaments having been subjected to plastic torsional deformation, the average length of lay of each bundle in the cord being substantially equal to the average length of lay of each filament in the bundles, and wherein at any cross-section of the cord the filaments comprising the core of the cord differ along the length of the cord and belong to the same or different bundles.

4,268,574

PREFABRICATED SELF-SUPPORTING PANELS AND MANUFACTURE PROCESS THEREOF

Paolo Peccenini, Villagrappa, and Paolo Romini, Ravenna, both of Italy, assignors to Pantec S.r.l., Forli, Italy

Filed Jul. 13, 1979, Ser. No. 57,203

Claims priority, application Italy, Jul. 13, 1978, 25654 A/78

Int. Cl.³ B32B *5/18, 5/22*

U.S. Cl. 428—315 **15 Claims**

1. A process of manufacturing prefabricated self-supporting panels which consists of forming a laminate having at least two outer layers and at least one inner layer, said at least one intermediate layer being made of a foamed mixture of (a) an unsaturated polyester resin, (b) hollow microspheres of aluminum phyllosilicate of an average diameter of 150 microns and density of 0.7 kg/cu.dm in a proportion of 5 to 20% by weight based on the unsaturated polyester resin, and (c) a coupling agent which comprises at least one organo-functional silane, in the proportion of 0.1 to 5.0% by weight based on the unsaturated polyester resin and the outer layers comprise a mixture of unsaturated polyester resin, granite grit and an organo-functional silane, the latter in a proportion of 0.1 to about 5.0% with respect to the unsaturated polyester resin, and allowing hardening to occur.

12. A prefabricated self-supporting panel which consists of a laminate having at least two outer layers and at least one inner layer, said at least one inner layer being made of a foamed mixture comprising:

(a) an unsaturated polyester resin,

(b) hollow microspheres of aluminum phyllosilicate having an average diameter of 150 microns and a density of 0 7 kg/dm^3 in the proportion of 5–20% by weight based on the unsaturated polyester resin, and granulated material containing foamed clay having an average diameter of 15 to 20 mm and a specific gravity of 0.35 kg/dm^3, and

(c) an organo-functional silane derivative in the proportion of 0.1–5%.

4,268,575

THERMAL RECORDING ELEMENTS

Fumiaki Shinozaki; Tomizo Namiki; Masao Kitajima; Tomoaki Ikeda, and Yuzo Mizobuchi, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 7, 1979, Ser. No. 64,465

Claims priority, application Japan, Aug. 7, 1978, 53-96446

Int. Cl.³ G01D *15/32*

U.S. Cl. 428—336 **16 Claims**

1. In a thermal recording element having formed on a support a recording layer which yields an image on thermal deformation under high intensity irradiation due to a difference in optical density between irradiated areas and non-irradiated areas and a protective layer containing an organic high molecular weight material formed on the recording layer, the improvement wherein a higher fatty acid having more than 10 carbon atoms or the higher fatty acid amide thereof is present in or on the protective layer.

4,268,576

STENCIL SHEET WITH SOLVENTLESS COATING AND METHOD OF PREPARATION

Francis H. Montmarquet, Jr., Little Falls, N.J., assignor to Repeat-O-Type Stencil Manufacturing Co., Inc., Wayne, N.J.

Filed Jan. 18, 1980, Ser. No. 113,311

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—342 **25 Claims**

1. A stencil sheet suitable for imprinting by mechanical means, said stencil sheet comprising a porous, thin tissue base through which stencil ink may pass, and

a stencil ink-impervious coating composition, said coating composition consisting essentially of:

a film forming component present in an amount ranging from about 15 to about 60% by weight, said film forming component comprising an ethylenically unsaturated monomer compound selected from the group consisting of acrylic acid, methacrylic acid, the esters thereof, vinyl esters, vinyl ethers, vinyl ketones, styrene, unsaturated dicarboxylic acids, allyl alcohol esters, and mixtures thereof,

a photopolymerization initiator compound sensitive to ultraviolet light, said photopolymerization initiator compound selected from the group consisting of aromatic ketones, tertiary amines, and mixtures thereof, said photopolymerization initiator compound present in an amount of up to about 5% by weight, and

a nonvolatile nonreactive modifier component comprising one or more plasticizers.

15. A coating composition for application to a stencil base, said coating composition consisting essentially of:

a film forming component present in an amount ranging from about 15 to about 60% by weight, said film forming component comprising an ethylenically unsaturated monomer compound selected from the group consisting of acrylic acid, methacrylic acid, the esters thereof, vinyl esters, vinyl ethers, vinyl ketones, styrene, unsaturated dicarboxylic acids, allyl alcohol esters, and mixtures thereof,

a photopolymerization initiator compound sensitive to ultraviolet light, said photopolymerization initiator compound selected from the group consisting of aromatic ketones, tertiary amines, and mixtures thereof, said photopolymerization initiator compound present in an amount of up to about 5% by weight, and

a nonvolatile, nonreactive modifier component comprising one or more plasticizers.

19. A method for preparing a stencil sheet which comprises: forming a homogeneous mixture of a coating composition, said coating composition consisting essentially of;

a film forming component present in an amount ranging from about 15 to about 60% by weight, said film forming component comprising an ethylenically unsaturated monomer compound selected from the group consisting of acrylic acid, methacrylic acid, the esters thereof, vinyl esters, vinyl ethers, vinyl ketones, styrene, unsaturated dicarboxylic acids, allyl alcohol esters, and mixtures thereof,

a photopolymerization initiator compound sensitive to ultraviolet light, said photopolymerization initiator compound selected from the group consisting of aromatic ketones, tertiary amines, and mixtures thereof, said photopolymerization initiator compound present in an amount of up to about 5% by weight, and

a nonvolatile, nonreactive modifier component comprising one or more plasticizers;

providing a porous tissue base and applying said coating compositions to form an ink-impervious coating layer upon at least one surface tissue base; and

polymerizing said coating layer by exposure thereof to ultraviolet radiation for a period of time sufficient to completely cure said coating and form a completed stencil sheet.

4,268,577

ELASTOMERIC COATING COMPOSITION FOR GLASS FIBERS AND COATED GLASS FIBERS MADE FROM SAME

Dennis M. Fahey, Lexington, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 974,580, Dec. 29, 1978. This application Aug. 29, 1979, Ser. No. 70,595

Int. Cl.³ B05D *3/02;* **B32B** *27/00;* **D02G** *3/00*

U.S. Cl. 428—394 **20 Claims**

1. Glass fiber strand coated with the dried residue of an elastomeric coating composition for glass fibers to yield coated glass fiber strands of medium thickness having improved weaveability by having an increased knot tensile strength, wherein the aqueous elastomeric coating composition, comprises:

(a) an elastomeric latex in an amount in the range of about 30 to about 70 weight percent on a dry solids basis of the composition,

(h) an external plasticizer soluble, dispersible or emulsifiable into the latex but not incorporable into the polymer backbone of the elastomer in an amount in the range of about 10 to about 50 weight percent on a dry solids basis of the composition,

(c) an antioxidant for elastomeric latices in an amount in the range of about 0.05 to about 2 weight percent on a dry solids basis of the coating composition,

(d) an elastomeric latex curing agent in an amount in the range of about 0.3 to about 2.5 weight percent on a dry solids basis of the coating composition,

(e) water in an amount sufficient to obtain a percent solids of the coating composition to allow for coating the glass fiber strand.

4,268,578

COATED POLYOLEFIN FILMS HAVING A LOW ADHERENCE TO THE WELDING BARS OF WELDING MACHINES

Fosco Bordini, 2, Via Vico Maniscalchi, and Luigi Mauri, 16, P.zza del Mercato, both of Terni, Italy

Filed Oct. 23, 1978, Ser. No. 953,876

Claims priority, application Italy, Oct. 24, 1977, 28896 A/77

Int. Cl.³ B05D *3/10;* **B32B** *27/06;* **B65D** *29/02*

U.S. Cl. 428—413 **14 Claims**

1. Coated thermoweldable polyolefin film having improved resistance to sticking to the thermowelding bars, comprising a polyolefin film primed with an alkylenimine polymer and coated with a mixture consisting of from 50 to 80% by weight of a vinyl or vinylidene homopolymer or copolymer, from 10 to 40% by weight of an epoxy resin and from 0.5 to 5% by weight of microcrystalline wax.

4. Process for preparing coated thermoweldable polyolefin film having improved resistance to sticking to the thermowelding bars, which comprises applying a coating mixture consisting of from 50% to 805 by weight of a vinyl or vinyl-idene homopolymer or copolymer, from 10% to 40% by weight of an epoxy resin and from 0.5to 5% by weight of a microcrystalline wax, to a polyolefin film to which has been applied an intermediate primer coating of an alkylenimine polymer or of a low molecular weight polyamine.

4,268,579

PRIMER FOR POWDER COATING

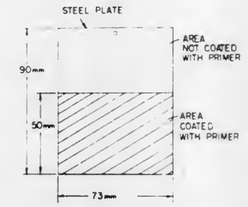
Hajime Suzuki; Ikuo Masuda, and Masaki Kosaka, all of Himeji, Japan, assignors to Daicel Ltd., Osaka, Japan

Continuation of Ser. No. 665,374, Mar. 10, 1976, abandoned. This application Dec. 20, 1978, Ser. No. 971,242

Claims priority, application Japan, Mar. 19, 1975, 50/33229; Sep. 26, 1975, 50/116099

Int. Cl.³ B05D *1/06*

U.S. Cl. 428—413 **14 Claims**



1. A process comprises applying to a metal substrate a coating of a primer composition consisting essentially of a film-forming diene polymer dissolved in an inert organic solvent to form a solution, said solution having dispersed therein from 30 to 110 parts by weight of magnesium oxide particles, per 100 parts by weight of said diene polymer, and drying said coating to form a prime coating film having a thickness of from 4 to 7 microns on said metal substrate whereby to provide a prime-coated metal substrate, preheating said prime-coated metal substrate to a first temperature and then applying a coating of a powder of a film-forming resin on top of said prime coating film by contacting said prime-coated metal substrate with a fluidized bed of said powder of said film-forming resin, said first temperature being above the melting point of said film-forming resin, and thereby melting said film-forming resin to form a top coating film of said film-forming resin bonded to said prime coating film, and then solidfying said top coating film.

4,268,580

RADIATION CURED COATING FOR LEATHER

John D. Rock, Hunters Hill, and John L. Garnett, Longueville, both of Australia, assignors to Unisearch Limited, Kensington, Australia

Filed Sep. 12, 1979, Ser. No. 75,058

Claims priority, application Australia, Sep. 13, 1978, PD5918

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—423.4 **19 Claims**

1. A radiation curable leather substrate coating composition comprising:

(A) from 40 to 90% by weight thereof of at least one first compound selected from the group consisting of prepolymers and co-prepolymers, said first compound being derived from polymerizable monomers selected from the group conisisting of alkyl acrylates, alkyl methacrylates, styrene, styrene derivatives and isoprene, wherein at least 80% by weight of said monomers are selected from the group consisting of alkyl acrylates and alkyl methacrylates; and

(B) from 60 to 10% by weight of said composition consisting of a second compound, which is polymerizable with said

first compound, selected from the group consisting of urethane acrylate; epoxy acrylate; rosin derivatives; monomers of vinyl chloride, vinyl acetate, vinylidene chloride and methyl methacrylate; polymers derived from monomers included in this group; and

wherein said at least one first compound and said at least one second compound form a mutually soluble solution.

4,268,581

FIRE-SCREENING GLAZING PANELS AND METHOD OF MANUFACTURING SAME

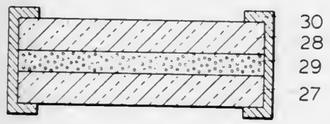
Marcel De Boel, Chatelineau, Belgium, assignor to BFG Glassgroup, Paris, France

Filed Jun. 8, 1979, Ser. No. 46,934

Claims priority, application United Kingdom, Jun. 14, 1978, 26974/78

Int. Cl.³ B32B *17/06*

U.S. Cl. 428—428 **20 Claims**



13. A light-transmitting fire-screening panel comprising at least one layer of intumescent material sandwiched between two structural plies of glazing material, at least the greater part by volume of said material being in granular form.

17. A panel as in claim **13** wherein said intumescent material comprises a hydrated alkali metal salt.

18. A panel as in claim **17** wherein said intumescent material comprises a hydrated alkali metal silicate.

4,268,582

BORIDE COATED CEMENTED CARBIDE

Thomas E. Hale, Warren, and Roy C. Lueth, Marine City, both of Mich., assignors to General Electric Company, Detroit, Mich.

Filed Mar. 2, 1979, Ser. No. 16,902

Int. Cl.³ C23C *11/14;* **B32B** *13/04, 31/24*

U.S. Cl. 428—446 **23 Claims**

1. A coated cemented carbide article comprising: a cemented carbide substrate, the surface region of said substrate having diffused therein for predetermined a depth an element selected from the group consisting of boron, silicon, and aluminum; and a coating disposed on said diffused substrate surface said coating being a boride selected from the group consisting of titanium boride, hafnium boride, zirconium boride, and tantalum boride.

4,268,583

ANTISTATIC FILMS

Brian N. Hendy, Welwyn, England, assignor to Imperial Chemical Industries Limited, London, United Kingdom

Filed Mar. 2, 1979, Ser. No. 17,146

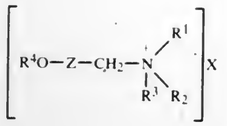
Claims priority, application United Kingdom, Mar. 15, 1978, 10337/78

Int. Cl.³ B32B *27/08*

U.S. Cl. 428—516 **5 Claims**

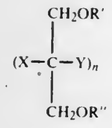
1. A multiple-layer, heat-set, antistatic film having a biaxially oriented substrate layer of a propylene polymer and, on at least one of the two surfaces thereof, a heat-sealable layer of an olefin polymer melting in a temperature range below the melting temperature of the substrate polymer, said heat-sealable layer having on the external surface thereof remote from said substrate layer a composition comprising, based on the total weight of the film,

(a) from 0.005 to 0.25 weight % of a quaternary ammonium compound of the formula



wherein each of R^1, R^2, and R^3, which may be the same or different, is a hydrogen atom or a lower alkyl radical containing from 1 to 6 carbon atoms, or R^1 and R^2 are each methylene groupings within a common five- or six-membered saturated heterocyclic ring, Z is a methylene group when R^4 is a hydrogen atom or an acyl radical containing up to 15 carbon atoms, or Z is a carbonyl group when R^4 is a hydrogen atom, and X is a univalent anion or an equivalent of a multivalent anion,

(b) from 0.005 to 0.5 weight % of an organic polyol containing at least two free hydroxyl groups and of general formula



wherein each of R′ and R″, which may be the same or different, is hydrogen or an acyl radical containing from 2 to 20 carbon atoms, X is —H or $—CH_2OR'$, Y is —OH or $—CH_2OR'$, and n is an integer from 1 to 10, and

(c) from 0.025 to 0.5 weight % of a glyceride of a saturated fatty acid containing up to 22 carbon atoms in its molecule.

4,268,584

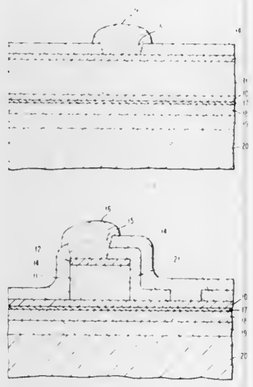
NICKEL-X/GOLD/NICKEL-X CONDUCTORS FOR SOLID STATE DEVICES WHERE X IS PHOSPHORUS, BORON, OR CARBON

Kie Y. Ahn, Chappaqua; Christopher H. Bajorek, Goldens Bridge; Paul S. Ho, Chappaqua; Robert J. Miller, Yorktown Heights, and John V. Powers, Shenorock, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1979, Ser. No. 103,969

Int. Cl.³ B32B *15/00;* **B05D** *5/12*

U.S. Cl. 428—620 **14 Claims**



1. In a laminated gold conductor including a conductor for

a solid state device supported upon a substrate, the improvement comprising

a first layer of nickel-X material, an intermediate layer of gold deposited upon said first layer, and

a third layer of nickel-X material deposited upon said layer of gold,

where X is an element selected from the group consisting of phosphorus, boron, and carbon.

4,268,585

SOLDERING TO A GOLD MEMBER

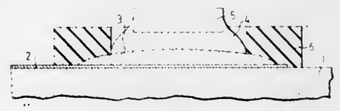
Rolf Daur, Erbach; Herbert Hoffmann, Pfuhl, and Günter Schmid, Senden, all of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 1, 1978, Ser. No. 911,307

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1977, 2724641

Int. Cl.³ H05K *1/09, 3/12, 3/28, 3/34*

U.S. Cl. 428—622 **20 Claims**



1. A method of applying solder to a gold member which comprises the steps of:

(a) joining an intermediate layer consisting of gold and tin to the surface of the gold member which functions to prevent the diffusion or alloying of the gold member into a subsequently applied soft solder; and

(b) joining a soft solder to at least a portion of said intermediate layer.

4,268,586

CORROSION RESISTANT ZIRCONIUM ALLOY STRUCTURAL COMPONENTS AND PROCESS

Rodney E. Hanneman, Burnt Hills; Andrew W. Urquhart, and David A. Vermilyea, both of Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 26, 1975, Ser. No. 590,418

Int. Cl.³ B32B *15/04*

U.S. Cl. 428—661 **2 Claims**

1. As an article of manufacture, a zirconium-base alloy boiling water reactor structural component having special utility because of its resistance to accelerated pustular corrosion under boiling water reactor conditions, said article having an adherent film coating from about 50 to about 1000 Angstroms thick of a metal selected from the group consisting of gold, silver, platinum, nickel, chromium, iron and niobium and said film comprising a plurality of bands about three to nine microns wide and spaced less than about 10 microns apart.

2. As an article of manufacture, a zirconium-base alloy boiling water reactor structural component having special utility because of its resistance to accelerated pustular corrosion under boiling water reactor conditions, said article having an adherent discontinuous film coating, said film comprising a plurality of bands of gold metal about 150 Angstroms thick.

4,268,587

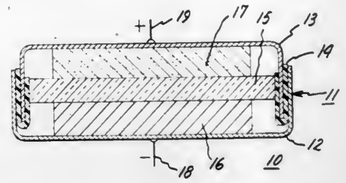
SOLID STATE, AMBIENT TEMPERATURE ELECTROCHEMICAL CELL

Gregory C. Farrington, Elnora, and Walter L. Roth, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 11, 1977, Ser. No. 840,997

Int. Cl.³ H01M *6/18*

U.S. Cl. 429—193 **3 Claims**



1. A sealed solid state, ambient temperature electrochemical cell comprises a casing including an anode compartment and a cathode compartment, the compartments insulated electrically from each other, an anode positioned within and in electrical contact with the anode compartment, the anode selected from the class consisting of lithium, lithium as an amalgam, alloys of lithium with aluminum or silicon, sodium, sodium as an amalgam or alloys of sodium with aluminum or silicon, a cathode positioned within and in electrical contact with the cathode compartment, the cathode comprising pressed sulfur powder and carbon powder containing therein a nominal amount of a non-aqueous solvent with ionic conductivity enhancing materials, and a solid ion-conducting electrolyte positioned between the anode and the cathode and in contact with both the anode and the cathode, the solid electrolyte selected from the class consisting of sodium beta-alumina, sodium beta″-alumina, or lithium-sodium aluminate having an approximate composition of $LiNaO.9Al_2O_3$ of which 1.3 to 85.0 percent of the total alkali ion content is lithium.

4,268,588

SOLID POSITIVE ACTIVE MATERIAL FOR HIGH SPECIFIC ENERGY ELECTRIC CELLS

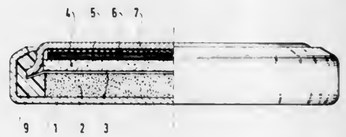
Andre Lecerf, Pace, and Michel Broussely, Poitiers, both of France, assignors to Gipelec, Levallois Perret, France

Filed Nov. 20, 1979, Ser. No. 96,005

Claims priority, application France, Nov. 22, 1978, 78 32924

Int. Cl.³ H01M *6/14*

U.S. Cl. 429—194 **6 Claims**



1. An electric cell comprising a casing containing a positive active material, a negative active material, and an electrolyte, said positive active material consisting of a compound formed by two oxides, a first one of which is basic in character and the second one of which is acid in character, said first oxide being cupric oxide CuO, said second oxide being bismuth oxide Bi_2O_3, and said compound being Bi_2CuO_4.

4,268,589

CELL HAVING IMPROVED RECHARGEABILITY

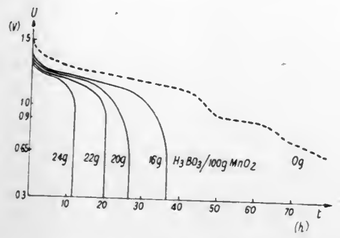
Pentti J. Tamminen, Espoo, Finland, assignor to Imatra Paristo Oy, Finland

Filed Dec. 5, 1978, Ser. No. 966,608

Claims priority, application Finland, Dec. 8, 1977, 773706; United Kingdom, Apr. 3, 1978, 12861/78

Int. Cl.³ H01M 6/04

U.S. Cl. 429—207 **13 Claims**



1. A deep-dischargeable secondary cell comprising an aqueous alkaline electrolyte, a positive electrode mass comprising finely divided manganese dioxide and a conductive inert material, a negative electrode mass composed of a material selected from the group consisting of zinc, copper, lead, cadmium, and mixtures and alloys of at least two of these metals, the manganese dioxide of the positive electrode mass being in chemical contact with free negative ions derived from boric acid which is present in the positive electrode mass as finely divided particles.

4,268,591

MATERIAL FOR COLOR PHOTOGRAPHY

Paul Tschopp, Düdingen, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

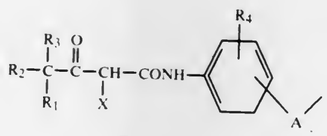
Filed Aug. 28, 1979, Ser. No. 70,474

Claims priority, application Switzerland, Sep. 7, 1978, 9410/78

Int. Cl.³ G03C 7/00

U.S. Cl. 430—17 **25 Claims**

1. A light-sensitive recording material for colour photography, which contains at least one yellow coupler in at least one silver halide emulsion layer, wherein the yellow coupler has the formula



in which R_1 is alkyl having 1 to 18 carbon atoms, R_2 is alkyl having 1 to 18 carbon atoms or aryl, R_3 is substituted or unsubstituted alkyl, alkoxy or alkylmercapto, each having 1 to 18 carbon atoms, cycloalkylmercapto, aryl, aryloxy or arylmercapto, the sum of the carbon atoms in the substituents R_1, R_2 and R_3 being 3 to 30 and at least two of these substituents being able to form a cyclic radical together with the carbon atom to which they are bonded, the R_4s are each halogen, alkyl, alkoxy, halogenoalkyl, alkylsulfonyl or aryloxy, X is a radical detachable during the coupling reaction, A is a 5-membered, heterocyclic, unsaturated ring system which contains 2 or 3 hetero-atoms, at least one of which is a nitrogen atom, and can be fused with a benzene ring and which is substituted by at least one ballast group and r is 1 or 2.

24. A process, for colour photography, for the production of a yellow image by colour development of a recording material according to claim **1**, which has been exposed image-wise.

25. The yellow images produced by the process according to claim **24**.

4,268,590

PHOTOMASKING COMPOSITION, PROCESS FOR PREPARING SAME AND MASK OBTAINED

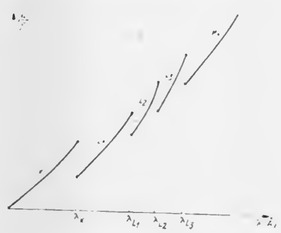
Armand Eranian; Jean C. Dubois; Andre Couttet, and Evelyne Datamanti, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Mar. 6, 1980, Ser. No. 127,745

Claims priority, application France, Mar. 9, 1979, 79 06136

Int. Cl.³ G03C 1/68

U.S. Cl. 430—5 **17 Claims**



1. A photomasking composition, degradable under the action of a radiation, formed from α-alkylacrylic type copolymers substituted by at least two types of halogen atoms, having the general formula:

4,268,592

MATERIAL FOR COLOR PHOTOGRAPHY

Paul Tschopp, Düdingen, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

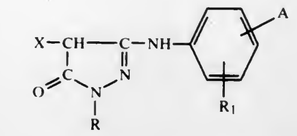
Filed Aug. 28, 1979, Ser. No. 70,475

Claims priority, application Switzerland, Sep. 7, 1978, 9408/78

Int. Cl.³ G03C 7/00

U.S. Cl. 430—17 **18 Claims**

1. A light-sensitive recording material for colour photography, which contains at least one magenta coupler in at least one silver halide emulsion layer, wherein the magenta coupler has the formula



in which A is a 5-membered, heterocyclic, unsaturated ring system which contains 2 or 3 hetero-atoms, at least one of which is a nitrogen atom, and can be fused with a benzene ring and which is substituted by at least one ballast group, R is a substituted or unsubstituted aryl radical, R_1 is hydrogen, halogen, alkyl, alkoxy, halogenoalkyl, alkylsulfonyl or aryloxy and X is a radical detachable during the coupling reaction.

17. A process, for colour photography, for the production of a magenta image by colour development of a recording material according to claim **1**, which has been exposed image-wise.

18. The magenta images produced by the process according to claim **17**.

4,268,593

RECORDING MATERIAL FOR COLOR PHOTOGRAPHY

David G. Leppard, Marly, and Michael Rasberger, Riehen, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

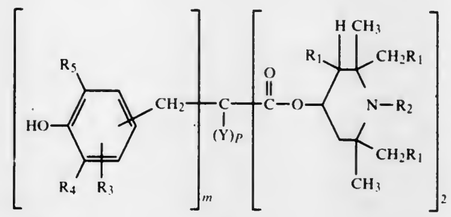
Filed Nov. 5, 1979, Ser. No. 91,275

Claims priority, application Switzerland, Nov. 6, 1978, 11396/78

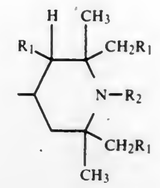
Int. Cl.³ G03C 7/00

U.S. Cl. 430—17 **8 Claims**

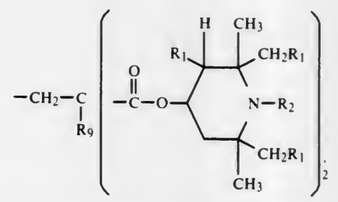
1. A recording material, for colour photography, which contains at least one piperidine compound as the light stabiliser in at least one light-sensitive silver halide emulsion layer, one interlayer and/or one protective layer, wherein the piperidine compound has the formula



in which R_1 is hydrogen or alkyl having 1 to 4 carbon atoms, R_2 is alkyl or hydroxyalkyl, each having 1 to 12 carbon atoms, alkenyl or alkynyl having 3 or 4 carbon atoms, benzyl or R_6CO—, in which R_6 is hydrogen, alkyl having 1 to 12 carbon atoms, alkenyl having 2 or 3 carbon atoms, chloromethyl, cyclohexyl, benzyl or phenyl or phenylethyl, which are unsubstituted or substituted by two alkyl groups, each having 1 to 4 carbon atoms, and one hydroxyl group, R_3 is hydrogen or methyl, R_4 and R_5 are each alkyl having 1 to 5 carbon atoms or cycloalkyl having 5 to 8 carbon atoms and Y is hydrogen, alkyl having 1 to 12 carbon atoms or $—C_nH_{2n}COOR_7$, in which n is 0 or an integer from 1 to 10 and R_7 is hydrogen, alkyl having 1 to 18 carbon atoms, preferably methyl or ethyl, or the radical of the formula



or Y is $—CH_2CH_2CN$ or $—NHCOR_8$, in which R_8 is methyl, ethyl, phenyl or benzyl, or Y is also cyano, benzyl or the radical of the formula



in which R_1 and R_2 are as defined and R_9 is hydrogen or alkyl having 1 to 4 carbon atoms, m is 1 or 2 and p is 1 or 0.

4,268,594

METHOD OF MANUFACTURING A FLUORESCENT SCREEN

Eberhard Gesswein, Erenäcker 20, and Werner Möller, Ravensburger Strasse 77, both of D-7900 Ulm, Fed. Rep. of Germany

Continuation of Ser. No. 918,440, Jun. 23, 1978, abandoned. This application Apr. 17, 1980, Ser. No. 141,259

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1977, 2731126

Int. Cl.³ G03C 5/00, 7/00

U.S. Cl. 430—24 **18 Claims**

1. A method of manufacturing a fluorescent screen for color picture cathode ray tubes in which at least two adjacent patterns of the layer of particulate fluorescent material are applied photochemically to the glass front plate of the tube and a pattern of the filter layer which is substantially overlaid with the corresponding pattern of the fluorescent material layer is also applied photochemically at least between one pattern of said fluorescent material layer and said front plate, said filter layer being of a material which exhibits a relatively high transmission efficiency for light in a spectral range including the color emitted by the fluorescent material applied over the filter layer and a relatively low transmission efficiency for light in the remainder of the visible spectrum, characterized in that initially a continuous filter layer is applied as an aqueous suspension made of particulate filtering material and a binding agent sensitized by means of a first photosensitizer and said filter layer is dried; that said entire filter layer is then exposed evenly to actinic light for a short time; that a continuous fluorescent material layer is then applied as an aqueous suspension made of fluorescent material and of a binding agent sensitized by a second photosensitizer which differs from said first photosensitizer and said fluorescent layer is then dried; that said fluorescent layer is then exposed to actinic light by a mask which is arranged in front of said fluorescent layer and has the desired pattern and that the parts of said fluorescent layer which have not been exposed and the parts of the filter layer lying therebelow are removed in a washing process.

4,268,595

ELECTROSTATIC RECORDING MATERIAL AND METHOD FOR THE PRODUCTION THEREOF

Kazuharu Katagiri; Shozo Ishikawa; Shigeto Ohta, and Makoto Kitahara, all of Tokyo, Japan, assignors to Copyer Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 887,907, Mar. 17, 1978, abandoned, which is a continuation-in-part of Ser. No. 645,143, Dec. 29, 1975, abandoned. This application Nov. 5, 1979, Ser. No. 91,277
Claims priority, application Japan, Dec. 27, 1974, 49-148575
Int. Cl.³ G03C *1/87*
U.S. Cl. 430—48 **19 Claims**

1. An electrostatic recording material comprising a support having thereon a dielectric layer consisting essentially of a terpolymer consisting of

(a) methacrylic acid,

(b) a monomer selected from the group consisting of (1) acrylic acid esters containing at least 4 carbon atoms and (2) methacrylic acid esters containing at least 5 carbon atoms, and

(c) a monomer selected from the group consisting of (1) acrylic acid esters containing at least 4 carbon atoms and (2) methacrylic acid esters containing at least 5 carbon atoms,

wherein said monomer (b) and said monomer (c) are different and at least one of said monomers (b) and (c) is an acrylic acid ester containing at least 11 carbon atoms or a methacrylic acid ester containing at least 8 carbon atoms,

wherein said acrylic acid esters and methacrylic acid esters are esters of alcohols selected from the group consisting of aliphatic alcohols, aromatic alcohols and alcohols containing an aralkyl group and

wherein the proportion of (a) to the total of (b) and (c) is 10-70 mol % (a) and 30-90 mol % (b) plus (c).

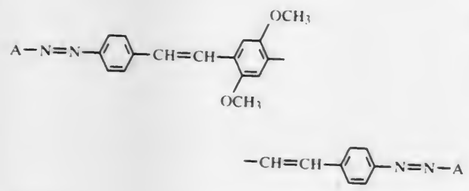
4,268,596

ELECTROPHOTOGRAPHIC ELEMENT HAVING 1,4-BIS(AZOSTYRYL)-2,5 DIMETHOXY BENZENE COMPOUNDS AS PHOTOCONDUCTORS

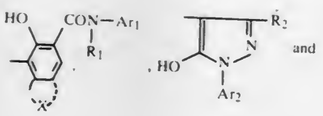
Masaomi Sasaki, Shizuoka; Mitsuru Hashimoto, Numazu, and Tomiko Kawakami, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 21, 1979, Ser. No. 96,279
Claims priority, application Japan, Nov. 27, 1978, 53-145356
Int. Cl.³ G03G *5/06*
U.S. Cl. 430—72 **70 Claims**

1. An electrophotographic element which comprises an electrically conductive support and a photosensitive layer formed thereon, said photosensitive layer consisting essentially of a disazo compound having the formula

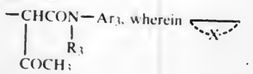


wherein A is a member selected from the group consisting of



and

-continued



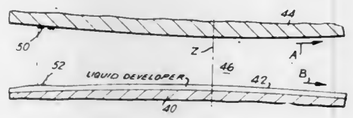
is a fused ring selected from the group consisting of benzene ring, halobenzene ring, naphthalene ring, indole ring, carbazole ring and benzofuran ring; Ar_1 is a member selected from the group consisting of phenyl, naphthyl, dibenzofuryl, carbazolyl, substituted phenyl, substituted naphthyl, substituted dibenzofuryl and substituted carbazolyl wherein the substituents are selected from the group consisting of halogen, C_1-C_4 alkoxy, dialkylamino wherein each alkyl has 1-4 carbon atoms, cyano, carboxyl, nitro and SO_3Na; each of Ar_2 and Ar_3 is a member selected from the group consisting of phenyl, naphthyl, substituted phenyl and substituted naphthyl wherein the substituents are selected from the group consisting of nitro, SO_3NH_2, SO_3H, halogen, C_1-C_4 alkyl, C_1-C_{14} alkoxy, cyano, dialkylamino wherein each alkyl has 1-4 carbon atoms and acylamino having 1-4 carbon atoms; each of R_1 and R_3 is a member selected from the group consisting of hydrogen, alkyl having 1-4 carbon atoms, phenyl and halophenyl; and R_2 is a member selected from the group consisting of alkyl having 1-4 carbon atoms, carboxyl and esters thereof wherein the ester-forming group has 1-4 carbon atoms; and a resin binder.

4,268,597

METHOD, APPARATUS AND COMPOSITIONS FOR LIQUID DEVELOPMENT OF ELECTROGSTATIC IMAGES

Irving L. Klavan, Teaneck; Peter J. Calabrese, Montville; Theron R. Finch, Northvale; Arthur Greenberg, Teaneck, all of N.J., and Robert P. McElroy, Spring Valley, N.Y., assignors to Philip A. Hunt Chemical Corp., Palisades Park, N.J.

Continuation-in-part of Ser. No. 676,463, Apr. 13, 1976, abandoned, Ser. No. 916,041, Jun. 28, 1978, abandoned, and Ser. No. 916,042, Jun. 29, 1978, abandoned. This application Apr. 16, 1979, Ser. No. 29,975
The portion of the term of this patent subsequent to May 13, 1997, has been disclaimed.
Int. Cl.³ B05D *1/04*
U.S. Cl. 430—102 **90 Claims**



1. A method for creating a physical material image at a surface of an object, said method comprising:

(A) providing a liquid developer at a development zone,

(B) disposing said surface of said object close to but out of contact with the surface of said liquid developer at said development zone, p0 (C) providing an electric field extending from said object to said surface of said liquid developer at said development zone,

(i) said electric field being in the configuration of at least a portion of the image to be formed,

(ii) said field being of a strength sufficiently high to transfer at least a portion of said liquid developer to said object,

(iii) said field acting on the liquid developer at said zone,

(a) to change the shape of said surface opposed to said object at said zone so as to form a multiplicity of closely spaced mechanically unsupported tiny discrete amorphous pseudopods of liquid of individual cross-section smaller than the image, which conjointly are in the shape of said portion of the image and which extend from said surface in a direction toward said object and

(b) to contact said object with the liquid at least from the tips of said pseudopods,

(D) said liquid at least from the tips of said pseudopods being deposited on said object, conjointly to form a physical material image in the configuration of said portion.

4,268,598

DEVELOPING POWDER COMPOSITION CONTAINING FLUOROALIPHATIC SULFONAMIDO SURFACE ACTIVE AGENT

Ronald P. Leseman, Newport, and George A. Kurhajec, North Oaks, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 15, 1979, Ser. No. 84,607
Int. Cl.³ G03G *9/00*
U.S. Cl. 430—107 **17 Claims**

1. A developing powder composition that comprises a mixture of from about 99.75 to 95% by weight of toner powder particles and correspondingly from about 0.25 to 5% by weight of a fluoroaliphatic sulfonamido surface active material of the formula

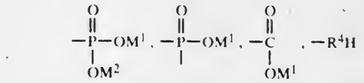
$$[R_fQ]_mA$$

wherein

R_f is a fluoroaliphatic radical;

Q is a divalent sulfonamido-containing group through which R_f and A are joined together;

A is a terminal group selected from the group aryl, alkenylene,



wherein R^4 is an oxalkylene group having from 1 to 10 carbon atoms, an ester group, or sulfate group; M^1 and M^2 are selected from hydrogen, alkyl having from 1 to 6 carbon atoms and salt-forming cations; and

m is equal to the valence of A.

4,268,599

TREATED TONER MAGNETIC CARRIER AND METHOD OF MAKING THE SAME

John J. Russell, Jr., Woodbury, Conn., assignor to Pitney Bowes, Inc., Stamford, Conn.

Division of Ser. No. 1,650, Jan. 8, 1979, Pat. No. 4,225,660, which is a continuation-in-part of Ser. No. 796,363, May 12, 1977, abandoned. This application Jan. 23, 1980, Ser. No. 114,537
Int. Cl.³ G03G *9/14*
U.S. Cl. 430—108 **5 Claims**

1. A particulate magnetic carrier for use in a development powder, the particle being coated with a polymer capable of providing reactive sites of functional organic chemical groupings distributed along the polymer chain and having on the outer surface of said coating a material selected from a group consisting of Rhodamine B, basic Fuschine, stearic acid, stearyl amine and tetrachlorophthalic anhydride covalently reacted with said sites.

4,268,600

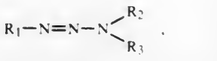
PROCESS FOR PHOTOCHEMICALLY COLORING TEXTILES USING PHOTOSENSITIVE TRIAZENE AND COUPLER THEREFOR

Jean J. Robillard, Ferney-Voltaire, and Claude R. Riou, Gex, both of France, assignors to Issec and Tissages de Soieries Rennis, France

Filed Dec. 1, 1978, Ser. No. 965,437
Claims priority, application France, Dec. 9, 1977, 77 37771
Int. Cl.³ G03C *5/18*; D06P *5/02, 1/02, 5/17*
U.S. Cl. 430—142 **10 Claims**

1. An improved process for colour printing textile articles chosen from the group formed by cloths, garments and textile accessories, in which:

at least one coat, in basic medium, of a photosensitive composition, comprising at least one triazene of general formula:



in which R_1, R_2 and R_3 are chosen from the group consisting of hydrogen, an alkyl radical or an aryl radical, and a coupling agent, capable of yielding an azo dye colour by reaction with a diazonium cation obtained by photochemical decomposition of the triazene by exposure to light, is applied to a suitable surface of the textile article to be printed, then the said coat is exposed to light with a suitable negative image, wherein the improvement consists of washing and rinsing the coated textile article after said exposure to remove unreacted chemical products and then drying the coated textile article.

5. Process according to claim 1, in which several superimposed coats, each containing colour-generating compound are applied to the surface of the textile articles, characterized in that:

a first photosensitive coating, formed by a composition, based on a triazene and on a coupling agent, capable of yielding a first fundamental azo dye colour on exposure to actinic light, is applied, the coat obtained is then exposed, with a chosen design to actinic light through a first three-colour selection negative corresponding to the colour yielded by this first composition, then it is washed and rinsed;

subsequently, a second photosensitive coating, formed by a composition, based on a triazene and on a coupling agent, capable of yielding a second fundamental azo dye colour on exposure to actinic light, is applied, then this second coat is exposed, with a chosen design, to actinic light through a second three-colour selection negative, corresponding to the colour yielded by this second composition, then it is washed and rinsed;

after that, a third photosensitive coating, formed by a composition, based on a triazene and on a coupling agent, capable of yielding a third fundamental azo dye colour on exposure to actinic light, is applied, then this third coat is exposed, with a chosen design, to actinic light through a third three-colour selection negative, corresponding to the colour yielded by this third composition, then it is washed and rinsed;

and, finally, the textile article obtained is dried.

6. Process according to claim 1, in which three superimposed coats, each containing colour-generating compounds are applied to the surface of the textile article to be printed, characterized in that

first of all, a first photosensitive coating, consisting of a composition, containing at least one triazene and one coupling agent, capable of yielding a first complementary azo dye colour to the sensitizing colour on exposure to light, a sensitizing agent and at least one compound, polymerisable under the influence of exposure to light, so as to fix the first dye formed, is applied;

then a second photosensitive coating, consisting of another composition, containing at least one triazene and one coupling agent, capable of yielding a second complementary azo dye colour to the sensitizing colour on exposure to light, a sensitizing agent and at least one compound, polymerisable under the influence of exposure to light, so as to fix the second dye formed, is applied to the first coat;

then a third photosensitive coating, consisting of another composition, containing at leat one triazene and one coupling agent, capable of yielding a third complementary azo dye colour to the sensitizing colour on exposure to light, a sensitizing agent and at least one compound,

polymerisable under the influence of exposure to light, so as to fix the third dye formed, is applied to the second coat;

subsequently, these superimposed three coats are exposed to light through a colour negative of the image to be reproduced; subsequently, washing is carried out with a compound, which is a solvent of the unreacted compounds, but a non-solvent of the polymers formed by polymerisation;

and, finally, the textile article obtained is dried in conditions adequate for removing the solvents and fixing the three coats obtained.

4,268,601

PHOTOSENSITIVE IMAGE FORMING MATERIAL AND AN IMAGE FORMING METHOD USING SAME

Tomizo Namiki; Fumiaki Shinozaki, and Tomoaki Ikeda, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jul. 17, 1978, Ser. No. 925,147
Claims priority, application Japan, Jul. 15, 1977, 52-84698
Int. Cl.[3] G03C *1/80, 1/52, 1/68;* **G03F** *1/00*
U.S. Cl. 430—159 **21 Claims**

1. A photosensitive image forming material consisting essentially of a transparent support having thereon, in order, a stripping layer of poly(vinyl alcohol), an adhesive layer consisting of an alcohol soluble polyamide which strengthens the adhesive bond between the stripping layer and a photosensive resin composition layer thus preventing the photosensitive resin composition layer from peeling off prior to development, while, on the other hand, during development the alcohol-soluble polyamide layer is dissolved or swelled by the aqueous developing solution at the areas where the overlying photosensitive resin composition layer is dissolved and removed simultaneously with the corresponding portion of the underlying stripping and adhesive layers to produce a visible image, and at least one of the layer of the poly(vinyl alcohol) or the photosensitive resin composition layer containing a colorant.

10. A method for forming an image comprising (1) imagewise exposing to actinic light a photosensitive image forming material consisting essentially of (A) a transparent support having thereon, in order, (B) a stripping layer consisting of poly(vinyl alcohol), (C) a layer of an alcohol soluble polyamide which strengthens the adhesive bond between the stripping layer and a photosensitive resin composition layer thus preventing the photosensitive resin composition layer from peeling off prior to development, and (D) a photosensitive resin composition layer, while, on the other hand, during development the alcohol-soluble polyamide layer is dissolved or swelled by the aqueous developing solution at the areas where the overlying photosensitive resin composition layer is dissolved and removed by the aqueous developing solution, permitting the aqueous developing solution to reach the stripping layer, and at least one of the layer of the poly(vinyl alcohol) or the photosensitive resin composition layer containing a colorant, and (2) developing said exposed material in a single developing operation with an aqueous developing solution whereby soluble portions of said photosensitive resin composition layer are removed in conjunction with the corresponding portions of said layers of alcohol soluble polyamide and poly(vinyl alcohol) to leave a visible image on said support comprising the layer of the photosensitive resin composition layer and the layers of alcohol soluble polyamide and poly(vinyl alcohol) thereunder remaining.

4,268,602

PHOTOSENSITIVE O-QUINONE DIAZIDE CONTAINING COMPOSITION

Tsuneo Yoshino, Fujisawa, and Gentaro Ohbayashi, Kamakura, both of Japan, assignors to Toray Industries, Ltd., Tokyo, Japan

Filed Dec. 5, 1978, Ser. No. 966,563
Int. Cl.[3] G03C *1/54, 1/60, 1/70*
U.S. Cl. 430—192 **3 Claims**

1. A resin composition suitable for use as a photoresist, wherein solubility in an organic developing solvent varies with light exposure, an exposed portion remaining after development, consisting of an admixture comprising

as an ingredient an organic resin obtained by homopolymerization of vinylically unsaturated monomers containing a basic amino group —NRR′ which is no less basic than pyridyl or by copolymerization of said vinylically unsaturated monomers containing a basic amino group —NRR′ no less basic than pyridyl with one or more ethylenically unsaturated monomers;

wherein R is $C_{1\text{-}12}$alkyl, $C_{6\text{-}11}$phenyl, $C_{7\text{-}14}$aralyl; $C_{3\text{-}6}$cycloalkyl or $C_{6\text{-}12}$cycloalkylalkyl having a cycloalkyl group of 3 to 6 carbon atoms and R′ is independently any group defined by R; or wherein NRR′ is pyridyl or a nonaromatic heteromonocycle composed of 3 to 10 nuclear atoms including no more than two heteroatoms selected from N,O and S of which at least one is N;

wherein the nitrogen content of said NRR′ group in said organic polymer is 0.01% to 10% by weight on the basis of the weight of said polymer; and

as an additional ingredient one part by weight of a photosensitive orthoquinone diazide per 5 to 500 parts of said organic polymer.

4,268,603

PHOTORESIST COMPOSITIONS

Takayuki Sato, Yokosuka, Japan, assignor to Tokyo Ohka Kogyo Kabushiki Kaisha, Kawasaki, Japan

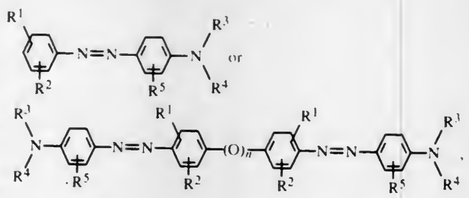
Filed Jul. 27, 1979, Ser. No. 61,306
Claims priority, application Japan, Dec. 7, 1978, 53-151842
Int. Cl.[3] G03C *1/60, 1/70, 1/71*
U.S. Cl. 430—196 **15 Claims**

1. A photoresist composition which comprises an admixture of

(a) a cyclized rubber,

(b) a bisazide compound as a photosensitive crosslinking agent in an amount of from 1 to 10 parts by weight per 100 parts by weight of cyclized rubber, said bisazide compound being selected from the group consisting of 4,4′-diazidochalcone, 4,4′-diazidodiphenyl, 4,4′-diazidostilbene, 2,6-bis(4′-azidobenzal)cyclohexanone, 2,6-bis(4′-axidobenzal)-3-methylcyclohexanone and 2,6-bis (4′-axidobenzal)-4-methylcyclohexanone,

(c) 0.5 to 15 parts by weight per 100 parts by weight of the cyclized rubber of a photoextinction agent which is a compound represented by the general formula



in which R^1 and R^2 are each an atom or a group selected from the class consisting of a hydrogen atom, a hydroxy group, alkyl groups and alkoxy groups, R^3 and R^4 are each a group selected from the class consisting of alkyl groups,

hydroxyalkyl groups and aralkyl groups, R^5 is a hydrogen atom or an alkyl group and n is a number of 0 to 1, and

(d) 0.5 to 15 parts by weight per 100 parts by weight of the cyclized rubber of a fluorescent agent which is a compound represented by the general formula $R^6—CH=N—(A)_m—N=CH—R^6$, in which R^6 is an aryl group or a 2-arylethylenyl group , A is a phenylene group and m is a number of 0 or 1.

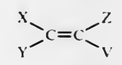
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PHOTOGRAPHIC ELEMENT FOR COLOR DIFFUSION TRANSFER PROCESS

Takashi Yoshida, and Shinji Sakaguchi, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 19, 1979, Ser. No. 31,724
Claims priority, application Japan, Apr. 19, 1978, 53-46247
Int. Cl.[3] G03C *1/40, 5/54;* **B32B** *27/08, 27/00*
U.S. Cl. 430—215 **33 Claims**

1. In a photographic element for the color diffusion transfer process including a neutralizing system for reducing the pH of an aqueous alkaline developing solution which comprises a support having coated thereon a neutralizing layer and a timing layer wherein the timing layer is positioned on or under the neutralizing layer in direct or indirect contact therewith such that the aqueous alkaline developing solution reaches the neutralizing layer through the timing layer, the improvement which comprises said timing layer comprising a mixture of at least one polymer latex the minimum film forming temperature of which is 35° C. or less (Group I) and at least one polymer latex the minimum film forming temperature of which is greater than 35° C. (Group II) each polymer latex being produced by emulsion polymerization of (i) at least one monomer selected from the group consisting of monomers of Group (A) and at least one monomer selected from the group consisting of monomers of Group (B), or (ii) at least one monomer selected from the group consisting of monomers of Group (A), at least one monomer selected from the group consisting of monomers of Group (B) and at least one monomer selected from the Group (C), wherein said Group (A) monomers are ethylene type monomers having at least a free carboxylic acid group or a salt thereof; said Group (B) monomers are represented by the following general formula (M):



(M)

wherein X and Y, which may be the same or different, each represents a hydrogen atom, a methyl group, a halogen atom or a $—COOR^1$ group; Z represents a hydrogen atom, a methyl group, a halogen atom or a $—(CH_2)_nCOOR^2$ group; V represents an aryl group, a $—COOR^3$ group or an

group; R^1, R^2 and R^3, which may be the same be the same or different, each represents an aliphatic group or an aryl group; and n represents an integer of 0 to 3;

said Group (C) monomers are monofunctional or polyfunctional unsaturated monomers other than the monomers of Group (A) and Group (B) which are copolymerizable with the monomers of Group (A) and Group (B), the monofunctional monomers being selected from the group consisting of acrylamides, methacrylamides, vinyl ethers, vinyl ketones, allyl compounds, vinyl heterocyclic compounds, and unsaturated nitriles, and the polymer latex layer is water permeable.

11. The photographic element of claim **1**, wherein said photographic element is a laminated integral type film unit which comprises: a photosensitive member comprising an image-receiving element and a photosensitive element comprising one or more silver halide emulsion layer(s) coated in turn on a support, a cover sheet including said neutralizing system, and a processing element capable of being spread between said photosensitive element and said cover sheet.

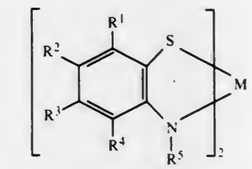
4,268,605

STABILIZATION OF ORGANIC SUBSTRATE MATERIALS INCLUDING PHOTOGRAPHIC DYE IMAGES AGAINST THE ACTION OF LIGHT

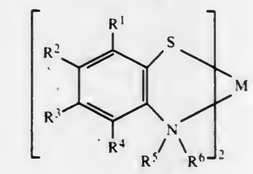
Hiroshi Hara, Asaka; Kotaro Nakamura, and Yoshiaki Suzuki, both of Minami-ashigara all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Division of Ser. No. 29,086, Apr. 11, 1979. This application May 15, 1980, Ser. No. 150,029
Claims priority, application Japan, Apr. 14, 1978, 53-43866
Int. Cl.[3] G03C *1/10, 1/40, 1/84*
U.S. Cl. 430—216 **2 Claims**

1. A diffusion transfer color photographic material comprising a photosensitive element and an image receiving element, said image receiving element comprising a support having thereon a mordanting layer containing a complex of the formula (I) or (II)



(I)



(II)

wherein M is a metal selected from the group consisting of Cu, Co, Ni, Pd and Pt; R^1, R^2, R^3 and R^4 each represent a hydrogen atom, a halogen atom, a cyano group, an alkyl group, an aryl group, a cycloalkyl group or a heterocyclic group attached to the carbon atom of the benzene ring directly or through a divalent connecting group; or R^1 and R^2, R^2 and R^3, or R^3 and R^4 can combine to represent the non-metallic atoms necessary to complete a 6-membered ring; and R^5 and R^6, which may be the same or different, each represent a hydrogen atom, an alkyl group, an aryl group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, an alkylsulfonyl group or an arylsulfonyl group.

4,268,606

AZO DYE COMPOUNDS AND PHOTOGRAPHIC MATERIALS

Jan R. Haase; Richard A. Landholm, both of Rochester, N.Y., and James J. Krutak, Sr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 439,790, Feb. 5, 1974, abandoned, which is a continuation-in-part of Ser. No. 331,729, Feb. 12, 1973, abandoned. This application Feb. 6, 1976, Ser. No. 656,046
Int. Cl.[3] G03C *1/10, 1/40*
U.S. Cl. 430—223 **65 Claims**

47. A photographic film unit which is adapted to be processed by passing said unit between a pair of juxtaposed pressure-applying members comprising:

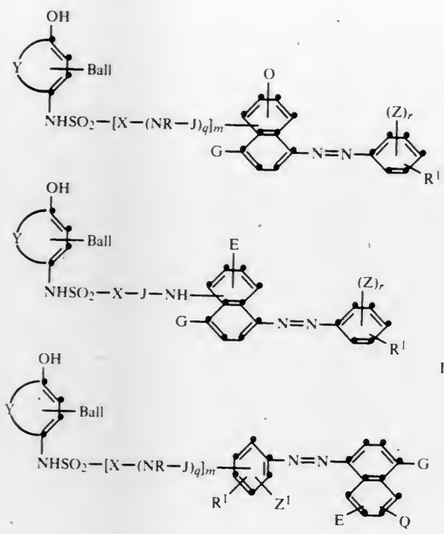
(a) a photosensitive element comprising a support having thereon at least one photosensitive silver halide emulsion

layer and one of said layers having associated therewith a magenta image dye-providing compound;

(b) a dye image-receiving layer which is positioned on the same side of the support as the silver halide emulsion layer; and

(c) means for discharging an alkaline processing composition within said film unit;

said film unit containing a silver halide developing agent and said compound having a formula as follows:



I.

II.

III.

wherein

Ball represents an organic ballasting group of such size and configuration as to render said compound nondiffusible during development in an alkaline processing composition.

Y represents the carbon atoms necessary to complete a benzene or naphthalene nucleus.

m and q each represent an integer having a value of 0 or 1;

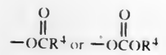
X represents a bivalent linking group of the formula $-R^2-L_n-R^2_p-$ where each R^2 can be the same or different and each represents an alkylene radical having 1 to about 8 carbon atoms; a phenylene radical; or a phenylene radical substituted with chloro, bromo, cyano, nitro, methoxy, methyl, carboxy or sulfo; L represents a bivalent radical selected from oxy, carbonyl, carboxamido, carbamoyl, sulfonamido, sulfamoyl, sulfinyl or sulfonyl; n is an integer having a value of 0 or 1; p is 1 when n equals 1 and p is 1 or 0 when n equals 0 or when q is 0, L is sulfonyl and n is 1, then p is 0, provided that when p is 1 the carbon content of the sum of both R^2 radicals does not exceed 14 carbon atoms;

R represents a hydrogen atom, or an alkyl radical having 1 to about 6 carbon atoms;

J represents a bivalent radical selected from sulfonyl or carbonyl;

Q represents a hydroxy radical or a radical having the formula $-NHCOR^3$ or $-NHSO_2R^3$ wherein R^3 is an alkyl radical having 1 to about 6 carbon atoms, an alkyl radical having 1 to about 4 carbon atoms substituted with hydroxy, cyano, sulfamoyl, carboxy, or sulfo; benzyl, phenyl or a phenyl radical substituted with carboxy, chloro, methyl, methoxy or sulfamoyl;

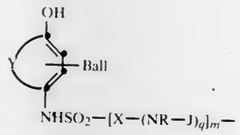
G represents a hydroxy radical, a salt thereof, or a hydrolyzable acyloxy group having the formula:



wherein R^4 is an alkyl radical having 1 to about 18 carbon atoms, phenyl or phenyl substituted with chloro or nitro;

r represents an integer having a value of 1 or 2;

Z represents a cyano radical, a trifluoromethyl radical, a carboxy radical, a carboxylic acid ester having the formula $-COOR^4$ wherein R^4 is as described previously, a nitro radical in the 2- or 3-position relative to the azo radical, a fluorosulfonyl radical, a sulfo radical, a halogen atom, an alkylsulfonyl radical having 1 to about 8 carbon atoms, an alkylsulfonyl radical having 1 to about 6 carbon atoms substituted with hydroxy, phenyl, cyano, sulfamoyl, carboxy or sulfo; a phenylsulfonyl radical or a phenylsulfonyl radical substituted with hydroxy, sulfamoyl, fluorosulfonyl, carboxy or sulfo; an alkylcarbonyl having 2 to about 5 carbon atoms, a sulfamoyl radical having the formula $-SO_2NR^5R^6$ wherein R^5 and R^6 are the same or different and each may represent hydrogen, an alkyl radical having 1 to about 6 carbon atoms, an alkyl radical having 1 to about 4 carbon atoms substituted with hydroxy, cyano, sulfamoyl, carboxy or sulfo; a benzyl radical, a phenyl radical, or phenyl radical substituted with hydroxy, sulfamoyl, sulfonyl, carboxy or sulfo; an alkylcarbonyl having 2 to about 7 carbon atoms, phenylcarbonyl, an alkylsulfonyl having 1 to about 6 carbon atoms, phenylsulfonyl, or R^5 and R^6 taken together can represent $=CH-N(CH_3)_2$; a carbamoyl radical having the formula $-CON(R^5)_2$ wherein each R^5 can be the same or different and is as described previously; and, in Formulas I or II when r is 1, Z may represent a radical having the formula



wherein Y, Ball, X, J, R, q and m are as described previously;

R^1 represents a hydrogen atom, an alkyl radical having 1 to about 4 carbon atoms, an alkoxy radical having 1 to about 4 carbon atoms, or a halogen atom;

E is in the 5-, 6- or 7- position relative to G and represents a hydrogen atom, a carboxy radical, a carboxylic acid ester having the formula $-COOR^4$ wherein R^4 is as described previously, a sulfo radical, a sulfamoyl radical having the formula $-SO_2NR^5R^6$, a carbamoyl radical having the formula $-CON(R^5)_2$ wherein R^5 and R^6 are as described previously, an alkylsulfonyl radical having 1 to about 8 carbon atoms, an alkylsulfonyl radical having 1 to about 8 carbon atoms substituted with cyano, hydroxy, sulfamoyl, phenyl or sulfo; a phenylsulfonyl radical or a phenylsulfonyl radical substituted with sulfo, carboxy, fluorosulfonyl or methoxy;

Z^1 represents hydrogen or Z;

with the proviso that there be no more than one sulfo radical and no more than one carboxy radical present in said compound.

4,268,607

METHOD OF PATTERNING A RESIST LAYER FOR MANUFACTURE OF A SEMICONDUCTOR ELEMENT

Tsukasa Tada, Yokohama, Japan, assignor to VLSI Technology Research Association, Japan

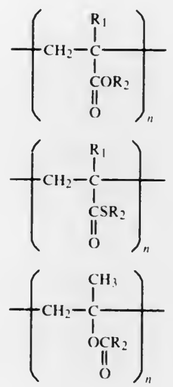
Filed Dec. 18, 1978, Ser. No. 970,253

Claims priority, application Japan, Dec. 20, 1977, 52-153096

Int. Cl.³ B05D *3/06*

U.S. Cl. 430—270 **5 Claims**

1. A method of patterning a radiation-sensitive positive resist layer for manufacture of a semiconductor element which comprises the steps of applying at least one homopolymer of the radiation-sensitive materials having a structural formula selected from the group consisting of:



(I)

(II)

(III)

where:

R_1 is a methyl group, a halogenated methyl group, a cyano group or a halogen;

R_2 is an alkyl group or an alkoxy alkyl group having 6 or less carbon atoms in which at least one hydrogen is substituted by chlorine or bromine; and

n is an integer of 1 or larger

on a substrate to form a radiation-sensitive resist layer; heating the resist layer to cross-link said radiation-sensitive material and render it insoluble in a solvent; projecting radiation on the cross-linked resist layer to draw a desired pattern; and developing said resist layer to eliminate those portions of the resist layer which were bombarded with radiation.

4,268,608

DEVICE FOR USE IN PHOTOCHEMICAL AND PHOTOMECHANICAL PROCESSES

Thaddeus M. Muzyczko, Downers Grove, and Thomas H. Jones, Naperville, both of Ill., assignors to The Richardson Company, Des Plaines, Ill.

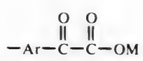
Continuation of Ser. No. 854,703, Nov. 25, 1977, Pat. No. 4,156,612, which is a continuation-in-part of Ser. No. 704,494, Jul. 12, 1976, Pat. No. 4,065,314, which is a continuation of Ser. No. 585,215, Jun. 9, 1975, Pat. No. 3,969,119, which is a continuation of Ser. No. 267,475, Jun. 29, 1972, Pat. No. 3,888,671. This application May 25, 1979, Ser. No. 42,434

The portion of the term of this patent subsequent to May 29, 1996, has been disclaimed.

Int. Cl.³ G03C *1/68, 5/00*

U.S. Cl. 430—270 **7 Claims**

1. A device for use in photochemical and photomechanical processes comprising a backing member and a film applied thereto, said film including a polymer having as a recurring structure:



wherein Ar is a bivalent aromatic radical and M is selected from the class consisting of hydrogen, alkali metal, ammonium and substituted ammonium, said recurring structure being present in said polymer as pendant groups from the polymeric chain, and said polymer chain including as a recurring structure $-CH_2-CH-O-$.

4,268,609

PROCESS FOR PREPARING PHOTOSENSITIVE LITHOGRAPHIC PRINTING PLATE PRECURSOR

Keisuke Shiba; Tadao Toyama, and Sho Nakao, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jul. 16, 1980, Ser. No. 169,253

Claims priority, application Japan, Jul. 16, 1979, 54-90053; Sep. 26, 1979, 54-124482

Int. Cl.³ G03C *1/76*

U.S. Cl. 430—271 **6 Claims**

1. A process for preparing a photosensitive lithographic printing plate precursor comprising a support having a hydrophilic surface and having thereon, in sequence, a non-silver photosensitive layer capable of forming a lipophilic image, and a photosensitive silver halide emulsion layer, the coating of the silver halide emulsion is applied to said non-silver photosensitive layer and dried using hot air at 60° to 150° C. without permitting the coating to set.

4,268,610

PHOTORESIST FORMULATIONS

Leo Roos, San Jose, Calif., assignor to Hercules Incorporated, Wilmington, Del.

Filed Nov. 5, 1979, Ser. No. 91,635

Int. Cl.³ H05K *3/18*

U.S. Cl. 430—281 **12 Claims**

1. In a photopolymerizable composition for use in photoresists, comprising:

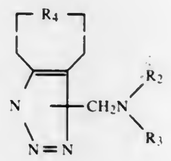
a non-gaseous photopolymerizable compound containing 1 to 4 centers of ethylenic unsaturation and capable of photo-initiated addition polymerization;

a thermoplastic polymer binder;

an addition polymerization initiator activatable by actinic radiation; and

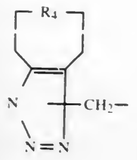
an adhesion promoter;

the improvement of using an adhesion promoter having the formula



wherein R_4 is a benzene or naphthalene radical, each unsubstituted or mono- or di-substituted with alkyl radicals having from 1 to 12 carbon atoms or aralkyl radicals having from 7 to 9 carbon atoms; R_2 is a radical of the formula $R_7O[(alkylene)O]_x$-(alkylene)-, wherein R_7 is hydrogen or an alkyl radical having from 1 to 20 carbon atoms, "alkylene" is a straight or branched chain alkylene radical having 2 or 3 carbon atoms and x is 0, 1, 2, 3 or 4; an alkenyl radical having from 2 to 20 carbon atoms or a cyanoalkyl radical having from 2 to 5 carbon atoms; and R_3 is the same as R_2 or hydrogen; an alkyl radical having from 1 to 20 carbon atoms; an aryl radical having from 6

to 10 carbon atoms; a cycloalkyl radical having from 5 to 12 carbon atoms; an aralkyl radical having from 7 to 9 carbon atoms; a heterocyclic radical or a radical of formula:



wherein R_4 has its previous significance.

4,268,611

CONTACT PHOTOGRAPHIC PROCESS FOR PRODUCING A PLANOGRAPHIC PRINTING PLATE

Yoshio Okishi; Azusa Ohashi, and Masaru Watanabe, all of Yoshida, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Division of Ser. No. 758,750, Jan. 12, 1977, Pat. No. 4,168,979, which is a continuation of Ser. No. 560,011, Mar. 19, 1975, abandoned. This application Dec. 20, 1978, Ser. No. 971,152
Claims priority, application Japan, Mar. 19, 1974, 49-31153
Int. Cl.³ G03F *7/20, 7/02, 7/08*
U.S. Cl. 430—302 **38 Claims**

1. A process for producing a planographic printing plate which comprises
(1) intimately contacting, using a vacuum contact method, an original image with the outermost layer of a light-sensitive printing plate precursor comprising
(a) a support,
(b) a light-sensitive layer on said support (a), said light-sensitive layer being present in a coating amount of 0.2 to 7 g/m^2 and comprising
(i) a negative-working composition containing a diazo resin, or
(ii) a positive working composition containing an o-diazooxide-based light-sensitive material, a phosphotungstic acid salt of a diazo resin, a hexacyanferrate salt of a diazo resin, or a diazo resin and polyvinyl hydrogenphthalate, and
(c) a matt layer comprising a resin layer with particles of a matt agent dispersed therein on said light-sensitive layer (b), said matt layer having a surface coarseness Ha ranging from 0.4 to 4 microns and said particles having a particle size of about 2 to 40 microns;
(2) exposing said light-sensitive printing plate precursor to active rays through said original image, and then
(3) removing with a developing solution either the exposed area or the unexposed area of said light-sensitive layer (b) and substantially the entire matt layer (c), thereby to prepare said printing plate.

13. A process for producing a planographic printing plate which comprises
(1) intimately contacting, using a vacuum contact method, an original image with the outermost layer of a light-sensitive printing plate precursor comprising
(a) a support,
(b) a light-sensitive layer on said support (a), said light-sensitive layer being present in a coating amount of 0.2 to 7 g/m^2 and containing a member selected from the group consisting of a diazo resin, an azide compound, and polyvinyl cinnamate as a light-sensitive component of said light-sensitive layer,
(c) a matt layer comprising a resin layer with particles of a matt agent dispersed therein on said light-sensitive layer (b), said matt layer having a surface coarseness Ha ranging from about 0.4 to 4 microns and said particles having a particle size of about 2 to 40 microns, and
(d) a layer of an oleophilic, hydrophobic, water-insoluble and solvent-softenable resin between said light-sensitive layer (b) and said matt layer (c);
(2) exposing said light-sensitive printing plate precursor to active rays through said original image, and
(3) removing with a developing solution either the exposed area or the unexposed area of said light-sensitive layer (b) and substantially the entire matt layer (c), thereby to prepare said printing plate.

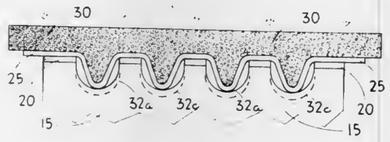
27. A process for producing a planographic printing plate which comprises
(1) intimately contacting, using a vacuum contact method, an original image with the outermost layer of a light-sensitive printing plate precursor comprising
(a) a support,
(b) a light-sensitive layer on said support (a), said light-sensitive layer being present in a coating amount of 0.2 to 7 g/m^2 and comprising
(i) a negative-working composition containing a diazo resin, an azide light-sensitive material, a light-sensitive resin having an unsaturated double bond in the molecule which undergoes a dimerization reaction upon irradiation with active rays thereby becoming insoluble, or ethylene-based unsaturated compounds which have at least two unsaturated double bonds and undergo a polymerization reaction upon irradiation of active rays, or
(ii) a positive-working composition containing an o-diazooxide-based light-sensitive material, a phosphotungstic acid salt of a diazo resin, a hexacyanoferrate salt of a diazo resin, a diazo resin and polyvinyl hydrogenphthalate, or a light-sensitive composition containing linear polyamides and monomers containing an addition polymerizable unsaturated bond,
(c) a matt layer comprising a resin layer with particles of a matt agent dispersed therein on said light-sensitive layer (b), said matt layer having a surface coarseness Ha ranging from about 0.4 to 4 microns and said particles having a particle size of about 2 to 40 microns, and
(d) a layer of an oleophilic, hydrophobic, water-insoluble and solvent-softenable resin between the light-sensitive layer (b) and the matt layer (c);
(2) exposing said light-sensitive printing plate precursor to active rays through said original image, and then
(3) removing with a developing solution either the exposed area or the unexposed area of said light-sensitive layer (b) and substantially the entire matt layer (c), thereby to prepare said printing plate.

4,268,612

METHOD FOR MAKING RELIEF DEEPENINGS IN PRINTING PLATE MATERIALS

Vaclav Misek, 8515 Colonial Dr., Stockton, Calif. 95207

Continuation-in-part of Ser. No. 947,891, Oct. 2, 1978, abandoned. This application Sep. 13, 1979, Ser. No. 75,501
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—306 **7 Claims**



1. A method for fabricating a printing plate comprising the steps of:
(a) providing an hydrophilic material as plate material on a plate backing with an adhesive substance within said plate material that is water activated,
(b) exposing portions of said plate material with radiation whereby portions so exposed becomes less hydrophilic than unexposed portions,
(c) applying water on said plate material thereby activating said adhesive substance on the unexposed more hydrophilic portions,
(d) placing a removal medium on and parallel to said plate material,
(e) moving said removal medium in a direction perpendicular to said plate material whereby such motion enhances an adhesive bond between the exposed areas of said plate material and said plate backing while simultaneously removing more hydrophilic unexposed portions to thereby provide an image.

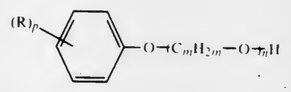
4,268,613

AGENT FOR PROTECTING THE SURFACE OF LITHOGRAPHIC PRINTING PLATE

Yoshio Okishi, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 25, 1979, Ser. No. 51,467
Claims priority, application Japan, Jun. 23, 1978, 53-76164; Feb. 9, 1979, 54-13943
Int. Cl.³ G03F *7/02*
U.S. Cl. 430—309 **43 Claims**

1. An emulsion type protective agent for the surface of a lithographic printing plate comprising an aqueous phase having dissolved therein a hydrophilic high molecular weight compound and an oil phase containing an organic solvent, an alkylphenyl type nonionic surfactant having an HLB less than 14, wherein said alkylphenyl nonionic surfactant is represented by the formula (I)


(I)

wherein R is an alkyl group, p is 1 or 2, m is an integer of 1 to 4, and n is an integer of 2 or more, an aliphatic carboxylic acid ester type surfactant and an anionic surfactant.

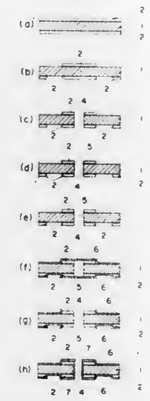
4,268,614

METHOD OF MAKING PRINTED CIRCUIT BOARD

Tamotsu Ueyama, Oyama; Yukihiko Wada, Shimodate; Masaji Homma, Shimodate; Hitoshi Aisawa, Shimodate; Takayoshi Komatsu, Shimodate; Tatsuhisa Shibata, Shimodate, and Hiroharu Kamiyama, Shimodate, all of Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Division of Ser. No. 731,684, Oct. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 477,424, Jun. 7, 1974, abandoned. This application Dec. 7, 1978, Ser. No. 967,388
Claims priority, application Japan, Jun. 7, 1973, 48-64073; Aug. 22, 1973, 48-93308
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—315 **3 Claims**

1. A method of making a printed circuit board having on at least one side thereof an electric circuit comprising pad portions, through-hole portions and conductors, which comprises the following steps (A), (B), (C), (D) and (E):
(A) providing an insulating laminate having copper-clad conductor portions and pad portions on at least one surface thereof;
(B) subsequent to step (A) and prior to step (E), forming through-holes in said insulating laminate having inner walls corresponding to the through-hole portions of said electric circuit;
(C) applying a photopolymerizable resin composition onto said at least one surface of said laminate, the photopolymerizable resin composition: (1) comprising (A) a photopolymerizable unsaturated compound having at least two terminal ethylene groups, (B) an initiator capable of initiating polymerization of the above unsaturated compound upon irradiation with actinic rays, (C) a compound having at least two epoxy groups and (D) a compound selected from the group consisting of dicyandiamide, p,p'-diaminodiphenyl compounds, polycarboxylic acids having at least two carboxyl groups, polycarboxylic anhydrides and mixtures of the polycarboxylic acids and the polycarboxylic anhydrides and (2) being adapted to be, upon irradiation with actinic rays, insoluble in an organic solvent but capable of being laminated on and firmly attached to a metal or resin plate by heating while pressing at a temperature of 100° C. or more and adapted to be completely curable by heating, following irradiation with actinic rays, at a temperature of 40° to 180° C., whereby a coat of the resin composition is formed on said at least one surface of said laminate;



(D) irradiating the coat of the photopolymerizable resin composition on the laminate with actinic rays through a pattern mask to expose said coat to the actinic rays except at those portions corresponding to the pad portions and through-hole portions of said electric circuit whereby at least 10% by weight of said photopolymerizable resin composition of the exposed portions gels; trating the irradiated laminate with an organic solvent to dissolve away the photopolymerizable resin composition from the unexposed portions corresponding to the position of the pad portions and through-hole portions to effect development of a predetermined image; and
(E) applying an electroless copper plating only onto the pad portions and through-hole portions, said pad portions and through-hole portions having a sensitivity to electroless plating.

4,268,615

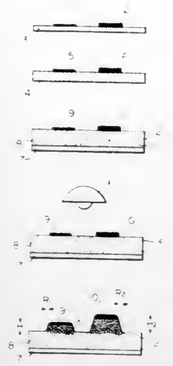
METHOD FOR PRODUCING RELIEF

Yoshimichi Yonezawa, Nagano, Japan, assignor to Matsumoto Yushi-Seiyaku Co., Ltd., Osaka, Japan

Filed May 25, 1979, Ser. No. 42,511
Int. Cl.³ G03C *5/00, 5/24*
U.S. Cl. 430—320 **4 Claims**

1. A method for producing a relief having a height of at least about 0.5–0.6 mm for use as a braille article for the blind which comprises
applying a pattern layer to the surface of a sheet material made of a mixture of a binder and fine spherical thermoplastic capsules containing a volatile substance in a shell, said pattern layer being a material having a stronger ability to absorb light than the said sheet material, and
uniformly irradiating with strong light the entire surface of the sheet to selectively heat that portion of the surface of

the sheet which is adjacent the undersurfaces of the pattern layer, whereby the pattern layer is raised from the



surface of the sheet in an amount corresponding to the increase of the volume of the sheet portion.

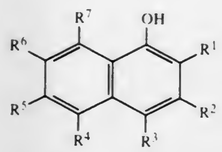
4,268,616

PROCESS FOR FORMING PHOTOGRAPHIC IMAGES

Junkichi Ogawa, and Tsutomu Hamanka, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation-in-part of Ser. No. 17,671, Mar. 5, 1979, abandoned. This application Jan. 18, 1980, Ser. No. 113,160
Claims priority, application Japan, Mar. 6, 1978, 53/25159
Int. Cl.[3] G03C *1/40*
U.S. Cl. 430—364 **21 Claims**

1. A process for forming photographic images consisting of a silver image and a dye image, which comprises development processing an imagewise exposed silver halide photographic light-sensitive material in the co-presence of (A) a naphthalene compound represented by formula (I):



(I)

wherein R^1, R^2 and R^3 each represents a hydrogen atom or a hydrophobic group containing at least 8 carbon atoms, and R^4, R^5, R^6 and R^7 each represents a hydrogen atom, a hydroxy group or a hydrophobic group containing at least 8 carbon atoms, with at least one of R^4 through R^7 representing a hydroxy group, and (B) a 3-pyrazolidone compound, said co-presence being established by incorporating said naphthalene compound (A) and said 3-pyrazolidone compound (B) alone or in combination in a silver halide emulsion layer, a hydrophilic colloid layer associated with the silver halide emulsion layer, or a developing solution such that upon development said naphthalene compound (A) and said 3-pyrazolidone compound (B) react to form a dye image,

thereby said dye image contributing to said photographic images by at least about 20%.

4,268,617

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Akio Mitsui, and Yoshiaki Suzuki, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Sep. 27, 1979, Ser. No. 79,657
Claims priority, application Japan, Sep. 27, 1978, 53-118986
Int. Cl.[3] G03C *1/40, 7/00, 5/30, 1/06*
U.S. Cl. 430—373 **20 Claims**

1. A silver halide color photographic light-sensitive material comprising a support and at least one silver halide emulsion layer, at least one layer of said photographic material containing at least one compound selected from the group consisting of those compounds represented by the formulae (I), (II), (III) and (IV):

$$[Co(NH_3)_6][R^1COO]_3 \quad (I)$$

$$[Co(NH_3)_6][R^2OOCR^3COO]_3 \quad (II)$$

$$[Co(NH_3)_5(R^4COO)]X_2 \quad (III)$$

$$[Co(NH_3)_5(R^5NH_2)]X_3 \quad (IV)$$

wherein R^1, R^2 and R^4 each represent an alkyl group having at least 3 carbon atoms or a fluorine-substituted alkyl group having at least 1 carbon atom; R^3 is an alkylene group; R^5 is an alkyl group having at least 1 carbon atom; and X is a halogen atom, a nitrate ion, a sulfate ion, or a carboxylate ion, wherein said at least one compound is within an oil-in-water emulsion.

18. A image forming process which comprises image-wise exposing and developing the color photographic material of claim **1** using a color developer in the presence of a color developing agent.

4,268,618

BLEACHING COMPOSITION FOR PHOTOGRAPHIC PROCESSING

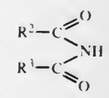
Taiji Hashimura, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jul. 7, 1980, Ser. No. 166,205
Claims priority, application Japan, Jul. 5, 1979, 54-85397
Int. Cl.[3] G03C *5/32*
U.S. Cl. 430—393 **28 Claims**

1. A bleaching composition for the photographic processing of silver halide color photosensitive materials containing Components:

(1) an organic acid-iron (III) complex salt;
(2) an alkali metal or ammonium salt of bromic acid;
(3) a water-soluble halogenide;
(4) at least one compound selected from the group consisting of compounds represented by the formula (I) or (II)

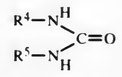
$$X\text{-}(R^1)_n\text{-}COOM \quad (I)$$



(II)

wherein X represents COOM or amino group, with M representing hydrogen, an alkali metal ion or an ammonium ion; R^1 represents a divalent aliphatic group containing from 1 to 4 carbon atoms which may be substituted with hydroxy groups, amino groups, and/or carboxy groups; n is 0 or 1; and R^2 and R^3 may be the same or different from each other, and each represents an amino group, an acylamino group, an alkyl group, an alkenyl group, a phenyl group, or a 5-membered or a 6-membered heterocyclic group, or R^2 and R^3 together form a 5-membered or a 6-membered ring; and

(5) at least one compound selected from the group consisting of compounds represented by the formula (III)



(III)

wherein R^4 and R^5 may be the same or different from each other, and each represents an alkyl group, an alkenyl group, a phenyl group, or a 5-membered or a 6-membered heterocyclic group, or R^4 and R^5 together form a 5-membered or a 6-membered ring.

4,268,619

ELECTROPLATING FROM A THIOSULFATE-CONTAINING MEDIUM WITHOUT SULFIDING

Kenneth M. Dunagan, Oklahoma City, Okla., assignor to RKC Corporation, Oklahoma City, Okla.

Filed Sep. 4, 1979, Ser. No. 72,050
Int. Cl.[3] G03C *5/38;* **C25C** *1/20*
U.S. Cl. 430—398 **16 Claims**

1. In a method for electroplating a negatively-charged surface by removing metal ions from a thiosulfate-containing medium in contact with the negatively-charged surface and wherein said negatively-charged surface is not completely surrounded by a fluid barrier during electroplating, the improvement which comprises:

(a) maintaining a voltage of from 0.1 to 2 volts across the medium,
(b) maintaining through the medium a current in amperes which is at least equal to, but not more than about twice, the corresponding voltage in volts,
(c) maintaining the pH of the medium at a pH of from about 4 to about 5 and
(d) agitating the medium without aerating it.

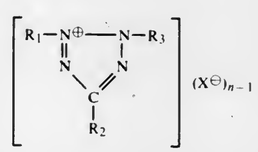
4,268,620

METHOD OF PROCESSING OF LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIAL

Tateshi Iytaka; Syunji Matsuo; Toshio Nagatani; Kazuo Takahashi, and Takeshi Habu, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

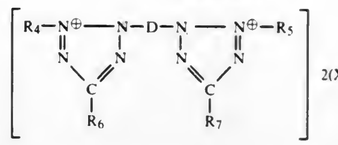
Filed Jan. 16, 1978, Ser. No. 869,658
Claims priority, application Japan, Jan. 31, 1977, 52-9337
Int. Cl.[2] G03C *5/30*
U.S. Cl. 430—403 **10 Claims**

1. A method of processing a light-sensitive silver halide black and white photographic material to obtain a high contrast black and white silver image, said material comprising a support containing a silver halide emulsion layer containing silver halide grains having an average grain size of 0.25 to 0.5μ, at least 80% of said silver halide grains being of a grain size which falls within the range of 0.7 times said average grain size to 1.3 times said average grain size, said silver halide comprising (i) silver chlorobromide or silver chloroiodobromide, and (ii) at least 50 mole % of silver chloride, and a sensitizing dye, and also contains a tetrazolium compound selected from the group consisting of the compounds having the following general formulas I, II or III:

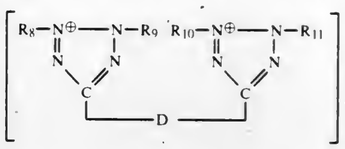


I

-continued



II



III

wherein R_1, R_3, R_4, R_5, R_8, R_9, R_{10} and R_{11} each represent an alkyl, alkenyl, aryl or heterocyclic group; R_2, R_6 and R_7 each represent allyl, phenyl, naphthyl, heterocyclic, alkyl or amino group, carboxyl, an alkoxycarbonyl group, mercapto, nitro or hydrogen; D represents an arylene group; E represents an alkylene, arylene or aralkylene group; $X^\ominus$ is an anion; and n is 1 or 2, provided that the compound forms an intramolecular salt when n is 1,

comprising exposing said photographic material to an image and to light, and then

developing said exposed photographic material in a developing solution which does not contain hydroquinone selected from the group consisting of Metol, phenidone and Metol, p-aminophenol and catechol, and phenidone and p-aminophenol, to form said high contrast black and white silver image.

4,268,621

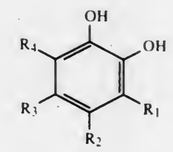
DIRECT POSITIVE PHOTOGRAPHIC MATERIAL

Keiji Ogi; Takashi Sasaki; Kenichiro Okaniwa, and Yasuo Tosaka, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

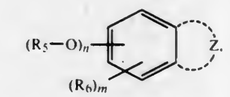
Filed Jul. 27, 1979, Ser. No. 61,400
Claims priority, application Japan, Jul. 29, 1978, 53-92809; Nov. 14, 1978, 53-140135; Nov. 14, 1978, 53-140137
Int. Cl.[3] G03C *5/24, 1/06*
U.S. Cl. 430—409 **9 Claims**

1. A direct positive photographic material comprising a layer containing an internal latent image type light-sensitive silver halide emulsion that has not been fogged coated on a support, said material containing a compound represented by the general formula (I) or (II):

General formula (I)



General Formula (II)



wherein R_1 represents a hydrogen atom, a hydroxyl group or an alkyl, alkenyl, alkoxy, acyloxy, aralkyl or aryl group which is substituted or unsubstituted; R_2, R_3 and R_4 each represent a hydrogen atom, a halogen atom, $—SO_2R_7$, $—COR_8$, or an

alkyl, alkenyl, alkoxy, aralkyl or aryl group which is substituted or unsubstituted; R_5 represents a hydrogen atom, $—COR_7$ or $—SO_2R_7$ and when n is 2 or 3, R_5 may be same or different; R_6 represents a hydrogen atom, a halogen atom or an alkyl, alkoxy, aryl or alkenyl group which may be substituted, and when m is 2, R_6 may be same or different; Z represents an atomic group necessary to complete a 5 to 7-membered alkylene ring, or a chroman or coumaran ring by fusing together with benzene ring, and Z may have a spyro carbon atom; R_7 represents a hydroxyl group, or an alkyl, alkoxy, aryloxy or amino group which is substituted or unsubstituted; n is 2 or 3; m is a number obtained by subtracting n from 4; and R_8 represents hydrogen atom, hydroxyl group, or an alkyl, alkoxy, aryloxy or amino group which is substituted or unsubstituted, with the proviso that at least one of R_1, R_2, R_3 and R_4 is not hydrogen atoms at the same time.

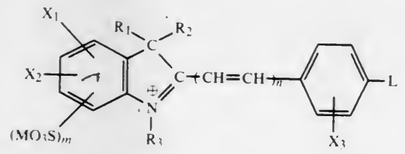
4,268,622

PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS HAVING DYED LAYERS

Keiichi Adachi; Eiichi Kato; Nobuaki Inoue, and Tetsurou Kojima, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 19, 1979, Ser. No. 105,167
Claims priority, application Japan, Dec. 26, 1978, 53-162627
Int. Cl.³ G03C *1/84*
U.S. Cl. 430—513 **21 Claims**

1. A photographic light-sensitive element comprising a support, at least one light-sensitive silver halide emulsion layer carried on said support and at least one hydrophilic colloidal layer carried on said support containing a basic polymer and at least one dye selected from the styryl and butadienyl dyes represented by the formula (I) each containing at least three sulfo groups in the molecule:



(I)

wherein R_1 and R_2 may be the same or different and represent an alkyl group; R_3 represents an unsubstituted or substituted alkyl or alkenyl group; L represent —O—Y—SO_3M or



in which Z_1 and Z_2 can be the same or different and represent a hydrogen atom, an unsubstituted or substituted alkyl group, an alkenyl group, an unsubstituted or substituted aryl group, an acyl group or —Y—SO_3M, Y represents an alkylene or alkenylene group, and M represents a hydrogen atom or a cation; X_1, X_2 and X_3 can be the same or different, and each represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, a hydroxy group, a carboxy group, a substituted amino group or an alkoxycarbonyl group; m is 0 or 1; and n is 1 or 2, there being present in said hydrophilic colloidal layer 1 to 5 equivalents of recurring units forming the polymer per equivalent of acid group in the at least one dye.

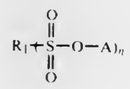
4,268,623

PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL HAVING A CARBOXYLIC ACID POLYMER ANTISTATIC LAYER

Hidefumi Sera; Kiyotaka Hori, and Naohiko Sugimoto, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

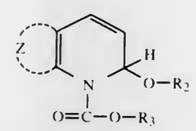
Filed Jan. 11, 1980, Ser. No. 111,498
Claims priority, application Japan, Jan. 11, 1979, 54-1930
Int. Cl.³ G03C *1/78*
U.S. Cl. 430—529 **14 Claims**

1. A photographic material comprising a support, a light-sensitive silver halide emulsion layer, and an antistatic layer, said antistatic layer containing about 10% to 90% wt% of a water-soluble, film-forming polymer having a carboxylic acid group and about 10 to 90 wt% gelatin, and said layer further containing a carboxylic acid activating condensing agent having the ability to activate a carboxyl group such that it reacts with an alcohol or amine in a condensation reaction, said agent being selected from the group consisting of a compound of the formula (I):



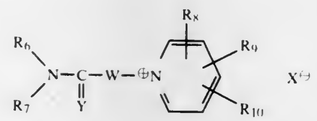
(I)

wherein R_1 may be any n-valent group; A represents a group of atoms that are bound to the oxygen atom in the formula (I) through a nitrogen atom; and n is an integer of from 1 to 4; a compound of the formula (II):



(II)

wherein R_2 is an aliphatic group; R_3 is an aliphatic group or an aryl group and the carboxylic acid residue of the formula R_3—O—CO— in the formula (II) is such that when it reacts with the carboxylic acid group of gelatin to form a mixed acid anhydride, the electron density on the carbonyl carbon is lower than that of the carboxylic acid group in gelatin; Z represents a group of atoms necessary to form a benzene nucleus, and a compound of the formula (III):



(III)

wherein R_6 and R_7 are independently an alkyl, allyl or aralkyl group and R_6 and R_7 may combine to form a 5- or 6-membered ring which may contain 1 to 2 hetero atoms other than the nitrogen atom to which R_6 and R_7 are bound; Y is an oxygen atom or sulfur atom; W is an oxygen atom or a single bond; R_8, R_9 and R_{10} are independently a hydrogen atom, an alkyl group of up to 5 carbon atoms, an alkoxy group of up to 4 carbon atoms, an acrylamido group of up to 4 carbon atoms, and a carbamoyl group; $X^{\ominus}$ is an organic or inorganic acid anion, and $X^{\ominus}$ is absent from the formula (III) when any of R_6, R_7, Y, R_8, R_9 or R_{10} includes a sulfonate anion.

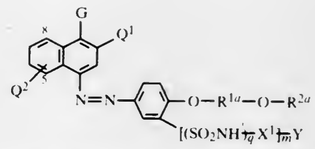
4,268,624

PHOTOGRAPHIC LIGHT-SENSITIVE SHEET FOR THE COLOR DIFFUSION TRANSFER PROCESS

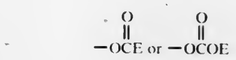
Shinsaku Fujita; Tooru Harada, and Yoshinobu Yoshida, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Nov. 1, 1978, Ser. No. 956,698
Claims priority, application Japan, Nov. 1, 1977, 52-131278
Int. Cl.³ G03C *1/40, 1/10*
U.S. Cl. 430—562 **15 Claims**

1. A photographic light-sensitive sheet for the color diffusion transfer process which comprises a support having thereon at least one light-sensitive silver halide emulsion layer with at least one of said silver halide emulsion layers having associated therewith a dye image providing material represented by the following general formula:



wherein Q^1 represents a hydrogen atom, a halogen atom, a sulfamoyl group represented by the formula $—SO_2NR^3R_4$ wherein R^3 represents a hydrogen atom or an alkyl group, R^4 represents a hydrogen atom, an alkyl group, an aralkyl group or an aryl group, and R^3 and R^4 may combine directly or through an oxygen atom to form a ring, a group represented by the formula $—SO_2R^5$ wherein R^5 represents an alkyl group, or a benzyl group, a carboxy group, a group represented by the formula $—COOR^6$ wherein R^6 represents an alkyl group, a phenyl group or a group represented by the formula $—CONR^3R^4$ wherein R^3 and R^4 each has the same meaning as defined above; Q^2, which is positioned at the 5- or the 8-position to the hydroxy group, represents a hydroxy group, a group represented by the formula $—NHCOR^{4a}$ or a group represented by the formula $—NHSO_2R^{4a}$ wherein R^{4a} has the same meaning as R^4 defined above except for the absence of a hydrogen atom, R^{1a} represents an alkylene group having 2 or more carbon atoms; R^{2a} represents an alkyl group; Y represents a moiety which releases or provides, as a result of development processing under alkaline conditions, an azo dye having a different diffusibility from that of said dye image-providing material and represents an N-substituted sulfamoyl group; m is 0 or 1; q is 0 or 1; X^1 represents a divalent bonding group represented by the formula $—A_1—(L)_n-(A_2)_p-$ wherein A_1 and A_2 are the same or different and each represents an alkylene group or an arylene group; L represents a divalent group selected from an oxy group, a carbonyl group, a carboxyamido group, a carbamoyl group, a sulfonamido group, a sulfamoyl group, a sulfinyl group and a sulfonyl group, and n and p each represents 0 to 1; and G represents a hydroxyl group, a salt thereof, or a hydrolyzable acyloxy group represented by the formula



wherein E represents an alkyl group or an aryl group.

4,268,625

PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENT FOR THE COLOR DIFFUSION TRANSFER PROCESS

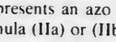
Shinsaku Fujita; Hidetoshi Hayashi; Shigetoshi Ono; Yoshinobu Yoshida, and Tooru Harada, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation-in-part of Ser. No. 911,571, Jun. 1, 1978, abandoned. This application Dec. 4, 1979, Ser. No. 100,076
Claims priority, application Japan, Jun. 1, 1977, 52-54533
Int. Cl.³ G03C *1/40, 1/10*
U.S. Cl. 430—562 **15 Claims**

1. A photographic light-sensitive element for the color diffusion transfer process which comprises a support having thereon at least one light-sensitive silver halide emulsion layer with at least one of said silver halide emulsion layers having associated therewith a compound represented by the following general formula:

D-Redox Moiety

wherein D represents an azo dye moiety represented by the following formula (IIa) or (IIb):

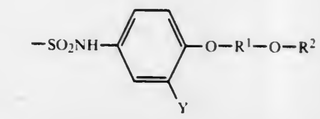


(IIa)



(IIb)

wherein A represents a coupling component residue derived from a phenol or a nucleus-substituted phenol, a 1- or 2-naphthol or a nucleus-substituted 1- or 2-naphthol, a pyrazolone or a nucleus-substituted pyrazolone or an acyclic or alicyclic β-diketone compound; and B represents a phenyl group, a nucleus-substituted phenyl group, a naphthyl group or a nucleus-substituted naphthyl group and Redox Moiety represents a group represented by the following general formula:



wherein R^1 represents an unsubstituted straight chain alkylene group having 2 or more carbon atoms or an unsubstituted branched chain alkylene group having 2 or more carbon atoms with the proviso the branched chain alkylene group is incapable of forming an acetal linkage; R^2 represents an alkyl group; and Y represents a o-hydroxyphenyl sulfamoyl group having a ballast group bonded thereto and an alkyl group at the meta position to the hydroxyl group thereof.

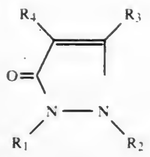
4,268,626

DRY IMAGE FORMING MATERIAL

Minoru Akiyama; Kageyasu Akashi; Tetsuo Shiga; Yoshinobu Ito; Takeo Kimura, and Takeki Matsui, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 15, 1979, Ser. No. 66,739
Claims priority, application Japan, Aug. 28, 1978, 53-103914
Int. Cl.³ G03C *1/02*
U.S. Cl. 430—620 **7 Claims**

1. In a dry image forming composition consisting essentially of (a) a non-photosensitive organic silver salt oxidizing agent, (b) a reducing agent for silver ions, (c) a photosensitive silver halide or a photosensitive silver halide-forming component capable of forming a photosensitive silver halide by the reaction thereof with said organic silver salt oxidizing agent, and (d) a toner, the improvement which comprises employing as said toner (d) at least one member selected from the group consisting of compounds represented by the formula



wherein R_1 is a hydrogen atom, a C_1–C_5 straight chain or branched alkyl group, an unsubstituted or substituted phenyl group or an unsubstituted or substituted C_3–C_8 cycloalkyl group; R_2 is a C_1–C_5 straight chain or branched alkyl group, an unsubstituted or substituted phenyl group or an unsubstituted or substituted C_3–C_8 cycloalkyl group; and R_3 and R_4 are the same or different and each represent a hydrogen atom, a C_1–C_5 straight chain or branched alkyl group, an unsubstituted or substituted phenyl group or an unsubstituted or substituted phenylakyl group having a C_1–C_5 straight chain or branched alkyl moiety.

4,268,627

PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Hidefumi Sera; Katuzi Kitatani; Masasi Ogawa; Kunio Ishigaki, and Hisashi Shiraishi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

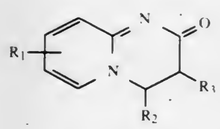
Filed Jun. 13, 1980, Ser. No. 159,279

Claims priority, application Japan, Jun. 15, 1979, 54-76161

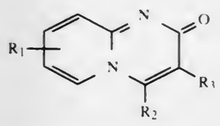
Int. Cl.³ G03C *1/30*

U.S. Cl. 430—623 **9 Claims**

1. A photographic light-sensitive material comprising at least one hydrophilic colloidal layer containing a hardener, and further containing as an acid-captor at least one compound represented by formula (I) of formula (II):



(I)



(II)

wherein R_1 represents hydrogen, a lower alkyl group containing 5 or less carbon atoms, an alkoxy group containing 5 or less carbon atoms, or a halogen atom, and R_2 and R_3 each independently represents hydrogen, an alkyl group containing 10 or less carbon atoms, an aryl group containing from 6 to 12 carbon atoms, or an alkoxycarbonyl group containing 5 or less carbon atoms.

4,268,628

METHOD FOR THE DETERMINATION OF α-AMYLASE

Sigmar Klose, Berg; Hans-Georg Batz, Tutzing; Michael Stoltz, Polling; Alexander Hagen, and Günter Weimann, both of Tutzing, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Mar. 19, 1979, Ser. No. 22,011

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812154

Int. Cl.³ C12Q *1/40*

U.S. Cl. 435—22 **19 Claims**

1. Method for the determination of alpha-amylase which method comprises

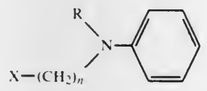
contacting at a pH of from 5 to 9, a sample suspected of containing alpha-amylase with a starch derivative carrying couplable substituents capable of dyestuff-forming coupling, to split said starch derivative by said alpha-amylase, forming a starch-containing phase and low molecular weight soluble fission products containing said couplable substituents;

separating from the resulting said starch-containing phase the low molecular weight soluble fission products,

coupling said couplable substituents with a dyestuff-forming component, and

measuring the dyestuff so formed as a measure of the initial alpha-amylase content;

wherein said starch derivative is substituted with a compound of the formula



(I)

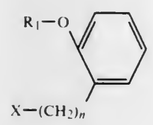
wherein

R is a hydrogen atom or an alkyl radical containing up to 4 carbon atoms or an $-(CH_2)_n-X$ radical,

X is a function capable of forming covalent bond with a hydroxyl group of the starch, and

n is 1, 2, 3 or 4 or

with a compound of the formula



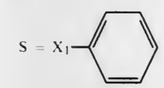
(II)

wherein

R_1 is a hydrogen atom or a protective group which is easily split off, and

X and n have the same meanings as in formula (I) or

wherein the starch derivative is of the formula



(III)

wherein

X_1 -N- or



and S is a starch residue.

4,268,629

PRODUCTION OF ANGIOGENIC FACTOR BY CELL CULTURE

William R. Tolbert, Manchester; Mau-Jung Kuo, Chesterfield, and Joseph Feder, University City, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Mar. 3, 1980, Ser. No. 126,811

Int. Cl.³ C12P *1/00*

U.S. Cl. 435—41 **5 Claims**

1. Process for the production of human angiogenic factor in vitro comprising growing the human diploid cell line IMR-90 on support surface in nutrient culture medium at about 35°–38° C. for a sufficient time to elaborate angiogenic factor and isolating the resulting angiogenic factor from the cells or cell product.

4,268,630

MICROBIOLOGICAL PRODUCTION OF KETONES FROM C_3–C_6 ALKANES

Ramesh N. Patel; Ching-Tsang Hou, both of Edison, N.J., and Allen I. Laskin, New York, N.Y., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 896,475, Apr. 14, 1978, abandoned, and Ser. No. 896,476, Apr. 14, 1978, abandoned. This application Mar. 30, 1979, Ser. No. 25,711

Int. Cl.³ C12P *7/26*

U.S. Cl. 435—148 **10 Claims**

1. A process for the microbiological conversion of a C_3–C_6 n-alkane to the corresponding methyl ketone, comprising oxidizing said alkane by contacting a reaction medium containing a C_3–C_6 n-alkane, under aerobic conditions, in the presence of resting or washed microbial cells derived from a bacterial methylotrophic microorganism or an enzyme preparation derived from said cells, in the absence of a growth medium for said cells and under conditions such that at least a portion of the alkane molecule is oxidized to the corresponding methyl ketone in isolatable amounts by said cells or enzyme preparation, wherein said microorganism has been previously grown under aerobic conditions in a nutrient medium containing methane.

4,268,631

APOGLUCOSE OXIDASE PREPARATION

Paul B. Ellis, High Wycombe, and David L. Morris, Stoke Poges, both of England, assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Jun. 4, 1979, Ser. No. 45,191

Int. Cl.³ C12N *9/04*

U.S. Cl. 435—190 **21 Claims**

15. An apoglucose oxidase preparation characterized by a residual glucose oxidase activity of less than 0.05%.

4,268,632

PROCESS FOR ISOLATION OF RIBULOSE 1,5-DIPHOSPHATE CARBOXYLASE FROM PLANT LEAVES

Samuel G. Wildman, Santa Monica, and Prachuab Kwanyuen, Los Angeles, both of Calif., assignors to Leaf Proteins, Inc., Carson, Calif.

Filed Sep. 24, 1979, Ser. No. 78,505

Int. Cl.³ C12N *9/88*

U.S. Cl. 435—232 **27 Claims**

1. A process for obtaining ribulose 1,5-diphosphate carboxylase from plant material comprising the leaves of green plants comprising the steps:

(a) converting the leaves to a pulp comprising a mixture of a solid portion and a liquid portion, said liquid portion containing dissolved ribulose 1,5-diphosphate carboxyase;

(b) heating the liquid portion to a temperature below that at which protein in the liquid portion denatures for a time sufficient to induce the ribulose 1,5-diphosphate carboxylase to crystallize when said liquid portion is cooled; and

(c) cooling said liquid portion to a temperature at which said ribulose 1,5-diphosphate carboxylase crystallizes.

13. Ribulose 1,5-diphosphate carboxylase in the form of octagonal crystals.

4,268,633

POLYURETHANES CONTAINING A POLY (OXYORGANOPHOSPHATE/PHOSPHONATE) FLAME RETARDANT

Ralph B. Fearing, Bardonia, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

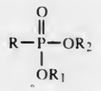
Division of Ser. No. 898,241, Apr. 20, 1978, Pat. No. 4,199,534. This application Sep. 10, 1979, Ser. No. 73,836

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—168 **4 Claims**

1. Polyurethane containing a flame retardant effective amount of the product formed by a two step sequential reaction which comprises:

(1) reacting diorgano organophosphonate represented by the formula:



wherein R, R_1 and R_2 are the same or different organic radicals selected from saturated hydrocarbon radical, alkaryl radical, aralkyl radical, and aryl radical; with reactant consisting of (i) phosphorus oxide reagent, or (ii) phosphorus oxide reagent with an alcohol, to yield a metaphosphate/phosphonate reaction product, wherein the mole ratio of said diorgano organophosphonate to said phosphorus oxide reagent (as P_2O_5) is in the range from about 1:1 to about 2.5:1, and said optionally employed alcohol is not in excess of one mole of alcohol hydroxyl per three moles of phosphorus anhydride unit formed by the reaction of phosphorus oxide reactant with diorgano organophosphonate, and;

(2) reacting the reaction product of step (1) with reactant comprising (I) epoxide, or (II) epoxide with an alcohol to yield poly(oxyorganophosphate/phosphonate) product.

4,268,634

DESENSITIZER FOR NO-CARBON COPY PAPER

Hirokazu Tsukahara; Mitsuru Fuchigami, and Nobuhiro Kagota, all of Takasago, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

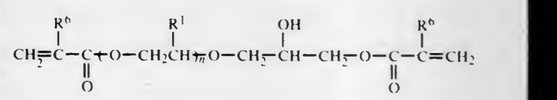
Filed Dec. 23, 1977, Ser. No. 863,951

Claims priority, application Japan, Jan. 17, 1977, 52-3826; Feb. 2, 1977, 52-10543

Int. Cl.² B41M *5/16;* **C08L** *61/00*

U.S. Cl. 525—471 **2 Claims**

1. A desensitizing composition for no-carbon copy paper, characterized by comprising a pigment, a vehicle and as desensitizer a compound represented by the formula:



where R^1 represents a hydrogen atom or a methyl group and R^6 is a hydrogen atom or a methyl group; and n is an integer of 2 to 23.

4,268,635

AROMATIC POLYMERS

Leslie R. J. Hoy, St. Neots, and John B. Rose, Letchworth, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Aug. 13, 1976, Ser. No. 714,327

Claims priority, application United Kingdom, Aug. 20, 1975, 34590/75

Int. Cl.[1] C08G *65/38*

U.S. Cl. 525—68 **10 Claims**

1. A process for the manufacture of a copolymer whose molecular chains contain phenylene, ketone, and sulphone groups and oxygen atoms comprising heating at a temperature between 250° C. and 300° C., at least one of the reactants selected from

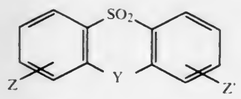
(i) at least one alkali metal halophenate containing a sulphone group ortho or para to the halogen atom,

(ii) a mixture of a dihalobenzenoid compound containing a sulphone group ortho or para to each halogen atom and a substantially equivalent amount of an alkali metal hydroxide or carbonate,

(iii) a mixture of substantially equimolar proportions of at least one dihalobenzenoid compound containing a sulphone group ortho or para to each halogen atom, and at least one alkali metal bisphenate, and

(iv) a polyethersulphone formed from at least one of the reactants (i), (ii) and (iii) above whose molecular chains have at least one phenate end group,

dissolved in a dipolar aprotic liquid, in the presence of a preformed polyetherketone or crystalline etherketone/sulphone copolymer suspended in finely divided particulate form in said dipolar aprotic liquid whereby the product obtained by said heating grafts onto said preformed particulate polymer, the polyetherketone or etherketone/sulphone copolymer and the polyethersulphone or the reactants from which the latter is formed being present in the reaction mixture in the proportions of 20 to 90% by weight of the polyetherketone or etherketone/sulphone copolymer and correspondingly 80 to 10% by weight of the polyethersulphone or such proportions of reactants, where the polyethersulphone is made in situ, to give this proportion of polyethersulphone, the dipolar aprotic liquid being a sulphone of the formula



in which Y is a direct link, an oxygen atom or two hydrogen atoms (one attached to each benzene ring) and Z and Z' are hydrogen atoms or phenyl groups and may be the same or different.

4,268,636

VINYL CHLORIDE RESIN COMPOSITION WITH PROCESSING AID

Yo Iizuka; Haruhiko Yusa, both of Iwaki, Japan; Susumu Midorikawa, deceased, late of Kitaibaragi, Japan, and by Taeko Midorikawa, heir, Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,743

Claims priority, application Japan, Dec. 22, 1978, 53-159063

Int. Cl.[1] C08L *27/06, 9/00, 51/00*

U.S. Cl. 525—85 **7 Claims**

1. A vinyl chloride resin composition comprising:

(1) 100 parts of a vinyl chloride polymer; and

(2) 0.1 to 30 parts of a polymer processing aid comprising:

(A) 40 to 90 parts of a copolymer comprising 80 to 100% of an alkyl methacrylate, and 0 to 20% of a monomer copolymerizable therewith; and

(B) 60 to 10 parts of a copolymer comprising 20 to 79% of an alkyl methacrylate, 20 to 79% of a monomer selected from the group consisting of a dialkyl itaconate and an alkyl acrylate, 1 to 49% of a diolefin, and 0 to 20% of a monomer copolymerizable therewith, 100 parts of said polymer processing aid having been obtained by polymerizing 60 to 10 parts of the constituent monomers of the copolymer (B) in the presence of 40 to 90 parts of the copolymer (A), all quantities expressed in parts and percentages being by weight.

4,268,637

ELIMINATION OF BLOOM IN [VUL-CUP] PEROXIDE CROSSLINKED ELASTOMER COMPOUNDS

Winfred E. Weldy, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Jun. 7, 1979, Ser. No. 46,525

Int. Cl.[1] C08L *23/16;* **C08J** *23/04;* **C08K** *5/09, 5/14*

U.S. Cl. 525—105 **8 Claims**

1. A crosslinkable composition comprising an elastomeric component selected from ethylene-propylene terpolymer rubbers and blends of said rubbers with silicone rubbers; an effective amount of a peroxide selected from α,α'-bis(t-butylperoxy) para-diisopropylbenzene, α,α'-bis(t-butylperoxy) metadiisopropylbenzene and mixtures thereof; and phthalic anhydride, the amount of phthalic anhydride employed being about 2.0 moles to about 6.0 moles per mole of peroxide employed.

4,268,638

PROCESS FOR THE PREPARATION OF RUBBER-MODIFIED THERMOPLASTIC RESINS

Shin-ichi Shimokawa, Yokkaichi; Yuji Yamamoto, Suzuka, and Hisao Nagai, Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Jan. 16, 1980, Ser. No. 112,712

Claims priority, application Japan, Jan. 19, 1979, 54/3981

Int. Cl.[1] C08F *255/06*

U.S. Cl. 525—263 **18 Claims**

1. A process for the preparation of a rubber-modified thermoplastic resin, which comprises:

treating an ethylene-proylene-non-conjugated diene copolymer rubber with a peroxide in a hydrocarbon or halogenated hydrocarbon solvent to obtain a rubber solution having a rubber gelation degree of not more than 5% and containing substantially no unreacted peroxide;

adding to said rubber solution without isolating the treated copolymer a vinyl monomer mixture consisting of an aromatic alkenyl compound and a polar vinyl compound; and heating the resulting mixture in the substantial absence of a polymerization initiator to graft-copolymerize the monomer mixture on the rubber.

4,268,639

SELF-CURING COMPOSITION BASED UPON POLYMETHYLMETHACRYLATE AND PROCESS FOR MANUFACTURING SAID SELF-CURING COMPOSITION

Hartmut Seidel, Hochrad 19, and Kurt Polzhofer, Bellmannstr. 8, both of 2000 Hamburg 52, Fed. Rep. of Germany

Filed Sep. 19, 1979, Ser. No. 76,925

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842839

Int. Cl.[1] C08F *265/04, 265/06*

U.S. Cl. 525—303 **21 Claims**

1. A self-curing composition prepared by mixing a finely powdered solid polymer phase comprising a polymeric alkyl methacrylate with a liquid monomer phase comprising monomeric alkyl methacrylates, the polymer and monomer of the composition mixture is a combination consisting essentially of:

(1) Polymethyl methacrylate, monomeric 2-hydroxyethyl methacrylate or

(2) Polymethyl methacrylate + poly-(2-hydroxyethyl methacrylate), monomeric 2-hydroxyethyl methacrylate or

(3) Polymethyl methacrylate + poly-(2-hydroxyethyl methacrylate), monomeric 2-hydroxyethyl methacrylate + monomeric methyl methacrylate or

(4) Polymethyl methacrylate + poly-(2-hydroxyethyl methacrylate), monomeric methyl methacrylate or

(5) Poly-2-(hydroxyethyl methacrylate), monomeric-2-hydroxyethyl methacrylate or

(6) Poly-(2-hydroxyethyl methacrylate), monomeric methyl methacrylate or

(7) Poly-2-(hydroxyethyl methacrylate), monomeric 2-hydroxyethyl methacrylate + monomeric methyl methacrylate, wherein the weight ratio of polymer phase to monomer phase is in the range of 1.5 to 3.3:1 and wherein the portion of poly-2-(hydroxyethyl methacrylate) in the cured product is at least 2% by weight and at most 99% by weight, and then vigorously stirring said mixture at room temperature until polymerization is essentially finished.

4,268,640

CURABLE COMPOSITION OF HALOGEN-CONTAINING POLYMER

Yasuo Matoba, Toyonaka, Japan, assignor to Osaka Soda Co. Ltd., Osaka, Japan

Filed Nov. 14, 1979, Ser. No. 94,201

Claims priority, application Japan, Nov. 22, 1978, 53-144535; Mar. 8, 1979, 54-27495; May 10, 1979, 54-57687

Int. Cl.[1] C08F *8/34;* **C08C** *19/22*

U.S. Cl. 525—346 **6 Claims**

1. A curable composition consisting essentially of

(1) 100 parts by weight of a halogen-containing polymer,

(2) 0.1 to 10 parts by weight of a substituted mono- or di-thiobiurea as a crosslinking agent having the formula



wherein R^1 represents a member selected from the group consisting of alkyl groups containing 1 to 18 carbon atoms, cycloalkyl groups containing 5 to 18 carbon atoms, alkenyl groups containing 2 to 18 carbon atoms, aryl groups containing 6 to 18 carbon atoms and aralkyl groups containing 7 to 18 carbon atoms; R^2 represents a hydrogen atom or a member selected from the same group as defined above for R^1; X represents a sulfur or oxygen atom; and when X is an oxygen atom, R^2 represents a hydrogen atom, and

(3) 0.5 to 50 parts by weight of a compound of a metal of Group II or IVa of the periodic table as an acid acceptor.

4,268,641

ACRYLIC ACID-ACRYLATE COPOLYMER THICKENING AGENTS

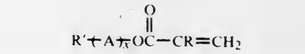
Harvey S. Koenig, Charlotte, N.C., and George M. Bryant, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 32,771, Apr. 24, 1979, abandoned. This application May 29, 1980, Ser. No. 154,521

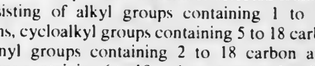
Int. Cl.[1] C08F *20/06, 20/26, 20/36*

U.S. Cl. 525—367 **7 Claims**

1. A normally solid, base-neutralized copolymer having copolymerized therein about 90 to about 99 mole percent of a carboxyl-containing, ethylenically unsaturated hydrocarbon and about 1 to about 10 mole percent of a nonionic surfactant acrylate having the formula:



wherein R is hydrogen or methyl, R' is a hydrophobe selected from the group consisting of alkyl—O—, alkyl—NH—, and alkyl—CO—, where the alkyl contains 4 to about 30 carbon atoms, A is a divalent radical selected from the group consisting of oxyethylene units or mixed oxyalkylene units having the general formula:



wherein n is an integer having values from 2 to 4 and x is an integer having values of about 5 to about 40, said surfactant acrylate having an HLB value of about 10 to about 19.

4,268,642

BUTADIENE-STYRENE-VINYL BENZYL CHLORIDE TERPOLYMERS

Binnur Gunesin, Uniontown, Ohio, and Adel F. Halasa, Safat, Kuwait, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Mar. 24, 1980, Ser. No. 132,744

Int. Cl.[1] C08F *8/32*

U.S. Cl. 525—382 **7 Claims**

1. A process for the preparation of a terpolymer of improved green strength comprising the steps of polymerizing in an aqueous emulsion at a temperature of 0°-30° C., a monomer mixture consisting essentially of 55-82 percent by weight of butadiene, 12-35 percent by weight of styrene and 8-20 percent by weight of vinyl benzyl chloride and thereafter reacting the resultant terpolymer with a compound having two tertiary amine groups therein.

4,268,643

PROCESS FOR IMPROVING THE STABILITY OF ACETAL POLYMERS

Pierino Radici, Turate; Sergio Custro, Gorla Maggiore, and Paolo Colombo, Saronno, all of Italy, assignors to Societa Italiana Resine S.I.R. S.p.A., Milan, Italy

Filed Oct. 25, 1979, Ser. No. 88,250

Int. Cl.[1] C08G *6/00*

U.S. Cl. 525—400 **15 Claims**

1. A process for esterifying or etherifying the terminal hydroxyl groups of an acetal polymer by reacting said polymer with an end-capping agent selected from the group consisting of anhydrides of carboxylic acids, orthoesters and orthocarbonates, which comprises forming an intimate mixture of acetal polymer in powder form and end-capping agent in liquid form, the amount of said liquid end-capping agent in the mixture being from 0.01 to 0.30 parts by weight per part by weight of acetal polymer and less than that which results in loss of the free-flowing characteristics of the polymer powder, reacting said mixture under stirring at a temperature of at least 50° C. until completion or substantial completion of the end-capping reaction, and recovering the polymer thus end-capped from the reaction product.

4,268,644

VULCANIZABLE RUBBER COMPOSITION

Akio Maeda; Kinro Hashimoto, both of Yokohama; Masaaki Inagami, Kamakura, and Hiroshi Fukushima, Zushi, all of Japan, assignors to Nippon Zeon Co. Ltd., Tokyo, Japan

Filed Jul. 24, 1978, Ser. No. 927,620

Claims priority, application Japan, Jul. 29, 1977, 52-91036; Jul. 29, 1977, 52-91037

Int. Cl.[1] C08L *71/02*

U.S. Cl. 525—403 **15 Claims**

1. A method of preventing deterioration of vulcanized rubber products which come into contact with sour gasoline which comprises forming said product from a vulcanizable rubber composition comprising

(1) 100 parts by weight of a rubber selected from the group consisting of (A) a terpolymer rubber composed of 35 to 80 mole % of epichlorohydrin, 15 to 50 mole % of ethylene oxide and 5 to 15 mole % of an unsaturated epoxide,

and (B) a rubber mixture prepared by mixing an epichlorohydrin-ethylene oxide copolymer rubber with an epichlorohydrin-unsaturated epoxide copolymer rubber so that the mixture will contain 35 to 80 mole % of epichlorohydrin, 15 to 50 mole % of ethylene oxide and 5 to 15 mole % of an unsaturated epoxide;

(2) 0.2 to 10 parts by weight of a non-sulfur vulcanizing agent selected from the group consisting of 2-mercaptoimidazolines, 2-mercaptopyrimidines, trithiocyanuric acid and trithiocyanuric acid derivatives; and

(3) 0 to 10 parts by weight of a vulcanization aid and allowing said product to come into contact with sour gasoline.

4,268,645

POLYESTER RESIN COMPOSITION

John C. Lark, St. Charles, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Mar. 24, 1980, Ser. No. 133,149

Int. Cl.³ C08G *63/76;* **C08F** *283/00*

U.S. Cl. 525—437 **24 Claims**

1. A composition comprising water soluble non-linear polyester resin having a molecular weight within the range of from about 5000 to 35000 and (1) a backbone portion comprising a linear prepolyester having an acid number of less than 3 comprising the reaction product of dihydroxy compound and dicarboxylic acid compound in a mole ratio within the range from about 5:4 to about 1.01:1.0, and having a hydroxyl: carboxyl ratio of at least 1, the dihydroxy compound having at least one alkylene group of at least 2 carbon atoms and a molecular weight of no more than 250, and at least 50 percent of the dicarboxylic acid compound is provided by an aromatic dicarboxylic acid compound, and (2) internal and pendant carboxyl acid moieties comprising a polycarboxylic acid compound having at least 3 acyl moieties which provides from 5 to 75 equivalent percent of the acyl moieties in the polyester, wherein the mole ratio of said polycarboxylic compound to said prepolyester is within the range from about 5.4 to 1.01 to 1.0, and wherein the reaction temperature in preparation of said polyester is not greater than 228° C.

4,268,646

ADHESIVE COMPOSITIONS

Reginald T. Agger, Queniborough, and Peter R. Tyers, Leicester, both of England, assignors to USM Corporation, Farmington, Conn.

Filed Nov. 19, 1979, Ser. No. 95,543

Claims priority, application United Kingdom, Dec. 7, 1978, 47490/78

Int. Cl.³ C08L *75/06*

U.S. Cl. 525—440 **13 Claims**

1. A composition comprising a polyurethane formed from reactants comprising:

(a) polyisocyanate,

(b) a hydroxyl terminated polyol,

(c) a difunctional reaction product of methyl methacrylate with a substituted alkene having two chemical groups available for reaction with isocyanate and selected from the group consisting of hydroxyl and amino groups and where the difunctional reaction product has a limiting viscosity number up to about 50 cm^3g^{-1} and is present in an amount to provide from about 0.1 to about 25 percent by weight of the polyurethane and,

(d) a chain extender selected from the group consisting of aliphatic diols, diamenes, amino alcohols and mixtures of these,

and where the molar ratio of reaction product plus chain extender to polyol is in the range between about 0.1:1 to about 1:5:1 and the ratio of reactive isocyanate groups to reactive groups of the polyol, reaction product and chain extender is in the range between about 0.90:1 to about 1.4:1.

4,268,647

ORGANIC MATERIALS HAVING META, PARA-ISOPROPYLIDENE DIPHENOXY UNITS AND METHOD

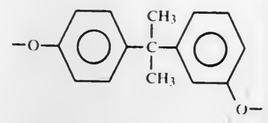
Donald E. Keeley, Menlo Park, Calif., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 966,896, Dec. 6, 1978. This application May 19, 1980, Ser. No. 151,389

Int. Cl.³ C08G *8/20, 63/18, 65/22*

U.S. Cl. 525—474 **10 Claims**

1. Thermoplastic organic polymers having chemically combined units of the formula,



which are selected from the class consisting of polyestercarbonate copolymers, polyesters, polyformals, polysulfones, polyetherimides and organopolysiloxane-polycarbonate block polymers.

4,268,648

RESOL RESINS PREPARED USING BUTANOL AND TRI-ALKALI METAL PHOSPHATE

Dieter Freitag; Wolfgang Beer, and Ferdinand Senge, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 16, 1980, Ser. No. 159,486

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1979, 2924808; Nov. 9, 1979, 2945240

Int. Cl.³ C08G *8/20*

U.S. Cl. 525—485 **8 Claims**

1. A process for preparing a resol resin which comprises reacting formaldehyde and bisphenol A in a molar ratio of from 1.2:1 to 1.8:1 in the presence of n-butanol or iso-butanol and a catalytic amount of a tri-alkali metal phosphate.

4,268,649

BINDER FOR CELLULOSE FIBER REINFORCED BOARD MATERIAL

Karl Jellinek, Iserlohn-Letmathe, and Rolf Müller, Duisburg, both of Fed. Rep. of Germany, assignors to Rütgerswerke Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 890,894, Mar. 28, 1978. This application May 29, 1979, Ser. No. 43,565

Claims priority, application Fed. Rep. of Germany, Apr. 16, 1977, 2716971

Int. Cl.³ C08G *18/54;* **C08L** *61/10;* **B32B** *27/40*

U.S. Cl. 525—504 **3 Claims**

1. A binder for cellulose fiber reinforced board material comprising a mixture of:

(a) a weakly alkaline phenol formaldehyde condensate resin with a phenolic compound to formaldehyde mol ratio of from 1:1.5 to 1:3.0, and with an alkali content of ≦15% by weight NaOH or KOH, related to the solids content of the resin;

(b) a difunctional isocyanate, poly-functional isocyanate or mixture thereof in a quantity of from 5% to 25% by weight, related to the resin (a); and

(c) a tertiary alkyl amine, aralkyl amine alkylene polyamine or mixture thereof in a quantity of from 0.1% to 5% by weight, related to the resin (a).

4,268,650

SULPHONATED POLYARYLETHERKETONES

John B. Rose, Letchworth, England, assignor to Imperial Chemical Industries Limited, London, England

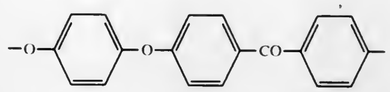
Filed Aug. 21, 1979, Ser. No. 68,467

Claims priority, application United Kingdom, Sep. 5, 1978, 35589/78; Jan. 24, 1979, 7902490/79

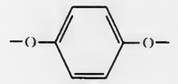
Int. Cl.³ C08G *65/40, 75/23*

U.S. Cl. 525—534 **7 Claims**

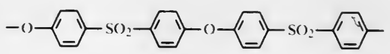
1. A polyaryletherketone polymer which is a hydrophilic sulphonated polymer having repeat units based on the repeat unit which, with no sulphonation, has the formula



wherein up to 90% of said repeat units are sulphonated the sulphonation present being monosulphonation in the subunits



said repeat units being alone or in conjunction with substantially non-sulphonated repeat units of formula



4,268,651

TWO-PHASE VINYL CHLORIDE POLYMERIZATION

Francois Erard, Ecully, France, and Salomon Soussan, Saint-Symphorien D'Ozon, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation-in-part of Ser. No. 941,642, Sep. 12, 1978, abandoned. This application Jun. 29, 1979, Ser. No. 53,356

Claims priority, application France, Sep. 12, 1977, 77 27429

Int. Cl.³ C08F *14/06*

U.S. Cl. 526—65 **19 Claims**

1. A process for the preparation of vinyl chloride polymer, comprising mass prepolymerizing vinyl chloride monomer in a first phase under highly turbulent agitation until a degree of conversion thereof of between about 5 and 15% by weight of the vinyl cloride polymer is attained, and thence, in a second distinct phase, mass polymerizing said prepolymerized reaction product through reaction completion under mild agitation, said process being characterized in that (i) there is added to the reaction medium, prior to same attaining a polymer content of about 15% by weight of the reaction medium, an additive in an amount sufficient to provide a polymer product comprising at least 95% by weight of a fraction which will pass through a 250 micron mesh sieve, wherein said additive is selected from the group consisting of (a) a copolymer of vinyl acetate and an ethylenicallly unsaturated carboxylic acid comonomer copolymerizable therewith, and (b) a condensate of ethylene oxide on a polypropylene glycol backbone, and (ii) controlling the rate of reaction such that the period of time during which the polymer content by weight in the reaction medium is between 15 and 25%, is less than 45 minutes.

4,268,652

COLOR STYRENE-ACRYLONITRILE POLYMERS

Raymond W. Kent, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 16, 1980, Ser. No. 112,574

Int. Cl.³ C08F *212/10*

U.S. Cl. 526—217 **15 Claims**

1. In a process for the mass polymerization of a feedstream, said feedstream comprising a monomer composition of from about 20 to about 80 parts by weight of acrylonitrile, from about 80 to about 20 parts by weight of styrene, and from about 0 to about 30 parts by weight of a diluent, said feedstream thereafter being passed into a polymerization zone wherein the feedstream is maintained at a temperature of from about 120° C. to about 170° C. under a pressure of from about 10 to about 300 psi whereby at least a portion of the feedstream is polymerized to form a polymer, said polymer thereafter being subjected to heat and vacuum sufficient to remove at least a major portion of any residual unpolymerized components of the feedstream and diluent, the improvement being the incorporation within the feedstream, as a polymerization initiator, from about 80 to about 700 parts per million parts by weight of the feedstream of an unsymmetrical tertiary-aliphatic-alpha-cyano-azoalkane, the attaining and maintaining of a level of oxygen within the feedstream as it is passed into the polymerization zone, while said feedstream is being polymerized, of not greater than about 20 parts by weight per million parts by weight of the feedstream, and the residence time of the feedstream within the polymerization zone being from about 0.7 to about 1.4 hours.

4,268,653

PROCESS FOR PREPARATION OF A POLYMERIC PIEZO-ELECTRIC MATERIAL AND MATERIAL PREPARED BY SAID PROCESS

Masataka Uchidoi; Kiyonori Iwama; Tsutomu Iwamoto, all of Tokorozawa; Junichi Sato, Suita, and Yoshihide Higashihata, Settsu, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo and Daikin Kogyo Co., Ltd., Osaka, both of, Japan

Filed Mar. 26, 1980, Ser. No. 133,996

Claims priority, application Japan, Mar. 26, 1979, 54-34236; Mar. 26, 1979, 54-34237; Mar. 26, 1979, 54-34238

Int. Cl.³ B29C *25/00;* **H01L** *41/00*

U.S. Cl. 526—255 **10 Claims**

1. A process for preparing a polymeric piezo-electric material by a polarization treatment which comprises

cooling a vinylidene fluoride-trifluoroethylene copolymer from a temperature higher than the phase transition temperature of said copolymer which exists between room temperature and the melting point of said copolymer and either maintaining the temperature within the temperature range where a maximum of dielectric constant occurs, or cooling gradually through said temperature range, while

applying an electric field at least within said temperature range.

5. A polymeric piezo-electric material obtained by a process which comprises polarizing after stretching a vinylidene fluoride-trifluoroethylene copolymer film, in which the piezo-electric constant in the stretching direction and the piezo-electric constant in the orthogonal direction have piezoelectric constants of different polarity from one another.

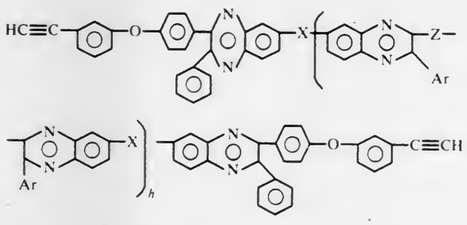
4,268,654

ACETYLENE TERMINATED MATRIX AND ADHESIVE OLIGOMERIC COMPOSITIONS

Fred E. Arnold, Centerville, and Bruce A. Reinhardt, New Carlisle, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

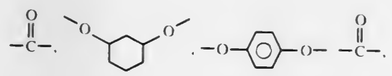
Filed Oct. 26, 1979, Ser. No. 88,504
Int. Cl.³ C08G *73/06*
U.S. Cl. 526—259 **8 Claims**

1. A composition consisting essentially of (1) an acetylene-terminated quinoxaline oligomer having the following structure formula:

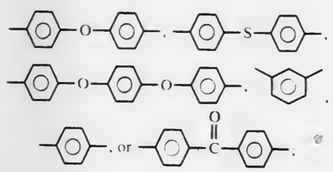


wherein X is a single bond, —O—, —S—,

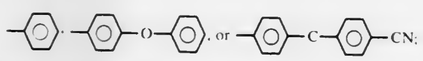
$-CH_2-$,



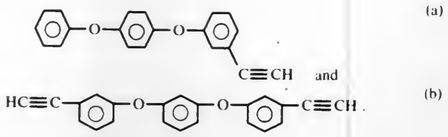
Z is



Ar is



and n is an integer ranging from 1 to 20, inclusive; and (2) about 1 to 40 weight percent, based on the total weight of the composition, of an acetylene-substituted compound selected from the group of compounds having the following structural formulas:



(a)

and

(b)

4,268,655

FERROCENE CATALYZED ELASTOMER FORMATION

Gary R. Homan, and Chi-Long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

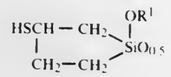
Filed Dec. 3, 1979, Ser. No. 99,283
Int. Cl.³ C08G *77/06*
U.S. Cl. 528—15 **4 Claims**

1. A composition of matter comprising a material prepared by mixing

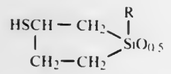
(A) a mercaptoorganopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units, hydroxydimethylsiloxane units, trimethylsiloxane units, units of the formula



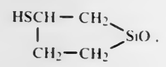
units of the formula



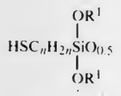
units of the formula



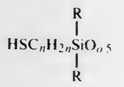
units of the formula



units of the formula



and units of the formula



wherein: R is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive and phenyl radical; R^1 is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 atoms inclusive; and n has a value of from 1 to 4 inclusive, there being in said mercaptoorganopolysiloxane an average of at least two sulfur-containing siloxane units per molecule, but not more than 10 mole percent sulfur-containing units based upon the total number of siloxane units in the mercaptoorganopolysiloxane;

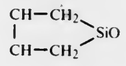
(B) an aliphatically unsaturated polydiorganosiloxane having at least three diorganosiloxane units per molecule wherein each unit of the combination forming the molecule is selected from the group consisting of units of the formula



units of the formula



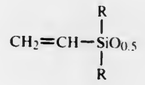
and units of the formula



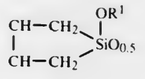
and any endblocking units present being selected from the group consisting of hydroxydimethylsiloxane units, units of the formula



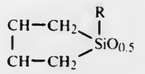
units of the formula



units of the formula



and units of the formula

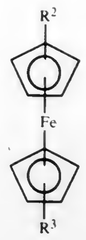


wherein R and R^1 are as defined above, there being at least two aliphatically unsaturated siloxane units per molecule;

(C) an organic peroxide in an amount equal to from about 0 to about 10 parts by weight per 100 parts of the combined weight of (A) and (B);

(D) a filler in an amount equal to from about 0 to about 200 parts by weight per 100 parts of the combined weight of (A) and (B); and

(E) a dicyclopentadienyl iron compound represented by the structural formula



wherein R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, lower (C_1 to C_3) alkyl, acetyl, carboxyl, vinyl and trimethylsilyl; said dicyclopentadienyl iron compound being present in an amount equal to from about 0.01 to about 5 parts by weight per 100 parts of the combined weight of (A) and (B).

4,268,656

CO-CURING AGENTS FOR EPOXY RESINS

Dilip K. Ray-Chaudhuri, Bridgewater; Wen B. Chiao, Somerville, and Jules E. Schoenberg, Scotch Plains, all of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Jan. 16, 1980, Ser. No. 112,496
Int. Cl.³ C08G *59/56*
U.S. Cl. 528—103 **22 Claims**

1. A unitary, storable, heat-curable epoxy resin system, which comprises a polyepoxide and a curing amount of a combination comprising (1) an epoxy curing agent and (2) a co-curing agent prepared by reacting (a) a polyepoxide with (b) a N-substituted piperazine or a N-substituted homopiperazine, wherein said piperazine is substituted with an alkyl, substituted alkyl, cycloalkyl, aryl or aralkyl group of up to 12 carbon atoms and said homopiperazine is substituted with an alkyl group of up to 3 carbon atoms, said co-curing agent having a ratio of epoxy groups to secondary amino groups of at least 0.8:1.

4,268,657

FRICTION ELEMENT CONTAINING PHENOL-FORMALDEHYDE-ALKYLPHENOL BINDER

Anthony P. Manzara, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Dec. 10, 1979, Ser. No. 101,728
Int. Cl.³ C08G *8/12;* **C08L** *61/10*
U.S. Cl. 528—155 **5 Claims**

1. In a friction element of the type which is composed of cured organic thermosettable binder having filler dispersed and bonded therein; the improvement comprising employing as said binder a curable mixture comprising a reaction product of:

(a) phenol

(b) formaldehyde; and

(c) monalkyl phenol having from 4 to about 20 carbon atoms in the alkyl group, the mole ratio range of phenol:alkyl phenol:formaldehyde being about 2:1–5:1–7 and the number of moles of phenol and alkylphenol combined exceeding the number of moles of formaldehyde.

4,268,658

PROCESS FOR PREPARING POLYCARBONATES USING IMINOETHERS AS CATALYSTS

Victor Mark, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Dec. 28, 1979, Ser. No. 107,893

Int. Cl.³ C08G *63/62*

U.S. Cl. 528—199 **8 Claims**

1. An interfacial polymerization process for preparing a high molecular weight polycarbonate which comprises reacting, under interfacial polycarbonate-forming conditions, a dihydric phenol and a carbonate precursor in the presence of a catalytic amount of a catalyst selected from the group consisting of iminoethers and their salts.

4,268,659

MODIFIED POLYESTER IMIDES, HARDENABLE BY ENERGY-RICH RADIATION, PROCESS FOR THEIR PRODUCTION AND THEIR USE FOR THE INSULATION OF ELECTRIC WIRES

Klaus Bederke, Sprockhoevel, and Hermann Kerber, Wuppertal, both of Fed. Rep. of Germany, assignors to Herberts Gesellschaft mit beschrankter Haftung, Wuppertal, Fed. Rep. of Germany

Filed Mar. 25, 1980, Ser. No. 133,898

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2915011

Int. Cl.³ C08G *63/44, 69/44*

U.S. Cl. 528—288 **9 Claims**

1. Modified polyester imides, hardenable by energy-rich radiation and containing an acrylic or methacrylic ester group having a hydroxyl group, said ester group being linked to the polyester imide molecule by way of an oxygen atom that is located on the carbon atom adjacent to the carbon atom carrying said hydroxyl group.

4,268,660

ACCELERATED POLYMERIZATION OF 2-PYRROLIDONE

Carl E. Barnes, 482 Trinity Pass, New Canaan, Conn. 06840, and Arthur C. Barnes, 320 Stamford Ave., Stamford, Conn. 06902

Division of Ser. No. 84,813, Oct. 15, 1979, which is a division of Ser. No. 39,773, May 17, 1979, Pat. No. 4,217,442, which is a continuation-in-part of Ser. No. 899,066, Apr. 24, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 129,401

Int. Cl.³ C08G *69/24*

U.S. Cl. 528—315 **1 Claim**

1. A method of accelerating the polymerization of 2-pyrrolidone comprising adding a quaternary ammonium compound to 2-pyrrolidone, distilling over under vacuum from 5 to 50 percent of the 2-pyrrolidone and adding the anhydrous residue therefrom as an accelerator to an anhydrous polymerization mixture comprising 2-pyrrolidone, an alkali metal salt of 2-pyrrolidone and a polymerization initiator, and heating the mixture to a temperature of from about 25° to 60° C. whereby a melt extrudable polypyrrolidone is formed.

4,268,661

METHOD FOR THE MANUFACTURE OF GLASS CLEAR TRANSPARENT POLYAMIDE

Eduard Schmid, Bonaduz, and Wolfgang Griehl, Chur, both of Switzerland, assignors to Inventa AG fur Forschung und Patentverwertung, Zurich, Zurich, Switzerland

Continuation of Ser. No. 970,643, Dec. 18, 1978, which is a continuation of Ser. No. 745,897, Nov. 29, 1976, abandoned, which is a continuation of Ser. No. 731,810, Oct. 12, 1976, abandoned. This application Feb. 19, 1980, Ser. No. 122,770

Int. Cl.³ C08G *69/26*

U.S. Cl. 528—338 **16 Claims**

1. A copolyamide having a glass transition temperature (Tg) of 140°-170° C. consisting essentially of the polymeric condensation product of

(a) a diamine of the formula



wherein R_1 and R_2 are independently selected from hydrogen and methyl, n is an integer from 0 to 6, and wherein each cyclohexane ring may be partially or wholly substituted with methyl groups;

(b) a substantially stoichiometric amount, based on the amount of component (a), of a dicarboxylic acid or acid mixture, consisting of from 50 to 100% of isophthalic acid, from 0 to 50 mol or weight % of terephthalic acid, and from 0 to 15 mol % of other polyamide-forming dicarboxylic acid or acids; and

(c) 30 to 40% by weight, based on the total weight of components (a), (b) and (c), of a further polyamide-forming component which is selected from the group consisting of salts of aliphatic dicarboxylic acids and aliphatic diamines, stoichiometric mixtures of aliphatic dicarboxylic acids and aliphatic diamines and blends of said salts and mixtures, said member subject to the conditions that the average number of carbon atoms per amide group or between each pair of amide-forming groups is at least 9, that the minimum number of carbon atoms between the amide-forming groups is at least 6, and that, when component (b) is not 100% isophthalic acid or isophthalic acid/terephthalic acid mixture, the sum of the weights of the other polyamide-forming dicarboxylic acids in (b) and of component (c) must be from 30 to 40% by weight, based on the total weight of components (a), (b), and (c), said product having a melt viscosity of 2000 to 15000 poises at about 300° C.

4,268,662

PROCESS FOR IMPROVING SEMIPERMEABLE MEMBRANES BY TREATING WITH PROTIC ACIDS OR INORGANIC SALTS

Takezo Sano, Takatsuki; Takatoshi Shimomura, Toyonaka, and Ichiki Murase, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Mar. 5, 1979, Ser. No. 17,326

Claims priority, application Japan, Mar. 17, 1978, 53-31571; Mar. 31, 1978, 53-38608

Int. Cl.³ C08F *6/00*

U.S. Cl. 528—486 **12 Claims**

1. A process for treating semipermeable membrane comprising an acrylonitrile polymer containing 40 to 100% by mole of acrylonitrile and having a bubble point of more than 0.1 kg/cm^2, which comprises dipping said semipermeable membrane for a period of one minute or more in an aqueous solution containing an acid selected from the group consisting of inorganic acids, sulfonic acids and carboxylic acids having a concentration of 0.5 N or higher but below that which would dissolve the membrane.

3. A process according to claim **1**, wherein said semipermeable membrane is a plasma-treated one.

4,268,663

MACROMOLECULAR GLYCOSIDASE SUBSTRATES

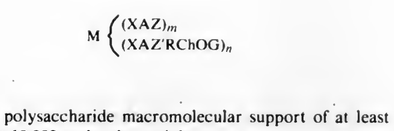
Carl N. Skold, Palo Alto, Calif., assignor to Syva Company, Palo Alto, Calif.

Filed Apr. 10, 1979, Ser. No. 28,777

Int. Cl.³ C07H *15/00*; C08B *37/02*

U.S. Cl. 536—4 **11 Claims**

1. A Compound of the formula:



wherein:

M is a polysaccharide macromolecular support of at least about 10,000 molecular weight;

X is a functionality bonded to the backbone of said support and is oxy, amino or non-oxo-carbonyl;

A is alkylene of from about 1 to 6 carbon atoms or alkylenecarbonyl of from about 2 to 6 carbon atoms or is take together with Z to define H or with Z' to form a bond;

Z is amino, carboxy, hydroxy, Z'H or when A is alkylenecarbonyl, halo bonded to alkylene;

Z' is amino or non-oxo-carbonyl;

R is a bond or linking group of from 1 to 16 carbon atoms and from 1 to 8 heteroatoms which are chalcogen and nitrogen, wherein chalcogen is oxy, oxo and the sulfur analogs thereof and nitrogen is amino or amido;

ChO is a divalent chromogenic group which has a phenolic oxy group and has a chromophore which either absorbs light above 300 nm or fluoresces emitting light above 350 nm and has a substantial difference in its spectroscopic properties between the substituted and unsubstituted phenolic oxy group;

G is a glycoside of from about 5 to 6 carbon atoms;

n is at least 1 and not greater than the molecular weight of M divided by 150; and

m is in the range of about 0 to 10 times n.

4,268,664

PROCESS FOR THE PREPARATION OF 1-N-ISOSERYL- OR 1-N-(L-4-AMINO-2-HYDROXYBUTYRYL)-3',4'-DIDEOXYKANAMYCIN B AND INTERMEDIATES THEREOF

Hamao Umezawa, Tokyo, and Shinichi Kondo, Yokohama, both of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Japan

Filed Nov. 26, 1979, Ser. No. 97,896

Claims priority, application Japan, Dec. 14, 1978, 53-153651

Int. Cl.³ C07H *15/22*; A61K *31/71*

U.S. Cl. 536—10 **12 Claims**

10. An amino-protected derivative of 3',4'-dideoxy-3',4'-didehydrokanamycin B selected from the group consisting of 3,2',6',3''-tetra-N-tert-butoxycarbonyl-3',4'-dideoxy-3',4'-didehydrokanamycin B, 3,2',6'-tri-N-tert-butoxycarbonyl-3',4'-dideoxy-3',4'-didehydrokanamycin B, 2',6',3''-tri-N-tert-butoxycarbonyl-3',4'-dideoxy-3',4'-didehydrokanamycin B, 2',6'-di-N-tert-butoxycarbonyl-3',4'-dideoxy-3',4'-didehydrokanamycin B and 6'-N-tert-butoxycarbonyl-3',4'-dideoxy-3',4'-didehydrokanamycin B.

4,268,665

DERIVATIVES OF ANTIBIOTIC TYLOSIN

Hideo Sakakibara, Mishima; Tatsuro Fujiwara, Shizuoka; Osamu Okegawa, Shizuoka; Toshiyuki Watanabe, Shizuoka; Susumu Watanabe, Shizuoka, and Tetsuo Matsuda, Shizuoka, all of Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka, Japan

Filed Sep. 14, 1979, Ser. No. 75,661

Claims priority, application Japan, Sep. 14, 1978, 53-113023; Feb. 27, 1979, 54-22340

Int. Cl.³ A61K *31/71*; C07H *17/08*

U.S. Cl. 536—17 R **8 Claims**

1. A compound of the formula

4,268,666

PROCESS FOR THE DISSOLUTION OF CELLULOSE IN ORGANIC SOLVENTS, SOLUTIONS OBTAINED BY SAID PROCESS, AND PROCESS FOR THE PRODUCTION OF FORMED BODIES OF REGENERATED CELLULOSE FROM SAID SOLUTIONS

Alberto Baldini, Garlasco; Roberto Leoni, Milan; Angelo Calloni, Buscato, and Gianfranco Angelini, Buscate, all of Italy, assignors to SNIA VISCOSA Societa Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

Filed Mar. 29, 1979, Ser. No. 25,068

Claims priority, application Italy, Apr. 3, 1978, 21922 A/78

Int. Cl.³ C08B *16/00*; C08L *1/02, 1/08*

U.S. Cl. 536—57 **17 Claims**

1. A process for the dissolution of cellulose in a solvent selected from the group consisting of dimethylformamide, dimethylacetamide and N-methylpyrrolidone characterized in that the cellulose is contacted with an excess of paraformaldehyde and with said solvent at elevated temperatures.

4,268,667

DERIVATIVES OF ARYL KETONES BASED ON 9,10-DIHYDRO-9,10-ETHANOANTHRACENE AND P-DIALKYL-AMINOARYL ALDEHYDES AS VISIBLE SENSITIZERS FOR PHOTOPOLYMERIZABLE COMPOSITIONS

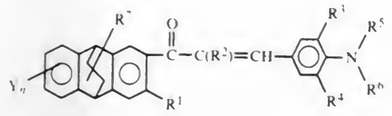
Albert G. Anderson, Wilmington, Del., assignor to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Filed Apr. 21, 1980, Ser. No. 142,173

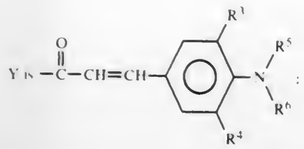
Int. Cl.³ C07D *241/04*; G03C *1/68*

U.S. Cl. 542—402 **12 Claims**

1. A composition having the formula



wherein:



R^1 and R^2 are each H, or, $R^1 + R^2$ is $-CH_2-$;
R^3 is H, or $R^3 + R^5$ is selected from $-CH_2CH_2-$ and $-CH_2CH_2CH_2-$;
R^4 is H, or, $R^4 + R^6$ is selected from $-CH_2CH_2-$ and $-CH_2CH_2CH_2-$;
R^5 and R^6 are alkyl groups of 1 to 5 carbon atoms, or together are selected from $-Ch_2-)_4$ and $-CH_2CH_2OCH_2CH_2-$;
R^7 is H or CH_3; and
n is 0 or 1, with the proviso that when n is 1, R^1 and R^2 are H.

4,268,668

ACID MONOMETHINE-METAL COMPLEX DYESTUFFS

Horst Harnisch, Much, and Peter Rasche, Aachen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

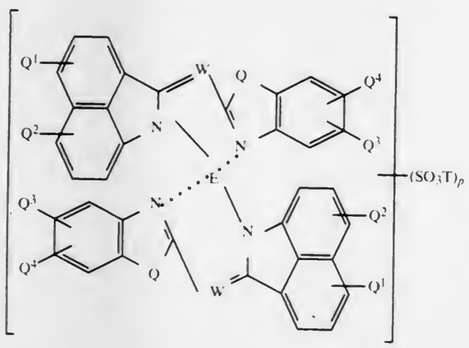
Filed Oct. 19, 1979, Ser. No. 86,614

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1978, 2848622

Int. Cl.³ C07F *13/00, 15/04, 15/06*

U.S. Cl. 8—685 **4 Claims**

1. Acid monomethine-metal complex dyestuffs of the formula



wherein

W represents =N— or =C(CN)—,
E represents divalent nickel, cobalt, zinc or copper,
Q represents —S—, —O— or —N(D)—,
D represents hydrogen, optionally OH—, Cl—, CN—, C_1-C_4-alkoxycarbonyl- or $CONH_2$-substituted C_1-C_3-alkyl, benzyl or phenyl, or C_1-C_2-alkoxycarbonyl,
T represents hydrogen, an alkali metal or ammonium ion or the monovalent equivalent of E,
p represents the numbers 2, 4 or 6,
Q^1 represents hydrogen, chlorine, bromine, C_1-C_2-alkoxy, CN, carboxyl, C_1-C_4-alkoxycarbonyl or a carbamoyl radical which is optionally substituted by one or two C_1-C_4-alkyl radicals,
Q^2 represents hydrogen, C_1-C_2-alkyl, chlorine, bromine, iodine, C_1-C_4-alkoxycarbonyl, benzoyl, C_1-C_4-alkylsulphonyl, including β-sulphatoethylsulphonyl, benzylsulphonyl, phenylsulphonyl, nitro, cyano, C_1-C_4-alkoxycarbonyl, carboxyl, a sulphamoyl or carbamoyl radical which is optionally monosubstituted or disubstituted by C_1-C_4-alkyl, benzyl and/or phenyl radicals, amino, acetylamino, C_1-C_4-alkylsulphonylamino, phenylsulphonylamino, di-(C_1-C_4-alkyl)-amino, piperidino, morpholino, pyrrolidino, C_1-C_4-alkoxy, phenoxy, C_1-C_4-alkylmercapto or phenylmercapto,
Q^1 and Q^2 together can also represent o-phenylenemercapto or o-phenylenecarbonyl,
Q^3 represents hydrogen, C_1-C_4-alkyl, CF_3, chlorine, bromine, C_1-C_4-alkoxy (which is optionally substituted by OH, C_1-C_4-alkoxy or chlorine), phenoxy, phenyl, benzyl, cyclohexyl, C_1-C_4-alkoxycarbonyl, CN, carboxyl, C_1-C_4-alkylsulphonyl, phenylsulphonyl, nitro, C_1-C_4-alkylmercapto or a sulphamoyl or carbamoyl radical which is optionally substituted by one or two C_1-C_4-alkyl radicals,
Q^4 represents hydrogen, C_1-C_4-alkyl, CF_3, chlorine, bromine, C_1-C_2-alkoxy or phenyl and
Q^3 and Q^4 together, when in the o-position to one another, can also represent divalent radicals of the formula $-O-CH_2-O-$, $-O-CH_2-CH_2-O-$, $-O-CH_2-O-CH_2-$, $-CH=CH-CH=CH-$, $-(CH_2)_4-$ or $-CH_2-C(CH_3)_2-CH_2-$.

4,268,669

9-DEOXY-9-METHYLENE-5,6-DIDEHYDRO-PGF$_1$ AMIDES

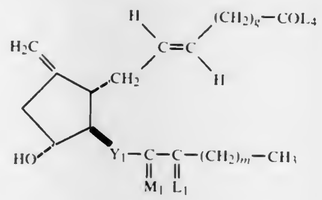
Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 35,144, May 1, 1979. This application Jan. 28, 1980, Ser. No. 116,076

Int. Cl.³ C07C *177/00*

U.S. Cl. 542—429 **1 Claim**

1. A prostaglandin analog of formula VI



VI

wherein Y_1 is trans—CH=CH—, —C≡C—, $-CH_2CH_2-$, or cis—CH=CH—;
wherein M_1 is α-R_5:β-OH or α-OH:β-R_5, wherein R_5 is hydrogen or methyl;
wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and α-R_4:β-R_3 wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein g is 3, 4, or 5;
wherein m is one to 5, inclusive, and
wherein L_4 is
(a) amino of the formula $-NR_{21}R_{22}$, wherein R_{21} and R_{22} are
(i) hydrogen;
(ii) alkyl or one to 12 carbon atoms, inclusive;
(iii) cycloalkyl of 3 to 10 carbon atoms, inclusive;
(iv) aralkyl of 7 to 12 carbon atoms, inclusive;
(v) phenyl;
(vi) phenyl substituted with one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(vii) carboxyalkyl of 2 to 5 carbon atoms, inclusive;
(viii) carbamoylalkyl of 2 to 5 carbon atoms, inclusive;
(ix) cyanoalkyl of 2 to 5 carbon atoms, inclusive;
(x) acetylalkyl of 3 to 6 carbon atoms, inclusive;
(xi) benzoylalkyl of 7 to 11 carbon atoms, inclusive;
(xii) benzoylalkyl substituted by one, 2 or 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(xiii) pyridyl;
(xiv) pyridyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive;
(xv) pyridylalkyl of 6 to 9 carbon atoms, inclusive;
(xvi) pyridylalkyl substituted by one, 2 or 3 carbon atoms, inclusive, hydroxy or alkoxy of one to 3 carbon atoms, inclusive;
(xvii) hydroxyalkyl of one to 4 carbon atoms, inclusive;
(xviii) dihydroxyalkyl of one to 4 carbon atoms; or
(xix) trihydroxyalkyl of one to 4 carbon atoms;
with the further proviso that not more than one of R_{21} and R_{22} is other than hydrogen or alkyl;
(b) cycloamino selected from the group consisting of
(i) pyrrolidino,
(ii) piperidino,
(iii) morpholino,
(iv) piperazino,
(v) hexamethyleneimino,
(vi) pyrrolino,
(vii) 3,4-didehydropiperidinyl, or
(viii) pyrrolidino, piperidino, morpholino, piperazino, hexamethyleneimino, pyrrolino, or 3,4-didehydropiperidinyl substituted by one or two alkyl of one to 12 carbon atoms, inclusive;
(c) carbonylamino of the formula $-NR_{23}COR_{21}$, wherein R_{23} is hydrogen or alkyl of one to 4 carbon atoms and R_{21} is other than hydrogen, but otherwise as defined above; or
(d) sulfonylamino of the formula $-NR_{23}SO_2R_{21}$, wherein R_{21} and R_{23} are as defined in (c).

4,268,670

PROCESS FOR THE PREPARATION OF BENZIMIDAZOLYLBENZOFURANES

Bernhard Wehling, Cologne, and Josef Bremen, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

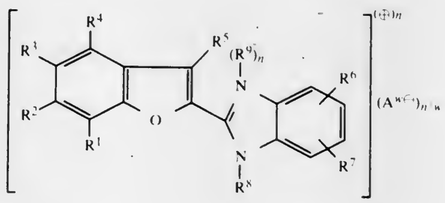
Filed Jan. 21, 1980, Ser. No. 113,933

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904829

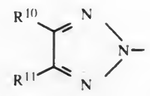
Int. Cl.³ C07D *405/04, 405/14*

U.S. Cl. 542—435 **2 Claims**

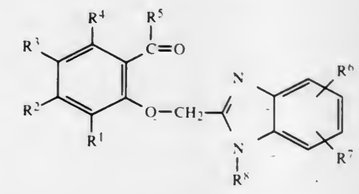
1. In the preparation of a compound of the formula



wherein
R^1, R^3 and R^4 each independently is hydrogen, alkyl, alkoxy or halogen,
R^2 is hydrogen, halogen, alkyl, alkoxy, aryl or a substituent of the formula



R^{10} is aryl, alkyl, aralkyl, styryl or alkoxy and
R^{11} is hydrogen, CN, COOR, CONRR′ or R^{10}, or two adjacent radicals from the group R^1, R^2, R^3, R^4, R^{10} and R^{11} together form a fused-on hydroaromatic or aromatic ring,
R^5 is hydrogen, aryl or alkyl,
R^6 is hydrogen, halogen, alkyl, alkoxy, alkylsulphonyl, arylsulphonyl, CN, CF_3, COOR, SO_3R, CONRR′ or SO_2NRR',
R^7 is hydrogen, halogen, alkyl or alkoxy,
R^8 is hydrogen, alkyl, cycloalkyl, alkenyl, aryl or aralkyl,
R^9 is cycloalkyl, alkenyl, alkyl or aralkyl,
$A^{\ominus}$ is a colorless anion of an inorganic or organic acid,
w is the valence of the anion A,
n is 0 or 1,
R is alkyl, and
R′ is R or hydrogen,
and wherein the above-mentioned hydrocarbon radicals and alkoxy radicals and the optionally fused-on ring systems can be substituted by substituents customary in brightener chemistry,
by heating a compound of the formula



in the presence of a quaternizing agent containing an R^9 radical, the improvement which comprises effecting the heating in an inert solvent without the addition of a catalyst.

4,268,671

FLUORESCENT DYES

Seiichi Imahori, Kawasaki; Yukichi Murata, Yokohama; Syuichi Maeda, Tokyo, and Sumio Suzuki, Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries Ltd., Tokyo, Japan

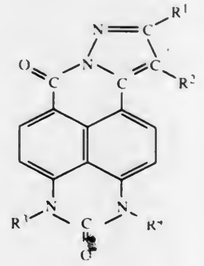
Filed Apr. 13, 1978, Ser. No. 895,948

Claims priority, application Japan, Apr. 20, 1977, 52-45426

Int. Cl.³ C09B *57/00*

U.S. Cl. 544—245 **6 Claims**

1. A heterocyclic dye having the formula:



wherein R^1 represents hydrogen, (C_1-C_8)alkyl, trifluoromethyl, (C_1-C_4)alkoxycarbonyl, (C_1-C_4)alkoxycarbonyl(C_1-C_4)alkyl, phenyl, benzyl or phenethyl; R^2 represents hydrogen, cyano, acetyl, benzoyl, (C_1-C_8)alkoxycarbonyl, (C_1-C_4)alkoxy(C_1-C_4)alkoxycarbonyl, (C_1-C_4)alkoxy(C_1-C_4)alkoxy(C_1-C_4)alkoxycarbonyl, di(C_1-C_4)alkylamino(C_1-C_4)alkoxycarbonyl, cyclohexyloxycarbonyl, tolyloxycarbonyl, phenoxycarbonyl, benzyloxycarbonyl, tetrahydrofurfuryloxycarbonyl, carbamoyl, N-(C_1-C_4)-alkylcarbamoyl, N,N-di(C_1-C_4)alkylcarbamoyl, N-phenylcarbamoyl, or morpholinocarbonyl; and R^3 and R^4 can be the same or different and each represents hydrogen, (C_1-C_8)alkyl, (C_1-C_4)-alkoxy(C_1-C_4)alkyl, benzyl, phenethyl or phenyl which can be substituted by halogen atoms, (C_1-C_4)alkyl groups, or (C_1-C_4)alkoxy groups.

4,268,672

ADENOSINE DEAMINASE RESISTANT ANTIVIRAL PURINE NUCLEOSIDES AND METHOD OF PREPARATION

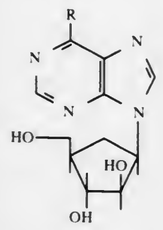
Robert Vince, St. Paul, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

Continuation-in-part of Ser. No. 766,947, Feb. 9, 1977, Pat. No. 4,138,562. This application Jan. 5, 1979, Ser. No. 1,072

Int. Cl.³ C07D *473/34*

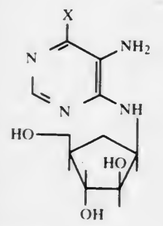
U.S. Cl. 544—265 **5 Claims**

1. A method of preparation of the purine nucleoside analog having the formula:



wherein R is selected from the group of substituent groups consisting of amino, hydroxyl, mercapto, methylmercapto and substituted amino NR'R'' wherein R' and R'' may be the same or different and are hydrogen, methyl, ethyl, propyl or phenyl, which method comprises:

(A) preparing the intermediate



wherein X is halogen, by

(1) hydrolysing 2-azabicyclo[2.2.1]hept-5-en-3-one under acid conditions.

(2) esterifying the carboxyl function of the resulting cis-4-aminocyclo-pent-2-ene carboxylic acid salt,

(3) acetylating the amino group of the resulting ester,

(4) reducing and acetylating said ester,

(5) epoxidizing the resulting acetate,

(6) hydrolysing and acetylating the resulting epoxide,

(7) forming an amine from the resulting (±)-4α-acetamido-2β, 3α-diacetoxy-1α-cyclopentanemethyl acetate, and

(8) condensing said amine with 5-amino-4,6-dihalopyrimidine to produce said intermediate;

(B) closing the ring of said intermediate by reaction with a ring closing agent selected from the class consisting of diethoxymethyl acetate and triethyl orthoformate, and

(C) replacing the halogen with a substituent from the group consisting of amino, hydroxyl, mercapto, methylmercapto and substituted amino.

4,268,673

5-UNSUBSTITUTED-9,9-DIMETHYL-6,7-BENZOMORPHANS

Antony M. Akkerman, and Geertruida C. van Leeuwen, both of Amsterdam, Netherlands, assignors to ACF Chemiefarma N.V., Maarssen, Netherlands

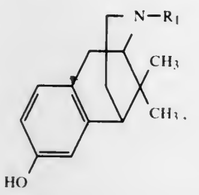
Division of Ser. No. 658,739, Feb. 17, 1976, Pat. No. 4,128,548. This application Jul. 28, 1978, Ser. No. 928,862

Claims priority, application United Kingdom, Feb. 25, 1975, 7891/75

Int. Cl.³ C07D *221/26, 405/06*

U.S. Cl. 546—97 **5 Claims**

1. A benzomorphan compound of the formula



wherein R_1 is a member selected from the group consisting of $-CH_2-CH=CH_2$, $-CH_2-$(cyclobutyl), and tetrahydrofurfuryl.

4,268,674

PREPARATION OF SUBSTITUTED OXATRIAZOLES

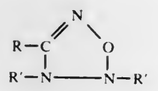
George A. Lee, Wayland, Mass., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 851,016, Nov. 14, 1977, abandoned, which is a division of Ser. No. 789,179, Apr. 20, 1977. This application Jul. 16, 1979, Ser. No. 57,640

Int. Cl.³ C07D *273/00*

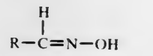
U.S. Cl. 548—125 **12 Claims**

1. A process for preparing an oxatriazole of the formula



(I)

the process comprising the step of contacting in a liquid reaction medium and with agitation an oxime of the formula



(II)

with an azo compound of the formula

(III)

and an oxidizing amount of an aqueous alkali or alkaline earth metal hypohalite, where:

R is C_1-C_8 saturated aliphatic, C_6-C_{20} aromatic hydrocarbon or an inertly-substituted aliphatic or aromatic hydrocarbon radical, and

R' is —COOR and each R' can be the same or different.

4,268,675

3-[5-[1-(DIHALOPHENOXY)ALKYL, ALKYNYL, ALKENYL, OR HALOALKYL]-1,3,4-THIADIAZOL-2-yl]-4-HYDROXY-1-METHYL-2-IMIDAZOLIDINONES

Jerome M. Lavanish, Akron, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

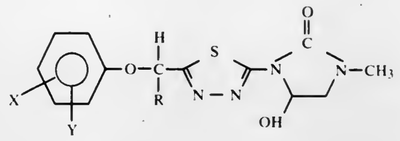
Filed Jul. 6, 1979, Ser. No. 55,228

The portion of the term of this patent subsequent to Aug. 19, 1997, has been disclaimed.

Int. Cl.³ A01N *43/82;* **C07D** *285/12, 417/02, 417/04*

U.S. Cl. 548—137 **20 Claims**

1. A compound graphically represented by Formula I



wherein:

X is chlorine, bromine, fluorine, or iodine

Y is chlorine, bromine, fluorine, or iodine, and R is an alkyl of up to four carbon atoms, an alkenyl of up to three carbon atoms, an alkynyl of up to three carbon atoms, or a haloalkyl selected from the group consisting of chloromethyl, bromomethyl, 2-chloroethyl, and 2-bromoethyl.

4,268,676

MITOMYCIN ANALOGS

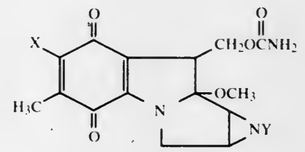
William A. Remers, Tucson, Ariz., assignor to University Patents, Inc., Norwalk, Conn.

Filed Dec. 5, 1979, Ser. No. 100,331

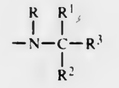
Int. Cl.³ C07D *487/14*

U.S. Cl. 548—181 **2 Claims**

1. Compounds of the formula,



wherein: Y is hydrogen or lower alkyl; and X is a thiazolamino radical, a furfurylamino radical or a radical of the formula,



in which R, R^1, and R^2 are the same or different and selected from the group consisting of hydrogen and lower alkyl, and R^3 is selected from the group consisting of lower alkenyl, halo-lower alkenyl, lower alkynyl, lower alkoxycarbonyl, thienyl, formamyl, tetrahydrofuryl and benzene sulfonamide.

4,268,677

SUBSTITUTED OXAZOLIDINES AND THIAZOLIDINES

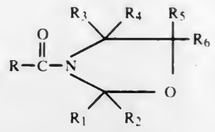
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 655,938, Feb. 6, 1976, Pat. No. 4,186,130, which is a continuation-in-part of Ser. No. 484,514, Jul. 1, 1974, abandoned, which is a continuation of Ser. No. 356,548, May 2, 1973, abandoned, which is a continuation-in-part of Ser. No. 297,582, Oct. 13, 1972, abandoned. This application Jun. 18, 1979, Ser. No. 49,853

Int. Cl.³ C07D *263/04*

U.S. Cl. 548—215 **1 Claim**

1. A compound having the formula



in which R is haloalkyl having from 1 to 10 carbon atoms, inclusive, halo is selected from chloro and bromo, R_3 is lower alkyl having from 1 to 4 carbon atoms, inclusive, and R_1, R_2, R_4, R_5 and R_6 are each hydrogen.

4,268,678

4-(ARYLALIPHATIC)ISOXAZOLES

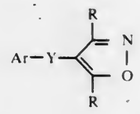
Guy D. Diana, Stephentown, and Philip M. Carabateas, Schodack, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,134

Int. Cl.³ C07D *261/08;* **A61K** *31/42*

U.S. Cl. 548—247 **9 Claims**

1. A compound of the formula:



wherein Ar is phenyl substituted by one or two substituents selected from the group consisting of halogen, lower-alkoxy, nitro and hydroxy;

Y is $(CH_2)_n$ or $O(CH_2)_n$ where n is an integer from 1 to 8; and R is lower-alkyl.

4,268,679

3-[5- OR 3-SUBSTITUTED-5- OR 3-ISOXAZOLYL]-1-ALLYL OR ALKYL-4-SUBSTITUTED-5-SUBSTITUTED OR UNSUBSTITUTED-2-IMIDAZOLIDINONES

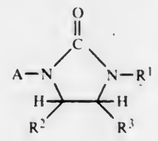
Jerome M. Lavanish, Akron, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 19, 1980, Ser. No. 122,633

Int. Cl.³ A01N *43/54;* **C07D** *233/02*

U.S. Cl. 548—247 **28 Claims**

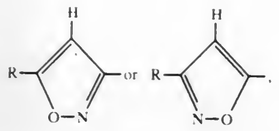
1. A compound of Formula I:



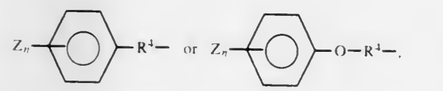
(I)

wherein:

A is



where R is
an alkyl of up to six carbon atoms,
an alkenyl of up to five carbon atoms,
an alkynyl of of up to five carbon atoms,
a cycloalkyl selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl,
a haloalkyl of up to six carbon atoms,
$-R^4-O-R^5$ or $-R^4-S-R^5$, where
R^4 is an alkylene of up to six carbon atoms and
R^5 is an alkyl of up to six carbon atoms, or



where Z is nitro (NO_2), chloro (Cl), bromo (Br), fluoro (F), or R^5, and n is 0, 1, 2, or 3;
R^1 is an alkyl of up to three carbon atoms or allyl;
R^2 is hydroxy (OH), chloro (Cl), or bromo (Br); and
R^3 is hydrogen (H), an alkyl of up to four carbon atoms, allyl, or hydroxy (OH).

4,268,680

HETEROCYCLIC DERIVATIVES OF 1-(1,3-DIOXOLAN-2-YLMETHYL)-1H-IMIDAZOLES AND 1H-1,2,4-TRIAZOLES

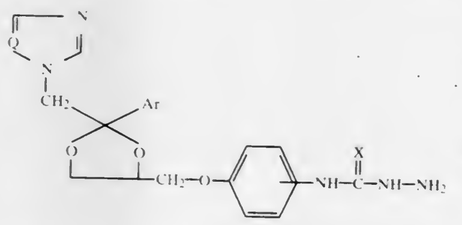
Jan Heeres, Vosselaar; Leo J. J. Backx, Arendonk, and Joseph H. Mostmans, Antwerp, all of Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

Division of Ser. No. 853,726, Nov. 21, 1977, Pat. No. 4,160,848, which is a continuation-in-part of Ser. No. 764,265, Jan. 31, 1977, abandoned. This application Jun. 20, 1979, Ser. No. 50,370

Int. Cl.³ C07D *405/06*

U.S. Cl. 548—336 **3 Claims**

1. A chemical compound having the formula:



and the stereochemically isomeric forms thereof, wherein:
Q is CH
Ar is a member selected from the group consisting of phenyl and substituted phenyl, said substituted phenyl being phenyl having from 1 to 3 substituents independently selected from the group consisting of halo, lower alkyl and lower alkyloxy; and
X is a member selected from the group consisting of O and S.

4,268,681

NOVEL 4,5-DICHLORO-IMIDAZOLE DERIVATIVES AND THEIR USE AS PLANT PROTECTION AGENTS

Klaus Sasse, Berg.Gladbach; Gunther Beck; Ludwig Eue, both of Leverkusen, and Robert R. Schmidt, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

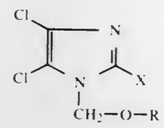
Division of Ser. No. 835,095, Sep. 21, 1977, Pat. No. 4,178,166. This application Apr. 30, 1979, Ser. No. 34,712

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1976, 2646144

Int. Cl.³ C07D *233/68*; **A01N** *9/22*

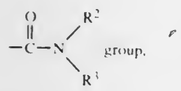
U.S. Cl. 548—337 **2 Claims**

1. A 4,5-dichloro-imidazole of the formula



(I)

in which
X represents a



group,

in which
R^2 represents hydrogen or an alkyl with 1 to 8 carbon atoms,
R^3 represents cyclopentyl or cyclohexyl or represents phenyl which can carry a trifluoromethyl group, and
R represents alkyl with 1 to 12 carbon atoms, it being possible for each of these alkyl radicals to carry phenyl (which itself can carry one or more substituents selected from alkyl with 1 to 6 carbon atoms, alkoxy with 1 to 6 carbon atoms, halogen and trifluoromethyl), or represents cycloalkyl with 5 or 6 carbon atoms in the ring or represents a phenyl radical which is at least disubstituted.

4,268,682

ω-ALKENYL SILANES AND αω-SILYL ALKANES

Alexis A. Oswald, Mountainside, and Lawrence L. Murrell, Elizabeth, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 610,628, Sep. 5, 1975, Pat. No. 4,083,803, which is a continuation-in-part of Ser. No. 265,507, Jun. 23, 1972, Pat. No. 3,907,852. This application Dec. 12, 1977, Ser. No. 859,826

Int. Cl.³ C07F *7/08*, *7/18*

U.S. Cl. 556—465 **5 Claims**

1. ω-Alkenyl silanes of the general formula

$$R_{4-y}Si[(Ch_2)z(CH=CH_2]_y$$

wherein R is the same or different and is selected from the group consisting of chlorine, C_1 to C_4 alkoxy, C_1 to C_4 acyloxy, y is 1 or 2 and z is 6 to 28.

4,268,683

PREPARATION OF CARBAMATES FROM AROMATIC AMINES AND ORGANIC CARBONATES

Arthur E. Gurgiolo, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 21, 1980, Ser. No. 123,137

Int. Cl.³ C07C *125/065*, *125/067*, *125/073*, *125/075*

U.S. Cl. 560—24 **8 Claims**

1. In a process for preparing carbamates from an organic carbonate and an aromatic amine in the presence of catalytic

quantities of a Lewis acid catalyst; the improvement which comprises employing as the Lewis acid catalyst, a zinc or divalent tin halide, zinc or divalent tin salt of a monovalent organic compound which has a pKa value of at least 2.8, a zinc or divalent tin salt of trifluoroacetic acid or a mixture of such catalysts and which is soluble in the reaction mixture at the reaction conditions employed; with the proviso that when a zinc or divalent tin salt of trifluoroacetic acid is employed as the only catalyst, the organic carbonate is a cyclic organic carbonate.

4,268,684

PREPARATION OF CARBAMATES FROM AROMATIC AMINES AND ORGANIC CARBONATES

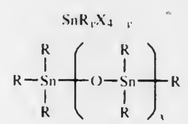
Arthur E. Gurgiolo, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 25, 1980, Ser. No. 124,200

Int. Cl.³ C07C *125/065*, *125/067*, *125/073*, *125/075*

U.S. Cl. 560—24 **5 Claims**

1. In a process for preparing carbamates from an organic carbonate and an aromatic amine in the presence of catalytic quantities of a catalyst; the improvement which comprises employing as the catalyst at least one member selected from the group consisting of
(1) zinc or divalent tin salts of monocarboxylic acids having a pKa value of less than 2.8 other than such salts of trifluoroacetic acid;
(2) divalent cobalt or trivalent cobalt salts of monocarboxylic acids having a pKa value of less than about 2.8;
(3) zinc or divalent tin or divalent cobalt or trivalent cobalt salts of organic materials having more than one —COOH group per molecule;
(4) divalent cobalt or trivalent cobalt salts of a 1,3 diketone having from about 5 to about 10 carbon atoms;
(5) tetravalent alkyl tin compounds or tetravalent alkyl tin oxides represented by the formulas



wherein each R is independently a hydrocarbon group having from 1 to about 10, or a carboxylate group having from 2 to about 10, X is a halogen atom, x has an average value from 1 to about 5, and y has a value of 1 to 4; and
(6) an inorganic zinc compound selected from zinc carbonate, zinc sulfide and zinc oxide and conducting the reaction at a temperature of at least about 200° C.

4,268,685

SALICYLAMIDE ESTERS AND RELATED PHARMACEUTICAL COMPOSITION

Alberto Reiner, Como, Italy, assignor to Neopharmed S.p.A., Milan, Italy

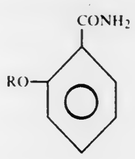
Filed Mar. 12, 1980, Ser. No. 129,660

Claims priority, application Italy, Mar. 27, 1979, 21320 A/79

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—56 **5 Claims**

1. Esters of salicylamide having the general formula:



(I)

wherein R is a radical of an acid selected amongst d-2-(6'-methoxy-2'-naphtyl)-propionic acid, 2[[3-(trifluoromethyl)-phenyl]-amino]-3 pyridine carboxylic acid, 2-{[3-(trifluoromethyl)-phenyl]-amino}-3-pyridincarboxylic acid, 2-(4-isobutylphenyl)-propionic acid, 4-allyloxy-3-chloro-phenylacetic acid, 2-(3-benzoylphenyl)-propionic acid, 2[(2,3-dimethylphenyl-)amino]-benzoic acid and 2-[[3-trifluoromethyl)phenyl]-amino]benzoic acid.

4,268,686

PROPYLENE OXIDE REACTION PRODUCTS

Paul Schäfer, Riehen; Heinz Abel, Reinach, both of Switzerland, and Fritz Mayer, Weil am Rhein, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 814,376, Jul. 8, 1977, abandoned, which is a division of Ser. No. 671,874, Mar. 29, 1976, Pat. No. 4,055,393. This application Apr. 2, 1980, Ser. No. 136,614

Claims priority, application Switzerland, Apr. 4, 1975, 4293/75

Int. Cl.³ C07C *69/60*, *69/80*

U.S. Cl. 560—91 **10 Claims**

1. A propylene oxide reaction product or salt thereof obtained by reacting an adduct of
(a) 1 to 2 moles of an alcohol selected from the group consisting of glycerol, pentaerythritol, sorbitol and trimethylolpropane, and
(b) 4 to 120 moles of 1,2-propylene oxide,
with the reaction product of
(c) 2 to 7 moles of saturated or ethylenically unsaturated aliphatic hydrocarbon dicarboxylic acid or an anhydride thereof containing 2 to 10 carbon atoms, or an aromatic hydrcarbon dicarboxylic acid or an anhydride thereof containing 8 to 12 carbon atoms, and
(d) 1 to 4 moles of an aliphatic diol of formula $HO-(CH_2CH_2O)_nH$ where n is an integer of 1 to 40, in combination with
(e) 1 to 4 moles of an alkanol of 16 to 20 carbon atoms.

9. A propylene oxide reaction product or salt thereof obtained by reacting an adduct of
(a) 1 to 2 moles of an alcohol selected from the group consisting of glycerol, pentaerythritol, sorbitol and trimethylolpropane, and
(b) 4 to 120 moles of 1,2-propylene oxide,
with the reaction product of
(c) 2 to 7 moles of a saturated or ethylenically unsaturated aliphatic hydrocarbon dicarboxylic acid or an anhydride thereof containing 2 to 10 carbon atoms, or an aromatic hydrocarbon dicarboxylic acid or an ahydride thereof containing 8 to 12 carbon atoms, and
(d) 1 to 4 moles of a polyethylene glycol of average molecular weight in the range of 200 to 1500.

4,268,687

METHOD OF MAKING METHYL AND ETHYL ESTERS OF (3-TRIFLUOROMETHYLPHENYL)-ACETIC ACID

David Y. Tang, Eggertsville, and Arthur M. Foster, Snyder, both of N.Y., assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Nov. 7, 1979, Ser. No. 92,117

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—105 **7 Claims**

1. A process of producing methyl and ethyl esters of (3-trifluoromethylphenyl)-acetic acid comprising the steps of:
(a) reacting (3-trifluoromethyl)-benzotrichloride with water to form the corresponding benzoyl chloride,
(b) cyanation of the benzoyl chloride by reaction with CuCN to produce the corresponding benzoyl cyanide,
(c) hydrolyzing the benzoyl cyanide to produce the corresponding keto-acid,
(d) hydrogenating the keto-acid in the presence of an hydrogenation catalyst to produce (3-trifluoro-methylphenyl)-alpha-hydroxyacetic acid,
(e) hydrogenating (3-trifluoromethylphenyl)-alpha-

hydroxy-acetic acid in the presence of glacial acetic acid and a hydrogenation catalyst to produce the corresponding substituted acetic acid, and

(f) esterifying the substituted acetic acid using an alcohol selected from the group consisting of methyl and ethyl to obtain the corresponding methyl or ethyl ester of (3-trifluoromethylphenyl)-acetic acid.

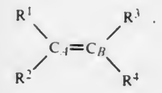
4,268,688

ASYMMETRIC HYDROFORMYLATION PROCESS

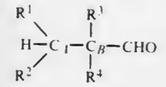
Harold B. Tinker, Creve Couer, and Arthur J. Solodar, St. Louis, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Feb. 16, 1973, Ser. No. 333,269
Int. Cl.[3] C07C *45/50*
U.S. Cl. 560—177 **2 Claims**

1. A process for the conversion of prochiral olefins of the formula



to optically active aldehydes of the formula



with the restrictions that

(I) R^1 is not identical to R^2; or

(II) R^3 is not identical to R^4; and furthermore,

(III) neither R^1 nor R^2 can be hydrogen; or

(IV) neither R^3 nor R^4 can be the formyl group (—CHO): and

R^1, R^2, R^3 and R^4 are each independently selected from the group consisting of (a) hydrogen (b) alkyl having at least one and a maximum of twenty-five carbon atoms (c) substituted alkyl said substitution being selected from the group consisting of amino, including alkylamino and dialkylamino, hydroxy, alkoxy, acyloxy, halo, nitro, nitrile, thio, carbonyl, carboxamide, carboxaldehyde, carboxyl, carboxylic ester said ester having a maximum of ten carbon atoms, (d) aryl including phenyl (e) substituted aryl including phenyl said substitution being selected from the group consisting of alkyl having a maximum of six carbon atoms, amino including alkylamino, hydroxy, alkoxy, acyloxy, halo, nitrile, nitro, carboxyl, carboxaldehyde, carboxylic ester, said ester having a maximum of ten carbon atoms, carbonyl, and thio, said aryl substitution being less than four substituents (f) acyloxy, (g) alkoxy, (h) amino including alkylamino and dialkylamino, (i) acylamino and diacylamino, (j) nitro (k) carbonyl (l) nitrile (m) carboxyl (n) carboxamide (o) carboxaldehyde (p) carboxylic ester said ester having a maximum of 10 carbon atoms (q) alkylmercapto, provided that the compound after hydroformulation is chiral, which comprises contacting said prochiral olefin with carbon monoxide and hydrogen at a total pressure of from 50 to 2000 psig, and at a temperature of from 25° C. to 180° C., in the presence of a catalyst system formed from a soluble metal component and optically active ligands where the metal is iridium.

4,268,689

MANUFACTURE OF VICINAL GLYCOL ESTERS FROM SYNTHESIS GAS

John F. Knifton, Austin, Tex., assignor to Texaco Development Corp., White Plains, N.Y.

Continuation-in-part of Ser. No. 968,655, Dec. 11, 1978, abandoned. This application Dec. 14, 1979, Ser. No. 103,763
Int. Cl.[3] C07C *27/06, 69/14, 69/16*
U.S. Cl. 560—263 **24 Claims**

1. In a process for the synthesis of vicinal glycol esters from mixtures of carbon monoxide and hydrogen which comprises the following steps:

(a) Contacting said mixtures of carbon monoxide and hydroigen with a liquid medium containing one or more aliphatic carboxylic acids and a catalyst containing a ruthenium or osmium transition-metal or mixtures thereof,

(b) Heating said reaction mixture to a temperature of between about 100° C. and 350° C., at superatmospheric pressures of 500 psi or greater with sufficient carbon monoxide and hydrogen to satisfy the stoichiometry of the desired ester syntheses, until substantial formation of the desired esters of the vicinal glycols has been achieved,

(c) The improvement which comprises also contacting said mixture with a co-catalyst species selected from the group consisting of alkali metal salts, alkaline earth metal salts, quaternary ammonium salts, iminium salts and quaternary aliphatic phosphonium salts.

4,268,690

PROCESS FOR PRODUCING TEREPHTHALIC ACID OF HIGH PURITY

Makoto Komatsu; Tazuo Ohta; Toru Tanaka; Ryoichi Oda, and Yuji Takamizawa, all of Kurashiki, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 55,198
Claims priority, application Japan, Jul. 21, 1978, 53-88992
Int. Cl.[3] C07C *51/16, 51/42*
U.S. Cl. 562—416 **12 Claims**

1. A process for producing terephthalic acid of high purity, which comprises oxidizing p-tolualdehyde as a raw material with a molecular oxygen-containing gas in the presence of bromine ions as a catalyst in a water solvent, introducing the resulting slurry solution containing crude terephthalic acid into an ascending liquid stream of high temperature water of 180°–310° C. having a flow velocity of 0.0001–0.01 m/sec, and withdrawing the water solvent together with the ascending stream of high temperature water upwardly, while allowing crystalline terephthalic acid to settle down through the ascending stream of high temperature water and withdrawing the crystalline terephthalic acid together with a portion of the high temperature water downwardly.

4,268,691

SYNTHESIS FOR 2,3-DICHLORO-4-(HYDROXYBENZOYL)PHENOL

Anthony K. L. Fung, Dollard Des Ormeaux; Donald E. Morrison, Otterburn Parks, and Andre G. Pernet, Montreal, all of Canada, assignors to Abbott Laboratories, North Chicago, Ill.

Filed Aug. 9, 1979, Ser. No. 64,948
Int. Cl.[3] C07C *45/46*
U.S. Cl. 568—322 **8 Claims**

1. A process of making a 2,3-dichloro-4-(hydroxybenzoyl)-phenol consisting essentially in condensing an equimolar amount of an anisoyl chloride and 2,3-dichloroanisole in the presence of 1 to 2 molar equivalents of a Lewis acid, using an aprotic solvent as a reaction medium, at a temperature of between 5° and 30° C. for a period of at least 6 hours, adding 1 to 5 more molar equivalents of a Lewis acid and heating the mixture for a period of at least 30 minutes to a temperature between 40° C. and reflux temperature.

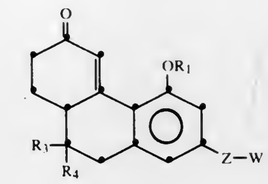
4,268,692

1,9-DIHYDROXYOCTAHYDROPHENANTHRENES AND INTERMEDIATES THEREFOR

Thomas H. Althuis, Groton; Charles A. Harbert, Waterford; Michael R. Johnson, and Lawrence S. Melvin, Jr., both of Gales Ferry, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 851,503, Nov. 14, 1977, Pat. No. 4,188,495. This application Sep. 24, 1979, Ser. No. 78,475
Int. Cl.[3] C07C *49/733, 69/78*
U.S. Cl. 568—326 **12 Claims**

1. A compound selected from the group consisting of those having the formula



wherein

R_1 is hydrogen, benzyl, benzoyl or alkanoyl of 1 to 5;

R_3 is selected from hydrogen, methyl and ethyl;

R_4 is selected from hydrogen, alkyl of 1 to 6 carbon atoms and benzyl;

Z is selected from:

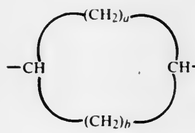
(a) alkylene having from one to nine carbon atoms;

(b)—$(alk_1)_m$—X—$(alk_2)_n$— wherein each of (alk_1) and (alk_2) is alkylene having from 1 to 9 carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than 9;

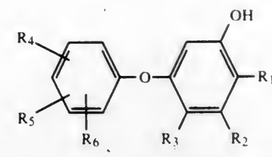
m and n are each 0 or 1;

X is selected from O, S, SO and SO_2; and

W is selected from hydrogen, methyl, phenyl, monochlorophenyl, monofluorophenyl and



, wherein W_1 is selected from hydrogen, phenyl, monochlorophenyl and monofluorophenyl; a is an integer from 1 to 5 and b is 0 or an integer from 1 to 4, with the proviso that the sum of a and b is not greater than 5.



wherein R_1 represents hydrogen, fluorine or chlorine, each of R_2 and R_3 independently represents hydrogen or chlorine, and each of R_4, R_5 and R_6 independently represents hydrogen, fluorine, chlorine or bromine, with the proviso that each phenyl nucleus contains at least one halogen atom, but the total number of halogen atoms in the molecule does not exceed 4.

4,268,693

3-HYDROXYDIPHENYL ETHERS

Rene Muntwyler, Hofstetten, and Kurt Burdeska, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 14, 1978, Ser. No. 960,697
Claims priority, application Luxembourg, Nov. 21, 1977, 78554
Int. Cl.[3] C07G *43/263*
U.S. Cl. 568—637 **10 Claims**

1. 3-Hydroxydiphenyl ethers of the formula

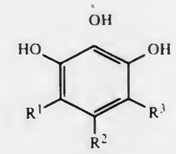
4,268,694

PROCESS FOR PREPARING PYROGALLOL

John F. Harris, Meldreth, Nr. Royston, and Barrie J. Magill, Cambridge, both of England, assignors to Fisons Limited, Great Britain

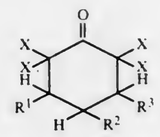
Continuation of Ser. No. 901,836, May 1, 1978, which is a continuation-in-part of Ser. No. 745,923, Nov. 29, 1976, abandoned. This application Apr. 6, 1979, Ser. No. 30,610
Claims priority, application United Kingdom, Nov. 29, 1975, 49142/75; Jul. 31, 1976, 32007/76; May 11, 1977, 19686/77
Int. Cl.[3] C07C *37/06, 37/00*
U.S. Cl. 568—763 **22 Claims**

1. A process for preparing a pyrogallol compound of formula:



wherein R^1, R^2 and R^3 are the same or different and each represents a hydrogen atom or an alkyl group of 1–6 carbon atoms or a salt thereof,

which process comprises the direct hydrolysis of a 2,2,6,6-tetracyclohexanone compound of formula:



wherein each X is the same and represents a chlorine or bromine atom, and R^1, R^2 and R^3 are as defined above, by reacting said 2,2,6,6-tetracyclohexanone compound with water in the presence of a catalyst, said hydrolysis being conducted at a temperature of 0°–250° C. and employing 0.3 ml–1 liter of water per gram of said b **2,2,6,6**-tetrahalocyclohexanone compound.

22. A process for preparing pyrogallol or a salt thereof, which process comprises reacting 2,2,6,6-tetrachlorocyclohexanone with water at a temperature of 0°–250° C. and in the presence of a catalyst, employing 0.3 ml–1 liter of water per gram of said 2,2,6,6-tetrachlorocyclohexanone.

4,268,695

PROCESS FOR THE CONTINUOUS PREPARATION OF BUTANE-1,4-DIOL

Erhard Lange, and Manfred Z. Hausen, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Oct. 12, 1979, Ser. No. 84,279

Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845905

Int. Cl.³ C07C *31/20*

U.S. Cl. 568—864 **10 Claims**

1. A continuous process for the preparation of butane-1,4-diol consisting essentially of, in a one-stage process, catalytically hydrogenating the solution which results when maleic anhydride is dissolved in a monohydric aliphatic alcohol, the hydrogenation being carried out in the presence of hydrogen and a copper chromite catalysts at a pressure of 250–350 bar and a temperature of 180°–300° C., thereby preparing butane-1,4-diol.

4,268,696

METHOD FOR PREPARING HEXANITROSTILBENE

Gilbert P. Sollott, Plymouth Meeting, Pa.; Everett E. Gilbert, Morristown, and Maurice Warman, Netcong, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 14, 1980, Ser. No. 111,754

Int. Cl.³ C07C *79/10*

U.S. Cl. 568—931 **10 Claims**

1. A process for preparing 2,2',4,4',6,6'-hexanitrostilbene comprising the steps of mixing 2,2',4,4',6,6'-hexanitrobibenzyl and a quinone having an oxidation-reduction potential of from about 0.4 volt to about 1.0 volt in a reaction solvent at a temperature of about 50° C. to about 110° C., and then recovering the hexanitrostilbene from the reacted mixture, said reaction solvent being capable of promoting a dehydrogenation reaction with said 2,2',4,4',6,6'-hexanitrobibenzyl.

4,268,697

SYNTHESIS OF LONG-CHAIN ALKANES HAVING TERMINAL FUNCTIONALITY

Thomas W. Gibson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 21, 1979, Ser. No. 50,839

Int. Cl.³ C07C *29/72, 19/07, 19/02*

U.S. Cl. 568—911 **1 Claim**

1. A process for preparing primary substituted n-alkane compounds, comprising:

(a) contacting an α-olefin having a carbon chain length greater than about C_{11} with an olefin metathesis catalyst which is a mixture comprising a tungsten hexahalide compound, a tetraalkyl tin compound, and ethyl acetate;

(b) contacting the product of Step (a) with a biscyclopentadienyl zirconium hydrohalide generated in the reaction mixture; and

(c) contacting the product of Step (b) with an electrophilic reagent selected from N-bromosuccinimide, bromine, iodine, and oxygen.

4,268,698

METHOD OF PREPARING BIS-(CHLOROMETHYL)-TETRACHLOROBENZENES

Klaus D. Steffen, Hennef-Geisbach, Fed. Rep. of Germany, assignor to Dynamit Nobel Aktiengesellschaft, Cologne, Fed. Rep. of Germany

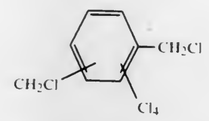
Continuation of Ser. No. 3,553, Jan. 15, 1979, abandoned, which is a continuation of Ser. No. 895,186, Apr. 10, 1978, abandoned, which is a continuation of Ser. No. 748,266, Dec. 7, 1976, abandoned. This application Oct. 5, 1979, Ser. No. 82,385

Claims priority, application Fed. Rep. of Germany, Dec. 13, 1975, 2556322

Int. Cl.³ C07C *25/14*

U.S. Cl. 570—198 **13 Claims**

1. In the process of preparing bis-chloromethyl tetrachlorobenzene of the formula



(I)

which comprises in a first stage contacting xylene with chlorine for formation of tetrachloroxylene, in the presence of $FeCl_3$ or $FeCl_3.6H_2O$ as catalyst for the reaction, and in a second stage contacting the tetrachloroxylene with chlorine for formation of said tetrachlorobenzene in the presence of ultraviolet light or a compound which decomposes radially a radical catalyst for the second stage reaction, the improvement which comprises performing the second stage at a temperature of 60°–85° C. in the presence of the catalyst from the first stage and in the presence of hexamethylenetetramine for complexing with the catalyst, the weight ratio of hexamethylenetetramine to ferric chloride present in the second stage being from 0.1:1 to 2.5:1.

4,268,699

HYDROALKYLATION USING NICKEL-RUTHENIUM CATALYST ON ZEOLITE TYPE SUPPORT

Timothy P. Murtha, and Ernest A. Zuech, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 926,601, Jul. 21, 1978, abandoned. This application Dec. 7, 1979, Ser. No. 101,378

Int. Cl.³ C07C *5/03, 5/10*

U.S. Cl. 585—268 **8 Claims**

1. A process for the hydroalkylation of an aromatic compound which comprises subjecting it to hydroalkylation conditions in the presence of a catalyst comprising an acidic crystalline zeolite type support having a substantial proportion of crystalline zeolitic component therein, said support having been prepared by removing alkali metal or aklaline earth metal ions by cation exchange treatment with an ammonium compound followed by calcination to convert ammonium ions to protonic acid sites, said support having thereon ruthenium and nickel, the nickel being supplied by nickel chloride to a predominantly alkali metal cation exchanged aluminosilicate support when the alkali metal to aluminum ratio is in the approximate range 0/1 to 0.182/1 and to a predominantly alkaline earth metal cation exchanged aluminosilicate support when the alkaline earth metal to aluminum ratio is in the approximate range 0/1 to 0.091/1; and by nickel bromide when the support is predominantly a cation exchanged alkali metal or alkaline earth metal support and said ratios are respectively 0.182/1 to 0.4/1 and 0.091/1 to 0.2/1; and wherein ruthenium is added to the support after the calcination.

4,268,700

PROCESS FOR PRODUCING GASOLINE OF HIGH OCTANE NUMBER AND PARTICULARLY LEAD FREE GASOLINE, FROM OLEFININC C_3-C_4 CUTS

Quang Dang Vu, Paris; Bernard Juguin, Rueil-Malmaison; Bernard Torck, Boulogne sur Seine, and Michel Hellin, Andresy, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Sep. 28, 1979, Ser. No. 79,728

Claims priority, application France, Sep. 28, 1978, 78 28171

Int. Cl.³ C07C *2/08, 2/58*

U.S. Cl. 585—302 **13 Claims**

1. A process for producing high octane gasoline, comprising the steps of:

(a) contacting an olefinic C_3 hydrocarbon cut comprising propylene with a catalyst, obtained by contacting at least one group IV to VIII metal compound with at least one hydrocarbylaluminum compound, in an oligomerization zone under propylene oligomerization conditions, and recovering a first oligomerizate boiling in the gasoline range;

(b) contacting an olefinic C_4 hydrocarbon cut comprising isobutene, isobutane and at least one n-butene with a silica-alumina catalyst in an oligomerization zone at a temperature of from 50° to 150° C. under conditions effecting conversion of at least 80% of the isobutene and less than 40% of the n-butenes in the C_4 cut;

(c) fractionating the effluent from step (b) and separately recovering a second oligomerizate boiling in the gasoline range and an unreacted C_4 hydrocarbon fraction comprising isobutane and at least one n-butene;

(d) contacting the unreacted C_4 hydrocarbon fraction from step (c) with an alkylation catalyst in an alkylation zone under aliphatic hydrocarbon alkylation conditions, and recovering an alkylate boiling in the gasoline range; and

(e) blending at least a portion of said alkylate with at least a portion of said first oligomerizate and at least a portion of said second oligomerizate to produce a blended high octane gasoline.

4,268,701

PROCESS FOR PRODUCING HIGH OCTANE GASOLINE AND PARTICULARLY LEAD-FREE GASOLINE

Quang Dang Vu, Paris; Yves Chauvin, Le Pecq; Jean Gaillard, Lyons; Bernard Torck, Boulogne sur Seine, and Michel Hellin, Andresy, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Sep. 14, 1979, Ser. No. 75,486

Claims priority, application France, Sep. 14, 1978, 78 26644

Int. Cl.³ C07C *2/08, 2/58*

U.S. Cl. 585—329 **10 Claims**

1. A process for producing a blended high octane gasoline, which comprises the steps of:

(a) oligomerizing an olefinic C_3 hydrocarbon cut comprising propylene, and recovering an oligomerizate boiling in the gasoline range;

(b) hydroisomerizing an olefinic C_4 hydrocarbon cut comprising isobutene, isobutane, 1-butene and 2-butene under 1-butene isomerizing conditions, and recovering an isomerized C_4 cut having an increased proportion of 2-butene and a decreased proportion of 1-butene relative to said olefinic C_4 hydrocarbon cut;

(c) fractionating the isomerized C_4 cut from step (b) and separately recovering a first fraction having an increased proportion of isobutene and isobutane relative to said isomerized C_4 cut, and a second fraction having an increased proportion of 2-butene relative to said isomerized C_4 cut;

(d) hydrogenating said first fraction from step (c) under isobutene hydrogenating conditions, and recovering an effluent having an increased proportion of isobutane relative to said first fraction;

(e) admixing the effluent from step (d) and said second fraction from step (c), subjecting the resultant mixture to hydrocarbon alkylation conditions, and recovering an alkylate boiling in the gasoline range; and

(f) blending at least a portion of the oligomerizate from step (a) with at least a portion of the alkylate from step (e) to produce a blended high octane gasoline.

4,268,702

CATALYTIC CONVERSION OF AROMATIC FRACTIONS IN THE PRESENCE OF STEAM

Daniel Duprez, Poitiers, and Michel Grand, Serezin du Rhone, both of France, assignors to Elf France, Paris, France

Filed Jun. 27, 1979, Ser. No. 52,359

Claims priority, application France, Jul. 7, 1978, 78 20265

Int. Cl.³ C07C *12/02*

U.S. Cl. 585—411 **6 Claims**

1. A process for the catalytic conversion of aromatic fractions containing variable proportions of C_5 to C_{11} non-aromatic hydrocarbons, to obtain benzene and hydrogen, by water dealkylation of the aromatic hydrocarbons and simultaneous reforming of the non-aromatic hydrocarbons, which comprises: contacting an aromatic fraction with steam at a temperature of from 350° C. to 600° C., at a pressure of 1 to 80 bars and a water to hydrocarbon charge ratio by liquid volume of 0.2 to 4, in the presence of a dealkylation catalyst consisting essentially of rhodium on a mixed spinel $(M_xM'_{1-x})Al_2O_4$, support M being a non-noble group VIII metal, and M' being selected from the group consisting of magnesium, manganese, and copper at a rate of 0.1 to 10 liquid volumes of aromatic fraction per volume of catalyst per hour.

4,268,703

DEHYDROCOUPLING OF TOLUENE

Alex N. Williamson, Greensboro, N.C., and Samuel J. Tremont, Manchester, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 10, 1979, Ser. No. 101,943

Int. Cl.³ C07C *2/72*

U.S. Cl. 585—428 **16 Claims**

1. A process for dehydrocoupling toluene which comprises contacting the toluene in the vapor phase at a temperature between about 450° C. and about 650° C. with an inorganic metal/oxygen composition represented by the empirical formula:

$$M_a{}^1M_b{}^2O_x$$

where M^1 is lead and M^2 is at least one element selected from the group consisting of thallium, beryllium, calcium, strontium, barium, and radium, and mixtures thereof, and wherein a is 1, b is 0.01 to 10, and x is a number taken to satisfy the average valences of M^1 and M^2 in the oxidation state in which they exist in the composition to yield the dehydrocoupled toluene product.

4,268,704

DEHYDROCOUPLING OF TOLUENE

Samuel J. Tremont, Manchester, Mo.; Alex N. Williamson, Greensboro, N.C., and Arthur J. Solodar, University City, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 10, 1979, Ser. No. 101,945

Int. Cl.³ C07C *2/72*

U.S. Cl. 585—428 **17 Claims**

1. A process for dehydrocoupling toluene which comprises contacting the toluene in the vapor phase at a temperature between about 450° C. and about 650° C. with an inorganic metal/oxygen composition represented by the empirical formula:

$$M_a{}^1M_b{}^2M_c{}^3O_x$$

where M^1 is lead, M^2 is at least one element selected from

thallium, and Group 2a of the Periodic Table of the Elements, and mixtures thereof, and M^3 is at least one element selected from zinc, phosphorus, arsenic, thorium, the lanthanides, Groups 1a, 3b, 4b, and 8 of the Periodic Table of the Elements, and mixtures thereof, and wherein a is 1, b is 0.01 to 10, c is 0.01 to 10, and x is a number taken to satisfy the average valences of M^1, M^2, and M^3 in the oxidation states in which they exist in the composition to yield the dehydrocoupled toluene product.

4,268,705

ADDITION OF MONOMER IN PRODUCTION OF LIQUID POLYMERS

Richard F. Palmer, Vancouver, Wash., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 21, 1980, Ser. No. 132,559
Int. Cl.³ C07C *2/72*
U.S. Cl. 585—429 **10 Claims**

1. The polymerization of at least one of a conjugated diene and a vinyl aromatic in the presence of a reaction medium containing an alkyl aromatic, an organolithium compound and a transmetallation compound and adapted to produce a liquid polymer, which comprises adding at least one monomer in increments and allowing time between addition of increments for substantially complete conversion of the incrementally added monomer and substantially complete transmetallation from living polymer formed to alkyl aromatic present in the medium.

4,268,706

HYDROCARBON DEHYDROGENATION METHOD AND NONACIDIC MULTIMETALLIC CATALYTIC COMPOSITE FOR USE THEREIN

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 905,907, May 15, 1978, Pat. No. 4,199,438. This application Mar. 17, 1980, Ser. No. 130,675
The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.
Int. Cl.³ C07C *5/367, 2/64, 2/70*
U.S. Cl. 585—430 **20 Claims**

1. A method for dehydrogenating a dehydrogenatable hydrocarbon comprising contacting the hydrocarbon, at hydrocarbon dehydrogenation conditions, with a catalytic composite comprising a porous carrier material containing, on an elemental basis, about 0.01 to about 2 wt. % platinum group metal, about 0.05 to about 5 wt. % cobalt, and about 0.01 to about 5 wt. % tantalum; wherein the platinum group, catalytically available cobalt and tantalum components are uniformly dispersed throughout the porous carrier material; wherein substantially all of the platium group component is present in the elemental metallic state; wherein substantially all of the tantalum component is present in a positive oxidation state; and wherein substantially all of the catalytically available cobalt component is present in the elemental metallic state or in a state which is reducible to the elemental metallic state under hydrocarbon dehydrogenation conditions or in a mixture of these states.

4,268,707

HYDROCARBON DEHYDROGENATION WITH A NONACIDIC MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 13,489, Feb. 21, 1979, which is a division of Ser. No. 894,958, Apr. 10, 1978, Pat. No. 4,148,833, which is a continuation-in-part of Ser. No. 758,616, Jan. 12, 1977, Pat. No. 4,087,381, which is a division of Ser. No. 633,890, Nov. 20, 1975, Pat. No. 4,024,052. This application May 9, 1980, Ser. No. 148,117
Int. Cl.³ C07C *5/41*
U.S. Cl. 585—434 **22 Claims**

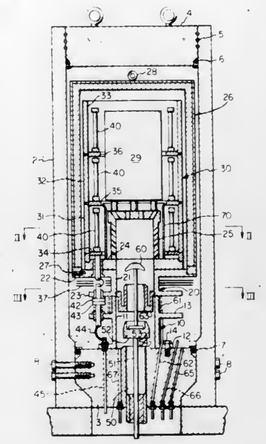
1. A method for dehydrogenating a dehydrogenatable hydrocarbon comprising contacting the hydrocarbon at dehydrogenation conditions with a nonacidic catalytic composite comprising a porous carrier material containing, on an elemental basis, about 0.01 to about 2 wt. % platinum group metal, about 0.05 to about 5 wt. % cobalt, about 0.1 to about 5 wt. % alkali metal or alkaline earth metal, and about 0.01 to about 5 wt. % lanthanide series metal; wherein the platinum group metal, catalytically available cobalt, lanthanide series metal and alkali metal or alkaline earth metal are uniformly dispersed throughout the porous carrier material; wherein substantially all of the platinum group metal is present in the elemental metallic state; wherein substantially all of the lanthanide series metal is present in an oxidation state above that of the elemental metal; wherein substantially all of the catalytically available cobalt is present in the elemental metallic state or in a state which is reducible to the elemental metallic state under hydrocarbon dehydrogenation conditions or in a mixture of these states; and wherein substantially all of the alkali metal or alkaline earth metal is present in an oxidation state above that of the elemental metal.

4,268,708

APPARATUS FOR VACUUM SINTERING AND HOT ISOSTATIC PRESSING

Charles W. Smith, Jr., Fairview, and Franz X. Zimmerman, Erie, both of Pa., assignors to Autoclave Engineers, Inc., Erie, Pa.

Filed Apr. 19, 1979, Ser. No. 31,541
Int. Cl.³ F27D *11/00, 7/06*
U.S. Cl. 13—20 **11 Claims**



1. An apparatus for heating a workpiece at elevated temperatures both under vacuum and under superatmospheric pressures comprising:
(1) a vacuum-pressure vessel,
(2) a hood insulating the vessel from the workpiece,
(3) a pedestal extending up into the furnace,
(4) a first electrical heating means spaced about the pedestal entirely below the top of the pedestal,
(5) at least one second electrical heating means spaced about the workspace above the hearth,
(6) means for separately controlling the first and at least one second electrical heating means,
(7) means for connecting the interior of the vessel to means for pressurizing the vessel with a selected atmosphere, and
(8) means for connecting the interior of the vessel to means for evacuating the vessel to create a vacuum therein,
whereby the furnace can provide substantially uniform temperture distribution to the workspace when the vessel is evacuated by radiation from the at least one second electrical heating means and when the vessel is pressurized by convection from the first electrical heating means.

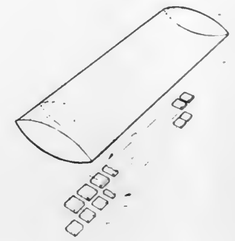
4,268,709

GENERATION OF ELECTRICAL ENERGY FROM SUNLIGHT, AND APPARATUS

Norman L. Boling, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Continuation of Ser. No. 921,419, Jul. 3, 1978, Pat. No. 4,188,238. This application Dec. 20, 1979, Ser. No. 105,452
The portion of the term of this patent subsequent to Feb. 12, 1997, has been disclaimed.
Int. Cl.³ H01L *31/00*
U.S. Cl. 136—247 **2 Claims**

1. A process which comprises
(1) concentrating solar radiation optically with lens or reflector means to provide optically concentrated radiation and
(2) spectrally dividing said optically concentrated radiation by
(i) absorbing a portion of said concentrated radiation and concentrating absorbed radiation in the form of longer wave length emitted luminescent radiation by the process of total internal reflection in a first luminescent solar collector,
(ii) passing the residual portion of said optically concentrated radiation through said first luminescent solar collector, and repeating steps (i) and (ii) using one or more subsequent luminescent solar collectors in series acting on the residual optically concentrated radiation passing through the preceding luminescent solar collector,



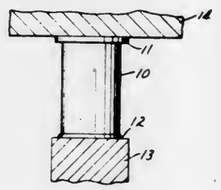
(3) passing the concentrated emitted luminescent radiation in said first collector to a first photovoltiac cell optically coupled to a relatively small surface area of said first luminescent solar collector and passing the concentrated emitted luminescent radiation in each said subsequent luminescent solar collector to a different photovoltaic cell having a different bandgap than said first cell, which different cell is optically coupled to a relatively small surface area of the subsequent luminescent solar collector.

4,268,710

HOT-JUNCTION ELECTRODE MEMBERS FOR COPPER/SILVER CHALOCOGENIDES

Edward F. Hampl, Jr., Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

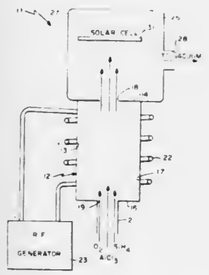
Continuation of Ser. No. 828,567, Aug. 29, 1977, Pat. No. 4,180,415, which is a continuation of Ser. No. 526,598, Nov. 25, 1974, abandoned, which is a continuation-in-part of Ser. No. 321,222, Jan. 5, 1973, Pat. No. 3,853,632, Ser. No. 242,219, Apr. 7, 1972, Pat. No. 3,852,118, and Ser. No. 291,938, Sep. 25, 1972, Pat. No. 3,873,118, said Ser. No. 321,222, is a continuation of Ser. No. 635,948, Apr. 20, 1967, abandoned, which is a continuation-in-part of Ser. No. 463,148, Jun. 11, 1965, abandoned, said Ser. No. 242,219, is a continuation of Ser. No. 36,145, May 11, 1970, abandoned. This application Aug. 29, 1979, Ser. No. 70,892
Int. Cl.³ H01J *35/30*
U.S. Cl. 136—205 **3 Claims**



1. In a thermoelectric generator that includes at least a length of thermoelectric leg consisting essentially of metal ingredients selected from copper and silver and chalcogen ingredients selected from selenium and tellurium; the ingredients of said length of thermoelectric leg being within the following proportions:
for tellurium compositions,

(a) 32.5 atomic percent ≦ tellurium ≦ 33.7 atomic percent
(b) 27 atomic percent ≦ copper ≦ 67 atomic percent
(c) 0 atomic percent ≦ silver ≦ 40 atomic percent
for selenium compositions,
(a) 32.5 atomic percent ≦ selenium ≦ 33.7 atomic percent
(b) 60 atomic percent ≦ copper ≦ 67 atomic percent
(c) 0 atomic percent ≦ silver ≦ 7 atomic percent; and
a member that engages the hot end of said length of thermoelectric leg to make electrical and thermal contact with said length of leg and consists essentially of electrically conductive metal which comprises at least 50 weight-percent molybdenum.

4,268,711
METHOD AND APPARATUS FOR FORMING FILMS FROM VAPORS USING A CONTAINED PLASMA SOURCE
Harold S. Gurev, San Rafael, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.
Filed Apr. 26, 1979, Ser. No. 26,598
Int. Cl.³ H01L *31/04*
U.S. Cl. 136—256 **15 Claims**

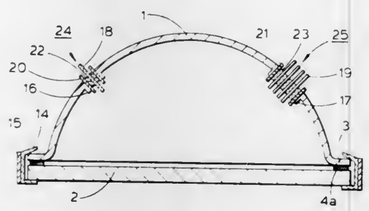


1. In a method for forming a mixed oxide and/or nitride solid coating on the surface of an article by use of a contained plasma source having a cavity and means for generating an RF field within the cavity, the steps supplying a compound vapor which is formed independent of evaporation of the cavity, supplying a gas to the cavity to create a gas plasma within the cavity using the gas supplied to the cavity and causing the gas plasma to exit from the cavity independent of externally generated magnetic fields and to impinge upon the surface of the article to be coated, forming the solid coating on the surface of the article by chemical reaction of the compound vapor and the gas plasma selecting at least one of the chemical elements of the film to be supplied from a compound vapor and chemically reacting the compound vapor with at least one other chemical element of the film by utilizing at least some of the gases.

10. In an apparatus for forming a mixed oxide and/or nitride solid film on the surface of an article by the use of a contained plasma source, container means defining a cavity and having an exit opening therein in communication with the cavity, a housing coupled to the container and forming a chamber which is in communication with the exit opening in the container, means for supplying a vacuum to the chamber in the housing and the cavity within the container, said housing being formed to receive the article on which the film is to be formed, means for establishing an RF field in the cavity, means for introducing a gas into the cavity for creating a gas plasma to create a higher pressure in the cavity whereby the gas plasma is discharged independent of externally generated magnetic fields through the exit opening and impinges upon the surface to be coated and means for supplying a vapor which is formed independent of evaporation of the cavity and causing it to chemically react with the gas plasma to provide a mixture forming a solid film on the surface of the article.

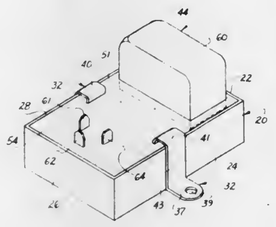
15. In a solar cell construction having an integral cover, a solar cell, a film formed integral thereon covering the surface of said cell and formed of a composition selected from $SiO_2 + Si_3N_4$, $SiO_2 + Al_2O_3$ or $AlN + Si_3N_4$ systems, said composition having a coefficient of expansion similar to that of the solar cell.

4,268,712
ELECTRON DISPLAY TUBES
Colin D. Overall, Reigate, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed May 25, 1979, Ser. No. 42,655
Claims priority, application United Kingdom, May 30, 1978, 23760/78
Int. Cl.³ H01J *29/86*
U.S. Cl. 174—50.63 **12 Claims**



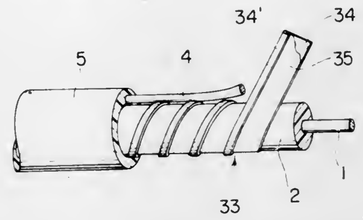
1. An electron display tube comprising a flat, glass face-plate, a metal cone provided with a flange, a metallic pressure-deformable material bonding said flange to said face-plate, the pressure-deformable material having a melting-point of more than 300° C., at least two lengths in combination of a substantially U-shaped metal channel member having asymmetrically disposed limbs extending around substantially the whole periphery of the face-plate and clamping said face-plate and flange, a first limb of said channel member extending along the outside main surface of the face-plate, the second limb of said channel member diverging from the edge of the face-plate with respect to the first limb and urging the flange of the cone portion by means of a wedging action towards the face-plate, and a metal rimband tightly embracing the lengths of the channel member so as to maintain the pressure-deformable material in compression.

4,268,713
FLASHER FOR VEHICLE LIGHTS
Robert P. Donley, 2500 Lane Rd., Columbus, Ohio 43221, and Terry Dawson, 1367 Crestview St., Reynoldsburg, Ohio 43068
Filed Sep. 27, 1978, Ser. No. 946,112
Int. Cl.³ H05K *5/00*
U.S. Cl. 174—52 PE **8 Claims**



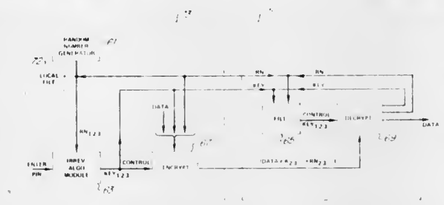
1. A controller for vehicle lights comprising, in combination a circuit board housing including spaced side walls and a bottom wall forming a cavity; a circuit board positioned in the cavity and including a circuit board ground terminal; an electrically conductive mounting and grounding means including an internal flange forming a second ground terminal engaging said circuit board ground terminal, an intermediate flange extending to the exterior of said cavity, and an external flange extending beyond a side wall and forming a housing supporting mount for connection with a vehicle in grounded relationship therewith; and a resinous insulating and sealing material within said cavity in sealed surrounding relationship with said engaging ground terminals.

4,268,714
SHIELDED WIRE
Akinori Mori, Kanuma, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed May 16, 1979, Ser. No. 39,475
Int. Cl.³ H01B *7/18*
U.S. Cl. 174—108 **8 Claims**



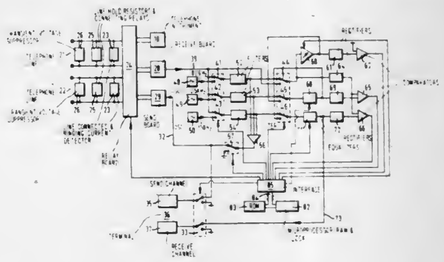
1. In a shielded wire including at least one central core, and insulation layer coated thereover, the improvement comprising; a shield layer helically wound around said insulation layer, a ground wire positioned along the outer surface of said shield layer and a sheath covering said shield layer and said ground wire, said shield layer comprising a composite tape having on one side a layer having good adhesion properties with plastic materials, and having on the other side a metal layer, said composite tape being longitudinally folded with a portion of said metal layer covering a portion of said adhesion layer, and such folded composite tape being helically wound over said insulation layer such that the inner surface consists of only said metal layer, and such that the outer surface consists of a helically disposed pattern of the folded metal portion and said layer having good adhesion properties with plastics, said ground wire being in contact with said folded metal portion.

4,268,715
METHOD AND APPARATUS FOR SECURING DATA TRANSMISSIONS
Martin M. Atalla, Menlo Park, Calif., assignor to Atalla Technovations, Sunnyvale, Calif.
Continuation-in-part of Ser. No. 902,444, May 3, 1978. This application Jan. 16, 1979, Ser. No. 3,898
Int. Cl.³ H04L *9/00*
U.S. Cl. 178—22 **28 Claims**



1. A method of securing a data-handling transaction initiated by an authorized individual utilizing prestored identification information about the individual and identification information supplied by the individual, the method comprising:
generating a selected number;
forming a first input as the combination of at least two of the signals selected from the data involved in the transaction, and the selected number and the identification information supplied by the individual;
forming a second input as the combination of at least another two of said signals;
logically encrypting the first and second inputs to form a transaction authorization code, according to a selected encoding scheme;
transmitting the transaction authorization code with data involved in the transaction and with the selected number to a remote location;
logically encrypting the prestored identification information about the individual and the data involved in the transaction and the selected number received at the remote location to form a transaction authorization code in accordance with said selected encoding scheme; and
comparing the transaction authorization codes at the remote location to provide an output indication upon parity thereof of the unaltered transmission and reception of the selected number, the transaction authorization code and the data involved in the transaction by the authorized individual.

4,268,716
AUDIO TELECONFERENCING
Ian S. Groves; David R. Guard, and Steven Whalley, all of Ipswitch, England, assignors to Post Office, London, England
Filed Dec. 5, 1978, Ser. No. 966,636
Claims priority, application United Kingdom, Dec. 5, 1977, 50517/77
Int. Cl.³ H04M *3/56*
U.S. Cl. 179—1 CN **9 Claims**



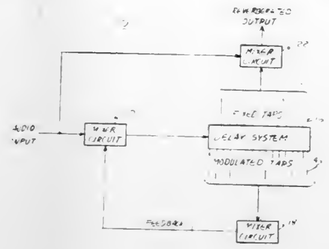
1. A control unit for use in establishing a four-wire connection between two audio teleconference terminals, each having line send and line receive channels, via a pair of telephone lines of the public switched telephone network, said unit comprising:
switching means arranged to provide connections to a pair of telephone lines,
signalling means connectable to said lines via said switching means to enable another similar control unit to be signalled via a telephone line,
compensation means,
line send and receive circuitry connected to said switching means and having an input for connection to the send channel and an output which can be connected to the receive channel of a teleconference terminal via said compensation means,
said compensation means being adjustable automatically to compensate for the characteristics of a telephone line connected to the unit, and
a central control means for controlling operation of the control unit including the automatic adjustment of said compensation means.

4,268,717

TIME-MODULATED DELAY SYSTEM AND IMPROVED REVERBERATION SIMULATOR USING SAME

Christopher H. Moore, 53 Lawndale St., Belmont, Mass. 02178

Filed Apr. 19, 1979, Ser. No. 31,585
Int. Cl.³ H04R 3/00
U.S. Cl. 179—1 J 13 Claims



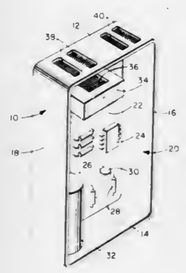
1. A reverberation simulator comprising:
a delay system having a plurality of temporally fixed output delay taps and a plurality of time-modulated delay output taps;
first means for combining the output from said plurality of time-modulated taps to produce a feedback signal;
second means for combining said feedback signal and an audio input signal for submission to said delay system;
third means for combining said audio input signal and the outputs from a plurality of said temporally fixed taps to produce a simulated reverberated audio output signal.

4,268,718

HOUSING ACOUSTICAL AMPLIFIER

Hamilton Clark, Jr., Orlando, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Sep. 5, 1979, Ser. No. 56,403
Int. Cl.³ H04M 1/00; G10K 11/00
U.S. Cl. 179—1 E 12 Claims



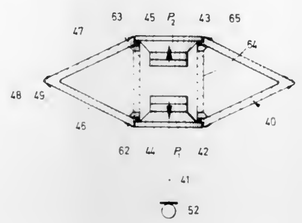
2. A portable receiver in which the audio output signal produced thereby is acoustically amplified without requiring additional components or a supply of electrical power for amplification, comprising:
a receiver housing having a cavity therein;
means located with the interior of said housing for introducing audio output signals in a predetermined frequency range into said cavity, to thereby acoustically couple said audio output signals to said cavity; and
said housing, being vented so that the resonant frequency of said housing lies approximately in the center of said predetermined frequency range to thereby cause said housing to operate as a tuned resonator for acoustically amplifying the audio output signals from said audio signal introducing means.

4,268,719

LOUDSPEAKER ARRANGEMENTS

Josef W. Manger, Karlstadter Strasse 30, 8725 Arnstein, Fed. Rep. of Germany

Continuation of Ser. No. 911,063, May 31, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 75,899
Claims priority, application Fed. Rep. of Germany, Jun. 4, 1977, 2725346
Int. Cl.³ H04R 1/20
U.S. Cl. 179—1 E 19 Claims



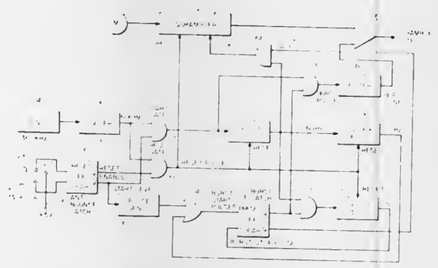
1. A loudspeaker comprising: a substantially closed housing having an discus-like configuration and having a front wall and a rear wall each having an inner portion and an outer portion with an outer edge, said walls being formed and arranged such that the distance between decrease in a direction from said inner to the outer portions such that the outer edges thereof abut along at least two side edges; and at least two similar electro-acoustic transducers, each having a diaphragm, wherein one transducer is arranged in the front wall and the other transducer is arranged in the rear wall and wherein the two transducers are so connected that when connected to a common source said diaphragms are moved simultaneously outwardly or inwardly, respectively.

4,268,720

SCRAMBLER SPEECH TRANSMISSION AND SYNCHRONIZATION SYSTEM

Stirling M. Olberg, Waltham; Vernon J. Fowler, Billerica, and Bruce Anderson, Tewksbury, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed May 25, 1979, Ser. No. 42,661
Int. Cl.³ H04K 1/00
U.S. Cl. 179—1.5 R 11 Claims



1. A system for scrambling speech transmission in a coded manner comprising
a microphone for converting speech in its audio form to an electrical form;
scrambling means coupled to said microphone for coding individual segments of speech in accordance with an internal key code, said scrambling means being adapted to be synchronized by a reset pulse for resetting the order of coding within said scrambling means and by a clock pulse which determines the start of each segment;
a "talk" switch having an "on" and an "off" position;
oscillating means adapted to provide a signals at a burst frequency;
first frequency dividing means for converting said burst frequency to a clock frequency;
first two-input AND gate means having one input coupled to receive said oscillating means, having a second input adapted to receive an enabling level when said "talk" switch is in said "on" position, and having an output coupled to an input of said first frequency dividing means;
second frequency dividing means having an input coupled to an output of said first frequency dividing means for determining the frequency of synchronization burst tones;
second two-input AND gate means having one input coupled to the output of said first frequency dividing means;
a first dividing counter means having an input coupled to an output of said second AND gate means;
a first flip-flop means having a set input terminal, a reset input terminal, a set output terminal and a reset output terminal, said set output terminal being coupled to a second input of said second two-input AND gate means, said reset input terminal being coupled to an output of said first dividing counter means, and said reset output terminal being coupled so as to enable signals at said clock frequency to synchronize said scrambling means when an enabling level is on said reset output terminal;
a pulse generator adapted to provide a pulse when said "talk" switch is placed into an "on" position, said pulse being coupled to the set input terminal of said first flip-flop means;
means responsive to said "talk" switch being in said "off" position for resetting said scrambling means, said first frequency dividing means, said second frequency dividing means, and said first dividing counter means;
third two-input AND gate means having one input coupled to said output of said first AND gate, and having a second input coupled to said set output terminal of said first flip-flop means; and
an output terminal coupled to an output of said scrambling means, and coupled to an output of said third AND gate.

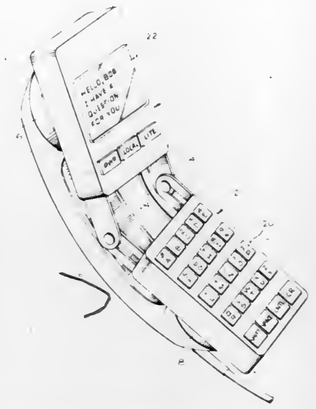
4,268,721

PORTABLE TELEPHONE COMMUNICATION DEVICE FOR THE HEARING IMPAIRED

Donald L. Nielson; David J. Fylstra, and Roy H. Stehle, all of Palo Alto, Calif., assignors to SRI International, Menlo Park, Calif.

Filed May 2, 1977, Ser. No. 792,761
Int. Cl.³ H04M 1/21, 11/00
U.S. Cl. 179—2 C 2 Claims

1. A telephone communication terminal for enabling the use of a conventional telephone for communication with the hearing impaired, comprising:
a portable container means,
means for attaching said container means to a telephone handset to be supported thereby including acoustical coupling means at one surface of said container, for removably coupling to said telephone handset,
said container means including a keyboard with a complete set of alphanumeric characters for use to generate signals representing any complete selected message of alphanumeric characters,
circuit means within said container means responsive to actuation of said keyboard to generate signals responsive thereto suitable for transmittal through said acoustical coupling means over an acoustical telephone line,
pickup means within said container means responsive to acoustical signals received from said telephone handset to generate signals related thereto,
a display device,
control means including modem means adopted to simultaneously control the transmittal of the signals generated by said circuit means through said acoustical coupling means over the acoustical telephone line, and to respond to the signals generated by said pickup means, said control means include means to activate said display means to provide a display of alphanumeric characters related to the acoustical signals received from said telephone handset, and said container means comprises two separate



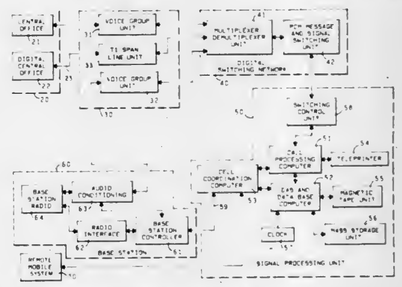
parts, a first part including a first acoustical coupling means for coupling to the transmitter of a telephone handset, a second part including a second acoustical coupling means for coupling to the receiver of said telephone handset, and extensible hinge means coupling said first and second parts together, whereby said two parts are substantially foldable on one another.

4,268,722

RADIOTELEPHONE COMMUNICATIONS SYSTEM

Richard I. Little, Barrington; Barry D. Lubin, Schaumburg, and Stephen L. Spear, Lincolnwood, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 876,956, Feb. 13, 1978, abandoned. This application Sep. 6, 1979, Ser. No. 72,875
Int. Cl.³ H04M 11/00
U.S. Cl. 179—2 EB 26 Claims



1. In a telephone system comprising:
(a) a land-line telephone system having analog ports and including a land-line switching network for providing communication paths to a plurality of land-line telephones; and
(b) a mobile radiotelephone system coupled to the land-line switching network for providing communication paths between mobile radiotelephones and between mobile radio-telephones and land-line telephones, said mobile radio telephone system including:

(i) a plurality of base stations having analog ports, eac of the base stations providing communication paths to mobile ratiotelephones in the vicinity thereof;

(ii) a digital switching network for switching between a predetermined number of pairs of incoming and outgoing serial pulse-code-modulated (PCM) bit streams, each serial PCM bit stream formatted in a plurality of PCM frames of a predetermined number of PCM channels, each PCM channel having corresponding message bits representative of analog signals and signal bits representative of supervisory signals for the PCM channel; and

(iii) PCM analog-to-digital (A/D) and digital-to-analog (D/A) converters interposed between the digital switching network and the respective base stations and between the digital switching network and the land-line networ, said PCM A/D and D/A converters interfacing analog ports of the land-line network and base stations to pairs of incoming and outgoing PCM bit streams, each analog port having analog signals and supervisory signals and further having a pre-established incoming and outgoing PCM channel; and

(c) said digital switching network including:

(i) a multiplexer for multiplexing the predetermined number of the incoming serial PCM bit streams to provide an incoming parallel bit stream, the incoming parallel bit stream having a time slot corresponding to each PCM channel in the predetermined number of incoming serial PCM bit streams;

(ii) a time-slot-interchanger for interchanging the incoming PCM channels in the incoming parallel bit stream according to an ordering of time slots in a routing memory to provide an outgoing parallel bit stream; and

(iii) a demultiplexer for demultiplexing the outgoing parallel bit stream to provide the predetermined number of outgoing serial bit streams; and

(d) wherein said digital switching network includes improvement which comprises:

means for providing a system clock signal and a system multiframe-synchronization signal marking the beginning of each system multiframe having a predetermined number of system frames, the outgoing serial PCM bit streams being transmitted by the demultiplexer in successive system multiframes in response to the system clock signal;

said PCM A/D and D/A converters being adapted to recover the system clock signal from their respective outgoing serial PCM bit streams and transmitting with the recovered system clock signal their respective incoming serial PCM bit streams formatted in successive incoming multiframes having a number of incoming PCM frames equal to the predetermined number of system PCM frames;

said multiplexer including, for each of the incoming serial PCM bit streams, a first-in first-out (FIFO) memory, a frame counter responsive to the system multiframe-synchronization signal for providing system frame signals corresponding to the predetermined number of system frames, means coupled to the incoming serial PCM bit stream for detecting an incoming multiframe-synchronization signal, means coupled to the incoming serial PCM bit stream for receiving and storing in consecutive order in the FIFO memory the subsequent incoming signal bits for each incoming PCM channel in response to the detected incoming multiframe-synchronization signal, means for reading out of the FIFO memory the stored signal bits in response to selected ones of the system frame signals, means for multiplexing the read-out signal bits to provide an incoming signal bit stream;

signal detecting means coupled to the incoming signal bit stream for sensing the state of the incoming signal bits for each of the respective incoming PCM channels;

signal processing means responsive to the sensed incoming signal bits for ordering the time slots in the routing memory to route incoming PCM channels to selected outgoing PCM channels and for generating corresponding outgoing signal bits adapted to a pre-established format recognizable by the outgoing PCM channels; and

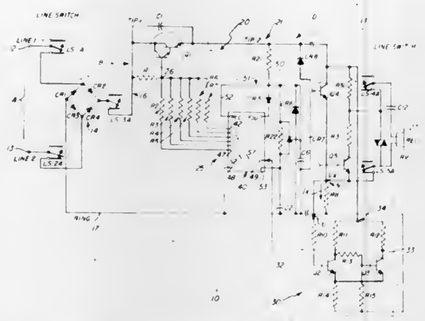
means for applying the outgoing signal bits to the outgoing parallel bit stream.

4,268,723

CIRCUITS AND METHODS FOR INITIALIZING THE LOOP CURRENT OF A TELEPHONE SET

Raymond G. Taylor, Shreveport, La., assignor to Western Electric Company, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,252
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—81 R **10 Claims**



1. A circuit for initializing the loop current of a telephone set of the type wherein a central office D.C. input supply voltage is applied to input terminals of the set to power the telephone set, which voltage can vary from one telephone set to another depending on transmission line characteristics and other variables, the initializing circuit comprising:

a variable conductance device connected in series between the input terminals and the speech network so as to establish a series D.C. loop current at a selected node in the speech network that is a function of the input supply voltage and of the conductance of said device; and

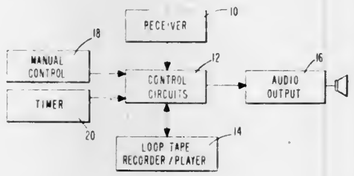
means for monitoring the loop current and for varying the conductance of said variable conductance device so as to set the loop current at a level within a preset, desired range, independent of the voltage applied to the input terminals of the set.

4,268,724

CONTINUOUS TIMED SEGMENT BROADCAST RECORDER SYSTEM

William Hubbard, 1906 Kanawha Ave., Dunbar, W. Va. 25064

Filed Jun. 13, 1979, Ser. No. 48,302
Int. Cl.³ G11B *31/00*
U.S. Cl. 369—7 **13 Claims**



1. A broadcast receiver/recorder system for periodically receiving and recording selected broadcast events, comprising:

a radio receiver having an output;

a tape recorder having record and playback modes, a record input and a playback output, said tape recorder normally being in its record mode;

audio output means;

means connecting said receiver output to said record input of said tape recorder;

timer means for selectively and periodically activating said tape recorder to record selected periodic events;

first control means for selectively shifting said tape recorder from its record mode to its playback mode and for connecting said playback output to said audio output means; and

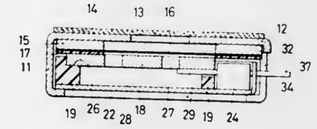
second control means responsive to said tape recorder for holding said tape recorder in its playback mode for a preselected time period and for thereafter shifting said recorder back to its record mode, whereby said recorder is activated by said timer means periodically to record each of said selected events, and is selectively activated by said first control means to play back said selected events.

4,268,725

ELECTRET MICROPHONE

Sadayoshi Nakagawa, and Mitsuharu Shinohara, both of Fukuoka, Japan, assignors to Hosiden Electronics Co., Ltd., Osaka, Japan

Filed Aug. 15, 1979, Ser. No. 66,722
Claims priority, application Japan, Aug. 21, 1978, 53-114913[U]; Oct. 2, 1978, 53-135641[U]
Int. Cl.³ H04R *19/04*
U.S. Cl. 179—111 E **9 Claims**



1. An electret microphone comprising:

a cylindrical capsule having a front plate which is provided with an aperture for introducing sound into the capsule;

an electret diaphragm disposed in the capsule adjacent to and in opposing relation to said front plate;

a back electrode plate in said capsule disposed adjacent to said diaphragm in opposing relation thereto;

a ring-shaped back electrode holder disposed in the capsule coaxially therewith for holding the back electrode plate in place;

a side wall of said ring-shaped back electrode holder being provided with a slot which faces towards the inner peripheral surface of the capsule; and

an impedance conversion element disposed in said slot, said impedance conversion element having an input terminal which is connected to the back electrode plate and an output terminal which is led out of the capsule through an opening in the side wall of the capsule.

4,268,726

MULTIPLE CANTILEVER SPRING CONTACT SWITCH

Pak-Jong Chu, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Aug. 17, 1979, Ser. No. 67,332
Int. Cl.³ H01H *3/04, 9/02, 21/80;* **H04M** *1/08*
U.S. Cl. 179—164 **20 Claims**

1. A multiple cantilever spring contact switch, comprising:

a base, at least one spacer, and a cover, in superposed relationship;

said base comprising a flat central web, a rib extending upwardly along a rear edge of said web, and a plurality of clamping surfaces on said rib;

clamping surfaces on opposite sides of said spacer;

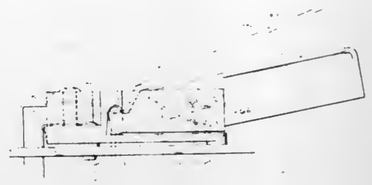
clamping surfaces on an underside of said cover;

the clamping surfaces on said rib and the clamping surfaces on one side of said spacer forming a first series of pairs of opposed clamping surfaces;

the clamping surfaces on the underside of said cover and the clamping surfaces on the other side of said spacer forming a second series of pairs of opposed clamping surfaces;

the pairs of clamping surfaces having relative predetermined inclinations;

a cantilever spring contact member clamped at one end between each pair of clamping surfaces to form at least two sets of spring contact members, the contact members in each set in stacked relationship and the contact members of a set having a predetermined inclined relationship, a contact member in each set having an extended free end;



said base, at least one spacer, cover and cantilever spring contact members forming a switch assembly;

an actuating member pivotally mounted on said switch assembly and including means for engaging said extended free ends of contact members, whereby on pivoting of said actuating member each contact member having said extended free end is deflected;

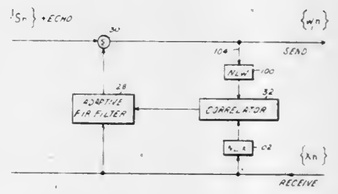
and means for connecting an electrical conductor to each spring contact member.

4,268,727

ADAPTIVE DIGITAL ECHO CANCELLATION CIRCUIT

Bhagwati P. Agrawal, Stamford, and Kishan Shenoi, Fairfield, both of Conn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Mar. 14, 1979, Ser. No. 20,593
Int. Cl.³ H04B *3/20*
U.S. Cl. 179—170.2 **19 Claims**



1. An adaptive digital echo cancellation circuit for a telephone line circuit comprising:

finite impulse response digital filter means having a plurality of delay stages and having coupled thereto a plurality of received digital words, for obtaining for each sample interval of N words the product of N of said digital words and a plurality of updated coefficients each associated with one of said digital filter stages to derive an output representative of the value of an undesired signal portion of a plurality of transmitted digital words;

summation circuit means having coupled thereto a plurality of transmitted digital words having superimposed thereon an undesired signal portion, and the output of said digital filter representative of the value of said undesired signal portion, and having an output comprised substantially of said transmitted digital words;

correlator means coupled to said digital filter means for

obtaining an N term average correlation for each sample interval of N words of digital signals representative of N of said transmitted digital words and N of said received digital words to derive a control output representative of the instantaneous undesired signal present in said received transmitted digital words to vary said coefficients each N word sample interval in accordance with said control output; and

nonlinear circuit means for deriving said digital signals respectively representative of said transmitted and received digital words, such that said representative digital signals are of a bit length less than the bit length of said respective transmitted and received digital words.

4,268,728

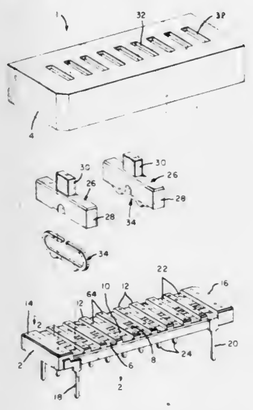
SWITCH ENCODER

William H. Rose, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 23, 1979, Ser. No. 32,190

Int. Cl.³ H01H *15/00*

U.S. Cl. 200—16 R **3 Claims**



1. In a switch having a base and a cover cooperating to contain plural sliders each comprising a carriage and a resilient contact moveable with said carriage to bridge either a first bus contact or a second bus contact, or neither, with a third bus contact, the improvement comprising:

each said resilient contact includes a metal strip having its thickness in a linear plane and formed with open loop portions frictionally retained across said thickness in a slotted recess defined between flexible walls of a respective said carriage,

said loop portions having free ends opposing each other and impinging against said carriage,

said loop portions being integrally joined remote from said free ends and provided with a projecting first portion slidably impinged on said third bus contact, and a second projecting portion impinged alternately in turn on said first and second bus contacts and an insulation portion of said base,

said flexible walls being biased toward and away from each other upon movement between and registration within a series of detents along a slotted opening of said cover, and

means on each said carriage flexing said free ends toward said first and second projecting portions.

4,268,729

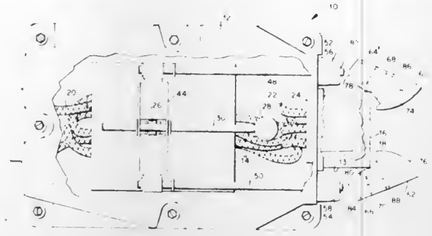
PLUG AND RECEPTACLE INTERLOCK

Bronius Gaizauskas, Chicago, Ill., assignor to Akzona Incorporated, Asheville, N.C.

Filed Sep. 4, 1979, Ser. No. 71,816

Int. Cl.³ H01H *9/20*

U.S. Cl. 200—50 B **15 Claims**



1. An electrical connector comprising:

a plug and a receptacle, each including electrical contacts, said receptacle including a housing, said housing enclosing an electrical switch;

at least one ear member mounted on said housing and adapted to engage said plug when said plug is inserted into said receptacle, said ear member having a hole drilled therein and an abutting surface thereon;

a rod mechanically coupled to said switch, said rod moving in tandem with switch movement, said rod aligned with and adapted to be received in the hole in said ear when said plug is received in said receptacle enabling said switch to be turned on, said rod aligned with and adapted to abut against said abutting surface when said plug is not received in said receptacle thus not permitting said switch to be turned on.

4,268,730

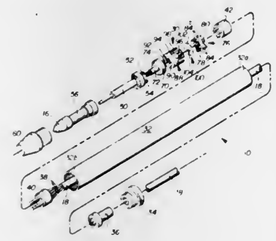
STYLUS PEN ACTUATING SWITCH

Bobby L. Higgins, Dallas, and Luther M. Johnson, Garland, both of Tex., assignors to Camsco, Inc., Richardson, Tex.

Filed Aug. 30, 1979, Ser. No. 70,972

Int. Cl.³ H01H *3/00*

U.S. Cl. 200—52 R **10 Claims**



1. In combination with a stylus pen, an actuating switch comprising:

a first contact;

a second contact; and

spring means disposed between said first and second contacts, such that when pressure is applied to the stylus pen to actuate the actuating switch, said spring means compresses to simultaneously contact both said first and second contacts to positively actuate the actuating switch and provide a sensed indication of movement to an operator to alert the operator of closure of the actuating switch.

4,268,731

ELECTRICAL SWITCH

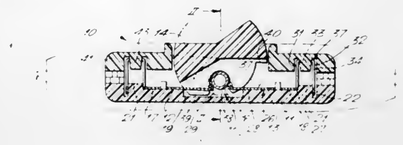
Josef A. Kourimsky, Bensheim, and Lothar H. W. Nix, Walldorf, both of Fed. Rep. of Germany, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 7, 1979, Ser. No. 18,008

Claims priority, application United Kingdom, Mar. 8, 1978, 9106/78

Int. Cl.³ H01H *1/16, 21/40, 3/00*

U.S. Cl. 200—67 AA **5 Claims**



1. An electrical switch comprising a pair of terminals, fixed spaced apart from each other in an insulating housing; a metal roller; a finger-piece of insulating material having a cavity receiving the roller between a first and a second switching position in which the roller engages only one and both terminals respectively and wherein engagement between the roller and either terminal traps the roller in the cavity in said first and second switching positions, the one terminal being resilient and including a cantilever spring extending in the direction of roller movement, said one terminal having a transverse roller engaging portion protruding into the path of the roller movement to produce an overcenter action which biases the roller toward respective switching positions relative to the one terminal as said roller moves and resiliently deforms said one terminal, said roller engaging portion providing the fulcrum for the overcenter action, and the roller being received as a free fit in the cavity to permit limited movement of the roller in the switching direction independently of the finger-piece, the arrangement being such that the one terminal is resiliently flexed to bias the roller against the second terminal in the second switching position.

4,268,732

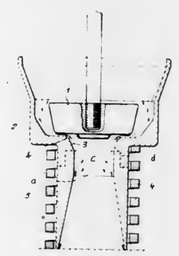
ARC QUENCHING CHAMBER FOR HIGH BREAKING CAPACITY CIRCUIT BREAKERS

Nicolae Gheorghiu, and Basarab D. Guzun, both of Bucharest, Romania, assignors to Institutul de Cercetari si Modernizari Energetice, Bucharest, Romania

Filed Jul. 5, 1977, Ser. No. 812,729

Int. Cl.³ H01H *33/70*

U.S. Cl. 200—148 R **2 Claims**



1. A quenching chamber for a high-voltage circuit breaker, wherein said chamber comprises:

a first contoured fixed electrode;

a second contoured movable electrode positioned to abut said first electrode along mutual contact surfaces and axially separable therefrom to form a slit between said contact surfaces for a high-velocity arc-quenching stream flowable between said contact surfaces during the separation thereof, said second electrode having an outwardly flaring cup wholly receiving said first electrode to form, in the direction of said stream travel, an increasingly constricted, velocity-increasing gas-flow passageway with said first electrode upstream of said slit, said second electrode having a tubular portion inwardly of said slit and leading away from said first electrode, said cup being fixed to said tubular portion, said tubular portion forming a channel converging initially axially away from said slit and thereafter diverging axially away from said slit;

an inwardly facing step formed by a counterbore in said second electrode directly at the junction of said cup and said tubular portion between said slit and said channel for inducing said stream to adhere to and form a Coanda flow along the surface of said channel; and

spring means for biasing said second electrode toward said first electrode.

4,268,733

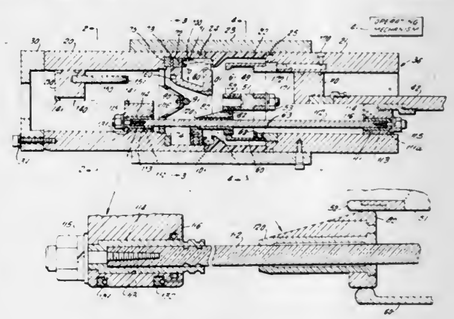
LIQUID SF_6 PUFFER TYPE CIRCUIT INTERRUPTER

Ruben D. Garzon, Malvern, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Oct. 19, 1977, Ser. No. 843,573

Int. Cl.³ H01H *33/88*

U.S. Cl. 200—150 G **11 Claims**



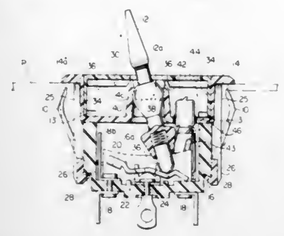
1. A high voltage circuit interrupter comprising: a pair of cooperable contacts; nozzle means for defining a fluid flow path through the region between said cooperable contacts when said cooperable contacts open; cylinder means and first and second pistons disposed within said cylinder means; said first and second pistons disposed on respective opposite sides of said nozzle means for forcing fluid through said nozzle means; an operating means for moving said first piston toward said nozzle means and said second piston away from said nozzle means for forcing fluid located between said pistons through said nozzle means, said operating means also being for simultaneously opening said contacts; the amount of said fluid located between said pistons at all times filling the volume therebetween and remaining constant during circuit interruption; said fluid being SF_6 in the liquid phase; said piston being simultaneously movable by said operating means to produce a pressure differntial in said SF_6 between said pistons for causing said SF_6 to move through said nozzle means generally away from said first piston and toward said second piston, said pressure differential remaining substantially constant during circuit interruption; a housing for enclosing said cooperable contacts and said first and second pistons; and SF_6 in the liquid phase filling said housing.

4,268,734

ENVIRONMENTALLY SEALED TOGGLE SWITCH

Richard W. Sorenson, Avon, Conn., assignor to Carlingswitch, Inc., West Hartford, Conn.

Filed Jul. 30, 1979, Ser. No. 61,605
Int. Cl.³ H01H *9/04, 9/16*
U.S. Cl. 200—302 **6 Claims**



1. An electric switch housing for protecting the fixed contacts and movable contact bridging member from environmental conditions external to the switch, said housing comprising an upwardly open dielectric base for said contacts and bridging member, a dielectric cover bracket secured to said base for isolating the contacts of the base from the environment, said cover bracket having a recessed portion and a generally cylindrical upstanding boss defined centrally of said recessed portion, an actuator snugly received in a central opening of said boss and having a shoulder portion engaging an inturned lip on said boss, an inner end of the actuator adapted to engage the movable contact bridging member and an upper end of said actuator projecting above the lip of said boss and defining a toggle, said cover bracket having a raised peripherally extending wall portion with openings therein, a cover with depending flanges defining laterally projecting tabs received in said openings, said cover having a center opening for receiving said upwardly projecting toggle of said actuator, and said cover providing a lid for said recessed portion of said cover bracket.

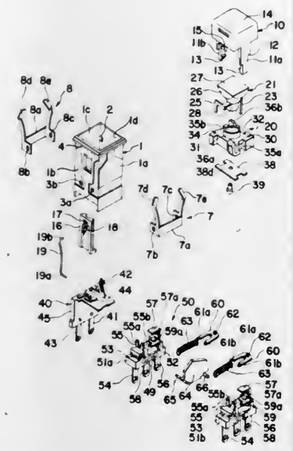
4,268,735

PUSHBUTTON PILOT SWITCH

Norio Iwakiri, Kyoto, Japan, assignor to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Aug. 23, 1979, Ser. No. 69,136
Claims priority, application Japan, Aug. 30, 1978, 53-106751
Int. Cl.³ H01H *9/16*
U.S. Cl. 200—314 **8 Claims**

1. A pushbutton pilot switch comprising:
an elongated housing having an opening at one end thereof and including an engaging member formed inside the housing at a substantially intermediate portion thereof, said elongated housing having a plurality of terminal projections each having one end situated within housing and the other end projecting outwards from said housing for external electric connection;
a switch arrangement accommodated within said elongated housing, said switch arrangement electrically connected to at least two of the terminal projections;
a base housed inside said elongated housing and including an engageable member adapted to be engaged with said engaging member for preventing the base from being slidably moved outside the housing the engagement between said engaging member and engageable member being disengaged when the base is applied with an external force acting in a direction outwardly of the housing through said opening;
an illuminating member mounted on said base;
an actuator coaxially housed in said elongated housing for axial movement between depressed and projected positions, said actuator when held in any one of the depressed and projected positions having one end extending outwards from said housing through said opening and the other end housed within said housing, said other end of the actuator being detachably connected to the base and including an actuating member which actuates the switch arrangement when the actuator is moved to said depressed position;
said illuminating member comprising a light transmitting block,
at least one light emitting diode carried by said block, and optically coupled to said at least one light emitting diode,
means for demountably coupling said illuminating member light transmitting block to said base; and



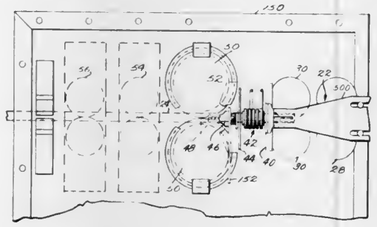
a plate member removably secured to the base, said plate member having an electrically resistive film laminated thereon and being electrically connected to said at least one light emitting diode by plate terminals such that said electrically resistive film controls the actuating current for lighting said at least one light emitting diode of said illuminating member;
whereby, when the voltage of said electrical source coupled to the pushbutton switch changes, dependent upon usage, the resistor of said push button pilot switch may be readily exchanged to accommodate the voltage change.

4,268,736

INDUCTION WELDING APPARATUS FOR MANUFACTURE OF TUBING

Michel C. Cuvelier, Liege, Belgium, assignor to American Electric Fusion Co., Inc., Nashville, Tenn.

Filed Apr. 13, 1978, Ser. No. 896,361
Int. Cl.³ H05B *6/02*
U.S. Cl. 219—8.5 **8 Claims**



1. In a tube induction welding apparatus,
(a) an induction coil surrounding the path of the tube,

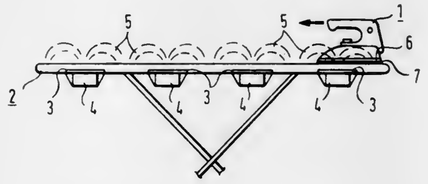
(b) means downstream of the coil for forcing the edges of the tube to be welded into contact at a given point
(c) and a modifier between the coil and the forcing means,
(d) the modifier being an electrically conductive member having at least a portion thereof positioned to overlie the path followed by the slit which exists in the tube upstream of the contact point,
(e) the modifier having a dimension lengthwise of the tube, which dimension lies within the space between the downstream end of the coil and the aforesaid contact point,
(f) the modifier including skirt portions extending laterally from said modifier portion overlying the path of the slit in the tube and curved to substantially conform to the curvature of the outer surface of the tube when the latter is in place in the apparatus
(g) the skirt portions of the modifier at the upstream end thereof extending to encompass at least one half of but less than all of the circumference of the tube.
7. In a tube induction welding apparatus,
(a) an induction coil surrounding the path of the tube,
(b) a pair of pressure rolls downstream of the coil for forcing the edges of the tube into contact,
(c) and means to cool the rolls by flowing coolant thereover,
(d) the cooling means including a perforated tube above the upper periphery of each roll for cascading coolant down over the exterior surface of each rool except in the sector of the roll whereat contact and welding of the tube edges occurs, said cooling means further including a plate for conducting heat away from said rolls, and a shield plate surrounding at least a portion of said pressure rolls, said shield plate thermodynamically coupled to a coolant source.

4,268,737

CORDLESS INDUCTIVE FLAT IRON APPARATUS

Peter Paschakarnis, Schwebheim, and Wolfgang Fischer, Königsberg, both of Fed. Rep. of Germany, assignors to Sachs-Systemtechnik GmbH, Schweinfurt am Main, Fed. Rep. of Germany

Filed Apr. 11, 1978, Ser. No. 895,515
Int. Cl.³ H05B *6/10, 6/06*
U.S. Cl. 219—10.49 R **8 Claims**



1. A cordless flat iron apparatus comprising:
(a) a flat iron including a sole plate of conductive material and a handle electrically and thermally insulated from said sole plate;
(b) an ironing board movable into a position to define an approximately horizontal, upwardly directed work supporting surface;
(c) energy transmitting means carried on said ironing board and including oscillator means and a plurality of coils associated with said oscillator means and positioned closely subjacent said surface for generating a magnetic field of a polarity alternating at high frequency above said work supporting surface in said position of the ironing board and for thereby inductively transmitting energy to said sole plate when said flat iron is placed on said surface, said coils being spaced from each other in a direction parallel to said surface, each of said coils being an element of an independent high frequency oscillator;
(d) temperature sensing means for sepsing the temperature of said sole plate by said iron;
(e) transmitter means operatively connected to said sensing means providing a wireless signal in response to the sensed temperature;
(f) means for supplying power to said transmitter wherein the output of one of said coils is connected to a rectifier stage, said rectifier stage being coupled to a smoothing stage, said smoothing stage having output terminals for supplying power to said transmitter;
(g) receiver means carried by said ironing board for receiving said signal, and a reference signal generator carried by said board to generate a reference signal;
(h) a comparator circuit connected to said receiver means and to said reference generator for comparing the received signal and said reference signal, and for controlling the output of said oscillator means in response to the relationship between the compared signals; and
(i) an additional surface is also included adjacent to said work supporting surface for depositing said iron, an additional coil being provided subjacent said additional surface, said coil being coupled to one of the high frequency oscillators.

4,268,738

MICROWAVE ENERGY MODERATOR

Thomas J. Flautt, Jr.; Edward J. Maguire, Jr., and David L. Richardson, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 837,074, Sep. 28, 1977, abandoned, which is a continuation-in-part of Ser. No. 821,934, Aug. 4, 1977, abandoned. This application Nov. 25, 1977, Ser. No. 854,941
Int. Cl.³ H05B *6/80;* **A21D** *10/02*
U.S. Cl. 219—10.55 F **24 Claims**



1. A microwave energy moderator comprising structure which is initially macroscopically relatively transparent to microwave energy of a predetermined frequency range, said moderator further comprising means for undergoing a sufficient structural transition that it will become substantially less transparent to said microwave energy as the temperature of said means is increased through a predetermined range of temperature.

4,268,739

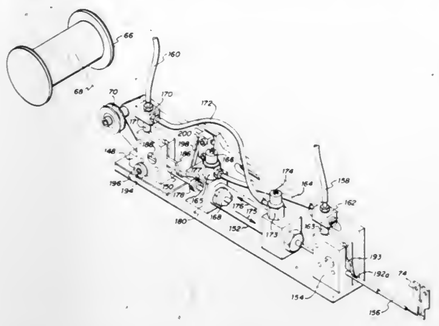
AUTOMATED WIRING APPARATUS

Evan J. Evans, Longview, Tex., assignor to United Wiring & Manufacturing Co., Longview, Tex.

Filed Mar. 9, 1978, Ser. No. 884,376
Int. Cl.³ B23K *1/12, 3/02, 3/06;* **B65H** *17/36*
U.S. Cl. 219—56.1 **4 Claims**

1. Apparatus for soldering an electrical wire at a connection to a terminal, comprising:
means for dispensing solder to the terminal, and
an electrical heating element for melting the solder dispensed at the terminal by said means for dispensing, said electrical heating element including:
an electrically resistive plate,
a first slot extending along a substantial portion of the length of said plate essentially dividing said plate into two parts,
a connecting bridge joining together the ends of said two

parts and having a lesser thickness than that of said two parts, and



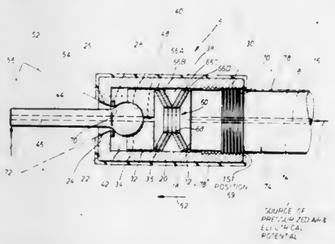
a pair of extension members joined to one of said parts, essentially parallel to said first slot and thermally decoupled from said connecting bridge.

4,268,740

FLEX HEAD WELDING TORCH HAVING DISC SPRING BIASING ELEMENTS

Harold D. Sanders, Houston, Tex., assignor to Central Welding Supply Co., Inc., South Houston, Tex.

Filed Feb. 23, 1979, Ser. No. 14,480
Int. Cl.³ B23K *9/16*
U.S. Cl. 219—137.51 **8 Claims**



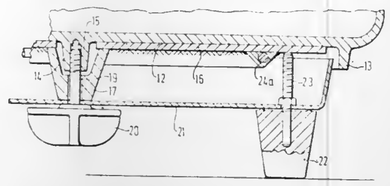
1. In a welding torch body adapted for interconnection at one end with a source of pressurized gas and a source of electrical potential and at the other end with a welding torch head, said body including a first conduit for passage of the gas therethrough and means for passing electric current therethrough, the improvement wherein said body comprises in combination:
a ball having an elongated stem thereon for interconnection with the welding torch head, said ball and stem including a second conduit for passage of the gas therethrough;
means for retaining the ball with respect to the body; and
biasing means acting on the ball to maintain the stem in any angular orientation with respect to the axis of the body to which the stem is displaced, said biasing means including a disc spring disposed in the body, said disc spring defining an aperture communicating between said first conduit and said second conduit for passage of the gas therethrough.

4,268,741

ELECTRIC FRY PAN

William J. O'Brien, Vaucluse, Australia, assignor to Breville Holdings Pty. Limited, Pyrmont, Australia

Filed Jul. 27, 1979, Ser. No. 61,310
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—439 **6 Claims**



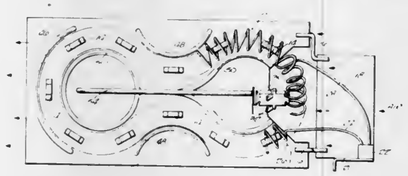
1. An electric fry pan, comprising an electric heating element connectable with an electric source and having a predetermined configuration; a heat distributing element constituted of aluminum and being in contact with said heating element so as to be heated by the latter; and a pan having an underside with a major portion which is in contact with said heat distributing element so that heat is transmitted from the latter to and distributed over said pan, means for securing said aluminum heat distributing element to said underside of said pan, said electric heating element being secured to said heat distributing element, said electric heating element being electrically insulated from said heat distributing element and said pan, and electric connecting means arranged to connect said electric heating element with the electric source and being electrically insulated from said heat distributing element and said pan, said pan having a bottom wall and side walls constituted of cast iron having high heat capacity and low thermal conductivity, so as to provide for a large heat reservoir ensuring good culinary properties and at the same time to avoid a localization of heat in said pan in the regions corresponding to the configuration of said electric heating element.

4,268,742

RESISTANCE HEATER ASSEMBLY

Merlyn F. Cottrell, Winneconne; Dale J. Gauthier, Omro, and Lester C. Miller, Sussex, all of Wis., assignors to E. R. Wagner Manufacturing Company, Milwaukee, Wis.

Filed Oct. 17, 1979, Ser. No. 85,758
Int. Cl.³ H05B *3/06*
U.S. Cl. 219—532 **9 Claims**



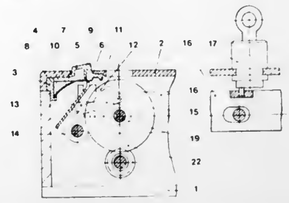
1. A heater assembly for installation in a duct comprising,
a metallic radiation panel,
electrical insulating support members projecting from both sides of the panel,
an electric resistance heating wire passing from one side of the panel to the other side of panel and supported on said members on both sides of the panel whereby air flowing along both sides of the panel is heated by the wire and by the panel which is radiantly heated by the wire,
said panel being dimensioned so the wire on each side of the panel lies within the perimeter of the panel and radiantly heats the panel and cannot radiantly heat the wire on the other side of the panel.

4,268,743

COUNTING-DOWN COUNTER

Horst Pfeiffer, Aldingen, Fed. Rep. of Germany, assignor to J. Hengstler K.G., Aldingen, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,354
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827315
Int. Cl.³ G06F *15/18;* **G06C** *25/00*
U.S. Cl. 235—130 R **11 Claims**



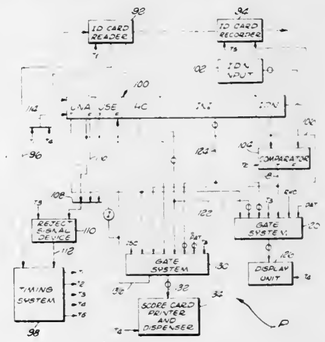
1. Counting-down counter comprising, in combination
at least one presetting digit wheel consisting of a rotatably mounted digit-carrying wheel part, a rotatably mounted resetting wheel part, and non-positive two-way coupling means connecting said digit-carrying wheel part and said resetting wheel part for joint rotation,
a rotatably mounted resetting shaft,
lost-motion one-way coupling means adapted to connect said resetting shaft and said resetting wheel part for joint rotation only in one sense and only when said resetting shaft and said resetting wheel part are in a predetermined rotational position relative to each other,
detent means for holding said resetting shaft against rotation in a predetermined rotational position thereof, and
locking key means which are manually operable for performing a short pivotal stroke so as to hold said digit-carrying wheel part against rotation during a presetting operation, while said resetting wheel part is rotated by said resetting shaft, until the latter has reached a click-stop.

4,268,744

SCORE PROCESSING SYSTEM FOR USE WITH ID CARDS

Thomas C. McGeary, 2412 Palos Verdes Dr. W., Palos Verdes Estates, Calif. 90274

Filed Dec. 5, 1979, Ser. No. 100,572
Int. Cl.³ G06F *15/20, 7/02;* **G06K** *19/06*
U.S. Cl. 235—375 **7 Claims**



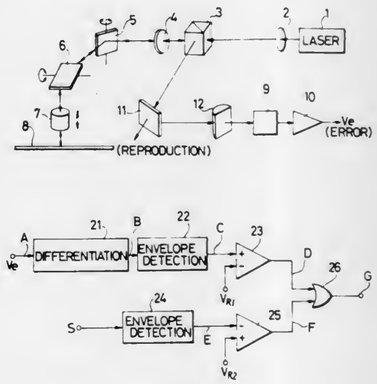
1. A control system for scoring, as in golf, for operation with a card or the like, bearing a record medium comprising:
means for sensing said record medium to provide signals from a specific card identified with a specific person and representative of a scoring composite for that person;
a controlled access input panel for forming signals representative of a current score by said specific person;
computer means for receiving said signals representative of a current score and said signals representative of said scoring composite to compute a fresh scoring composite;
means for recording said signals on said card, updated to include said current score; and
means for regulating the operation of said means for recording to verify recording for said specific person on said specific card.

4,268,745

TRACKING SERVO DRAWING DEVICE IN OPTICAL TYPE INFORMATION READING DEVICE

Takashi Okano, Tokorozawa, Japan, assignor to Universal Pioneer Corporation, Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,704
Claims priority, application Japan, Sep. 9, 1978, 53/111086
Int. Cl.³ G01J *1/36*
U.S. Cl. 369—44 **7 Claims**



1. In a tracking servo drawing device in an optical type informaton reading device having tracking servo means for allowing an irradiation light beam to track a recorded track on an information record surface to read information by using said irradiation light beam to illuminate said record surface, the improvement comprising; speed detection means for detecting a relative speed of said record track and said irradiation light beam at which the irradiation light beam goes across the video track, and when said relative speed is lower than a predetermined value; producing a first detection signal; signal level detection means in which the reproduction signal level of said information is detected, and when said reproduction level reaches a predetermined value, a second detection signal is produced; and, means responsive to the simultaneous generation of said first and second detection signals to generate an instruction signal to close the servo loop of said tracking servo means.

4,268,746

DOCUMENT FEED JAM DETECTOR FOR A DOCUMENT READING APPARATUS

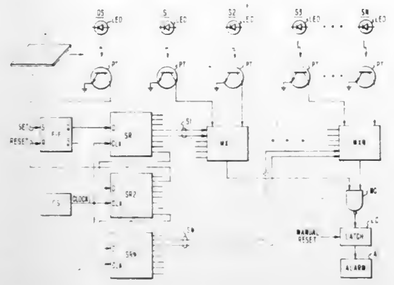
Dale W. Schroeder, Iowa City, Iowa, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 25, 1979, Ser. No. 88,305
Int. Cl.³ B65H *7/00*
U.S. Cl. 250—223 R **5 Claims**

1. Apparatus for monitoring the position of a document in a document transport system, comprising:
a plurality of document sensor means positioned in a spaced apart relationship along the path of travel of a document

in a document transport system including a document entry sensor for generating a signal indicative of the entry of a document in said transport system;

an electronic circuit means for generating a series of logic outputs corresponding in number to the equivalent length of said document, said electronic circuit means advancing said group of logic outputs at a rate corresponding to the



rate at which said document is moved through said document transport system; and
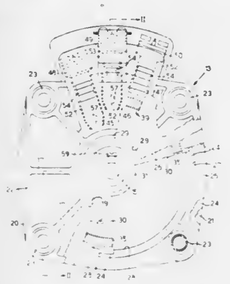
comparator means operatively connected to said spaced apart sensors and said electronic circuit means to generate an output signal in the event the actual position of said document as monitored by said document sensor means differs from the simulated document position developed by said electronic circuit means.

4,268,747

POSITION TRANSDUCER FOR A ROTATING MEMBER

Raffaele Becchi, Ivrea; Felice Giacone, Turin, and Andrea Accattino, Salerano, all of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Italy

Filed Dec. 26, 1978, Ser. No. 973,011
Claims priority, application Italy, Dec. 30, 1977, 69951 A/77
Int. Cl.³ G01D *5/34*
U.S. Cl. 250—231 SE **7 Claims**



1. An optical transducer for detecting the angular position of a rotating shaft with respect to a fixed part comprising:

a unit comprising a substantially closed body having a transverse cavity and a central through hole which crosses said cavity for lodging with ample clearance said rotating shaft, a disc provided with a plurality of radial openings lodged with ample clearance inside said transverse cavity, and light generating and detecting means mounted inside said closed body for detecting the passage of said radial openings and generating corresponding electrical signals, and

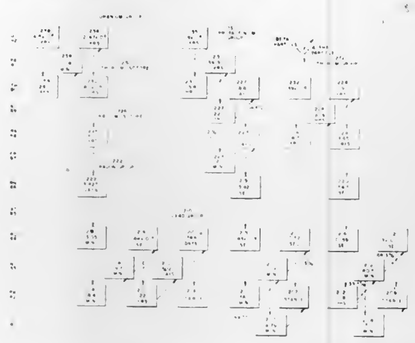
means for mounting said unit in cooperative relation to said shaft and said fixed part, said means comprising first means for axially positioning said disc with respect to said rotating shaft, second means for centering said body with respect to said rotating shaft, and third means for fixing said body to said part in its centered position.

4,268,748

FIELD METHOD FOR DETECTING DEPOSITS CONTAINING URANIUM OR THORIUM

Lorin R. Stieff, P.O. Box 263, Kensington, Md. 20795

Continuation-in-part of Ser. No. 879,578, Feb. 21, 1978. This application Apr. 25, 1978, Ser. No. 899,937
Int. Cl.³ G01V *5/00*; G01T *5/00*
U.S. Cl. 250—255 **6 Claims**



1. A field method for detecting location of a deposit containing uranium and for distinguishing between uranium or thorium containing deposits having characteristic radioactive daughter products near the deposit comprising

collecting subsurface samples from a vicinity of the deposit,

studying the samples for characteristic radioactive daughter products which are a mixture of Pb214, Bi214, Po214, Pb210 and Po210 detected by the alpha decay of Po214 and Po210 respectively in samples collected in the vicinity of a deposit containing U238, and wherein

chemically extracting Pb, Bi and Po in a solution from the samples,

exposing first and second alpha sensitive films to Po from the solution,

exposing the first film to record decay of Po214,

exposing the second film to record decay of Po210,

etching the films to reveal the high energy alpha particle damage,

studying the first film for Po214 alpha damage,

studying the second film for Po210 alpha damage, and

detecting presence of the deposit containing uranium based on the alpha particle damage in the films caused by characteristic radioactive daughter product matter in the samples,

plotting sample locations and alpha particle damage populations, and

determining locations of deposits containing uranium from the plotting.

4,268,749

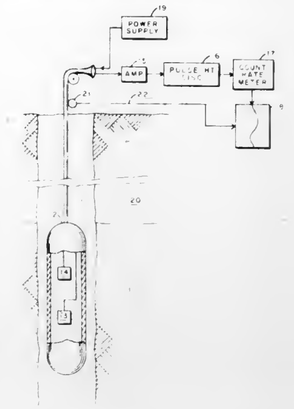
METHOD FOR DIRECTLY MONITORING THE OUTPUT OF A NEUTRON SOURCE IN A BOREHOLE LOGGING SYSTEM

William R. Mills, Jr., Duncanville, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 16, 1978, Ser. No. 951,696
Int. Cl.³ G01V *5/00*; G01T *3/00*
U.S. Cl. 250—269 **11 Claims**

1. A system for directly monitoring the output of a fast neutron source in a borehole logging tool, comprising:

(a) a neutron detector that interacts differently with fast neutrons directly from a neutron source and with epithermal or thermal neutrons returning to the borehole from irradiated formations surrounding the borehole, said detector producing a composite signal of pulses having a spectrum of differing pulse height characteristics attributable to said differing interactions, and



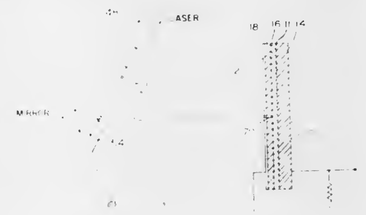
(b) means for distinguishing between said differing pulse height characteristics to identify that portion of said composite signal attributable to the fast neutrons received by said detector directly from said source.

4,268,750

REALTIME RADIATION EXPOSURE MONITOR AND CONTROL APPARATUS

Ronald W. Cowart, Houston, Tex., assignor to The University of Texas System, Austin, Tex.

Division of Ser. No. 22,989, Mar. 22, 1979. This application May 14, 1979, Ser. No. 38,466
Int. Cl.³ G03G *13/00*; G03B *5/17*; H04N *5/32*
U.S. Cl. 250—315.1 **4 Claims**



1. An exposure measuring apparatus comprising:

a multilayered detector structure, in an electric potential field, said detector comprising a duo-dielectric sandwich including, a transparent conducting layer overlying a transparent insulating layer which overlays a high resistance photoconductor layer which overlays a conductive layer;

an external circuit connecting said transparent conducting layer and said conducting layer;

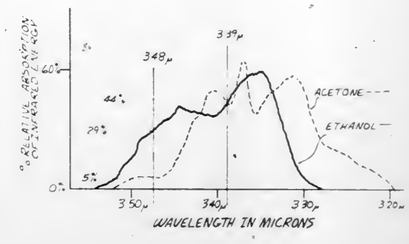
measuring means responsive to the flow of current in said external circuit for measuring the flow of current in said external circuit when said duo-dielectric detector structure is irradiated by radiation capable of forming electron hole pairs in the photoconductive layer of said multilayered detector structure.

4,268,751

INFRARED BREATH ANALYZER

Jack D. Fritzlen, Vail; Fred M. Thul, Avon, and Douglas R. Vogel, Vail, all of Colo., assignors to CMI Incorporated, Minturn, Colo.

Filed Apr. 2, 1979, Ser. No. 25,904
Int. Cl.³ G01J *1/00*
U.S. Cl. 250—343 **22 Claims**



1. An apparatus to determine the presence, in a sample, of an unknown energy absorbing compound when a predetermined energy absorbing compound is also present in the sample and where both the unknown energy absorbing compound and the predetermined energy absorbing compound both absorb first and second predetermined wavelengths of energy, comprising:

generating means for producing said first predetermined wavelength of energy and said second predetermined wavelength of energy, both said first predetermined wavelength and said second predetermined wavelength being absorbed by both the unknown energy absorbing compound and the predetermined energy absorbing compound when both compounds are present in the sample;

chamber means in the path of said first and second predetermined wavelengths of energy for receiving the sample and for passing said first and second predetermined wavelengths therethrough;

detecting means in the path of said first and second predetermined wavelengths for sensing separately the amount of energy remaining in each of said first and second predetermined wavelengths after the passing of said first and second predetermined wavelengths through said chamber means; and

comparing means connected to said detecting means for comparing the amount of energy remaining in said first predetermined wavelength with the amount of energy remaining in said second predetermined wavelength, said comparing means outputting a comparison value, the comparison value being known and unique for the predetermined energy absorbing compound so that, if the comparison value outputted is different than the known and unique comparison value for the predetermined energy absorbing compound, an unknown energy absorbing compound is present in said chamber means.

4,268,752

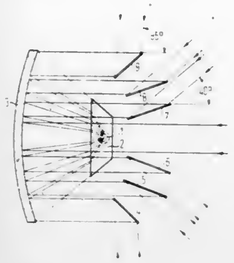
OPTICAL ARRANGEMENT FOR A PASSIVE INFRARED MOTION DETECTOR

Thomas Herwig, Eltville, and Gerhard Doenges, Taunusstein, both of Fed. Rep. of Germany, assignors to Heimann GmbH, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 40,652
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904654
Int. Cl.³ G01J *1/00*
U.S. Cl. 250—353 **8 Claims**

1. In a passive infrared motion detector having an infrared detector unit and means for directing infrared radiation from at least two separate directions to be monitored on said detector unit, the improvements comprising the means for directing including a single means for focusing radiation from more than

two directions simultaneously and more than two separate, flat reflecting surfaces, said single means for focusing radiation including a single concave mirror having an optical axis and a deflecting mirror being arranged on the optical axis of the concave mirror and at an angle therein to deflect light focused by the concave mirror at an approximately a right angle to the optical axis and onto the infrared detector unit so that the focused radiation from said concave mirror travels to the detector unit in a folded path with two portions extending



substantial at right angles to each other, said flat reflecting surfaces being a plurality of individual separate flat reflecting surfaces with at least one being arranged on each side of the optical axis of the concave mirror, said reflecting surfaces being arranged with at least one reflecting surface associated with each direction to be monitored to reflect the radiation simultaneously from said direction onto said concave mirror with at least two of the reflecting surfaces having planes extending at different angles to the optical axis.

4,268,753

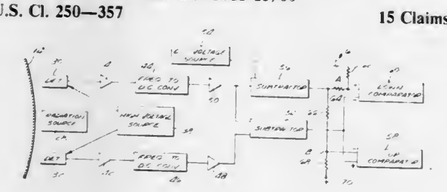
LEVEL DETECTION DEVICE FOR ENCLOSED TANKS

Eugene T. Murakami, Diamond Bar, and Thomas A. Gray, Anaheim, both of Calif., assignors to Thomas Gray & Associates, Inc., Division Level Link, Orange, Calif.

Filed Sep. 13, 1979, Ser. No. 75,014

Int. Cl.³ G01F *23/00*

U.S. Cl. 250—357 **15 Claims**



1. A level detection device for measuring the level of material within an enclosed tank, comprising:

a radiation source mounted on the exterior wall of said tank for emitting radiation into said tank;

an upper radiation detector located above said source;

a lower radiation detector located below said source, both said detectors producing electrical signals in response to back-scattered radiation;

means for comparing said electrical signals to yield an output signal; and

means responsive to said output signal for determining said level of material.

4,268,754

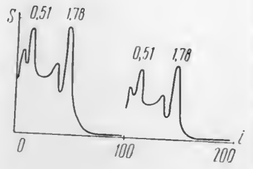
RADIOACTIVATION METHOD FOR SIMULTANEOUS DETERMINATION OF NITROGEN, PHOSPHORUS AND POTASSIUM CONTENT IN PLANTS AND FERTILIZERS

Rigo A. Srapeniants, B. Pereyaslavskaya ulitsa, 15, kv. 140; Igor B. Saveliev, Preobrazhensky val, 24, kv. 76; Jury L. Kovtun, Preobrazhensky val, 24, kv. 70; Alexandr V. Sidorov, Velozavodskaya ulitsa, 2, korpus 4, kv. 26; Kim S. Tsagolov, ulitsa Gostinichnava, 9v, kv. 13, and Nadezhda N. Miroshnikova, Altufievskoe shosse, 95b, kv. 164, all of Moscow, U.S.S.R.

Filed Apr. 9, 1979, Ser. No. 28,397

Int. Cl.³ G01T *3/00*

U.S. Cl. 250—391 **1 Claim**



1. A radioactivation method for simultaneous determination of the nitrogen, phosphorus and potassium content in plants and fertilizers which also contain isotopes which interfere with gamma radiation analysis, said isotopes having a specific half-life, which comprises exposing samples to be analyzed and standard samples to neutron irradiation to induce gamma radiation which is plotted as a spectrum of gamma radiation energy in proportion to number of pulses of the neutron irradiation, recording the spectra of gamma radiation induced in said samples, setting said samples aside for a period of time corresponding to the half-life of the interfering isotope, again exposing said samples being analyzed and said standard samples to neutron irradiation and recording the resulting spectra of gamma radiation, superposing the first and second spectra of the samples being analyzed and standard samples and shifting the same relative to each other along the energy axis, and comparing the spectra of the samples being analyzed and the standard samples to determine the content of the elements being analyzed.

4,268,755

FUEL ASSEMBLY SHIPPING CASK

Robert Weber, Uttenreuth; Stefan Ring, and Ulf Heeschen, both of Erlangen, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim an der Ruhr, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,918

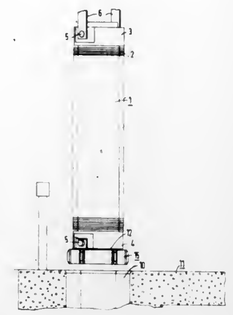
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830305

Int. Cl.³ G21F *5/00*

U.S. Cl. 250—506 **8 Claims**

1. In combination, a fuel assembly transfer cask having lifting devices and a shock-absorbing piston member associated with the underside of the transfer cask, the piston member

comprising two mutually spaced-apart metal plates, a multiplicity of hollow metal bodies stacked on top of one another



therebetween and fastening elements for fastening the piston member to the lifting devices.

4,268,756

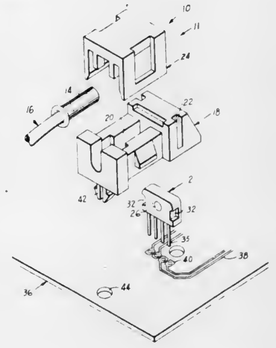
OPTICAL TRANSCEIVER

Ronald J. Crouse, Mckinney, and Edward C. Wade, Carrollton, both of Tex., assignors to TRW Inc., Los Angeles, Calif.

Filed Nov. 13, 1978, Ser. No. 959,787

Int. Cl.³ G02B *27/00*

U.S. Cl. 250—551 **15 Claims**



1. An optical transceiver to be used in conjunction with at least one power supply for receiving electrical data and transmitting optical data corresponding to the electrical data to an optics communication channel and receiving optical data from the optics communication channel and transmitting electrical data corresponding to the optical data comprising, in combination:

(a) a light sensing device including a light sensor and means responsive to the light sensor for transmitting electrical data;

(b) a light emitting device including a light emitter for emitting light when supplied wiht sufficient electric current and means responsive to the received electrical data for supplying the light emitter with sufficient electric current; and

(c) a mounting surface, wherein said light sensor and said light emitter are mounted on said mounting surface facing substantially the same direction and said light sensor substantially encircles said light emitter as viewed from a direction substantially perpendicular to said mounting surface.

4,268,757

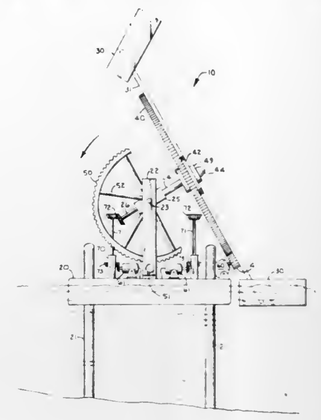
WATER WHEEL ELECTRIC GENERATION DEVICE

Edward R. Rogers, 69 Prescott Ave., Chelsea, Mass. 02150

Filed Nov. 16, 1979, Ser. No. 94,960

Int. Cl.³ F03B *13/12*

U.S. Cl. 290—53 **3 Claims**



1. A water power electric generating device comprising:

(a) a buoyant platform

(b) a plurality of pylons, fixedly mounted in the ocean or river-bed, slidingly engaging said buoyant platform;

(c) tower means fixedly mounted to said buoyant platform and upwardly extending therefrom;

(d) axle means rotatable about an axis and pivotedly adapted to said tower means;

(e) means to rotate said axle means in an arc of substantially 120° connecting on one end to said tower means and on the other end to said axle means;

(f) first gear means fixedly mounted to said axle means;

(g) a plurality of radially and outwardly directed paddle arms fixedly mounted to said first gear means and formed at the outward end thereof into a paddle to engage the moving water and rotate said first gear means;

(h) pinion gear means toothedly engaging said first gear means and rotated thereby;

(i) generator means adapted to said pinion gear means and activated thereby to produce electricity.

4,268,758

ARRANGEMENT FOR SUPPRESSING HIGH FREQUENCY CURRENTS IN BEARINGS OF SHAFTS

Hans-Christian Grassmann, Igelsdorf, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 891,895, Mar. 30, 1978. This application Aug. 27, 1979, Ser. No. 69,993

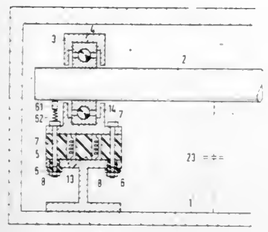
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1978, 2839246

Int. Cl.³ H03H *1/00*

U.S. Cl. 307—105 **4 Claims**

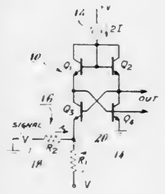
1. An arrangement for suppressing high frequency currents in bearings of shafts in high frequency treating apparatus with operating frequencies above 10 kHz, the bearing being mechanically connected to the housing of the treatment apparatus, said bearing being disposed in a housing and exhibiting a capacitive impedance between the shaft and its housing, the bearing shaft exhibiting an inductive impedance at said frequencies and there being a capacitive impedance between the shaft and the housing which is high compared to the bearing capacitive impedance, said arrangement comprising a further impedance connected in series with the bearing impedance

between the bearing housing and the housing of the treatment chamber, the sum of said further impedance and the impedance



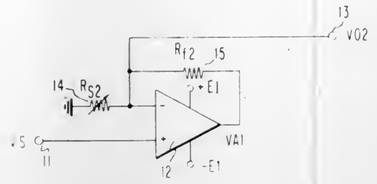
of said shaft being great in comparison to the bearing impedance.

4,268,759
SIGNAL-PROCESSING CIRCUITRY WITH INTRINSIC TEMPERATURE INSENSITIVITY
Barrie Gilbert, Forest Grove, Oreg., assignor to Analog Devices, Incorporated, Norwood, Mass.
Filed May 21, 1979, Ser. No. 40,594
Int. Cl.³ G06G *7/12, 7/20*
U.S. Cl. 307—490 **16 Claims**



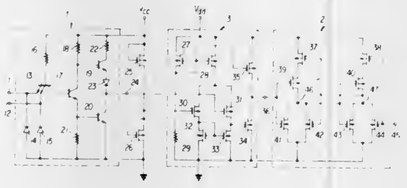
1. A signal-processing device incorporating a translinear circuit comprising:
first and second matched PN junctions with input and output terminals;
first current means supplying current to said junction input terminals;
first and second matched transistors;
the output terminal of said first junction being connected to the collector of said first transistor to supply the current of the first junction thereto;
the output terminal of said second junction being connected to the collector of said second transistor to supply the current of the second junction thereto;
means coupling the collector of said first transistor to the base of said second transistor;
means coupling the collector of said second transistor to the base of said first transistor;
means for fixing the emitter of said second transistor at a reference potential;
an input circuit comprising means to supply to said first transistor emitter an input current corresponding to an input signal; and
second current means connected to said first transistor emitter to establish the net emitter current as the transistor quiescent current plus (or minus) the input current from said input circuit.

4,268,760
AMPLITUDE-LIMITER
Tadatsugu Tokunaga, and Akira Fujii, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan
Filed Mar. 7, 1979, Ser. No. 17,991
Claims priority, application Japan, Mar. 7, 1978, 53-29514[U]
Int. Cl.³ H03K *5/02*
U.S. Cl. 307—562 **6 Claims**



1. An amplitude-limiting circuit comprising: an operational amplifier having an inverted input terminal, a non-inverted input terminal and a voltage input means connected to sources of positive and negative operating voltages; a first resistor having one terminal grounded and the other terminal connected to said inverted input terminal; a second feedback resistor for feeding back the output of said operational amplifier to said inverted input terminal; a first means for feeding an input signal to said non-inverted input terminal, and a second means for deriving an output signal from said inverted input terminal.

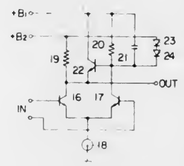
4,268,761
INTERFACE CIRCUIT FOR CONVERTING LOGIC SIGNAL LEVELS
Yasoji Suzuki, Ayase, and Tetsuya Iida, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Mar. 1, 1979, Ser. No. 16,565
Claims priority, application Japan, Mar. 1, 1978, 53-22999
Int. Cl.³ H03L *5/00*
U.S. Cl. 307—264 **6 Claims**

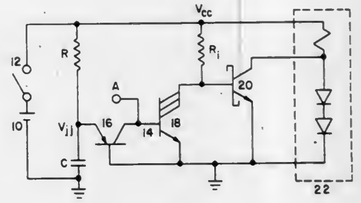


1. An interface circuit comprising:
an input terminal for supplying a first logic signal from a first logic circuit producing said first logic signal;
means for producing an intermediate reference voltage between a high level and a low level of said first logic signal;
means for comparing said first logic signal with said intermediate reference voltage to produce a second logic signal which has levels different from said first logic signal;
an output terminal for outputting the second logic signal to a second logic circuit producing a third logic signal which has levels different from said first logic signal, and
wherein said means for comparing includes a comparator for comparing said first logic signal with said reference voltage and a linear amplifier comprising a first MOSFET whose gate is connected to the output terminal of said comparator and a second MOSFET whose channel type is a channel type different from that of said first MOSFET and which is connected to said first MOSFET in series for

amplifying the output signal from said comparator and producing said second logic signal.

4,268,762
PULSE FORMING CIRCUIT
Masanori Ienaka; Takeshi Wada, both of Kodaira; Yukihiko Miyamoto, and Tsuneo Yamada, both of Tokyo, all of Japan, assignors to Hitachi, Ltd. and Trio Kabushiki Kaisha, both of, Japan
Filed Jan. 16, 1979, Ser. No. 3,911
Claims priority, application Japan, Mar. 15, 1978, 53/28660
Int. Cl.³ H03K *5/08*
U.S. Cl. 307—268 **5 Claims**





1. A pulse forming circuit for the wave conversion of a pulse signal, comprising:
first and second transistors which have their emitters coupled in common with each other into an arrangement of a differential form, at least one of respective bases of said first and second transistors receiving the pulse signal;
load means connected to a collector of said first transistor;
a time constant circuit which is connected to a collector of said second transistor;
power supply means for feeding to said load means and said time constant circuit;
a clamp circuit which clamps a collector potential of said second transistor in a conductive state thereof and which is coupled to said collector of said second transistor;
a third transistor which has an emitter connected to said collector of said first transistor, a base connected to said collector of said second transistor and a collector connected to said power supply means; and
an output terminal which is connected to said collector of said first transistor and which serves to drive an output signal.

terminals for supplying two independent supply voltages of differing magnitude to logic circuitry when said first power supply terminal and said reference terminal are connected across a voltage source;
(b) a capacitor connected between said reference terminal and said second power supply terminal;
(c) a resistor connected between said first and second power supply terminals;
(d) a first bipolar transistor gate operative at a first supply voltage and having an input electrode coupled to said second power supply terminal and having an output electrode;
(e) a biasing element coupled between the output electrode of said first bipolar transistor gate and said first power supply terminal;
(f) a second bipolar transistor gate operative at a second supply voltage of greater magnitude than said first supply voltage and having an input electrode coupled to said biasing element and to the output electrode of said first bipolar transistor gate and having an output electrode;
(g) said first and second bipolar transistor gates being so interconnected with said resistor and capacitor that said second gate receives its supply voltage and reaches its conducting state earlier in time than said first gate, said resistor and capacitor forming a charging circuit that delays the application of the full amount of the first supply voltage to said first gate until after said second gate reaches conducting state, thereby producing a delay time before said first gate conducts and causes said second gate to turn off; and
(h) additional logic circuit means coupled to the output electrode of said second bipolar transistor gate for receiving an initial conditioning signal from said second gate when said second gate turns off.

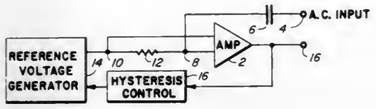
4,268,763
CONDITIONING CIRCUIT FOR USE WITH I^2L AND ISL LOGIC ARRAYS EMBODYING TWO POWER SUPPLIES
Stephen C. Johnson, Redwood City, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.
Filed Apr. 5, 1979, Ser. No. 27,434
Int. Cl.³ H03K *3/01, 5/13*
U.S. Cl. 307—605 **7 Claims**

1. A power-on conditioning circuit for logic circuitry comprising:
(a) a reference terminal and first and second power supply

4,268,764
ZERO CROSSOVER DETECTOR
Kim Eckert, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.
Filed May 1, 1979, Ser. No. 35,040
Int. Cl.³ H03K *5/153, 3/295*
U.S. Cl. 307—354 **26 Claims**

1. An A.C. zero crossover detection circuit including hysteresis, comprising:
first means for generating a reference voltage;
comparing means having a first input coupled to said reference voltage and a second input coupled to an A.C. signal for detecting the crossover points thereof, said comparing means having an output indicative of said crossover points; and

second means coupled to said comparing means and to said generating means for automatically altering the amount of



said hysteresis to compensate for phase shift in said A.C. signal at each of said crossover points.

4,268,765

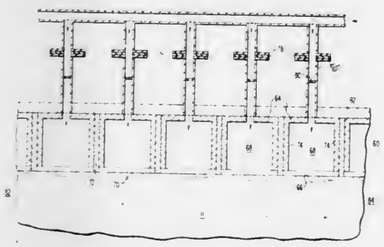
TRANSPIRATION COOLED ELECTRODES AND INSULATORS FOR MHD GENERATORS

Delmer Q. Hoover, Jr., Churchill Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 28, 1979, Ser. No. 16,266

Int. Cl.³ H02N *4/02*

U.S. Cl. 310—11 **11 Claims**



1. An MHD generation system comprising:
(a) a combustor;
(b) means for providing an oxidant to said combustor;
(c) means for providing a fuel to said combustor;
(d) means for providing a seed material to said combustor;
(e) a duct for transporting combustion products, selected portions of said duct being formed of electrodes having an enclosed interior compartment and a front transpiration surface one side of which is adjacent said combustion products and another side of which is adjacent said enclosed interior; and
(f) means for conducting a selected gas to said enclosed interior of said electrode and through said transpiration surface into said duct.

4,268,766

Patent Not Issued For This Number

4,268,767

ELECTRICAL MACHINE WITH AN AXIAL-FLOW FAN

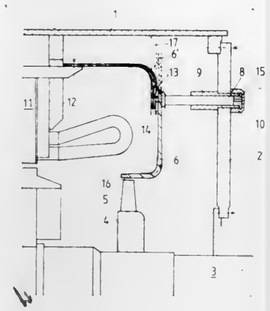
Josip Domitrovic, Birr, and Urban Ulrich, Fislisbach, both of Switzerland, assignors to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed May 25, 1979, Ser. No. 42,617

Claims priority, application Switzerland, Jun. 9, 1978, 6311/78

Int. Cl.³ H02K *9/00*

U.S. Cl. 310—53 **12 Claims**



1. An electrical machine having an axial-flow fan mounted on a rotor shaft within a machine casing comprising:
an axial-flow fan blade included on the axial-flow fan;
a bearing bracket associated with the rotor shaft and fixedly connected to the machine casing;
a first encasing part for the axial-flow fan, said first encasing part being axially moveable relative to said fan blade from a first axial position adjacent to said fan blade to a second axial position axially spaced from said fan blade, and said first encasing part being moveably mounted on said bearing bracket;
a second encasing part for the axial-flow fan, said second encasing part being fixedly connected to said machine casing;
means for sealing said first encasing part to said second encasing part when said first encasing part is in said first axial position; and
means for axially moving said first encasing part from said first axial position to said second axial position.

4,268,768

OFFICE MACHINE WITH AN ELECTRIC DRIVE MOTOR

Ulrich Beckord, and Helmut Eder, both of Lengfeld, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 832,823, Sep. 13, 1977, abandoned. This application Mar. 22, 1979, Ser. No. 22,851

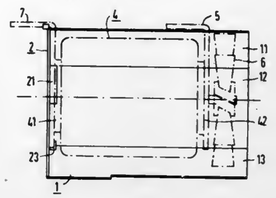
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1976, 7630630[U]

Int. Cl.³ H02K *9/06*

U.S. Cl. 310—62 **3 Claims**

1. In an office machine with an electric drive motor for driving the office machine which is arranged in a machine well

and on the one shaft end of which an axial blower wheel is fastened which blows out a stream of cooling air from a machine well opening provided in the vicinity of the one motor end, the improvement comprising the blower being in the form of an external blower wheel disposed at the other end of the motor, outside the end of the motor, and an air duct housing



surrounding the axial blower wheel and the motor in such a manner that the air stream is conducted over the motor toward the machine well opening to obtain forced surface ventilation, said air duct housing being formed in part by a portion of the machine well which partially encloses said electric drive motor.

4,268,769

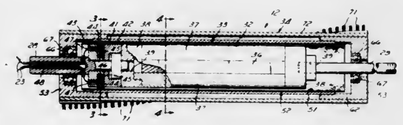
MOTOR FOR ROTARY BRUSH

John R. Dorner; Jon F. Wiltse, and Roger E. Hollis, all of Watertown, N.Y., assignors to The Scott & Fetzer Company, Watertown, N.Y.

Filed Sep. 22, 1978, Ser. No. 944,864

Int. Cl.³ H02K *7/00*

U.S. Cl. 310—67 R **13 Claims**



1. An electric motor comprising a hollow cylindrical armature, an elongated permanent magnet extending axially within said armature, said armature including a winding of electrical conductors extending generally lengthwise of said armature and soft magnetic material radially outside of the winding, means for supporting said winding and magnetic material of said armature for rotation about said permanent magnet, said magnetic material cooperating with said permanent magnet to develop a magnetic field passing through the zone in which said winding rotates, electrical brush means, means supporting said electrical brush means in fixed relation to said permanent magnet, and commutating means, connected to said conductors, on said armature for cooperation with said brush means, said brush means being in contact with said commutating means to establish current flow in said conductors, said winding being fixed to and radially supported by said soft magnetic material along a major portion of its axial length whereby heat developed therein is conducted outwardly to said soft magnetic material.

4,268,770

ALTERNATING CURRENT GENERATOR WITH RADIO NOISE SUPPRESSING CAPACITOR

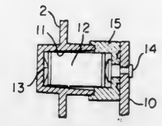
Yoshiyuki Iwaki, and Katsuhiko Fujioka, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,361

Claims priority, application Japan, Oct. 4, 1978, 53-136949[U]

Int. Cl.³ H02K *11/00*

U.S. Cl. 310—72 **3 Claims**



1. A radio noise surpressor device for use with an AC generator for charging a battery, comprising:
a bracket, said bracket being a portion of a housing of said AC generator;
a hollow socket located in a portion of said bracket, said socket including an interior having a truncated conical-shaped inner surface;
an insulated cylindrical capacitor, said capacitor including a first terminal located at a first end and a second terminal located at second end, said capacitor being positioned in said socket, said first terminal being oriented towards the interior of said socket;
first conductor means positioned between said socket and said first terminal of said capacitor for electrically coupling said first terminal to said socket;
second conductor means positioned between said second terminal of said capacitor and an output terminal of said generator for electrically coupling said second terminal to said output terminal; and
water-proof packing means for mechanically retaining said capacitor in said socket and for preventing water from entering said socket, said packing means surrounding a portion of said capacitor and being located between said second conductor means and an exterior portion of said socket.

4,268,771

MAGNETIC PROBE

Melvin A. Lace, 3 Garden Ct., Prospect Heights, Ill. 60070

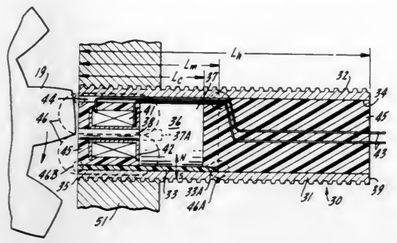
Continuation-in-part of Ser. No. 849,547, Nov. 4, 1977, abandoned. This application Dec. 4, 1978, Ser. No. 965,939

Int. Cl.³ H02K *21/38*

U.S. Cl. 310—155 **10 Claims**

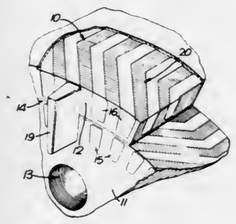
1. A magnetic probe for sensing the passage of a moving magnetic element, comprising:
a cylindrical housing of high permeability material;
a radially magnetized cylindrical permanent magnet mounted co-axially within the housing and extending inwardly from one end of the housing in circumferential surface-to-surface contact with the housing throughout the length of the magnet;
a core of high permeability material mounted within and extending axially of the permanent magnet, the core including a small diameter pole piece extending axially inwardly from the one end of the housing and joined to a large diameter magnetic flux collector engaging the inte-

rior of the permanent magnet in circumferential surface-to-surface contact at a location spaced from the one end of the housing;
and an electrical sensor coil encompassing the pole piece;



all flux paths between the inner surface of the permanent magnet and the housing at the opposite ends of the magnet being high-reluctance paths.

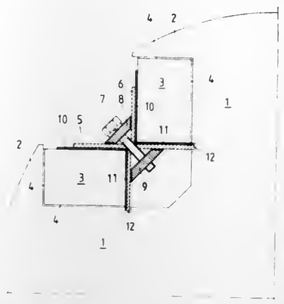
4,268,772
LAMINATED ROTOR WITH CAST END WINDINGS
John Workman, Greyabbey, Northern Ireland, assignor to S.B.W. Engineers Limited, Belfast, Northern Ireland
Division of Ser. No. 851,268, Nov. 14, 1977, Pat. No. 4,204,314. This application Aug. 28, 1979, Ser. No. 70,657
Int. Cl.[3] H02K *17/16*
U.S. Cl. 310—197 **8 Claims**



1. An electromagnetic device having a core made of laminated material with a double-layer winding therein, wherein said core is composed of first and second sets of apertured laminations of which one set accommodates the conductors of one layer of said winding and the other set accommodates the condutors of the other layer of said winding, the conductors of said one layer being interconnected with the conductors of said other layer by cast in situ end windings located at the end faces of said core, and wherein each lamination set includes adjacent laminations which are mutually displaced from alignment, the arrangement being such that the end windings interconnect adjoining conductor ends.

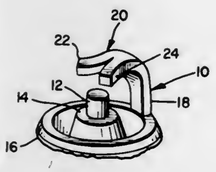
4,268,773
SUPPORT FOR THE FIELD WINDING OF FIELD SPIDERS
Edwin Beck, Villnachern, and Arthur Stocker, Birr, both of Switzerland, assignors to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland
Filed Jun. 8, 1979, Ser. No. 46,684
Claims priority, application Switzerland, Jun. 8, 1978, 6273/78
Int. Cl.[3] H02K *1/24*
U.S. Cl. 310—269 **13 Claims**

1. A device for supporting a field winding of a field spider with salient poles, comprising:
a support member adapted to be received between field coils of two adjacent poles, the support member including first



and second flat portions which cross one another and which bear against free surfaces of the field coils.

4,268,774
SPARK PLUG WITH GROUND ELECTRODE HAVING DIVERGING PRONGS
Maston Forkum, Jr., Rte. 10, Box 43, Blair La., Lebanon, Tenn. 37087
Continuation-in-part of Ser. No. 763,337, Jan. 28, 1977, abandoned, which is a continuation-in-part of Ser. No. 658,713, Feb. 17, 1976, abandoned, which is a continuation-in-part of Ser. No. 473,400, May 28, 1974, abandoned. This application Apr. 12, 1979, Ser. No. 29,542
Int. Cl.[3] H01T *13/32*
U.S. Cl. 313—141 **9 Claims**



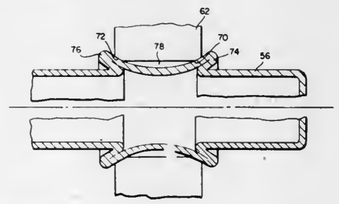
1. A spark plug for igniting the fuel charge in an internal combustion engine and having a metal housing, an insulator carried by said housing, an elongated center electrode peripherally surrounded by said insulator and having a free gap-delimiting end projecting axially beyond said insulator at one end of said housing, and a ground electrode extending from said housing at said one end thereof, said ground electrode having a gap-delimiting end portion extending radially with respect to the longitudinal axis of said center electrode at a region that is axially spaced from the free end of said center electrode to define a spark gap therewith, said end portion being split to form two angularly spaced apart non-parallel prongs terminating in free ends and being joined together remote from their free ends at a vertex region, said prongs diverging continuously away from each other throughout their entire lengths in a direction extending from said vertex region to their free ends to be non-parallel throughout their lengths, the angular spacing of said prongs being such that the longitudinal axis of said center electrode extends between said prongs, said vertex region lying between said longitudinal axis and the end of said end portion remote from the free ends of said prongs, and said vertex region further lying at or sufficiently close to the peripheral limit of said center electrode at such a location relative to said center electrode that an electrical spark bridging said gap impinges initially at said vertex region and then splits to travel simultaneously along both of said prongs.

4,268,775
CATHODE-HEATER ASSEMBLY AND SUPPORT STRUCTURE THEREFOR
Anthony J. Barraco, 2300 - E Zanker, San Jose, Calif. 95131, and Albert M. Rockwell, Belmont, Calif., assignors to Anthony J. Barraco, San Jose, Calif.
Filed Mar. 13, 1978, Ser. No. 885,636
Int. Cl.[2] H01J *1/20, 19/14*
U.S. Cl. 313—337 **36 Claims**



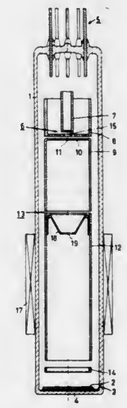
1. In combination, a cathode-heater assembly and support structure therefor, comprising:
(a) a pair of dielectric mounting rings arranged in end-to-end relation and bonded to one another;
(b) means anchored between opposed ends of said mounting rings and including a plurality of approximately equilateral triangled support structures each having an apex end and a base end; and
(c) a cathode-heater assembly having at least two electrically conductive radially outwardly extending heater leads, said assembly being fixed on the apex ends of said triangled support structures by means of said heater leads.

4,268,776
CATHODE CUP HAVING SUPPORT FLANGES SLOPED SYMMETRICALLY IN OPPOSING AXIAL DIRECTIONS
Raymond C. Morrison, Scituate, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Feb. 16, 1979, Ser. No. 12,773
Int. Cl.[3] H01J *29/04, 29/48*
U.S. Cl. 313—446 **6 Claims**



1. An electron discharge device comprising:
an envelope;
electrode means disposed within the envelope for producing a flow of electrons therein and including a cylindrical cathode having an axially extended outer surface provided with an outwardly extended pair of opposing mutually divergent flanges to form respective opposing sloped wall portions of an interposed channel, each flange being sloped axially at a respective acute angle of inclination relative to the surface; and
support means spaced outwardly from the axially extended outer surface of the cathode and including a ring-shaped dielectric member having an inner peripheral portion extended radially into the channel and provided with opposing bevelled surfaces which are disposed in slidable contacting engagement with the respective flanges for insulatingly supporting the cathode in a predetermined position within the envelope.

4,268,777
CATHODE-RAY TUBE
Johannes H. T. van Roosmalen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 29, 1979, Ser. No. 70,552
Claims priority, application Netherlands, Sep. 14, 1978, 7809345
Int. Cl.[3] H01J *29/48, 31/38*
U.S. Cl. 315—1 **6 Claims**



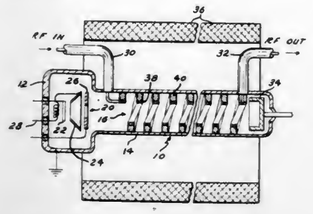
1. A cathode-ray tube comprising:
an envelope;
a target;
an electron gun, centered along an axis in the envelope, comprising a cathode and an anode, said electron gun the target, said anode being elongated and having a small aperture to limit the electron beam and having an end facing the target; and
a focussing lens, to focus the electron beam on the target, comprising at least two electrodes, the first electrode, viewed in the direction from the electron gun to the target, being the anode;
characterized in that the distance between the aperture in the anode and the end of the anode facing the target is at least 1.5 times the largest dimension of the anode taken in a cross-section perpendicular to the axis; and
in operation the potential applied to the anode is at most 75 volts positive with respect to the potential of the cathode.

4,268,778

TRAVELING WAVE DEVICE WITH UNIFIC SLOW WAVE STRUCTURE HAVING SEGMENTED DIELECTRIC SUPPORT

Walter Friz, Yellow Springs, Ohio, assignor to Louis E. Hay, Dayton, Ohio, a part interest

Filed Jun. 27, 1979, Ser. No. 52,340
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—3.5 **18 Claims**



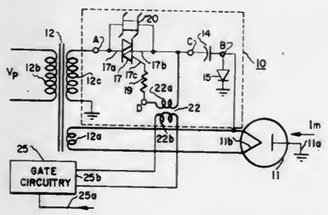
1. A traveling wave device comprising:
(a) a body member having a longitudinal tubular element;
(b) an elongated unific slow wave structure having a plurality of segmented dielectric supports in intimate contact within the tubular element of said body member, said slow wave structure comprising a metallic core having a maximum inside diameter of 0.3 cm and with predetermined electrical characteristics over a predetermined frequency range, and a plurality of segmented dielectric supports particulate deposition deposited to the peripheral surface of said metallic core to form said unific slow wave structure;
(c) means within said body member spaced from the first end of and coaxial with said slow wave structure for generating and projecting an electron beam through said slow wave structure;
(d) RF energy means joined to said slow wave structure, the electron beam interacting with and amplifying the RF energy flowing through said traveling wave device;
(e) magnetic means surrounding said body member for producing a magnetic field guiding the electron beam; and,
(f) collector means within said body member spaced from the second end of said slow wave structure for collecting the spent electron beam.

4,268,779

CIRCUIT FOR CONTROLLING CURRENT FLOW FROM AN A.C. SOURCE TO A LOAD

Charles W. Eichelberger; Rudolph A. Dehn, both of Schenectady; Michael Gdula, Albany, and Robert J. Wojnarowski, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 13, 1979, Ser. No. 66,286
Int. Cl.³ H05B *39/00, 41/14*
U.S. Cl. 315—105 **10 Claims**



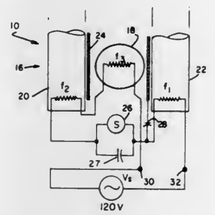
1. Apparatus for controlling the flow of current between an A.C. power source and a controllable load consuming appreciable amounts of power only if a minimum voltage applied thereto is exceeded, comprising:
at least one controllable switching device in series connection between said power source and said load, each of said controllable devices having first, second and control electrodes, each controllable device having substantial flow of current therethrough only if a gating signal of at least a minimum magnitude is applied to said control electrode with respect to one of said first and second electrodes;
a like number of non-linear resistance elements, each element being the only element in direct electrical parallel connection across one of said controllable switching devices;
each of said controllable devices having a predetermined hold-off voltage at which voltage, when applied between said first and second terminals, essentially no current flows through said controllable switching device unless said gating signal is present at said control electrode;
each said non-linear resistance element having a bidirectionally-symmetrical breakdown voltage substantially equal to, but not greater than, the hold-off voltage of the associated controllable switching device; and
means for providing said gating signal, at a frequency greater than the frequency of said source and of said predetermined magnitude, to each control electrode of each controllable switching device.

4,268,780

INTEGRATED FLUORESCENT-INCANDESCENT LAMP ASSEMBLY

William J. Roche, Merrimac, and Tadius T. Sadoski, Salem, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 28, 1980, Ser. No. 135,382
Int. Cl.³ H05B *41/18, 35/00*
U.S. Cl. 315—179 **3 Claims**



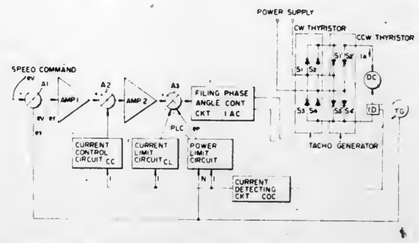
1. A lamp assembly comprising:
a base plate having thereon socket means for connection to a source of power;
a "U" shaped fluorescent bulb affixed to said base plate;
an incandescent bulb affixed to said base plate between the legs of said fluorescent bulb;
a glow switch and associated RFI suppressor contained within said socket means, said glow switch being serially connected in a filament loop comprising: the first and second filaments of said fluorescent bulb and the filament of said incandescent bulb; and
a starting aid positioned externally of said bulbs and attached to said fluorescent bulb, said starting aid being impedance coupled to one side of said filament loop.

4,268,781

DC MOTOR DRIVE SYSTEM

Shigeki Kawada, Hino; Shigeaki Oyama, Hachioji; Yoshiki Fujioka, Hino; Mitsuhiko Hirota, Setagaya, and Toyohiko Nishimori, Hachioji, all of Japan, assignors to Fujitsu Fanuc Limited, Japan

Filed Nov. 11, 1977, Ser. No. 850,793
Claims priority, application Japan, Nov. 15, 1976, 51-137144
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—434 **7 Claims**



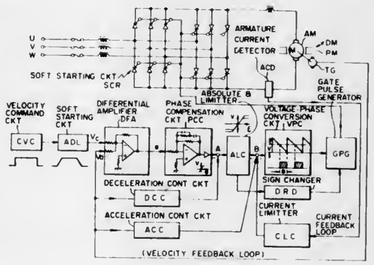
1. A DC motor drive system comprising:
(a) means for detecting the power of the DC motor, said power detecting means including means for detecting the rotational speed and armature current of the DC motor; absolute value means, connected to the means for detecting the rotational speed and armature current of the DC motor, for providing outputs proportional to the absolute values of the rotational speed and armature current of the DC motor; and means, connected to the absolute value means, for multiplying together the outputs porportional to the absolute values of the rotational speed and armature current of the DC motor and producing an output value directly proportional to the power output of the DC motor, providing that the field flux of the DC motor is constant; and
(b) means, connected to said power detecting means, for controlling the rotational speed of the DC motor in accordance with the power output value of said power detecting means and in such a manner that said power output value of said power detecting means does not exceed a predetermined allowed power value for the DC motor.

4,268,782

CONTROL SYSTEM FOR A DC MOTOR

Shigeki Kawada; Yoshiki Fujioka, both of Hino; Mitsuhiko Hirota, Tokyo, and Naoto Ohta, Hino, all of Japan, assignors to Fujitsu Fanuc Limited, Japan

Filed Sep. 7, 1978, Ser. No. 940,279
Claims priority, application Japan, Sep. 8, 1977, 52/108666
Int. Cl.³ H02D *5/16*
U.S. Cl. 318—434 **5 Claims**



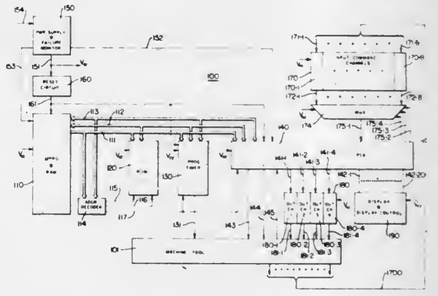
1. A control system for a DC motor employing field poles of permanent magnets and armature comprising:
(a) means for providing an error signal representative of the difference between a commanded motor speed and an actual motor speed;
(b) a thyristor circuit for regulating the armature current of the motor by controlling the firing phase angle of a thyristor in response to the error signal;
(c) a motor speed detector; and
(d) circuit means for preventing demagnetization of the magnets by armature reactive during different actual motor speed conditions, wherein said means varies a clamp level of the error signal to restrict the upper limit of the firing phase angle of the thyristor in a predetermined manner in respose to the actual detected motor speed condition, said clamp level varying means including:
(i) a deceleration control circuit responsive solely to said motor speed detector for setting the clamp level of the error signal to predetermined values in accord with deceleration conditions under different motor speeds for preventing demagnetization of the magnets by armature reaction; and
(ii) an acceleration control circuit responsive solely to said motor speed detector for setting the clamp level of the error signal to predetermined values in accord with acceleration conditions under different motor speeds for preventing demagnetization of said magnets by armature reaction.

4,268,783

CONTROLLER FOR TOOL COMPENSATION SYSTEM

Robert C. Murray, Auburn Heights, Mich., assignor to The Valeron Corporation, Troy, Mich.

Filed Aug. 31, 1978, Ser. No. 938,432
Int. Cl.³ G05B *23/02*
U.S. Cl. 318—565 **2 Claims**



1. A controller for a stepper motor driven size control apparatus for a machine tool system comprising:
a microprocessor including random access memory means;
non-volatile read-only memory means coupled to the microprocessor, including at least one table of contiguous memory words individually addressable by the microprocessor;
pulser means coupled to the microprocessor and to the stepper motor, operative on command by the microprocessor to generate a step command pulse of predetermined width for transmission to the stepper motor after a time duration determined by the contents of a table entry of the read-only memory means fetched by the microprocessor and transmitted to the pulser means;
a plurality of input command channels coupled between the machine tool system and the microprocessor, a plurality of output command channels coupled between the microprocessor and the machine tool system, a display unit coupled to the microprocessor;
the microprocessor further including means for successively addressing and fetching the contents of the read-only memory table words from one addressable table boundry to another and for successively transmitting each fetched word contents to the pulser means, means for interpreting

input commands received over the input channels, means for generating output commands for transmission over the output channels, adjustable limit means for selecting and indicating a maximum allowable number of machine tool compensations initiated by the controller for the same cutting surface, and means for controlling and monitoring the display unit including means for scanning the adjustable limit means, means for incrementing a counter whenever a cutting surface compensation is initiated, and means for activating a predetermined one of the plurality of output command channels whenever the counter contents equal the maximum number indicated by the adjustable limit means; and

means for furnishing electric power to the microprocessor, the read-only memory means, the pulser means, and the display unit.

4,268,784

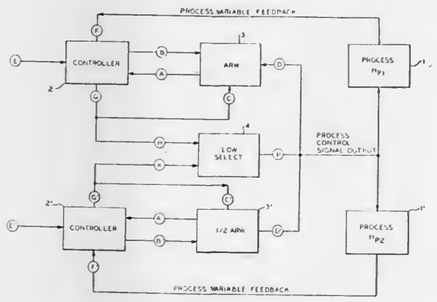
CONTROL METHOD AND APPARATUS WITH RESET WINDUP PREVENTION

Franklin D. Ganaway, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 818,036, Jul. 22, 1977, abandoned. This application Sep. 20, 1978, Ser. No. 944,483

Int. Cl.[2] **G05B** *11/42*

U.S. Cl. 318—610 **20 Claims**



1. A control method comprising

(a) automatically generating a control signal representative of the deviation of a process variable signal from a set-point signal and of the time integral over said deviation,

(b) automatically generating a process control signal for manipulation of a process parameter,

(c) automatically generating a difference signal representative of the difference between the process control signal and the control signal,

(d) automatically reducing said deviation by a value representative of said difference signal.

4,268,785

TRANSIENT OVERSHOOT, UNDERSHOOT AND DELAY COMPENSATION CIRCUIT IN SYSTEMS COMPRISING REACTIVE FILTER NETWORKS

Gordon D. Svendsen, Belmont, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Sep. 13, 1979, Ser. No. 75,562

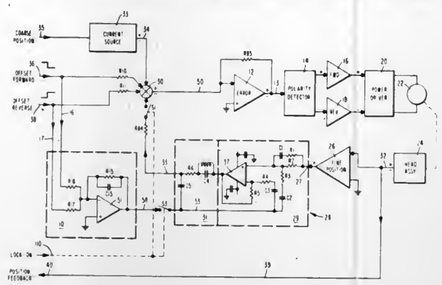
Int. Cl.[3] **G05B** *5/01*

U.S. Cl. 318—620 **22 Claims**

1. An apparatus for compensation of overshoot, undershoot and delay in response to step signals in systems having reactive filters, comprising in combination:

(a) a reactive filter having an input, an output and a signal return line and having a filter element coupled therebetween, one of said input and output coupled to receive an input step signal; and

(b) a compensation circuit having an input coupled to detect said input step signal, and having an output coupled to said signal return line of the reactive filter, said compensation circuit providing a ground reference for said filter, said compensation circuit coupled to provide a compensation step signal in response to said detected input signal, and to apply it to said signal return line simultaneously with said



input step signal received by the filter, said compensation step signal being of substantially the same magnitude and a predetermined polarity with reference to said input step signal to compensate for a sudden signal level change with respect to said reactive filter, in response to said input step signal.

4,268,786

POSITION PICKUP FOR NUMERICALLY CONTROLLED MACHINE TOOLS

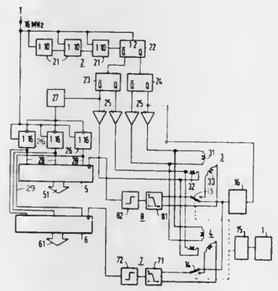
Josef Röhrle, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 87,309

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1978, 2847779

Int. Cl.[3] **G05R** *1/06*

U.S. Cl. 318—661 **2 Claims**



1. In a position pickup for use in numerically controlled machine tools comprising

a resolver coupled to the machine part to be moved and having a primary side and a secondary side in which the phase of the voltage on the secondary side relative to the phase of the voltage on the primary side is a measure of position value,

a digital sine-cosine generator made up of divider stages for generating two voltages which are electrically shifted 90° relative to each other from a clock frequency and supplying them to the primary side, and

means for generating a value proportional to the signal states of the sine-cosine generator at the time of zero crossing of the voltage on the secondary side as a measure of the actual position, including a filter having its input coupled to said secondary side and a comparator having its input coupled to the output of said filter for detecting the zero

cross-over of the filter output, the improvement comprising:

means for deriving a voltage from the primary side; and means to detect the signal state of the sine-cosine generator at the time of zero crossing of the output of said filter when coupled to said means providing a voltage derived by the primary voltage whereby, in successive switching operations the change of the signals state of said sine-cosine generator as so detected may be used for correcting said value proportional to the signal states.

4,268,787

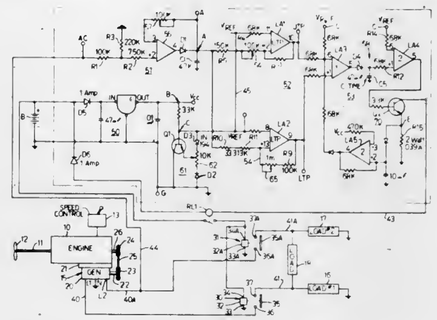
ELECTRONIC CONTROL FOR SWITCHING VARIABLE SPEED/VARIABLE VOLTAGE ELECTRIC GENERATOR

Albert H. Sloan, 4200 Kean Rd., Fort Lauderdale, Fla. 33314

Filed Jun. 25, 1979, Ser. No. 52,004

Int. Cl.[3] **B62D** *63/04;* **H02J** *1/00, 3/00*

U.S. Cl. 322—8 **10 Claims**



1. In combination:

an electrical generator which exhibits changes in magnitude of electrical power output in response to changes in rotational speed;

an electrical load to be supplied with power solely by said generator;

and electronic control means responsive to changes in generator power output magnitude to connect or disconnect said generator and said load and comprising:

means responsive to occurrence of power output of a predetermined magnitude within a predetermined range of magnitude to connect said generator and said load;

means responsive to any power output magnitude within said range after said occurrence of said power output of predetermined magnitude to maintain said generator and said load connected;

means responsive to occurrence of power output of a magnitude above said range to disconnect said generator and said load;

and means responsive to occurrence for a predetermined interval of time of power output of a magnitude below said range to disconnect said generator and said load.

4,268,788

A.C. GENERATOR EXCITING METHOD

Masanobu Takeda, Niiza, and Shigeaki Anzai, Kawagoe, both of Japan, assignors to Denyo Kabushiki Kaisha, Tokyo, Japan

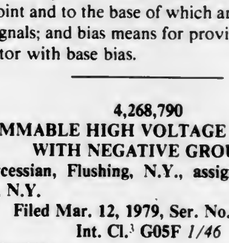
Filed Sep. 19, 1979, Ser. No. 77,243

Claims priority, application Japan, Sep. 19, 1978, 53/114099

Int. Cl.[3] **H02P** *9/14*

U.S. Cl. 322—59 **3 Claims**

1. A method of exciting an alternating current generating means is which an armature winding and exciting windings are wound on one and the same core in such a manner that said exciting windings are series-connected in the form of delta connection with two ends open, and a zero phase current obtained through said two open ends of said exciting windings in the form of delta connection and a phase current obtained from said exciting windings by utilizing at least one of the delta connection points of said exciting windings are combined and



rectified to provide a direct current which is employed to excite said field winding.

4,268,789

LIMITER CIRCUIT

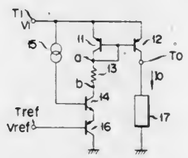
Katsumi Nagano, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Mar. 29, 1979, Ser. No. 24,973

Claims priority, application Japan, Apr. 5, 1978, 53-39956

Int. Cl.[3] **H03K** *5/08*

U.S. Cl. 323—315 **10 Claims**



1. A limiter circuit comprising a current mirror circuit having an input terminal to which is supplied an input voltage, and having first and second output terminals; an impedance element to one end of which is connected the first output terminal of said current mirror circuit; a first transistor of first conductivity type having a collector-emitter path, one end of which is connected the other end of said impedance element; a second transistor of second conductivity type having a collector-emitter path which is connected between the other end of said collector-emitter path of said first transistor and a ground potential point and to the base of which are supplied reference potential signals; and bias means for providing the base of said first transistor with base bias.

4,268,790

PROGRAMMABLE HIGH VOLTAGE POWER SUPPLY WITH NEGATIVE GROUND

Sarkis Nercessian, Flushing, N.Y., assignor to Kepco, Inc., Flushing, N.Y.

Filed Mar. 12, 1979, Ser. No. 19,317

Int. Cl.[3] **G05F** *1/46*

U.S. Cl. 323—318 **4 Claims**

1. In a regulated power supply system, the combination of;

a first operational power supply including a first inverting input terminal, a first common terminal and a first output terminal;

a first load terminal connected to ground and said first output terminal;

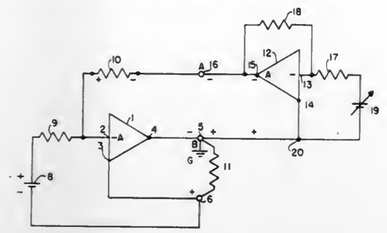
a second load terminal connected to said first common terminal;

a first source of input voltage and a first input resistor connected between said first common terminal and said first inverting input terminal;

a second operational power supply including a second inverting input terminal, a second common terminal and a second output terminal;

a second source of input voltage and a second input resistor connected between said second common terminal and said second input terminal;

a first feedback resistor connected between said second input terminal and said second output terminal;



a second feedback resistor connected between said second output terminal and said first input terminal;

and a connection between said second common terminal and said first output terminal;

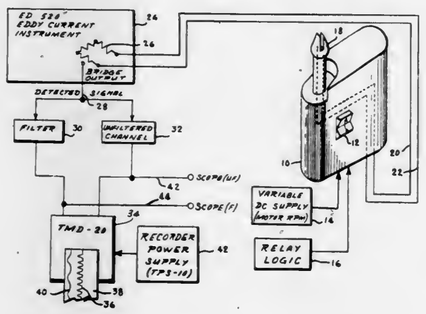
whereby the second common terminal and said first output terminal are at common ground polarity.

4,268,791

DUAL TRACE AUTOMATIC EDDY CURRENT DETECTION SYSTEM FOR MULTILAYER STRUCTURES

Albert P. Rogel, Rancho Cordova, and Joseph J. Scalese, Loomis, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 8, 1978, Ser. No. 968,042
Int. Cl.³ G01V *33/12*
U.S. Cl. 324—238 **3 Claims**



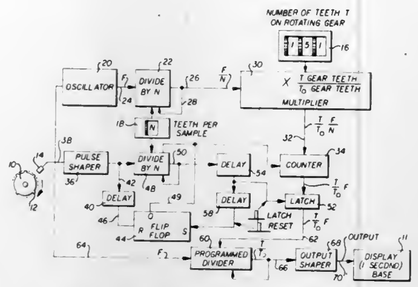
1. An automatic eddy current flaw detection system for inspecting fastener holes in multi-layered structures comprising a motorized scanner having a rotatable probe for insertion into said fastener holes, said probe generating eddy current signals, an eddy current detection system receiving said eddy current signals, recording means for recording the output of the eddy current detection system, a first circuit including filter means, connected between the eddy current detection system and the recording means for providing a filtered detected signal for recording in the recording means whereby flaws in said multilayered structure will be indicated and a second circuit, connected between the edddy current detection system and the recording means which allows the detected signal to pass unfiltered to the recording means, whereby the boundaries between each layer in the multilayered structure will be defined, said recording means presenting the filtered and unfiltered signals in time coincident juxtaposition.

4,268,792

METHOD OF AND APPARATUS FOR MULTIPLYING PULSES

Russel W. Grob, Metamora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 808,834, Jun. 22, 1977. This application Dec. 26, 1979, Ser. No. 106,817
Int. Cl.³ H03K *5/00, 5/26*
U.S. Cl. 328—24 **4 Claims**



1. A circuit for converting a first set of pulses into a second set of pulses, comprising:

means for establishing a sample time period;

a source of a first set of pulses;

a counter coupled to said sample time period means and having an input connected to said source of first set of pulses, said counter counting the number of first pulses occurring within said sample period;

storage means coupled to said sample counter;

transfer means coupled to said sample counter for transferring the count from said counter to said storage means and to reset said counter at the end of said sample period;

a source of a second set of pulses;

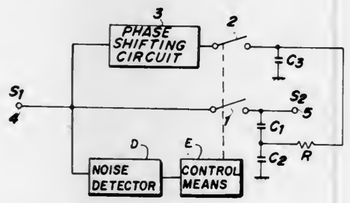
programed divider means having a countdown circuit with an input connected to said source of a second set of pulses and a set input connected to said storage means, an output pulse being generated and said divider means being reset each time the pulses of said second set reduce the count of said set input to zero, said output pulses being equally spaced and the frequency of said output pulses being the count in said storage means multiplied by the magnitude of the reciprocal of the frequency of said second set of pulses.

4,268,793

NOISE ELIMINATING CIRCUIT

Kiyoshi Amazawa; Masaharu Mori, and Takashi Taniyama, all of 50, Kamitoda, Toda-shi, Saitama-ken, Japan

Filed Oct. 12, 1978, Ser. No. 950,567
Int. Cl.³ H03B *1/04;* **H03K** *3/013*
U.S. Cl. 328—165 **6 Claims**



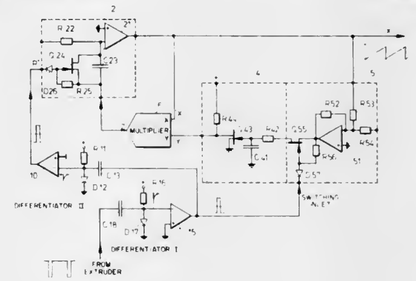
1. A noise eliminating circuit comprising an input terminal; an output terminal; first gate switch means coupled between said input and output terminals; control means for opening said first gate switch means for cutting off an input signal applied to said input terminal in response to a noise entering the circuit and a first holding means coupled to said first gate switch means for holding the output thereof immediately before the same is opened; phase shifter means coupled to the input terminal for generating a phase displaced signal having a phase displacement with respect to said input signal; phase displaced signal gate switch means controlled by said control means and to be opened with said first switch means and coupled to said phase shifter means; second holding means for holding the output of the phase displaced signal gate switch means immediately before such gate switch means is opened; and interconnecting circuit means coupled between said first and second holding means for adding the output of said second holding means and the output of said first holding means at a given time constant, thereby compensating the input signal appearing at the output terminal with the output of said second holding means when the input signal is cut off to eliminate the noise.

4,268,794

SELF-ADJUSTING RAMP GENERATOR

Herbert Handte, Filderstadt, and Friedrich Kollmar, Grafenau, both of Fed. Rep. of Germany, assignors to Moog GmbH, Böblingen, Fed. Rep. of Germany

Filed Jan. 30, 1979, Ser. No. 7,698
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1978, 2804145
Int. Cl.³ H03K *4/08, 6/04*
U.S. Cl. 328—185 **5 Claims**



1. A ramp generator for producing a self-adjusting sawtooth wave in response to an input signal containing a plurality of successive start pulses separating time intervals of variable length, comprising:

a first differentiator circuit arranged to receive said input signal and operative to supply a differentiated first output signal in response thereto;

a second differentiator circuit arranged to receive said differentiated first output signal and operative to supply a double differentiated second output signal in response thereto;

a ramp function generator supplied with said second output signal and operative to produce an output ramp signal in each of said time intervals; and

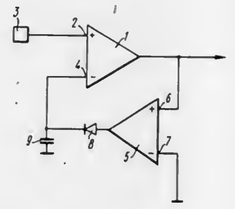
correction means for varying the slope of the ramp signal produced in any one time interval in response to the length of said one time interval so that such modified-slope ramp signal will equal a predetermined maximum valve at the end of the next successive time interval, if said one and successive time intervals are of equal length; said correction means including a comparator circuit operatively arranged to continuously compare the value of said ramp signal with said predetermined maximum value and to supply a correction signal reflective of the difference therebetween, a storage circuit arranged to receive and store said correction signal and operative to supply said correction signal to said ramp function generator, and switch means interposed between said comparator and storage circuits and supplied with said first output signal and operative to transfer said correction signal to said storage circuit at the end of each time interval.

4,268,795

PULSED VOLTAGE AMPLIFICATION DEVICE WITH DRIFT CORRECTION

Vladimir A. Zolotenko, 2 Detsky proezd, 2, kv. 18; Vladimir V. Pavlov, ulitsa Sovetskaya, 21, kv. 56; Viktor E. Sokolov, ulitsa Shelkovichnaya, 194, kv. 49, and Alexei N. Syromyatnikov, ulitsa Pushkina, 17/25, kv. 66, all of Saratov, U.S.S.R.

Filed Oct. 16, 1978, Ser. No. 951,833
Claims priority, application U.S.S.R., Jan. 24, 1978, 2564817
Int. Cl.³ H03F *1/02*
U.S. Cl. 350—9 **3 Claims**



1. A pulsed voltage amplification device with drift correction, comprising:

a first differential amplifier having an inverting input, a non-inverting input, and an output;

pulsed voltage source means coupled to said non-inverting input of said first differential amplifier for providing pulsed signals thereto, said first differential amplifier providing amplified output pulses at said output of said first differential amplifier;

a pulsed feedback circuit connecting said output of said first differential amplifier to said inverting input of said first differential amplifier;

said pulsed feedback circuit including a second differential amplifier having a non-inverting input, a grounded inverting input, and an output;

said second differential amplifier having its non-inverting input coupled to said output of said first differential amplifier;

said pulsed feedback circuit further comprising diode switch means for switchably connecting said output of said second differential amplifier to said inverting input of said first differential amplifier; and

a memory capacitor having a first plate and a second grounded plate, said first plate being coupled to said inverting input of said first differential amplifier and to said diode switch means;

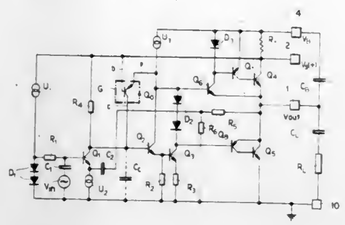
said diode switch means being responsive to each of said amplified output pulses at the output of said first differential amplifier for switchably disconnecting said output of said second differential amplifier from said inverting input of said first differential amplifier, whereby to disable the feedback circuit during the time of occurrence of each of said amplified output pulses at the first differential amplifier output.

4,268,796

LINEAR AMPLIFIER WITH DISTORTION CORRECTION

Sergio Palara, S. Martino di Ferrara, Italy, assignor to SGS-ATES Componenti Elettronici S.p.A., Agrate Brianza, Italy

Filed Mar. 26, 1979, Ser. No. 24,077
Claims priority, application Italy, Mar. 30, 1978, 21744 A/78
Int. Cl.³ H03F 3/30
U.S. Cl. 330—267 **8 Claims**



1. In a linear a-c amplifier with a plurality of stages including an input stage, an intermediate stage and a final stage, a first transistor in said input stage receiving an a-c signal to be amplified, a second transistor operating in Class A under the control of said first transistor, and a pair of output transistors in said final stage driven in push-pull by said second transistor via said intermediate stage and connected in cascade across a d-c power supply for producing on a common central terminal an amplified replica of said a-c signal with alternate peaks clipped upon saturation of one of said output transistors coinciding with a cutoff of said second transistor during alternate half-cycles of said a-c signal,

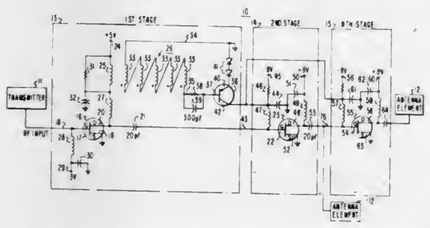
the combination therewith of a normally nonconductive ancillary transistor with an input connection to one of said stages for conducting only during the time of saturation of said one of said output transistors, said ancillary transistor being operatively coupled to said second transistor for biasing same to its conduction threshold prior to desaturation of said one of said output transistors.

4,268,797

SELF-PULSED MICROWAVE POWER AMPLIFIER

Daniel C. Buck, Hanover, and Ricky D. Hess, Annapolis, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 28, 1979, Ser. No. 24,816
Int. Cl.³ H03F 3/193, 3/24
U.S. Cl. 330—277 **7 Claims**



1. A self-pulsed microwave power amplifier for a radar transmitter, comprising

a first and at least a second amplifying field effect transistor, each having source, drain, and gate portions,

means for coupling the gate portion of the first transistor to the transmitter output,

means for coupling the gate portion of the second transistor to one of the source and drain portions of the first transistor,

means operative to bias the firsrt amplifying transistor at a voltage approximately no greater than its pinch-off voltage to cause said first transistor to provide approximately no greater than class B amplification in response to the presence of each RF input pulse from the transmitter,

a switching transistor,

means including the switching transistor responsive to the average current in one of the source and drain portions of the first transistor to bias the second transistor at a voltage sufficient to cause the second amplifying transistor to provide class A amplification,

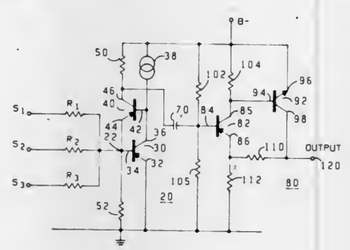
whereby the second amplifying transistor conducts during the full cycle of the RF signal from the output of the first amplifying transistor while the switching transistor is conducting.

4,268,798

HIGH PERFORMANCE SUMMING AMPLIFIER

Elwood C. Reichart, Chicago, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 861,780, Dec. 19, 1977, abandoned. This application Feb. 26, 1979, Ser. No. 15,563
Int. Cl.³ H03F 3/18
U.S. Cl. 330—289 **7 Claims**



1. An improved amplifier comprising:

a high gain amplifier means having an inverting input, an output, a ground, and an output load substantially comprising a constant current source;

a three terminal gain device having first and second terminals and a control terminal, said device having a relatively low a.c. impedance from the control terminal to the first terminal and a relatively high impedance from the control terminal to the second terminal;

output load means comprised of a cascode connected active gain device in series with a passive load means;

means for coupling said control terminal to the output of said high gain amplifier;

means for directly connecting said first terminal to the input of said high gain amplifier;

current source resistance connected from the input of said high gain amplifier to the ground; and

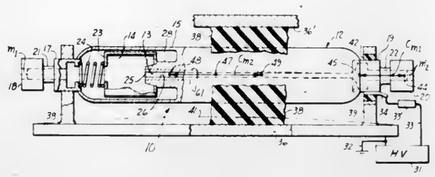
means for coupling said second terminal to the load means, whereby the input to the high gain amplifier comprises the input to said improved amplifier and the output of said improved amplifier is taken across said passive load means.

4,268,799

CURVED MIRROR LASERS AND METHODS OF OPERATING SAME

John T. McCrickerd, Costa Mesa, Calif., assignor to Laser Products Corporation, Fountain Valley, Calif.

Filed Jan. 8, 1979, Ser. No. 1,504
Int. Cl.³ H01S 3/05
U.S. Cl. 331—94.5 C **42 Claims**



1. Laser apparatus comprising in combination:

means for providing laser action, including a laser gain medium and a pair of concave end mirrors facing each other via said laser gain medium; and

means for mounting said end mirrors and permitting tilting thereof;

one of said end mirrors having a center of curvature situated between said end mirrors at a distance from the other end mirror of up to one-eighth of the distance between said end mirrors through said laser gain medium; and

said other end mirror having a center of curvature situated between said end mirrors at a distance from each of said end mirrors of at least three-eighth of the distance between said end mirrors through said laser gain medium.

4,268,800

VERTEX-MOUNTED TIPPING BREWSTER PLATE FOR A RING LASER

Thomas F. Johnston, Jr., Sunnyvale, and William P. Proffitt, San Jose, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 16,688, Mar. 2, 1979. This application Apr. 30, 1979, Ser. No. 34,511
Int. Cl.³ H01S 3/08
U.S. Cl. 331—94.5 C **6 Claims**



1. In a ring laser having an optical resonator for providing unidirectionally propagating optical energy which includes at least one flat mirror, and having means for adjusting the length of the optical resonator for fine tuning the ring laser which includes a thin optically transmissive tuning plate nominally at Brewster's angle to the optical path and rotatable about a small tip angle from Brewster's angle; and wherein the improvement comprises:

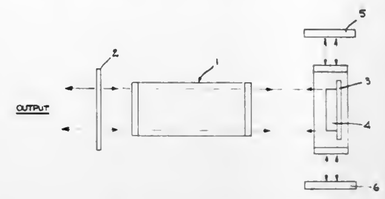
means for mounting said tipping plate near the flat mirror such that both the incident and reflective beam pass through said tipping plate.

4,268,801

MODE-LOCKED LASER USING A SATURABLE ABSORBER IN A CAVITY

Eddy A. Stappaerts, Redondo Beach, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Jul. 17, 1979, Ser. No. 58,149
Int. Cl.³ H01S 3/098
U.S. Cl. 331—94.5 ML **1 Claim**



1. A mode-locked laser for generating short pulses of optical energy comprising:

(a) a laser operating at a first optical frequency and having an amplifier and a first optical resonator which first optical resonator occupies a first spatial volume,

(b) a second optical resonator which occupies a second spatial volume,

(c) said first and second spatial volumes consisting, at least in part, of a common spatial volume that is common to both the first and second spatial volumes,

(d) a saturable absorber located within the common spatial volume so as to absorb electromagnetic energy at the first optical frequency, emit electromagnetic energy into the second optical resonator by lasing action at a second optical frequency, and be acted upon by the electromagnetic fields in the second optical resonator so as to effectively reduce the recovery time of the saturable absorber, thus allowing the saturable absorber to mode-lock the laser at a range of wavelength where proper mode-locking is not feasible using the saturable absorber in the absence of the second optical resonator,

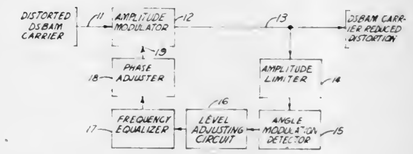
(e) said second optical resonator being resonant at the second optical frequency at which the saturable absorber emits electromagnetic energy by lasing action.

4,268,802

MODULATION DISTORTION REDUCER

Charles B. Fisher, 2850 Hill Park Rd., Montreal, Quebec H3H 1T1, Canada, and Sidney T. Fisher, 53 Morrison Ave., Town of Mt. Royal, Montreal, Quebec H3R 1K3, Canada

Filed May 23, 1979, Ser. No. 41,608
Int. Cl.³ H03C 1/06
U.S. Cl. 332—37 D **3 Claims**



1. Distortion reducing apparatus for a distorted double-sideband amplitude modulated carrier with sidebands of unequal amplitude or unequal phase relationship to the carrier, or both, which comprises an amplitude modulator which receives said distorted modulated carrier and delivers the modulated carrier with reduced distortion to an output circuit, and an angle modulation detection and compensation circuit, which receives said modulated carrier with at least some angle modulation and delivers its output as a modulating wave to said amplitude modulator with a phase and level which cause said modu-

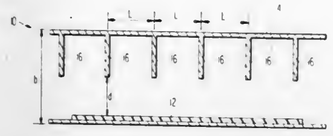
lator to substantially reduce the distortion of said distorted modulated wave.

4,268,803

PERIODIC LID FOR INTEGRATED CIRCUIT

William H. Childs, Gaithersburg, and Peter A. Carlton, Clarksburg, both of Md., assignors to Communications Satellite Corporation, Washington, D.C.

Filed May 24, 1979, Ser. No. 42,376
Int. Cl.³ H01P *1/16, 3/08, 1/162*
U.S. Cl. 333—12 **5 Claims**



1. In a microwave integrated circuit (MIC) package of the type having a substrate, a conductive pattern on the upper surface of said substrate and a conductive enclosure containing said substrate, the interior of said conductive enclosure having a width a and a height b the improvement comprising

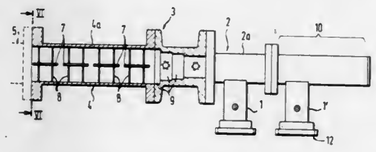
a plurality of regularly spaced conductive members extending from the upper surface of said enclosure toward the substrate for converting said enclosure into a periodic structure and thereby suppressing a band of resonant frequencies within said enclosure.

4,268,804

TRANSMISSION LINE APPARATUS FOR DOMINANT TE_{11} WAVES

Georg Spinner, Feldkirchen-Westerham, and Leo Treczka, Munich, both of Fed. Rep. of Germany, assignors to Spinner GmbH, Fed. Rep. of Germany

Filed Aug. 16, 1978, Ser. No. 934,180
Claims priority, application Fed. Rep. of Germany, Aug. 17, 1977, 2737125; Jan. 9, 1978, 2800699
Int. Cl.³ H01P *1/16, 1/161*
U.S. Cl. 333—125 **33 Claims**



1. Transmission line apparatus for transmitting dominant TE-11 electromagnetic waves comprising:

a transmission waveguide having an elongated tubular configuration disposed about a central longitudinal axis and a substantially uniform cross-section throughout, said uniform cross-section of said waveguide being symmetrical about at least one passing through said central longitudinal axis and being substantially larger in dimension than is optimum for transmitting only TE-11 electromagnetic radiation to the extent that other modes can be propagated therethrough, said elongated tubular configuration of said transmission waveguide having a continuous periphery formed of conductive material for conveying said TE-11 electromagnetic waves and guide means for preventing a rotation of the plane of polarization of TE-11 electromagnetic waves transmitted through said transmission waveguide;

waveguide coupling means for supplying TE electromagnetic waves to said transmission waveguide, said waveguide coupling means being of substantially different dimension than said transmission waveguide and including a waveguide tube for receiving high frequency energy to be transmitted, said waveguide tube being dimensioned in relation to said high frequency energy to enable only TE mode waves to propagate therein;

wave transformation means interposed between said waveguide coupling means and said transmission waveguide for conveying TE electromagnetic waves therebetween, said wave transformation means including a short waveguide section of increasing cross-sectional dimension having walls defining bounding surfaces for the wave being conveyed, said short waveguide section being configured to define bounding surfaces for the wave being conveyed which vary in dimension from the dimension of said waveguide coupling means to an effective dimension for said transmission waveguide to enable appropriate wave translation therebetween for said wave being conveyed; and

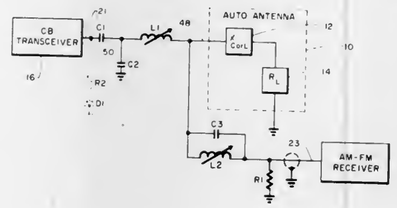
mode filter means disposed intermediate said waveguide coupling means and said transmission waveguide.

4,268,805

CITIZENS BAND BROADCAST BAND COUPLING CIRCUIT

James L. Tanner, Reseda; Bruno A. Rist, Northridge, and George Sanchez, Los Angeles, all of Calif., assignors to Tanner Electronic Systems Technology, Inc., Van Nuys, Calif.

Filed Sep. 20, 1976, Ser. No. 724,797
Int. Cl.³ H01P *5/16;* **H01Q** *1/50*
U.S. Cl. 333—129 **1 Claim**



1. A circuit for coupling a citizens band transceiver and an AM-FM receiver to a standard automobile antenna comprising:

impedance transforming means for matching the citizens band output impedance to the antenna impedance, said impedance transforming means comprising a series tuned network of a split capacitance providing an impedance step-down and a tuning coil;

isolation means connecting the AM-FM receiver to said antenna for isolating the AM-FM receiver from CB transmission energy, said isolation means comprising a parallel tuned circuit in series with the AM-FM radio and further including means for limiting the voltages in said isolation means; and

integral tuning means for manually tuning said coil, said integral tuning means comprising encapsulating means for encapsulating said circuit, an elongate molded plastic tuning knob having central threads embedded in said encapsulating means to form a threaded socket, said tuning knob having a hollow shank extending through the tuning coil and said integral tuning means further including a tuning slug secured in said hollow shank.

4,268,806

ELECTRIC FILTER CIRCUIT CONSISTING OF CHARGE TRANSFER DEVICE (CTD) LINES

Hermann Betzl, Albert Rosshaupterstr. 130, 8 Muenchen 70, and Friedrich Kuenemund, Strassbergerstr. 73, 8 Muenchen 40, both of Fed. Rep. of Germany

Filed Jan. 23, 1978, Ser. No. 871,613
Claims priority, application Fed. Rep. of Germany, Jan. 24, 1977, 2702680
Int. Cl.³ H03H *17/00, 11/00;* **G11C** *19/28*
U.S. Cl. 333—165 **4 Claims**



$k_1 = -k_2 = 1 + 2R,\ R = \frac{C_3}{C_2},\ C_6 = C_5 + C_1$

$C_2 = C_3 + C_1,\ \frac{C_5}{C_1} = \frac{R}{1+R},\ \eta = \frac{1}{f_0}$

1. An electric filter comprising a cascade arrangement (FIG. 6) including successive four-arm branching circuits (FIG. 5), the branching circuits comprising respective self closed line loops (6, 6') for determining the frequency-dependent transmission characteristics of the filter, said self closed line loops (6, 6') each having an input coupling (FIG. 3) for supplying an input signal to the self closed line loop, and an output coupling (FIG. 3) for the withdrawal of an output signal from the self closed line loop, the signal within the self closed line loop having a phase constant of generally $2n\pi$ (where n is a positive integer) in relation to the phase of the input and output signals at a pass middle frequency (f_o), the cascade arrangement further including intermediate coupling loop means (7) between the successive four-arm branching circuits (6, 6'), each intermediate coupling loop means (7) forming a further self closed line loop with an adjoining part of the output coupling of the preceding four-arm branching circuit (6) and an adjoining part of the input coupling of the succeeding four-arm branching circuit (6'), said further self closed line loop including amplifiers (K_1, K_1') with voltage amplification factors which are smaller than the voltage amplification values required for operating each of said branching circuits (6, 6') as a substantially Loss-free reactance branching circuit at the pass middle frequency (f_o), but which voltage amplification factors are not less than one.

4,268,807

BAND-PASS FILTER AND GAIN STAGE

Lewis C. Spence, 948 Avenue East, Rivera Beach, Fla. 33404

Filed Jul. 13, 1978, Ser. No. 924,317
Int. Cl.³ H03H *9/56, 9/52, 11/04*
U.S. Cl. 333—191 **27 Claims**



1. A band-pass filter and gain stage comprising:

(a) a monolithic filter having a first filter element and a second filter element, said first and second filter elements being connected to have a common ground;

(b) a first resistor having a first end and a second end and having a substantially pure resistance value selected from the range of 200–2200 ohms, said first end being connected to said first filter element;

(c) a second resistor having a first end and a second end and having a substantially pure resistance value selected from the range of 200–2200 ohms, said first end being connected to said second filter element; and

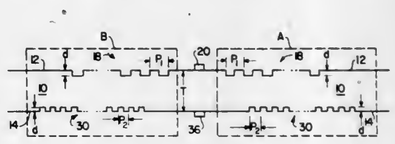
(d) gain stage means having an input connected to said second end of said second resistor for amplifying an input signal from said second end an amount greater than 20 dB.

4,268,808

ACOUSTIC WAVE DEVICE

John Melngailis, Newton, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 21, 1979, Ser. No. 40,667
Int. Cl.³ H03H *9/54, 9/64, 9/25*
U.S. Cl. 333—195 **21 Claims**



1. A surface acoustic wave (SAW) device comprising:

A. a crystal substrate having two substantially planar surfaces,

B. a first SAW-to-plate mode coupler on a first of said surfaces, said first coupler including:

first SAW converting means for converting a portion of an incident SAW to a bulk acoustic wave (BAW), said first SAW converting means including a plurality of parallel linear surface perturbations, and

first BAW converting means for converting a portion of an incident BAW to a SAW, said first BAW converting means including said plurality of surface perturbations,

C. a first BAW reflector on the first of said surfaces including means for reflecting a portion of an incident BAW,

D. a second BAW reflector on the second of said surfaces including means for reflecting a portion of an incident BAW,

wherein said second BAW reflector is positioned to reflect a portion of BAW's incident thereon and propagating from said first SAW converting means and said first BAW reflector, to said first BAW converting means, and

wherein said first BAW reflector is positioned to reflect a portion of BAW's incident thereon and propagating from said second BAW reflector, to said second BAW reflector, and

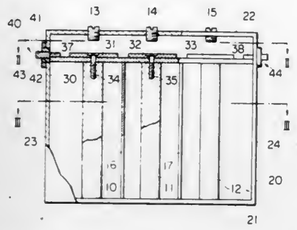
whereby SAW's propagating on said first surface at said first BAW converting means resonantly interact with SAW's produced on said first surface by said first BAW converting means.

4,268,809

MICROWAVE FILTER HAVING MEANS FOR CAPACITIVE INTERSTAGE COUPLING BETWEEN TRANSMISSION LINES

Mitsuo Makimoto, and Sadahiko Yamashita, both of Kawasaki, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 31, 1979, Ser. No. 71,492
Claims priority, application Japan, Sep. 4, 1978, 53-109003
Int. Cl.³ H01P *1/201, 7/02*
U.S. Cl. 333—202 **17 Claims**



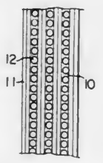
1. A microwave filter having a conductive casing with top and bottom walls and opposed pairs of side and end walls, comprising within said casing:
- a dielectric member extending parallel with said side walls;
- a plurality of conductive regions arranged on said dielectric member so that each conductive region is capacitively coupled with an adjacent conductive region;
- a plurality of parallel transmission lines successively arranged between said end walls and spaced from said top and bottom walls, each being electrically connected at one end to one of said walls and supported at the other end by said dielectric member in electrical contact with a respective one of said conductive regions;
- means for injecting microwave energy through one of said end walls and withdrawing microwave energy through the other end wall; and
- a plurality of shielding members each being disposed between adjacent ones of said transmission lines to prevent microwave energy propagating along each of said transmission lines from coupling with an adjacent transmission line.

4,268,810

ELECTRICAL ARTICLE HAVING ELECTRICAL COIL AND METHOD FOR MANUFACTURING SAME

Yoshisuke Iwasa, and Shigehiko Sakura, both of Yokohama, Japan, assignors to Sumitomo Bakelite Company Limited, Japan

Filed Jul. 30, 1979, Ser. No. 61,958
Claims priority, application Japan, Jul. 31, 1978, 53-92529; Jul. 31, 1978, 53-92530; Aug. 1, 1978, 53-93163
Int. Cl.³ H01F *7/06;* **H01H** *9/00;* **B05D** *5/12;* **H01F** *5/06*
U.S. Cl. 336—205 **23 Claims**



1. An electrical article having an electrical coil in which a sheet of paper, cloth or non-woven fabric comprising cellulose as major constituent is used as at least a part of interlayer insulator, characterized in that the sheet is preliminarily impregnated with (a) one or more pretreating resins selected from the group consisting of phenolic resins, s-triazine ring compound resins and phenol-s-triazine ring compound co-condensation resins and further impregnated with (b) a thermosetting resin composition, and said pretreating resin (a) and said thermosetting resin composition (b) are hardened.

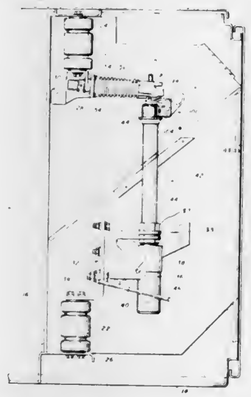
16. A method for manufacturing an electrical article having an electrical coil in which a sheet material selected from the group consisting of paper, cloth and non-woven fabrics comprising cellulose as major constituent is used as at least a part of interlayer insulator, which comprises the pretreatment step consisting of impregnating said sheet material with a varnish of (a) a pretreating resin containing one or more resins selected from the group consisting of phenolic resins, s-triazine ring compound resins, and phenol-s-triazine ring compound co-condensation resins, and then drying to bring said pretreating resin (a) to semi-hardened or completely hardened state; the impregnation step consisting of impregnating the pretreated sheet material with (b) a thermosetting resin composition; and the final step of hardening said pretreating resin (a) and said thermosetting resin composition (b).

4,268,811

CIRCUIT INTERRUPTING DEVICE

David M. Evans, Palatine, and Edward J. Rogers, Chicago, both of Ill., assignors to S&C Electric Company, Chicago, Ill.

Filed Feb. 24, 1976, Ser. No. 660,872
Int. Cl.³ H01H *71/20, 85/20*
U.S. Cl. 337—156 **31 Claims**



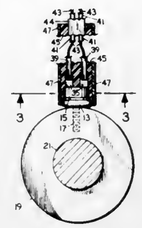
1. A device for interrupting electrical current comprising:
- circuit interrupting means for interrupting electrical current electrically connected to a first circuit terminal;
- a movable conductive element electrically connected to a second circuit terminal; and
- gripping contact means on said circuit interrupting means for releasably gripping said movable conductive element to electrically serially connect said movable conductive element to said circuit interrupting means so that movement of said movable conductive element away from said circuit interrupting means causes said circuit interrupting means to interrupt current between said first and second circuit terminals before said gripping contact means releases said movable conductive element, said gripping contact means and said circuit interrupting means constituting the exclusive conductive path between said movable conductive element and said first terminal.

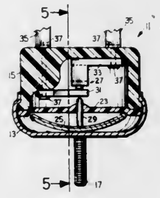
4,268,812

MINIATURE DEVICE FOR SENSING OVERHEATING OF BEARINGS

Jesse D. Satterlee, 1012 S. Oak St., Hillsboro, Ill. 62049

Filed Jun. 18, 1979, Ser. No. 49,211
Int. Cl.³ H01H *37/04*
U.S. Cl. 337—380 **5 Claims**





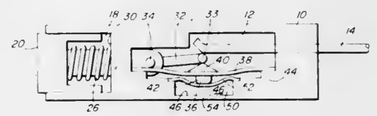
1. A miniature bearing-temperature-sensing device, comprising: a shallow flat-bottomed good-heat-conductive metallic cup, a therewith-cavities-mating inverted cup molded of heat-resistant and electrically insulating hard-plastic material, a disc of similar insulating material interposed between said cups to divide the space enclosed by said mated cups into a lower shallow chamber and an upper shallow chamber, relatively movable switch contacts mounted in said upper chamber, a bimetallic snapdisc thermostat loosely held in said lower chamber with its convex surface when cool lying in contact with the bottom wall of said metallic cup, means responsive to snap-flexing of said thermostat for moving said contacts between their circuit-controlling positions, a metallic rod heat-conductively fixed to and depending from the bottom of said metallic cup for insertion into a socket formed in an element of a bearing to be temperature-monitored, a close-fitting plastic-sleeve housing surrounding said cups, and an insulating packing material filling the space between said housing and said cups, the diameters of said cups being less than twenty millimeters.

4,268,813

RESETTABLE THERMAL CUT-OFF SWITCH

Hadley K. Burch, Pittsfield, Vt., assignor to B/K Patent Development, Highland Park, Ill.

Filed Sep. 17, 1979, Ser. No. 76,339
Int. Cl.³ H01H *61/00*
U.S. Cl. 337—118 **10 Claims**



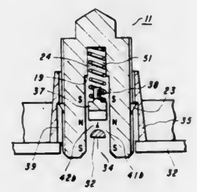
1. A thermally operated, resettable, electrical switch assembly in which an electrical circuit is completed when first and second contact elements are in contact and is interrupted when the contact elements are disengaged, comprising:
- a housing,
- a first contact element,
- a base element,
- a second contact element supported by said housing and biased toward said base element, and being adapted to contact said first contact element and to engage said first contact element between said second contact element and said base element,
- biasing means for urging said first and second contact elements apart,
- fusible material solid below a predetermined temperature and liquid above it, and
- containing means in said housing for containing said fusible material, at least a portion of said containing means being a resilient wall supportably abutting said base element, said fusible material filling said containing means,
- said assembly having a first, second and third mode,
- in said first mode, said fusible material being below said predetermined temperature and being solid, and said first contact element being engaged in contact with said second contact element between said second contact element and said base element,
- in said second mode, said fusible material being above said predetermined temperature and being liquid, and said first contact element being disengaged from said second contact element,
- in said third mode, said first contact element being disengaged from said second contact element, said fusible material being below said pre-determined temperature and being solid.

4,268,814

SOLID STATE KEYBOARD

W. S. Henrion, Houston, and Raymond K. Erickson, Missouri City, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 26, 1978, Ser. No. 955,075
Int. Cl.³ H01L *43/04*
U.S. Cl. 338—32 H **5 Claims**



1. A solid state keyboard switch having at least one key member with an actuation member having an actuation surface, comprising:
- (a) a base member having a major surface;
- (b) a plunger member extending from the actuation member, comprised of a magnetic material and movable in an axis perpendicular to the major surface in response to manual pressure on the actuation surface, the plunger member having a magnetic field pointing in one direction along the axis in a first predetermined region and pointing in the opposite direction along the axis in a second predetermined region wherein the plunger member is bifurcated, providing three magnetic poles in each of the bifurcations distributed along the axis of movement of the plunger member, the first and the third pole being of one polarity and of the same polarity in each bifurcation, and the second pole being of the opposite polarity to provide sharply defined opposite fields providing an abrupt, positive change in the magnetic field between the first and second predetermined regions;
- (c) resilient means for normally biasing the plunger member away from the major surface thereby forcing the plunger

member to return to a non-activated position upon release of manual pressure from the actuation surface; and

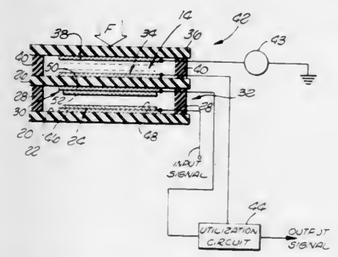
(d) magnetic field sensing means positioned in fixed relation with respect to the base member and being responsive to the relative position of the plunger member for generating a recognized electrical signal in response to the abrupt, positive change.

4,268,815

MULTI-FUNCTION TOUCH SWITCH APPARATUS

Franklin N. Eventoff, 2351 Lake View Ave., Los Angeles, Calif. 90039, and M. Tyrone Christiansen, 629 N. Rossmore Ave., Los Angeles, Calif. 90004

Filed Nov. 26, 1979, Ser. No. 97,610
Int. Cl.³ H01C *10/10, 10/12*
U.S. Cl. 338—69 **6 Claims**



1. A dual function, touch switch apparatus comprising, in stacked configuration:

a first support member having a top surface;

a first conductor ply positioned on the top surface of the first support member;

a second support member having a bottom surface facing the top surface of the first support member and having a top surface, the second support member being spaced from the first support member;

a second conductor ply juxtaposed opposite the first conductor ply and affixed on the bottom surface of the second support member, in normally spaced-apart relationship for defining a first switch;

at least one of the first and second conductor plies, comprising:

a first conductor layer attached to the adjacent one of the first and second support members, and

a first semiconductor layer affixed on the first conductor layer and juxtaposed opposite the spaced-apart other of the first and second support members;

a third conductor ply on the top surface of the second support member;

a third support member having a top surface and a bottom surface facing but spaced from the top surface of the second support member; and

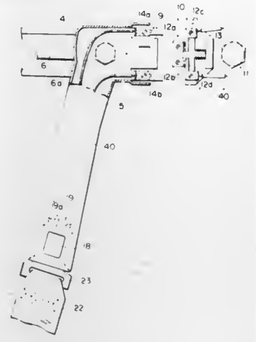
a fourth conductor ply on the bottom surface of the third support member and juxtaposed opposite the third conductor ply in normally spaced-apart relationship thereto for defining a second switch, at least the second and third support members being resiliently deformable in response to the application of a transverse force for making electrical contact between the first and second conductor plies and between the third and fourth conductor plies

4,268,816

SAFETY ALARM SYSTEM FOR AN AUTOMATIC SEAT BELT

Hideoki Matsuoka, Yokohama, and Yoshimi Yamamoto, Shizuoka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama and Fuji Kiko Kabushiki Kaisha, Tokyo, both of, Japan

Filed Mar. 17, 1980, Ser. No. 130,651
Claims priority, application Japan, Mar. 15, 1979, 54-33841
Int. Cl.¹ B60R *21/10*
U.S. Cl. 340—52 E **10 Claims**



8. A passive seat belt system for an automotive vehicle, comprising:

a seat belt placed in position in the automotive vehicle;

an emergency release tongue connected to the seat belt;

a guide rail arranged on the automotive vehicle in its longitudinal direction;

a slider which slides to and fro along the guide rail;

an emergency release buckle coupled to the slider for locking on the emergency release tongue when the emergency release tongue is inserted into the emergency release buckle;

a slider tongue connected to the slider;

an anchor buckle fixed to the vehicle for locking on the slider tongue when the slider is in a position along the guide rail thereby to tighten the seat belt about a person seated in the seat and to insert the slider tongue into said anchor buckle;

first means for electrically detecting whether the slider tongue is properly locked into the anchor buckle;

second means for electrically detecting whether the emergency release tongue is properly locked into the emergency release buckle; and

means for providing an alarm in response to the first and the second detecting means whenever either of the first and second detecting means detects improper locking of the slider tongue into the anchor buckle, or of the emergency release tongue into the emergency release backle.

4,268,817

CHECK CONTROLLED METERING DEVICE

Luther G. Simjian, 1750 S. Ocean La., Fort Lauderdale, Fla. 33316

Filed Feb. 13, 1980, Ser. No. 120,983
Int. Cl.³ H04Q *1/00*
U.S. Cl. 340—147 A **10 Claims**

1. A metering device of the postage meter type or similar type comprising:

a metering mechanism including printing means for printing adjustable indicia representative of monetary units;

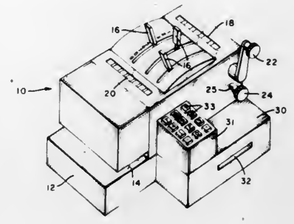
register means including a credit register and a cumulative register coupled to said printing means for registering in response to the operation of said printing means respectively the credit balance remaining in the metering mechanism and the cumulative monetary units printed;

control means coupled to said credit register and said printing means for preculding operation of said printing means when said credit register assumes a condition representative of a minimum credit balance;

resetting means coupled to said credit register for resettng said credit register to a condition representative of an increased credit balance;

check accepting means coupled to said metering mechanism for accepting a check;

decoding means cooperatively associated with said accepting means for determining the authenticity of a check



accepted by said accepting means by sensing an encoded field of a respective check and in response to such check being authentic providing a first signal;

manually operable keying means for providing an operator code responsive second signal;

validation means coupled for receiving said first signal and said second signal and in response to said signals being of predetermined character rendering said resetting means operable for resetting said credit register to a condition representative of a increased credit balance, and

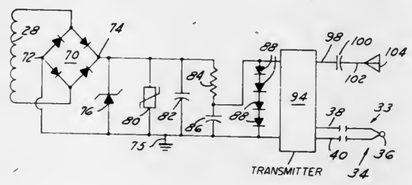
invalidating means coupled to said resetting means and said check acceptance means for invalidation a check determined valid responsive to said resetting means having been rendered operable and reset said credit register.

4,268,818

REAL-TIME PARAMETER SENSOR-TRANSMITTER

Murray W. Davis, 20501 Woodmont, Harper Woods, Mich. 48225; Matthew J. Diedzic, 14500 Prospect, Apt. 131, Dearborn, Mich. 48126; Robert F. Knapp, Livonia, and Bruce F. Whitney, South Lyon, both of Mich., assignors to Murray W. Davis, Harper Woods and Matthew J. Diedzic, Dearborn, both of, Mich.

Filed Mar. 20, 1978, Ser. No. 888,143
Int. Cl.³ G01D *5/12;* **H04B** *3/54*
U.S. Cl. 340—870.38 **37 Claims**



1. In an apparatus for directly measuring at least one parameter of an electrically energized alternating current carrying conductor and including a transmitter for continuously transmitting a signal proportional to said parameter, the improvement comprising:

means including a plurality of turns of wire wound around a mandrel for receiving only induced energy from said energized conductor for energizing said transmitter,

said plurality of turns of wire formed as the secondary winding of an air core transformer; and

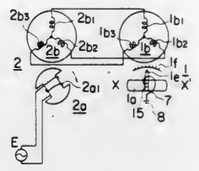
said mandrel is at the same electrical potential as said conductor.

4,268,819

SYNCHRO MOTOR TYPE INSTRUMENT

Masashi Wakayama, Kamisatomachi, Japan, assignor to Tamagawa Seiki Kabushiki Kaisha, Tokyo, Japan

Filed May 4, 1979, Ser. No. 36,026
Claims priority, application Japan, May 15, 1978, 53/63915[U]
Int. Cl.³ G08C *19/00*
U.S. Cl. 340—870.34 **2 Claims**



1. A synchro motor instrument comprising:

a synchro transmitter including a stator having a first three-phase AC winding and a rotor having a single phase AC winding;

a synchro receiver including a stator having a second three-phase AC winding and a rotor having two magnetic poles, said rotor fabricated of a high permeability material;

said rotor of said synchro receiver further including a needle and an automatic return means attached thereto, said needle having a predetermined OFF position;

said first and second three-phase AC windings connected together, wherein when said transmitter rotor is displaced by a specific rotational angle, AC currents flow between said first and second three-phase AC windings to thereby cause a torque to be exerted on said synchro receiver rotor, whereby said receiver rotor and said needle attached thereto rotate an angle equal to said specific rotational angle, providing that said rotor of said synchro transmitter is provided with a single phase AC excitation signal;

and wherein said automatic return means causes said receiver rotor and said needle attached thereto to rotate to said predetermined OFF position of said needle in the absence of the providing of said single phase AC excitation signal to said synchro transmitter rotor.

4,268,820

INTEGRATING TYPE ANALOG-TO-DIGITAL CONVERTER

Kyuichi Hareyama, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Sep. 11, 1978, Ser. No. 941,353
Claims priority, application Japan, Sep. 9, 1977, 52-109368
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 NT **16 Claims**

1. An analog-to-digital converter comprising:

means for setting a plurality of successive time intervals,

an integrator,

means for setting the output signal of said integrator at a start value at the initiation of said plurality of successive time intervals,

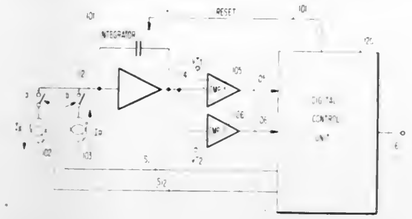
means for applying an analog input signal to said integrator for said plurality of successive time intervals,

a source of a reference signal of opposite polarity to that of said analog input signal,

means for detecting that the output level of said integrator

exceeds a predetermined value at a time point when each of said time intervals terminates, said predetermined value having the same polarity as that of said analog input signal and being larger than said start value in absolute value,

means responsive to said detecting means for supplying said reference signal to said integrator in superposition on said analog input signal during the succeeding time interval,



means for applying only said reference signal to said integrator after said plurality of time intervals,

means for detecting the time point when the output level of said integrator returns to said start value, and

means for accumulating a digital count proportional to the total duration of the time when said reference signal is applied to said integrator.

4,268,821

MAGNETIC DISPLAY DEVICE

Gregory L. DeSmet, Arcadia, Calif., assignor to Fischbach and Moore, Inc., New York, N.Y.

Filed Feb. 1, 1977, Ser. No. 764,633
Int. Cl.³ G08B *5/30*
U.S. Cl. 340—378.1 **27 Claims**



1. A multiple position electromagnetically actuated display element comprising

a stator having wound thereon at least three but less than five individually addressable coils, each of said coils being adapted for connection to a source of electrical energy,

a housing having a plurality of faces, the number of faces being equal to the number of said coils wound on said stator, said housing being configured to substantially enclose said stator and being rotatably affixed to said stator,

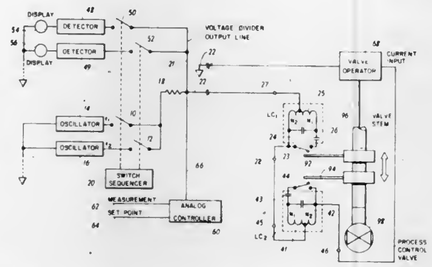
magnetic means having a plurality of poles, the number of said poles being equal to the number of said coils on said stator, said magnetic means being configured to be affixed to said housing in such a manner that said poles are disposed circumferentially about said stator, the spacing between said poles corresponding to the spacing between said coils on said stator so that when one of said coils is energized, the corresponding pole of said magnetic means is attracted thereto, causing said magnetic means and said housing to rotate to place one of said faces of said housing in a display position.

4,268,822

APPARATUS FOR DETERMINING THE STATE OF EACH OF A PLURALITY OF BI-STATE DEVICES

Everett O. Olsen, Wrentham, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Oct. 18, 1978, Ser. No. 952,525
Int. Cl.³ G08B *1/08*
U.S. Cl. 340—533 **24 Claims**



1. In a system for detecting at a central station the state of each of a plurality of bi-state devices located in field locations remote from said station; apparatus comprising:

a two-wire line extending from said station to said field locations;

signal-generating means coupled to said two-wire line at said central stations for producing a plurality of a-c excitation signals having different frequencies;

a plurality of field located state sensors for said bi-state devices, respectively, with each sensor having parallel resonant means tuned to the frequency of a corresponding excitation signal assigned thereto;

means coupling all of said parallel resonant means in series with each other and with said two-wire line;

switching means coupled to each bi-state device and the respective parallel resonant means to control the resonance of the respective parallel resonant means so as to produce at the associated state sensor in response to the application of the corresponding excitation signal a field signal having a magnitude dependent upon the state of the respective bi-state device;

detector means coupled to said two-wire line at said central station to develop for each state sensor a control station signal dependent upon the magnitude of the associated field signal and serving to indicate the state of the respective bi-state device.

4,268,823

PROTECTIVE ELECTRICAL SYSTEM FOR PROVIDING INDICATIONS OF REMOVAL OF OBJECTS FROM PLURAL MONITORED LOCATIONS BY USE OF PARALLEL-CONNECTED OBJECT-SENSORS

Robert F. Rauchut, Ivyland, and Louis J. Caparoni, Audubon, both of Pa., assignors to ICI Americas Inc., Wilmington, Del.

Filed Nov. 2, 1979, Ser. No. 90,847
Int. Cl.³ G08B *13/18*
U.S. Cl. 340—570 **23 Claims**

1. Apparatus for providing first remote indications of the removal of any of a plurality of protected objects from any of a plurality of corresponding monitored locations, and for providing second remote indications of the monitored location at which such removal has occurred, comprising:

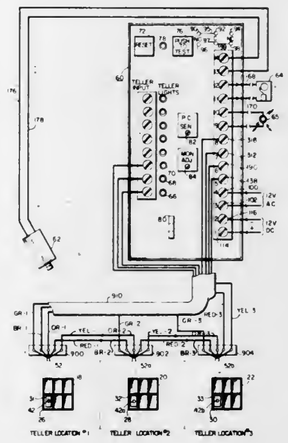
a plurality of object-sensing means, one at each of a plurality of monitored locations and each disposed so that its conductance changes from a normal reference level to a different level in response to removal of the associated protected object from its monitored location;

paralleling connection means connecting said plurality of object-sensing means in a parallel circuit with each other;

a source of supply voltage connected across said parallel circuit to apply a voltage across each of said object-sensing means;

common current-sensing means for said object-sensing means, and means connecting said common current-sensing means in series with said parallel circuit, across said source of supply voltage, to produce first electrical signals at said common current-sensing means which are indicative of changes in current through said common current-sensing means due to said changes in conductance of any of said object-sensing means;

a plurality of location-identifying means, comprising a plurality of conductance-sensing means each associated with



and positioned adjacent a different corresponding one of said object-sensing means for producing a set of separate corresponding second signals indicative of changes in the conductance of the corresponding adjacent object-sensing means;

separate conductor means connected to each of said location-identifying means; and

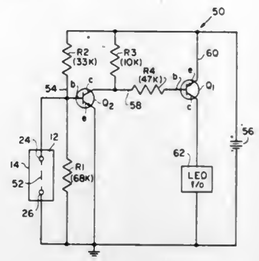
indicator means remote from said object-sensing means but electrically connected thereto, and responsive to said first signals at said common current-sensing means to produce first indications indicative of changes in conductance of any of said object-sensing means to said different level and to terminate said first indications when the conductances of all of said object-sensing means return to said reference levels, and responsive to said second signals to produce second indications indicative of which of said object-sensing means has changed its conductance to said different level, said indicator means comprising latching circuit means for causing said second indications to persist despite replacement of the previously removed protected object, and reset means manually operable after said replacement to terminate said second remote indications and to return said apparatus to its original state.

4,268,824

PLANT SOIL MOISTURE LEVEL-SIGNALING DEVICE FOR HOUSEHOLD AND COMMERCIAL USE

Reed E. Phillips, 220-55 46th Ave., Bayside, N.Y. 11361

Continuation of Ser. No. 859,037, Dec. 9, 1977, abandoned. This application Apr. 13, 1979, Ser. No. 29,766
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—604 **3 Claims**



1. A battery powered visual-signaling device for use in normally moist household plant soil for indicating after an interval of time the loss of moisture therefrom to an extent requiring replenishment, said device comprising a battery-operated signaling light means for switching from a normally "off" operating mode to a fully "on" operating mode thereof when the moisture content of the soil has decreased to a predeterminately dry condition such that moisture replenishment is required, a moisture-sensing probe extending in depending relation from said device having an operative inserted position in said plant soil continuously for the duration of said time interval such that initially said normally high moisture content of said plant soil is electrically effective to cause a low resistance condition of said probe and subsequently the gradual diminishment of said moisture content of said plant soil causes a corresponding increase in the probe resistance over a predetermined range, a fixed resistance of a selected value electrically connected in parallel relation directly across said probe for providing a combined resistance of said probe and fixed resistance which varies as the moisture content of the plant soil correspondingly varies between said high and diminished moisture contents, and a battery-powered control circuit electrically connected with said combined resistance and responsive thereto to produce said "on" operating mode in said signaling light means only in said increased resistance condition of said moisture-sensing probe, the variation of said combined resistance being less than the variation in resistance of said probe alone so as to enabling actuation of said control circuit for relatively abruptly switching said signaling light means between said "on" and "off" operating modes at a desired plant soil moisture content, such that said control circuit requires a minimum of operating battery power in said "off" operating mode of said signaling light means so as to thereby contribute to a more effective duration of operational use of said device and enable continued use of a powering battery over an extended time interval despite the continuous operative inserted condition of said device whereby said device is continuously monitoring and sensing the moisture content of the plant soil to control the actuation of said control circuit for switching said signaling light means.

4,268,825

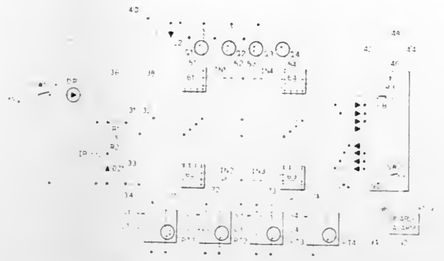
SYSTEM FOR MONITORING THE MOVEMENT OF OBJECTS PARTICULARLY THE FEEDING OF SEEDS

Dov Kaplan, Doar Na Emek Hayarden, Israel, assignor to Dickey-john Corporation, Auburn, Ill.

Filed Feb. 6, 1974, Ser. No. 440,200
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—684 **9 Claims**

1. A system for monitoring the movement of objects, partic-

ularly seeds, through a plurality of predetermined paths, comprising: a plurality of sensors each sensing the movement of an object through one of the paths and producing electrical signals in response thereto; a measuring circuit receiving said electrical signals and producing therefrom a measurement of the rate at which the objects move through the paths, sequencing means automatically connecting the rate measuring circuit



sequentially to the plurality of sensors for predetermined time periods, an indicator for each sensor indicating when the measured rate of the objects in the respective path varies from a predetermined limit, and means automatically interrupting the further sequencing of the sequencing means upon failure of a sensor to detect a predetermined number of objects in its respective path during any of said time periods.

4,268,826

INTERACTIVE DISPLAY DEVICES

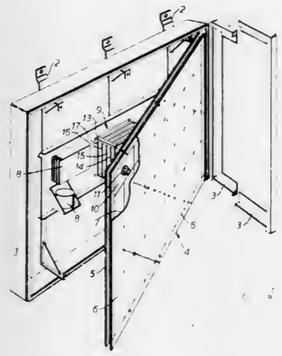
Harold A. Scott, and David J. Martin, both of Stroud, England, assignors to Grundy & Partners Limited, Gloucestershire, England

Filed May 14, 1979, Ser. No. 38,850

Claims priority, application United Kingdom, Jul. 26, 1978, 31220/78

Int. Cl.³ G06F *3/147*

U.S. Cl. 340—707 **8 Claims**



1. An interactive display device comprising a plurality of arrays of discrete display elements; driver circuit means which scan the arrays of said plurality thereof simultaneously with signals which determine whether each display element is in the ON or the OFF state and which include coded pulses the coding of which is representative of the array being scanned; and means for inputting data comprising a light pen which can be pointed at a selected display element relating to the input data, and circuit means operative to identify the coded pulses and thus identify the array containing the selected display element.

4,268,827

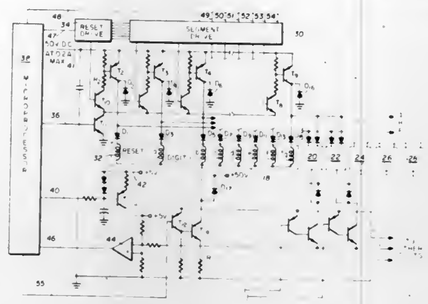
OPERABILITY VERIFICATION FOR SEGMENTAL ELECTROMAGNETIC DISPLAY

James F. Hughen, Austin; Jimmy R. Herring, Round Rock; David A. Biedermann, Austin, all of Tex., and Christopher W. Ovens, Boulder, Colo., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 21, 1979, Ser. No. 77,691

Int. Cl.³ G09F *9/32*

U.S. Cl. 340—715 **14 Claims**



1. In a multi-segment numeric display unit comprising a plurality of individual segments controllably operable for collective segments to visually form selected numeric values, each of said segments including a magnetic latch coil for individual operation of its associated segment, segment drive means for selectively energizing said latch coils and a reset coil operable when activated to energize a plurality of the latch coils of said individual segments for effecting a visual display of predetermined numeric value, verification means for verifying operability of the display unit comprising measuring means operable to measure the current flow seriatum through the coil of each of the segments, and logic means operable to inactivate the segment drive means to the energized coil when the current value through the energized coil achieves a predetermined switching value within a maximum time period.

4,268,828

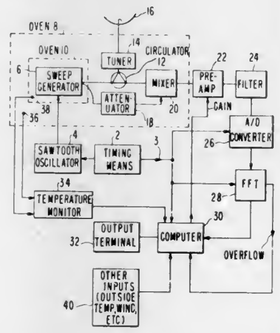
SWEPT FREQUENCY RADAR SYSTEM EMPLOYING PHASELESS AVERAGING

Robert W. Cribbs, Placerville; Billy L. Lamb, Sacramento, and Thomas J. DeLacy, Los Altos, all of Calif., assignors to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed Sep. 19, 1979, Ser. No. 77,250

Int. Cl.³ G01S *13/95*

U.S. Cl. 343—5 W **21 Claims**



1. A swept frequency microwave system for analyzing a target comprising:

a source of microwave radiation whose frequency is made to sweep in a repetitive fashion;

means connected to said source for bouncing said radiation off the target, said bouncing means producing a series of heterodyned signals;

means connected to said bouncing means for taking the Fourier power transform of a group of said heterodyned signals; and

means connected to said Fourier power transform means for averaging the Fourier power transformed signals over a plurality of frequency sweeps.

4,268,829

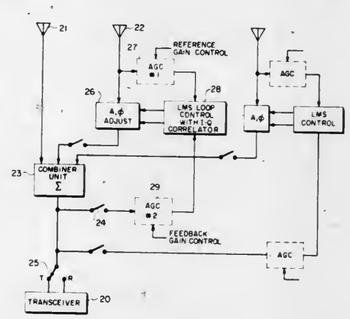
STEERABLE NULL ANTENNA PROCESSOR WITH GAIN CONTROL

Herbert F. Baurle, and Raymond J. Masak, both of E. Northport, N.Y., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 24, 1980, Ser. No. 132,940

Int. Cl.³ G01S *3/06*

U.S. Cl. 343—100 LE **10 Claims**



1. A steerable null antenna processor system for receiving desired wave energy signals from at least one angular region of space within the area covered by the system and for suppressing interfering signals from at least one other angular region, comprising:

antenna means having at least first and second antenna elements,

antenna signal path means including combining means coupled between said antenna elements and an output port for supplying said desired wave energy signals to said output port;

nulling means forming part of said antenna signal path means, the nulling means having control inputs and apparatus which responsive to correction signals at the control inputs at least partially cancels said interfering signals from appearing at said output port;

correlator means, a reference path from the antenna signal path means to the correlator means, a feedback path coupled from said output port to the correlator means, said correlator means having apparatus including mixing means to process signals from the reference path and from the feedback path to develop the correction signals and to connections to supply them to said control inputs;

gain control means comprising first gain adjusting means in the reference path, second gain adjusting means in the feedback path, a control circuit, coupling means in the reference path after the first gain adjusting means to supply an input signal to the control circuit, the control circuit being responsive at least to the last said input signal to develop control signals supplied to the first and second gain adjusting means.

4,268,830

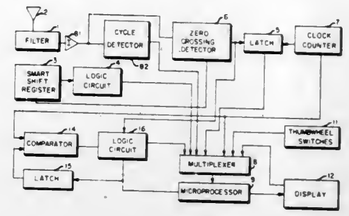
SELF CALIBRATION OF A LORAN-C NAVIGATION RECEIVER

Lester R. Brodeur, Nashua, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Division of Ser. No. 937,615, Aug. 28, 1978. This application Apr. 9, 1979, Ser. No. 28,143

Int. Cl.³ G01S *1/24*

U.S. Cl. 343—103 **2 Claims**



1. Apparatus for self calibrating a navigation receiver-indicator that includes an internal oscillator/clock and provides navigation information by receiving and utilizing the output of said oscillator/clock to measure differences in the time of arrival of signals periodically transmitted by each of a plurality of pairs of navigation transmitters the signal transmissions from each of which are very accurately controlled on a time basis comprising,

means for entering the periodic rate of transmission of the signals transmitted by each of said navigation transmitter into said receiver-indicator, and

a first means performing the following functions:

a. comparing the time difference between the receipt of successive signal transmissions from one of said transmitters with an output of said oscillator/clock to determine the error in time counts output from said oscillator/clock.

b. interpolating said time count error over the interval between the receipt of successive signal transmissions from said one of said transmitters to get correction counts, and

c. algebraically adding said correction counts to said time counts obtained from said oscillator/clock output before being used for said time difference of signal arrival measurements from said pairs of navigation transmitters to thereby achieve accurate time difference of signal arrival measurements.

4,268,831

ANTENNA FOR SCANNING A LIMITED SPATIAL SECTOR

Pasquale A. Valentino, Glen Head; John C. Herper, Glen Cove, and John J. Stangel, Mahopac, all of N.Y., assignors to Sperry Corporation, New York, N.Y.

Filed Apr. 30, 1979, Ser. No. 34,222

Int. Cl.³ H01Q *19/06*

U.S. Cl. 343—754 **6 Claims**

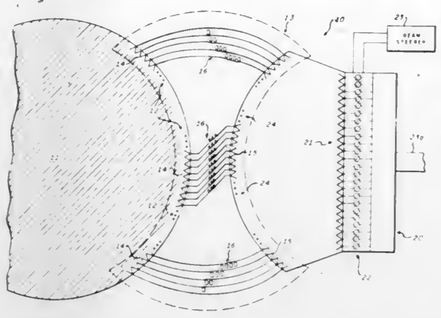
1. A scanning antenna system comprising:

scanning means for scannably directing electromagnetic radiation through a multiplicity of determinable scan angles to corresponding preselected areas of predetermined dimensions in a first focal region;

a first array of antenna elements positioned in said first focal region with uniform spacing therebetween such that at each of said determinable scan angles a multiplicity of said antenna elements within each of said corresponding preselected areas are in an energy coupling relationship with scanning means;

a second array of antenna elements positioned in a second focal region with non-uniform spacing therebetween, said antenna elements of said second array coupled in one-to-

one correspondence to said antenna elements of said first array establishing areas with predetermined variable dimensions in said second focal region corresponding to areas in said first focal region with said non-uniform spacing arranged such that said areas in said second focal region vary as a function of said determinable scan angle, thereby providing a scanned focal region with a scan



variable focal region distribution in said second focal region; and

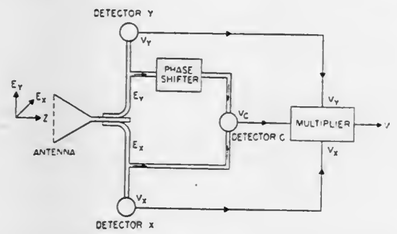
antenna means having an antenna aperture and a focal region positioned to be substantially coincident with said second focal region for transforming said scanned focal region with said scan variable distribution to a corresponding distribution in said antenna aperture, thereby providing a scan tailored antenna pattern.

4,268,832

MULTIPATH DISCRIMINATING ANTENNA SYSTEM

J. Robert Christian, Oceanport, N.J., and James W. Mink, Raleigh, N.C., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 9, 1980, Ser. No. 148,112
Int. Cl.³ H01Q *13/02*; G01S *1/16*
U.S. Cl. 343—786 **6 Claims**



1. Apparatus for receiving elliptically polarized electromagnetic energy comprising:

an antenna means that can maintain separate two orthogonal components of the electric field in the received signal, said components being designated the x-polarized field and the y-polarized field;

directional coupler means coupled to said antenna means to separate said orthogonal components and to split each of them on an equal power basis into first and second parts;

phase shifter means to shift said first part of the y-polarized field by 90 degrees, first detector means coupled to add the output of the phase shifter means to said first part of the x-polarized field and to detect the sum field so that the output of the first detector means is in effect the same as if a circularly polarized antenna were used;

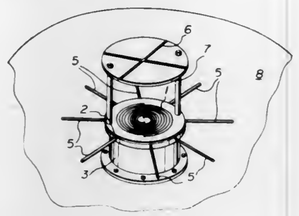
second and third detector means coupled to detect said second parts of the y-polarized and x-polarized fields respectively; and multiplier means coupled to the outputs of the first, second, and third detector means to form the product of the three detected signals to give a resultant output.

4,268,833

BROADBAND SHAPED BEAM ANTENNA EMPLOYING A CAVITY BACKED SPIRAL RADIATOR

Robert Milne, Ottawa, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Filed Aug. 23, 1979, Ser. No. 69,212
Claims priority, application Canada, Sep. 8, 1978, 310920
Int. Cl.³ H01Q *1/36*
U.S. Cl. 343—833 **11 Claims**



1. An antenna comprising:

(a) a first receiving element comprised of a pair of conductors wound in a spiral,

(b) a conductively walled cylindrical cavity disposed below the spiral having an opening facing the spiral, the diameter of the cavity being similar to the outer diameter of the spiral of conductors,

(c) a plurality of radial elements extending outwardly relative to and in a plane parallel to and below the spiral conductors, orthogonal to the axis of the spiral, and

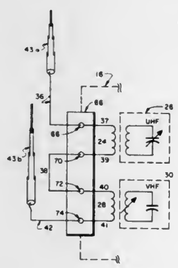
(d) parasitic element means located parallel with and above the plane of the spiral conductors.

4,268,834

SINGLE UHF/VHF ANTENNA SYSTEM

Ralph A. Henry, Suffolk, Va., assignor to General Electric Company, Portsmouth, Va.

Filed Mar. 24, 1977, Ser. No. 780,858
Int. Cl.³ H01Q *1/50*
U.S. Cl. 343—858 **4 Claims**



1. A single antenna system for the UHF and VHF tuners of a television receiver, comprising:

a single antenna,

UHF tuner input impedance means for coupling UHF signals into said UHF tuner,

VHF tuner input impedance means for coupling VHF signals into said VHF tuner,

UHF input terminals and VHF input terminals, and

interconnecting means including UHF conductors connecting said UHF tuner input impedance means to said UHF input terminals, VHF conductors connecting said VHF tuner input impedance means to said VHF input terminals, antenna conductor means connecting said single antenna to at least one of said UHF input terminals and a link conductor connecting one of said UHF input terminals to one of said VHF input terminals, said interconnecting means forming a series interconnection of said single antenna, said UHF tuner input impedance means and said VHF tuner input impedance means,

the conductors comprising said interconnecting means being of such length, in particular said VHF conductors being shorter than one quarter wave length at the highest UHF frequency to be received, such that the intrinsic impedance of the UHF tuner impedance means for VHF frequencies and the intrinsic impedance of the VHF tuner input impedance means for UHF frequencies comprise the only crossover network for the single antenna system.

4,268,835

PARABOLIC REFLECTOR

Robert B. Taggart, 348 Ramona Rd., Portola Valley, Calif. 94025

Filed Feb. 4, 1980, Ser. No. 117,993
Int. Cl.³ H01Q *15/16, 15/20*
U.S. Cl. 343—915 **4 Claims**



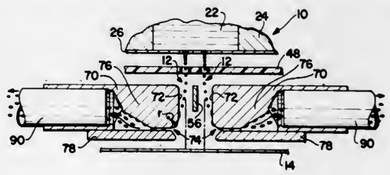
1. In a reflector for high-gain antennae having a plurality of generally planar, triangular electromagnetically reflection petals having a longitudinal axis and rectilinear longitudinal edges, means for connecting adjacent petals in longitudinal edgewise overlapping relation through holes therein at predetermined locations to form a reflector having the shape of a surface of revolution, each petal taking the form along its longitudinal axis of the line that generates the surface of revolutions and having generally curvilinear transverse form, the improvement comprising gradually increasing the overlap of adjacent petals from rim to center of the reflector.

4,268,836

INK JET PRINTER HAVING IMPROVED CATCHER

David A. Huliba, and Lonnie P. Robinson, both of Dayton, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Oct. 25, 1979, Ser. No. 88,328
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **24 Claims**



1. An ink jet printer for depositing ink drops from a plurality of jet drop streams on a printing receiving medium, comprising print head means for generating a plurality of jet drop streams directed at said print receiving medium, said jet drop streams positioned in a row,

means for selectively charging drops in said plurality of jet drop streams,

deflection electrode means extending parallel to and to one side of said row of jet drop streams, said deflection electrode means positioned between said means for selectiely charging drops and said print receiving medium,

means for applying a drop deflecting electrical potential to said deflection electrode means to produce a drop deflection field through which said jet drop streams pass, said drop deflection field directing said drops into print and catch trajectories, and

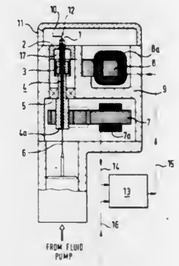
catcher means, extending parallel to said row of jet drop streams and on the opposite side of said row from said deflection electrode means, said catcher means positioned directly opposite said deflection electrode means, for receiving drops in said catch trajectories, while permitting drops in said print trajectories to strike said print receiving medium, said catcher means defining a drop ingesting slot and a plurality of separate internal cavities, each such cavity communicating with an associated portion of said slot.

4,268,837

INK JET RECORDING INSTRUMENT

Günter Orzikowski, Freiburg im Breisgau, Fed. Rep. of Germany, assignor to Hellige GmbH, Freiburg im Br., Fed. Rep. of Germany

Filed Feb. 5, 1980, Ser. No. 118,821
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904595
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **10 Claims**



1. An ink jet recording instrument having a capillary tube serving for feeding the writing liquid from a reservoir for the liquid to its bent end which constitutes the exit nozzle for the writing jet and including an electromagnetic driving system for exerting a torque upon the capillary tube which torque is a function of the magnitude of the measuring quantity to be recorded, characterized by a feed back control system for the angular position of the capillary tube comprising the following components:

(a) a measuring value pick-up means (**4**) detecting the angular position of the capillary tube (**6**);

(b) a mechanical-electric transducer (**4***a*, **7**) for converting the angular position into an electrical signal;

(c) a control means to which said electrical signal representing the instantaneous value is supplied to be compared with an electrical value representing the set value of a signal to be recorded; said control means applying an energizing current as the regulated quantity to the energization circuit of the electromagnetic driving system (**3**, **8**) for the capillary tube such that the angular position of the writing end (**1**) of the capillary tube (**6**) does not deviate from the set value which is proportional to the signal to be recorded.

4,268,838

THERMAL RECORDING SYSTEM

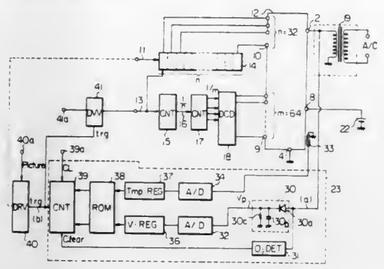
Kazuo Nakano; Toshiyuki Iwabuchi, and Ichiji Yamamoto, all of Tokyo, Japan, assignors to OKI Electric Industry Co., Ltd., Tokyo, Japan

Filed Jul. 16, 1979, Ser. No. 57,976

Claims priority, application Japan, Jul. 18, 1978, 53-86772; Jul. 20, 1978, 53-87752

Int. Cl.³ G01D *15/10*

U.S. Cl. 346—76 PH **6 Claims**



1. A thermal recording system comprising of:

(a) a thermal head having a plurality of aligned heat-generating resistor elements, in contact with a treated thermal paper with current-holding elements corresponding to each of the heat-generating resistor elements for holding electric current.

(b) means for applying picture information to said heat-generating resistor elements and current-holding elements in accordance with the picture information to be recorded.

(c) a power source for providing periodic electric power to the said thermal head under the control of a control means, characterized in that said control means comprises of;

(i) a peak voltage detector for detecting the peak value of said periodic electric power,

(ii) register means for storing the digital value of said peak value.

(iii) a read-only-memory for storing the table for providing the desired delay time in accordance with said peak value, the address of said read-only-memory being defined by the output of said register means,

(iv) counter means the initial value of which is provided by the output of said read-only-memory and the content of said counter means is decreased one after another by a predetermined clock pulse, and the output of said counter means controls the power supply to the thermal head.

4,268,839

PHOTO-TIDE LEVEL RECORDER

Jack E. Guth, 630 Oak St., Herndon, Va. 22070

Filed Feb. 1, 1980, Ser. No. 117,651

Int. Cl.³ G01D *9/42;* **G01F** *23/06*

U.S. Cl. 346—107 R **1 Claim**

1. A tide level recorder comprises a free floating float with a vertical attached graduated rod-staff, encased in a closed vertical cylindrical tube, which has an orifice near the bottom end of the tube to allow the free flow of water in and out as the tide rises and falls; a fixed index mark near the upper end of the tube for reading the rod-staff graduations as the staff rises and falls with the tide; a recorder opposite the index mark to document the rod-staff graduation readings; and a chronometer to document exact times when rod-staff readings are made.



4,268,840

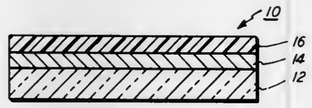
OPTICAL RECORDING MEMBER

Richard L. Schank, and Gordon E. Johnson, both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 27, 1979, Ser. No. 61,203

Int. Cl.³ G01D *15/34;* **B32B** *5/16, 9/04, 15/04*

U.S. Cl. 346—135.1 **13 Claims**



1. An optical recording member for storing data by the selective ablation of a layer of energy absorbing material by laser address comprising a recording layer of an optical energy absorbing material and at least one layer of a polymeric material having a second order glass transition temperature less than 293° K. contiguous to at least one surface of the layer of recording material.

4,268,841

IMAGE RECORDING METHOD AND APPARATUS THEREFOR

Motoharu Fujii, Tokyo; Noboru Koumura, Narashino; Naoki Ayata, Yokohama, and Yasushi Sato, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 28, 1979, Ser. No. 53,089

Int. Cl.³ G01D *15/24;* **B65H** *5/02*

U.S. Cl. 346—138 **5 Claims**

1. An image recording apparatus, comprising

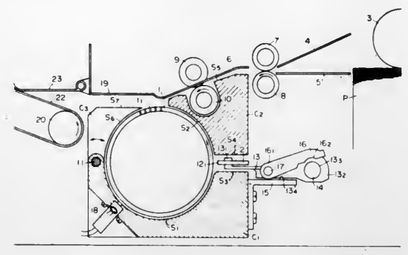
drum means for supporting a recording medium for cyclical movement to receive recording information, wherein said drum means is dimensioned to support the recording medium with its leading and trailing edges spaced from each other;

recording means for recording the information on the recording medium;

vacuum means for providing said drum means with a sucking force to hold the recording medium thereon;

guiding means, disposed along and spaced from said drum means, for guiding the recording medium to the periphery of said drum means, said guiding means being provided with an opening for allowing the recording medium to enter into and to be removed from contact with said drum means;

detecting means for detecting a position between the leading and trailing edges of the recording medium;



separating means for releasing the sucking force after the detection by said detecting means, so that the leading edge of the recording medium faces said opening and said recording medium is passed through said opening in response to centrifugal force, thereby separating the medium from the drum means.

4,268,842

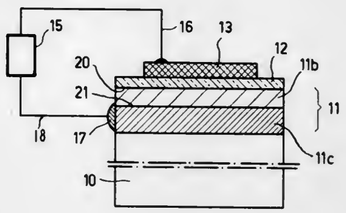
ELECTROLUMINESCENT GALLIUM NITRIDE SEMICONDUCTOR DEVICE

Guy M. Jacob, Pontault, and Michel Boulou, Brunoy, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 829,893, Sep. 1, 1977, abandoned. This application Feb. 16, 1979, Ser. No. 12,790

Int. Cl.³ H01L *33/00*

U.S. Cl. 357—17 **11 Claims**



1. An electroluminescent semiconductor device comprising a monocrystalline substrate, an n-type gallium nitride layer on said substrate, an active gallium nitride layer on said n-type layer and doped to at least full compensation of the natural donor impurities with acceptor impurities, surface electrode means for contacting said active layer, and means for contacting said n-type layer, at least a part of said n-type layer, which part extends parallel to said active layer and adjoins said active layer, being doped to less than full compensation by means of said acceptor impurities, the net concentration of donor impurities being smaller than the concentration of said natural impurities, and the net concentration of donor impurities being substantially homogeneous in said layer portion.

4,268,843

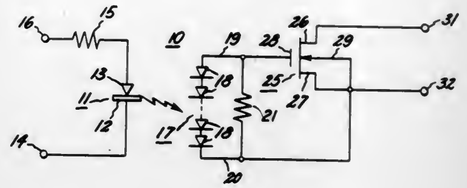
SOLID STATE RELAY

Dale M. Brown; Marvin Garfinkel, both of Schenectady, N.Y., and John A. Laurent, Pittsfield, Mass., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 13,675, Feb. 21, 1979, Pat. No. 4,227,098. This application Jan. 15, 1980, Ser. No. 112,397

Int. Cl.³ H01L *31/12*

U.S. Cl. 357—19 **11 Claims**



1. A solid state relay comprising

a pair of input terminals,

a light-emitting diode connected to said input terminals for generating radiation in response to current applied to said input terminals,

an array of photodiodes series connected between a pair of array electrodes and optically coupled to said light-emitting diode for developing a control voltage across said array electrodes in response to radiation from said light-emitting diode,

a field effect transistor including a pair of current carrying electrodes, a gate electrode and a substrate electrode, one of said array electrodes connected to said gate electrode and the other of said array electrodes connected to said substrate electrode whereby the impedance between said current carrying electrodes has one value in the absence of, and another greatly different value in the presence of said control voltage between said gate electrode and said substrate electrode,

means for providing a large resistive impedance between said gate electrode and said substrate electrode,

a pair of output terminals, each connected to a respective one of said current carrying electrodes.

4,268,844

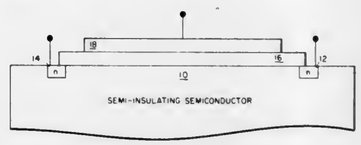
INSULATED GATE FIELD-EFFECT TRANSISTORS

Larry G. Meiners, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 31, 1979, Ser. No. 109,011

Int. Cl.³ H01L *29/78*

U.S. Cl. 357—23 **23 Claims**



1. A normally off, insulated-gate field-effect transistor having low parasitic capacitances, comprising:

a semi-insulating semiconductor substrate;

a source contact and a drain contact spaced apart and disposed on said substrate;

a dielectric layer disposed over said substrate to completely span the space between said source and drain contacts; and

a gate electrode disposed on said dielectric layer to com-

pletely span the space between said source and drain contacts;

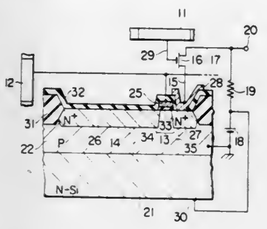
whereby, charge carriers are induced electrically into the space of the semi-insulating substrate between said source and drain contacts by the application of an appropriate voltage to said gate electrode.

4,268,845

SOLID-STATE IMAGING DEVICE

Norio Koike, Tokyo; Shoji Hanamura, Kokubunji, and Masaharu Kubo, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 23, 1979, Ser. No. 96,683
Claims priority, application Japan, Dec. 1, 1978, 53/147871
Int. Cl.³ H01L *27/14*
U.S. Cl. 357—30 **6 Claims**



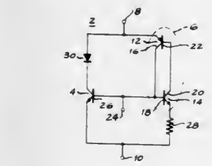
1. In a solid-state imaging device employing, as photoelectric conversion elements, photodiodes each of which consisting of a semiconductor substrate of a first conductivity type, a well region of a second conductivity type formed in the main surface of said semiconductor substrate, and an inpurity region of the first conductivity type formed in said well region, the improvement characterized by applying a voltage for driving said photodiodes to the potential of said semiconductor substrate.

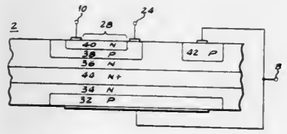
4,268,846

INTEGRATED GATE TURN-OFF DEVICE WITH LATERAL REGENERATIVE PORTION AND VERTICAL NON-REGENERATIVE POWER PORTION

Gordon B. Spellman, Mequon; Herman P. Schutten, Elm Grove, and Stanley V. Jaskolski, Sussex, all of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 22, 1978, Ser. No. 972,506
Int. Cl.³ H01L *29/74*
U.S. Cl. 357—38 **3 Claims**





1. A monolithically integrated gate turn-off device comprising:

a pair of main terminals for carrying load current;

a control terminal which enables said device to be turned ON by signal current of one polarity, and be turned OFF by signal current of the opposite polarity;

non-regenerative switching means formed by a plurality of serially vertically contiguous regions in a substrate, and connected between said main terminals for carrying load current when biased into conduction by base drive current, and being non-conductive in the absence of said base drive current whereby said device is OFF;

regenerative switching means formed by a plurality of serially laterally contiguous regions in said substrate one of which is a gate region connected to said control terminal, said regenerative switching means being connected in parallel with said non-regenerate switching means between said main terminals for carrying current when gated into conduction by said signal current of said one polarity applied to said control terminal, and remaining conductive upon removal of said signal current because of regenerative loop current flowing through said regenerative switching means between said main terminals;

said non-regenerative switching means having a base region connected to said regenerative switching means such that part of said regenerative loop current flows to said base region to sustain conduction of said non-regenerative switching means, whereby said device is ON,

said device in said ON state carrying high capacity load current through said non-regenerative switching means between said main terminals, and carrying a small low level holding current through said regenerative switching means between said main terminals, said holding current being of sufficient magnitude to maintain said regenerative loop and also to supply sufficient base drive current to sustain said non-regenerative switching means conductive;

said device being easily turned OFF by a small signal current of opposite polarity applied to said control terminal, which readily renders said regenerative switching means non-conductive because of the low level of said holding current, whereby said base drive current is terminated and said non-regenerative switching means is thus rendered non-conductive and hence terminates load current between said main terminals,

whereby there is provided the combination of a lateral low level regenerative loop, afforded by said regenerative switching means, controlling a vertical higher current carrying capacity, afforded by said non-regenerative switching means, in order to achieve high turn-off gain by breaking the regenerative loop with a small signal,

said non-regenerative switching means comprises a power transistor formed by first, second and third regions of alternating conductivity type;

said regenerative switching means comprises a thyristor formed by first, second, third and fourth regions of alternating conductivity type;

said first, second and third regions of said transistor are common with said second, third and fourth regions, respectively, of said thyristor;

said first region of said thyristor is disposed on a top surface of said substrate and is ohmically connected to one of said main terminals; and

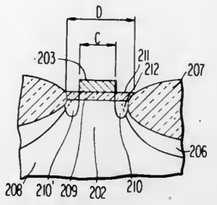
said common fourth region of said thyristor and third region of said power transistor is disposed on said top surface of said substrate and is ohmically connected to the other of said main terminals, and has a laterally extended dimension to provide resistance in the lateral parallel circuit branch containing said thyristor whereby to force most of said load current through the other vertical parallel circuit branch containing said power transistor when said device is in said ON state.

4,268,847

SEMICONDUCTOR DEVICE HAVING AN INSULATED GATE TYPE FIELD EFFECT TRANSISTOR AND METHOD FOR PRODUCING THE SAME

Osamu Kurakami; Shigeru Koshimaru, and Takashi Yamanaka, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Sep. 15, 1978, Ser. No. 942,729
Claims priority, application Japan, Sep. 16, 1977, 52-112067; Sep. 16, 1977, 52-112068; Dec. 28, 1977, 52-158000
Int. Cl.³ H01L *29/34*
U.S. Cl. 357—52 **10 Claims**



1. A semiconductor device comprising:

a semiconductor substrate of one conductivity type, an isolating region including a field insulator film provided on one major surface of said semiconductor substrate, an active region substantially surrounded with said isolating region, at least one of a source and drain regions of the opposite conductivity type formed in said active region, a channel region in said active region having a first boundary line placed contiguous to said source or drain region and a second boundary line crossing an angle with said first boundary line, a gate insulator film formed on said channel region,

a gate electrode formed on said gate insulator film, and

a first channel stopper region of said one conductivity type in said active region having a higher impurity concentration than said semiconductor substrate and abutting against said isolating region and said second boundary line of said channel region,

said second boundary line of said channel region being substantially in coincidence with an edge line of said gate electrode.

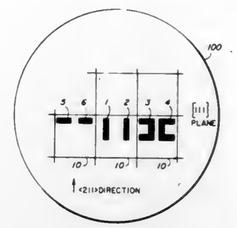
4,268,848

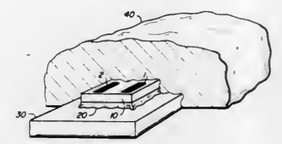
PREFERRED DEVICE ORIENTATION ON INTEGRATED CIRCUITS FOR BETTER MATCHING UNDER MECHANICAL STRESS

John F. Casey, Colorado Springs, Colo., and Robert L. Vyne, Tempe, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 7, 1979, Ser. No. 36,725
Int. Cl.³ H01L *29/04, 29/06, 23/28*
U.S. Cl. 357—60 **8 Claims**

1. A monolithic semiconductor element comprising a silicon die with first and second major surfaces parallel with a substantially {111} plane; at least two majority carrier devices, said devices having mirror symmetry about a <211> direction in said substantially {111} plane; a supporting substrate for said die; and compliant mounting means for attaching said die to such supporting substrate, whereby approximate matching of characteristics of said devices is preserved despite thermal-





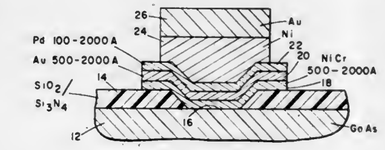
mechanical stress associated with fabrication, handling, test, and use.

4,268,849

RAISED BONDING PAD

Bruce Gray, Southbury, Conn.; James M. Harris, Palo Alto, and William M. Gouin, San Jose, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Nov. 3, 1978, Ser. No. 957,645
Int. Cl.³ H01L *23/48*
U.S. Cl. 357—71 **13 Claims**



1. A bonding pad adapted for wafers of III-V compounds comprising in combination:

a first layer of metal contact material consisting essentially of a nickel-chromium alloy bonded to said bonding face, and

a second layer of metal material bonded to said first bonding layer and consisting of a metal selected from the group consisting of gold and palladium.

4,268,850

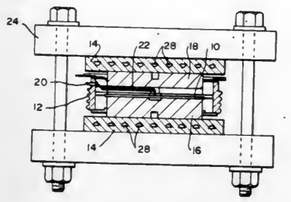
FORCED VAPORIZATION HEAT SINK FOR SEMICONDUCTOR DEVICES

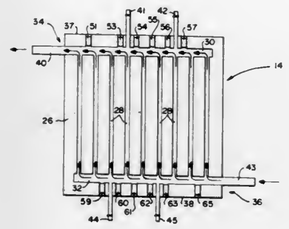
Gerald M. Lazarek, and Fred W. Staub, both of Schenectady, N.Y., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed May 11, 1979, Ser. No. 38,115
Int. Cl.³ H01L *25/04, 23/42, 23/44*
U.S. Cl. 357—82 **15 Claims**

1. A fluid cooled heat sink for use in cooling high power semiconductor devices, comprising: a unitary body formed of thermally conductive material, a plurality of fluid passageways in said body, manifold means communicating with said pas-

sageways, and mechanically movable means cooperating with said manifold means for selectively interconnecting said pas-



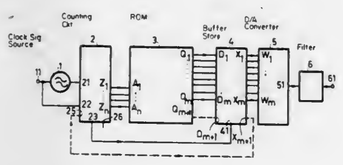


sageways to provide various fluid-flow configurations through said body.

4,268,851
SIGNAL GENERATOR

Arthur Heller, Eichenried; Alfred Schaumberger, Olching; Klaus Schuster, Landshut, and Friedrich Dollinger, Munich, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 11, 1979, Ser. No. 38,364
Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2821024
Int. Cl.³ H04N 9/62, 7/02
U.S. Cl. 358—10 **6 Claims**



1. A signal generator for synthesizing television test line signal variations having a relatively high frequency and being composed of individual portions, said signal generator comprising

(a) a combination of digital read-only memory means, counting circuit means coupled to the address input of said memory means, a clock signal generator for controlling said counting circuit means, a digital-to-analogue converter coupled to the output of said memory means, and a filter coupled to the output of the converter, the phase of the clock signal generator and of the counting circuit means being synchronized by a television synchronizing signal;

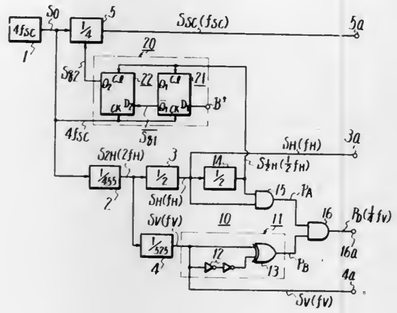
(b) a digital buffer store provided between the digital read-only memory means and the digital-to-analogue converter and having a clock input to which a signal derived from the counting circuit means is applied; whereby

(c) the digital read-only memory means is programmed with a sequence of information words so that distortion on the basis of the transfer properties of the digital-to-analogue converter and of the filter provided behind the converter, respectively, are compensated for.

4,268,852
SYNC GENERATOR FOR A COLOR TELEVISION SYSTEM

Takashi Nakamura, Hatano, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 14, 1979, Ser. No. 102,975
Claims priority, application Japan, Dec. 23, 1978, 53-160590
Int. Cl.³ H04N 9/44
U.S. Cl. 358—17 **14 Claims**



1. A sync generator for a color television system of the type employing a color sub-carrier of a predetermined frequency and a plurality of sequentially repeating color fields comprising:

means for generating a carrier signal having a frequency which is an integral number times said predetermined frequency of the color sub-carrier;

framing signal generating means responsive to said carrier signal for generating a color framing signal synchronized with a predetermined one of each of said plurality of sequentially repeating color fields;

color sub-carrier generating means responsive to said carrier signal for dividing said carrier signal to produce said color sub-carrier of said predetermined frequency; and

means for establishing a fixed phase relation between said color sub-carrier and said color framing signal.

4,268,853
SYNCHRONIZING SIGNAL GENERATOR FOR A PAL TELEVISION SIGNAL PROCESSING SYSTEM

Takashi Nakamura, Hatano, and Akira Taki, Atsugi, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,305
Claims priority, application Japan, Dec. 22, 1978, 53-163810
Int. Cl.³ H04N 9/44
U.S. Cl. 358—17 **13 Claims**

1. A synchronizing signal generator for a PAL television signal processing system of the type employing a plurality of sequentially repeating color fields, a color subcarrier signal having a frequency of f_{SC}, a horizontal synchronizing signal having a frequency of f_h and a vertical synchronizing signal having a frequency of f_v, comprising:

means for providing a reference signal having a frequency of $P \cdot f_{SC}$ (where P is an integer) satisfying the equation:

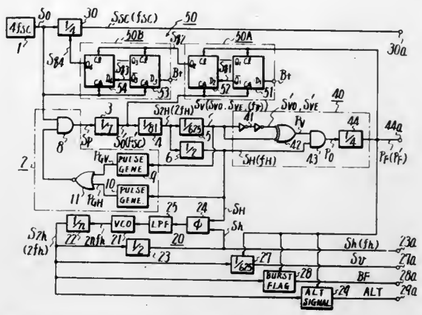
$$f_{SC} = (284 - \tfrac{1}{4} f_h) + \frac{1}{625} f_h$$

$$f_{SC} = \frac{1135}{4} f_h + \tfrac{1}{2} f_v,$$

means for dividing said reference signal by P to provide said color subcarrier signal;

means for periodically removing a predetermined number of cycles from said reference signal to produce an offset-free reference signal;

means responsive to said offset-free reference signal for producing said vertical and horizontal synchronizing signals;



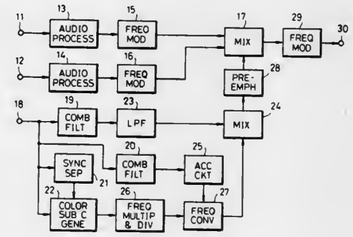
means responsive to said offset-free reference signal for generating a color framing signal which identifies a particular one of each of said plurality of sequentially repeating color fields of said PAL television signal; and

means for synchronizing said means for dividing with said color framing signal in response to said reference signal and said offset-free reference signal as well as said color framing signal.

4,268,854
SYSTEM FOR TRANSMITTING CARRIER CHROMINANCE SIGNALS OF COLOR VIDEO SIGNALS

Keiji Ozawa, Yamato, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed May 31, 1979, Ser. No. 44,049
Claims priority, application Japan, Jun. 1, 1978, 53-64898
Int. Cl.³ H04N 9/12
U.S. Cl. 358—27 **6 Claims**



1. A system for transmitting carrier chrominance signals of color video signals comprising:

a signal transmission system having a transmissible optimum level;

means for supplying carrier chrominance signals comprising a carrier chrominance signal component and a color burst signal of the color video signal;

detection means for detecting the level of said supplied carrier chrominance signal to generate a level control signal;

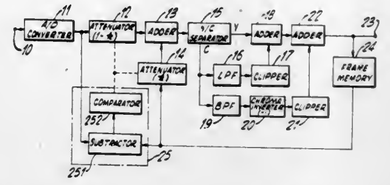
means for controlling a peak level of said carrier chrominance signal in response to the level control signal from said detection means, the peak level continuously becoming a value substantially equal to the transmissible optimum level of said signal transmission system; and

means for sending out the level controlled carrier chrominance signal to said signal transmission system.

4,268,855
NOISE REDUCTION SYSTEM FOR COLOR TELEVISION SIGNAL

Hiroshi Takahashi, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jul. 3, 1979, Ser. No. 55,409
Claims priority, application Japan, Jul. 5, 1978, 53-82423
Int. Cl.³ H04N 9/535, 5/21
U.S. Cl. 358—36 **4 Claims**



1. A noise reduction system for reducing noise contained in a television video signal, said system comprising:

memory means for storing the video signal for a period substantially equal to the period of one television frame to produce a stored video signal;

means for recursively adding said stored video signal to a present video signal to produce an added signal;

a comb filter coupled to said adding means and responsive to said added signal for providing a first signal comprised of a luminance signal and a second signal comprised of a chrominance signal and low-frequency components of the luminance signal;

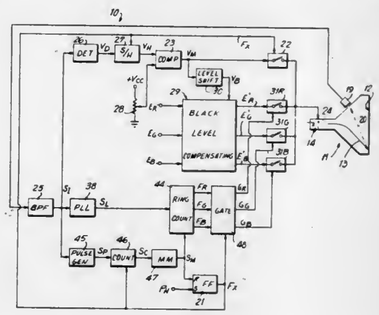
first means coupled to said comb filter and responsive to said second signal for clipping low-level components of said second signal, said first means including second means for clipping low-level components of a high-frequency component included in said second signal; and

means for adding an output of said first means to said first signal.

4,268,856
BEAM INDEX COLOR TELEVISION RECEIVER

Susumu Akazawa, Sakura, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sep. 24, 1979, Ser. No. 78,206
Claims priority, application Japan, Sep. 25, 1978, 53-117617
Int. Cl.³ H04N 9/24
U.S. Cl. 358—67 **12 Claims**



1. A beam index color television receiver, comprising:

a beam index color cathode ray tube including a screen,

means for providing an electron beam adapted to scan said screen during scanning intervals, said screen having an image area and a run-in area contiguous to an edge of said image area and which is scanned by said beam during a predetermined period of each of said scanning intervals, a repetitive pattern of a plurality of groups of color phosphor elements arranged side-by-side across said image area with the elements of each of said groups emitting light of a respective color different from the color of light emitted by the elements of each of the other groups when excited by said beam, index elements spaced apart across said run-in and image areas and emitting radiant energy when excited by said beam, and means responsive to said radiant energy to provide index signals;

means for applying a potential to said color cathode ray tube so as to produce a current in said beam during said predetermined period of each of the scanning intervals;

means responsive to said index signals for producing a controlled signal of a level dependent on said beam current;

means responsive to said level of the controlled signal for controlling said potential so as to maintain constant the levels of said controlled signal during the scanning of said run-in area and said image area, respectively;

means for producing a reference potential which is shifted from the controlled potential in the direction for reducing said beam current; and

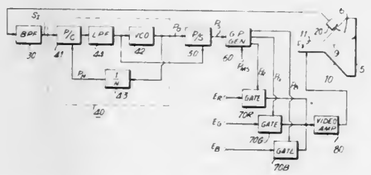
means for applying color signals to said color cathode ray tube with said reference potential as a reference level for the applied color signals during the scanning of said image area.

4,268,857

BEAM INDEX COLOR TELEVISION RECEIVER APPARATUS

Katsuo Isono, Kawagoe, and Tomoyoshi Imayasu, Urawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 12, 1979, Ser. No. 103,092
Claims priority, application Japan, Dec. 14, 1978, 53-155114
Int. Cl.³ H04N *9/24*
U.S. Cl. 358—67 **12 Claims**



1. Apparatus for controlling color switching in a beam index color television receiver of the type including a cathode ray tube with a display screen having beam-excitable color elements to be scanned by an electron beam as the latter is modulated by color control signals, and index elements which are scanned by said beam as the latter scans said display screen, said apparatus comprising:

means for generating an index signal in response to the scanning of said index elements by said beam;

gating means for sequentially switching said color control signals individually for modulating said electron beam as said beam scans the respective ones of said color elements;

means for generating gating pulses in response to said index signal and for supplying said gating pulses to said gating means so as to cause the latter to switch said respective color control signals, said means for generating and supplying gating pulses including controlling oscillator means for producing first pulses at a frequency which is synchronized with the frequency of said index signal in response to a control voltage varying with changes in said frequency of the index signal and which is applied to said oscillator means; and

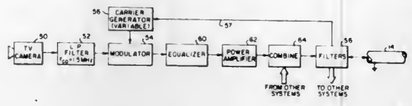
means for shifting the phase of said first pulses in response to variations in said control voltage.

4,268,858

TV TRANSMISSION SYSTEM FOR LONG TOW CABLES

Kenneth E. Wood, Annapolis, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 4, 1977, Ser. No. 774,287
Int. Cl.³ H04N *7/10, 7/18, 5/30*
U.S. Cl. 358—86 **12 Claims**



1. An improved transmission system for transmitting video signals from a transmitting location to a receiving location over a long electromechanical cable, comprising:

(A) first means, located at said transmitter location, for supplying a carrier signal;

(B) second means, located at said transmitter location, for modulating said video signals onto said carrier signal;

(C) third means, located at said receiver location, for remotely controlling the frequency of said carrier signal;

(D) said first means including

(i) input means for receiving input commands transmitted from said receiver location for providing output control signals in response thereto,

(ii) a biased voltage controlled oscillator providing a nominall correct frequence, f_c,

(iii) circuit means responsive to said output control signals for varying the bias of said voltage controlled oscillator to vary the output frequency thereof;

(E) said circuit means including

(i) an up/down counter,

(ii) means for applying a first control signal to said counter to increment it,

(iii) means for applying a second control signal to said counter to decrement it, and

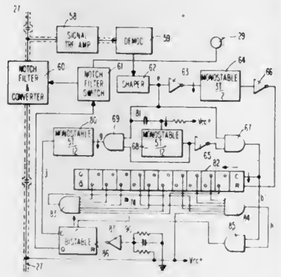
means connected to said counter for converting the count therein into a corresponding voltage and applying said voltage to vary said bias of said voltage controlled oscillator.

4,268,859

HIGH-SECURITY CABLE TELEVISION ACCESS SYSTEM

Clarence S. Ost, 7905 Bayshore Dr., Margate City, N.J. 08402

Continuation-in-part of Ser. No. 798,409, May 19, 1977, Pat. No. 4,161,751. This application Jul. 16, 1979, Ser. No. 58,016
Int. Cl.³ H04N *7/16*
U.S. Cl. 358—114 **7 Claims**



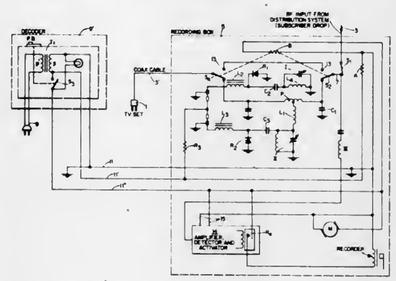
1. Means for providing, to requesting cable television subscribers, access to requested program signals transmitted over the cable and via interconnections including tap offs and down leads to the subscribers' television receivers, comprising means for generating a string of clocking pulses corresponding to serial numbering of all the subscribers, means for combining program command pulses with the clocking pulses corresponding to the respective requesting subscribers in the clocking string and thereby producing a program command signal string, means for transmitting the program command signal string via the cable to each of the respective requesting subscribers' tap offs, and means at each requesting subscriber's tap off for separating the command pulses from the clocking pulse string, for identifying such subscriber's pulse solely on the basis of time of arrival thereat coinciding with clocking to such subscriber's serial number, and for utilizing the requesting subscriber's command pulse therein to gate the requested program signals to that television receiver.

4,268,860

TELEVISION SUBSCRIBER APPARATUS

Isaac S. Blonder, Locust, N.J., assignor to Blonder-Tongue Laboratories, Inc., Old Bridge, N.J.

Filed Sep. 25, 1974, Ser. No. 509,302
Int. Cl.³ H04N *7/16*
U.S. Cl. 358—118 **3 Claims**



1. Television subscriber apparatus having, in combination with a television receiver, subscriber apparatus comprising network trap means tuned to the television picture carrier frequency and having sufficient attenuation when tuned to that frequency to substantially cancel said picture carrier frequency, means for optionally inserting and removing said trap means from the input to the television receiver, thereby to distort the picture signals and to pass the same undistorted, respectively; said trap means comprising voltage-variable impedance means the impedance of which may be changed in response to voltage applied thereto; and means for applying an alternating-current voltage of audio frequency to said variable impedance means while said trap means is inserted in order to produce periodic tuning of the trap means through the picture carrier frequency at the alternating-current audible frequency to effect an audible buzz modulation for masking the sound signal irrespective of temperature-caused and other variations in tuning of the trap means.

4,268,861

IMAGE CODING

William F. Schreiber, Cambridge, and Donald E. Troxel, Belmont, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Sep. 18, 1978, Ser. No. 943,523
Int. Cl.³ H04N *7/12*
U.S. Cl. 358—138 **34 Claims**

1. Apparatus for coding a digital video signal, comprising:

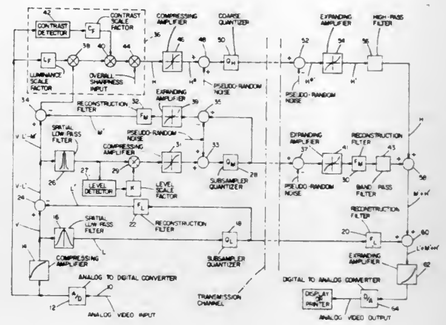
first means for processing said signal to produce a low-frequency component representative of luminance variations in a first spatial frequency band,

second means for processing said signal to produce a high-frequency component representative of luminance variations in a second spatial frequency band above said first band, and

third means for processing said components to produce a digitally-coded output signal, said third means comprising

means for adding pseudo-random noise to said high-frequency component,

means for quantizing the sum of said high-frequency component and said noise,



said pseudo-random noise having a maximum peak-to-peak amplitude of one quantization level and a zero mean value, and

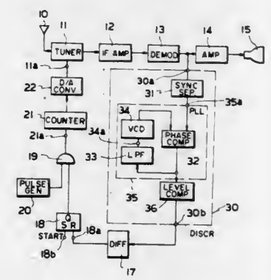
means for sampling and quantizing said low-frequency component, said sampling being at a spatial rate lower than that associated with the output of said means for quantizing.

4,268,862

SYNCHRONIZING SIGNAL DETECTOR PARTICULARLY FOR USE IN TELEVISION AFT

Tadao Sasaki, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

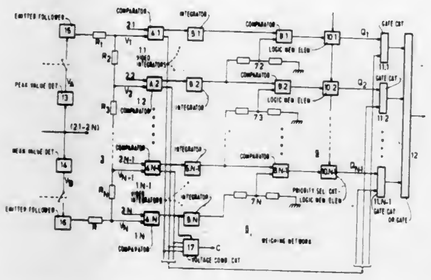
Filed Sep. 4, 1979, Ser. No. 72,414
Claims priority, application Japan, Sep. 5, 1978, 53-121192[U]
Int. Cl.³ H04N *5/08*
U.S. Cl. 358—153 **9 Claims**



1. A synchronizing signal detector for detecting a received television synchronizing signal, comprising synchronizing signal separating means supplied with a composite television signal for separating the television synchronizing signal therefrom and operable to pass both an actual synchronizing signal included within said composite television signal and a false synchronizing signal; phase-locked loop means, including an adjustable oscillator to produce an oscillating signal and phase comparison means for adjusting the frequency of said adjustable oscillator to be in synchronism with the output of said synchronizing signal separating means, said phase comparison means producing an error signal as a function of the difference between said oscillating signal and said output of said synchro-

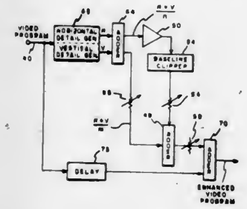
nizing signal separating means, and means for supplying said error signal as a frequency control signal for said adjustable oscillator; and sensing means for sensing said error signal to indicate the presence of said synchronizing signal when said error signal is of predetermined value.

4,268,863
THRESHOLD SELECTION CIRCUIT
Lindert Los, Rijssen, Netherlands, assignor to Hollandse Signaalapparaten B.V., Hengelo, Netherlands
Filed Feb. 2, 1979, Ser. No. 8,664
Claims priority, application Netherlands, Feb. 16, 1978, 7801727
Int. Cl.³ H04N *5/14*
U.S. Cl. 358—160 **11 Claims**



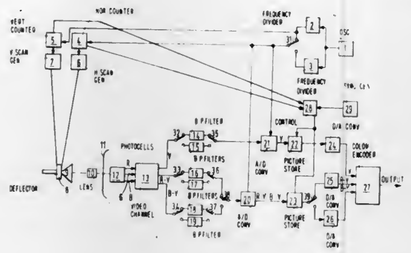
1. Threshold selection circuit suitable for a processing unit for the processing of video signals obtained from an angle tracking device, wherein said threshold selection circuit comprises a number (N) of video integrators which are each fed with the video signals and which are active above respectively differing threshold voltage levels which decrease with the ascending numerical order, 1 to N, of said video integrators, and a weighting network, connected to the video integrators, for selecting the video integrator having the highest threshold voltage level which output signal therefrom does not exceed a fixed fraction of the output signal of the video integrator operating with the next lower threshold voltage level.

4,268,864
IMAGE ENHANCEMENT SYSTEM FOR TELEVISION
George R. J. Green, Trumbull, Conn., assignor to CBS Inc., New York, N.Y.
Filed Dec. 5, 1979, Ser. No. 100,786
Int. Cl.³ H04N *5/14*
U.S. Cl. 358—166 **9 Claims**



1. Apparatus for producing modified detail signals from a video signal, comprising:
- means for generating detail signals representative of variations in the amplitude of said video signal;
- means for amplifying a first fractional amplitude portion of said generated detail signals;
- coring means for truncating a major portion of the amplified signal produced by said amplifying means; and
- means for adding a selected fractional amplitude portion of the signal produced by said coring means to a selected fractional amplitude portion of said generated detail signals to produce said modified detail signal.

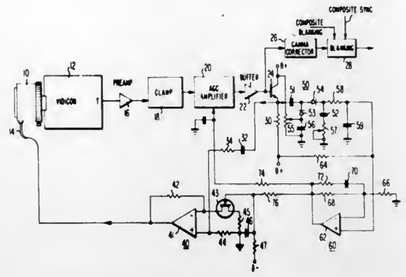
4,268,865
CONTINUOUS MOTION FLYING SPOT TELECINE
John D. Millward, Hitchin, England, assignor to The Rank Organisation Limited, London, England
Filed Oct. 22, 1979, Ser. No. 86,711
Claims priority, application United Kingdom, Oct. 20, 1978, 41416/78
Int. Cl.³ H04N *3/36*
U.S. Cl. 358—216 **6 Claims**



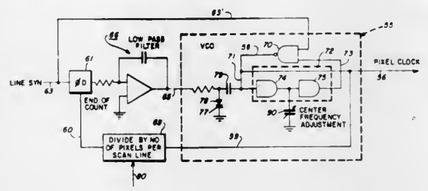
1. In a continuous motion flying spot telecine apparatus comprising means for transporting a film frame-by frame with continuous motion past a scanning station, means for effecting flying spot line-by-line scanning of each film frame during its motion through the scanning station, opto-electronic converter and signal processing means for producing from the scanning of each film frame an analogue signal comprising a plurality of lines of which at least a part of each (the active part) contains picture information, filter means for limiting the bandwidth of the analogue signal, an analogue-to-digital converter for sampling the analogue signal at a predetermined clock frequency, a store for storing digital signals produced by the sampling, and means for reading out the stored digital signals in a predetermined sequence and at a predetermined rate, the improvement comprising means for selectively changing the line frequency of scanning between at least two values without changing the clock frequency, and means for controlling the horizontal deflection speed of the flying spot in such manner that for either line scanning frequency the time taken to derive the active part of each line of the analogue signal corresponds to the same number of clock signals in each case.

4,268,866
PEAK-RESPONSE CONTROLLER FOR AVERAGE-RESPONDING AUTOMATIC IRIS
Robert L. Rodgers, III, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.
Filed Nov. 9, 1979, Ser. No. 93,013
Int. Cl.³ H04N *5/26*
U.S. Cl. 358—228 **3 Claims**

1. A drive circuit which operates an automatic iris portion of an automatic iris lens assembly which automatic iris portion responds to the average value of a video signal included in an iris control signal coupled to a control terminal thereof for maintaining a constant amplitude of said video signal, comprising:
- image sensing means receiving light from a scene, the intensity of which light is controlled by said iris, said image sensing means producing video signals in response to said light;
- detection means including a peak detection mode, said detection means being responsive to said video signals for producing a direct control signal;
- integrating means coupled to said detection means for integrating said direct control signal to form an integrated control signal;
- wherein the improvement comprises controllable-gain video amplifier means coupled to said integrating means, to said image sensing means and to said control terminal of said automatic iris for controlling the amplitude of video signals applied to said control terminal with a peak responsive mode for providing said averageresponding automatic iris with a peak characteristic.

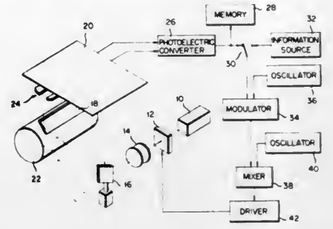


4,268,867
PIXEL CLOCK FOR SCANNER
James C. Traino, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Jun. 29, 1979, Ser. No. 53,604
Int. Cl.³ H04N *1/04, 1/22*
U.S. Cl. 358—285 **8 Claims**



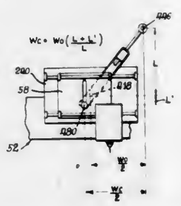
1. A clock circuit for producing pixel clock pulses for use in clocking out video image signals to the scanning beam modulator of a raster imaging device having detector means for generating signals defining start and end of scan of said scanning beam, comprising in combination:
- (a) a clock gate having an inherent operating time delay;
- (b) means to input said start and end of scan signals to one input of said clock gate, the output of said clock gate comprising said pixel clock pulses;
- (c) a feedback loop for feeding pixel clock pulses output by said clock gate to said clock gate input;
- (d) adjustable signal delay means in said feedback loop, the sum of said clock gate time delay and said adjustable signal delay means determining oscillation frequency of said clock gate; and
- (e) control means responsive to changes in velocity of said scanning beam for regulating said adjustable signal delay means to control the frequency of the pixel clock pulses output by said clock gate in response to variations in scanning beam velocity.

4,268,868
BEAM SCANNING TYPE ELECTRONIC COPYING APPARATUS
Tsuneshi Yokota, Kawasaki, and Toshio Ike, Kamakura, both of Japan, assignors to Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Jan. 30, 1980, Ser. No. 117,834
Claims priority, application Japan, Feb. 5, 1979, 54-12062
Int. Cl.³ H04N *1/04*
U.S. Cl. 358—286 **3 Claims**



1. A beam scanning type electronic copying apparatus comprising:
- a light source for generating a light beam;
- light beam modulating means for dividing the first order beam of the light beam generated from the light source into first and second diffracted beams according to the frequencies of a drive signal which includes a plurality of frequency components and for modulating the first and second diffracted beams according to the drive signal;
- means for scanning the first and second diffracted beams from said light beam modulating means onto a document and recording medium, respectively;
- photoelectric converting means for converting a beam reflected from the document based on said first diffracted beam into an electrical signal;
- first and second signal generating means for generating first and second constant-amplitude signals of predetermined frequencies;
- means for amplitude modulating the first constant-amplitude signal according to the electrical signal from said photoelectrical converting means; and
- means for mixing an output signal of said amplitude modulating means and said second constant-amplitude signal and for supplying a mixed signal as a drive signal to said light beam modulating means.

4,268,869
ELECTRONIC STENCIL CUTTER HAVING MEANS TO VARY SIZE OF REPRODUCED PICTURE
Arthur J. Heyer, Forest Park; Edward M. Springer, Chicago, and Wallace C. Clay, Oakbrook, all of Ill., assignors to Heyer Inc., Chicago, Ill.
Filed Apr. 10, 1978, Ser. No. 894,528
Int. Cl.³ H04N *1/10*
U.S. Cl. 358—287 **21 Claims**



1. In a stencil cutting machine, rotatable drum means having means for mounting an original sheet and a stencil sheet

thereon, a carriage having scanning means and reproducing means registrable respectively with said original and stencil sheets, said carriage being guided for movement along the drum means parallel to the axis thereof while the latter is rotating to scan an image on the original sheet while synchronously reproducing said image on the stencil sheet, improved means for moving said carriage along the drum means comprising:

a cable extending along the drum means;

drive motor means;

connecting means connecting the cable respectively to the carriage and to the drive motor means to thereby move the carriage in response to actuation of the drive motor means; and

manual override means for moving the carriage independently of the drive motor means including a handle on the carriage movable in opposite directions from a center position, and release means responsive to movement of the handle in either direction from the center position to release said connecting means and enable the carriage to be moved independently of the drive motor means by manual pressure exerted on the handle in either direction of movement of the handle from the center position.

4,268,870

RECORDING APPARATUS FOR READING INFORMATION FROM AN ORIGINAL

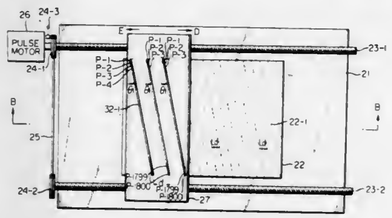
Takashi Kitamura; Hisashi Sakamaki, both of Yokohama, and Naoto Kawamura, Inagi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1979, Ser. No. 33,524

Claims priority, application Japan, Apr. 28, 1978, 53-51850

Int. Cl.³ H04N *1/22, 1/10*

U.S. Cl. 358—296 **18 Claims**



1. An information reading apparatus, comprising:

original support means for supporting an original to be read;

reading means for reading the information from said original supported by said original support means, said reading means including a plurality (n) of arrays, each of which consists of plural reading elements and has a reading range capable of reading a full span, in one direction, of the information of the original, each of said arrays being spaced from an adjacent one a distance obtained by multiplying a minimum interval at which the information is read by k, where k is such an integer that k/n is an irreducible fraction;

displacing means for displacing, in a direction transverse of said one direction, the position of information reading by said reading means on said original supported by said original support means;

detecting means for detecting the amount of displacement of the reading position by said displacing means; and

instructing means for instructing the start of information reading by said reading means upon detection by said detecting means of the displacement of the reading position by a distance obtained by multiplying said minimum interval by n.

4,268,871

SCANNING OPTICAL SYSTEM FOR FORMATION OF A HALF TONE IMAGE

Naoto Kawamura, Inagi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

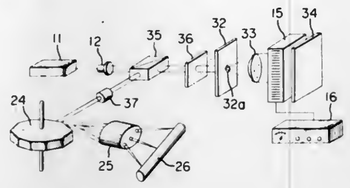
Continuation of Ser. No. 781,045, Mar. 24, 1977, abandoned.

This application May 29, 1979, Ser. No. 43,268

Claims priority, application Japan, Mar. 30, 1976, 51-34797; Apr. 14, 1976, 51-42244; Oct. 20, 1976, 51-125613

Int. Cl.³ H04N *1/22*

U.S. Cl. 358—298 **33 Claims**



1. A scanning optical system to control the formation of a half tone image, which comprises in combination:

(a) a light source;

(b) means defining a first aperture, to restrict a light beam from said light source, and a second aperture;

(c) a first image forming optical system, wherein said light source and said first image forming optical system are provided on opposite sides of said first aperture, and wherein said second aperture is provided at a position optically conjugative with said first aperture relative to said first image forming optical system;

(d) a scanning surface to receive the light beam from said second aperture;

(e) a second image forming optical system interposed between said second aperture and said scanning surface so as to render optically conjugative the position of said second aperture and the position of said scanning surface; and

(f) deflector means composed of a crystal and interposed between said first aperture and said second aperture for controlling the position of the beam from said first aperture projected across said second aperture to thereby vary the cross-sectional area of the beam received by said scanning surface, and wherein said deflector means is positioned such that the spectral image plane for the light beam from said light source which passes through said first aperture is at substantially the center of said deflector means along the optical axis of said first image forming optical system.

4,268,872

MAGNETIC DUPLICATOR WITH MULTIPLE COPIES

Norio Kokaji; Kunio Kinoshita; Toshihiro Urano, and Katsunori Saitoh, all of Tokyo, Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,823

Claims priority, application Japan, May 15, 1978, 53-64735[U]; Oct. 3, 1978, 53-121805

Int. Cl.³ H04N *1/28;* **G03G** *19/00*

U.S. Cl. 358—301 **23 Claims**

1. A magnetic duplicator comprising an image pickup portion for obtaining an electrical video signal from a document to be copied, a printing portion for printing an image formed from said electrical video signal onto a recording paper, and a control portion for controlling operations of said image pickup portion and printing portion,

said image pickup portion comprising:

(a) a document support for supporting said document;

(b) a light source for irradiating said document;

(c) an image pickup element for converting light received from said document into said electrical video signal;

(d) an optical means for introducing said light from said document onto said image pickup element; and

(e) a secondary scanning means for moving said image pickup element relative to said document so as to scan said document;

said printing portion comprising:

(f) a magnetic recording medium which has a surface for forming a magnetic latent image, said surface being able to move and having specific resistivity less than 10^{12} ohm-cm;

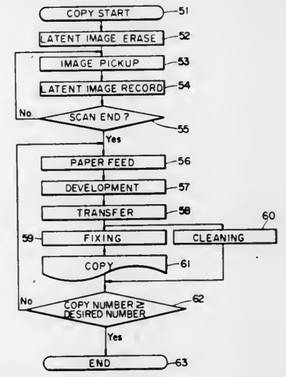
(g) a magnetic recording head for forming said magnetic latent image on said surface of the magnetic recording medium;

(h) a developing means for supplying a magnetic toner onto said surface of the magnetic recording medium to develop said magnetic latent image;

(i) a transporting means for moving said recording paper along a predetermined transport path;

(j) a transfer means for transferring the toner image on said surface of the magnetic recording medium onto said recording paper while said surface of the magnetic recording medium moves and said recording paper is moved along said transport path;

(k) means for applying electrostatic field between said magnetic recording medium and said transfer means so as to aid the transferring of said toner image;



(l) a fixing means for fixing said transferred toner on said recording paper;

(m) a cleaning means for cleaning the remaining toner on said surface of the magnetic recording medium after the transfer, said cleaning means including a cleaning blade and an air suction means; and

(n) a pulse generating means for generating pulses in synchronization with the movement of said surface of the magnetic recording medium; and

said control portion comprising:

(o) a copy register for presetting the desired number of copies;

(p) a copy counter for counting the number of the obtained copies;

(q) a comparator for comparing the set number of said copy register with the counter value of said copy counter, said comparator generating a copy end signal when the counted value reaches the set number; and

(r) a control means which operates first for latent image forming mode and then operates for copy mode, with actuation of a copy switch, the operation for copy mode being repeated without returning to the latent image forming mode until said copy end signal is generated from said comparator, and the operations for latent image forming mode and copy mode being effected in accordance with the timing of said pulses;

where during said latent image forming mode, the light from said document is converted into the electrical video signal by said image pickup element, said electrical video signal is recorded on said surface of the magnetic recording medium to form said magnetic latent image thereon by said magnetic recording head, and said electrical video signal is read out from said image pickup element in accordance with the timing of said pulses so as to effect said movement of the magnetic recording medium and said read-out of the image pickup element in a predetermined relationship; and

where during said copy mode, the magnetic latent image on said surface of the magnetic recording medium is developed by the magnetic toner from said developing means, the toner image is transferred onto said recording paper being moved along the predetermined transport path by said transfer means, the transferred magnetic toner is fixed on said recording paper by said fixing means, and the remaining magnetic toner on said surface of the magnetic recording medium after the transfer is removed for next development by said cleaning means.

4,268,873

SERVO CIRCUIT FOR ROTARY HEADS OF A VIDEO TAPE RECORDER

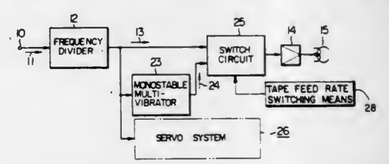
Yasunori Kobori; Toshi Itoh, both of Katsuta; Yoichi Tokunaga, Mito, and Tunehiko Teshima, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 6, 1979, Ser. No. 63,711

Claims priority, application Japan, Aug. 9, 1978, 53-96220

Int. Cl.³ H04N *5/785*

U.S. Cl. 360—9 **5 Claims**



1. A servo circuit for a video tape recorder which comprises two rotary heads of helical scan type for forming a multiplicity of oblique recording tracks on a magnetic tape, and means for selectively changing over the magnetic tape feed rate with which recording/reproduction is performed between at least two values, each of said recording tracks being formed superimposed partially on the previously-formed recording track on the magnetic tape when the recording is performed with the lower one of the at least two tape feed rates, thereby causing each recording track to be narrower than the width of each of the heads, said servo circuit comprising:

means for generating a first control signal in synchronism with a vertical synchronizing signal extracted from the video signal to be recorded;

means for recording said first control signal on a control track of the magnetic tape;

means for controlling the rotational phase of said rotary heads by the first control signal read from the control track of said magnetic tape at the time of reproduction;

means for generating a second control signal having a phase shifted by predetermined amount from the phase of said first control signal; and

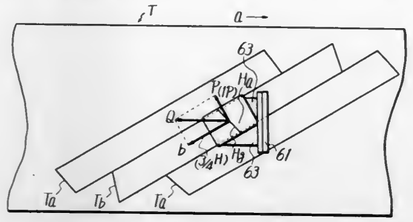
means interlocked with said magnetic tape feed rate switching means for recording said second control signal in place of said first control signal when the lower feed rate of said magnetic tape is selected.

4,268,874

TRANSDUCER DEFLECTION APPARATUS FOR USE IN A VIDEO SIGNAL REPRODUCING DEVICE

Kazuo Yamagiwa; Masatoshi Kamakur, both of Tokyo, and Toshihiko Numakura, Kamakura, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 2, 1979, Ser. No. 16,924
Claims priority, application Japan, Mar. 6, 1978, 53-25136
Int. Cl.[3] H04N *5/78*; G11B *21/10, 21/18*
U.S. Cl. 360—10 **11 Claims**



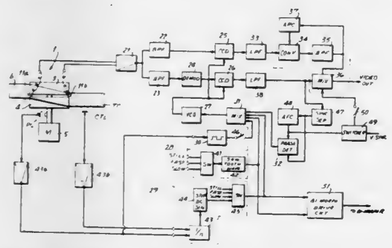
1. An apparatus for reproducing a video signal recorded in successive skewed tracks on a recording medium comprising: signal reproducing means for reproducing said video signal; rotary means for moving said signal reproducing means along a path generally parallel to said skewed tracks; deflectable support means responsive to a control signal for deflecting said signal reproducing means in a single composite direction with respect to said rotary means; means for mounting said deflectable support means on said rotary means at a predetermined non-perpendicular angle relative to said path along which said signal reproducing means is moved, such that said single composite direction is at a first angle relative to the perpendicular direction of said path and at a second angle relative to the longitudinal direction of said path so as to have a first component of deflection generally perpendicular to said path and a second component of deflection generally parallel to said path; and signal generating means for generating said control signal for application to said deflectable support means.

4,268,875

AVOIDANCE OF DISTURBANCE OF HORIZONTAL SYNC SIGNALS IN VIDEO SIGNAL REPRODUCED AT OTHER THAN STANDARD TAPE SPEED

Minoru Morio; Masahiro Kambara, both of Tokyo; Yukio Kubota, Takaidonishi, and Keitaro Yamashita, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,515
Claims priority, application Japan, Apr. 19, 1978, 53-46114
Int. Cl.[3] H04N *5/78*
U.S. Cl. 360—10 **14 Claims**



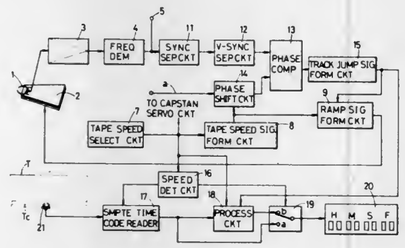
3. In a recording and reproducing apparatus in which a video signal is recorded by at least one rotary head in successive parallel tracks on a recording medium while the latter is being driven at a predetermined speed in a direction to which said tracks extend at a predetermined angle, and in which the recorded video signal can be reproduced by said rotary head repeatedly scanning the recording medium while the latter is driven at a selected arbitrary speed ranging from zero speed to at least said predetermined speed; the combination of an electro-mechanical transducer supporting said rotary head and being effective, in response to an electrical drive signal, to displace said rotary head in directions generally transverse to the direction along said tracks, drive circuit means for providing said drive signal so as to compensate for deviations of the scanning path of said rotary head from said tracks resulting from said arbitrary speed during reproducing being selected as other than said predetermined speed, variable delay means operative during reproducing when said arbitrary speed is selected as other than said predetermined speed for variably delaying the video signal reproduced by said rotary head, and control means responsive to the selected arbitrary speed other than said predetermined speed for controlling the amounts by which said variable delay means delay the reproduced video signal in accordance with said selected arbitrary speed to cause fields of the reproduced video signal which are contiguous in point of time to be continuous in the delayed video signal and to contain respective horizontal synchronizing signals which are in predetermined phase relationships to each other.

4,268,876

MAGNETIC REPRODUCING DEVICE

Hitoshi Sakamoto, Zama, and Ryuichi Yamayoshi, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 2, 1979, Ser. No. 26,249
Claims priority, application Japan, Apr. 8, 1978, 53-41616
Int. Cl.[3] G11B *21/08, 15/18*
U.S. Cl. 360—78 **8 Claims**



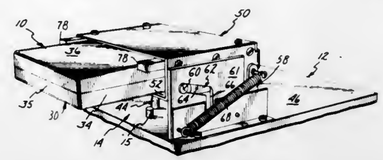
1. A magnetic reproducing device for use with a magnetic tape having signals recorded thereon in parallel tracks which extend obliquely in respect to the longitudinal direction of the tape comprising means for moving said tape at a selected speed in said longitudinal direction; a magnetic head for scanning said tracks so as to reproduce the respective signals recorded therein; deflecting means for deflecting said magnetic head in directions extending transversely to the direction along each of said recorded tracks; means for supplying a first drive signal to said deflecting means for positioning said magnetic head to repeat the scanning of one of said tracks; means for selectively supplying a second drive signal to said deflecting means for positioning said head to scan the next desired one of said tracks, and counting means for counting said second drive signals as a measure of the distance said tape is moved in said longitudinal direction, which measure is accurate independently of said selected speed.

4,268,877

RECORDING AND/OR PLAYBACK MACHINE WHICH AFFORDS USE OF VARIOUS SIZED MAGAZINES

Alfred H. Moris, and Steven S. Wysocki, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 23, 1979, Ser. No. 23,302
Int. Cl.[3] G11B *23/06, 15/70*
U.S. Cl. 360—94 **6 Claims**



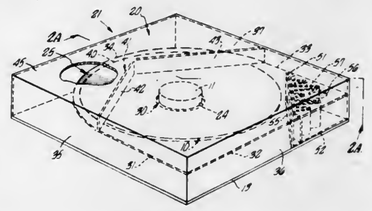
1. A magazine adapted to be received at a station having spaced side guide members for receiving a portion of the magazine therebetween, said magazine comprising:
a generally cylindrical hub portion;
an endless length of strip material having a major portion wound in a coil about the hub portion and a minor portion extending from the innermost wrap of the coil along a path around the side surface of the coil to the outermost wrap of the coil; and
a case including a first case portion enclosing said path for the strip material around the side surface of the coil and comprising opposite first side wall portions positioned on opposite sides of said path for the strip material around the side surface of the coil, said first side wall portions being spaced at a predetermined distance and having outer surfaces adapted to engage and be positioned by the side guide members at a said station to provide lateral positioning of said magazine relative to said station; and a second case portion enclosing said coil and hub and comprising opposite second side wall portions generally parallel with said first side wall portions on opposite sides of said hub and coil and spaced farther apart than said first side wall portions to afford clearance space for said coil.

4,268,878

GAS CIRCULATION AND FILTRATION APPARATUS FOR MAGNETIC DISC RECORDING SYSTEMS

William J. Kearns, Costa Mesa, Calif., assignor to New World Computer Company, Inc., Costa Mesa, Calif.

Filed Jun. 1, 1979, Ser. No. 44,533
Int. Cl.[3] G11B *23/02, 25/04, 5/82*
U.S. Cl. 360—97 **15 Claims**



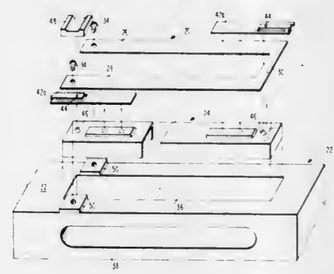
1. A gas circulation and filtration apparatus for use with a magnetic disc recording system, said system including a rotating disc having a first side and an outer edge, comprising:
a control surface adapted to be disposed parallel to said first side and spaced therefrom a substantially small distance to cause gas flow therebetween to be substantially laminar, said control surface having an opening formed therein adapted to be concentric with the center of said rotating disc, said control surface and said opening formed therein, said first side, and said outer edge defining an annular region;
a first gas chamber in communication with said annular region at said control surface opening;
a second gas chamber in communication with said annular region at the outer edge of said rotating disc; and
filter means intermediate said first and second gas chamber for allowing gas flow between said gas chambers through said filter.

4,268,879

SUSPENSION FOR AIR BEARING HEAD ARM ASSEMBLY

Robert B. Watrous, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 7, 1979, Ser. No. 36,614
Int. Cl.[3] G11B *5/48, 21/24*
U.S. Cl. 360—104 **8 Claims**



1. A magnetic head arm suspension assembly for supporting a flying head comprising:
a hollow box-like arm having a flat planar surface and a recess therein;
a load beam element matingly seated in a close fit relation within said recess, said load beam element having a flat planar surface;
a U-shaped flat planar resilient spring the cross-arm of said spring attached to said planar surface of said load beam element, and the other end attached to said planar surface of said arm; and
first and second magnetic transducers mounted respectively at each end of said planar surface of said load beam and adjacent to said one end and said other end of said spring on either side of the center lines of said load beam and said spring for translation in a direction orthogonal to said flat planar surface of said arm while the transducers move in a parallel relationship.

4,268,880

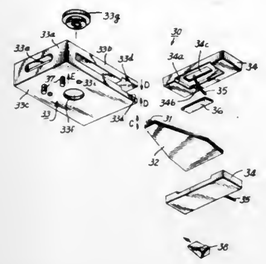
MAGNETIC HEAD ASSEMBLY

Osamu Majima, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 9, 1979, Ser. No. 10,849
Claims priority, application Japan, Feb. 10, 1978, 53-15773[U]
Int. Cl.[3] G11B *21/10, 21/04, 5/54*
U.S. Cl. 360—109 **15 Claims**

1. A magnetic head assembly comprising a deflectable piezoelectric member adapted for deflection in response to a voltage applied thereto; a magnetic head mounted on one end of said piezo-electric member; a U-shaped protective holder for supporting said piezo-electric member, said U-shaped holder being formed of resilient material and having a base from which a pair of legs extend with free ends of said legs being spring biased toward each other and with sand base having a window therein; said piezo-electric member extending between said legs with said one end protruding through said window and with the end of said piezo-electric member remote

from said one end thereof being positioned between and clamped by said spring biased free ends of said legs of said U-shaped holder; and means for applying a voltage to said



piezo-electric member at said remote end thereof, said means being clamped between said spring biased free ends of said legs.

4,268,881

AZIMUTH ADJUSTING DEVICE FOR MAGNETIC HEAD

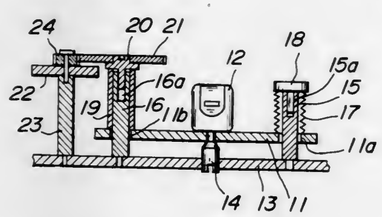
Shoichi Saito, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 14, 1979, Ser. No. 48,386

Claims priority, application Japan, Jun. 15, 1978, 53-82114[U]

Int. Cl.³ G11B *21/24*

U.S. Cl. 360—109 **4 Claims**



1. In an azimuth adjusting device for a magnetic head, the magnetic head having a center axis, including a head fitting plate for supporting the magnetic head, a support for mounting said head fitting plate so that the magnetic head is in operative relationship with a magnetic tape moving in a first plane substantially perpendicular to the center axis of the magnetic head, and an azimuth adjusting screw arranged for rotation about its axis on said support for adjusting the azimuth of the magnetic head in the first plane, the improvement comprising means on said support for pivoting the head fitting plate about an axis substantially parallel to the center axis of the magnetic head, spring means on said support for applying a bias force to said head fitting plate in a direction substantially parallel to the axis of said azimuth adjusting screw, said azimuth adjusting screw is arranged on said support to apply an azimuth adjusting force to said head fitting plate to counter the bias force applied to said head fitting plate by said spring means so that the azimuth of the magnetic head can be adjusted in accordance with rotational movement of said azimuth adjusting screw, said spring means and said azimuth adjusting screw applying said bias force and said azimuth adjusting force to said head fitting plate at locations along a line substantially perpendicular to the center axis and on different sides of the magnetic head, a first gear wheel of relatively large diameter coaxially fixed to said azimuth adjusting screw, and a second gear wheel mounted on said support in meshed engagement with said first gear wheel for transmitting rotational movement to said azimuth adjusting screw, said second gear wheel having a diameter smaller than that of said first gear wheel so that said azimuth adjusting screw can be finely adjusted to set the azimuth of the magnetic head in the first plane.

4,268,882

MAGNETIC ERASING HEAD

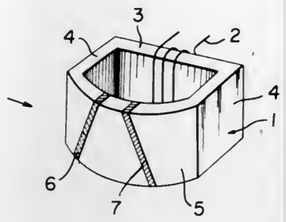
Kazumasa Fukuda, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1979, Ser. No. 95,503

Claims priority, application Japan, Dec. 1, 1978, 53-147848

Int. Cl.³ G11B *5/27, 5/25, 5/12*

U.S. Cl. 360—118 **3 Claims**



1. A magnetic erasing head comprising:

a head formed of a highly permeable substance having two or more gaps of uniform thickness formed on a front part thereof;

a spacer made of a non-magnetic substance disposed in each of said gaps and extending from one side to the other of said front part of said head wherein an angle of one of said gaps to a transit direction of a magnetic tape is an acute angle and an angle of the other gap to the transit direction of the magnetic tape is an obtuse angle.

4,268,883

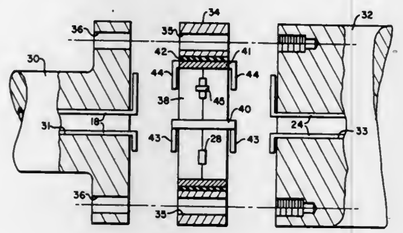
REVERSE VOLTAGE PROTECTION FOR BRUSHLESS EXCITATION SYSTEMS

Sheppard J. Salon, Pittsburgh, and Lon W. Montgomery, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 23, 1978, Ser. No. 953,654

Int. Cl.³ H02K *19/00*

U.S. Cl. 361—21 **17 Claims**



1. In a brushless excitation system for a synchronous generator having a rotor member including a shaft carrying a field winding, the combination comprising:

an alternating current exciter having an armature winding carried on an exciter shaft having a central bore and rotatable with said rotor member;

a rectifier assembly rotatable with the rotor member and connected to said armature winding;

means for connecting the rectifier assembly to said field winding to supply direct current excitation thereto; and

switching means responsive to the voltage across the field winding for shunting the field winding in response to voltage exceeding a predetermined value;

said switching means mounted within said bore.

4,268,884

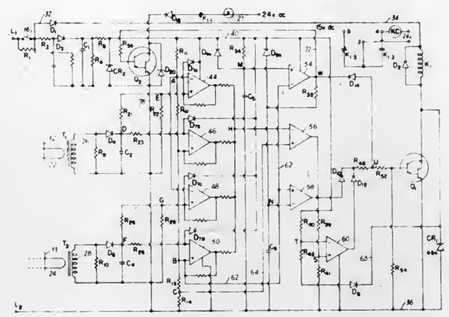
CURRENT SENSING CIRCUIT

John R. Ford, Jr., and Harold D. Leipold, both of Princeton, Ind., assignors to AMF Incorporated, White Plains, N.Y.

Filed May 7, 1979, Ser. No. 36,629

Int. Cl.³ H02H *3/093, 7/085*

U.S. Cl. 361—22 **14 Claims**



1. A current sensing circuit for detecting an undesired current condition in a current distribution system, wherein the distribution system includes disconnecting means for disconnecting a load from the distribution system when an undesired magnitude of current is sensed, comprising

sensing means coupled to a line of the distribution system for sensing the magnitude of current flowing in said line and for producing a sensing signal in response thereto,

comparing means for comparing said sensing signal with a reference signal that corresponds to a limit of the magnitude of acceptable current in said line,

said comparing means producing a first signal when the magnitude of said sensing signal is within a predetermined limit and producing a second signal when the sensing signal is outside the predetermined limit,

means including controllable conduction means responsive to the presence of said first signal for operating said disconnecting means to connect a load to the distribution system, and responsive to the presence of said second signal to operate the disconnecting means to disconnect the load from the distribution system,

first delay means operable only in response to each energization of the current sensing circuit for delaying the operation of the controllable conduction device for a first delay period, and

second delay means operable only on each energization of the circuit at the conclusion of the first delay period and after the controllable conduction means responds to said first signal for preventing the further operation of the controllable conduction means for the duration of a second delay period, whereby said disconnecting means cannot be operated to disconnect the load from the distribution system until the conclusion of the second delay period.

4,268,885

GFI SENSOR CIRCUIT

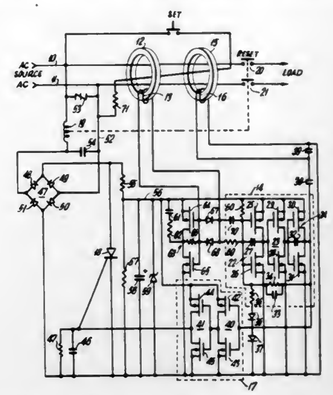
Malcolm Williams, Orinda, Calif., assignor to Slater Electric Inc., Glen Cove, N.Y.

Filed Aug. 2, 1979, Ser. No. 62,956

Int. Cl.³ H02H *3/28*

U.S. Cl. 361—45 **8 Claims**

1. A ground fault interrupter circuit comprising means for sensing the occurrence of a ground fault condition in a power line and for producing a ground fault signal upon the sensing of a ground fault condition, means coupled to said sensing means for amplifying said ground fault signal, and switching means operatively connected to said amplifying means and actuated by the application thereto of an amplified ground fault signal, said amplifier means comprising a plurality of series-connected



CMOS inverter stages and means operatively connected to said amplifier means for biasing said inverter stages at a transitional phase of operation so as to provide a predetermined gain for said amplifier means.

4,268,886

DISTANCE PROTECTION APPARATUS FOR ELECTRICAL LINES

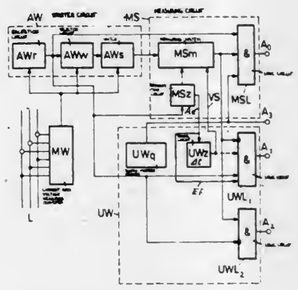
Ivan De Mesmaeker, Fislisbach, Switzerland, assignor to BBC Brown, Boveri & Co., Ltd., Baden, Switzerland

Filed Sep. 20, 1978, Ser. No. 943,955

Claims priority, application Switzerland, Sep. 30, 1977, 11956/77

Int. Cl.³ H02H *7/26*

U.S. Cl. 361—80 **5 Claims**



1. A distance protection apparatus for electrical lines, comprising:

a starter circuit having an output and containing an excitation circuit responsive to at least one predetermined fault criterion appearing at least at one of the electrical lines;

at least one measuring circuit having a characteristic in the complex impedance plane which can be switched at least in sections between a number of distance trip boundaries and having at least one linear section which extends at least approximately through the null point of the impedance plane;

said measuring circuit having an output side and containing a measuring system;

said measuring circuit further having a switching stage for the greatest zone boundary;

said switching stage constituting an end stage whose linear trip boundary extending through the null point of the impedance plane is located externally of the load range of the electrical line;

a monitoring circuit having a first comparison logic means, said comparison logic means having an input side and an output side; and

the input side of said first comparison logic circuit being connected with the output of the starter circuit and with the output side of the measuring circuit and in the event of response of the excitation circuit in conjunction with non-response of the measuring system of the measuring circuit producing a fault function signal.

4,268,887

PROTECTIVE SYSTEM FOR POWER STAGE OF IC AMPLIFIER

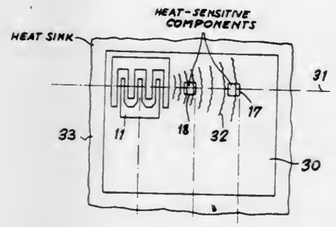
Giovanni Ghiringelli, Segrate, and Bruno Murari, Monza, both of Italy, assignors to SGS-ATES Componenti Elettronici S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 862,355, Dec. 20, 1977, Pat. No. 4,157,513. This application Mar. 30, 1979, Ser. No. 25,539

Claims priority, application Italy, Dec. 21, 1976, 30659 A/76

Int. Cl.³ H02H *5/04;* **H03F** *3/04*

U.S. Cl. 361—93 **5 Claims**



1. In integrated circuitry comprising a power element connected across a load by way of a series resistor, and a normally inactive protective circuit including a monitoring transistor with input electrodes connected across said series resistor for limiting the current flow in said power element in response to a voltage drop across said series resistor exceeding a normal value by which said monitoring transistor is biased to cutoff,

the improvement wherein said monitoring transistor has a temperature-dependent conduction threshold and is disposed together with said power element on a semiconductor chip, juxtaposed with a heat sink, at a distance from said power element close enough to enable a significant lowering of said conduction threshold by a heat surge through said power element having a minimum duration on the order of one millisecond.

4,268,888

APPARATUS FOR GENERATING ENGINE SPEED-DEPENDENT IGNITION CONTROL SIGNALS

Bernd Bodig, Leinfelden-Echterdingen, and Werner Jundt, Ludwigsburg, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

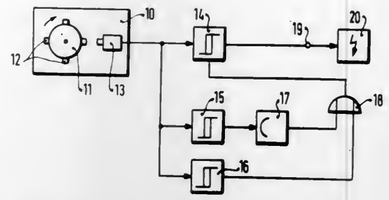
Filed Aug. 15, 1979, Ser. No. 66,862

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1978, 2842998

Int. Cl.³ F02B *5/02*

U.S. Cl. 361—236 **7 Claims**

1. An apparatus for generating control signals based on the output signal from a rotary transducer, especially for controlling the ignition system of an internal combustion engine, said apparatus including a transducer (**10**) having a rotary portion for generating an output signal which is at least dependent on angle of rotation and further including a principal threshold switch (**14**) having a first, positive threshold which, when exceeded by said transducer signal, causes said primary threshold switch to assume a first state and having a second, negative threshold which, when crossed by said transducer signal, causes said primary threshold switch to assume a second state, and wherein, according to the invention, said apparatus comprises a second threshold switch (**15**) having a positive activation threshold and a positive de-activation threshold, the output signal from said second threshold switch (**15**) being applied to said first threshold switch (**14**) to thereby shift the second, negative threshold thereof to a more positive electrical value and said apparatus further comprises a delay member (**17**) for delaying the return of said second negative threshold to more negative values.



4,268,889

ROTARY DISPLACEMENT CAPACITIVE TRANSDUCERS

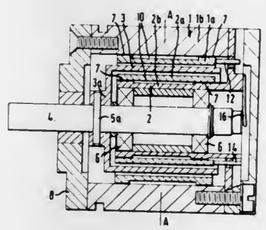
Peter C. F. Wolfendale, Bletchley, England, assignor to Automatic Systems Laboratories Limited, Bedfordshire, England

Filed Jun. 4, 1979, Ser. No. 45,456

Claims priority, application United Kingdom, May 31, 1978, 25932/78

Int. Cl.³ H01G *5/04*

U.S. Cl. 361—292 **9 Claims**



1. A rotary displacement capacitive transducer comprising a first cylindrical electrode having a longitudinal axis, a second cylindrical electrode surrounding said first electrode and supported about said longitudinal axis to provide an annular gap between said first and second cylindrical electrodes, at least one of said cylindrical electrodes being divided into axially extending arcuate segments, means for insulating said segments from one another, and a part cylindrical screen mounted on a shaft rotatable about said longitudinal axis, said part cylindrical screen extending along and being movable about said longitudinal axis through said annular gap when said shaft rotates, the rotating movement of said part cylindrical screen being operable to vary a capacitance coupling between said inner and outer cylindrical electrodes whereby the capacitance of the capacitive coupling is indicative of the angular position of said shaft.

4,268,890

BREAKER COMBINATION FOR BUS BAR INSTALLATIONS

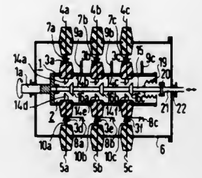
Erich Silbermann, Bubenreuth, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Mar. 30, 1979, Ser. No. 25,562

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1978, 2818914

Int. Cl.³ H02B *1/04*

U.S. Cl. 361—335 **16 Claims**



1. In a breaker combination for connecting at least one bus bar with at least one branch in a plural phase bus bar installation, the breaker combination having, in at least one phase of the installation,

a fixed tube and a rotatable shaft axially disposed in the tube; stationary counter-contacts disposed around the inner circumference of the tube, there being at least one counter-contact connected with one bus bar and one counter-contact connected with a branch; and

at least two contact studs disposed on an arc of a circle on the shaft and an electrical interconnection between the studs, whereby rotation of the shaft will electrically connect at least one contact stud to one counter-contact, the improvement in which:

the shaft comprises a hollow switching tube and a power circuit breaker contained in the hollow switching tube, the power circuit breaker having a set of contacts connected in series with the interconnection between the contact studs, the power circuit breaker being operable to open the contacts and disconnect the studs from each other.

4,268,891

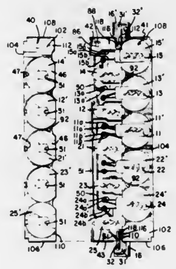
MULTILAMP PHOTOFLASH UNIT HAVING GROUNDED REFLECTOR

Boyd G. Brower, Williamsport; Ronald E. Sindlinger, Muncy, and James L. Holmes, Montoursville, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Sep. 13, 1978, Ser. No. 941,875

Int. Cl.³ G03B *15/02*

U.S. Cl. 362—11 **10 Claims**



1. A photoflash unit comprising a plurality of electrically ignitable flashlamps each having a pair of lead-in wires, a circuit board having circuitry disposed on a surface thereof for selectively igniting said flashlamps, said flashlamps being positioned over said surface, means electrically connecting the lead-in wires of said flashlamps to said circuitry, said circuitry including a common circuit conductor connected electrically to one lead-in wire of each of said flashlamps, said common circuit conductor including an enlarged conductive area on said circuit board, an electrically conductive reflector unit positioned between said lamps and said circuit board and shaped to reflect light from said lamps when flashed, said reflector unit including a sidewall portion vertically aligned with said enlarged conductive area, and means for providing a low voltage electrical path between said conductive reflector unit and said common circuit conductor, said last-mentioned means comprising a dried paste of electrically conductive material disposed between the edge of said sidewall portion of the conductive reflector unit and said enlarged conductive area on the circuit board.

4,268,892

DIFFUSION LENS FOR REAR LIGHTS OF VEHICLES, ESPECIALLY MOTOR VEHICLES

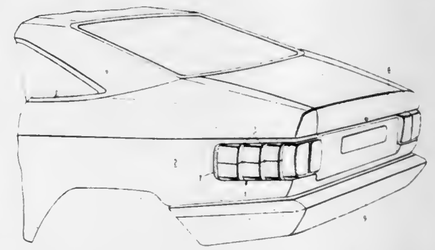
Peter Pfeiffer, and Johann Tomforde, both of Sindelfingen, Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,536

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844822

Int. Cl.³ B62D *23/00;* **B60Q** *1/00*

U.S. Cl. 362—83 **6 Claims**



1. A diffusion lens for rear lights of vehicles, which diffusion lens is drawn about the vehicle rear section and far into the area of the side wall of the vehicle, characterized in that the diffusion lens includes within said area of the side wall of the vehicle step-shaped offsets—as viewed in plan view—in such a manner that individual light exit surfaces are formed that are disposed approximately in vehicle transverse planes.

4,268,893

ILLUMINATION APPARATUS FOR USE IN AN OBSCURED AMBIENT, FLUID CONDUIT AND METHOD

Roy M. Harrigan, Bromley Mountain Rd., Manchester, Vt. 05254

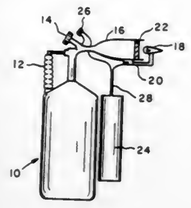
Continuation of Ser. No. 762,498, Jan. 26, 1977, abandoned. This application Oct. 6, 1978, Ser. No. 949,147

Int. Cl.³ F21V *33/00*

U.S. Cl. 362—96 **2 Claims**

1. A light assembly for use in an obscured environment which comprises: a source of light, a reflector for directing the light in at least one direction, and means for displacing smoke and other atmospheric contaminents which includes a reservoir for a gas and means for directing said gas in a direction parallel to said one direction about at least the majority of the circumferential extent of said reflector, said means for directing including an elongated hollow member disposed about said reflector, said elongated hollow member being dimensioned and configured at each radial point to induce a drag at the

interior surface of said elongated hollow member as a result of fluid flow which is equal to the drag simultaneously induced



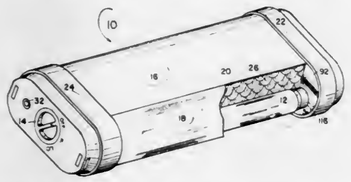
on said reflector as a result of fluid flow whereby turbulence between said reflector and said member is minimized.

4,268,894

PORTABLE WATERPROOF FLUORESCENT LANTERN

William Bartunek, Yonkers, N.Y., and Henry R. Mallory, Greenwich, Conn., assignors to Duracell International Inc., Bethel, Conn.

Filed Mar. 5, 1979, Ser. No. 17,216
Int. Cl.³ F21L *7/00*
U.S. Cl. 362—158 **9 Claims**



1. A portable waterproof fluorescent lantern comprising a case impervious to the entry of water, said case comprising a partially transparent, substantially continuous outer shell having first and second open ends, a first cap covering and permanently sealed to the first open end, and a second cap firmly attached to the first end of the battery holder and capping the second open end of said outer shell; a fluorescent lamp within said case; a self-contained power source within said case for powering said lamp, said self-contained power source comprising a battery holder having first and second ends; means for activating said self-contained power source operatively associated with said case, said means being sealed to maintain said case in a waterproof condition; means for locking the case comprising a pair of mating male and female threaded elements, one element being located on the second end of the battery holder, and the second mating threaded element being rotatably situated in the first end cap; a first gasket operatively associated with the second open end and the second cap; and a second gasket operatively associated with said threaded mating elements whereby upon the complete mating of the elements said lantern is rendered waterproof.

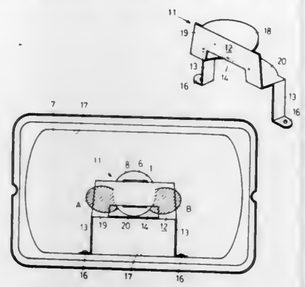
4,268,895

AUTOMOTIVE HEADLIGHT

Hisao Yabata, Takasaki, Japan, assignor to Ichikawa Press Industries Co., Ltd., Takasaki, Japan

Filed Aug. 4, 1978, Ser. No. 931,099
Claims priority, application Japan, Dec. 29, 1977, 52/176567[U]
Int. Cl.³ F21V *7/00*
U.S. Cl. 362—307 **6 Claims**

1. An improved automotive headlight of the type having:
a front lens and a rear reflector enclosing a headlight cavity therebetween;
a lamp bulb disposed near the center of the reflector within said headlight cavity, said lamp bulb being of the type having ray refracting base wall portions adjacent its rear end, such that light rays passing through said ray refracting portions of said lamp bulb have paths from said bulb back to said reflector and forwardly out through said lens;
a hood disposed in said cavity and having means supporting said hood on said reflector, said hood having side walls disposed on opposite sides of said lamp bulb and a top wall overlying a substantial portion of said lamp bulb and a bottom wall underlying said lamp bulb and a front wall disposed in front of said lamp bulb and joining said top and bottom walls of said hood, said hood defining a rear opening box receiving said lamp bulb;
wherein the improvement comprises:
said hood including light blocking wings which extend



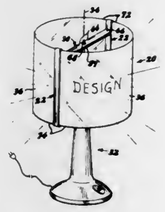
horizontally beyond said lamp bulb into said refracted ray path to block at least a part of said refracted rays, said wings being spaced laterally outboard of said lamp bulb and extending rearwardly behind and on opposite sides of said lamp bulb, said wings angling divergently rearwardly from said side walls of said box, said wings each comprising a rearwardly extending leg terminating in a foot fixed to said reflector on opposite sides of the axis of said lamp bulb and defining said means supporting said hood on said reflector, and wings each further comprising a substantially triangular extension depending from said leg into said refracted ray path to block said refracted rays before they reach said reflector, said light blocking wings being free of connection to said lamp bulb except through said reflector.

4,268,896

LAMPSHADE MEANS

Ray R. Mann, 3447 Georgetown Rd., Indianapolis, Ind. 46224

Filed Feb. 21, 1980, Ser. No. 123,298
Int. Cl.³ F21V *1/02*
U.S. Cl. 362—311 **9 Claims**



1. A lampshade, comprising, in combination:
a pair of generally vertical support members, each provided with a recess groove means providing a pair of opposed abutments;
laterally-extending support means supporting the said vertical support members from the associated lamp device and spaced from the vertical axis of the lamp device;
a resiliently deformable panel means;

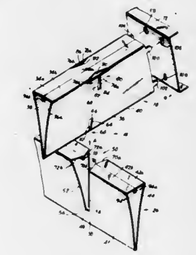
the groove means of each support member, and its opposed abutments, being provided such that the effective axial plane of the two groove means are non-planar, and are spaced apart, such that opposed edges of the panel means may be inserted into the operatively adjacent groove means of operatively adjacent support members but that in doing so the panel means must be resiliently deformed sufficiently to impart stress thereinto which causes portions of the panel means at or adjacent said opposed edges to press against the opposed abutments, thereby snugly retaining the assembly of the panel means and the support members;
in a combination in which there are provided at least two of the said panel means, and each of the support members is provided with groove means opening outwardly in opposite directions.

4,268,897

SELF-LOCKING LOUVER FOR LIGHTING FIXTURE

Alfred W. Schierwagen, Richmond Hill, and Thomas D. La Mountain, Syosset, both of N.Y., assignors to Templet Industries, Inc., Plainview, N.Y.

Filed Jul. 23, 1979, Ser. No. 59,688
Int. Cl.³ F21V *17/02*
U.S. Cl. 362—325 **14 Claims**



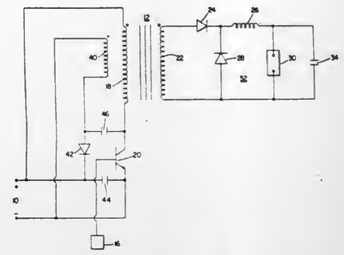
1. An easy-to-assemble, self-locking, low brightness louver for a lighting fixture of the type having an elongated light source, comprising:
(a) a plurality of elongated light baffles of generally triangular cross-section, each baffles having a top wall which faces the light source, and a pair of concavely-curved side walls which converge from opposite sides of the top wall along predetermined parabolic paths and which meet at a common lower edge that is located below the light source in a genrally horizontal plane to thereby define relative to the latter a cutoff angle with direct light emitted from the light source,
each parabiolic side wall having a reflective specular finish being adapted for reflecting light emitted from the light source at angles with respect to the horizontal plane which are at least equal to the given cutoff angle;
(b) assembly means for alingning a first set of the baffles in a direction generally longitudinally of the light source, and for aligning a second set of the baffles in a direction generally transversely of the light source,
both longitudinal and transverse baffles being assembled in a criss-crossed, grid-type lattice arrangement which forms a plurality of light passageways bounded by the parabolic side walls; and
(c) self-locking means for snappingly interengaging the longitudinal and transverse baffles in said lattice arrangement with snap-type action, whereby a louver of unitized construction may be quickly and easily snappingly assembled at the site of the lighting fixture.

4,268,898

SEMICONDUCTOR SWITCHING CIRCUIT WITH CLAMPING AND ENERGY RECOVERY FEATURES

Harold J. Brown, Lorain, Ohio, assignor to Lorain Products Corporation, Lorain, Ohio

Filed Mar. 20, 1980, Ser. No. 132,173
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—20 **19 Claims**



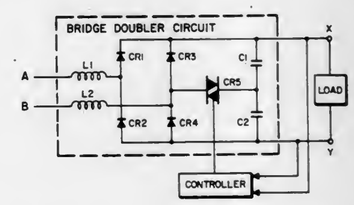
1. In a circuit of the type including a semiconductor switching means coupled to source of input voltage and to an inductive energy storage means said switching means responsive to a source of periodic switching signals to thereby switch between conductive and nonconductive states said inductive means storing energy when said switching means is in said conductive state, the improvement therein comprising:
(a) means responsive to the change of said switching means from said conductive to said non-conductive state for maintaining the voltage across said switching means at a magnitude which is approximately equql to twice the voltage of said input source until the energy stored in said inductive means is recovered; and
(b) energy recovery means connected to said voltage maintaining means and said input source and inductively coupled to said inductive storing means for recovering the energy stored in said inductive means when said switching means becomes non-conductive, said energy recovery means including means for returning said recovered energy to said input source.

4,268,899

BRIDGE-DOUBLER RECTIFIER

Gary J. Rokas, Lasalle, Canada, assignor to Sperry Corporation, New York, N.Y.

Filed Jun. 15, 1979, Ser. No. 48,855
Int. Cl.³ H02M *7/02*
U.S. Cl. 363—61 **6 Claims**



1. A rectifier circuit comprising:
bridge means for rectifying at least one phase of an alternating input signal to a full wave signal;
capacitor means coupled to said full wave signal and having a voltage control terminal for producing an output signal, the voltage level of said output signal remaining substantially constant as the peak level of said input signal varies;
bidirectional current means having a gate and a first and

second terminals, said first terminal connected to said voltage control terminal and said second terminal connected to said bridge means, for conducting current in response to a control signal; and

control means coupled to said gate and producing said control signal for controlling the conduction time of said bidirectional current means, and thereby causing said rectifier to operate in a voltage doubler mode and regulate the level of said output signal, comprising;

a constant reference voltage source proportional to the constant level desired of said output signal;

ramp means coupled to said input signal for producing a ramp signal synchronized to said input signal;

error means coupled to said output signal for comparing said reference voltage to a feedback signal, said feedback signal being proportional to said output signal, and producing an error signal;

comparator means for comparing said error signal with said ramp signal and producing a pulse enable signal whenever said ramp signal is greater than said error signal;

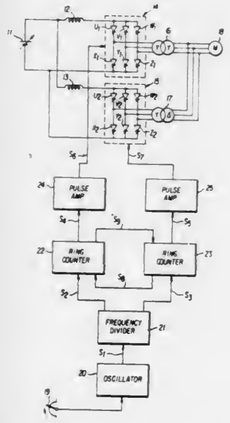
modulating means coupled to said pulse enable signal for phase width modulating said control signal, the conduction time of said bidirectional current means corresponding to the time width of said pulse enable signal.

4,268,900

DEVICE FOR CONTROLLING A PLURALITY OF CONVERTERS

Akio Hirata, 1-10-6, Kai-machi, Fuchu-shi, Tokyo, Japan

Filed Dec. 11, 1979, Ser. No. 102,440
Claims priority, application Japan, Dec. 27, 1978, 53-163191
Int. Cl.³ H02M *7/515*
U.S. Cl. 363—71 **8 Claims**



1. A device for controlling a plurality of power converters which are connected in parallel with each other and which convert direct current power into alternating power, said device comprising:

reference circuit means for producing a reference signal having a frequency proportional to the frequency of the output of said controlling device;

a plurality of converter driving means coupled to each of said parallel power converters for driving said converters in response to said reference signal, one of said converter driving means being provided for each of said parallel converters; and

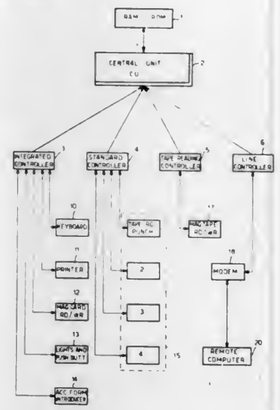
interlock means coupled to each of said plurality of converter driving means for supplying interlock signals to each of said plurality of converter driving means and for maintaining each of said power converters in an exact phase relationship to each other.

4,268,901

VARIABLE CONFIGURATION ACCOUNTING MACHINE WITH AUTOMATIC IDENTIFICATION OF THE NUMBER AND TYPE OF CONNECTED PERIPHERAL UNITS

Angelo Subrizi, and Ettore Violino, both of Ivrea, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Aug. 21, 1975, Ser. No. 606,394
Claims priority, application Italy, Sep. 18, 1974, 69812 A/74
Int. Cl.³ G06F *9/06, 13/00*
U.S. Cl. 364—200 **8 Claims**



1. A variable configuration accounting machine adapted to be connected to a variable number and type of peripheral units, said machine comprising a central unit operable for controlling the operations of said machine and of the peripheral units connected thereto, a first read-write memory for storing data and instructions adapted to be executed for operating said central unit and said peripheral units, a second memory for permanently storing microprograms adapted to be fetched by said central unit for executing said instructions, said second memory including a first section for storing at least an initialization microprogram and a plurality of memory sections, individually selectively connectable to said central unit and each one storing microprograms for executing instructions for operating a corresponding one of said peripheral units connected to the machine in a specific configuration, said first memory comprising a first zone reserved to the central unit for execution of the microprograms and a second zone for storing data and instructions, and manual means operable for causing the execution of said initialization microprogram for initializing the machine, wherein the improvement comprises:

identifying means controlled by predetermined microinstructions of said initialization microprogram for sequentially identifying said memory sections;

storing means responsive to each identification of one of said memory sections by said identifying means for storing in said first zone a corresponding value indicating the number of memory locations corresponding to the identified section of said second memory;

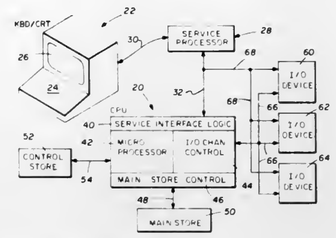
and, means controlled by said storing means for defining said first zone according to said value, whereby said first memory is initialized with a first zone having a reserved number of allocated memory locations variable according to the number and type of said connected peripheral units.

4,268,902

MAINTENANCE INTERFACE FOR A SERVICE PROCESSOR-CENTRAL PROCESSING UNIT COMPUTER SYSTEM

Neil C. Berglund, Kasson, and James R. Nieling, Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 23, 1978, Ser. No. 953,673
Int. Cl.³ G06F *11/00*
U.S. Cl. 364—200 **32 Claims**



9. A computer system comprising:

first processing means for generating commands and transmitting and receiving data;

second processing means for generating commands and transmitting and receiving data and operating asynchronously to said first processing means;

interface means interconnected to said first and second processing means for enabling the transmission of said commands and data generated by either said first or said second processing means between said first and said second processing means without communication contention and loss of data and commands transferred between said first and said second processing means; and

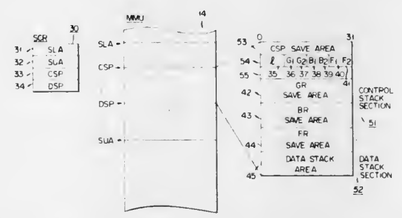
said interface means and said second processing means including a plurality of internal storage elements connected for operation in a nondiagnostic mode and connected serially as a plurality of shift rings for operation in a diagnostic mode.

4,268,903

STACK CONTROL SYSTEM AND METHOD FOR DATA PROCESSOR

Yusaku Miki, Fuchu; Hidemi Yamamoto, Kunitachi; Yuichi Kimihira, Urawa, and Akio Tanaka, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabusiki Kaisha, Japan

Filed Nov. 27, 1978, Ser. No. 964,089
Claims priority, application Japan, Nov. 28, 1977, 52-141515
Int. Cl.³ G06F *13/06*
U.S. Cl. 364—200 **18 Claims**



1. In a computer system having a memory unit, arithmetic logic (ALU) unit, working registers, a stack control register, and means for executing control instructions associated with said programs, a method of controlling the storage of linkage data at the time control of said system is shifted from a calling program to a called program comprising the steps of:

initializing said stack control register in response to a control instruction by entering the same predetermined address value into a control stack pointer (CSP) section and a data stack pointer (DSP) section of said register;

loading the contents of said CSP section into said memory unit at the address specified by the contents of said DSP section to save a control stack pointer address at the time program control of said system shifts from said calling program to said called program;

moving the contents of said DSP section into said CSP section;

adding in said ALU a first address increment derived from a control instruction to the contents of said CSP section to determine an intermediate address defining an area in said memory unit for storing program status data pertaining to said calling program;

adding in said ALU a second address increment derived from a control instruction to said intermediate address to determine an offset address defining a memory area for storing working data pertaining to said called program; and

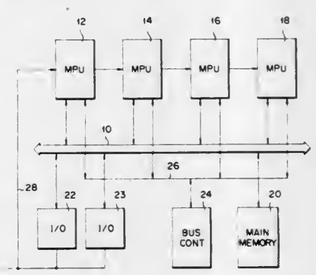
entering said offset address into said DSP section to establish an address pointer for the entry of the next control stack pointer address to be saved.

4,268,904

INTERRUPTION CONTROL METHOD FOR MULTIPROCESSOR SYSTEM

Seigo Suzuki, Yokohama, and Seiji Eguchi, Kawasaki, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Japan

Continuation-in-part of Ser. No. 878,085, Feb. 15, 1978, abandoned, which is a continuation of Ser. No. 741,465, Nov. 12, 1976, abandoned. This application Dec. 13, 1978, Ser. No. 969,008
Int. Cl.³ G06F *9/46, 15/16*
U.S. Cl. 364—200 **3 Claims**



1. In a multiprocessor system formed of a plurality of microprocessors and including a shared memory unit, a method for controlling the processing of an interrupt command issued by an I/O device electrically interconnected with said microprocessors comprising the steps of:

entering into the general register of each of said microprocessors a program status word including a priority order designating code indicating the relative priority in which said microprocessor is assigned to accept interrupt commands;

storing in said shared memory unit a plurality of entry addresses at locations dedicated to said individual microprocessors and addressable in terms of said priority order designating code;

selecting, in accordance with the priority order defined by said priority order designating code, one of said microprocessors to process an interrupt-servicing program in response to an interrupt command;

addressing said main memory unit at the entry address data location corresponding to the priority order designating code of said selected microprocessor; and

loading into the general register of said selected microprocessor entry address data obtained from said addressed

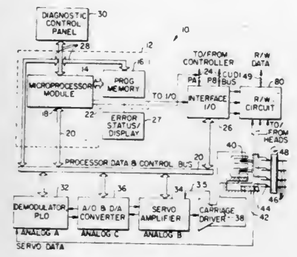
entry address data location to enable said microprocessor to access a stored interrupt-servicing program for processing said interrupt command.

4,268,905

AUTONOMOUS FAULT DIAGNOSIS FOR DISK DRIVE USING AN INTERNAL MICROPROCESSOR

Donald F. Johann, Palo Alto, and Charles E. Mendenhall, Campbell, both of Calif., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 14, 1978, Ser. No. 969,604
Int. Cl.[3] G06F *11/00, 13/04*
U.S. Cl. 364—200 **10 Claims**



1. In a computer disk drive having a rotatable disk storage medium and means coupling said disk storage medium to a remote host controller, said host controller being operative for communicating digital data signals between a remote independently operative central processing unit of a master computer and said disk storage medium, said disk drive including a carriage for displacing a plurality of read and write heads, means for driving said carriage, and means for sensing the position of said carriage relative to said storage medium, a system internal to said disk drive for testing servo control and data communication subsystems of said disk drive comprising:

means for monitoring analog signals and digital signals representative of circuit operation generated by circuits within said servo control and data communication subsystems;

first converting means coupled to said monitoring means for converting all of said monitored analog signals to digital signals;

second converting means coupled to analog inputs of said subsystems for converting digital signals to analog signals;

means for communicating analog signals output from said second converting means to an input of said first converting means in a test loopback;

digital signal bus means coupled to said subsystems of said disk drive, said bus means also being coupled to an output of said first converting means and to an input of said second converting means, said bus means comprising a three-state bidirectional bus;

means including a programmed microprocessor and associated digital memory in said disk drive for controlling disk drive operation and diagnostic functions, said digital memory being for storage of preprogrammed instructions defining said operation and diagnostic functions, and said microprocessor being coupled to said bus means in order to communicate digital control signals to said subsystems including to said second converting means and to receive data and status signals from said subsystems including from said first converting means; and

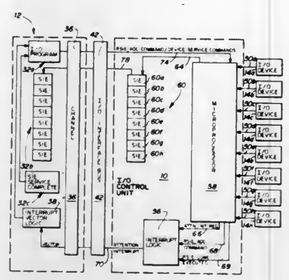
a pseudo-position generator for generating signals simulating position output signals of said carriage position sensing means with respect to said disk storage medium such that selected subsystems can be tested without carriage motion.

4,268,906

DATA PROCESSOR INPUT/OUTPUT CONTROLLER

Donall G. Bourke; Richard N. Mendelson, both of Boca Raton, and Luis Madruga, Delray Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1978, Ser. No. 972,381
Int. Cl.[3] G06F *3/00, 9/46*
U.S. Cl. 364—200 **3 Claims**



1. An input/output controller for transferring service request signals and data between a plurality of input/output devices and a host processor, wherein each of the plurality of input/output devices generate multiple asynchronous service request signals for transfer to the host processor comprising:

processor means interconnected via a plurality of signal lines to the plurality of input/output devices for receiving data and the service request signals generated by the plurality of input/output devices via said plurality of signal lines, said processor means operable to generate a first signal in response to receipt of a service request signal from one of the plurality of input/output devices;

storage means interconnected to said processor means for storing service request signals received by said processor means from the plurality of input/output devices;

said processor means operable to generate a second signal upon the condition that no service request signals are stored in said storage means;

logic means operable between active and deactive states, being interconnected to said processor means and being operable to receive said first and second signals generated by said processor means;

said logic means further being connected to the host processor and being operable in said active state in response to receipt of said first and second signals generated by said processor means to thereby generate a third signal for application to the host processor upon the condition that no service request signals are stored in said storage means while said logic means is in said deactive state to thereby transfer from said storage means to the host processor those service request signals generated by the plurality of input/output devices and stored in said storage means while said logic means is in said active state;

the host processor being operable to generate a fourth signal upon receipt of said third signal from said logic means, said fourth signal being applied to said processor means via a bus, said processor means operable to generate a fifth signal upon receipt of said fourth signal from the host processor for application to said logic means;

said logic means being operable in said deactive state upon receipt of said fifth signal from said processor means to thereby prevent generation of additional ones of said third signal from said logic means for application to the host processor until processing of the service request signals transferred from said storage means to the host processor has been completed by the host processor, generation of said third signal being prevented while service requests are stored in said storage means to allow data to be transferred from the host processor via said bus to the ones of the plurality of input/output devices associated with the service request signals transferred to the host processor while the other ones of said plurality of input/output devices generate additional service request signals to said processor means for storage in said storage means; and

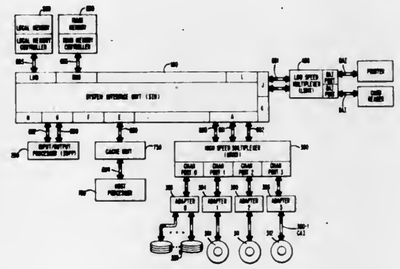
said logic means being reactivated in said active state upon receipt of said second and fifth signals from said processor means.

4,268,907

CACHE UNIT BYPASS APPARATUS

Marion G. Porter, Phoenix; Robert W. Norman, Jr., Glendale, and Richard T. Flynn, Peoria, all of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 22, 1979, Ser. No. 5,101
Int. Cl.[3] G06F *13/00;* **G11C** *9/06*
U.S. Cl. 364—200 **38 Claims**



1. A data processing system comprising:

an addressable main store having a plurality of word locations for storing information including data and instructions;

a cache unit coupled to said main store for providing immediate access to data and instruction words fetched from said main store, said cache unit including a buffer store having a plurality of addressable locations, and said cache unit including control means for fetching said data and instruction words from said main store in response to command signals; and,

processing means coupled to said buffer store, said processing means for processing instructions fetched from said main store, each instruction including an operation code portion, said processing means including control means for generating signals including memory commands required for the execution of said instructions, said processing control means including decoder circuit means responsive to signals indicative of an operation code portion coded to specify a predetermined class of instruction to generate coded command signals specifying the fetching of a segment of data words from said cache unit; and,

said cache unit further including:

decoder circuit means coupled to said processing means;

indicator circuit means coupled to said decoder circuit means, said cache decoder circuit means in response to a first set of said coded command signals to switch said indicator circuit means to a predetermined state; and,

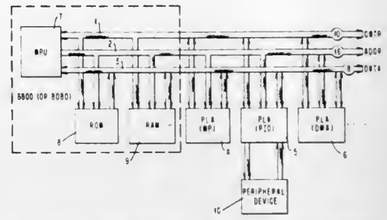
bistable control means coupled to said indicator means and to said cache decoder circuit means, said bistable control means being conditioned by said cache decoder circuit means in response to a succeeding set of coded command signals to switch to said predetermined state when said segment of data words is not stored in said buffer store and said indicator circuit means is in said predetermined state for inhibiting other segments of data words fetched from said main store in response to said predetermined class of instruction from being stored in said buffer store.

4,268,908

MODULAR MACROPROCESSING SYSTEM COMPRISING A MICROPROCESSOR AND AN EXTENDABLE NUMBER OF PROGRAMMED LOGIC ARRAYS

Joseph C. Logue, and Wei-Wha Wu, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1979, Ser. No. 15,505
Int. Cl.[3] G06F *9/22*
U.S. Cl. 364—200 **7 Claims**



1. Apparatus for extending the functional capability of a microprocessor having a given standard set of instructions stored therein to execute at least one additional instruction beyond its capability to execute said given standard set of instructions,

said microprocessor communicating with system components through a standard bussing system comprising a control bus, an address bus and a data bus, said apparatus comprising

at least one programmed logic array connected to said control, address and data busses,

each said programmed logic array being equipped to interpret a respective address on said address bus as a respective additional instruction

said microprocessor being connected to said control, address and data busses and providing said standard set of instructions on said control bus and addresses on said address bus,

each said programmed logic array comprising instruction register means connected to said address bus for receiving and temporarily storing said respective address constituting said respective additional instruction, an AND array connected to receive each address stored in said register for generating a product term in response to said respective address, an OR array connected to receive said product term from said AND array for generating resulting signal, for executing said respective additional instruction.

4,268,909

NUMERIC DATA FETCH - ALIGNMENT OF DATA INCLUDING SCALE FACTOR DIFFERENCE

Jerry L. Kindell, Glendale, and Richard T. Flynn, Peoria, both of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 2, 1979, Ser. No. 220
Int. Cl.[3] G06F *7/38*
U.S. Cl. 364—200 **26 Claims**

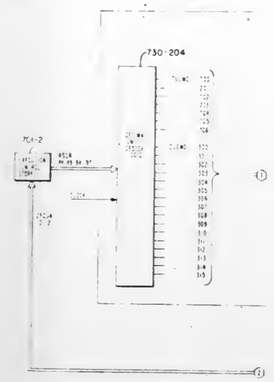
20. A data processing system comprising:

a memory means for storing operands and instructions, each instruction including an operation code portion and also including descriptor information for describing characteristics of said operands, said instructions including an operation code portion specifying a decimal numeric operation performed by said system;

a decimal unit coupled to said memory means for receiving said operand words and signals indicative of said descriptor information, in response to signals indicative of said decimal numeric instruction;

said decimal unit including decimal unit control means, responsive to said instruction signals and said descriptor

signals for generating register and switch control signals, said decimal unit further including operand processing means, responsive to said instruction signals, for receiving said operands from said memory means, and responsive to said register and switch control signals, for aligning said operands;



executing means coupled to said decimal unit for receiving said aligned operands for performing numerical operations specified by said decimal arithmetic instruction;

wherein said decimal unit control means comprises:

storage means coupled to said memory means and responsive to said instruction signals for storing said descriptor information; and

adder means coupled to said storage means, and responsive to said instruction signals and said descriptor signals for generating receive count signals indicative of the number of words of said operands to be received by said decimal unit from said memory means, send count signals indicative of the number of words to be transferred by said decimal unit to said executing means, and shift count signals indicative of the number of decimal digits said operands are to be shifted in said decimal unit.

4,268,910

METHOD FOR CONTROLLING TIMING OF SPARK IGNITION FOR AN INTERNAL COMBUSTION ENGINE BY FEEDBACK RELATED TO THE DETECTION OF KNOCKING

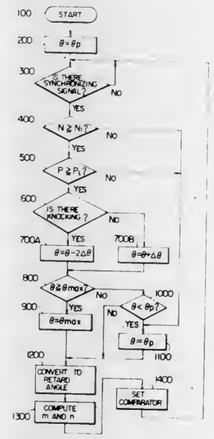
Norio Omori; Hideya Fujisawa, both of Kariya; Yutaka Kawashima, Okazaki; Masakazu Ninomiya, Kariya; Hisasi Kawai, Toyohashi, and Takeshi Matsui, Aichi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya and Nippon Soken, Inc., Nishio, both of, Japan

Filed Dec. 14, 1978, Ser. No. 969,496

Claims priority, application Japan, Dec. 16, 1977, 52-152023

Int. Cl.³ F02P *5/14, 17/00*

U.S. Cl. 364—431 **3 Claims**



1. A method for controlling a timing of spark ignition for an internal combustion engine having an output shaft rotated by a piston, the method comprising the steps of:

monitoring a magnitude of vibration of said internal combusion engine by vibration responsive means coupled to said internal combustion engine;

comparing said magnitude of vibration monitored by said monitoring step with a reference magnitude to generate a first signal when said magnitude of vibration is larger than said reference magnitude and to generate a second signal when said magnitude of vibration is smaller than said reference magnitude;

incrementing altering an instantaneous timing of spark ignition by incrementally retarding said instantaneous timing by a first predetermined value in response to said first signal and by incrementally advancing said instantaneous timing by a second predetermined value in response to said second signal, said first predetermined value being larger than said second predetermined value; and

supplying said internal combustion engine with a spark ignition at a timing of spark ignition corrected by said altering step to control the ignition angle just below the condition where knocking of said engine occurs.

4,268,911

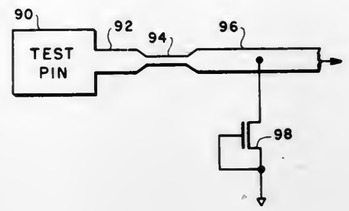
ROM PROGRAM SECURITY CIRCUITS

Antony G. Bell, Sunnyvale, Calif., assignor to Fairchild Camera and Instrument Corp., Mountain View, Calif.

Filed Jun. 21, 1979, Ser. No. 50,909

Int. Cl.³ G11C *17/00, 11/40*

U.S. Cl. 365—104 **3 Claims**



1. A program security circuit for a read-only memory contained in a memory chip having a test pin for testing and verifying a selected program stored in the memory, the memory chip having a memory data bus and a memory read circuit conductor, the security circuit comprising:

a permanent register formed in the memory chip for identifying the selected program and thereby identifying the memory chip, the permanent register containing a selected binary identifying number placeable into the memory data bus upon application of a suitable input signal to the permanent register;

a conductive fusible link between the test pin and the memory read circuit conductor;

an enhancement transistor having its drain coupled to the memory read circuit conductor and having its source and gate coupled to each other and to ground reference; and

means for applying to the test pin a negative voltage whose magnitude exceeds the magnitude of the threshold voltage of the transistor, whereby the transistor conducts a fusing current through the fusible link to destroy the fusible link and thereby permanently remove access to the program through the test pin.

4,268,912

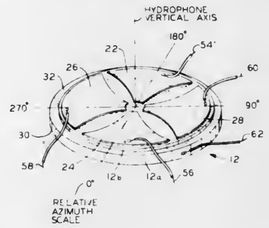
DIRECTIONAL HYDROPHONE SUITABLE FOR FLUSH MOUNTING

John C. Congdon, Fort Wayne, Ind., assignor to Magnavox Government and Industrial Electronics Co., Fort Wayne, Ind.

Filed Jun. 6, 1978, Ser. No. 912,918

Int. Cl.³ H04R *17/00*

U.S. Cl. 367—163 **8 Claims**



1. A directional hydrophone having a main surface plane for sensing in a liquid transmission medium acoustic wave travel in planes substantially parallel to the main plane, comprising:

a plate having a main surface bounded by an outer peripheral edge, said main surface parallel to and defining the main surface plane and adapted to be coupled to the liquid transmission medium for providing mechanical stresses in the plate in response to the acoustic wave travel traversing said main surface in the coupled transmission medium, the plate having portions therein and having a center point on said main surface and a major axis parallel to said main surface and passing through said center point;

a first electroacoustic transducer element coupled to a first portion of the plate for activation by the stresses in said first portion and providing a first electrical output signal in response thereto;

a second electroacoustic transducer element coupled to a second portion of the plate for activation by the stresses in said second portion and providing a second electrical output signal in response thereto, said first and second portions having a spaced-apart relationship and each one located diametrically opposite the center point and equal-distant therefrom, said major axis bisecting said first and second portions, the first and second transducer elements being identical to each other for providing identical output signals in response to substantially identically applied stresses; and

means for subtractively combining said first and second electrical signals for producing a resultant signal dependent upon a difference in said stresses in the spaced-apart first and second plate portions and varying as a cosine-like function of the direction of said acoustic wave travel transversing said surface relative to said major axis.

6. An apparatus for sensing direction of propagation of sound waves in a fluid transmission medium, comprising:

a plate means having a relatively flat surface and having predetermined portions therein and a center point, said portion having a spaced-apart relationship and each one located diametrically opposite the center point and equal-distant thereform, the plate means adapted to be coupled to the fluid transmission medium for providing sound wave motions in said portions in response to sound wave propagation transversing said surface, said sound wave motions in said portions indicative of the direction of propagation of the sound waves in the transmission medium;

at least one pair of identical electroacoustic transducers, each one of the transducers of the pair coupled to a respective one of the predetermined portions for providing respective electrical output signals in dependence upon said wave motions in each of said respective predetermined portions; and

subtractive combining means for combining the output signals from each said pair of identical transducers for producing a respective resultant signal which varies as a function of the direction of said sound wave travel propagation transversing said plate.

4,268,913

ELECTRONIC CALCULATOR WATCH

Tadahiko Nakagiri, Higashimurayama; Kunihiro Daigo, Higashiyamato; Toshiaki Oguchi, Kodaira; Minoru Natori, Tokyo; Toshikazu Hatuse; Toshikazu Shimazaki, both of Tanashi; Kouhei Kawanobe, Kawagoe; Hiroshi Ogawa, Tokorozawa; Yoshinobu Kashima, Tanashi; Singo Ichikawa, Sayama; Ryo Namiki, Tokyo, and Hisao Yamagata, Tokorozawa, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed May 13, 1977, Ser. No. 796,566

Claims priority, application Japan, May 18, 1976, 51-62809[U]; May 18, 1976, 51-62810[U]; May 24, 1976, 51-66363[U]; May 25, 1976, 51-59628; Jun. 2, 1976, 51-63546; Jun. 8, 1976, 51-749937[U]; Jun. 8, 1976, 51-67297; Jun. 8, 1976, 51-67298; Jun. 9, 1976, 51-66450; Jun. 14, 1976, 51-69450; Jul. 9, 1976, 51-80963; Jul. 19, 1976, 51-85725; Jul. 19, 1976, 51-85726; Jul. 19, 1976, 51-85727; Jul. 19, 1976, 51-95810[U]; Apr. 8, 1977, 52-40819

Int. Cl.³ G04B *47/00;* **G04C** *19/00;* **G04B** *29/00;* **G06F** *1/00*

U.S. Cl. 368—10 **39 Claims**

1. An electronic calculator watch comprising:

timekeeping means composed of an oscillator, a frequency divider connected to the oscillator, a counter circuit con-

nected to the frequency divider, and a driver circuit connected to the counter circuit for providing an output signal indicative of time information;

calculating means composed of an oscillator circuit and a calculation circuit responsive to perform calculations under control of numerical inputs furnished by an external operating device provided on a watch case supported a bezel retaining a watch glass, said bezel having an annular recess and a plurality of circumferentially spaced through-holes, said external operating device comprising a group of push-button switches for operating the timekeeping means and calculating means, said push-button switches being arranged about the outer circumference of the display device, said external operating device further comprising a ring member disposed in said annular recess and having a plurality of circumferentially spaced cylindrical portions pressure fitted into the through-holes of the bezel, each of said cylindrical portions having a stepped bore formed therein to accommodate one of the push-button switches; and



a liquid crystal display device including a first display section connected to the driver circuit of the timekeeping means for displaying the output signal delivered therefrom, and a second display section connected to the calculation means for displaying the results of calculations, said first display section having a first set of electrodes formed on a transparent supporting plate of said liquid crystal display device and said second display section having a second set of electrodes formed on said transparent supporting plate, each of said first and second sets of electrodes comprising a plurality of digit electrodes and a plurality of segment electrodes arranged in a matrix configuration;

said timekeeping means and said calculation means being formed on integrated circuit chips which are separated from each other and are connected to independent power sources, said integrated circuit chips being mounted on a circuit board retained between said watch case and a back cover secured thereto, edges of said integrated circuit chips being arranged in said single plane obliquely with respect to each other.

4,268,914

RECEIVING APPARATUS FOR MESSAGES WITH IN-BAND SIGNALS

Charles B. Fisher, 2850 Hill Park Rd., Montreal, Quebec, Canada (H3H 1T1), and Sidney T. Fisher, 53 Morrison Ave., Mt. Royal, Montreal, Quebec, Canada (H3R 1K3)

Filed Feb. 8, 1980, Ser. No. 119,768
Int. Cl.³ H04J *15/00*
U.S. Cl. 370—118 **1 Claim**

1. Receiving apparatus for an input wave comprising a message, superimposed noise, and a periodic signal with regularly-occurring zero-crossings at a frequency greater than the minimum sampling or Nyquist frequency of the frequency band of said message, said input wave lying entirely in said message frequency band, including sampling gate, reconstruction filter, pulse generation and subtraction means, delivering said message and said superimposed noise substantially free from said periodic signal to a message output and delivering said periodic signal substantially free from said message and said superimposed noise to a periodic signal output, without material distortion of frequency response or delay of said message, which comprises:

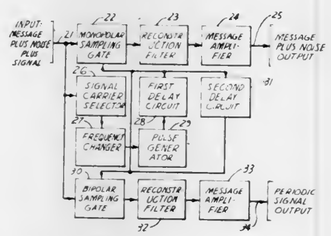
monopolar sampling gate means which receives said input wave, and

first reconstruction filter means which receives the output of said monopolar sampling gate means and has as a pass-band said message frequency band, and reconstructs a replica in analog form of said message and said superimposed noise substantially free from said periodic signal, and

first amplifier means which amplifies the output of said first reconstruction filter means and delivers it to said message output, and

periodic signal carrier selector means which receives said input wave and by at least one means of selectivity, amplitude limiting, non-linear and oscillator synchronizing means produces an output which has the frequency of said periodic signal, which may be the carrier of said periodic signal when it is double-sideband amplitude-modulated, with or without carrier suppression, and

frequency changing and pulse generating means which receive the output of said periodic carrier selector means and produce a sequence of regularly-occurring short pulses at a pulse repetition frequency which is greater than the minimum sampling or Nyquist frequency of said message frequency band, and which is equal to the frequency of zero-crossings of said periodic signal at the input to said periodic carrier selector, divided by a positive odd integer, and



first pulse delay means which receives the output of said pulse generating means and delivers gating pulses of a first polarity at regular periods at some or all of the instants of zero-crossings of said periodic signal at said input to said periodic carrier selector, and

subtraction means which comprises a bipolar sampling gate which receives as one sequence of gating pulses the output of said first pulse delay means, and receives as a second sequence of gating pulses of a second polarity, spaced in time from said first sequence of gating pulses by approximately an odd number of quarter periods of said periodic signal, the output of a second pulse delay means, and

said second pulse delay means which receives its input from said first pulse delay means and delivers a sequence of pulses of opposite polarity to said pulses at its input, delayed in time by an interval approximately equal to an odd number of quarter-periods of said periodic signal, and

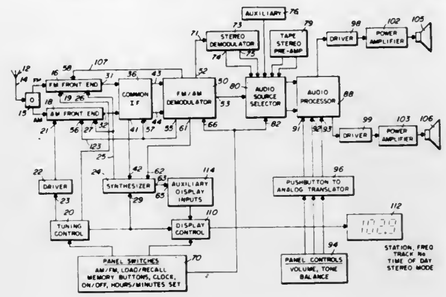
second reconstruction filter means which receives the output of said bipolar sampling gate means, which passes said periodic signal frequency band and reconstructs the two sequences of samples from said bipolar sampling gate to form said periodic signal in analog form, and delivers said periodic signal to an output circuit, substantially free from said message and said superimposed noise.

4,268,915

UNIVERSAL AUTOMOTIVE ELECTRONIC RADIO WITH DISPLAY FOR TUNING OR TIME INFORMATION

Bernard S. Parmet, Park Ridge, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 789,597, Apr. 21, 1977, abandoned, which is a division of Ser. No. 583,343, Jun. 2, 1975, Pat. No. 4,135,158. This application Sep. 20, 1979, Ser. No. 77,201
Int. Cl.³ H04B *1/16*
U.S. Cl. 455—158 **17 Claims**



14. In a radio device, the combination including:

first circuit means for generating a substantially fixed frequency oscillator signal;

second circuit means coupled to said first circuit means for receiving and processing said fixed frequency oscillator signal and developing an adjustable frequency signal for tuning the radio;

third circuit means coupled to said first circuit means for receiving said fixed frequency oscillator signal and developing in response thereto at least one signal indicative of information other than the frequency to which the radio device is tuned and indicative of information unrelated to the phase and/or frequency of said adjustable frequency signal; and

fourth means coupled to said third circuit means for receiving said at least one indicative signal and displaying said information.

4,268,916

FREQUENCY CONVERTING CIRCUIT

Hiromi Kusakabe, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 13, 1978, Ser. No. 961,026
Claims priority, application Japan, Nov. 28, 1977, 52-142355
Int. Cl.³ H04B *1/26*
U.S. Cl. 455—333 **9 Claims**



1. A frequency converting circuit comprising:

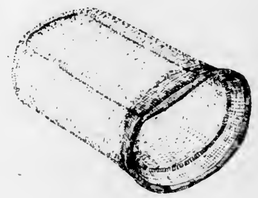
a constant current source circuit;

an oscillation circuit coupling to said constant current source circuit, said oscillation circuit including an amplifier section and a series resonant section, said amplifier section including a first transistor having a base, collector and an emitter, said emitter connected to one end of said series-resonant circuit and a second transistor having an emitter connected to the other terminal of said series resonant circuit, a base connected to said first transistor collector and a collector connected to said first transistor base;

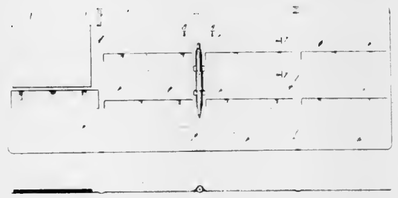
means for biasing the amplifier section of said oscillation circuit in accordance with the output current of said constant current source circuit; and

an operation circuit which receives the output signal from said oscillation circuit and an input signal to be frequency-converted and produces a signal corresponding to the product of both the received signals.

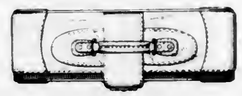
259,220
WRIST BAND WITH POCKET
Larry K. Small, 415 E. Willowbrook Dr., Burlington, N.C. 27215, and Thomas H. Collins, P.O. Box 361, Madison, N.C. 27025
Filed Mar. 5, 1979, Ser. No. 17,648
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—400

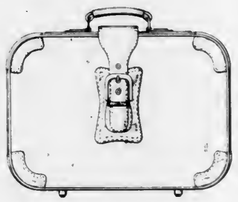


259,221
COMBINED COUPON HOLDER, WRITING INSTRUMENT AND MEMO PAD
Richard S. Gebbia, 27 Althea St., Clifton, N.J. 07012
Filed Jan. 29, 1979, Ser. No. 7,110
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—60

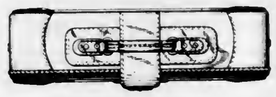


259,222
LUGGAGE
Ted Stark, Jersey City, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Dec. 28, 1978, Ser. No. 974,121
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71



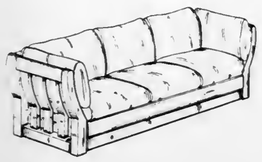


259,223
LUGGAGE
Ted Stark, Jersey City, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Dec. 28, 1978, Ser. No. 974,127
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71





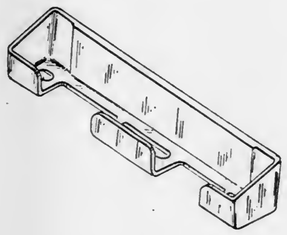
259,224
SEAT OR SIMILAR ARTICLE
George R. Sonnenleiter, Rockford, Ill., assignor to Schweiger Industries, Inc., Jefferson, Wis.
Filed Jun. 12, 1978, Ser. No. 914,805
Term of patent 7 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



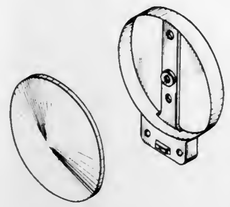
259,225
URINAL DEFLECTOR
Lewis R. Scheer, 1726 S. Lagoon Ave., Wilmington, Calif. 90744
Filed May 15, 1978, Ser. No. 905,642
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—86



259,226
RAZOR HOLDING RACK
Roy J. Lester, 78 Inwood Ave., Point Lookout, N.Y. 11569
Filed Oct. 12, 1979, Ser. No. 84,112
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—88



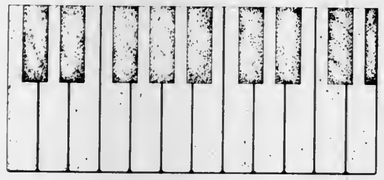
259,227
SUPPORT BRACKET FOR A BATHROOM FIXTURE
Anibal R. Chacon, Cerro de las Torres 304, Col., Campestre Churubusco, Mexico (21)
Filed Sep. 12, 1978, Ser. No. 941,626
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—103



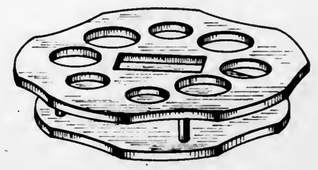
259,228
FOLDABLE GARMENT HANGER
Samuel F. Fabian, 15 Upland Way, P.O. Box 187, Haddonfield, N.J. 08033
Filed Sep. 28, 1978, Ser. No. 946,851
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—124

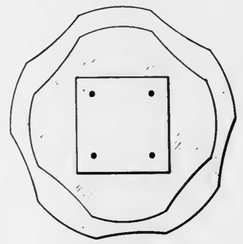


259,229
RUG OR SIMILAR ARTICLE
Charles S. Lady, 323 Niagara Blvd., Fort Erie, Ontario, Canada (L2A 3H1)
Filed Dec. 27, 1978, Ser. No. 974,136
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D6—210



259,230
ROTATABLE RACK FOR CONDIMENT CONTAINERS
Delbert H. Snyder, 940 Everett Rd., Fremont, Ohio 43420
Filed Apr. 19, 1979, Ser. No. 31,540
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—2

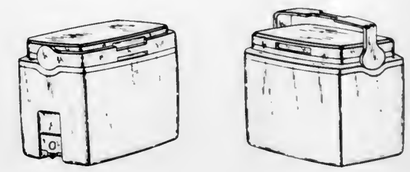




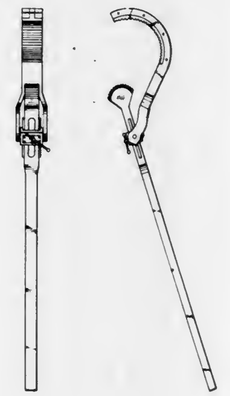
259,231
DRINKING CUP LID FOR DISPENSING SOLID MEDICATION
William Kozlow, Sr., 419 Forest Dr., Union, N.J. 07083
Continuation-in-part of Ser. No. 45,284, Jun. 4, 1979, abandoned. This application Jul. 6, 1979, Ser. No. 55,156
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—40



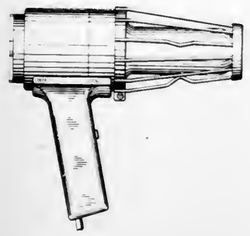
259,232
COMBINED FOOD AND BEVERAGE COOLER
Richard A. Tarozzi, Gales Ferry, Conn., assignor to King-Seeley Thermos Co., Norwich, Conn.
Filed Aug. 23, 1978, Ser. No. 936,011
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—61



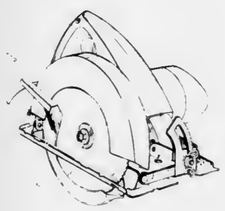
259,233
WRENCH
John J. Dobias, 1212 Sumach Dr., Windsor, Ontario, Canada (N8S 2S4)
Filed Jul. 28, 1978, Ser. No. 929,037
Term of patent 14 years
Int. Cl. D08—*05*
U.S. Cl. D8—21



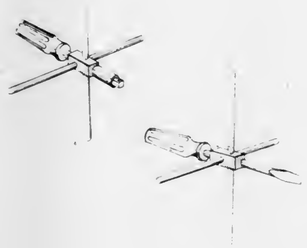
259,234
FLAMELESS HEAT GUN
Frank N. Pfeil, 1101 Cedar Creek, Racine, Wis. 53402
Filed Nov. 20, 1978, Ser. No. 962,133
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



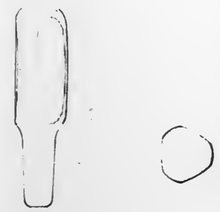
259,235
CIRCULAR SAW
John E. Dibbern, Jr., Street; Robert I. Somers, Baltimore; Richard A. Schafebook, Lutherville, all of Md., and Richard L. Mitchell, Florissant, Mo., assignors to Black & Decker Inc., Newark, Del.
Filed Mar. 14, 1978, Ser. No. 886,529
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—66



259,236
TORQUE APPLYING HAND TOOL
Harold Isaacs, 2567 Lafayette Dr., University Heights, Ohio 44118
Filed Apr. 24, 1978, Ser. No. 899,290
Term of patent 14 years
Int. Cl. D08—*04, 05*
U.S. Cl. D8—82



259,237
HANDLE FOR A SHANK-TYPE TOOL
Davorin Savnik, Ljubljana, Yugoslavia, assignor to UNIOR kovaska industrija Zrece, Zrece, Yugoslavia
Filed Jul. 26, 1978, Ser. No. 928,005
Claims priority, application Yugoslavia, Jan. 27, 1978, 25/78
Term of patent 7 years
Int. Cl. D8—*04*
U.S. Cl. D8—83



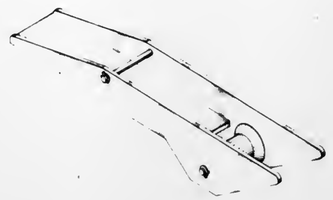
259,238
GARMENT CARRIER HANDLE
John F. Schenck, III, c/o Cleveland Mills, Lawndale, N.C. 28090
Filed Nov. 6, 1978, Ser. No. 957,940
Term of patent 14 years
Int. Cl. D8—*03*; D6—*08*
U.S. Cl. D8—307



259,239
HANDCUFF KEY
F. Carlos DeWitt, 2715 Southwest Dr., Los Angeles, Calif. 90043
Filed Nov. 27, 1978, Ser. No. 963,845
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—347



259,240
BOAT BOW ROLLER
Clayton E. Myron, 4520-3rd St. NE., Puyallup, Wash. 98371
Filed May 24, 1979, Ser. No. 42,240
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—356



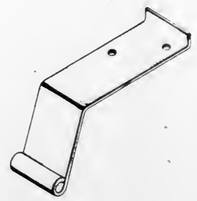
259,241
PIPE HANGER
Paul C. Lynch, Rte. 6, Box 60A, Fairmont, W. Va. 26554, and Ervin M. Driver, 312 Graveline La., Gautier, Miss. 39567
Filed Apr. 20, 1979, Ser. No. 32,096
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—363



259,242
CONNECTOR FOR WOOD MEMBERS
Tyrell T. Gilb, Berkeley, Calif., assignor to Simpson Manufacturing Co., Inc., San Leandro, Calif.
Filed Oct. 5, 1978, Ser. No. 948,708
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—373



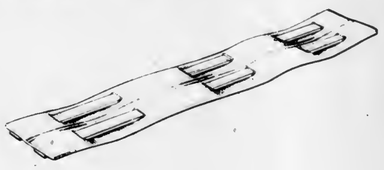
259,243
FREE ROLL CREEPER GUARD
Louis C. Argante, 1236½ 32nd St., Sacramento, Calif. 95816
Filed Jun. 18, 1979, Ser. No. 49,805
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—375



259,244
CABLE HANGER
Paul S. Grecol, Jr., Lithonia, Ga., assignor to National Service Industries, Inc., Atlanta, Ga.
Filed Jun. 4, 1979, Ser. No. 44,982
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—380



259,245
REINFORCING AND PROTECTOR ELEMENT FOR THE EDGES OF PALLET GOODS
Ake O. V. Gemvik, Gökvägen 71, S 183 51 Täby, Sweden
Filed Oct. 25, 1977, Ser. No. 845,251
Claims priority, application Sweden, Apr. 25, 1977, 770917
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—403



259,246
BOTTLE
Hugh J. W. Brandt, Princeton, N.J., and Donald Murray, Chicago, Ill., assignors to J. L. Prescott Co., Passaic, N.J.
Filed Dec. 4, 1978, Ser. No. 967,408
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—404



259,247
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,777
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—310



259,248
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,921
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—310



259,249
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,775
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—313



259,250
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,866
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—318



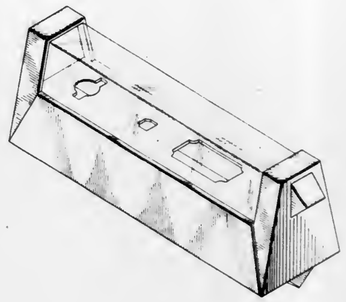
259,251
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,919
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—318



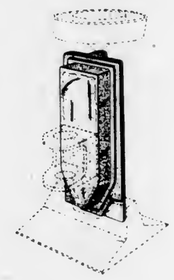
259,252
COMBINED BOTTLE AND HANG TAB
Stanley Acker, c/o 7-11 Sales Inc., 14 Cairngorm Rd., New City, N.Y. 10956
Filed Nov. 13, 1978, Ser. No. 960,488
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—338



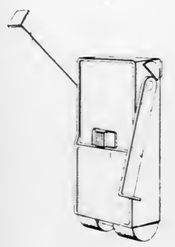
259,253
DISPLAY BOX
Kenneth R. Nelson, West Vancouver, Canada, assignor to Schlage Lock Company, San Francisco, Calif.
Filed Mar. 12, 1979, Ser. No. 19,429
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—418



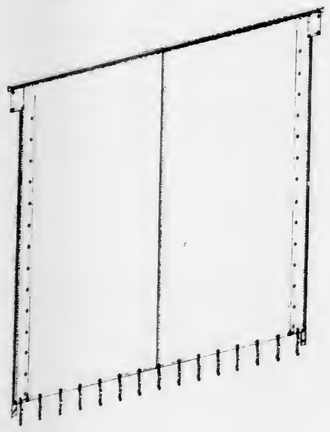
259,254
DIAGNOSTIC TEST DEVICE
Morris L. Givner, Pierfonds, Canada, and Douglas Tiffany, Beverly, Mass., assignors to American Home Products Corporation, New York, N.Y.
Filed Aug. 14, 1978, Ser. No. 933,389
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D10—81



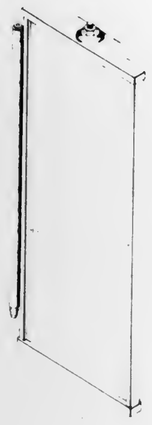
259,255
PORTABLE BURGLAR ALARM
John I. Menzies, and Maureen Menzies, both of 49 Almay St., Kenmore, Queensland, 4069, Australia
Filed Apr. 27, 1979, Ser. No. 34,077
Claims priority, application Australia, Oct. 31, 1978, 76364/78
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D10—106



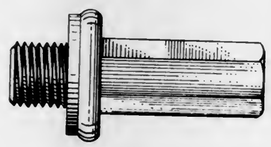
259,256
COMBINED COVER AND SEAL FOR TIP OUT UNIT OF A RECREATIONAL TRAILER
Marie K. Coussens, Edwardsburg, Mich.
Filed Jul. 26, 1978, Ser. No. 928,195
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—106



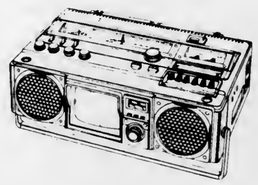
259,257
COMBINED MIRROR AND CLEANING DEVICE THEREFOR
Richard J. Forbyn, P.O. Box 4190, Vallejo, Calif. 94590
Filed Mar. 12, 1979, Ser. No. 19,853
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—188



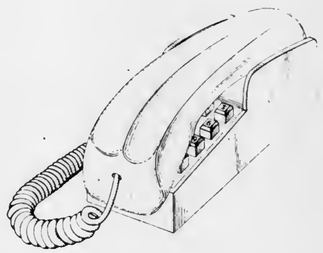
259,258
TERMINAL POST FOR A SIDE TERMINAL BATTERY
Robert M. Valerio, 1780 Benjamin St., Madison, Ohio 44057
Filed Mar. 27, 1978, Ser. No. 890,861
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—10



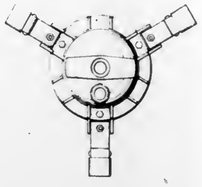
259,259
COMBINED CASSETTE TAPE RECORDER, RADIO AND TELEVISION RECEIVER
Shigeki Masatsugu; Tsutomu Miki, both of Tokyo, and Hirotsugu Misaka, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Nov. 13, 1978, Ser. No. 959,659
Claims priority, application Japan, May 17, 1978, 53-19892
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—5

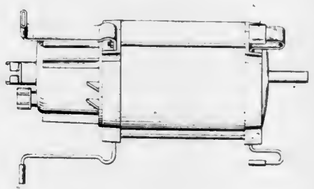


259,260
TELEPHONE INSTRUMENT
Knut H. Blomberg, Lokattsvägen 39, S-161 37 Bromma, Sweden
Filed Apr. 26, 1978, Ser. No. 900,278
Term of patent 7 years
Int. Cl. D14—*03*
U.S. Cl. D14—53

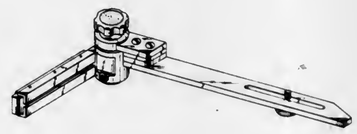


259,261
AERATOR MOTOR ASSEMBLY FOR A SEWER SYSTEM
David S. MacLaren, 21176 Brantley Rd., Shaker Heights, Ohio 44122
Filed Nov. 22, 1978, Ser. No. 963,038
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—7

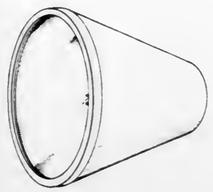




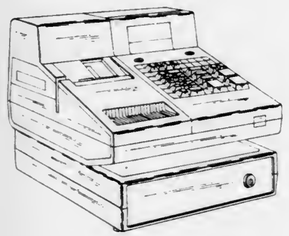
259,262
ACCESSORY HANDLE
Steve Sendecki, 11257 - 64th Ave., Delta, British Columbia, Canada (V4E 1C3)
Filed Oct. 16, 1978, Ser. No. 951,673
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D16—47



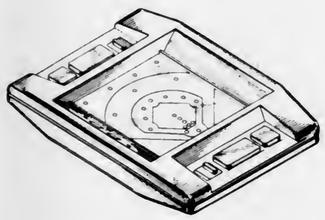
259,263
INSPECTION MIRROR FOR AUTOMOBILES OR THE LIKE
Donald J. Baysdon, 207 Woodland Dr., Jacksonville, N.C. 28540
Filed Jun. 13, 1979, Ser. No. 48,851
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—48



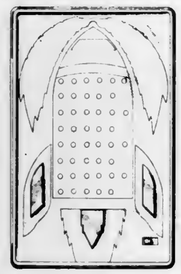
259,264
CASH REGISTER
Gerhard Schuldt, Orlinghausen, Fed. Rep. of Germany, assignor to Bielefelder Elektronik und Apparatebau GmbH, Bielefeld, Fed. Rep. of Germany
Filed Jun. 27, 1979, Ser. No. 52,628
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—4



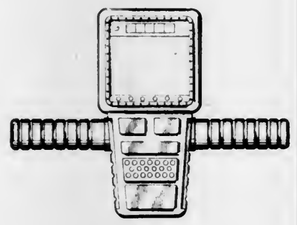
259,265
ELECTRONIC BASEBALL GAME CASING
Jeffrey P. Heuel, Riverside, and William F. Palisek, Mundelein, both of Ill., assignors to Interstate Industries, Inc., Mundelein, Ill.
Filed Jun. 28, 1979, Ser. No. 52,001
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



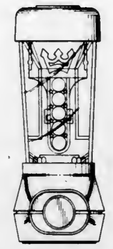
259,266
ELECTRONIC PINBALL GAME HOUSING
Jeffrey P. Heuel, Riverside; William F. Palisek, Mundelein, and Lee Radke, Lake Zurich, all of Ill., assignors to Interstate Industries, Inc., Mundelein, Ill.
Filed Jun. 28, 1979, Ser. No. 52,002
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



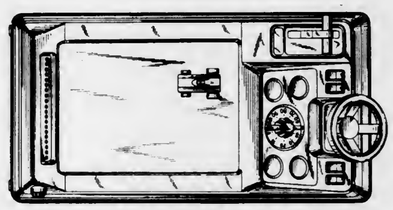
259,267
ELECTRONIC GAME CASING
Jeffrey P. Heuel, Riverside, and William F. Palisek, Mundelein, both of Ill., assignors to Interstate Industries, Inc., Mundelein, Ill.
Filed Jun. 28, 1979, Ser. No. 52,003
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



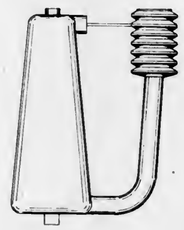
259,268
AMUSEMENT TOY
Hitoshi Itakura, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Japan
Filed Jun. 13, 1978, Ser. No. 915,141
Term of patent years
Int. Cl. D21—*01*
U.S. Cl. D21—59



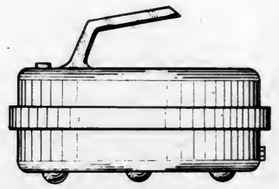
259,269
TOY VEHICLE STEERING SIMULATION DEVICE
Edward B. Bretschger, Cos Cob, Conn., and James R. Routzong, Cincinnati, Ohio, assignors to Louis Marx & Co., Inc., Stamford, Conn.
Filed Feb. 9, 1979, Ser. No. 11,012
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—124



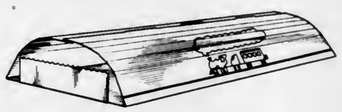
259,270
EXERCISER
Edith O. Hallerman, 41-06 Case St., Elmhurst, N.Y. 11373
Filed Sep. 20, 1978, Ser. No. 944,812
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



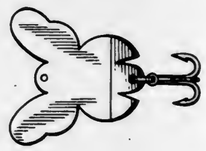
259,271
CURLING STONE
Richard A. Kushnir, 177-22 Laurie La., Tustin, Calif. 92680
Filed Aug. 30, 1978, Ser. No. 938,211
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—203



259,272
INSECT TRAP OR SIMILAR ARTICLE
Thomas E. Duffey, Miami Lakes, and Claire R. Ulanoff, Miami, both of Fla., assignors to Riviana Foods Inc., Houston, Tex.
Filed Jul. 12, 1979, Ser. No. 57,034
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



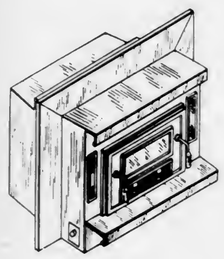
259,273
BUTTERFLY FISH LURE
William E. Hogreff, 295 D St., Apt. B, Chula Vista, Calif. 92010
Filed Aug. 27, 1979, Ser. No. 70,010
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—29



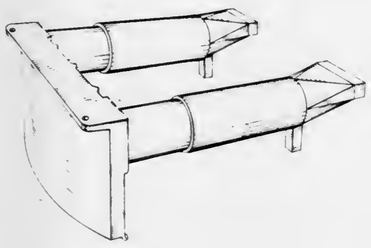
259,274
INFANT BATH SUPPORT
Darla L. Humes, 16326 Quail Park Dr., Missouri City, Tex. 77459
Filed Jun. 8, 1979, Ser. No. 46,940
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—52



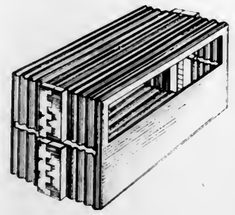
259,275
STOVE
Robert A. Berryhill, Greensboro, N.C., assignor to Autsin-Berryhill Fabricators, Inc., Greensboro, N.C.
Filed Jul. 25, 1979, Ser. No. 60,500
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94



259,276
FIREPLACE FORCED AIR HEATING APPARATUS
Dannie O. Malafouris, P.O. Box 13637, Portland, Oreg. 97213, and Robert E. Jones, 3650 W. Amazon, Eugene, Oreg. 97405
Filed Sep. 22, 1978, Ser. No. 944,953
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—95



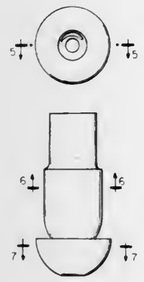
259,277
VENTILATOR HOUSING
Theodore V. McDermott, 165 Hale Ave., White Plains, N.Y. 10605
Filed Jul. 19, 1978, Ser. No. 926,264
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—151



259,278
TUBING CONNECTOR FOR BLOOD AND OTHER MEDICAL APPLICATIONS
Michael R. McCaw, Costa Mesa, and Michael P. Sullivan, Elsinore, both of Calif., assignors to Shiley Inc.
Division of Ser. No. 780,640, Mar. 23, 1977, Pat. No. Des. 251,734. This application Sep. 8, 1978, Ser. No. 940,654
Term of patent 14 years
Int. Cl. D24—*99*; D23—*01*
U.S. Cl. D24—53



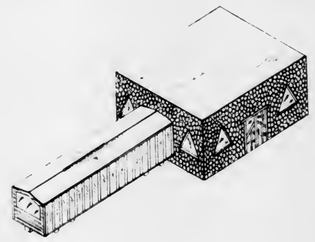
259,279
EARPLUG
Hidetaka Takeda, Fukuoka, Japan, assignor to Daiko Co., Ltd., Fukuoka, Japan
Filed Jan. 5, 1979, Ser. No. 1,340
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—67



259,280
BUILDING
Samuel Mark, 709 Melville Ave., Baltimore, Md. 21218
Continuation-in-part of Ser. No. 734,247, Oct. 20, 1976, Pat. No. D. 248,496. This application Apr. 27, 1978, Ser. No. 900,492
The portion of the term of this patent subsequent to Jul. 11, 1992, has been disclaimed.
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—5



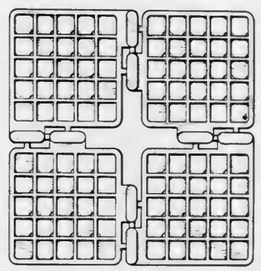
259,281
RAILROAD RESTAURANT
Gary M. Levin, 940 E. 19th St., Brooklyn, N.Y. 11230
Continuation-in-part of Ser. No. 928,387, Jul. 27, 1978. This application Apr. 30, 1980, Ser. No. 145,055
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—11



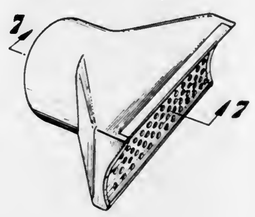
259,282
SHELTER
John R. Howey, 308 N. Tampa St., Tampa, Fla. 33602, and J. Carl Abbott, Jr., 1218 1st St., Sarasota, Fla. 33577
Filed Jun. 23, 1978, Ser. No. 918,517
Term of patent 14 years
Int. Cl. D25—*99*
U.S. Cl. D25—18



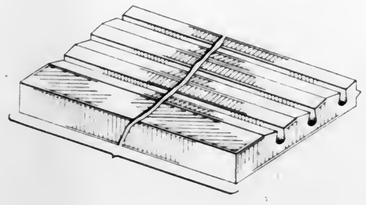
259,283
SPACING PAD FOR FLOOR SLABS
Robert G. DeClute, 174 Symons St., Toronto, Ontario, Canada (M8V 1V2)
Filed Apr. 6, 1979, Ser. No. 27,729
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—88



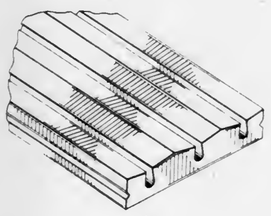
259,284
STYLING ATTACHMENT FOR BLOW DRYER
Salvatore J. Megna, 3721 Fair Oaks Blvd., Sacramento, Calif. 95825
Filed Jan. 18, 1979, Ser. No. 4,441
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—18



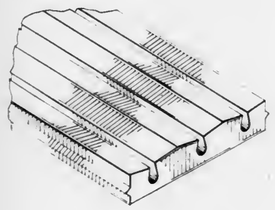
259,285
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 8, 1979, Ser. No. 64,850
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



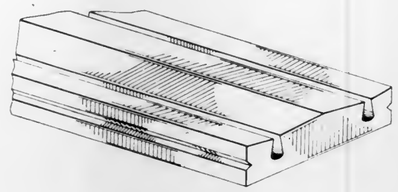
259,286
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 8, 1979, Ser. No. 64,851
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



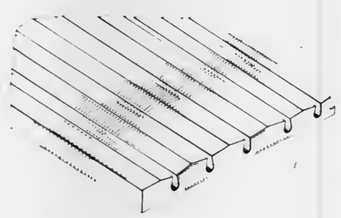
259,287
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 8, 1979, Ser. No. 64,853
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



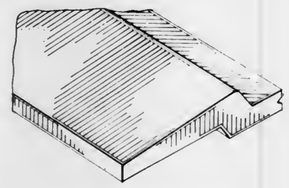
259,288
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 9, 1979, Ser. No. 65,357
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—02



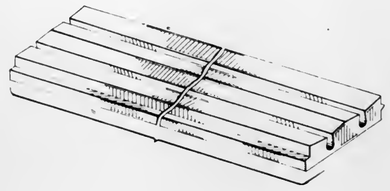
259,289
FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 10, 1979, Ser. No. 65,715
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



259,290
INTERLOCKING BRIDGING PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 13, 1979, Ser. No. 65,860
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



259,291
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 13, 1979, Ser. No. 65,973
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2

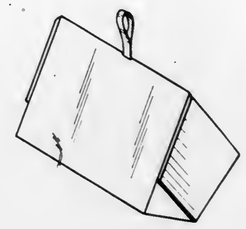


259,292
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Robert Conrad, 2856 E. Oakland Park Blvd., Fort Lauderdale, Fla. 33308
Filed Mar. 5, 1979, Ser. No. 17,362
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—6

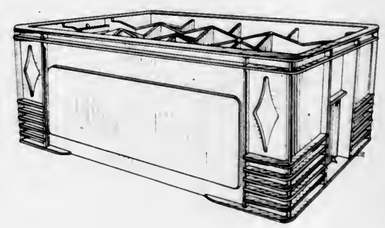




259,293
COMBINED ANIMAL LITTER SCOOPER AND CONTAINER
Herbert Cooper, 11 Toms Point La., Port Washington, N.Y. 11050
Filed Oct. 18, 1978, Ser. No. 952,580
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—99



259,294
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Theodor M. Box, 1108 Aileen Rd., Brielle, N.J. 08730
Filed Dec. 6, 1978, Ser. No. 967,054
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D99—50



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF MAY, 1981

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A/S Kongsberg Vapenfabrikk: *See—*
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AB Akerlund & Rausing: *See—*
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Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,268,336, Cl. 156-244.130.

AB Volvo: *See—*
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Abbott Laboratories: *See—*
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Achelpohl, Fritz, to Windmoller & Holscher. Apparatus for making tank top bags from a web of tubular plastics film provided with side folds. 4,268,346, Cl. 156-510.000.

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Adachi, Keiichi; Kato, Eiichi; Inoue, Nobuaki; and Kojima, Tetsurou, to Fuji Photo Film Co., Ltd. Photographic light-sensitive materials having dyed layers. 4,268,622, Cl. 430-513.000.

Adams, Harold R. Orifice flange clamp. 4,268,070, Cl. 285-15.000.

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Agger, Reginald T.; and Tyers, Peter R., to USM Corporation. Adhesive compositions. 4,268,646, Cl. 525-440.000.

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Aguilar M., Rogelio. Nasal air filter and medicament dispenser device. 4,267,831, Cl. 128-203.140.

Agulnick, Arnold. Inflatable massaging and cooling mattress. 4,267,611, Cl. 5-453.000.

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Ahlgrim, Michael; Mietens, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, to Hoechst Aktiengesellschaft. Additive for use in metal working. 4,268,404, Cl. 252-25.000.

Ahn, Kie Y.; Bajorek, Christopher H.; Ho, Paul S.; Miller, Robert J.; and Powers, John V., to International Business Machines Corporation. Nickel-X/gold/nickel-X conductors for solid state devices where X is phosphorus, boron, or carbon. 4,268,584, Cl. 428-620.000.

Aisawa, Hitoshi: *See—*
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Altman, Gilbert; and Bellasalma, Gerard, to Thermasol Ltd. Gasket assembly for coupling drainage outlet openings in bathtub liner installations. 4,267,609, Cl. 4-580.000.

Amazawa, Kiyoshi; Mori, Masaharu; and Taniyama, Takashi. Noise eliminating circuit. 4,268,793, Cl. 328-165.000.

Ambrose, Charles J. Method of packaging delicate articles. 4,267,684, Cl. 53-472.000.

American Can Company: *See—*
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Gardikes, John J., 4,268,425, Cl. 260-19.00A.
Atalla, Martin M., to Atalla Technovations. Method and apparatus for securing data transmissions. 4,268,715, Cl. 178-22.000.
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Atalla, Martin M., 4,268,715, Cl. 178-22.000.
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Curtin, Daniel J., 4,268,271, Cl. 44-1.00R.
Atlas Copco Aktiebolag: *See—*
Fernstrom, Harry G., 4,268,233, Cl. 418-270.000.
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Toole, Monte M.; and Klein, Raphael, 4,268,538, Cl. 427-93.000.
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Aula, Howard A.; and Mauch, Jerry L., to Ford Motor Company. Engine EGR cooler. 4,267,812, Cl. 123-570.000.
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Hartmann, Ferdinand, 4,267,794, Cl. 118-50.000.
Autoclave Engineers, Inc.: *See—*
Smith, Charles W., Jr.; and Zimmerman, Franz X., 4,268,708, Cl 13-20.000.
Automatic Systems Laboratories Limited: *See—*
Wolfendale, Peter C. F., 4,268,889, Cl. 361-292.000.
Automotive Products Limited: *See—*
Hodkinson, Harold, 4,267,697, Cl. 60-589.000.
Killian, Daniel L.; and Fraser, Peter E., 4,268,044, Cl. 277-59.000
Young, Alastair J., 4,268,092, Cl. 303-22.00R.
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Kent, Peter; Norris, Richard M.; and Charlton, Alan J., 4,268,284, Cl. 55-269.000.
Norris, Richard M., 4,268,287, Cl. 55-306.000.
Aviram, Ari; Pennington, Keith S.; and Kuhn, Lawrence, to International Business Machines Corporation. Electrophoretical method for selectively reinking resistive ribbon thermal transfer printing ribbons. 4,268,368, Cl. 204-181.00C.
Ayata, Naoki: *See—*
Fujii, Motoharu; Koumura, Noboru; Ayata, Naoki; and Sato, Yasushi, 4,268,841, Cl. 346-138.000
Aylesworth, Edward C. Ski equipment lock. 4,267,715, Cl. 70-58.000
Aziende Colori Nazionali Affini Acna S.p.A. *See—*
Pieri, Giampiero; Rosati, Enzo; Battisti, Ruggero; and Burei, Giovanni, 4,268,436, Cl. 260-141.000.
B. F. Goodrich Company, The: *See—*
Patel, Pradeep V., 4,268,361, Cl. 203-9.000.
B. J. McColl & Company, Ltd.: *See—*
McColl, Bruce J., 4,267,873, Cl. 152-339.000.
B/K Patent Development: *See—*
Burch, Hadley K., 4,268,813, Cl. 337-118.000.
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Rijckaert, Franciscus N., 4,267,848, Cl. 131-304.000.
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Stewart, Robert D., 4,268,395, Cl. 210-634.000.
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Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.
Backhouse, Alan J., to Imperial Chemical Industries Limited. Coating process. 4,268,547, Cl. 427-385.500.
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Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,268,680, Cl. 548-336.000.
Bacon, James F.; and Prewo, Karl M., to United States of America, Air Force. Laser resistant ceramic composite. 4,268,562, Cl. 428-113.000.
Bacon, Roger C. Animal training and amusement device. 4,267,799, Cl. 119-29.000.
Bahl, Om P., to Research Corporation. Chorionic gonadotropin derived antigen for early pregnancy test and contraceptive vaccine. 4,268,435, Cl. 260-112.00R.
Bahrenburg, Harry H. Freeze isolation seal. 4,267,699, Cl. 62-66.000.

Bailey, Leo T.: *See—*
Allaman, Michael C.; Bailey, Leo T.; and Hudgins, Richard E., 4,267,754, Cl. 83-187.000.
Baillievier, Freddy, to N.V. Bekaert S.A. Reinforcing cords. 4,268,573, Cl. 428-295.000.
Bainard, Dean R.; and Benjamin, Martin E., to Garlock Inc. Thrust washer and combination seal and thrust washer method and apparatus. 4,268,040, Cl. 277-1.000.
Bajorek, Christopher H.: *See—*
Ahn, Kie Y.; Bajorek, Christopher H.; Ho, Paul S.; Miller, Robert J.; and Powers, John V., 4,268,584, Cl. 428-620.000.
Baldini, Alberto; Leoni, Roberto; Calloni, Angelo; and Angelini, Gianfranco, to SNIA VISCOSA Societa Nazionale Industria Applicazioni Viscosa S.p.A. Process for the dissolution of cellulose in organic solvents, solutions obtained by said process, and process for the production of formed bodies of regenerated cellulose from said solutions. 4,268,666, Cl. 536-57.000.
Banister, Arthur J.; Fielder, Andrew J.; Hauptman, Zdenek V.; and Smith, Nigel R. M., to National Research Development Corporation. Producing sulphur-nitrogen groups. 4,268,491, Cl. 423-406.000.
Baratelli, Aletha V.: *See—*
Baratelli, Charles A.; and Baratelli, Aletha V., 4,267,923, Cl. 206-5.000.
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Barbron Corporation: *See—*
Polaner, Mardy, 4,268,289, Cl. 55-486.000.
Barger, Larry N.; and McCord, Kenneth R., to American Hospital Supply Corporation. Method of flushing a medical fluid. 4,267,833, Cl. 128-214.00F.
Barger, Larry N.; McCord, Kenneth R.; and Vidal, Claude A., to American Hospital Supply Corporation. System for flushing a medical fluid. 4,267,834, Cl. 128-214.00F.
Barger, Larry N.; and McCord, Kenneth R., to American Hospital Supply Corporation. Medical flushing valve. 4,267,835, Cl. 128-214.00E.
Barlow, Malcolm; and Lundquist, Jerry R., to Ampex Corporation. Process of making silicon dioxide films for use as wear resistant coatings in video and digital magnetic recording. 4,268,369, Cl. 204-192.00D.
Barnard, William R.; and Francis, Phillip W., to Direct Power Limited. Reflectometers. 4,268,173, Cl. 356-445.000.
Barner, Richard; and Hubscher, Josef, to Hoffmann-La Roche Inc. Process for the manufacture of cholestene derivatives and novel intermediates in their manufacture. 4,268,453, Cl. 260-397.500.
Barnes, Arthur C.: *See—*
Barnes, Carl E.; and Barnes, Arthur C., 4,268,660, Cl. 528-315.000.
Barnes, Carl E.; and Barnes, Arthur C. Accelerated polymerization of 2-pyrrolidone. 4,268,660, Cl. 528-315.000.
Barnes, Carl E.; and Barnes, Arthur C., 4,268,660, Cl. 528-315.000.
Barnum, Thomas G.; and Smart, William A., Jr., to Bradley Corporation. Push button faucet. 4,268,008, Cl. 251-44.000.
Baronnet, Rene; and Callendret, Raymond, to Berri-Balzac. 3-Amino(1H,3H)quinazoline-2,4-dione derivatives and their therapeutic applications. 4,268,511, Cl. 424-248.570.
Barraco, Anthony J.; and Rockwell, Albert M., to Barraco, Anthony J. Cathode-heater assembly and support structure therefor. 4,268,775, Cl. 313-337.000.
Barrett, Eileen. Frosting cap. 4,267,850, Cl. 132-9.000.
Barrington, Ross B., to Engineering Components Limited. Air filters. 4,268,290, Cl. 55-521.000.
Bartunek, William; and Mallory, Henry R., to Duracell International Inc. Portable waterproof fluorescent lantern. 4,268,894, Cl. 362-158.000.
BASF Aktiengesellschaft: *See—*
Baumann, Annegrit; and Adolphi, Heinrich, 4,268,506, Cl. 424-202.000.
Horner, Michael; and Nissen, Axel, 4,268,446, Cl. 260-345.500.
Jaedicke, Hagen, 4,268,444, Cl. 260-340.700.
Kropp, Rudolf; Thoemel, Frank; Nuerrenbach, Axel; Hoffman, Werner; Wenisch, Franz; and Fuchs, Hartwig, 4,268,445, Cl. 260-345.200.
Kurze, Joachim; Fikentscher, Rolf; and Krusche, Georg, 4,268,402, Cl. 252-8.800.
Platz, Rolf; Fuchs, Werner; Rieber, Norbert; Samel, Ulf-Rainer; Jung, Johann; and Wuerzer, Bruno, 4,268,300, Cl. 71-76.000.
Werther, Joachim; Fuchs, Hugo; Brand, Uwe; and Faulhaber, Friedrich R., 4,268,440, Cl. 260-239.30A.
Bassan, Benjamin, to Varian Associates, Inc. Gas ballast for oil sealed mechanical vacuum vane pump. 4,268,230, Cl. 418-15.000.
Battigelli, Jean A.: *See—*
Levecque, Marcel, deceased; Levecque, Marc, administrator; Battigelli, Jean A.; and Plantard, Dominique, 4,268,293, Cl. 65-5.000.
Battisti, Ruggero: *See—*
Pieri, Giampiero; Rosati, Enzo; Battisti, Ruggero; and Burei, Giovanni, 4,268,436, Cl. 260-141.000.
Batz, Hans-Georg: *See—*
Klose, Sigmar; Batz, Hans-Georg; Stoltz, Michael; Hagen, Alexander; and Weimann, Gunter, 4,268,628, Cl. 435-22.000.
Bauer, Peter. Shoe with removable outsole. 4,267,650, Cl. 36-101.000.
Bauer, Walter; Fabricius, Emilio; Lanzerath, Gunther; Patzer, Helmut; and Vogele, Richard, to Borg-Warner-Stieber GmbH. Synchronizing ring. 4,267,912, Cl. 192-53.00F.
Baumann, Annegrit; and Adolphi, Heinrich, to BASF Aktiengesellschaft. Thienylmethyl-thiophosphoric acid esters. 4,268,506, Cl. 424-202.000.
Baurle, Herbert F.; and Masak, Raymond J., to United States of America, Army. Steerable null antenna processor with gain control. 4,268,829, Cl. 343-100.0LE.
Bausch & Lomb Incorporated: *See—*
Fischer, David J.; Wooten, Idella B.; Thomas, John C.; and Reid, James A., 4,268,133, Cl. 351-161.000.
Bayer Aktiengesellschaft: *See—*
Duchardt, Karl H.; Groll, Manfred; and Wunderlich, Klaus, 4,268,267, Cl. 8-549.000.
Freitag, Dieter; Beer, Wolfgang; and Senge, Ferdinand, 4,268,648, Cl. 525-485.000.
Furstenwerth, Hauke, 4,268,438, Cl. 260-158.000.
Harnisch, Horst; and Rasche, Peter, 4,268,668, Cl. 8-685.000.
Hendricks, Udo-Winfried; Hildebrand, Dietrich; and Kuth, Robert, 4,268,266, Cl. 8-543.000.
Kruckenberg, Winfried, 4,268,439, Cl. 260-205.000.
Lehnert, Gunther; and Schiffer, Rainer, 4,268,155, Cl. 354-293.000.
Sasse, Klaus; Beck, Gunther; Eue, Ludwig; and Schmidt, Robert R., 4,268,681, Cl. 548-337.000.
Schulte-Huermann, Werner; and Hemmerich, Heinz P., 4,268,458, Cl. 564-305.000.
Wehling, Bernhard; and Bremen, Josef, 4,268,670, Cl. 542-435.000.
BBC Brown, Boveri & Co., Ltd.: *See—*
Anner, Emil; Brunner, Harry; and Meister, Hans J., 4,268,223, Cl. 416-196.00R.
Beck, Edwin; and Stocker, Arthur, 4,268,773, Cl. 310-269.000.
De Mesmaeker, Ivan, 4,268,886, Cl. 361-80.000.
Domitrovic, Josip; and Ulrich, Urban, 4,268,767, Cl. 310-53.000.
Hartmann, Max; and Thuringer, Ferdinand, 4,267,698, Cl. 60-756.000.
Hausermann, Alfred, 4,267,738, Cl. 74-8.000.
Schwarz, Hans, 4,267,740, Cl. 74-128.000.
Bean, William C.; and Tao, Thomas M., to American Can Company. Apparatus for the manufacture of fibrous webs. 4,268,235, Cl. 425-83.100.
Becchi, Raffaele; Giacone, Felice; and Accattino, Andrea, to Ing. C. Olivetti & C., S.p.A. Position transducer for a rotating member. 4,268,747, Cl. 250-231.0SE.
Bechstedt, Wolfgang, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). Clear, cold-stable liquid washing agent concentrates. 4,268,262, Cl. 8-137.000.
Beck, Edwin; and Stocker, Arthur, to BBC Brown, Boveri & Co., Ltd. Support for the field winding of field spiders. 4,268,773, Cl. 310-269.000
Beck, Gunther: *See—*
Sasse, Klaus; Beck, Gunther; Eue, Ludwig; and Schmidt, Robert R., 4,268,681, Cl. 548-337.000.
Beck, Joseph H.; and Orilio, Paul F., to J.C. Penney Company Inc. Two-speed automatic control of supply fans. 4,267,967, Cl. 236-49.000.
Beckenbaugh, William M.; Goldman, Patricia J.; and Polakowski, Ted D., Jr., to Western Electric Company, Inc. Method for depositing a metal on a surface. 4,268,536, Cl. 427-54.100.
Becker, Clair M.: *See—*
Longenecker, Ned; Becker, Clair M.; Riegel, David P.; and Vogt, Alan G., Jr., 4,267,721, Cl. 73-1.00G.
Becker, Heinrich; Klein, Edgar; Rosendahl, Franz; and Weber, Helmut, to Kronos Titan G.m.b.H. Titanium dioxide hydrate of a particular structure and process of manufacture thereof. 4,268,422, Cl. 252-461.000.
Beckers, Karl-Dieter: *See—*
Hoffken, Erich; and Beckers, Karl-Dieter, 4,268,543, Cl. 427-230.000.
Beckman Instruments, Inc.: *See—*
Neti, Radhakrishna M., 4,268,370, Cl. 204-195.00P.
Sternberg, James C., 4,268,171, Cl. 356-341.000.
Beckord, Ulrich; and Eder, Helmut, to Siemens Aktiengesellschaft. Office machine with an electric drive motor. 4,268,768, Cl. 310-62.000.
Becton Dickinson & Company: *See—*
Reese, Max, 4,268,494, Cl. 424-1.000.
Bederke, Klaus; and Kerber, Hermann, to Herberts Gesellschaft mit beschrankter Haftung. Modified polyester imides, hardenable by energy-rich radiation, process for their production and their use for the insulation of electric wires. 4,268,659, Cl. 528-288.000.
Beecham Group Limited: *See—*
Griffin, Gerald J. L.; and Brewer, Malcolm D., 4,268,497, Cl. 424-27.000.
Beem, W. Wayne, to Outboard Marine Corporation. Mounting arrangement for electric outboard motor. 4,268,258, Cl. 440-63.000.
Beer, Wolfgang: *See—*
Freitag, Dieter; Beer, Wolfgang; and Senge, Ferdinand, 4,268,648, Cl. 525-485.000.
Behar, Marvin L. Handy bag. 4,267,869, Cl. 150-50.000.
Behle, Gunter R., to ACF Industries, Inc. Operating handle for bottom operated railway tank car valve. 4,268,010, Cl. 251-144.000.
Behringer, Hartmut; and Karrenbauer, Kurt, to Hoechst Aktiengesellschaft. Continuous diazotization of amines. 4,268,437, Cl. 260-141.000.
Belart, Juan, to ITT Industries, Inc. Spot-type disc brake. 4,267,904, Cl. 188-73.300.
Bell, Antony G., to Fairchild Camera and Instrument Corp. ROM Program security circuits. 4,268,911, Cl. 365-104.000.
Bell & Howell Company: *See—*
Grant, Frederic F.; and Martija, Henry M., 4,267,951, Cl. 226-195.000.

Hartmann, Rudolf, 4,268,119, Cl. 350-173.000.
Lehto, Eino M., 4,268,135, Cl. 353-27.00R.

Bell Telephone Laboratories, Incorporated: *See*—
Lepselter, Martin P., 4,268,374, Cl. 204-298.000.
Sard, Richard; and Walton, Kenneth R., 4,268,568, Cl. 428-209.000.

Bell, Theodore F. Bicycle fork assembly. 4,268,055, Cl. 280-278.000.

Bellasalma, Gerard: *See*—
Altman, Gilbert; and Bellasalma, Gerard, 4,267,609, Cl. 4-580.000.

Belotta, Anthony S., to Warner-Lambert Co. Adjustable shelving rack. 4,267,931, Cl. 211-153.000.

Bendix Corporation, The: *See*—
Horsting, John J., 4,267,766, Cl. 91-369.00A.
O'Connor, Bernard J.; Ficken, William H.; Carnevale, Tony R.; and Lanni, Michael J., 4,267,737, Cl. 74-5.470.
Schildkraut, Alan L.; Luca, Vincent A., Jr.; and Knapp, Carl L., 4,268,103, Cl. 339-89.00M.

Beneventano, Thomas: *See*—
Valles, Henry; Taylor, Allen R.; and Beneventano, Thomas, 4,267,735, Cl. 74-5.700.

Benjamin, Lawrence: *See*—
O'Brien, Thomas P.; and Benjamin, Lawrence, 4,268,406, Cl 252-105.000.

Benjamin, Martin E.: *See*—
Bainard, Dean R.; and Benjamin, Martin E., 4,268,040, Cl. 277-1.000.

Bennett, Clifford D.: *See*—
Kienholz, Charles M.; and Bennett, Clifford D., 4,267,974, Cl. 239-74.000.

Bennett, Edward D. Apparatus for producing a blank from stock material. 4,267,753, Cl. 83-124.000.

Benson, Donald H.; and Mosher, Larry, to Federal-Mogul Corporation. Abrasive saw blade for trapezoidal grooving. 4,267,814, Cl 125-15.000.

Benteler, Hubertus; Olszewski, Egon; Hansen, Rainer; and Wecker, Ferdinand, to Benteler-Werke AG. Apparatus for producing a tube with successive corrugations of different radial extensions and spacings. 4,267,718, Cl. 72-59.000.

Benteler-Werke AG: *See*—
Benteler, Hubertus; Olszewski, Egon; Hansen, Rainer; and Wecker, Ferdinand, 4,267,718, Cl. 72-59.000.

Bentley Laboratories, Inc.: *See*—
Raible, Donald A., 4,268,476, Cl. 422-46.000.

Berg, Paul H., to Garrett Corporation, The. Turbocharger shaft seal arrangement. 4,268,229, Cl. 417-407.000.

Berglund, Neil C.; and Nieling, James R., to International Business Machines Corporation. Maintenance interface for a service processor-central processing unit computer system. 4,268,902, Cl. 364-200.000.

Berlyn Corporation, The: *See*—
Paquette, James P., 4,268,391, Cl. 210-236.000.

Bernard, Louis A., to Societe Nationale Industrielle Aerospatiale. Equipment for folding the blades of a main helicopter rotor. 4,268,222, Cl. 416-1.000.

Bernard, Vincent E., to Jimmy Dean Meat Company, Inc., The. Process for extruding and forming portion controlled frozen food products. 4,268,532, Cl. 426-231.000.

Bernardi, Luigi: *See*—
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,268,451, Cl. 260-376.000.

Bernhard Forster GmbH: *See*—
Forster, Rolf, 4,268,249, Cl. 433-10.000.

Berri-Balzac: *See*—
Baronnet, Rene; and Callendret, Raymond, 4,268,511, Cl. 424-248.570.

Bertus, Brent J.; McKay, Dwight L.; and Roberts, John S., to Phillips Petroleum Company. Process for reducing possibility of leaching of heavy metals from used petroleum cracking catalyst in land fills. 4,268,188, Cl. 405-128.000.

Beshenich, Paul J.: *See*—
McLaughlin, Donald L.; and Beshenich, Paul J., 4,267,915, Cl. 194-1.00N.

Betzl, Hermann; and Kuenemund, Friedrich. Electric filter circuit consisting of charge transfer device (CTD) lines. 4,268,806, Cl. 333-165.000.

BFG Glassgroup: *See*—
De Boel, Marcel, 4,268,581, Cl. 428-428.000.
Gorner, Julius K., 4,268,297, Cl. 65-104.000.

Biedermann, David A.: *See*—
Hughen, James F.; Herring, Jimmy R.; Biedermann, David A.; and Ovens, Christopher W., 4,268,827, Cl. 340-715.000.

Bielomatik Leuze GmbH & Co.: *See*—
Negro, Guido, 4,267,865, Cl. 140-92.940.

Biermann, Peter; Feucht, Rudi; and Schmidt, Manfred, to Vereinigte Baubeschlagfabriken Gretsch and Co. GmbH. Cross country ski binding. 4,268,063, Cl. 280-615.000.

Bigelow-Sanford, Inc.: *See*—
Meredith, James E., 4,268,263, Cl. 8-149.000.

Bimczok, Rudolf: *See*—
Meschkat, Ursula; and Bimczok, Rudolf, 4,268,401, Cl. 252-8.800.

Binder, Hellmuth, to Daimler-Benz Aktiengesellschaft. Mechanically trackable road vehicle. 4,267,779, Cl. 104-247.000.

Bjorkman, Karl-Ake G., to Lumalampan AB. Process for removing mercury from solid waste material. 4,268,306, Cl. 75-81.000.

Black, Charles H.; and Eskow, Cary N., to Keene Corporation. Coin identification system. 4,267,916, Cl. 194-102.000

Black & Decker Inc.: *See*—
Saar, David A., 4,267,914, Cl. 192-147.000.

Blaha, Robert F., to Texas Instruments Incorporated. Method of making a solid state electrical switch. 4,267,635, Cl. 29-622.000.

Blakeway, Richard S.; Blakeway, Stanley R.; and Olds, Peter J., to Blakeway, Richard S. Body support. 4,267,610, Cl. 5-60.000.

Blakeway, Stanley R.: *See*—
Blakeway, Richard S.; Blakeway, Stanley R.; and Olds, Peter J., 4,267,610, Cl. 5-60.000.

Blanco, Manuel G. Self-stabilized elevator-float for drydocking or floating any type of vessel. 4,267,788, Cl. 114-45.000.

Blendax-Werke R. Schneider GmbH & Co.: *See*—
Meschkat, Ursula; and Bimczok, Rudolf, 4,268,401, Cl. 252-8.800.

Blitchington, Frank H., to Western Electric Company, Inc. Method of and system for automatically adjusting a threshold level of a pulse generating circuit to inspect a web. 4,268,172, Cl. 356-431.000.

Bloink, Harry W.; and Huber, Walter G., to Illinois Tool Works Inc. Independent axial and radial adjustment for a gear cutter. 4,268,194, Cl. 407-22.000.

Blonder, Isaac S., to Blonder-Tongue Laboratories, Inc. Television subscriber apparatus. 4,268,860, Cl. 358-118.000.

Blonder-Tongue Laboratories, Inc.: *See*—
Blonder, Isaac S., 4,268,860, Cl. 358-118.000.

Bloomfield, Roger D., to Park Fastener Company. Film fastening system. 4,267,876, Cl. 160-392.000.

Blum, Alvin S. Method and apparatus for characterization of cells, particles, and liquids. 4,268,268, Cl. 23-230.00B.

BNA-Augustin GmbH & Co. KG: *See*—
Herzstark, Curt, 4,268,477, Cl. 422-64.000.

Boardman, Bryan J., to Boardman Energy Systems, Inc. Thermal storage material and process for making. 4,268,558, Cl. 428-71.000.

Boardman Energy Systems, Inc.: *See*—
Boardman, Bryan J., 4,268,558, Cl. 428-71.000.

Bodenseewerk Perkin-Elmer & Co. GmbH: *See*—
Huber, Bernhard W., 4,268,478, Cl. 422-68.000.

Bodig, Bernd; and Juadt, Werner, to Robert Bosch GmbH. Apparatus for generating engine speed-dependent ignition control signals. 4,268,888, Cl. 361-236.000.

Bodor, Nicholas S.; and Sloan, Kenneth B., to INTERx Research Corporation. Prodrugs for improved bioavailability of certain Δ^4-3-ketosteroidal sex hormones. 4,268,441, Cl. 260-239.500.

Boehringer Mannheim GmbH: *See*—
Klose, Sigmar; Batz, Hans-Georg; Stoltz, Michael; Hagen, Alexander; and Weimann, Gunter, 4,268,628, Cl. 435-22.000.

Bofors America, Inc.: *See*—
Spoor, Martin, 4,267,724, Cl. 73-862.650.

Bohg, Armin; and Briska, Marian, to International Business Machines Corporation. Solar collector with lens array. 4,267,823, Cl. 126-422.000.

Bohleen, Brian O.; and Hansen, Randall C., to Abex Corporation Self-storing door handle. 4,268,077, Cl. 292-336.300.

Bonarski, Anthony A.; and Luce, Ross G., to Warner-Lambert Company. Nebulizer. 4,268,460, Cl. 261-1.000.

Boirin, Jean-Claude A. E.: *See*—
Verdenne, Serge J. C.; Petitpas, Jean-Marie L.; and Boirin, Jean-Claude A. E., 4,268,202, Cl. 414-39.000.

Bois, Daniel; and Olsfors, Jan. Tangential pick-up device for a gramophone turn-table. 4,268,039, Cl. 369-220.000.

Boling, Norman L., to Owens-Illinois, Inc. Generation of electrical energy from sunlight, and apparatus. 4,268,709, Cl. 136-247.000.

Bom, Cornelis J. G.: *See*—
van der Lely, Ary; and Bom, Cornelis J. G., 4,267,891, Cl. 172-28.000.

Bora, F. William, Jr. Prosthetic joint. 4,267,608, Cl. 3-1.910.

Bordini, Fosco; and Mauri, Luigi. Coated polyolefin films having a low adherence to the welding bars of welding machines. 4,268,578, Cl. 428-413.000.

Borg-Warner-Stieber GmbH: *See*—
Bauer, Walter; Fabricius, Emilio; Lanzerath, Gunther; Patzer, Helmut; and Vogele, Richard, 4,267,912, Cl. 192-53.00F.

Borlan, Albert G. Flexible bellows piston seal. 4,268,042, Cl. 277-1.000.

Bouchard, Andre C.: *See*—
Hall, Harold H., Jr.; Bouchard, Andre C.; Shaffer, John W.; and Gavenonis, Thomas L., 4,267,774, Cl. 102-201.000.

Boulou, Michel: *See*—
Jacob, Guy M.; and Boulou, Michel, 4,268,842, Cl. 357-17.000.

Bourke, Donall G.; Mendelson, Richard N.; and Madruga, Luis, to International Business Machines Corporation. Data processor input-/output controller. 4,268,906, Cl. 364-200.000.

Bouwknegt, Jan; Verbeek, Hendrik J.; and Scholten, Gerard J., to U.S. Philips Corporation. Method of enveloping articles with thermoplastic strip material. 4,268,469, Cl. 264-138.000.

Bovenkerk, Harold P., to General Electric Company. Compact of boron-doped diamond and method for making same. 4,268,276, Cl. 51-295.000.

Bower, Richard K.; Rauch, August H.; and Richard, John F., to Champion International Corporation. Aluminum-filled epoxy embossing caul and means for production. 4,268,473, Cl. 264-234.000.

Bowman, Walter J.: *See*—
Neff, James A.; Fagerlie, Richard A.; and Bowman, Walter J., 4,267,862, Cl. 137-625.640.

Box, E. O., Jr.; and Farha, Floyd E., Jr., to Phillips Petroleum Company. Purification of polluted water. 4,268,399, Cl. 210-762.000.

Box, William A., to United States Steel Corporation. Method and apparatus for separating strip coil from wound construct by rotation. 4,267,984, Cl. 242-56.400.

Boyle, Francis T.; and Taylor, Michael A., to Imperial Chemical Industries Limited. 1,3-Benzoxazine trichloromethyl derivatives, compositions and use. 4,268,510, Cl. 424-248.530.

Bracesco, Roberto. Process and mold for producing padded seat backs, and the product obtained. 4,268,557, Cl. 428-71.000.

Bradley Corporation: *See*—
Barnum, Thomas G.; and Smart, William A., Jr., 4,268,008, Cl. 251-44.000.

Bradley, Mark E.: *See*—
Robertson, Charles H., Jr.; and Bradley, Mark E., 4,267,845, Cl. 128-721.000.

Bradmon, Paul J., to International Business Machines Corporation. Apparatus and method for controlling the adjustment of optical elements in an electrophotographic apparatus. 4,268,165, Cl. 355-55.000.

Bradshaw, Cyril E., to Eaton Corporation. Pneumatic vacuum regulator. 4,267,855, Cl. 137-85.000.

Bradshaw, Thomas I.: *See*—
Palmquist, Philip V.; and Bradshaw, Thomas I., 4,268,118, Cl. 350-128.000.

Brand, Uwe: *See*—
Werther, Joachim; Fuchs, Hugo; Brand, Uwe; and Faulhaber, Friedrich R., 4,268,440, Cl. 260-239.30A.

Brandenstein, Manfred: *See*—
Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, 4,267,913, Cl. 192-98.000.
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Braun, Steven W.: *See*—
Slemon, Charles S.; and Braun, Steven W., 4,268,115, Cl. 350-96.210.

Breco Kunststoffverarbeitungs-GmbH & Co. KG: *See*—
Breher, Rudolf, 4,268,471, Cl. 264-229.000.

Breher, Rudolf, to Breco Kunststoffverarbeitungs-GmbH & Co. KG. Method of producing a reinforced endless toothed belt of synthetic plastics material having a minus tolerance of the belt circumferential length. 4,268,471, Cl. 264-229.000.

Bremen, Josef: *See*—
Wehling, Bernhard; and Bremen, Josef, 4,268,670, Cl. 542-435.000.

Breuer, Wolfram; and Siemer, Klaus, to Farbenfabriken Bayer Aktiengesellschaft. Method of and means for conveying and measuring gases for gas analysis operations. 4,268,224, Cl. 417-32.000.

Breville Holdings Pty. Limited: *See*—
O'Brien, William J., 4,268,741, Cl. 219-439.000.

Brewer, Malcolm D.: *See*—
Griffin, Gerald J. L.; and Brewer, Malcolm D., 4,268,497, Cl. 424-27.000.

Bridgestone Tire Company Limited: *See*—
Aramaki, Kuninori; and Ueda, Shigeo, 4,268,186, Cl. 404-6.000.
Komatsu, Tadaaki; Araki, Yuusuke; and Inoue, Kanji, 4,268,330, Cl. 156-111.000.

Bright Industries Inc.: *See*—
Sorrentino, Vincent P., 4,268,087, Cl. 297-273.000.

Briska, Marian: *See*—
Bohg, Armin; and Briska, Marian, 4,267,823, Cl. 126-422.000.

British-American Tobacco Company Limited: *See*—
Reid, William W., 4,267,847, Cl. 131-275.000.

Brodeur, Lester R., to Sanders Associates, Inc. Self calibration of a LORAN-C navigation receiver. 4,268,830, Cl. 343-103.000.

Broen, Harry: *See*—
Korterod, Lars; Strand, Arne; Ellingsen, Odd; and Broen, Harry, 4,267,929, Cl. 206-603.000.

Broken Hill Proprietary Company Limited, The: *See*—
Debenham, Michael; Dalli, Allan G.; and Revill, Peter L., 4,267,938, Cl. 220-268.000.

Broniewski, Bogdan M., to Occidental Research Corporation. Method of concentrating alkali hydroxide in three compartment hybrid cells. 4,268,366, Cl. 204-98.000.

Bronson, Robert E.: *See*—
Ruehle, Walter J.; and Bronson, Robert E., 4,268,012, Cl. 254-223.000.

Broussely, Michel: *See*—
Lecerf, Andre; and Broussely, Michel, 4,268,588, Cl. 429-194.000.

Brower, Boyd G.; Sindlinger, Ronald E.; and Holmes, James L., to GTE Products Corporation. Multilamp photoflash unit having grounded reflector. 4,268,891, Cl. 362-11.000.

Brown, Clarence C.; and Spector, George. Fishing lure simulating fish bait. 4,267,658, Cl. 43-42.060.

Brown, Dale M.; Garfinkel, Marvin; and Laurent, John A., to General Electric Company. Solid state relay. 4,268,843, Cl. 357-19.000.

Brown, Harold J., to Lorain Products Corporation. Semiconductor switching circuit with clamping and energy recovery features. 4,268,898, Cl. 363-20.000.

Brown, Joe R.: *See*—
Cochran, Chudleigh B., 4,267,675, Cl. 52-118.000.

Brown, Robert S.; and Satterfield, Larry S., to Milliken Research Corporation. Carpet scrubber with improved brush. 4,267,617, Cl. 15-320.000.

Brun, Bernard T.; and McKinney, John W., Jr., to Duriron Company, Inc., The. Cable guide for a tubular anode. 4,268,371, Cl. 204-196.000.

Brunner, Harry: *See*—
Anner, Emil; Brunner, Harry; and Meister, Hans J., 4,268,223, Cl. 416-196.00R.

Bruns, Klaus; and Meins, Peter, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). 13,15-Dioxabicyclo[10.5.0]heptadecanes, their preparation, and their use in perfume compositions and as an odorant. 4,268,443, Cl. 260-340.300.

Bryant, Donald E., to FarmTronics Inc. Pneumatically operated gated irrigation system. 4,267,972, Cl. 239-66.000.

Bryant, George M.: *See*—
Koenig, Harvey S.; and Bryant, George M., 4,268,641, Cl. 525-367.000.

Buck, Daniel C.; and Hess, Ricky D., to Westinghouse Electric Corp. Self-pulsed microwave power amplifier. 4,268,797, Cl. 330-277.000.

Buckman Laboratories, Inc.: *See*—
Buckman, Robert H.; Young, Peter J.; and Pulido, Miguel L., 4,268,403, Cl. 252-8.55D.

Buckman, Robert H.; Young, Peter J.; and Pulido, Miguel L., to Buckman Laboratories, Inc. Oil recovery using a dimethylamide in a fluid carrier. 4,268,403, Cl. 252-8.55D.

Bucyrus-Erie Company: *See*—
Zeldman, Maurice I., 4,268,214, Cl. 414-694.000.

Bud Antle, Inc.: *See*—
Cayton, David W., 4,268,201, Cl. 414-35.000.

Budd Company, The: *See*—
Eggert, Walter S., Jr., 4,267,895, Cl. 180-54.00A.

Budzich, Tadeusz. Load responsive valve assemblies. 4,267,860, Cl. 137-596.200.

Bugaut, Andree: *See*—
Grollier, Jean F.; Bugaut, Andree; Andrillon, Patrick; and Fourcadier, Chantal, 4,268,264, Cl. 8-410.000.

Bulteau, Gerard: *See*—
Thominet, Michel; Bulteau, Gerard; Acher, Jacques; and Collignon, Claude, 4,268,512, Cl. 424-250.000.

Bundy, Gordon L., to Upjohn Company, The. 9-Deoxy-9-methylene-5,6-didehydro-PGF$_1$ amides. 4,268,669, Cl. 542-429.000.

Burba, Christian; Volland, Hans-Gunter; and Esper, Norbert, to Schering Aktiengesellschaft. Polyvinyl chloride-plastisol having improved adhesion. 4,268,548, Cl. 427-387.000.

Burch, Hadley K., to B/K Patent Development. Resettable thermal cut-off switch. 4,268,813, Cl. 337-118.000.

Burdeska, Kurt: *See*—
Muntwyler, Rene; and Burdeska, Kurt, 4,268,693, Cl. 568-637.000.

Burei, Giovanni: *See*—
Pieri, Giampiero; Rosati, Enzo; Battisti, Ruggero; and Burei, Giovanni, 4,268,436, Cl. 260-141.000.

Burelle, Jean, to Compagnie Plastic Omnium. Tube reinforced with a synthetic material. 4,267,863, Cl. 138-109.000.

Buret, Jacqui, to Commissariat a l'Energie Atomique. Paraseismic device for the handling hood of a nuclear reactor. 4,268,355, Cl. 176-30.000.

Burgsmuller, Karl. Deep drilling tool. 4,268,197, Cl. 408-59.000.

Burke, Michael T. Briquette forming process and composition. 4,268,315, Cl. 106-84.000.

Burkl, Erich: *See*—
Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, 4,267,913, Cl. 192-98.000.

Burnett-Johnston, Roy L. Hose clip apparatus. 4,267,622, Cl. 24-274.0WB.

Burton, John H.; and Mikulich, Michael A., to American Medical Systems, Inc. Penile prosthesis. 4,267,829, Cl. 128-79.000.

Busatis-Werke KG: *See*—
Schneider, Rudolf; and Schefers, Wilhelm, 4,267,689, Cl. 56-53.000.

Butcher, Jimmie J.: *See*—
Hankins, Ronald G.; and Butcher, Jimmie J., 4,268,208, Cl. 414-332.000.

Byerly, Cecil W. Heat storage sink. 4,267,881, Cl. 165-45.000.

Byers, Thomas L. Apparatus and method for modifying images on photographic film. 4,268,166, Cl. 355-84.000.

Byrt, Graham A. B.; and Chandler, Kenneth, to Masson Scott Thrissell Engineering. Cutting apparatus for continuous webs. 4,267,752, Cl. 83-74.000.

C. R. Bard, Inc.: *See*—
Kienholz, Charles M.; and Bennett, Clifford D., 4,267,974, Cl. 239-74.000.

C. van der Lely N.V.: *See*—
van der Lely, Ary; and Bom, Cornelis J. G., 4,267,891, Cl. 172-28.000.

Cabeza, Maximino R. Single lever control mechanism for bicycle front and rear derailleurs. 4,267,742, Cl. 74-471.0XY.

Cain, Earl S.; Carlson, Jerome A.; and Goodrich, George E., to Tribotech. Flange mount for spherical bearing. 4,268,096, Cl. 308-15.000.

Cal West Metals: *See*—
LaPoint, Albert E., 4,267,980, Cl. 241-20.000.

Calabrese, Peter J.: *See*—
Klavan, Irving L.; Calabrese, Peter J.; Finch, Theron R.; Greenberg, Arthur; and McElroy, Robert P., 4,268,597, Cl. 430-102.000.

Callendret, Raymond: *See*—
Baronnet, Rene; and Callendret, Raymond, 4,268,511, Cl. 424-248.570.

Calloni, Angelo: *See*—
Baldini, Alberto; Leoni, Roberto; Calloni, Angelo; and Angelini, Gianfranco, 4,268,666, Cl. 536-57.000.

Cameron Iron Works, Inc.: *See*—
Randall, Ross D., 4,268,011, Cl. 254-29.00A.

Camsco, Inc.: *See*—
Higgins, Bobby L.; and Johnson, Luther M., 4,268,730, Cl. 200-52.00R.

Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See—*
Milne, Robert, 4,268,833, Cl. 343-833.000.

Candella, Joseph S. Load supporting and handling means. 4,267,780, Cl. 108-52.100.

Cann, Peter L., to Carrier Corporation. Series compressor refrigeration circuit with liquid quench and compressor by-pass. 4,268,291, Cl. 62-117.000.

Canon Kabushiki Kaisha: *See—*
Aizawa, Hiroshi; Uchidoi, Masanori; Urushibara, Kazunobu; Suzuki, Nobuyuki; and Shimizu, Masami, 4,268,152, Cl. 354-234.000.
Date, Nobuaki; Senuma, Michio; and Yoshida, Syozo, 4,268,147, Cl. 354-147.000.
Fujii, Motoharu; Koumura, Noboru; Ayata, Naoki; and Sato, Yasushi, 4,268,841, Cl. 346-138.000.
Kawamura, Naoto, 4,268,871, Cl. 358-298.000.
Kitamura, Takashi; Sakamaki, Hisashi; and Kawamura, Naoto, 4,268,870, Cl. 358-296.000.
Nakahata, Kimio; Aguro, Yoshinori; and Tamura, Yasuyuki, 4,268,161, Cl. 355-3.0CH.
Suguira, Yoji; and Kiuchi, Masayoshi, 4,268,153, Cl. 354-234.000.
Uchiyama, Takashi; Tsunekawa, Tokuichi; and Kiyohara, Takehiko, 4,268,139, Cl. 354-34.000.

Capaccio, Giancarlo; and Ward, Ian M., to National Research Development Corporation. Polymer materials. 4,268,470, Cl. 528-502.000.

Caparoni, Louis J.: *See—*
Rauchut, Robert F.; and Caparoni, Louis J., 4,268,823, Cl. 340-570.000.

Carabateas, Philip M.: *See—*
Diana, Guy D.; and Carabateas, Philip M., 4,268,678, Cl. 548-247.000.

Carlingswitch, Inc.: *See—*
Sorenson, Richard W., 4,268,734, Cl. 200-302.000.

Carlisle Corporation: *See—*
Wagner, Harry H., 4,268,467, Cl. 264-111.000.

Carlson, Jerome A.: *See—*
Cain, Earl S.; Carlson, Jerome A.; and Goodrich, George E., 4,268,096, Cl. 308-15.000.

Carlton, Peter A.: *See—*
Childs, William H.; and Carlton, Peter A., 4,268,803, Cl. 333-12.000.

Carnevale, Tony R.: *See—*
O'Connor, Bernard J.; Ficken, William H.; Carnevale, Tony R.; and Lanni, Michael J., 4,267,737, Cl. 74-5.470.

Carpenter, Donald C. Universal carrier attachment for pick-up vans. 4,268,083, Cl. 296-10.000.

Carrier Corporation: *See—*
Cann, Peter L., 4,268,291, Cl. 62-117.000.
Leonard, Gary S.; and Zinsmeyer, Thomas M., 4,267,705, Cl. 62-195.000.

Carroll, Frank E., to Carroll Research, Inc. Insulated roof structure. 4,267,678, Cl. 52-302.000.

Carroll Research, Inc.: *See—*
Carroll, Frank E., 4,267,678, Cl. 52-302.000

Carter, Gilbert T.: *See—*
Perrett, Thomas R.; and Carter, Gilbert T., 4,267,939, Cl. 220-318.000

Carter, Walter L. Methods of forming and methods of controlling a pivotal mirror assembly. 4,268,125, Cl. 350-320.000.

Casey, John F.; and Vyne, Robert L., to Motorola, Inc. Preferred device orientation on integrated circuits for better matching under mechanical stress. 4,268,848, Cl. 357-60.000.

Caterpillar Tractor Co. *See—*
Chambers, Robert O.; and Stedman, Robert N., 4,267,749, Cl. 74-690.000.
Grob, Russel W., 4,268,792, Cl. 328-24.000.
Martin, Dean W., 4,268,019, Cl. 269-43.000.
Muller, Thomas P., 4,267,674, Cl. 52-115.000.
Myers, Jimmy D.; and Fratzke, Lawrence F., 4,267,890, Cl. 169-75.000.
Stockner, Alan R.; and Stratton, Michael K., 4,267,977, Cl. 239-132.300.

Caughey, Robert A., to Forest Fuels, Inc. Gasification retort. 4,268,274, Cl. 48-111.000.

Cavalier Carpets: *See—*
Moore, Mack W., Jr., 4,268,551, Cl. 428-17.000.

Cavazza, Claudio. Method of treating abnormal lipoprotein ratios with acylcarnitine. 4,268,524, Cl. 424-311.000.

Cayton, David W., to Bud Antle, Inc. Unitizing system for produce cartons and the like. 4,268,201, Cl. 414-35.000.

CBS Inc.: *See—*
Green, George R. J., 4,268,864, Cl. 358-166.000.

Central Welding Supply Co., Inc.: *See—*
Sanders, Harold D., 4,268,740, Cl. 219-137.510.

CGEE Alsthom: *See—*
Debaigt, Jean, 4,268,108, Cl. 339-198.0GA.

Challenge-Cook Bros., Incorporated: *See—*
Freze, Benjamin H., 4,268,247, Cl. 432-21.000.

Chambers, Robert O.; and Stedman, Robert N., to Caterpillar Tractor Co. Compact reversible variable speed transmission and differential. 4,267,749, Cl. 74-690.000.

Champion International Corporation: *See—*
Bower, Richard K.; Rauch, August H.; and Richard, John F., 4,268,473, Cl. 264-234.000.

Chandler, Kenneth: *See—*
Byrt, Graham A. B.; and Chandler, Kenneth, 4,267,752, Cl 83-74.000.

Charlton, Alan J.: *See—*
Kent, Peter; Norris, Richard M.; and Charlton, Alan J., 4,268,284, Cl. 55-269.000.

Charron, Jean-Claude, to Saunier Duval. Control mechanism for a gas-fired water heater. 4,267,820, Cl. 126-351.000.

Chase, Verlin R. Device and method for replacing rope carriers on dryer rolls of paper making machines. 4,267,631, Cl. 29-426.100.

Chatwin, Francis R. Apparatus for vaporizing and atomizing liquids. 4,267,976, Cl. 239-102.000.

Chauvin, Yves: *See—*
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,268,701, Cl. 585-329.000.

Chekirda, Russell F.; Murphy, Randall T.; and Lyszczarz, Walter, to Lear Siegler, Inc. Support assembly for vehicle seat. 4,267,999, Cl. 248-418.000.

Chemische Werke Huls Aktiengesellschaft: *See—*
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,268,448, Cl. 260-346.750.
Lange, Erhard; and Hausen, Manfred Z., 4,268,695, Cl 568-864.000.

Chemplex Company: *See—*
Hoff, Raymond E., 4,268,418, Cl. 252-429.00B.

Chen, Laurence. Disposable camera with simplified film advance and indicator. 4,268,150, Cl. 354-206.000.

Chevron Research Company: *See—*
Foster, Michael S., 4,268,376, Cl. 208-120.000.
Toland, William G., 4,268,572, Cl. 428-281.000.

Chiao, Wen B.: *See—*
Ray-Chaudhuri, Dilip K.; Chiao, Wen B.; and Schoenberg, Jules E., 4,268,656, Cl. 528-103.000.

Chibana, Masanobu: *See—*
Futamase, Tsuyoshi; and Chibana, Masanobu, 4,267,763, Cl. 84-1.220.

Chicago Bridge & Iron Company: *See—*
Sikora, Orwill G., 4,268,246, Cl. 432-4.000.

Chicago Pneumatic Tool Company: *See—*
Wallace, William K.; Giardino, David A.; and van Nederynen, Gerrit, 4,267,747, Cl. 74-526.000.

Chietti, Giovanni, to Macchine Tessili Circolari MATEC S.p.A. Circular hosiery machine and the like, having simplified program control means. 4,267,708, Cl. 66-56.000.

Children's Hospital Medical Center: *See—*
Gabbay, Kenneth H.; and Gallop, Paul M., 4,268,270, Cl. 23-230.300.

Childs, William H.; and Carlton, Peter A., to Communications Satellite Corporation. Periodic lid for integrated circuit. 4,268,803, Cl. 333-12.000.

Chino, Koichi: *See—*
Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, 4,268,409, Cl. 252-301.10W.

Chino, Yasuyoshi: *See—*
Miyaguchi, Akinori; Morita, Yasuomi; and Chino, Yasuyoshi, 4,268,427, Cl. 260-23.70C.

Chisso Corporation: *See—*
Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiba, Kiyonori, 4,268,362, Cl. 203-28.000.

Chittenden, Jeremy B. Valve actuating equipment. 4,268,007, Cl. 251-30.000.

Chittick, Donald E., to Pyrenco, Inc. Apparatus for converting organic material into fuel. 4,268,275, Cl. 48-111.000.

Christian, Francis R. Casket ornament structure. 4,267,623, Cl. 27-2.000.

Christian, J. Robert; and Mink, James W., to United States of America, Army. Multipath discriminating antenna system. 4,268,832, Cl. 343-786.000.

Christiansen, M. Tyrone: *See—*
Eventoff, Franklin N.; and Christiansen, M. Tyrone, 4,268,815, Cl. 338-69.000.

Chu, Pak-Jong, to Northern Telecom Limited. Multiple cantilever spring contact switch. 4,268,726, Cl. 179-164.000.

Ciba-Geigy AG: *See—*
Leppard, David G.; and Rasberger, Michael, 4,268,593, Cl. 430-17.000.
Tschopp, Paul, 4,268,591, Cl. 430-17.000.
Tschopp, Paul, 4,268,592, Cl. 430-17.000.

Ciba-Geigy Corporation: *See—*
Muntwyler, Rene; and Burdeska, Kurt, 4,268,693, Cl. 568-637.000.
Raspet, Thomas M., 4,268,408, Cl. 252-182.000.
Schafer, Paul; Abel, Heinz; and Mayer, Fritz, 4,268,686, Cl. 560-91.000.

Cieslak, David M.: *See—*
Cieslak, Patrick J.; and Moran, Michael J., 4,267,768, Cl. 493-203.000.

Cieslak, Patrick J.; and Moran, Michael J., to Cieslak, David M., a part interest. Process for fabricating a reclosable bag. 4,267,768, Cl. 493-203.000.

Citizen Watch Co., Ltd.: *See—*
Mizutani, Nagao; Okawara, Yasuo; and Shimazaki, Toshikazu, 4,268,182, Cl. 400-247.000.
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Claesson, Per-Goran. Device for generating an electric output signal in response to the positioning of a mechanical member. 4,267,819, Cl. 126-285.00B.

Clark, Hamilton, Jr., to Harris Corporation. Housing acoustical amplifier. 4,268,718, Cl. 179-1.00E.

Clarke, John T.: *See—*
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,268,565, Cl. 428-161.000.

Clausen, Jack L. Secure equipment rack. 4,268,099, Cl. 312-280.000.

Clay, Wallace C.: *See—*
Heyer, Arthur J.; Springer, Edward M.; and Clay, Wallace C., 4,268,869, Cl. 358-287.000.

Claypool, Ralph J.: *See—*
Laughlin, Sidney J.; and Claypool, Ralph J., 4,268,294, Cl. 65-10.000.

Clint, Inc.: *See—*
Marc, Michel, 4,268,238, Cl. 425-174.80E.

Cloninger, Grace. Method for treating hair to prevent dryness. 4,268,500, Cl. 424-70.000.

CMI Corporation: *See—*
Hankins, Ronald G.; and Butcher, Jimmie J., 4,268,208, Cl. 414-332.000.

CMI Incorporated: *See—*
Fritzlen, Jack D.; Thul, Fred M.; and Vogel, Douglas R., 4,268,751, Cl. 250-343.000.

Cochran, Chudleigh B., to Brown, Joe R. Well working rig. 4,267,675, Cl. 52-118.000.

Cocron, Istvan; Huber, Theodor; and Ruf, Wolfgang, to AGFA-Gevaert, A.G. Radiation-emissive focussing system with integration of the signals produced by the system's detector arrangement. 4,268,137, Cl. 354-23.00D.

Coherent, Inc.: *See—*
Johnston, Thomas F., Jr.; and Proffitt, William P., 4,268,800, Cl. 331-94.50C.

Cole, John W.: *See—*
Shuck, William D.; Lind, Frederick D.; and Cole, John W., 4,268,398, Cl. 210-758.000.

Cole National Corporation: *See—*
Sorrells, Frank D., 4,267,672, Cl. 51-284.00R.

Cole, Robert N., to Exxon Research & Engineering Co. Reactor with extractable feed nozzle. 4,268,017, Cl. 266-265.000.

Colgate-Palmolive Company: *See—*
Fitzgerald, Harry G.; and Patience, Donald, 4,268,340, Cl. 156-296.000.

Colle, Ervin R., to Raymond International Builders, Inc. Concrete wall construction. 4,268,192, Cl. 405-239.000.

Collignon, Claude: *See—*
Thominet, Michel; Bulteau, Gerard; Acher, Jacques; and Collignon, Claude, 4,268,512, Cl. 424-250.000.

Collins, Andrew P. Recreational basketball apparatus with multiple moving goals. 4,268,029, Cl. 272-3.000.

Collins, Arthur H. Method and apparatus for raising plant and animal life in a marine environment. 4,267,798, Cl. 119-3.000.

Colombo, Paolo: *See—*
Radici, Pierino; Custro, Sergio; and Colombo, Paolo, 4,268,643, Cl. 525-400.000.

Colson, James G.; Cooke, Victor F. G.; Day, F. Howard; and Fifolt, Michael J., to Hooker Chemicals & Plastics Corp. Process for the preparation of paraphenoxybenzoylchloride. 4,268,457, Cl. 260-544.00P.

Combustion Engineering, Inc.: *See—*
Formanek, Frank J.; and Schukei, Glen E., 4,268,357, Cl. 176-78.000.
Gralton, Gary W., 4,267,882, Cl. 165-83.000.
Rooker, Mitchel L., 4,268,277, Cl. 55-1.000.

Combustion Unlimited Incorporated: *See—*
Straitz, John F., III, 4,268,245, Cl. 431-202.000.

Commissariat a l'Energie Atomique: *See—*
Buret, Jacqui, 4,268,355, Cl. 176-30.000.

Communications Satellite Corporation: *See—*
Childs, William H.; and Carlton, Peter A., 4,268,803, Cl. 333-12.000.

Compagnie Plastic Omnium: *See—*
Burelle, Jean, 4,267,863, Cl. 138-109.000.

Compton, Leslie E., to Occidental Research Corporation. Method for removing nitrogen from shale oil by hydrogenation and liquid sulfur dioxide extraction. 4,268,378, Cl. 208-254.00R.

Conax Corporation: *See—*
Naab, Carlton W.; and Jankowiak, Roman, 4,267,854, Cl. 137-72.000.

Congdon, John C., to Magnavox Government and Industrial Electronics Co. Directional hydrophone suitable for flush mounting. 4,268,912, Cl. 367-163.000.

Container Corporation of America: *See—*
House, Richard F.; Kohler, Karl A.; and Lewis, Philip W., 4,267,956, Cl. 229-30.000.

Continental Pharma: *See—*
Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.

Contraves Goerz Corporation: *See—*
Rettew, Richard, 4,267,671, Cl. 51-135.0BT.

Cook, James A., Jr.: *See—*
Keim, William A.; and Cook, James A., Jr., 4,268,456, Cl. 260-455.00R.

Cooke, Victor F. G.: *See—*
Colson, James G.; Cooke, Victor F. G.; Day, F. Howard; and Fifolt, Michael J., 4,268,457, Cl. 260-544.00P.

Coombs, Peter J. Cyclone vacuum cleaning apparatus. 4,268,288, Cl. 55-337.000.

Cooper Industries, Inc.: *See—*
Mayer, James R., 4,267,892, Cl. 173-43.000.

Coors Container Company: *See—*
Stirbis, James S., 4,267,771, Cl. 101-40.000.

Copie, Fernand. Load lifting and carrying machine. 4,268,216, Cl. 414-719.000.

Coppa, Richard J.; Ellin, Seymour; and Stempeck, John W., to Polaroid Corporation. Follow focus flash arrangement. 4,268,138, Cl. 354-27.000.

Copyer Co., Ltd.: *See—*
Katagiri, Kazuharu; Ishikawa, Shozo; Ohta, Shigeto; and Kitahara, Makoto, 4,268,595, Cl. 430-48.000.

Cormet, Rene: *See—*
Leclerc, Jacques; Cormet, Rene; and Marcus, Guy, 4,268,305, Cl. 75-48.000.

Corning Glass Works: *See—*
Gulati, Suresh T.; Smith, Norman A.; and Spycher, Anton A., 4,268,134, Cl. 351-163.000.

Corwin, Howard R.; and Jones, Charles, to Curtiss-Wright Corporation. Multi-unit rotary piston mechanism and mainshaft coupling therefor. 4,268,231, Cl. 418-60.000.

Cory, Halsey W., to Force Control Industries, Inc. Clutch-brake unit. 4,267,911, Cl. 192-18.00A.

Cosper, David R.; and Soll, Patricia R., to Nalco Chemical Company. Method of reducing soluble starch in broke repulping using a dual polymer combination. 4,268,352, Cl. 162-191.000.

Cottrell, Merlyn F.; Gauthier, Dale J.; and Miller, Lester C., to E. R. Wagner Manufacturing Company. Resistance heater assembly. 4,268,742, Cl. 219-532.000.

Coughlin, Robert W. Method for electrowinning metals. 4,268,363, Cl. 204-39.000.

Coulston, Ellwin L., to Kawneer Company, Inc. Heat insulating flashing. 4,267,673, Cl. 52-97.000.

Count Numbering Machine, Inc.: *See—*
Maitland, Roy, 4,267,772, Cl. 101-103.000.

Couttet, Andre: *See—*
Eranian, Armand; Dubois, Jean C.; Couttet, Andre; and Datamanti, Evelyne, 4,268,590, Cl. 430-5.000.

Cowart, Ronald W., to University of Texas System, The. Realtime radiation exposure monitor and control apparatus. 4,268,750, Cl. 250-315.100.

Cragin, John J. Bullrope. 4,267,685, Cl. 54-1.000.

Crankshaw, Gary K.; and Erber, Roger A., to Upjohn Company, The. Closure for large-volume vial. 4,267,925, Cl. 206-221.000.

Cribbs, Robert W.; Lamb, Billy L.; and DeLacy, Thomas J., to Ford Aerospace & Communications Corporation. Swept frequency radar system employing phaseless averaging. 4,268,828, Cl. 343-5.00W.

Critikon, Inc.: *See—*
Kontos, Stavros B., 4,267,846, Cl. 128-765.000.

Cronin, Albert T.: *See—*
Widmayer, Henry J.; and Cronin, Albert T., 4,268,105, Cl. 339-147.00R.

Crosby, Gary A.: *See—*
Rapp, Walter W.; and Crosby, Gary A., 4,268,389, Cl. 210-195.300.

Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Process for growing a superficial dielectric structure upon a substrate, made of a chemical compound, comprising at least two elements. 4,268,535, Cl. 427-38.000.

Crouse, Ronald J.; and Wade, Edward C., to TRW Inc. Optical transceiver. 4,268,756, Cl. 250-551.000.

Crown Zellerbach Corporation: *See—*
Reba, Imants, 4,267,795, Cl. 118-302.000.

Culver, William H.: *See—*
Schmadel, Donald; Culver, William H.; and Gould, Gordon, 4,268,116, Cl. 350-96.290.

Cunningham, Daniel: *See—*
Shinozaki, Tamotsu; Gallant, Thomas E.; Deane, Robert S. D.; and Cunningham, Daniel, 4,267,641, Cl. 33-365.000.

Cunningham, William T. J. Storm drain sump filter. 4,268,390, Cl. 210-232.000.

Curchod, Donald B.; and Nelson, Hoyt H., to Nortron Corporation. Wheel balancing system. 4,267,730, Cl. 73-462.000.

Curry, Byron V., Jr. Composite container structure. 4,267,928, Cl. 206-583.000.

Curtin, Daniel J., to Atlantic Richfield Company. Reduction of the fouling potential of high sodium coal. 4,268,271, Cl. 44-1.00R.

Curtiss-Wright Corporation: *See—*
Corwin, Howard R.; and Jones, Charles, 4,268,231, Cl. 418-60.000.

Cuscovitch, John F. Mobile cleaning apparatus having adjustable window closure panel assembly. 4,267,618, Cl. 15-339.000.

Cusi, Antoine. Expander. 4,268,032, Cl. 272-137.000.

Custro, Sergio: *See—*
Radici, Pierino; Custro, Sergio; and Colombo, Paolo, 4,268,643, Cl. 525-400.000.

Cuvelier, Michel C., to American Electric Fusion Co., Inc. Induction welding apparatus for manufacture of tubing. 4,268,736, Cl 219-8.500.

Cybar, Inc.: *See—*
Sanderford, Dorsey W., 4,267,885, Cl. 166-250.000.

Czyzewski, Ted S.: *See—*
Minifie, Bernard W.; and Czyzewski, Ted S., 4,267,703, Cl. 62-123.000.

Dabisch, Wolfgang. Bodies with reversibly variable temperature-dependent light absorbence. 4,268,413, Cl. 252-408.000.

Dahlke, Hermann: *See—*
Muxfeldt, Hans; and Dahlke, Hermann, 4,268,495, Cl. 424-1.000.

Dai Nippon Toryo Co., Ltd.: *See—*
Sakakibara, Takao; and Okazaki, Haruhiko, 4,268,542, Cl. 427-195.000.

Daicel Ltd.: *See—*
Suzuki, Hajime; Masuda, Ikuo; and Kosaka, Masaki, 4,268,579, Cl. 428-413.000.

Daigo, Kunihiro: *See—*
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Daikin Kogyo Co., Ltd.: *See—*
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Daimler-Benz Aktiengesellschaft: *See—*
Binder, Hellmuth, 4,267,779, Cl. 104-247.000.
Pfeiffer, Peter; and Tomforde, Johann, 4,268,892, Cl. 362-83.000.
Springer, Willi, 4,267,811, Cl. 123-432.000.

Daitoku, Koichi, to Nippon Kogaku K.K. Self-timer device for a camera. 4,268,154, Cl. 354-238.000.

Dalli, Allan G.: *See—*
Debenham, Michael; Dalli, Allan G.; and Revill, Peter L., 4,267,938, Cl. 220-268.000.

Dama, Anthony: *See—*
Schomburg, Fay G., 4,268,031, Cl. 272-128.000.

Dang Vu, Quang; Juguin, Bernard; Torck, Bernard; and Hellin, Michel, to Institut Francais du Petrole. Process for producing gasoline of high octane number and particularly lead free gasoline, from olefinic C_3-C_4 cuts. 4,268,700, Cl. 585-302.000.

Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, to Institut Francais du Petrole. Process for producing high octane gasoline and particularly lead-free gasoline. 4,268,701, Cl. 585-329.000.

Daniel Doncaster & Sons Limited: *See—*
Willis, Alan W., 4,268,322, Cl. 148-12.70A.

Dansk Industri Syndikat A/S: *See—*
Mogensen, Vagn; Jorgensen, Villy E.; and Krebs, Peter, 4,267,878, Cl. 164-187.000.

Dany, Franz-Josef: *See—*
Ahlgrim, Michael; Mietens, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,268,404, Cl. 252-25.000.

Datamanti, Evelyne: *See—*
Eranian, Armand; Dubois, Jean C.; Couttet, Andre; and Datamanti, Evelyne, 4,268,590, Cl. 430-5.000.

Date, Nobuaki; Senuma, Michio; and Yoshida, Syozo, to Canon Kabushiki Kaisha. Focal plane shutter device. 4,268,147, Cl. 354-147.000.

Daur, Rolf; Hoffmann, Herbert; and Schmid, Gunter, to Licentia Patent-Verwaltungs-G.m.b.H. Soldering to a gold member. 4,268,585, Cl. 428-622.000.

d'Auria, Luigi; and Maillot, Philippe, to Thomson-CSF. Optical connector for printed circuit card. 4,268,114, Cl. 350-96.200.

Davey, Keith S. A.; and Ware, Rowland M., to Metals Research Limited. Improvements in and relating to the growth of crystalline material. 4,268,483, Cl. 422-246.000.

David Brown Tractors Limited: *See—*
Ashfield, Herbert E., 4,267,807, Cl. 123-323.000.

Davidson, James D. Shield for a window. 4,267,666, Cl. 49-63.000.

Davidsson, Peter: *See—*
Jarl, Stig; Eker, Per-Olof; and Davidsson, Peter, 4,267,741, Cl. 74-339.000.

Davis, George B.; and Irving, Robert W., to Environmental Air Control, Inc. Prefabricated knockdown clean room. 4,267,769, Cl. 98-33.00A.

Davis, Larry: *See—*
Effland, Richard C.; Davis, Larry; and Klein, Joseph T., 4,268,515, Cl. 424-267.000.

Davis, Murray W.; Diedzic, Matthew J.; Knapp, Robert F.; and Whitney, Bruce F., to Davis, Murray W.; and Diedzic, Matthew J. Real-time parameter sensor-transmitter. 4,268,818, Cl. 340-870.380.

Davis, Rachel D., deceased; and by First Citizens Bank & Trust Co., executor. Nutritive composition and method of preparing same. 4,268,529, Cl. 426-72.000.

Davis, Vernon E. Recreational vehicle wind stabilizer. 4,268,066, Cl. 280-763.000.

Davy International (Minerals & Metals) Ltd.: *See—*
Gavin, Edward, 4,268,484, Cl. 422-259.000.

Dawson, Harry, to G. P. Worsley & Company Limited. Fluid bed furnaces. 4,268,244, Cl. 431-170.000.

Dawson, Terry: *See—*
Donley, Robert P.; and Dawson, Terry, 4,268,713, Cl. 174-52.0PE.

Day, F. Howard: *See—*
Colson, James G.; Cooke, Victor F. G.; Day, F. Howard; and Fifolt, Michael J., 4,268,457, Cl. 260-544.00P.

Deane, Robert S. D.: *See—*
Shinozaki, Tamotsu; Gallant, Thomas E.; Deane, Robert S. D.; and Cunningham, Daniel, 4,267,641, Cl. 33-365.000.

Dearing, Le Roy M.; and Wiegand, Edgar D., to L. M. Dearing Associates, Inc. Photographic camera with provision for recording supplemental data. 4,268,143, Cl. 354-106.000.

Debaigt, Jean, to CGEE Alsthom. Locking arrangement for fixing a terminal block. 4,268,108, Cl. 339-198.0GA.

Debenham, Michael; Dalli, Allan G.; and Revill, Peter L., to Broken Hill Proprietary Company Limited, The. Resealable pressure release closures. 4,267,938, Cl. 220-268.000.

De Boel, Marcel, to BFG Glassgroup. Fire-screening glazing panels and method of manufacturing same. 4,268,581, Cl. 428-428.000.

Deborah Fluidised Combustion Limited: *See—*
Robinson, Edwin, 4,267,801, Cl. 122-4.00D.

Decker, Herbert, to Triumph-Werke Nurnberg A.G. Ink and error correction ribbon assembly. 4,268,181, Cl. 400-208.000.

Deffeyes, Robert J.; and Tyler, Wesley R., to Graham Magnetics Incorporated. Method of producing acicular metal crystals. 4,268,302, Cl. 75-0.5AA.

De Groff, James T.: *See—*
Feldman, Martin L.; and De Groff, James T., 4,268,431, Cl. 260-40.00R.

Dehn, Rudolph A.: *See—*
Eichelberger, Charles W.; Dehn, Rudolph A.; Gdula, Michael; and Wojnarowski, Robert J., 4,268,779, Cl. 315-105.000.

DeLacy, Thomas J.: *See—*
Cribbs, Robert W.; Lamb, Billy L.; and DeLacy, Thomas J., 4,268,828, Cl. 343-5.00W.

Delattre, Jean. Tile for the construction of walls or diverse disassemblable surfaces. 4,267,680, Cl. 52-384.000.

Delta-X Corporation: *See—*
McKee, Fount E., 4,268,228, Cl. 417-390.000.

De Mesmaeker, Ivan, to BBC Brown, Boveri & Co., Ltd. Distance protection apparatus for electrical lines. 4,268,886, Cl. 361-80.000.

Dempster Systems Inc.: *See—*
Toppins, Charles R.; Williams, Cecil L.; and Korth, Otto H., 4,268,053, Cl. 280-154.000.

Deneke, Klaus; and Lenz, Arnold, to Dynamit Nobel Aktiengesellschaft. Process for the separation of radioactive impurities of baddeleyite. 4,268,485, Cl. 423-3.000.

Dengyosha Engineering Co., Inc.: *See—*
Yoshikawa, Norihiro, 4,268,385, Cl. 210-150.000.

Denyo Kabushiki Kaisha: *See—*
Takeda, Masanobu; and Anzai, Shigeaki, 4,268,788, Cl. 322-59.000.

Deshaw, Walter R., to Keeler Brass Company. Outside rear view mirror. 4,268,122, Cl. 350-307.000.

DeSmet, Gregory L., to Fischbach and Moore, Inc. Magnetic display device. 4,268,821, Cl. 340-378.100.

Determann, Helmut: *See—*
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.

Deutsch, Ralph, to Kawai Musical Instrument Mfg. Co. Ltd. Musical tone generator utilizing digital sliding formant filter. 4,267,761, Cl. 84-1.010.

Deveaux, Rene, to Societe d'Assistance Technique pour Produits Nestle S.A. Mould for packaging desserts. 4,268,002, Cl. 249-127.000.

Dewaele, Daniel C. C., to Staalkat B.V. Egg candling device. 4,268,168, Cl. 356-58.000.

Diamond, Edward H., to Grumman Energy Systems, Inc. Integrated solar energy system. 4,267,822, Cl. 126-417.000.

Diamond International Corporation: *See—*
Struble, Glenn E., 4,267,955, Cl. 229-16.00R.

Diamond Shamrock Corporation: *See—*
Nemeth, William R., 4,268,310, Cl. 106-38.350.

Diana, Guy D.; and Carabateas, Philip M., to Sterling Drug Inc. 4-(Arylaliphatic)isoxazoles. 4,268,678, Cl. 548-247.000.

Dickey-john Corporation: *See—*
Kaplan, Dov, 4,268,825, Cl. 340-684.000.

Dickson, Peter C., to Dunlop Limited. Resilient structures. 4,267,681, Cl. 52-664.000.

Didier-Werke AG: *See—*
Eschner, Axel; Leupold, Hermann; and Jeschke, Peter, 4,268,016, Cl. 266-236.000.
Luhrsen, Ernst; Sussmuth, Godehard; and Walden, Klaus, 4,268,015, Cl. 266-236.000.

Diedzic, Matthew J.: *See—*
Davis, Murray W.; Diedzic, Matthew J.; Knapp, Robert F.; and Whitney, Bruce F., 4,268,818, Cl. 340-870.380.

Dilg, Walter C., to Dresser Industries, Inc. Railway car rotary coupler. 4,267,935, Cl. 213-72.000.

Dinklage, Horst: *See—*
Fink, Herbert; Suetterlin, Norbert; Dinklage, Horst; and Tilch, Willi, 4,268,549, Cl. 427-393.500.

Direct Power Limited: *See—*
Barnard, William R.; and Francis, Phillip W., 4,268,173, Cl. 356-445.000.

Djordjevic, Ilija; and Ritter, Ernst, to Robert Bosch GmbH. Centrifugal RPM governor for fuel injected engines. 4,267,808, Cl. 123-367.000.

Dobo, Emerick J.; and Graham, Tommy E., to Monsanto Company. Inorganic anisotropic hollow fibers. 4,268,278, Cl. 55-16.000.

Dr. C. Otto & Comp. GmbH: *See—*
Haese, Egon, 4,268,489, Cl. 423-242.000.

Dodson, Gordon O.: *See—*
Garretson, Delmar J., 4,267,802, Cl. 123-523.000.

Doenges, Gerhard: *See—*
Herwig, Thomas; and Doenges, Gerhard, 4,268,752, Cl. 250-353.000.

Doi, Yasuhiko; Iwao, Soichi; and Takagishi, Takaharu, to Minolta Camera Kabushiki Kaisha. Paper feeding device for a copying machine. 4,268,163, Cl. 355-14.0SH.

Dollinger, Friedrich: *See—*
Heller, Arthur; Schaumberger, Alfred; Schuster, Klaus; and Dollinger, Friedrich, 4,268,851, Cl. 358-10.000.

Domitrovic, Josip; and Ulrich, Urban, to BBC Brown, Boveri & Co., Ltd. Electrical machine with an axial-flow fan. 4,268,767, Cl. 310-53.000.

Domkowski, Ronald A., to Honor-Gard System. Security system. 4,267,962, Cl. 232-15.000.

Donaldson Company, Inc.: *See—*
Wagner, Wayne M.; and Winnes, David E., 4,267,899, Cl. 181-272.000.

Donley, Robert P.; and Dawson, Terry. Flasher for vehicle lights. 4,268,713, Cl. 174-52.0PE.

Dorner, John R.; Wiltse, Jon F.; and Hollis, Roger E., to Scott & Fetzer Company, The. Motor for rotary brush. 4,268,769, Cl. 310-67.00R.

Douglas, Ray. Attachment for valve spring depressing tool. 4,267,627, Cl. 29-217.000.

Dow Chemical Company, The: *See—*
Gurgiolo, Arthur E., 4,268,683, Cl. 560-24.000.
Gurgiolo, Arthur E., 4,268,684, Cl. 560-24.000.
Kent, Raymond W., Jr., 4,268,652, Cl. 526-217.000.
Lee, George A., 4,268,674, Cl. 548-125.000.
Schwartz, James E.; and McReynolds, Kent B., 4,268,546, Cl. 427-393.500.

Dow Corning Corporation: *See—*
Homan, Gary R.; and Lee, Chi-Long, 4,268,655, Cl. 528-15.000.
Keil, Joseph W., 4,268,499, Cl. 424-68.000.

Dowty Rotol Limited: *See—*
McCarthy, Roy F. J., 4,268,571, Cl. 428-236.000.

Dravo Corporation: *See—*
Stellfox, Samuel K.; and Urban, Hermann, 4,268,204, Cl. 414-139.000.

Drechsel, Erhart K.: *See—*
Sardisco, John B.; and Drechsel, Erhart K., 4,268,492, Cl. 423-482.000.

Dreher, Ingo: *See—*
Rammler, Roland; Dreher, Ingo; and Rudisch, Rainer, 4,268,359, Cl. 201-31.000.

Dresser Industries, Inc.: *See—*
Dilg, Walter C., 4,267,935, Cl. 213-72.000.
Hughen, James F.; Herring, Jimmy R.; Biedermann, David A.; and Ovens, Christopher W., 4,268,827, Cl. 340-715.000.

Driver, Ervin M.: *See—*
Lynch, Paul C.; and Driver, Ervin M., 4,267,994, Cl. 248-65.000.

Dubois, Jean C.: *See—*
Eranian, Armand; Dubois, Jean C.; Couttet, Andre; and Datamanti, Evelyne, 4,268,590, Cl. 430-5.000.

Duchardt, Karl H.; Groll, Manfred; and Wunderlich, Klaus, to Bayer Aktiengesellschaft. Phthalocyanine reactive dyestuffs. 4,268,267, Cl. 8-549.000.

Ducret, Lucien C. Welded armored cable cutting tool. 4,267,636, Cl. 30-90.300.

Dunagan, Kenneth M., to RKC Corporation. Electroplating from a thiosulfate-containing medium without sulfiding. 4,268,619, Cl. 430-398.000.

Dunlop Limited: *See—*
Dickson, Peter C., 4,267,681, Cl. 52-664.000.
Morris, Ralph F., 4,268,226, Cl. 417-332.000.

Dunn, Michael W.: *See—*
Miyata, Teruo; Rubin, Albert L.; Stenzel, Kurt H.; and Dunn, Michael W., 4,268,131, Cl. 351-160.00H.

Du Pont de Nemours, E. I., and Company: *See—*
Anderson, Albert G., 4,268,667, Cl. 542-402.000.
Garnett, Donald I.; and Peterson, Marvin L., 4,268,421, Cl. 252-441.000.
Grantham, Gary D., 4,268,520, Cl. 424-285.000.
Long, George R.; and Smayling, Michael C., 4,268,179, Cl. 400-120.000.

Dupre, Leo H.: *See—*
Perreault, Arthur W.; and Dupre, Leo H., 4,268,217, Cl. 414-740.000.

Duprez, Daniel; and Grand, Michel, to Elf France. Catalytic conversion of aromatic fractions in the presence of steam. 4,268,702, Cl. 585-411.000.

du Quesne, Francis. Device for fixing a wheel to an apparatus for fitting and removing tires. 4,267,867, Cl. 157-17.000.

Duracell International Inc.: *See—*
Bartunek, William; and Mallory, Henry R., 4,268,894, Cl. 362-158.000.

Duriron Company, Inc., The: *See—*
Brun, Bernard T.; and McKinney, John W., Jr., 4,268,371, Cl. 204-196.000.

Duvdevani, Ilan; and Spenadel, Lawrence, to Exxon Research & Engineering Co. Automotive fascia. 4,268,552, Cl. 428-31.000.

Dykzeul, Theodore J., to Robertshaw Controls Company. Protective inlet for gas regulator valve housing. 4,267,859, Cl. 137-550.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Deneke, Klaus; and Lenz, Arnold, 4,268,485, Cl. 423-3.000.
Steffen, Klaus D., 4,268,698, Cl. 570-198.000.

E.G.O. Elektro-Gerate Blanc u. Fischer: *See—*
Gossler, Gerhard, 4,267,815, Cl. 126-39.00G.

E. R. Wagner Manufacturing Company: *See—*
Cottrell, Merlyn F.; Gauthier, Dale J.; and Miller, Lester C., 4,268,742, Cl. 219-532.000.

Earnest, Ernest R., to Hydragon Corporation. Combined gas turbine-rankine turbine power plant. 4,267,692, Cl. 60-39.18R.

Eastman Kodak Company: *See—*
Ettischer, Helmut, 4,268,149, Cl. 354-187.000.
Haase, Jan R.; Landholm, Richard A.; and Krutak, James J., Sr., 4,268,606, Cl. 430-223.000.
Harvey, Frederick W.; Sethi, Gurdip S.; and Sikorski, Stephen L., 4,268,145, Cl. 354-121.000.
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,267,961, Cl. 250-226.000.

Eaton Corporation: *See—*
Bradshaw, Cyril E., 4,267,855, Cl. 137-85.000.
Kolze, Lawrence A., 4,267,711, Cl. 68-12.00R.
Pipes, George R., 4,268,207, Cl. 414-277.000.
Spellman, Gordon B.; Schutten, Herman P.; and Jaskolski, Stanley V., 4,268,846, Cl. 357-38.000.

Ebert, Jack E. Marking tape and method. 4,268,566, Cl. 428-195.000.

Ebi, Yutaka; Hirakura, Koji; Matsumoto, Fuyuhiko; Ohta, Wasaburo; and Tomita, Satoru, to Ricoh Company, Ltd. Toner image transfer method and apparatus for electrostatic photography. 4,268,157, Cl. 355-3.0TR.

Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, to Iwatsu Electric Co., Ltd. Electrographic copying apparatus. 4,268,162, Cl. 355-14.00R.

Eckert, Kim, to Motorola, Inc. Zero crossover detector. 4,268,764, Cl. 307-354.000.

Eddelman, Roy T.; and Moran, Gregory F. Volumetric pipettor. 4,267,729, Cl. 73-425.40P.

Eder, Helmut: *See—*
Beckord, Ulrich; and Eder, Helmut, 4,268,768, Cl. 310-62.000.

Edwards, Douglas F., to J. B. Foote Foundry Co., The. Shift control for transmission. 4,267,745, Cl. 74-476.000.

Edwards, John V.: *See—*
Steer, Peter L.; and Edwards, John V., 4,268,286, Cl. 55-278.000.

Effland, Richard C.; Davis, Larry; and Klein, Joseph T., to Hoechst-Roussel Pharmaceuticals Inc. Spiro[dihydrobenzofuran-piperidines and-pyrrolidines], pharmaceutical compositions thereof and methods of use thereof. 4,268,515, Cl. 424-267.000.

Eggert, Walter S., Jr., to Budd Company, The. Automotive body frame for a combined engine and battery operated vehicle. 4,267,895, Cl. 180-54.00A.

Eggler, James F.; and Hess, Hans-Jurgen E., to Pfizer Inc. 13,14-Dihydro-15-alkenyl- and 13,14-dihydro-15-alkynyl prostaglandins and analogs thereof. 4,268,522, Cl. 424-305.000.

Eguchi, Seiji: *See—*
Suzuki, Seigo; and Eguchi, Seiji, 4,268,904, Cl. 364-200.000.

Ehrenreich, Leo C.: *See—*
Klingaman, Richard M.; and Ehrenreich, Leo C., 4,268,320, Cl. 106-288.00B.

Eichelberger, Charles W.; Dehn, Rudolph A.; Gdula, Michael; and Wojnarowski, Robert J., to General Electric Company. Circuit for controlling current flow from an A.C. source to a load. 4,268,779, Cl. 315-105.000.

Eickerman, Curtis L., to Motorola, Inc. Muzzle velocity compensating apparatus and method for a remote set fuze. 4,267,776, Cl. 102-215.000.

EKA Aktiebolag: *See—*
Mansson, Inge G., 4,268,350, Cl. 162-29.000.

Eker, Per-Olof: *See—*
Jarl, Stig; Eker, Per-Olof; and Davidsson, Peter, 4,267,741, Cl. 74-339.000.

Electric Power Research Institute: *See—*
Lazarek, Gerald M.; and Staub, Fred W., 4,268,850, Cl. 357-82.000.

Electronized Chemicals Corporation: *See—*
Smuckler, Jack H., 4,268,559, Cl. 428-99.000.

Elf France: *See—*
Duprez, Daniel; and Grand, Michel, 4,268,702, Cl. 585-411.000.

Eli Lilly and Company: *See—*
Martin, Joe O., 4,268,502, Cl. 424-83.000.
Vargas, Ovidio; and Herrold, Anne M., 4,268,526, Cl. 424-358.000.

Ellin, Seymour: *See—*
Coppa, Richard J.; Ellin, Seymour; and Stempeck, John W., 4,268,138, Cl. 354-27.000.

Ellingsen, Odd: *See—*
Korterod, Lars; Strand, Arne; Ellingsen, Odd; and Broen, Harry, 4,267,929, Cl. 206-603.000.

Ellis, Paul B.; and Morris, David L., to Miles Laboratories, Inc. Apoglucose oxidase preparation. 4,268,631, Cl. 435-190.000.

Emerson Electric Co.: *See—*
Kunz, Bernard L.; and Hargraves, David P., 4,268,006, Cl. 251-11.000.

Engelmann, Roger F.; and Thurler, James E., to J. I. Case Company. Control device for three-point hitch. 4,268,057, Cl. 280-474.000.

Engineering Components Limited: *See—*
Barrington, Ross B., 4,268,290, Cl. 55-521.000.

English, Edgar, Jr. Article of manufacture comprising protective packaging for packageable objects of a fragile or perishable nature. 4,267,927, Cl. 206-524.000.

Enoch Skirvin & Sons, Inc.: *See—*
Skirvin, Paul G.; Skirvin, Walter W.; and Skirvin, Carl L., 4,268,051, Cl. 280-145.000.

Enright, Dorothy P.: *See—*
Lucas, James M.; Perricone, Alphonse C.; and Enright, Dorothy P., 4,268,400, Cl. 252-8.50C.
Entec Products Corporation: *See—*
Ward, Dan S., 4,267,825, Cl. 126-433.000.
Entreprise d'Equipments Mecaniques et Hydraulics: *See—*
Tuson, Samuel, 4,268,191, Cl. 405-195.000.
Environmental Air Control, Inc.: *See—*
Davis, George B.; and Irving, Robert W., 4,267,769, Cl. 98-33.00A.
Eranian, Armand; Dubois, Jean C.; Couttet, Andre; and Datamanti, Evelyne, to Thomson-CSF. Photomasking composition, process for preparing same and mask obtained. 4,268,590, Cl. 430-5.000.
Erard, Francois; and Soussan, Salomon, to Rhone-Poulenc Industries. Two-phase vinyl chloride polymerization. 4,268,651, Cl. 526-65.000.
Erber, Roger A.: *See—*
Crankshaw, Gary K.; and Erber, Roger A., 4,267,925, Cl. 206-221.000.
Erickson, John W., to Kobe, Inc. Method of removing particulate contaminants from a gas stream. 4,268,281, Cl. 55-92.000.
Erickson, Raymond K.: *See—*
Henrion, W. S.; and Erickson, Raymond K., 4,268,814, Cl. 338-32.00H.
Ericsson, Sylve J. D.: *See—*
Scherp, Sven; and Ericsson, Sylve J. D., 4,267,773, Cl. 101-123.000.
Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, to SKF Kugellagerfabriken GmbH. Clutch release device. 4,267,913, Cl. 192-98.000.
Ernst, Horst M.: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.
Erwin, Lewis, II: *See—*
Suh, Nam P.; and Erwin, Lewis, II, 4,268,465, Cl. 264-25.000.
Eschner, Axel; Leupold, Hermann; and Jeschke, Peter, to Didier-Werke AG. Valve element for sliding type valve joints on the outlet of vessels containing molten metal and process for making same. 4,268,016, Cl. 266-236.000.
ESCO Corporation: *See—*
Hahn, Frederick C.; and Jones, Larren F., 4,267,653, Cl. 37-142.00A.
Eshghy, Siavash, to Rockwell International Corporation. Tension control of fasteners. 4,267,629, Cl. 29-407.000.
Eskow, Cary N.: *See—*
Black, Charles H.; and Eskow, Cary N., 4,267,916, Cl. 194-102.000.
Espenschied, Helmut; Kiencke, Uwe; and Schulz, Alfred, to Robert Bosch GmbH. Method and apparatus for adjusting the operating force applied to gears during gear shifts. 4,267,750, Cl. 74-866.000.
Esper, Friedrich J.; and Wiedenmann, Hans-Martin, to Robert Bosch GmbH. Method of making a medical prosthesis. 4,268,468, Cl. 264-131.000.
Esper, Norbert: *See—*
Burba, Christian; Volland, Hans-Gunter; and Esper, Norbert, 4,268,548, Cl. 427-387.000.
Esselte Pendaflex Corp.: *See—*
Hemgren, Sven A., 4,267,949, Cl. 225-106.000.
Solomon, Jack, 4,267,656, Cl. 40-352.000.
Ethicon, Inc.: *See—*
Muxfeldt, Hans; and Dahlke, Hermann, 4,268,495, Cl. 424-1.000.
Ethyl Corporation: *See—*
Kuehnhanss, Gerhard O., 4,268,449, Cl. 260-347.300.
Ets Benac & Fils S.A.: *See—*
Fontrier, Albert D., 4,268,199, Cl. 414-24.500.
Ettischer, Helmut, to Eastman Kodak Company. Latch for collapsible photographic camera. 4,268,149, Cl. 354-187.000.
Eue, Ludwig: *See—*
Sasse, Klaus; Beck, Gunther; Eue, Ludwig; and Schmidt, Robert R., 4,268,681, Cl. 548-337.000.
Evans, David M.; and Rogers, Edward J., to S&C Electric Company. Circuit interrupting device. 4,268,811, Cl. 337-156.000.
Evans, Evan J., to United Wiring & Manufacturing Co. Automated wiring apparatus. 4,268,739, Cl. 219-56.100.
Eventoff, Franklin N.; and Christiansen, M. Tyrone. Multi-function touch switch apparatus. 4,268,815, Cl. 338-69.000.
Everett, William F., to Johnson Controls, Inc. Oil burner control system with flue damper adapter circuit. 4,267,965, Cl. 236-1.00G.
Everts & Van der Weyden Exploitatiemaatschappij Ewem/N.V.: *See—*
Lubbers, Marius H., 4,267,970, Cl. 238-310.000.
Evstafiev, Evgeny A.: *See—*
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Exxon Research & Engineering Co.: *See—*
Cole, Robert N., 4,268,017, Cl. 266-265.000.
Duvdevani, Ilan; and Spenadel, Lawrence, 4,268,552, Cl. 428-31.000.
Langer, Arthur W., Jr.; and Whitney, Thomas A., 4,268,455, Cl. 260-448.00R.
Lewis, Oliver G., 4,267,858, Cl. 137-529.000.
Mohan, Raam R.; Silbernagel, Bernard G.; and Singhal, Gopal H., 4,268,415, Cl. 252-413.000.
Muenker, Adolf H.; and Young, Archie R., II, 4,268,319, Cl. 106-288.00B.
Oswald, Alexis A.; and Murrell, Lawrence L., 4,268,682, Cl. 556-465.000.
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,268,630, Cl. 435-148.000.
Stephens, Richard B., 4,268,347, Cl. 156-628.000.
Eydt, Andre J.: *See—*
Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., 4,268,533, Cl. 426-577.000.
Ezis, Andre, to Ford Motor Company. Method of forming a slip cast article of cellular construction. 4,268,466, Cl. 264-42.000.
Fabricius, Emilio: *See—*
Bauer, Walter; Fabricius, Emilio; Lanzerath, Gunther; Patzer, Helmut; and Vogele, Richard, 4,267,912, Cl. 192-53.00F.
Fabrig, Paul, to Womako Maschinenkonstruktionen GmbH. Apparatus for stacking note books or the like. 4,268,200, Cl. 414-31.000.
Fabriques de Tabac Reunies S.A.: *See—*
Toimil, Ramon, 4,267,926, Cl. 206-268.000.
Fabrowsky, Hans D.: *See—*
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Fagerlie, Richard A.: *See—*
Neff, James A.; Fagerlie, Richard A.; and Bowman, Walter J., 4,267,862, Cl. 137-625.640.
Fahey, Dennis M., to PPG Industries, Inc. Elastomeric coating composition for glass fibers and coated glass fibers made from same. 4,268,577, Cl. 428-394.000.
Fahmy, Mohamed A., to Mobil Oil Corporation. 0-Alkyl-s-branched alkyl-alkylphosphonodithioate. 4,268,508, Cl. 424-222.000.
Fairchild Camera and Instrument Corp.: *See—*
Bell, Antony G., 4,268,911, Cl. 365-104.000.
Falardeau, Fidel. Concrete mixer. 4,268,174, Cl. 366-18.000.
Farbenfabriken Bayer Aktiengesellschaft: *See—*
Breuer, Wolfram; and Siemer, Klaus, 4,268,224, Cl. 417-32.000.
Farha, Floyd E., Jr.: *See—*
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Farmitalia Carlo Erba S.p.A.: *See—*
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,268,451, Cl. 260-376.000.
FarmTronics Inc.: *See—*
Bryant, Donald E., 4,267,972, Cl. 239-66.000.
Farrell, Eugene A.; and LaBow, Jean A., to Frink Sno-Plows. Coupler for snowplow. 4,268,058, Cl. 280-481.000.
Farrington, Gregory C.; and Roth, Walter L., to General Electric Company. Solid state, ambient temperature electrochemical cell. 4,268,587, Cl. 429-193.000.
Faulhaber, Friedrich R.: *See—*
Werther, Joachim; Fuchs, Hugo; Brand, Uwe; and Faulhaber, Friedrich R., 4,268,440, Cl. 260-239.30A.
Fearing, Ralph B., to Stauffer Chemical Company. Polyurethanes containing a poly (oxyorganophosphate/phosphonate) flame retardant. 4,268,633, Cl. 521-168.000.
Feder, Joseph: *See—*
Tolbert, William R.; Kuo, Mau-Jung; and Feder, Joseph, 4,268,629, Cl. 435-41.000.
Federal-Mogul Corporation: *See—*
Benson, Donald H.; and Mosher, Larry, 4,267,814, Cl. 125-15.000.
Feldman, Martin L.; and De Groff, James T., to Tenneco Chemicals, Inc. Colorant-thickener dispersions for unsaturated polyester resin compositions. 4,268,431, Cl. 260-40.00R.
Ferguson, Charles O.; and Ferguson, John W., to Ferguson Welding and Spring Fabrication, Inc. Pallet unloader for fork lifts. 4,268,210, Cl. 414-497.000.
Ferguson, John W.: *See—*
Ferguson, Charles O.; and Ferguson, John W., 4,268,210, Cl. 414-497.000.
Ferguson Welding and Spring Fabrication, Inc.: *See—*
Ferguson, Charles O.; and Ferguson, John W., 4,268,210, Cl. 414-497.000.
Fernstrom, Harry G., to Atlas Copco Aktiebolag. Hand held rotary machine tool with vibration insulating means. 4,268,233, Cl. 418-270.000.
Ferry Cap & Set Screw Co., The: *See—*
Warner, John R., 4,267,870, Cl. 411-98.000.
Feucht, Rudi: *See—*
Biermann, Peter; Feucht, Rudi; and Schmidt, Manfred, 4,268,063, Cl. 280-615.000.
Ficken, William H.: *See—*
O'Connor, Bernard J.; Ficken, William H.; Carnevale, Tony R.; and Lanni, Michael J., 4,267,737, Cl. 74-5.470.
Fielder, Andrew J.: *See—*
Banister, Arthur J.; Fielder, Andrew J.; Hauptman, Zdenek V.; and Smith, Nigel R. M., 4,268,491, Cl. 423-406.000.
Fifolt, Michael J.: *See—*
Colson, James G.; Cooke, Victor F. G.; Day, F. Howard; and Fifolt, Michael J., 4,268,457, Cl. 260-544.00P.
Fikentscher, Rolf: *See—*
Kurze, Joachim; Fikentscher, Rolf; and Krusche, Georg, 4,268,402, Cl. 252-8.800.
Finch, Theron R.: *See—*
Klavan, Irving L.; Calabrese, Peter J.; Finch, Theron R.; Greenberg, Arthur; and McElroy, Robert P., 4,268,597, Cl. 430-102.000.
Fink, Herbert; Suetterlin, Norbert; Dinklage, Horst; and Tilch, Willi, to Rohm GmbH. Synthetic resin powder and coating agents containing the same. 4,268,549, Cl. 427-393.500.
Firestone Tire & Rubber Company, The: *See—*
Gunesin, Binnur; and Halasa, Adel F., 4,268,642, Cl. 525-382.000.
First Citizens Bank & Trust Co., executor: *See—*
Davis, Rachel D., deceased; and First Citizens Bank & Trust Co., executor, 4,268,529, Cl. 426-72.000.

Fischbach and Moore, Inc.: *See—*
DeSmet, Gregory L., 4,268,821, Cl. 340-378.100.
Fischer, Artur. Sliding contact for a toy train. 4,267,906, Cl. 191-49.000.
Fischer, David J.; Wooten, Idella B.; Thomas, John C.; and Reid, James A., to Bausch & Lomb Incorporated. Preferential orientation of contact lenses. 4,268,133, Cl. 351-161.000.
Fischer Gesellschaft m.b.H.: *See—*
Staufer, Adolf, 4,268,059, Cl. 280-604.000.
Fischer, Wolfgang: *See—*
Paschakarnis, Peter; and Fischer, Wolfgang, 4,268,737, Cl. 219-10.49R.
Fisher, Charles B.; and Fisher, Sidney T. Modulation distortion reducer. 4,268,802, Cl. 332-37.00D.
Fisher, Charles B.; and Fisher, Sidney T. Receiving apparatus for messages with in-band signals. 4,268,914, Cl. 370-118.000.
Fisher, Sidney T.: *See—*
Fisher, Charles B.; and Fisher, Sidney T., 4,268,802, Cl. 332-37.00D.
Fisher, Charles B.; and Fisher, Sidney T., 4,268,914, Cl. 370-118.000.
Fisons Limited: *See—*
Harris, John F.; and Magill, Barrie J., 4,268,694, Cl. 568-763.000.
Turner, David M., 4,268,518, Cl. 424-283.000.
Turner, David M., 4,268,519, Cl. 424-283.000.
Fitzgerald, Harry G.; and Patience, Donald, to Colgate-Palmolive Company. Method of forming an absorbent article. 4,268,340, Cl. 156-296.000.
Flanagan, Joseph E.: *See—*
Frankel, Milton B.; and Flanagan, Joseph E., 4,268,450, Cl. 260-349.000.
Flautt, Thomas J., Jr.; Maguire, Edward J., Jr.; and Richardson, David L., to Procter & Gamble Company, The. Microwave energy moderator. 4,268,738, Cl. 219-10.55F.
Fletcher Sutcliffe Wild Limited: *See—*
Smith, John C., 4,268,193, Cl. 405-292.000.
Flint, Bruce K., to Acton Research Corporation. Multi-path monochromator. 4,268,170, Cl. 356-334.000.
Flynn, Richard T.: *See—*
Kindell, Jerry L.; and Flynn, Richard T., 4,268,909, Cl. 364-200.000.
Porter, Marion G.; Norman, Robert W., Jr.; and Flynn, Richard T., 4,268,907, Cl. 364-200.000.
FMC Corporation: *See—*
Knabke, James J., 4,268,521, Cl. 424-298.000.
Focke & Co.: *See—*
Focke, Heinz; and Liedtke, Kurt, 4,267,958, Cl. 229-44.0CB.
Focke, Heinz; and Liedtke, Kurt, to Focke & Co. Hinge-lid cigarette pack. 4,267,958, Cl. 229-44.0CB.
Folser, Karl: *See—*
Theurer, Josef; and Folser, Karl, 4,267,777, Cl. 104-7.00R.
Fontaine, Paul E. Cue ball aiming device. 4,268,033, Cl. 273-2.000.
Fontrier, Albert D., to Ets Benac & Fils S.A. Trailer for the automatic loading and unloading of round bales. 4,268,199, Cl. 414-24.500.
Force Control Industries, Inc.: *See—*
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Ford Aerospace & Communications Corporation: *See—*
Cribbs, Robert W.; Lamb, Billy L.; and DeLacy, Thomas J., 4,268,828, Cl. 343-5.00W.
Ford, John R., Jr.; and Leipold, Harold D., to AMF Incorporated. Current sensing circuit. 4,268,884, Cl. 361-22.000.
Ford Motor Company: *See—*
Aula, Howard A.; and Mauch, Jerry L., 4,267,812, Cl. 123-570.000.
Ezis, Andre, 4,268,466, Cl. 264-42.000.
Ford, Peter W., to Itek Corporation. Facet angle corrector for multi-faceted optical scanner. 4,268,110, Cl. 350-6.700.
Forest Fuels, Inc.: *See—*
Caughey, Robert A., 4,268,274, Cl. 48-111.000.
Forkum, Maston, Jr. Spark plug with ground electrode having diverging prongs. 4,268,774, Cl. 313-141.000.
Formanek, Frank J.; and Schukei, Glen E., to Combustion Engineering, Inc. Positive lock holddown device. 4,268,357, Cl. 176-78.000.
Formato, Richard A., to Formato, Richard A.; and Zoli, Theodore P., Jr. Discharge device ignition system. 4,267,803, Cl. 123-146.50A.
Forssell, Bror I., to RP Rorprodukter AB. Sealing member for use in well shafts. 4,268,043, Cl. 277-34.000.
Forster, Rolf, to Bernhard Forster GmbH. Orthodontic bracket and method of retaining a wire therein. 4,268,249, Cl. 433-10.000.
Fosdick, Dale P.: *See—*
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Foster, Arthur M.: *See—*
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Foster, Michael S., to Chevron Research Company. Cracking catalyst rejuvenation. 4,268,376, Cl. 208-120.000.
Foster, Richard G.: *See—*
Allan, John J.; Foster, Richard G.; and Leversidge, Paul L., 4,268,410, Cl. 252-312.000.
Fourcadier, Chantal: *See—*
Grollier, Jean F.; Bugaut, Andree; Andrillon, Patrick; and Fourcadier, Chantal, 4,268,264, Cl. 8-410.000.
Fowler, Neal G.; and Hedrick, Charles L. Building panel. 4,267,682, Cl. 52-657.000.
Fowler, Vernon J.: *See—*
Olberg, Stirling M.; Fowler, Vernon J.; and Anderson, Bruce, 4,268,720, Cl. 179-1.50R.
Foxboro Company, The: *See—*
Olsen, Everett O., 4,268,822, Cl. 340-533.000.
Francis, Phillip W.: *See—*
Barnard, William R.; and Francis, Phillip W., 4,268,173, Cl. 356-445.000.
Frankel, Milton B.; and Flanagan, Joseph E., to Rockwell International Corporation. Energetic hydroxy-terminated azido polymer. 4,268,450, Cl. 260-349.000.
Frantz, Robert H., to AMP Incorporated. Cable slitter. 4,267,757, Cl. 83-464.000.
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, to Chemische Werke Huls Aktiengesellschaft. Process for the production of maleic anhydride. 4,268,448, Cl. 260-346.750.
Franz, Michel R.: *See—*
Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.
Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See—*
Theurer, Josef; and Folser, Karl, 4,267,777, Cl. 104-7.00R.
Fraser, Alexander R. Nail matrix trephine. 4,267,841, Cl. 128-305.000.
Fraser, Peter E.: *See—*
Killian, Daniel L.; and Fraser, Peter E., 4,268,044, Cl. 277-59.000.
Fratzke, Lawrence F.: *See—*
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Fredrick, Edmund R.: *See—*
Hales, Harvey E.; and Fredrick, Edmund R., 4,267,969, Cl. 238-8.000.
Freitag, Dieter; Beer, Wolfgang; and Senge, Ferdinand, to Bayer Aktiengesellschaft. Resol resins prepared using butanol and tri-alkali metal phosphate. 4,268,648, Cl. 525-485.000.
Freze, Benjamin H., to Challenge-Cook Bros., Incorporated. Method for drying fabrics. 4,268,247, Cl. 432-21.000.
Frink Sno-Plows: *See—*
Farrell, Eugene A.; and LaBow, Jean A., 4,268,058, Cl. 280-481.000.
Fritzlen, Jack D.; Thul, Fred M.; and Vogel, Douglas R., to CMI Incorporated. Infrared breath analyzer. 4,268,751, Cl. 250-343.000.
Friz, Walter, to Hay, Louis E., a part interest. Traveling wave device with unific slow wave structure having segmented dielectric support. 4,268,778, Cl. 315-3.500.
Fuchigami, Mitsuru: *See—*
Tsukahara, Hirokazu; Fuchigami, Mitsuru; and Kagota, Nobuhiro, 4,268,634, Cl. 525-471.000.
Fuchs, Hartwig: *See—*
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Fuchs, Werner: *See—*
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Fuji Kiko Kabushiki Kaisha: *See—*
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Fuji Oil Company, Ltd.: *See—*
Matsuo, Takaharu; Sawamura, Norio, both of Osaka; Hashimoto, Yukio; and Hashida, Wataru, 4,268,527, Cl. 426-33.000.
Fuji Photo Film Co., Ltd.: *See—*
Adachi, Keiichi; Kato, Eiichi; Inoue, Nobuaki; and Kojima, Tetsurou, 4,268,622, Cl. 430-513.000.
Fujii, Shinichi; and Hata, Hiroshi, 4,268,280, Cl. 55-54.000.
Fujita, Shinsaku; Harada, Tooru; and Yoshida, Yoshinobu, 4,268,624, Cl. 430-562.000.
Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, 4,268,625, Cl. 430-562.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,268,605, Cl. 430-216.000.
Hashimura, Taiji, 4,268,618, Cl. 430-393.000.
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, 4,268,541, Cl. 427-177.000.
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Namiki, Tomizo; Shinozaki, Fumiaki; and Ikeda, Tomoaki, 4,268,601, Cl. 430-159.000.
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Okishi, Yoshio, 4,268,613, Cl. 430-309.000.
Sera, Hidefumi; Hori, Kiyotaka; and Sugimoto, Naohiko, 4,268,623, Cl. 430-529.000.
Sera, Hidefumi; Kitatani, Katuzi; Ogawa, Masasi; Ishigaki, Kunio; and Shiraishi, Hisashi, 4,268,627, Cl. 430-623.000.
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Fujii, Motoharu; Koumura, Noboru; Ayata, Naoki; and Sato, Yasushi, to Canon Kabushiki Kaisha. Image recording method and apparatus therefor. 4,268,841, Cl. 346-138.000.

Fujii, Shinichi; and Hata, Hiroshi, to Fuji Photo Film Co., Ltd. Method of continuously degassing water. 4,268,280, Cl. 55-54.000.

Fujii, Tomoo: *See*—
Nakayama, Shozo; Kato, Kimio; and Fujii, Tomoo, 4,268,225, Cl. 417-269.000.

Fujimoto, Tamotsu: *See*—
Kondo, Kiyosi; Fujimoto, Tamotsu; Suda, Minoru; and Tunemoto, Daiei, 4,268,442, Cl. 260-326.200.

Fujioka, Katsuhiko: *See*—
Iwaki, Yoshiyuki; and Fujioka, Katsuhiko, 4,268,770, Cl. 310-72.000.

Fujioka, Yoshiki: *See*—
Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, 4,268,781, Cl. 318-434.000.
Kawada, Shigeki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Ohta, Naoto, 4,268,782, Cl. 318-434.000.

Fujisawa, Hideya: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Fujisawa Pharmaceutical Co., Ltd.: *See*—
Imanaka, Hiroshi; and Nishida, Minoru, 4,268,503, Cl. 424-114.000.
Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, 4,268,509, Cl. 424-246.000.

Fujita, Seiichi: *See*—
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Fujita, Shinsaku; Harada, Tooru; and Yoshida, Yoshinobu, to Fuji Photo Film Co., Ltd. Photographic light-sensitive sheet for the color diffusion transfer process. 4,268,624, Cl. 430-562.000.

Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, to Fuji Photo Film Co., Ltd. Photographic light-sensitive element for the color diffusion transfer process. 4,268,625, Cl. 430-562.000.

Fujitsu Fanuc Limited: *See*—
Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, 4,268,781, Cl. 318-434.000.
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Fujitsu Limited: *See*—
Sawatari, Norio; Watanabe, Isao; Saito, Kazumasa; and Adachi, Katsura, 4,268,433, Cl. 525-193.000.

Fujiwara, Tatsuro: *See*—
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Fukuda, Kazumasa, to TDK Electronics Co., Ltd. Magnetic erasing head. 4,268,882, Cl. 360-118.000.

Fukuda, Tsutomu. Control method for a tufting machine. 4,267,787, Cl. 112-266.200.

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Ibata, Jyoji; Fukui, Hisaaki; Yuasa, Takeo; and Katoh, Michio, 4,268,337, Cl. 156-244.170.

Fukushima, Hiroshi: *See*—
Maeda, Akio; Hashimoto, Kinro; Inagami, Masaaki; and Fukushima, Hiroshi, 4,268,644, Cl. 525-403.000.

Fung, Anthony K. L.; Morrison, Donald E.; and Pernet, Andre G., to Abbott Laboratories. Synthesis for 2,3-dichloro-4-(hydroxybenzoyl)-phenol. 4,268,691, Cl. 568-322.000.

Furstenwerth, Hauke, to Bayer Aktiengesellschaft. Cationic 1,3,4-thiadiazole dyestuffs. 4,268,438, Cl. 260-158.000.

Furukawa Electric Co., Ltd., The: *See*—
Horie, Toshio; Tomioka, Shouji; and Mine, Nobuyoshi, 4,268,397, Cl. 210-746.000.

Futamase, Tsuyoshi; and Chibana, Masanobu, to Nippon Gakki Seizo Kabushiki Kaisha. Function generators of time-dependent variable type. 4,267,763, Cl. 84-1.20.

Fylstra, David J.: *See*—
Nielson, Donald L.; Fylstra, David J.; and Stehle, Roy H., 4,268,721, Cl. 179-2.00C.

G. P. Worsley & Company Limited: *See*—
Dawson, Harry, 4,268,244, Cl. 431-170.000.

Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, to Hitachi, Ltd. Process for treating radioactive wastes. 4,268,409, Cl. 252-301.10W.

Gabbay, Kenneth H.; and Gallop, Paul M., to Children's Hospital Medical Center. Glycosylated hemoglobin measurement. 4,268,270, Cl. 23-230.300.

Gaillard, Jean: *See*—
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,268,701, Cl. 585-329.000.

Gaizauskas, Bronius, to Akzona Incorporated. Plug and receptacle interlock. 4,268,729, Cl. 200-50.00B.

Gallant, Thomas E.: *See*—
Shinozaki, Tamotsu; Gallant, Thomas E.; Deane, Robert S. D.; and Cunningham, Daniel, 4,267,641, Cl. 33-365.000.

Gallop, Paul M.: *See*—
Gabbay, Kenneth H.; and Gallop, Paul M., 4,268,270, Cl. 23-230.300

Galloway, Deane E.: *See*—
Lind, Keith D.; and Galloway, Deane E., 4,267,960, Cl. 229-55.000.

Galt, Ronald H. B.; and Pearce, Robert J., to Imperial Chemical Industries Limited. 1'-Substituted xanthene-9-spiro-4'-piperidine derivatives and analgesic compositions thereof. 4,268,514, Cl. 424-267.000.

Ganaway, Franklin D., to Phillips Petroleum Company. Control method and apparatus with reset windup prevention. 4,268,784, Cl. 318-610.000.

Gandy, Prem: *See*—
Kloke, Werner, 4,267,657, Cl. 40-549.000.

Gardikes, John J., to Ashland Oil, Inc. Phenolic resin-polyisocyanate binder systems containing a drying oil and use thereof. 4,268,425, Cl. 260-19.00A.

Garfinkel, Marvin: *See*—
Brown, Dale M.; Garfinkel, Marvin; and Laurent, John A., 4,268,843, Cl. 357-19.000.

Garlock Inc.: *See*—
Bainard, Dean R.; and Benjamin, Martin E., 4,268,040, Cl. 277-1.000.

Garnett, Donald I.; and Peterson, Marvin L., to Du Pont de Nemours, E. I., and Company. Preparation of furan compounds. 4,268,421, Cl. 252-441.000.

Garnett, John L.: *See*—
Rock, John D.; and Garnett, John L., 4,268,580, Cl. 428-423.400.

Garretson, Delmar J., to Dodson, Gordon O. Fuel vaporization and delivery system. 4,267,802, Cl. 123-523.000.

Garrett Corporation, The: *See*—
Berg, Paul H., 4,268,229, Cl. 417-407.000.

Gary, Fred J. Heat recovery device for use in return air duct of forced air furnace for recovering heat from the flue of such furnace. 4,267,884, Cl. 165-179.000.

Garzon, Ruben D., to Gould Inc. Liquid SF_6 puffer type circuit interrupter. 4,268,733, Cl. 200-150.00G.

Gates, Dennis E.: *See*—
Thompson, James D.; and Gates, Dennis E., 4,268,561, Cl. 428-111.000.

Gatin, Leonard W. Self-releasing hose clamp. 4,268,004, Cl. 251-5.000.

Gauthier, Dale J.: *See*—
Cottrell, Merlyn F.; Gauthier, Dale J.; and Miller, Lester C., 4,268,742, Cl. 219-532.000.

Gavenonis, Thomas L.: *See*—
Hall, Harold H., Jr.; Bouchard, Andre C.; Shaffer, John W.; and Gavenonis, Thomas L., 4,267,774, Cl. 102-201.000.

Gavin, Edward, to Davy International (Minerals & Metals) Ltd. Apparatus for effecting liquid-liquid contact in a plurality of stages. 4,268,484, Cl. 422-259.000.

Gdula, Michael: *See*—
Eichelberger, Charles W., Dehn, Rudolph A.; Gdula, Michael; and Wojnarowski, Robert J., 4,268,779, Cl. 315-105.000.

Gedeon, Harvey; Joyce, James F.; and Kellner, David, to Revlon, Inc. Clear cosmetic sticks. 4,268,498, Cl. 424-59.000.

General Binding Corporation: *See*—
Semchuck, Mario E., 4,268,345, Cl. 156-499.000.

General Electric Company: *See*—
Bovenkerk, Harold P., 4,268,276, Cl. 51-295.000.
Brown, Dale M.; Garfinkel, Marvin; and Laurent, John A., 4,268,843, Cl. 357-19.000.
Eichelberger, Charles W.; Dehn, Rudolph A.; Gdula, Michael; and Wojnarowski, Robert J., 4,268,779, Cl. 315-105.000.
Farrington, Gregory C.; and Roth, Walter L., 4,268,587, Cl. 429-193.000.
Hale, Thomas E., 4,268,569, Cl. 428-215.000.
Hale, Thomas E.; and Lueth, Roy C., 4,268,582, Cl. 428-446.000.
Hanneman, Rodney E.; Urquhart, Andrew W.; and Vermilyea, David A., 4,268,586, Cl. 428-661.000.
Henry, Ralph A., 4,268,834, Cl. 343-858.000.
Herrick, Carlyle S.; and Holub, Fred F., 4,267,879, Cl. 165-1.000.
Herrick, Carlyle S.; and Zarnoch, Kenneth P., 4,268,405, Cl. 252-70.000.
Karikas, John J., 4,267,943, Cl. 222-1.000.
Keeley, Donald E., 4,268,647, Cl. 525-474.000.
Mark, Victor, 4,268,658, Cl. 528-199.000.
Park, Dong-Sil; and Navias, Louis, 4,268,313, Cl. 106-54.000.
Urban, Raymond C., 4,268,339, Cl. 156-272.000.
Webb, Jimmy L.; and Williams, Joseph B., 4,268,429, Cl. 260-37.0PC.

General Foods Corporation: *See*—
Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., 4,268,533, Cl. 426-577.000.

General Motors Corporation: *See*—
Malott, Richard C., 4,268,220, Cl. 415-104.000.

General Tire & Rubber Company, The: *See*—
Allaman, Michael C.; Bailey, Leo T.; and Hudgins, Richard E., 4,267,754, Cl. 83-187.000.

Gesswein, Eberhard; and Moller, Werner. Method of manufacturing a fluorescent screen. 4,268,594, Cl. 430-24.000.

Gheorghiu, Nicolae; and Guzun, Basarab D., to Institutul de Cercetari si Modernizari Energetice. Arc quenching chamber for high breaking capacity circuit breakers. 4,268,732, Cl. 200-148.00R.

Ghiringelli, Giovanni; and Murari, Bruno, to SGS-ATES Componenti Elettronici S.p.A. Protective system for power stage of IC amplifier. 4,268,887, Cl. 361-93.000.

Giacone, Felice: *See*—
Becchi, Raffaele; Giacone, Felice; and Accattino, Andrea, 4,268,747, Cl. 250-231.0SE.

Giardino, David A.: *See*—
Wallace, William K.; Giardino, David A.; and van Nederynen, Gerrit, 4,267,747, Cl. 74-526.000.

Gibson, Thomas W., to Procter & Gamble Company, The. Synthesis of long-chain alkanes having terminal functionality. 4,268,697, Cl. 568-911.000.

Gilbert, Barrie, to Analog Devices, Incorporated. Signal-processing circuitry with intrinsic temperature insensitivity. 4,268,759, Cl. 307-490.000.

Gilbert, Earl F., to Westvaco Corporation. Hinged paperboard container. 4,267,959, Cl. 229-52.00B.

Gilbert, Everett E.: *See*—
Sollott, Gilbert P.; Gilbert, Everett E.; and Warman, Maurice, 4,268,696, Cl. 568-931.000.

Gillette Company, The: *See*—
Plaisted, Richard E., 4,267,851, Cl. 132-33.00R.

Gillis, Clifford J.; and Ramage, Alfred B. Aural representation of events. 4,268,255, Cl. 434-128.000.

Ginger, Edward A., to UOP Inc. Process for the catalytic reduction of nitrogen oxides in gaseous mixtures. 4,268,488, Cl. 423-239.00A.

Gipelec: *See*—
Lecerf, Andre; and Broussely, Michel, 4,268,588, Cl. 429-194.000.

GLJ Toy Co., Inc.: *See*—
Richards, Lawrence, 4,268,030, Cl. 272-77.000.

Glopak Industries Limited: *See*—
Jones, Elwyn D., 4,268,344, Cl. 156-383.000.

GMSG, Inc.: *See*—
MacDonald, Gene W., 4,268,034, Cl. 273-63.00C.

Goff, James R.: *See*—
Spence, Adam M.; and Goff, James R., 4,268,089, Cl. 299-87.000.

Goldman, Patricia J.: *See*—
Beckenbaugh, William M.; Goldman, Patricia J.; and Polakowski, Ted D., Jr., 4,268,536, Cl. 427-54.100.

Good, William C. Apparatus and method for supporting and positioning pipe during the construction of drain fields and the like. 4,268,189, Cl. 405-154.000.

Goodman, Lawrence A., to RCA Corporation. Method for manufacturing a self-aligned contact in a grooved semiconductor surface. 4,268,537, Cl. 427-88.000.

Goodrich, George E.: *See*—
Cain, Earl S.; Carlson, Jerome A.; and Goodrich, George E., 4,268,096, Cl. 308-15.000.

Goodyear Tire & Rubber Company, The: *See*—
Kell, Ralph W., 4,267,921, Cl. 198-847.000.

Gordy International, Inc.: *See*—
Gordy, Peter, 4,267,662, Cl. 46-25.000.

Gordy, Peter, to Gordy International, Inc. Inflatable mating building blocks. 4,267,662, Cl. 46-25.000.

Gorner, Julius K., to BFG Glassgroup. Method of prestressing at least one bent sheet of a sandwich type safety glass. 4,268,297, Cl. 65-104.000.

Gossler, Gerhard, to E.G.O. Elektro-Gerate Blanc u. Fischer. Thermal cut-out for gas-heated glass ceramic cooking surfaces. 4,267,815, Cl. 126-39.00G.

Goto, Jiro: *See*—
Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, 4,268,509, Cl. 424-246.000.

Goto, Takeshi; Tanaka, Akio; and Suzuki, Yasuo, to Kawasaki Jukogyo Kabushiki Kaisha; and Nissin Electric Co., Ltd. Apparatus for wire explosion spray coating. 4,267,975, Cl. 239-83.000.

Gouin, William M.: *See*—
Gray, Bruce; Harris, James M.; and Gouin, William M., 4,268,849, Cl. 357-71.000.

Gould, Gordon: *See*—
Schmadel, Donald; Culver, William H.; and Gould, Gordon, 4,268,116, Cl. 350-96.290.

Gould Inc.: *See*—
Garzon, Ruben D., 4,268,733, Cl. 200-150.00G.

Goust, Jean-Michel C.: *See*—
Higerd, Thomas B.; and Goust, Jean-Michel C., 4,268,434, Cl. 260-112.00R.

Grabbe, Dimitry G., to AMP Incorporated. Low impedance electrical connecting means for spaced-apart conductors. 4,268,102, Cl. 339-75.00M.

Graham Magnetics Incorporated: *See*—
Deffeyes, Robert J.; and Tyler, Wesley R., 4,268,302, Cl. 75-0.5AA.

Graham, Tommy E.: *See*—
Dobo, Emerick J.; and Graham, Tommy E., 4,268,278, Cl. 55-16.000.

Gralton, Gary W., to Combustion Engineering, Inc. Heat exchanger for cooling a high pressure gas. 4,267,882, Cl. 165-83.000.

Grand, Michel: *See*—
Duprez, Daniel; and Grand, Michel, 4,268,702, Cl. 585-411.000.

Granig, Hubert. Device for discharging pressure gas reservoirs. 4,268,065, Cl. 280-737.000.

Grant, Frederic F.; and Martija, Henry M., to Bell & Howell Company. Tape guiding method and apparatus. 4,267,951, Cl. 226-195.000.

Grantham, Gary D., to Du Pont de Nemours, E. I., and Company. Insecticidal and nematicidal carbamates. 4,268,520, Cl. 424-285.000.

Gras, Rainer. Process for the coating of glass surfaces. 4,268,554, Cl. 428-35.000.

Grassmann, Hans-Christian, to Siemens Aktiengesellschaft. Arrangement for suppressing high frequency currents in bearings of shafts. 4,268,758, Cl. 307-105.000.

Grasso, Roy. Sinker releasing apparatus. 4,267,659, Cl. 43-43.120.

Gray, Bruce; Harris, James M.; and Gouin, William M., to National Semiconductor Corporation. Raised bonding pad. 4,268,849, Cl. 357-71.000.

Gray, Thomas A.: *See*—
Murakami, Eugene T.; and Gray, Thomas A., 4,268,753, Cl. 250-357.000.

Green, Alfred E. A.: *See*—
Watts, Arthur E.; and Green, Alfred E. A., 4,267,612, Cl. 6-4.00B.

Green, George R. J., to CBS Inc. Image enhancement system for television. 4,268,864, Cl. 358-166.000.

Green, John R.; and Turner, Charles D. Foldable binoculars. 4,268,111, Cl. 350-70.000.

Green, Robert R. Asphaltic material and method. 4,268,428, Cl. 260-28.5AS.

Greenberg, Arthur: *See*—
Klavan, Irving L.; Calabrese, Peter J.; Finch, Theron R.; Greenberg, Arthur; and McElroy, Robert P., 4,268,597, Cl. 430-102.000.

Greene, Jerome, Radial and thrust-type hydrodynamic bearing capable of accommodating misalignment. 4,268,094, Cl. 308-9.000.

Greenleaf Corporation: *See*—
Peters, Robert W., 4,268,198, Cl. 408-186.000.

Grey, Roger A.: *See*—
Pez, Guido P.; and Grey, Roger A., 4,268,454, Cl. 260-439.00R.

Griehl, Wolfgang: *See*—
Schmid, Eduard; and Griehl, Wolfgang, 4,268,661, Cl. 528-338.000.

Griffin, Gerald J. L.; and Brewer, Malcolm D., to Beecham Group Limited. Sustained drug release device. 4,268,497, Cl. 424-27.000.

Grob, Russel W., to Caterpillar Tractor Co. Method of and apparatus for multiplying pulses. 4,268,792, Cl. 328-24.000.

Groen Division - Dover Corporation: *See*—
Minifie, Bernard W.; and Czyzewski, Ted S., 4,267,703, Cl. 62-123.000.

Groll, Manfred: *See*—
Duchardt, Karl H.; Groll, Manfred; and Wunderlich, Klaus, 4,268,267, Cl. 8-549.000.

Grollier, Jean F.; Bugaut, Andree; Andrillon, Patrick; and Fourcadier, Chantal, to L'Oreal. Composition for hair dyeing which contains a para base and an ortho base. 4,268,264, Cl. 8-410.000.

Gross, Michael J.; and Turner, Christopher H. Dowel post for dental and medical prosthetic devices. 4,268,253, Cl. 433-221.000.

Groves, Ian S.; Guard, David R.; and Whalley, Steven, to Post Office, The. Audio teleconferencing. 4,268,716, Cl. 179-1.0CN.

Gruber, Heinz, to Kusters, Eduard. Pattern-creating device for advancing textile or similar webs. 4,267,712, Cl. 68-205.00R.

Grumman Energy Systems, Inc.: *See*—
Diamond, Edward H., 4,267,822, Cl. 126-417.000.

Grundy & Partners Limited: *See*—
Scott, Harold A.; and Martin, David J., 4,268,826, Cl. 340-707.000.

Grunewald, Lynn O.; and Hipp, Steven J., to Rite Hite Corporation. Releasable lock mechanism. 4,267,748, Cl. 74-529.000.

GTE Laboratories Incorporated: *See*—
Olberg, Stirling M.; Fowler, Vernon J.; and Anderson, Bruce, 4,268,720, Cl. 179-1.50R.

GTE Products Corporation: *See*—
Brower, Boyd G.; Sindlinger, Ronald E.; and Holmes, James L., 4,268,891, Cl. 362-11.000.
Hall, Harold H., Jr.; Bouchard, Andre C.; Shaffer, John W.; and Gavenonis, Thomas L., 4,267,774, Cl. 102-201.000.
Roche, William J.; and Sadoski, Tadius T., 4,268,780, Cl. 315-179.000.

Guard, David R.: *See*—
Groves, Ian S.; Guard, David R.; and Whalley, Steven, 4,268,716, Cl. 179-1.0CN.

Gugel, Georg, to Industriewerke Schaeffler OHG. Assembly method for large diameter rolling bearings. 4,267,625, Cl. 29-148.40A.

Gulati, Suresh T.; Smith, Norman A.; and Spycher, Anton A., to Corning Glass Works. Lightweight laminated photochromic lenses. 4,268,134, Cl. 351-163.000.

Gunesin, Binnur; and Halasa, Adel F., to Firestone Tire & Rubber Company, The. Butadiene-styrene-vinyl benzyl chloride terpolymers. 4,268,642, Cl. 525-382.000.

Gurev, Harold S., to Optical Coating Laboratory, Inc. Method and apparatus for forming films from vapors using a contained plasma source. 4,268,711, Cl. 136-256.000.

Gurgiolo, Arthur E., to Dow Chemical Company, The. Preparation of carbamates from aromatic amines and organic carbonates. 4,268,683, Cl. 560-24.000.

Gurgiolo, Arthur E., to Dow Chemical Company, The. Preparation of carbamates from aromatic amines and organic carbonates. 4,268,684, Cl. 560-24.000.

Guth, Jack E. Photo-tide level recorder. 4,268,839, Cl. 346-107.00R.

Guzun, Basarab D.: *See*—
Gheorghiu, Nicolae; and Guzun, Basarab D., 4,268,732, Cl. 200-148.00R.

Haase, Jan R.; Landholm, Richard A.; and Krutak, James J., Sr., to Eastman Kodak Company. Azo dye compounds and photographic materials. 4,268,606, Cl. 430-223.000.

Habu, Takeshi: *See*—
Iytaka, Tateshi; Matsuo, Syunji; Nagatani, Toshio; Takahashi, Kazuo; and Habu, Takeshi, 4,268,620, Cl. 430-403.000.

Hacke, Hans-Juergen; and Hadersbeck, Hans, to Siemens Aktiengesellschaft. Process for the production of printed circuits with solder rejecting sub-zones. 4,268,349, Cl. 156-656.000.

Hadersbeck, Hans: *See*—
Hacke, Hans-Juergen; and Hadersbeck, Hans, 4,268,349, Cl. 156-656.000.

Haese, Egon, to Dr. C. Otto & Comp. GmbH; and Sidmar N.V. Process for the removal of sulfur dioxide from gases. 4,268,489, Cl. 423-242.000.

Hagen, Alexander: *See*—
Klose, Sigmar; Batz, Hans-Georg; Stoltz, Michael; Hagen, Alexander; and Weimann, Gunter, 4,268,628, Cl. 435-22.000.

Hagwell, Edward R. Telephone question and answer training device. 4,267,646, Cl. 434-111.000.

Hahn, Frederick C.; and Jones, Larren F., to ESCO Corporation. Locking device for excavating equipment. 4,267,653, Cl. 37-142.00A.

Haker, Rolf: *See*—
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.

Hakkinen, Taisto. Expiration valve apparatus for use with a respirator or like apparatus. 4,267,832, Cl. 128-205.240.

Halasa, Adel F.: *See*—
Gunesin, Binnur; and Halasa, Adel F., 4,268,642, Cl. 525-382.000.

Hale, Thomas E., to General Electric Company. Coating underlayers. 4,268,569, Cl. 428-215.000.

Hale, Thomas E.; and Lueth, Roy C., to General Electric Company. Boride coated cemented carbide. 4,268,582, Cl. 428-446.000.

Hales, Harvey E.; and Fredrick, Edmund R., to Railroad Concrete Crosstie Corporation. Railroad grade crossing construction. 4,267,969, Cl. 238-8.000.

Hall, Dale E., to Inco Research & Development Center Inc. Nickel-zinc alloy deposition from a sulfamate bath. 4,268,364, Cl. 204-43.00Z.

Hall Decker McKibbin & Singer, Inc.: *See*—
Hall, John E., 4,268,387, Cl. 210-169.000.

Hall, Harold H., Jr.; Bouchard, Andre C.; Shaffer, John W.; and Gavenonis, Thomas L., to GTE Products Corporation. Heat-sealed pyrotechnic cap. 4,267,774, Cl. 102-201.000.

Hall, John E., to Hall, John E.; and Hall Decker McKibbin & Singer, Inc., part interest to each. Filtration system. 4,268,387, Cl. 210-169.000.

Hall, Norman; Martin, Alexander; and Tomlinson, Alan D., to Lever Brothers Company. Detergent bars containing di-, hydroxy and/or amino-carboxylic acid moisturizers. 4,268,424, Cl. 252-546.000.

Halliger, Leonard: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Hamanka, Tsutomu: *See*—
Ogawa, Junkichi; and Hamanka, Tsutomu, 4,268,616, Cl. 430-364.000.

Hamburger Stahlwerke GmbH: *See*—
Luhrsen, Ernst; Sussmuth, Godehard; and Walden, Klaus, 4,268,015, Cl. 266-236.000.

Hampl, Edward F., Jr., to Minnesota Mining and Manufacturing Company. Hot-junction electrode members for copper/silver chalocogenides. 4,268,710, Cl. 136-205.000.

Hanamura, Shoji: *See*—
Koike, Norio; Hanamura, Shoji; and Kubo, Masaharu, 4,268,845, Cl. 357-30.000.

Hanchen, Siegfried; and Fabrowsky, Hans D., to Herbert Hanchen KG. Device for coupling pipeline flanges. 4,268,071, Cl. 285-18.000.

Handte, Herbert; and Kollmar, Friedrich, to Moog GmbH. Self-adjusting ramp generator. 4,268,794, Cl. 328-185.000.

Hanke, Reinhard; and Jahn, Kornel, to Voest-Alpine Aktiengesellschaft. Sieve and sieving apparatus for separating solids from a suspension. 4,268,382, Cl. 209-273.000.

Hankins, Ronald G.; and Butcher, Jimmie J., to CMI Corporation. Portable self-erecting silo apparatus. 4,268,208, Cl. 414-332.000.

Hanneman, Rodney E.; Urquhart, Andrew W.; and Vermilyea, David A., to General Electric Company. Corrosion resistant zirconium alloy structural components and process. 4,268,586, Cl. 428-661.000.

Hanon, Etienne T.: *See*—
Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.

Hansen, Rainer: *See*—
Benteler, Hubertus; Olszewski, Egon; Hansen, Rainer; and Wecker, Ferdinand, 4,267,718, Cl. 72-59.000.

Hansen, Randall C.: *See*—
Bohleen, Brian O.; and Hansen, Randall C., 4,268,077, Cl. 292-336.300.

Hanson, Stephen P., to Marvin Glass & Associates. Multiple vehicle launcher. 4,267,661, Cl. 46-1.00K.

Hanyu, Susumu; Kasuga, Noboru; Hara, Kazumasa; and Watanabe, Koichi, to Janome Sewing Machine Co. Ltd. Lock stitching and overlock stitching sewing machine. 4,267,786, Cl. 112-168.000.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Stabilization of organic substrate materials including photographic dye images against the action of light. 4,268,605, Cl. 430-216.000.

Hara, Kazumasa: *See*—
Hanyu, Susumu; Kasuga, Noboru; Hara, Kazumasa; and Watanabe, Koichi, 4,267,786, Cl. 112-168.000.

Hara, Shozo: *See*—
Nakagawa, Kazuhiko; Fujieda, Yasuhiko; Hara, Shozo; Tanaka, Toshikazu; and Taira, Akira, 4,268,219, Cl. 414-786.000.

Harada, Mikio: *See*—
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Harada, Tooru: *See*—
Fujita, Shinsaku; Harada, Tooru; and Yoshida, Yoshinobu, 4,268,624, Cl. 430-562.000.
Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, 4,268,625, Cl. 430-562.000.

Harbert, Charles A.: *See*—
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,523, Cl. 424-308.000.
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,692, Cl. 568-326.000.

Hardesty, Edwin C., to Western Electric Company, Inc. Coupler for telephone cords. 4,268,109, Cl. 339-205.000.

Hareyama, Kyuichi, to Nippon Electric Co., Ltd. Integrating type analog-to-digital converter. 4,268,820, Cl. 340-347.0NT.

Hargraves, David P.: *See*—
Kunz, Bernard L.; and Hargraves, David P., 4,268,006, Cl. 251-11.000.

Haried, John C. Process and apparatus for conserving energy in laundry equipment. 4,267,643, Cl. 34-48.000.

Harle & Lechopiez: *See*—
Montigny, Jean, 4,268,528, Cl. 426-40.000.

Harmony, Richard C. Insulator for canned drinks. 4,268,567, Cl. 428-195.000.

Harnisch, Horst; and Rasche, Peter, to Bayer Aktiengesellschaft. Acid monomethine-metal complex dyestuffs. 4,268,668, Cl. 8-685.000.

Harper, Philip M., Sr., to United States of America, National Aeronautics and Space Administration. Tire/wheel concept. 4,267,992, Cl. 244-103.00R.

Harrigan, Roy M. Illumination apparatus for use in an obscured ambient, fluid conduit and method. 4,268,893, Cl. 362-96.000.

Harrington, John G.; and Hornbeck, William W. Composition and method for the treatment of animal hooves. 4,268,504, Cl. 424-143.000.

Harrington, Shelby A., to A-T-O Inc. Coupling mechanism for capping machine chuck. 4,267,683, Cl. 53-331.500.

Harris Corporation: *See*—
Clark, Hamilton, Jr., 4,268,718, Cl. 179-1.00E.

Harris, George M.; and Thomas, Samuel J., to Kendall Company, The. Pipe wrapping adhesive tape method. 4,268,334, Cl. 156-187.000.

Harris, James M.: *See*—
Gray, Bruce; Harris, James M.; and Gouin, William M., 4,268,849, Cl. 357-71.000.

Harris, John F.; and Magill, Barrie J., to Fisons Limited. Process for preparing pyrogallol. 4,268,694, Cl. 568-763.000.

Harrow, James E.; and Kenney, Robert T., II, to Kansas City Structural Steel Co. Work-piece supported tool apparatus particularly adapted for use with large structural members. 4,268,196, Cl. 408-39.000.

Hartlaub, Jerome T.: *See*—
McDonald, Ray S.; and Hartlaub, Jerome T., 4,267,843, Cl. 128-419.0PT.

Hartmann, Ferdinand, to Austria Email Aktiengesellschaft. Apparatus for coating articles with enamel slip. 4,267,794, Cl. 118-50.000.

Hartmann, Max; and Thuringer, Ferdinand, to BBC Brown, Boveri & Co., Ltd. Cooling-air nozzle for use in a heated chamber. 4,267,698, Cl. 60-756.000.

Hartmann, Rudolf, to Bell & Howell Company. Color-separating optical system. 4,268,119, Cl. 350-173.000.

Harvey, Frederick W.; Sethi, Gurdip S.; and Sikorski, Stephen L., to Eastman Kodak Company. Film cartridge assembly. 4,268,145, Cl. 354-121.000.

Hashida, Wataru: *See*—
Matsuo, Takaharu; Sawamura, Norio, both of Osaka; Hashimoto, Yukio; and Hashida, Wataru, 4,268,527, Cl. 426-33.000.

Hashimoto, Akira: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, 4,268,539, Cl. 427-108.000.

Hashimoto, Hidehisa: *See*—
Uemura, Noboru; Hatakeyama, Shunzo; and Hashimoto, Hidehisa, 4,267,986, Cl. 242-199.000.

Hashimoto, Kazuyuki: *See*—
Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, 4,268,162, Cl. 355-14.00R.

Hashimoto, Kinro: *See*—
Maeda, Akio; Hashimoto, Kinro; Inagami, Masaaki; and Fukushima, Hiroshi, 4,268,644, Cl. 525-403.000.

Hashimoto, Mitsuru: *See*—
Sasaki, Masaomi; Hashimoto, Mitsuru; and Kawakami, Tomiko, 4,268,596, Cl. 430-72.000.

Hashimoto, Shunichi: *See*—
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,268,301, Cl. 71-90.000.

Hashimoto, Yukio: *See*—
Matsuo, Takaharu; Sawamura, Norio, both of Osaka; Hashimoto, Yukio; and Hashida, Wataru, 4,268,527, Cl. 426-33.000.

Hashimura, Taiji, to Fuji Photo Film Co., Ltd. Bleaching composition for photographic processing. 4,268,618, Cl. 430-393.000.

Hata, Hiroshi: *See*—
Fujii, Shinichi; and Hata, Hiroshi, 4,268,280, Cl. 55-54.000.

Hatakeyama, Shunzo: *See*—
Uemura, Noboru; Hatakeyama, Shunzo; and Hashimoto, Hidehisa, 4,267,986, Cl. 242-199.000.

Hatuse, Toshikazu: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Haubner, Georg: *See*—
Wesemeyer, Jurgen; Haubner, Georg; Meier, Werner; and Schrumpf, Hans, 4,267,810, Cl. 123-416.000.

Haupt, Fritz, to Maag Gearwheel & Machine Company Ltd. Intermeshing gear pump with sealing means comprising two concentric slide rings. 4,268,232, Cl. 418-135.000.

Hauptman, Zdenek V.: *See*—
Banister, Arthur J.; Fielder, Andrew J.; Hauptman, Zdenek V.; and Smith, Nigel R. M., 4,268,491, Cl. 423-406.000.

Hausen, Manfred Z.: *See*—
Lange, Erhard; and Hausen, Manfred Z., 4,268,695, Cl. 568-864.000.

Hausermann, Alfred, to BBC Brown, Boveri & Co., Ltd. Turning device especially for driving a turbine shaft. 4,267,738, Cl. 74-8.000.

Hawkinson, Leon A. Refuse receiving assembly. 4,268,081, Cl. 294-55.000.

Hawo B.V.: *See*—
Wolters, Hendrik W., 4,268,237, Cl. 425-116.000.

Hay, Louis E.: *See*—
Friz, Walter, 4,268,778, Cl. 315-3.500.

Hayakawa Associates: *See*—
O'Halloran, John T., 4,267,824, Cl. 126-426.000.

Hayashi, Hidetoshi: *See*—
Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, 4,268,625, Cl. 430-562.000.

Hayes, John, to Tiger Manufacturing Company. Disposable plastic trap bag. 4,268,392, Cl. 210-238.000.

Heath, Charles A. Lawn mower having flexible filament cutter elements. 4,267,686, Cl. 56-12.700.

Hedger, John H. Reciprocating engine with improved feed and exhaust valve means. 4,267,765, Cl. 91-186.000.

Hedrick, Charles L.: *See*—
Fowler, Neal G.; and Hedrick, Charles L., 4,267,682, Cl. 52-657.000.

Heemstra, Theodore C. Tufting machine. 4,267,784, Cl. 112-80.000.

Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., to Janssen Pharmaceutica N.V. Heterocyclic derivatives of 1-(1,3-dioxolan-2-ylmethyl)-1H-imidazoles and 1H-1,2,4-triazoles. 4,268,680, Cl. 548-336.000.

Heeschen, Ulf: *See*—
Weber, Robert; Ring, Stefan; and Heeschen, Ulf, 4,268,755, Cl. 250-506.000.

Heiber, Wolfgang: *See*—
Kohmann, Karl-Heinz; and Heiber, Wolfgang, 4,268,261, Cl. 493-231.000.

Heimann GmbH: *See*—
Herwig, Thomas; and Doenges, Gerhard, 4,268,752, Cl. 250-353.000.

Heinz, Richard A. Protected pivot adjustable scaled compasses. 4,267,638, Cl. 33-27.00C.

Helix Technology Corporation: *See*—
Toscano, William M., 4,267,701, Cl. 62-86.000.

Heller, Arthur; Schaumberger, Alfred; Schuster, Klaus; and Dollinger, Friedrich, to U.S. Philips Corporation. Signal generator. 4,268,851, Cl. 358-10.000.

Hellige GmbH: *See*—
Orzikowski, Gunter, 4,268,837, Cl. 346-75.000.

Hellin, Michel: *See*—
Dang Vu, Quang; Juguin, Bernard; Torck, Bernard; and Hellin, Michel, 4,268,700, Cl. 585-302.000.
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,268,701, Cl. 585-329.000.

Henigren, Sven A., to Esselte Pendaflex Corp. Device for separating tape portions from a tape of flexible material. 4,267,949, Cl. 225-106.000.

Hemmerich, Heinz P.: *See*—
Schulte-Huermann, Werner; and Hemmerich, Heinz P., 4,268,458, Cl. 564-305.000.

Hemmerich, Johann, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Thermal radiation shield. 4,267,707, Cl. 62-514.00R.

Henbest, Richard G. C.; and McGregor, Kenneth. Modified urea formaldehyde resin fiber paper. 4,268,351, Cl. 162-146.000.

Hendricks, Udo-Winfried; Hildebrand, Dietrich; and Kuth, Robert, to Bayer Aktiengesellschaft. Process for dyeing and printing cellulose fibres with reactive dyestuffs. 4,268,266, Cl. 8-543.000.

Hendriksen, Errol C. Method and apparatus for aligning automobile suspension members. 4,267,896, Cl. 180-73.00R.

Hendrix, Jerry W.: *See*—
Hendrix, Robert W.; and Hendrix, Jerry W., 4,267,783, Cl. 111-52.000.

Hendrix, Robert W.; and Hendrix, Jerry W. Seed bed preparation method and apparatus. 4,267,783, Cl. 111-52.000.

Hendry, Harold M. Adjustable lubrication quality indicator-protector for engines and other machines. 4,267,722, Cl. 73-10.000.

Hendy, Brian N., to Imperial Chemical Industries Limited. Antistatic films. 4,268,583, Cl. 428-516.000.

Henke, Detlef. Process for cultivation of mushrooms and mushroom nursing plant for carrying out the process and air conditioning plant for the mushroom nursing plant. 4,267,664, Cl. 47-1.100.

Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA): *See*—
Bechstedt, Wolfgang, 4,268,262, Cl. 8-137.000.
Bruns, Klaus; and Meins, Peter, 4,268,443, Cl. 260-340.300.

Henrion, W. S.; and Erickson, Raymond K., to Texas Instruments Incorporated. Solid state keyboard. 4,268,814, Cl. 338-32.00H.

Henry, Ralph A., to General Electric Company. Single UHF/VHF antenna system. 4,268,834, Cl. 343-858.000.

Herbert Hanchen KG: *See*—
Hanchen, Siegfried; and Fabrowsky, Hans D., 4,268,071, Cl. 285-18.000.

Herberts Gesellschaft mit beschrankter Haftung: *See*—
Bederke, Klaus; and Kerber, Hermann, 4,268,659, Cl. 528-288.000.

Herbst, David H., to Maryland Cup Corporation. Two-piece pleated foam cup. 4,268,335, Cl. 156-218.000.

Hercules Incorporated: *See*—
Roos, Leo, 4,268,610, Cl. 430-281.000.
Weldy, Winfred E., 4,268,637, Cl. 525-105.000.

Herman Miller, Inc.: *See*—
Randolph, Travis M.; and Newhouse, Thomas J., 4,267,677, Cl. 52-242.000.

Hermann Berstorff Maschinenbau GmbH: *See*—
Muller, Werner, 4,268,176, Cl. 366-83.000.

Herold, Horst, to Petri AG. Unilaterally alternating backlash torque lock. 4,267,908, Cl. 192-8.00C.

Herold, Horst, to Petri AG. Unilaterally alternating backlash torque lock. 4,267,909, Cl. 192-8.00C.

Herper, John C.: *See*—
Valentino, Pasquale A.; Herper, John C.; and Stangel, John J., 4,268,831, Cl. 343-754.000.

Herrick, Carlyle S.; and Holub, Fred F., to General Electric Company. Method for forming Glauber's salt crystals of reduced size by including a fluorine-containing surfactant. 4,267,879, Cl. 165-1.000.

Herrick, Carlyle S.; and Zarnoch, Kenneth P., to General Electric Company. Method for forming Glauber's salt crystals with reduced encapsulation by the addition of ethylene glycol monobutyl ether. 4,268,405, Cl. 252-70.000.

Herring, Jimmy R.: *See*—
Hughen, James F.; Herring, Jimmy R.; Biedermann, David A.; and Ovens, Christopher W., 4,268,827, Cl. 340-715.000.

Herrington, F. John, Jr., to Mobil Oil Corporation. Tubular extrusion die. 4,268,239, Cl. 425-467.000.

Herrold, Anne M.: *See*—
Vargas, Ovidio; and Herrold, Anne M., 4,268,526, Cl. 424-358.000.

Herwig, Thomas; and Doenges, Gerhard, to Heimann GmbH. Optical arrangement for a passive infrared motion detector. 4,268,752, Cl. 250-353.000.

Herzstark, Curt, to BNA-Augustin GmbH & Co. KG. Apparatus for distribution of liquid test samples through various test stations. 4,268,477, Cl. 422-64.000.

Hess, Hans-Jurgen E.: *See*—
Eggler, James F.; and Hess, Hans-Jurgen E., 4,268,522, Cl. 424-305.000.

Hess, Ricky D.: *See*—
Buck, Daniel C.; and Hess, Ricky D., 4,268,797, Cl. 330-277.000.

Hester, Dewey S. Bee keeping apparatus. 4,267,613, Cl. 6-10.000.

Hey, David G.; and Wheelhouse, Robert W., to Imperial Chemical Industries Limited. Cleaning composition. 4,268,407, Cl. 252-171.000.

Heyer, Arthur J.; Springer, Edward M.; and Clay, Wallace C., to Heyer Inc. Electronic stencil cutter having means to vary size of reproduced picture. 4,268,869, Cl. 358-287.000.

Heyer Inc.: *See*—
Heyer, Arthur J.; Springer, Edward M.; and Clay, Wallace C., 4,268,869, Cl. 358-287.000.

Hibbert, Mark W. Window lever lock. 4,268,073, Cl. 292-113.000.

Hicks, Arthur W.; and Jolicoeur, Gerald D., to Jolicoeur, Gerald D. Wood-burning stove. 4,267,817, Cl. 126-60.000.

Hicks, Manuel G. Method of minimizing manganese dioxide sludge formation. 4,268,487, Cl. 423-210.000.

Higashihata, Yoshihide: *See*—
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Higerd, Thomas B.; and Goust, Jean-Michel C. Immunosuppressive extracellular product from oral bacteria. 4,268,434, Cl. 260-112.00R.

Higgins, Bobby L.; and Johnson, Luther M., to Camsco, Inc. Stylus pen actuating switch. 4,268,730, Cl. 200-52.00R.

Hightower, John D.: *See*—
Poulos, Andrew C.; and Hightower, John D., 4,268,379, Cl. 209-5.000.

Hildebrand, Dietrich: *See*—
Hendricks, Udo-Winfried; Hildebrand, Dietrich; and Kuth, Robert, 4,268,266, Cl. 8-543.000.

Hill, Edwin W. Burner-fired combined with wood-fired apparatus for drying crops. 4,267,645, Cl. 34-213.000.

Hiniker Company: *See*—
Hodapp, Gary; Peterson, Richard; and Schulz, Richard, 4,267,767, Cl. 91-404.000.

Hipp, Steven J.: *See*—
Grunewald, Lynn O.; and Hipp, Steven J., 4,267,748, Cl. 74-529.000.

Hiraiwa, Kazuyoshi, to Nissan Motor Company, Limited. Clutch control apparatus of an automotive power transmission. 4,267,907, Cl. 192-3.560.

Hirakura, Koji: *See*—
Ebi, Yutaka; Hirakura, Koji; Matsumoto, Fuyuhiko; Ohta, Wasaburo; and Tomita, Satoru, 4,268,157, Cl. 355-3.0TR.

Hirano, Takashi; and Aga, Takashi, to Yamato Scale Company, Limited. Combination weighing device. 4,267,894, Cl. 177-25.000.
Hirata, Akio. Device for controlling a plurality of converters. 4,268,900, Cl. 363-71.000.
Hirota, Mitsuhiko: *See*—
Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, 4,268,781, Cl. 318-434.000.
Kawada, Shigeki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Ohta, Naoto, 4,268,782, Cl. 318-434.000.
Hisabayashi, Satoshi: *See*—
Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, 4,268,162, Cl. 355-14.00R.
Hisanaga, Akinori: *See*—
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Hitachi Chemical Company, Ltd.: *See*—
Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, 4,268,614, Cl. 430-315.000.
Hitachi, Ltd.: *See*—
Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.
Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, 4,268,409, Cl. 252-301.10W.
Ienaka, Masanori; Wada, Takeshi; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,268,762, Cl. 307-268.000.
Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, 4,268,136, Cl. 354-23.00D.
Kobori, Yasunori; Itoh, Toshi; Tokunaga, Yoichi; and Teshima, Tunehiko, 4,268,873, Cl. 360-9.000.
Koike, Norio; Hanamura, Shoji; and Kubo, Masaharu, 4,268,845, Cl. 357-30.000.
Meguro, Satoshi, 4,268,321, Cl. 148-1.500.
Hitt, William H., Jr., to Miller, Dale C. Solar collector for heating and cooling. 4,267,826, Cl. 126-440.000.
Hittel, Gerhard, to Karl Mayer Textilmaschinenfabrik GmbH. Twin-bedded warp knitting machine. 4,267,709, Cl. 66-87.000.
Hixson, J. Ellsworth: *See*—
Pike, Carl A.; and Hixson, J. Ellsworth, 4,267,690, Cl. 56-294.000.
Hizume, Akio: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.
Ho, Paul S.: *See*—
Ahn, Kie Y.; Bajorek, Christopher H.; Ho, Paul S.; Miller, Robert J.; and Powers, John V., 4,268,584, Cl. 428-620.000.
Hodapp, Gary; Peterson, Richard; and Schulz, Richard, to Hiniker Company. Position lock. 4,267,767, Cl. 91-404.000.
Hodkinson, Harold, to Automotive Products Limited. Hydraulic master cylinder. 4,267,697, Cl. 60-589.000.
Hodulik, Joseph W., to Libbey-Owens-Ford Company. Method of and apparatus for printing a pattern on a substrate. 4,268,545, Cl. 427-282.000.
Hoechst Aktiengesellschaft: *See*—
Ahlgrim, Michael; Mietens, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,268,404, Cl. 252-25.000.
Behringer, Hartmut; and Karrenbauer, Kurt, 4,268,437, Cl. 260-141.000.
Hoechst-Roussel Pharmaceuticals Inc.: *See*—
Effland, Richard C.; Davis, Larry; and Klein, Joseph T., 4,268,515, Cl. 424-267.000.
Hoff, Raymond E., to Chemplex Company. Polymerization catalyst. 4,268,418, Cl. 252-429.00B.
Hoffken, Erich; and Beckers, Karl-Dieter, to Martin & Pagenstecher GmbH. Process and device for producing the refractory lining of metallurgical vessels. 4,268,543, Cl. 427-230.000.
Hoffman, Charles A.; Weeton, John W.; and Orth, Norman W., to United States of America, National Aeronautics and Space Administration. Method for alleviating thermal stress damage in laminates. 4,267,953, Cl. 228-118.000.
Hoffman, Joseph A., to American Cyanamid Company. Cyclic diphosphonates. 4,268,459, Cl. 260-927.00R.
Hoffman, Michael R.: *See*—
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,268,565, Cl. 428-161.000.
Hoffman, Werner: *See*—
Kropp, Rudolf; Thoemel, Frank; Nuerrenbach, Axel; Hoffman, Werner; Wenisch, Franz; and Fuchs, Hartwig, 4,268,445, Cl. 260-345.200.
Hoffmann, Herbert: *See*—
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Hoffmann-La Roche Inc.: *See*—
Barner, Richard; and Hubscher, Josef, 4,268,453, Cl. 260-397.500.
Hohne, Gerd; and Sohner, Gerhard, to Robert Bosch GmbH. Ignition system with automatic increase in ignition energy during acceleration. 4,267,813, Cl. 123-609.000.
Hollandse Signaalapparaten B.V.: *See*—
Los, Lindert, 4,268,863, Cl. 358-160.000.
Hollis, Roger E.: *See*—
Dorner, John R.; Wiltse, Jon F.; and Hollis, Roger E., 4,268,769, Cl. 310-67.00R.
Holmes, James L.: *See*—
Brower, Boyd G.; Sindlinger, Ronald E.; and Holmes, James L., 4,268,891, Cl. 362-11.000.
Holmstrom, Sven N. H., to Tetra Pak International AB. Packing container and a laminate for its manufacture. 4,267,957, Cl. 229-37.00R.
Holson Company, The: *See*—
Holson, Sheldon, 4,267,655, Cl. 40-159.000.
Holson, Sheldon, to Holson Company, The. Print album. 4,267,655, Cl. 40-159.000.
Holub, Fred F.: *See*—
Herrick, Carlyle S.; and Holub, Fred F., 4,267,879, Cl. 165-1.000.
Homan, Gary R.; and Lee, Chi-Long, to Dow Corning Corporation. Ferrocene catalyzed elastomer formation. 4,268,655, Cl. 528-15.000.
Homma, Masaji: *See*—
Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, 4,268,614, Cl. 430-315.000.
Honda Giken Kogyo Kabushiki Kaisha: *See*—
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Sakai, Kunitaka; and Ono, Jun, 4,268,085, Cl. 296-217.000.
Honeywell Information Systems Inc.: *See*—
Kindell, Jerry L.; and Flynn, Richard T., 4,268,909, Cl. 364-200.000.
Porter, Marion G.; Norman, Robert W., Jr.; and Flynn, Richard T., 4,268,907, Cl. 364-200.000.
Honeywill-Atlas Limited: *See*—
Allan, John J.; Foster, Richard G.; and Leversidge, Paul L., 4,268,410, Cl. 252-312.000.
Honma, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Dot printer wire. 4,268,180, Cl. 400-124.000.
Honor-Gard System: *See*—
Domkowski, Ronald A., 4,267,962, Cl. 232-15.000.
Hood, Ralph S. Sail furling and reefing apparatus. 4,267,790, Cl. 114-106.000.
Hooker Chemicals & Plastics Corp.: *See*—
Colson, James G.; Cooke, Victor F. G.; Day, F. Howard; and Fifolt, Michael J., 4,268,457, Cl. 260-544.00P.
Tang, David Y.; and Foster, Arthur M., 4,268,687, Cl. 560-105.000.
Hooper, Anthony W., to Uniweld Inc. Bark shredder. 4,267,982, Cl. 241-257.00R.
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Hoover, Delmer Q., Jr., to Westinghouse Electric Corp. Transpiration cooled electrodes and insulators for MHD generators. 4,268,765, Cl. 310-11.000.
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Sera, Hidefumi; Hori, Kiyotaka; and Sugimoto, Naohiko, 4,268,623, Cl. 430-529.000.
Horie, Toshio; Tomioka, Shouji; and Mine, Nobuyoshi, to Furukawa Electric Co., Ltd., The. Method of treating waste water. 4,268,397, Cl. 210-746.000.
Horiuchi, Susumu: *See*—
Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, 4,268,409, Cl. 252-301.10W.
Hornbeck, William W.: *See*—
Harrington, John G.; and Hornbeck, William W., 4,268,504, Cl. 424-143.000.
Horner, Michael; and Nissen, Axel, to BASF Aktiengesellschaft. Preparation of chromane derivatives. 4,268,446, Cl. 260-345.500.
Horsting, John J., to Bendix Corporation, The. Control valve apparatus for a pneumatically operated servomotor. 4,267,766, Cl. 91-369.00A.
Hoshi, Hisao: *See*—
Naganuma, Tsutomu; Hoshi, Hisao; Kumagai, Hiroji; and Yoshida, Kaneki, 4,268,158, Cl. 355-3.00R.
Hosiden Electronics Co., Ltd.: *See*—
Nakagawa, Sadayoshi; and Shinohara, Mitsuharu, 4,268,725, Cl. 179-111.00E.
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Yoshikumi, Chikao; Omura, Yoshio; and Hotta, Tetsuya, 4,268,505, Cl. 424-180.000.
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Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,268,630, Cl. 435-148.000.
Houk, William J., to Ranco Incorporated. Refrigeration system with refrigerant flow controlling valve. 4,267,702, Cl. 62-115.000.
House, Richard F.; Kohler, Karl A.; and Lewis, Philip W., to Container Corporation of America. Liquid tight tray. 4,267,956, Cl. 229-30.000.
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Lomax, George F., 4,267,979, Cl. 239-419.000.
Howe, Robert K., to Monsanto Company. Method and composition for plant growth regulation containing trifluoromethyl 1,3,4 oxadiazol benzoates. 4,268,299, Cl. 71-76.000.
Hoy, Leslie R. J.; and Rose, John B., to Imperial Chemical Industries Limited. Aromatic polymers. 4,268,635, Cl. 525-68.000.
Hsia, Yukun, to McDonnell Douglas Corporation. Stripped nitride MOS/MNOS process. 4,268,328, Cl. 148-187.000.

Hsieh, Shih-Yung: *See*—
Powell, James; Hsieh, Shih-Yung; and Lehner, John R., 4,268,353, Cl. 176-3.000.
Hubbard, William. Continuous timed segment broadcast recorder system. 4,268,724, Cl. 369-7.000.
Huber, Bernhard W., to Bodenseewerk Perkin-Elmer & Co. GmbH. Method and apparatus for generating and transferring a gaseous test sample. 4,268,478, Cl. 422-68.000.
Huber, Theodor: *See*—
Cocron, Istvan; Huber, Theodor; and Ruf, Wolfgang, 4,268,137, Cl. 354-23.00D.
Huber, Walter; and Stratenhoff, Wolfgang, to Mannesmann Aktiengesellschaft. Receiving and collecting pieces of stock such as rods or tubes. 4,268,203, Cl. 414-100.000.
Huber, Walter G.: *See*—
Bloink, Harry W.; and Huber, Walter G., 4,268,194, Cl. 407-22.000.
Hubscher, Josef: *See*—
Barner, Richard; and Hubscher, Josef, 4,268,453, Cl. 260-397.500.
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Allaman, Michael C.; Bailey, Leo T.; and Hudgins, Richard E., 4,267,754, Cl. 83-187.000.
Huggins, Raymond W., to Xerox Corporation. Development system. 4,267,797, Cl. 118-658.000.
Hughen, James F.; Herring, Jimmy R.; Biedermann, David A.; and Ovens, Christopher W., to Dresser Industries, Inc. Operability verification for segmental electromagnetic display. 4,268,827, Cl. 340-715.000.
Hughes Aircraft Company: *See*—
Mesco, Bernard, 4,268,123, Cl. 350-310.000.
Huhne, Paul, to S&S Corrugated Paper Machinery Co. Inc. Zero waste order change system for a corrugator. 4,268,341, Cl. 156-352.000.
Huliba, David A.; and Robinson, Lonnie P., to Mead Corporation, The. Ink jet printer having improved catcher. 4,268,836, Cl. 346-75.000.
Hullinger, Judith E. Process for enhancing and strengthening the growth of nails. 4,267,852, Cl. 132-73.000.
Hunt, Frederick B., to Milwaukee Dustless Brush Co. Rotary sweeping broom. 4,267,616, Cl. 15-182.000.
Hunter Douglas International N.V.: *See*—
Koks, Marinus F., 4,267,875, Cl. 160-176.00R
Hunter, Glen E.: *See*—
Price, Herbert S.; and Hunter, Glen E., 4,268,088, Cl. 299-11.000.
Husky Injection Molding Systems: *See*—
Rees, Herbert; and Schad, Robert D., 4,268,240, Cl. 425-548.000.
Rees, Herbert; and Schad, Robert D., 4,268,241, Cl. 425-549.000.
Hydragon Corporation: *See*—
Earnest, Ernest R., 4,267,692, Cl. 60-39.18R.
Ibata, Jyoji; Fukui, Hisaaki; Yuasa, Takeo; and Katoh, Michio, to Asahi Kasei Kogyo Kabushiki Kaisha. Sheet molding material produced by associating a layer comprising a photopolymerizable material with layers comprising thermosetting resins. 4,268,337, Cl. 156-244.170.
Ichikawa Press Industries Co., Ltd.: *See*—
Yabata, Hisao, 4,268,895, Cl. 362-307.000.
Ichikawa, Singo: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.
Ichikawa, Toshizi: *See*—
Aoyagi, Juuro; and Ichikawa, Toshizi, 4,268,463, Cl. 264-22.000.
Ichimura, Takeo: *See*—
Ishibashi, Kazufumi; and Ichimura, Takeo, 4,268,312, Cl. 106-47.000Q.
ICI Americas Inc.: *See*—
Rauchut, Robert F.; and Caparoni, Louis J., 4,268,823, Cl. 340-570.000.
Shapiro, Howard S., 4,268,513, Cl. 424-258.000.
ICI Australia Limited: *See*—
Neville, Robert S., 4,268,490, Cl. 423-266.000.
Ienaka, Masanori; Wada, Takeshi; Miyamoto, Yukihiko; and Yamada, Tsuneo, to Hitachi, Ltd.; and Trio Kabushiki Kaisha. Pulse forming circuit. 4,268,762, Cl. 307-268.000.
Iida, Tetsuya: *See*—
Suzuki, Yasoji; and Iida, Tetsuya, 4,268,761, Cl. 307-264.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Method of electrolysis of an alkali metal chloride. 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Method and apparatus for installation of a membrane to an electrolytic cell. 4,268,373, Cl. 204-252.000.
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Iizuka, Yo; Yusa, Haruhiko; Midorikawa, Susumu, deceased; and by Midorikawa, Taeko, heir, to Kureha Kagaku Kogyo Kabushiki Kaisha. Vinyl chloride resin composition with processing aid. 4,268,636, Cl. 525-85.000.
Ike, Toshio: *See*—
Yokota, Tsuneshi; and Ike, Toshio, 4,268,868, Cl. 358-286.000.
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, to Fuji Photo Film Co., Ltd. Process for producing a material having a vapor-deposited metal layer, and process for producing a recording material. 4,268,541, Cl. 427-177.000.
Ikeda, Tomoaki: *See*—
Namiki, Tomizo; Shinozaki, Fumiaki; and Ikeda, Tomoaki, 4,268,601, Cl. 430-159.000.
Shinozaki, Fumiaki; Namiki, Tomizo; Kitajima, Masao; Ikeda, Tomoaki; and Mizobuchi, Yuzo, 4,268,575, Cl. 428-336.000.
Iki, Tetsuo: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.
Illinois Tool Works Inc.: *See*—
Bloink, Harry W.; and Huber, Walter G., 4,268,194, Cl. 407-22.000.
Loudin, Philip B., 4,267,941, Cl. 220-85.0SP.
Imahori, Seiichi; Murata, Yukichi; Maeda, Syuichi; and Suzuki, Sumio, to Mitsubishi Chemical Industries Ltd. Fluorescent dyes. 4,268,671, Cl. 544-245.000.
Imamichi, Yoshio, to Mizuno Sporting Goods Co., Ltd. Double knit fabric with patterned loop interlocking. 4,267,710, Cl. 66-196.000.
Imanaka, Hiroshi; and Nishida, Minoru, to Fujisawa Pharmaceutical Co., Ltd. Antibacterial composition. 4,268,503, Cl. 424-114.000.
Imanaka, Hiroshi; and Kijima, Yoshihiko, to Toyo Boseki Kabushiki Kaisha. Metal-coated plastic product. 4,268,570, Cl. 428-216.000.
Imatra Paristo Oy: *See*—
Tamminen, Pentti J., 4,268,589, Cl. 429-207.000.
Imayasu, Tomoyoshi: *See*—
Isono, Katsuo; and Imayasu, Tomoyoshi, 4,268,857, Cl. 358-67.000.
Imperial Chemical Industries Limited: *See*—
Backhouse, Alan J., 4,268,547, Cl. 427-385.500.
Boyle, Francis T.; and Taylor, Michael A., 4,268,510, Cl. 424-248.530.
Galt, Ronald H. B.; and Pearce, Robert J., 4,268,514, Cl. 424-267.000.
Hendy, Brian N., 4,268,583, Cl. 428-516.000.
Hey, David G.; and Wheelhouse, Robert W., 4,268,407, Cl. 252-171.000.
Hoy, Leslie R. J.; and Rose, John B., 4,268,635, Cl. 525-68.000.
Maslen, John; and Nield, Eric, 4,268,432, Cl. 260-45.75B.
Nightingale, Douglas D. J., 4,268,472, Cl. 264-230.000.
Rose, John B., 4,268,650, Cl. 525-534.000.
Inada, Yutaka: *See*—
Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, 4,268,303, Cl. 75-34.000.
Inagami, Masaaki: *See*—
Maeda, Akio; Hashimoto, Kinro; Inagami, Masaaki; and Fukushima, Hiroshi, 4,268,644, Cl. 525-403.000.
Inco Research & Development Center Inc.: *See*—
Hall, Dale E., 4,268,364, Cl. 204-43.00Z.
Industra Products, Inc.: *See*—
Walker, Robert G., 4,267,719, Cl. 72-122.000.
Industriewerke Schaeffler OHG: *See*—
Gugel, Georg, 4,267,625, Cl. 29-148.40A.
Ing. C. Olivetti & C., S.p.A.: *See*—
Becchi, Raffaele; Giacone, Felice; and Accattino, Andrea, 4,268,747, Cl. 250-231.0SE.
Subrizi, Angelo; and Violino, Ettore, 4,268,901, Cl. 364-200.000.
Ingham, Gary G. Balanced door. 4,267,667, Cl. 49-252.000.
Ingouf, Jean-Pierre. Jib roller systems. 4,267,791, Cl. 114-106.000.
Inoue, Kanji: *See*—
Komatsu, Tadaaki; Araki, Yuusuke; and Inoue, Kanji, 4,268,330, Cl. 156-111.000.
Inoue, Morio: *See*—
Uragaki, Tamotsu; Inoue, Morio; Koike, Susumu; and Iwasa, Hitoo, 4,268,327, Cl. 148-171.000.
Inoue, Nobuaki: *See*—
Adachi, Keiichi; Kato, Eiichi; Inoue, Nobuaki; and Kojima, Tetsurou, 4,268,622, Cl. 430-513.000.
Institut Francais du Petrole: *See*—
Dang Vu, Quang; Juguin, Bernard; Torck, Bernard; and Hellin, Michel, 4,268,700, Cl. 585-302.000.
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,268,701, Cl. 585-329.000.
Institut fur Biomedizinische Technik: *See*—
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.
Institutes of Medical Sciences, The: *See*—
Persidsky, Maxim D.; and Ling, Nan-Sing, 4,268,393, Cl. 210-516.000.
Institutul de Cercetari si Modernizari Energetice: *See*—
Gheorghiu, Nicolae; and Guzun, Basarab D., 4,268,732, Cl. 200-148.00R.
Instrumentation Laboratory Inc.: *See*—
Webster, Milo E., 4,268,479, Cl. 422-68.000
Intel Corporation: *See*—
Shappir, Joseph, 4,267,632, Cl. 29-571.000.
International Business Machines Corporation: *See*—
Ahn, Kie Y.; Bajorek, Christopher H.; Ho, Paul S.; Miller, Robert J.; and Powers, John V., 4,268,584, Cl. 428-620.000.
Aviram, Ari; Pennington, Keith S.; and Kuhn, Lawrence, 4,268,368, Cl. 204-181.00C.

Berglund, Neil C.; and Nieling, James R., 4,268,902, Cl. 364-200.000.
Bohg, Armin; and Briska, Marian, 4,267,823, Cl. 126-422.000.
Bourke, Donall G.; Mendelson, Richard N.; and Madruga, Luis, 4,268,906, Cl. 364-200.000.
Bradmon, Paul J., 4,268,165, Cl. 355-55.000.
Kekas, Dennis H.; McAdams, Ronald P.; and Polischuk-Sawtschenko, Alexander, 4,268,100, Cl. 339-17.0LM.
Logue, Joseph C.; and Wu, Wei-Wha, 4,268,908, Cl. 364-200.000.
Noel, Francis E., Jr., 4,268,113, Cl. 350-96.200.
Watrous, Robert B., 4,268,879, Cl. 360-104.000.

International Telephone and Telegraph Corporation: *See—*
Agrawal, Bhagwati P.; and Shenoi, Kishan, 4,268,727, Cl. 179-170.200.
Peterson, Kenneth P., 4,268,112, Cl. 350-96.180.

Interpace Corporation: *See—*
Tashlick, Irving, 4,268,047, Cl. 277-207.00A.

INTERx Research Corporation: *See—*
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,268,441, Cl. 260-239.500.

Inventa AG fur Forschung und Patentverwertung, Zurich: *See—*
Schmid, Eduard; and Griehl, Wolfgang, 4,268,661, Cl. 528-338.000.

Irving, Robert W.: *See—*
Davis, George B.; and Irving, Robert W., 4,267,769, Cl. 98-33.00A.

Ishibashi, Kazufumi; and Ichimura, Takeo, to Nippon Kogaku K.K. Optical glass. 4,268,312, Cl. 106-47.00Q.

Ishigaki, Kunio: *See—*
Sera, Hidefumi; Kitatani, Katuzi; Ogawa, Masasi; Ishigaki, Kunio; and Shiraishi, Hisashi, 4,268,627, Cl. 430-623.000.

Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, to Konishiroku Photo Industry Co., Ltd.; and Hitachi, Ltd. Camera having an automatic exposure control means. 4,268,136, Cl. 354-23.00D.

Ishihara, Kenji: *See—*
Yamaguchi, Yukio; Ishihara, Kenji; and Yonekura, Kikuo, 4,267,853, Cl. 137-67.000.

Ishikawa, Shozo: *See—*
Katagiri, Kazuharu; Ishikawa, Shozo; Ohta, Shigeto; and Kitahara, Makoto, 4,268,595, Cl. 430-48.000.

Ishikawa, Tomihisa: *See—*
Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.

Isono, Katsuo; and Imayasu, Tomoyoshi, to Sony Corporation Beam index color television receiver apparatus. 4,268,857, Cl. 358-67.000.

Issec and Tissages de Soieries Rennis: *See—*
Robillard, Jean J.; and Riou, Claude R., 4,268,600, Cl. 430-142.000.

Itek Corporation: *See—*
Baratelli, Charles A.; and Baratelli, Aletha V., 4,267,923, Cl. 206-5.000.
Ford, Peter W., 4,268,110, Cl. 350-6.700.

Ito, Eiichi: *See—*
Taura, Miyako, 4,268,272, Cl. 44-3.00R.

Ito, Yoshinobu: *See—*
Akiyama, Minoru; Akashi, Kageyasu; Shiga, Tetsuo; Ito, Yoshinobu; Kimura, Takeo; and Matsui, Takeki, 4,268,626, Cl. 430-620.000.

Itoh, Toshi: *See—*
Kobori, Yasunori; Itoh, Toshi; Tokunaga, Yoichi; and Teshima, Tunehiko, 4,268,873, Cl. 360-9.000.

Itoi, Toshihiro, to Kabushiki Kaisha Itoi Seisakusho. Cash box provided with a till. 4,268,076, Cl. 292-216.000.

ITT Industries, Inc.: *See—*
Belart, Juan, 4,267,904, Cl. 188-73.300.

Ivanov, Jury P.; Evstafiev, Evgeny A.; and Tarasov, Alexandr E. Method of assembling middle body of a vessel hull. 4,267,789, Cl. 114-65.00R.

Iwabuchi, Toshiyuki: *See—*
Nakano, Kazuo; Iwabuchi, Toshiyuki; and Yamamoto, Ichiji, 4,268,838, Cl. 346-76.0PH.

Iwaki, Yoshiyuki; and Fujioka, Katsuhiko, to Mitsubishi Denki Kabushiki Kaisha. Alternating current generator with radio noise suppressing capacitor. 4,268,770, Cl. 310-72.000.

Iwakiri, Norio, to Omron Tateisi Electronics Co. Pushbutton pilot switch. 4,268,735, Cl. 200-314.000.

Iwama, Kiyonori: *See—*
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Iwamoto, Akira: *See—*
Mori, Ryutaro; and Iwamoto, Akira, 4,268,141, Cl. 354-35.000.

Iwamoto, Tsutomu: *See—*
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Iwanaga, Kazuyoshi: *See—*
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,267,910, Cl. 192-17.00R.

Iwao, Soichi: *See—*
Doi, Yasuhiko; Iwao, Soichi; and Takagishi, Takaharu, 4,268,163, Cl. 355-14.0SH.

Iwasa, Hitoo: *See—*
Uragaki, Tamotsu; Inoue, Morio; Koike, Susumu; and Iwasa, Hitoo, 4,268,327, Cl. 148-171.000.

Iwasa, Yoshisuke; and Sakura, Shigehiko, to Sumitomo Bakelite Company Limited. Electrical article having electrical coil and method for manufacturing same. 4,268,810, Cl. 336-205.000.

Iwasaki, Yuichiro: *See—*
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Iwata, Masahiro; and Taka, Yuichi, to Pentel Kabushiki Kaisha. Microcapsules having a wall of inorganic substance and process for the preparation thereof. 4,268,411, Cl. 252-316.000.

Iwatsu Electric Co., Ltd.: *See—*
Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, 4,268,162, Cl. 355-14.00R.
Kokaji, Norio; Kinoshita, Kunio; Urano, Toshihiro; and Saitoh, Katsunori, 4,268,872, Cl. 358-301.000.

Iwayama, Kenzo; and Tanaka, Osamu, to Nippon Steel Corporation. Process for producing grain oriented electrical silicon steel sheet. 4,268,326, Cl. 148-113.000.

Iytaka, Tateshi; Matsuo, Syunji; Nagatani, Toshio; Takahashi, Kazuo; and Habu, Takeshi, to Konishiroku Photo Industry Co., Ltd. Method of processing of light-sensitive silver halide photographic material. 4,268,620, Cl. 430-403.000.

Izraeli, Hyman, to Thomas & Betts Corporation. Apparatus for installing cable coverings. 4,267,628, Cl. 29-235.000.

J. B. Foote Foundry Co., The: *See—*
Edwards, Douglas F., 4,267,745, Cl. 74-476.000.

J.C. Penney Company Inc.: *See—*
Beck, Joseph H.; and Orilio, Paul F., 4,267,967, Cl. 236-49.000.

J. Hengstler K.G.: *See—*
Pfeiffer, Horst, 4,268,743, Cl. 235-130.00R.

J. I. Case Company: *See—*
Engelmann, Roger F.; and Thurler, James E., 4,268,057, Cl. 280-474.000.

J. M. Voith GmbH: *See—*
Schiel, Christian, 4,267,644, Cl. 34-110.000.

Jacob, Guy M.; and Boulou, Michel, to U.S. Philips Corporation Electroluminescent gallium nitride semiconductor device. 4,268,842, Cl. 357-17.000.

Jacobson, Peter E., to Sperry Corporation. Force balanced vibratory rate sensor. 4,267,731, Cl. 73-505.000.

Jacquet, Maurice A., to Societe Anonyme Francaise du Ferodo. Air distribution device. 4,267,880, Cl. 165-41.000.

Jaedicke, Hagen, to BASF Aktiengesellschaft. Preparation of polyenealdehydes. 4,268,444, Cl. 260-340.700.

Jahn, Kornel: *See—*
Hanke, Reinhard; and Jahn, Kornel, 4,268,382, Cl. 209-273.000.

Jakubowski, Thomas M.; and Wood, William G., to Kolene Corp. Process for case hardening steel. 4,268,323, Cl. 148-15.500.

Jankowiak, Roman: *See—*
Naab, Carlton W.; and Jankowiak, Roman, 4,267,854, Cl. 137-72.000.

Janome Sewing Machine Co. Ltd.: *See—*
Hanyu, Susumu; Kasuga, Noboru; Hara, Kazumasa; and Watanabe, Koichi, 4,267,786, Cl. 112-168.000.

Janssen Pharmaceutica N.V.: *See—*
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,268,680, Cl. 548-336.000.

Japan Synthetic Rubber Co., Ltd.: *See—*
Shimokawa, Shin-ichi; Yamamoto, Yuji; and Nagai, Hisao, 4,268,638, Cl. 525-263.000.
Yoshida, Yoshinori; and Oka, Hiroshi, 4,268,447, Cl. 260-346.110.

Jarl, Stig; Eker, Per-Olof; and Davidsson, Peter, to AB Volvo. Vehicle gearbox. 4,267,741, Cl. 74-339.000.

Jaskolski, Stanley V.: *See—*
Spellman, Gordon B.; Schutten, Herman P.; and Jaskolski, Stanley V., 4,268,846, Cl. 357-38.000.

Jellinek, Karl; and Muller, Rolf, to Rutgerswerke Aktiengesellschaft. Binder for cellulose fiber reinforced board material. 4,268,649, Cl. 525-504.000.

Jervis, James E., to Raychem Corporation. Process for preparing a hermetically sealed assembly. 4,268,329, Cl. 156-51.000.

Jeschke, Peter: *See—*
Eschner, Axel; Leupold, Hermann; and Jeschke, Peter, 4,268,016, Cl. 266-236.000.

Jidosha Kiki Co. Ltd.: *See—*
Takeshima, Sadao, 4,267,897, Cl. 180-143.000.

Jimmy Dean Meat Company, Inc., The: *See—*
Bernard, Vincent E., 4,268,532, Cl. 426-231.000.

Jitsumori, Tsuneharu. Automobile mirror device. 4,268,120, Cl. 350-302.000.

Johann, Donald F.; and Mendenhall, Charles E., to Sperry Rand Corporation. Autonomous fault diagnosis for disk drive using an internal microprocessor. 4,268,905, Cl. 364-200.000.

John Blue Company: *See—*
Johnston, Douglas, 4,267,971, Cl. 239-11.000.

Johnson, Axel R.; and Woebcke, Herman N. Sequential thermal cracking process. 4,268,375, Cl. 208-72.000.

Johnson, Bruce K., to Polaroid Corporation. Camera with folding flash unit. 4,268,146, Cl. 354-145.000.

Johnson, Charles M., to Napco, Inc. Article treating machine. 4,268,206, Cl. 414-222.000.

Johnson Controls, Inc.: *See—*
Everett, William F., 4,267,965, Cl. 236-1.00G.
Trobaugh, Arnold G., 4,268,383, Cl. 210-103.000.

Johnson, Donald T., to Owens-Corning Fiberglas Corporation. Method and apparatus for forming glass filaments. 4,268,292, Cl. 65-2.000.

Johnson, Gordon E.: *See—*
Schank, Richard L.; and Johnson, Gordon E., 4,268,840, Cl. 346-135.100.

Johnson & Johnson: *See—*
Lazar, Lawrence S.; and Wittemann, Robert F., 4,267,840, Cl. 128-303.130.
Sung, Pei; Klaus, Irving; and Lee-You, James, 4,268,308, Cl. 75-171.000.

Johnson, Luther M.: *See—*
Higgins, Bobby L.; and Johnson, Luther M., 4,268,730, Cl. 200-52.00R.

Johnson, Michael R.: *See—*
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,523, Cl. 424-308.000.
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,692, Cl. 568-326.000.

Johnson, Stephen C., to Signetics Corporation. Conditioning circuit for use with I^2L and ISL logic arrays embodying two power supplies. 4,268,763, Cl. 307-605.000.

Johnston, Douglas, to John Blue Company. Method and means of presetting the output rate of a centrifugal pump agricultural metering system. 4,267,971, Cl. 239-11.000.

Johnston, Thomas F., Jr.; and Proffitt, William P., to Coherent, Inc. Vertex-mounted tipping Brewster plate for a ring laser. 4,268,800, Cl. 331-94.50C.

Jolicoeur, Gerald D.: *See—*
Hicks, Arthur W.; and Jolicoeur, Gerald D., 4,267,817, Cl. 126-60.000.

Jones, Charles: *See—*
Corwin, Howard R.; and Jones, Charles, 4,268,231, Cl. 418-60.000.

Jones, Elwyn D., to Glopak Industries Limited. Method and apparatus for coupon insertion. 4,268,344, Cl. 156-383.000.

Jones, Larren F.: *See—*
Hahn, Frederick C.; and Jones, Larren F., 4,267,653, Cl. 37-142.00A.

Jones, Thomas H.: *See—*
Muzyczko, Thaddeus M.; and Jones, Thomas H., 4,268,608, Cl. 430-270.000.

Jorgensen, Villy E.: *See—*
Mogensen, Vagn; Jorgensen, Villy E.; and Krebs, Peter, 4,267,878, Cl. 164-187.000.

Joyce, James F.: *See—*
Gedeon, Harvey; Joyce, James F.; and Kellner, David, 4,268,498, Cl. 424-59.000.

Juguin, Bernard: *See—*
Dang Vu, Quang; Juguin, Bernard; Torck, Bernard; and Hellin, Michel, 4,268,700, Cl. 585-302.000.

Jundt, Werner: *See—*
Bodig, Bernd; and Jundt, Werner, 4,268,888, Cl. 361-236.000.

Jung, Johann: *See—*
Platz, Rolf; Fuchs, Werner; Rieber, Norbert; Samel, Ulf-Rainer; Jung, Johann; and Wuerzer, Bruno, 4,268,300, Cl. 71-76.000.

Kabushiki Kaisha Itoi Seisakusho: *See—*
Itoi, Toshihiro, 4,268,076, Cl. 292-216.000.

Kabushiki Kaisha Ricoh: *See—*
Kojima, Kenji, 4,268,026, Cl. 271-121.000.

Kabushiki Kaisha Togawa Gomu Seizosho: *See—*
Yamaguchi, Yukio; Ishihara, Kenji; and Yonekura, Kikuo, 4,267,853, Cl. 137-67.000.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Nakayama, Shozo; Kato, Kimio; and Fujii, Tomoo, 4,268,225, Cl. 417-269.000.

Kagota, Nobuhiro: *See—*
Tsukahara, Hirokazu; Fuchigami, Mitsuru; and Kagota, Nobuhiro, 4,268,634, Cl. 525-471.000.

Kalfoglou, George, to Texaco Inc. Lignosulfonates carboxylated with chloroacetic acid as additives in oil recovery processes involving chemical recovery agents. 4,267,886, Cl. 166-273.000.

Kamada, Kensuke: *See—*
Shindo, Mizuo; Yamamoto, Takashi; and Kamada, Kensuke, 4,268,279, Cl. 55-16.000.

Kamakur, Masatoshi: *See—*
Yamagiwa, Kazuo; Kamakur, Masatoshi; and Numakura, Toshihiko, 4,268,874, Cl. 360-10.000.

Kambara, Masahiro: *See—*
Morio, Minoru; Kambara, Masahiro; Kubota, Yukio; and Yamashita, Keitaro, 4,268,875, Cl. 360-10.000.

Kamiya, Tadashi, to Honda Giken Kogyo Kabushiki Kaisha. Vehicle tire with tread having circumferentially varying rigidity. 4,267,872, Cl. 152-209.00D.

Kamiyama, Hiroharu: *See—*
Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, 4,268,614, Cl. 430-315.000.

Kamogawa, Nin-ichi; and Yamazaki, Yoshio, to Konishiroku Photo Industry Co., Ltd. Apparatus for developing electrostatic latent image. 4,267,796, Cl. 118-658.000.

Kanai, Takao: *See—*
Nishikawa, Yasuhisa; and Kanai, Takao, 4,267,739, Cl. 74-10.330.

Kanamori, Kyozo: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.

Kanda, Mutsumi; Nakanishi, Kiyoshi; and Motosugi, Katsuhiko, to Toyota Jidosha Kogyo Kabushiki Kaisha. High compression type internal combustion engine. 4,267,806, Cl. 123-287.000.

Kandler, Joachim: *See—*
Ahlgrim, Michael; Mietens, Gerhard; Dany, Franz-Josef; and Kandler, Joachim, 4,268,404, Cl. 252-25.000.

Kangafuchi Kagaku Kogyo Kabushiki Kaisha: *See—*
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Iizima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,372, Cl. 204-252.000.
Suzuki, Kazuo; and Yokota, Kenichi, 4,268,430, Cl. 260-37.00R.

Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, to Kobe Steel, Limited. Direct reduction process for producing reduced iron. 4,268,303, Cl. 75-34.000.

Kano, Toshiji: *See—*
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Iizima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,372, Cl. 204-252.000.

Kansai Electric Power Co. Inc., The: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.

Kansas City Structural Steel Co.: *See—*
Harrow, James E.; and Kenney, Robert T., II, 4,268,196, Cl. 408-39.000.

Kantz, John F., to Union Carbide Corporation. Wide-folding hinge. 4,268,555, Cl. 428-35.000.

Kao Soap Company: *See—*
Kawada, Tsukasa; and Tanaka, Yukitaka, 4,268,534, Cl. 426-607.000.

Kaplan, Dov, to Dickey-john Corporation. System for monitoring the movement of objects particularly the feeding of seeds. 4,268,825, Cl. 340-684.000.

Karikas, John J., to General Electric Company. Method and apparatus for handling and dispensing hygroscopic pellets. 4,267,943, Cl. 222-1.000.

Karl Mayer Textilmaschinenfabrik GmbH: *See—*
Hittel, Gerhard, 4,267,709, Cl. 66-87.000.

Karrenbauer, Kurt: *See—*
Behringer, Hartmut; and Karrenbauer, Kurt, 4,268,437, Cl. 260-141.000.

Kashima, Yoshinobu: *See—*
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Kashiwara, Tomokazu: *See—*
Kimura, Tamisuke; Kashiwara, Tomokazu; and Yamaguchi, Tetsuo, 4,267,792, Cl. 114-219.000.

Kasuga, Noboru: *See—*
Hanyu, Susumu; Kasuga, Noboru; Hara, Kazumasa; and Watanabe, Koichi, 4,267,786, Cl. 112-168.000.

Katagiri, Kazuharu; Ishikawa, Shozo; Ohta, Shigeto; and Kitahara, Makoto, to Copyer Co., Ltd. Electrostatic recording material and method for the production thereof. 4,268,595, Cl. 430-48.000.

Kato, Eiichi: *See—*
Adachi, Keiichi; Kato, Eiichi; Inoue, Nobuaki; and Kojima, Tetsurou, 4,268,622, Cl. 430-513.000.

Kato, Kimio: *See—*
Nakayama, Shozo; Kato, Kimio; and Fujii, Tomoo, 4,268,225, Cl. 417-269.000.

Kato, Satoshi: *See—*
Onishi, Shigeru; and Kato, Satoshi, 4,268,461, Cl. 261-39.00B.

Katoh, Michio: *See—*
Ibata, Jyoji; Fukui, Hisaaki; Yuasa, Takeo; and Katoh, Michio, 4,268,337, Cl. 156-244.170.

Katsuragi, Tadakatsu: *See—*
Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiiba, Kiyonori, 4,268,362, Cl. 203-28.000.

Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, to Fujitsu Fanuc Limited. DC Motor drive system. 4,268,781, Cl. 318-434.000.

Kawada, Shigeki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Ohta, Naoto, to Fujitsu Fanuc Limited. Control system for a DC motor. 4,268,782, Cl. 318-434.000.

Kawada, Tsukasa; and Tanaka, Yukitaka, to Kao Soap Company. Method for producing hard butter. 4,268,534, Cl. 426-607.000.

Kawai, Hisasi: *See—*
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Kawai Musical Instrument Mfg. Co. Ltd.: *See—*
Deutsch, Ralph, 4,267,761, Cl. 84-1.010.

Kawakami, Katsuhiko; Komori, Kenji; and Megumi, Hiroshi, to Nippon Mining Co., Ltd. Method for removing and treating waste catalyst. 4,268,414, Cl. 252-412.000.

Kawakami, Tomiko: *See*—
Sasaki, Masaomi; Hashimoto, Mitsuru; and Kawakami, Tomiko, 4,268,596, Cl. 430-72.000.

Kawamura, Naoto, to Canon Kabushiki Kaisha. Scanning optical system for formation of a half tone image. 4,268,871, Cl. 358-298.000.

Kawamura, Naoto: *See*—
Kitamura, Takashi; Sakamaki, Hisashi; and Kawamura, Naoto, 4,268,870, Cl. 358-296.000.

Kawamura, Shigeo: *See*—
Konno, Yutaka; and Kawamura, Shigeo, 4,268,501, Cl. 424-80.000.

Kawanobe, Kouhei: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See*—
Goto, Takeshi; Tanaka, Akio; and Suzuki, Yasuo, 4,267,975, Cl. 239-83.000.

Kawashima, Yutaka: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Kawata, Toshiro: *See*—
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Kawneer Company, Inc.: *See*—
Coulston, Ellwin L., 4,267,673, Cl. 52-97.000.

Kearns, William J., to New World Computer Company, Inc. Gas circulation and filtration apparatus for magnetic disc recording systems. 4,268,878, Cl. 360-97.000.

Keeler Brass Company: *See*—
Deshaw, Walter R., 4,268,122, Cl. 350-307.000.

Keeley, Donald E., to General Electric Company. Organic materials having meta, para-isopropylidene diphenoxy units and method. 4,268,647, Cl. 525-474.000.

Keene Corporation: *See*—
Black, Charles H.; and Eskow, Cary N., 4,267,916, Cl. 194-102.000.

Keil, Joseph W., to Dow Corning Corporation. Antiperspirant emulsion compositions. 4,268,499, Cl. 424-68.000.

Keim, William A.; and Cook, James A., Jr., to PPG Industries, Inc. Process for preparing chlorothiolformates. 4,268,456, Cl. 260-455.00R.

Kekas, Dennis H.; McAdams, Ronald P.; and Polischuk-Sawtschenko, Alexander, to International Business Machines Corporation. Pivotally mounted printed circuit board holder. 4,268,100, Cl. 339-17.0LM.

Kell, Ralph W., to Goodyear Tire & Rubber Company, The. Anti-backbend belts. 4,267,921, Cl. 198-847.000.

Keller, Morris C.; and Rustin, Francis. Suspended watering system for poultry house. 4,267,800, Cl. 119-72.500.

Kellner, David: *See*—
Gedeon, Harvey; Joyce, James F.; and Kellner, David, 4,268,498, Cl. 424-59.000.

Kendall Company, The: *See*—
Harris, George M.; and Thomas, Samuel J., 4,268,334, Cl. 156-187.000.

Kennedy, Richard B., Sr. Ski accessory transportation and storage system. 4,268,050, Cl. 280-38.000.

Kenney, Robert T., II: *See*—
Harrow, James E.; and Kenney, Robert T., II, 4,268,196, Cl. 408-39.000.

Kent, Peter; Norris, Richard M.; and Charlton, Alan J., to Avco Corporation. Multichannel particle separator of the anti-icing type. 4,268,284, Cl. 55-269.000.

Kent, Raymond W., Jr., to Dow Chemical Company, The. Color styrene-acrylonitrile polymers. 4,268,652, Cl. 526-217.000.

Kepco, Inc.: *See*—
Nercessian, Sarkis, 4,268,790, Cl. 323-318.000.

Kerber, Hermann: *See*—
Bederke, Klaus; and Kerber, Hermann, 4,268,659, Cl. 528-288.000.

Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See*—
Hemmerich, Johann, 4,267,707, Cl. 62-514.00R.

Kershner, Stuart D., to Olin Corporation. Four bar linkage fastener loader. 4,267,952, Cl. 227-9.000.

Khan, Farooq A., to NL Industries, Inc. Crane motion compensator. 4,268,013, Cl. 254-392.000.

Kidder, Kent A. Electrical connector. 4,268,104, Cl. 339-98.000.

Kido, Keishiro: *See*—
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, 4,268,541, Cl. 427-177.000.

Kielhorn, Larry L. Stake for animal traps. 4,267,660, Cl. 43-96.000.

Kiellarson, Folke: *See*—
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,267,937, Cl. 220-267.000.
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,268,336, Cl. 156-244.130.

Kiencke, Uwe: *See*—
Espenschied, Helmut; Kiencke, Uwe; and Schulz, Alfred, 4,267,750, Cl. 74-866.000.

Kienholz, Charles M.; and Bennett, Clifford D., to C. R. Bard, Inc. Nebulizer device. 4,267,974, Cl. 239-74.000.

Kijima, Yoshihiko: *See*—
Imanaka, Hiroshi; and Kijima, Yoshihiko, 4,268,570, Cl. 428-216.000.

Kikuchi, Makoto: *See*—
Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, 4,268,409, Cl. 252-301.10W.

Killian, Daniel L.; and Fraser, Peter E., to Automotive Products Limited. Fluid connections to rotary members. 4,268,044, Cl. 277-59.000.

Kimball International, Inc.: *See*—
Sullivan, Richard D.; and Knies, Allen E., 4,267,759, Cl. 83-665.000.

Kimihira, Yuichi: *See*—
Miki, Yusaku; Yamamoto, Hidemi; Kimihira, Yuichi; and Tanaka, Akio, 4,268,903, Cl. 364-200.000.

Kimura, Takeo: *See*—
Akiyama, Minoru; Akashi, Kageyasu; Shiga, Tetsuo; Ito, Yoshinobu; Kimura, Takeo; and Matsui, Takeki, 4,268,626, Cl. 430-620.000.

Kimura, Tamisuke; Kashiwara, Tomokazu; and Yamaguchi, Tetsuo, to Sumitomo Rubber Industries, Ltd. Elastically deformable fender. 4,267,792, Cl. 114-219.000.

Kimura, Teruo: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, 4,268,539, Cl. 427-108.000.

Kimura, Yoshio: *See*—
Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, 4,268,303, Cl. 75-34.000.

Kindell, Jerry L.; and Flynn, Richard T., to Honeywell Information Systems Inc. Numeric data fetch - alignment of data including scale factor difference. 4,268,909, Cl. 364-200.000.

Kingsdown Medical Consultants Limited: *See*—
Steer, Peter L.; and Edwards, John V., 4,268,286, Cl. 55-278.000.

Kinoshita, Kunio: *See*—
Kokaji, Norio; Kinoshita, Kunio; Urano, Toshihiro; and Saitoh, Katsunori, 4,268,872, Cl. 358-301.000.

Kirmaier, Norbert L.: *See*—
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.

Kishikawa, Shinobu: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.

Kishimoto, Kazuo: *See*—
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Iizima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,372, Cl. 204-252.000.

Kita, Yasuo; and Nishiyama, Yukinori, to Sumitomo Electric Industries, Ltd. Disk brake apparatus for motor vehicle. 4,267,903, Cl. 188-72.600.

Kitahara, Makoto: *See*—
Katagiri, Kazuharu; Ishikawa, Shozo; Ohta, Shigeto; and Kitahara, Makoto, 4,268,595, Cl. 430-48.000.

Kitajima, Masao: *See*—
Shinozaki, Fumiaki; Namiki, Tomizo; Kitajima, Masao; Ikeda, Tomoaki; and Mizobuchi, Yuzo, 4,268,575, Cl. 428-336.000.

Kitamura, Takashi; Sakamaki, Hisashi; and Kawamura, Naoto, to Canon Kabushiki Kaisha. Recording apparatus for reading information from an original. 4,268,870, Cl. 358-296.000.

Kitatani, Katuzi: *See*—
Sera, Hidefumi; Kitatani, Katuzi; Ogawa, Masasi; Ishigaki, Kunio; and Shiraishi, Hisashi, 4,268,627, Cl. 430-623.000.

Kiuchi, Masayoshi: *See*—
Sugiura, Yoji; and Kiuchi, Masayoshi, 4,268,153, Cl. 354-234.000.

Kiyohara, Takehiko: *See*—
Uchiyama, Takashi; Tsunekawa, Tokuichi; and Kiyohara, Takehiko, 4,268,139, Cl. 354-34.000.

Klaus, Irving: *See*—
Sung, Pei; Klaus, Irving; and Lee-You, James, 4,268,308, Cl. 75-171.000.

Klavan, Irving L.; Calabrese, Peter J.; Finch, Theron R.; Greenberg, Arthur; and McElroy, Robert P., to Philip A. Hunt Chemical Corp. Method, apparatus and compositions for liquid development of electrostatic images. 4,268,597, Cl. 430-102.000.

Klein, Edgar: *See*—
Becker, Heinrich; Klein, Edgar; Rosendahl, Franz; and Weber, Helmut, 4,268,422, Cl. 252-461.000.

Klein, Joseph T.: *See*—
Effland, Richard C.; Davis, Larry; and Klein, Joseph T., 4,268,515, Cl. 424-267.000.

Klein, Raphael: *See*—
Toole, Monte M.; and Klein, Raphael, 4,268,538, Cl. 427-93.000.

Klingaman, Richard M.; and Ehrenreich, Leo C., to Penn Virginia Corporation. Pyroplastoid particles, composition and method of production. 4,268,320, Cl. 106-288.00B.

Kloke, Werner, to Gandy, Prem. Illuminated sign. 4,267,657, Cl. 40-549.000.

Klose, Sigmar; Batz, Hans-Georg; Stoltz, Michael; Hagen, Alexander; and Weimann, Gunter, to Boehringer Mannheim GmbH. Method for the determination of α-amylase. 4,268,628, Cl. 435-22.000.

Klotz, Marvin R., to Standard Oil Company (Indiana). Hydrocarbon-conversion catalyst and its method of preparation. 4,268,420, Cl. 252-432.000.

Kmonk, Stanley; Alder, John L.; and Racki, Francis R., to Westinghouse Electric Corp. Nuclear reactor fuel assembly grid. 4,268,356, Cl. 176-78.000.

Knabke, James J., to FMC Corporation. Synergistic insecticidal combinations comprising methomyl and 2-dihalovinyl-3,3-dimethylcyclopropanecarboxylates. 4,268,521, Cl. 424-298.000.

Knapp, Carl L.: *See*—
Schildkraut, Alan L.; Luca, Vincent A., Jr.; and Knapp, Carl L., 4,268,103, Cl. 339-89.00M.

Knapp, Robert F.: *See*—
Davis, Murray W.; Diedzic, Matthew J.; Knapp, Robert F.; and Whitney, Bruce F., 4,268,818, Cl. 340-870.380.

Knies, Allen E.: *See*—
Sullivan, Richard D.; and Knies, Allen E., 4,267,759, Cl. 83-665.000.

Knifton, John F., to Texaco Development Corp. Manufacture of vicinal glycol esters from synthesis gas. 4,268,689, Cl. 560-263.000.

Kobayashi, Masahiro: *See*—
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, 4,268,464, Cl. 264-22.000.

Kobayasi, Sohei, to Modern Machinery Company, Ltd.; and Small Business Promotion Corporation. Feeding mechanism of bag manufacturing machine. 4,268,260, Cl. 493-194.000.

Kobe, Inc.: *See*—
Erickson, John W., 4,268,281, Cl. 55-92.000.
Williams, Carter P., 4,267,964, Cl. 233-21.000.

Kobe Steel, Limited: *See*—
Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, 4,268,303, Cl. 75-34.000.
Nakagawa, Kazuhiko; Fujieda, Yasuhiko; Hara, Shozo; Tanaka, Toshikazu; and Taira, Akira, 4,268,219, Cl. 414-786.000.

Kobori, Toshio; and Miyamoto, Takayoshi, to Minolta Camera Kabushiki Kaisha. Viewfinder dioptry adjusting device for single-lens reflex cameras. 4,268,151, Cl. 354-219.000.

Kobori, Yasunori; Itoh, Toshi; Tokunaga, Yoichi; and Teshima, Tunehiko, to Hitachi, Ltd. Servo circuit for rotary heads of a video tape recorder. 4,268,873, Cl. 360-9.000.

Kocay, Witold R., to Monsanto Company. Fabric suitable for making sandbags and method for making the same. 4,267,864, Cl. 139-420.00R.

Koenig, Harvey S.; and Bryant, George M., to Union Carbide Corporation. Acrylic acid-acrylate copolymer thickening agents. 4,268,641, Cl. 525-367.000.

Kohler, Karl A.: *See*—
House, Richard F.; Kohler, Karl A.; and Lewis, Philip W., 4,267,956, Cl. 229-30.000.

Kohmann GmbH & Co., Firma: *See*—
Kohmann, Karl-Heinz; and Heiber, Wolfgang, 4,268,261, Cl. 493-231.000.

Kohmann, Karl-Heinz; and Heiber, Wolfgang, to Kohmann GmbH & Co., Firma. Machine for the production of packaging wrappers. 4,268,261, Cl. 493-231.000.

Koike, Norio; Hanamura, Shoji; and Kubo, Masaharu, to Hitachi, Ltd. Solid-state imaging device. 4,268,845, Cl. 357-30.000.

Koike, Susumu: *See*—
Uragaki, Tamotsu; Inoue, Morio; Koike, Susumu; and Iwasa, Hitoo, 4,268,327, Cl. 148-171.000.

Koike, Toshio: *See*—
Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, 4,268,162, Cl. 355-14.00R.

Kojima, Kenji, to Kabushiki Kaisha Ricoh. Sheet supply means for a reproducing apparatus. 4,268,026, Cl. 271-121.000.

Kojima, Tetsurou: *See*—
Adachi, Keiichi; Kato, Eiichi; Inoue, Nobuaki; and Kojima, Tetsurou, 4,268,622, Cl. 430-513.000.

Kokaji, Norio; Kinoshita, Kunio; Urano, Toshihiro; and Saitoh, Katsunori, to Iwatsu Electric Co., Ltd. Magnetic duplicator with multiple copies. 4,268,872, Cl. 358-301.000.

Koks, Marinus F., to Hunter Douglas International N.V. Sliding clutch for venetian blind. 4,267,875, Cl. 160-176.00R.

Kokubo, Eiichi; and Miyagawa, Tuyoshi, to Laurel Bank Machine Co., Ltd. Bank note holding method for bank note counting machine. 4,268,024, Cl. 271-95.000.

Kolene Corp.: *See*—
Jakubowski, Thomas M.; and Wood, William G., 4,268,323, Cl. 148-15.500.

Kollmar, Friedrich: *See*—
Handte, Herbert; and Kollmar, Friedrich, 4,268,794, Cl. 328-185.000.

Kolze, Lawrence A., to Eaton Corporation. Control system for laundry appliance. 4,267,711, Cl. 68-12.00R.

Komabashiri, Takamichi: *See*—
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Iizima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,372, Cl. 204-252.000.

Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, to Mitsubishi Gas Chemical Company, Inc. Process for producing terephthalic acid of high purity. 4,268,690, Cl. 562-416.000.

Komatsu, Tadaaki; Araki, Yuusuke; and Inoue, Kanji, to Bridgestone Tire Company Limited. Green tire building process and apparatus. 4,268,330, Cl. 156-111.000.

Komatsu, Takayoshi: *See*—
Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, 4,268,614, Cl. 430-315.000.

Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH: *See*—
Oehler, Hermann, 4,267,755, Cl. 83-423.000.

Kommanditbolaget United Stirling AB & Co.: *See*—
Lindskoug, Per S., 4,267,696, Cl. 60-526.000.

Kommandittiyhtio Finnpipette Osmo A. Suovaniemi: *See*—
Suovaniemi, Osmo A.; and Tervamaki, Jukka, 4,268,481, Cl. 422-100.000.

Komori, Kenji: *See*—
Kawakami, Katsuhiko; Komori, Kenji; and Megumi, Hiroshi, 4,268,414, Cl. 252-412.000.

Kondo, Isao; and Nakajima, Yukio, to Olympus Optical Co., Ltd. Electrically-controlled shutter for automatic exposure camera. 4,268,140, Cl. 354-34.000.

Kondo, Kiyosi; Fujimoto, Tamotsu; Suda, Minoru; and Tunemoto, Daiei, to Sagami Chemical Research Center. Process for preparing aromatic acetic acid. 4,268,442, Cl. 260-326.200.

Kondo, Shinichi: *See*—
Umezawa, Hamao; and Kondo, Shinichi, 4,268,664, Cl. 536-10.000.

Konishiroku Photo Industry Co., Ltd.: *See*—
Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, 4,268,136, Cl. 354-23.00D.
Iytaka, Tateshi; Matsuo, Syunji; Nagatani, Toshio; Takahashi, Kazuo; and Habu, Takeshi, 4,268,620, Cl. 430-403.000.
Kamogawa, Nin-ichi; and Yamazaki, Yoshio, 4,267,796, Cl. 118-658.000.
Muramatsu, Toshio, 4,268,160, Cl. 355-3.00R.
Ogi, Keiji; Sasaki, Takashi; Okaniwa, Kenichiro; and Tosaka, Yasuo, 4,268,621, Cl. 430-409.000.
Yajima, Tatsuo; and Nakamura, Hiroya, 4,268,164, Cl. 355-41.000.

Konno, Yutaka; and Kawamura, Shigeo, to Yamanouchi Pharmaceutical Co., Ltd. Suppositories containing a compound having bronchodilator activity. 4,268,501, Cl. 424-80.000.

Kontos, Stavros B., to Critikon, Inc. Controlled volume blood sampling syringe. 4,267,846, Cl. 128-765.000.

Koritsu Machine Industrial Limited: *See*—
Tsuzuki, Akira; and Tobitani, Hiroshi, 4,268,360, Cl. 202-270.000.

Korterod, Lars; Strand, Arne; Ellingsen, Odd; and Broen, Harry, to Tubefabrikken A/S. Lid arrangement for a ski wax can with a tear-off casing. 4,267,929, Cl. 206-603.000.

Korth, Otto H.: *See*—
Toppins, Charles R.; Williams, Cecil L.; and Korth, Otto H., 4,268,053, Cl. 280-154.000.

Kosaka, Masaki: *See*—
Suzuki, Hajime; Masuda, Ikuo; and Kosaka, Masaki, 4,268,579, Cl. 428-413.000.

Koshimaru, Shigeru: *See*—
Kurakami, Osamu; Koshimaru, Shigeru; and Yamanaka, Takashi, 4,268,847, Cl. 357-52.000.

Koshkin, Lev N.; Semenov, Valery M.; Repin, Jury A.; Pozdnyakov, Anatoly M.; and Lutskov, Nikolai Z. Machine for moulding articles from thermoplastic polymeric materials. 4,268,243, Cl. 425-575.000.

Kostiner, Edward. Washing apparatus for photographic materials. 4,268,156, Cl. 354-324.000.

Kotzschke, Gunter: *See*—
Serbent, Harry; Rosenstock, Friedrich; and Kotzschke, Gunter, 4,268,304, Cl. 75-36.000.

Koumura, Noboru: *See*—
Fujii, Motoharu; Koumura, Noboru; Ayata, Naoki; and Sato, Yasushi, 4,268,841, Cl. 346-138.000.

Kourimsky, Josef A.; and Nix, Lothar H. W., to AMP Incorporated. Electrical switch. 4,268,731, Cl. 200-67.0AA.

Kovtun, Jury L.: *See*—
Srapeniants, Rigo A.; Saveliev, Igor B.; Kovtun, Jury L.; Sidorov, Alexandr V.; Tsagolov, Kim S.; and Miroshnikova, Nadezhda N., 4,268,754, Cl. 250-391.000.

Koziol, Walter. Universal burner element for a gas barbecue grill. 4,267,816, Cl. 126-41.00R.

Kraftwerk Union Aktiengesellschaft: *See*—
Weber, Robert; Ring, Stefan; and Heeschen, Ulf, 4,268,755, Cl. 250-506.000.

Krause, Peter: *See*—
Krause, Ulrich; and Krause, Peter, 4,268,187, Cl. 404-118.000.

Krause, Ulrich; and Krause, Peter. Drag-type spreading apparatus for road construction mixtures. 4,268,187, Cl. 404-118.000.

Krebs, Peter: *See*—
Mogensen, Vagn; Jorgensen, Villy E.; and Krebs, Peter, 4,267,878, Cl. 164-187.000.

Kretchman, Gerald L.; and Weir, Robert M., to Whirlpool Corporation. Retaining clip for removable cabinet for front-serviceable appliances. 4,268,098, Cl. 312-210.000.

Kronos Titan G.m.b.H.: *See*—
Becker, Heinrich; Klein, Edgar; Rosendahl, Franz; and Weber, Helmut, 4,268,422, Cl. 252-461.000.

Kropp, Rudolf; Thoemel, Frank; Nuerrenbach, Axel; Hoffman, Werner; Wenisch, Franz; and Fuchs, Hartwig, to BASF Aktiengesell-

schaft. Preparation of bicyclic enol-ethers, and novel ethers of 2-(3-hydroxyprop-1-yl)-cycloalkanones. 4,268,445, Cl. 260-345.200.

Kruckenberg, Winfried, to Bayer Aktiengesellschaft. Basic azo dyestuffs having benzylammoniumamine substituent in the coupling component. 4,268,439, Cl. 260-205.000.

Kruger, Dietrich: *See*—
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.

Krusche, Georg: *See*—
Kurze, Joachim; Fikentscher, Rolf; and Krusche, Georg, 4,268,402, Cl. 252-8.800.

Krutak, James J., Sr.: *See*—
Haase, Jan R.; Landholm, Richard A.; and Krutak, James J., Sr., 4,268,606, Cl. 430-223.000.

Kubo, Masaharu: *See*—
Koike, Norio; Hanamura, Shoji; and Kubo, Masaharu, 4,268,845, Cl. 357-30.000.

Kubota, Ltd.: *See*—
Miyata, Junji; and Kurohara, Kazuaki, 4,268,056, Cl. 280-456.00A.
Teraoka, Akira; and Nakada, Mitsugu, 4,268,048, Cl. 280-5.00A.

Kubota, Yoshitaka: *See*—
Minc, Katsutoshi; Kubota, Yoshitaka; and Maruyama, Tsuneo, 4,268,452, Cl. 260-37.0SB.

Kubota, Yukio: *See*—
Morio, Minoru; Kambara, Masahiro; Kubota, Yukio; and Yamashita, Keitaro, 4,268,875, Cl. 360-10.000.

Kuehnhanss, Gerhard O., to Ethyl Corporation. Method for the preparation of furan-2-carboxylic acid amide and the corresponding furan-2-carboxylic acid. 4,268,449, Cl. 260-347.300.

Kuenemund, Friedrich: *See*—
Betzl, Hermann; and Kuenemund, Friedrich, 4,268,806, Cl. 333-165.000.

Kuhn, Lawrence: *See*—
Aviram, Ari; Pennington, Keith S.; and Kuhn, Lawrence, 4,268,368, Cl. 204-181.00C.

Kumagai, Hiroji: *See*—
Naganuma, Tsutomu; Hoshi, Hisao; Kumagai, Hiroji; and Yoshida, Kaneki, 4,268,158, Cl. 355-3.00R.

Kunkel, Heinrich: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Kunz, Bernard L.; and Hargraves, David P., to Emerson Electric Co. Modulating diaphragm valve. 4,268,006, Cl. 251-11.000.

Kuo, Mau-Jung: *See*—
Tolbert, William R.; Kuo, Mau-Jung; and Feder, Joseph, 4,268,629, Cl. 435-41.000

Kurakami, Osamu; Koshimaru, Shigeru; and Yamanaka, Takashi, to Nippon Electric Co., Ltd. Semiconductor device having an insulated gate type field effect transistor and method for producing the same 4,268,847, Cl. 357-52.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Iizuka, Yo; Yusa, Haruhiko; Midorikawa, Susumu, deceased; and Midorikawa, Taeko, heir, 4,268,636, Cl. 525-85.000.
Yoshikumi, Chikao; Omura, Yoshio; and Hotta, Tetsuya, 4,268,505, Cl. 424-180.000.

Kurhajec, George A.: *See*—
Leseman, Ronald P.; and Kurhajec, George A., 4,268,598, Cl. 430-107.000.

Kurohara, Kazuaki: *See*—
Miyata, Junji; and Kurohara, Kazuaki, 4,268,056, Cl. 280-456.00A.

Kuromori, Mitsuo: *See*—
Ebisawa, Kiyohito; Hisabayashi, Satoshi; Hashimoto, Kazuyuki; Kuromori, Mitsuo; and Koike, Toshio, 4,268,162, Cl. 355-14.00R.

Kurze, Joachim; Fikentscher, Rolf; and Krusche, Georg, to BASF Aktiengesellschaft. Liquefaction of aqueous textile softeners. 4,268,402, Cl. 252-8.800.

Kusakabe, Hiromi, to Tokyo Shibaura Denki Kabushiki Kaisha. Frequency converting circuit. 4,268,916, Cl. 455-333.000.

Kusters, Eduard: *See*—
Gruber, Heinz, 4,267,712, Cl. 68-205.00R.

Kuth, Robert: *See*—
Hendricks, Udo-Winfried; Hildebrand, Dietrich; and Kuth, Robert, 4,268,266, Cl. 8-543.000.

KW Research and Development: *See*—
Wheeler, Alton D., 4,268,144, Cl. 354-108.000.

Kwanyuen, Prachuab: *See*—
Wildman, Samuel G.; and Kwanyuen, Prachuab, 4,268,632, Cl. 435-232.000.

Kwok, Clyde C. K.; and Suchy, Leszek, to Rippingille, Edward V., Jr. Fluid oscillator. 4,267,856, Cl. 137-119.000.

L. & C. Steinmüller GmbH: *See*—
Schuster, Ernst, 4,268,358, Cl. 201-9.000.

L. M. Dearing Associates, Inc.: *See*—
Dearing, Le Roy M.; and Wiegand, Edgar D., 4,268,143, Cl. 354-106.000.

LaBow, Jean A.: *See*—
Farrell, Eugene A.; and LaBow, Jean A., 4,268,058, Cl. 280-481.000.

Lace, Melvin A. Magnetic probe. 4,268,771, Cl. 310-155.000.

Lamb, Billy L.: *See*—
Cribbs, Robert W.; Lamb, Billy L.; and DeLacy, Thomas J., 4,268,828, Cl. 343-5.00W.

Lambelin, Georges E.: *See*—
Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.

Lambert, Charles E.: *See*—
Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., 4,268,533, Cl. 426-577.000.

La Mountain, Thomas D.: *See*—
Schierwagen, Alfred W.; and La Mountain, Thomas D., 4,268,897, Cl. 362-325.000.

Landa, Benzion, to Savin Corporation. Anti-bounce projectile collecting surface for microballistic printer. 4,268,178, Cl. 400-118.000.

Landholm, Richard A.: *See*—
Haase, Jan R.; Landholm, Richard A.; and Krutak, James J., Sr., 4,268,606, Cl. 430-223.000.

Lane, Michael D.; and Von Forell, Kenneth J., Sr., to Lane, Michael D. Velocity meter for baseball bat. 4,267,793, Cl. 116-324.000.

Langanke, Rolf, to Stabilus GmbH. Electrically conductive, telescoping spring. 4,268,018, Cl. 267-120.000.

Lange, Erhard; and Hausen, Manfred Z., to Chemische Werke Huls Aktiengesellschaft. Process for the continuous preparation of butane-1,4-diol. 4,268,695, Cl. 568-864.000.

Langer, Arthur W., Jr.; and Whitney, Thomas A., to Exxon Research & Engineering Co. Chelating tertiary amino metal amides. 4,268,455, Cl. 260-448.00R.

Langlitz, Karlheinz; and Schmitz, Gunter, to Mannesmann Demag AG. Transport lift truck for metallurgical vessels, particularly steel mill converters. 4,268,014, Cl. 266-165.000.

Lanni, Michael J.: *See*—
O'Connor, Bernard J.; Ficken, William H.; Carnevale, Tony R.; and Lanni, Michael J., 4,267,737, Cl. 74-5.470.

Lanzerath, Gunther: *See*—
Bauer, Walter; Fabricius, Emilio; Lanzerath, Gunther; Patzer, Helmut; and Vogele, Richard, 4,267,912, Cl. 192-53.00F.

LaPoint, Albert E., to Cal West Metals. Separator. 4,267,980, Cl. 241-20.000.

Lark, John C., to Standard Oil Company (Indiana). Polyester resin composition. 4,268,645, Cl. 525-437.000.

Larsson, Hans-Gunnar; and Westman, Erik, to ASEA Aktiebolag. Method and machine for filling a capsule with powder. 4,267,866, Cl. 141-1.000.

Laser Products Corporation: *See*—
McCrickerd, John T., 4,268,799, Cl. 331-94.50C.

Laskin, Allen I.: *See*—
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,268,630, Cl. 435-148.000.

Laufe, Leonard E.; and Wheeler, Robert G., to Repromed, Inc. Surgical instrument for use in reversible sterilization or permanent occlusion procedures. 4,267,839, Cl. 128-303.00A.

Laughlin, Sidney J.; and Claypool, Ralph J. Method and apparatus for producing fiber product. 4,268,294, Cl. 65-10.000.

Laurel Bank Machine Co., Ltd.: *See*—
Kokubo, Eiichi; and Miyagawa, Tuyoshi, 4,268,024, Cl. 271-95.000.

Laurent, John A.: *See*—
Brown, Dale M.; Garfinkel, Marvin; and Laurent, John A., 4,268,843, Cl. 357-19.000.

Lavanish, Jerome M., to PPG Industries, Inc. 3-[5-[1-(Dihalophenoxy-)alkyl, alkynyl, alkenyl, or haloalkyl]-1,3,4-thiadiazol-2-yl]-4-hydroxy-1-methyl-2-imidazolidinones. 4,268,675, Cl. 548-137.000.

Lavanish, Jerome M., to PPG Industries, Inc. 3-[5- or 3-Substituted-5- or 3-isoxazolyl]-1-allyl or alkyl-4-substituted-5-substituted or unsubstituted-2-imidazolidinones. 4,268,679, Cl. 548-247.000.

Lazar, Lawrence S.; and Wittemann, Robert F., to Johnson & Johnson. Electrosurgical grounding pad. 4,267,840, Cl. 128-303.130.

Lazarek, Gerald M.; and Staub, Fred W., to Electric Power Research Institute. Forced vaporization heat sink for semiconductor devices. 4,268,850, Cl. 357-82.000.

Leaf Proteins, Inc.: *See*—
Wildman, Samuel G.; and Kwanyuen, Prachuab, 4,268,632, Cl. 435-232.000.

Lear Siegler, Inc.: *See*—
Chekirda, Russell F.; Murphy, Randall T.; and Lyszczarz, Walter, 4,267,999, Cl. 248-418.000.

Lecerf, Andre; and Broussely, Michel, to Gipelec. Solid positive active material for high specific energy electric cells. 4,268,588, Cl. 429-194.000.

Leclerc, Jacques; Cormet, Rene; and Marcus, Guy, to Union Siderurgique du Nord et de l'est de la France. Process for treating liquid steel intended in particular for manufacturing machine wire. 4,268,305, Cl. 75-48.000.

Lee, Chi-Long: *See*—
Homan, Gary R.; and Lee, Chi-Long, 4,268,655, Cl. 528-15.000.

Lee, George A., to Dow Chemical Company, The. Preparation of substituted oxatriazoles. 4,268,674, Cl. 548-125.000.

Lee-You, James: *See*—
Sung, Pei, Klaus, Irving; and Lee-You, James, 4,268,308, Cl. 75-171.000.

Lee, Yu C.: *See*—
Scott, Lawrence M.; Wolf, Irving W.; and Lee, Yu C., 4,268,540, Cl. 427-127.000.

Lehner, John R.: *See*—
Powell, James; Hsieh, Shih-Yung; and Lehner, John R., 4,268,353, Cl. 176-3.000.

Lehnert, Gunther; and Schiffer, Rainer, to Bayer Aktiengesellschaft. Photographic apparatus for plate thermography. 4,268,155, Cl. 354-293.000.

Lehto, Eino M., to Bell & Howell Company. Image focusing apparatus. 4,268,135, Cl. 353-27.00R.

Leipold, Harold D.: *See*—
Ford, John R., Jr.; and Leipold, Harold D., 4,268,884, Cl. 361-22.000.

Leiponen, Matti O.; and Tonteri, Ossi T., to Outokumpu Oy. Apparatus for the continuous casting of an object of predetermined weight or size. 4,267,877, Cl. 164-155.000.

Lenz, Arnold: *See*—
Deneke, Klaus; and Lenz, Arnold, 4,268,485, Cl. 423-3.000.

Leonard, Gary S.; and Zinsmeyer, Thomas M., to Carrier Corporation. Refrigeration purging system. 4,267,705, Cl. 62-195.000.

Leoni, Roberto: *See*—
Baldini, Alberto; Leoni, Roberto; Calloni, Angelo; and Angelini, Gianfranco, 4,268,666, Cl. 536-57.000.

Leppard, David G.; and Rasberger, Michael, to Ciba-Geigy AG. Recording material for color photography. 4,268,593, Cl. 430-17.000.

Lepselter, Martin P., to Bell Telephone Laboratories, Incorporated. High capacity sputter-etching apparatus. 4,268,374, Cl. 204-298.000.

Leseman, Ronald P.; and Kurhajec, George A., to Minnesota Mining and Manufacturing Company. Developing powder composition containing fluoroaliphatic sulfonamido surface active agent. 4,268,598, Cl. 430-107.000.

Leu, Erwin, to Maschinenfabrik Schweiter AG. Thread draw-off apparatus. 4,267,983, Cl. 242-35.60E.

Leupold, Hermann: *See*—
Eschner, Axel; Leupold, Hermann; and Jeschke, Peter, 4,268,016, Cl. 266-236.000.

Levecque, Marc, administrator: *See*—
Levecque, Marcel, deceased; Levecque, Marc, administrator; Battigelli, Jean A.; and Plantard, Dominique, 4,268,293, Cl. 65-5.000.

Levecque, Marcel, deceased; by Levecque, Marc, administrator; Battigelli, Jean A.; and Plantard, Dominique, to Saint-Gobain Industries. Stabilization of glass feed in fiberization by toration. 4,268,293, Cl. 65-5.000.

Lever Brothers Company: *See*—
Hall, Norman; Martin, Alexander; and Tomlinson, Alan D., 4,268,424, Cl. 252-546.000.

Leversidge, Paul L.: *See*—
Allan, John J.; Foster, Richard G.; and Leversidge, Paul L., 4,268,410, Cl. 252-312.000.

Lewis, David W. Cargo carrier. 4,267,948, Cl. 224-42.340.

Lewis, Oliver G., to Exxon Research & Engineering Co. Pressure relief valve. 4,267,858, Cl. 137-529.000.

Lewis, Philip W.: *See*—
House, Richard F.; Kohler, Karl A.; and Lewis, Philip W., 4,267,956, Cl. 229-30.000.

Liautaud, James P. Mold core and method and apparatus for manufacture. 4,268,003, Cl. 249-142.000.

Libbey-Owens-Ford Company: *See*—
Hodulik, Joseph W., 4,268,545, Cl. 427-282.000.

Licentia Patent-Verwaltungs-G.m.b.H.: *See*—
Daur, Rolf; Hoffmann, Herbert; and Schmid, Gunter, 4,268,585, Cl. 428-622.000.

Liedtke, Kurt: *See*—
Focke, Heinz; and Liedtke, Kurt, 4,267,958, Cl. 229-44.0CB.

Lind, Frederick D.: *See*—
Shuck, William D.; Lind, Frederick D.; and Cole, John W., 4,268,398, Cl. 210-758.000.

Lind, Keith D.; and Galloway, Deane E., to American Can Company. Bag for vacuum packaging of meats or similar products. 4,267,960, Cl. 229-55.000.

Lindley, William L. Manual tool for feeding refuse to a garbage grinder disposal. 4,268,080, Cl. 294-1.00R.

Lindskoug, Per S., to Kommanditbolaget United Stirling AB & Co. Hot gas engine. 4,267,696, Cl. 60-526.000.

Ling, Nan-Sing: *See*—
Persidsky, Maxim D.; and Ling, Nan-Sing, 4,268,393, Cl. 210-516.000.

Lippa, Giuseppe, to American Standard Inc. Mold for casting ceramic materials. 4,268,001, Cl. 249-58.000.

Little, Richard I.; Lubin, Barry D.; and Spear, Stephen L., to Motorola, Inc. Radiotelephone communications system. 4,268,722, Cl. 179-2.0EB.

Logue, Joseph C.; and Wu, Wei-Wha, to International Business Machines Corporation. Modular macroprocessing system comprising a microprocessor and an extendable number of programmed logic arrays. 4,268,908, Cl. 364-200.000.

Lomax, George F., to Howe-Baker Engineers, Inc. Dual-phase atomizer. 4,267,979, Cl. 239-419.000.

Lombardino, Joseph G.; Otterness, Ivan G.; and Muren, James F., to Pfizer Inc. [1]Benzothiopyrano[4,3-c]pyrazoles as immunoregulatory agents. 4,268,516, Cl. 424-273.00P.

Long, George R.; and Smayling, Michael C., to Du Pont de Nemours, E. I., and Company. Method and system for reproducing identification characters. 4,268,179, Cl. 400-120.000.

Longenecker, Ned; Becker, Clair M.; Riegel, David P.; and Vogt, Alan G., Jr., to Timeter Instrument Corp. Respiratory analyzer. 4,267,721, Cl. 73-1.00G.

Looney, John H., to Xerox Corporation. Conforming document aligner. 4,268,022, Cl. 271-7.000.

Lorain Products Corporation: *See*—
Brown, Harold J., 4,268,898, Cl. 363-20.000.

L'Oreal: *See*—
Grollier, Jean F.; Bugaut, Andree; Andrillon, Patrick; and Fourcadier, Chantal, 4,268,264, Cl. 8-410.000.

Los, Lindert, to Hollandse Signaalapparaten B.V. Threshold selection circuit. 4,268,863, Cl. 358-160.000.

Loudin, Philip B., to Illinois Tool Works Inc. Breather cap. 4,267,941, Cl. 220-85.0SP.

Lowe Alpine Systems, Inc.: *See*—
Lowe, Michael R., 4,267,868, Cl. 150-11.000.

Lowe Engineering Company: *See*—
Lowe, John G., 4,268,396, Cl. 210-670.000.

Lowe, John G., to Lowe Engineering Company. Oil recovery apparatus and method. 4,268,396, Cl. 210-670.000.

Lowe, Michael R., to Lowe Alpine Systems, Inc. Compressible stuff sack. 4,267,868, Cl. 150-11.000.

Lubbers, Marius H., to Everts & Van der Weyden Exploitatiemaatschappij Ewem/N.V. Holder for a guiding structure. 4,267,970, Cl. 238-310.000.

Lubin, Barry D.: *See*—
Little, Richard I.; Lubin, Barry D.; and Spear, Stephen L., 4,268,722, Cl. 179-2.0EB.

Luca, Vincent A., Jr.: *See*—
Schildkraut, Alan L.; Luca, Vincent A., Jr.; and Knapp, Carl L., 4,268,103, Cl. 339-89.00M.

Lucas, James M.; Perricone, Alphonse C.; and Enright, Dorothy P., to Milchem Incorporated. Aqueous drilling fluid additive, composition and process. 4,268,400, Cl. 252-8.50C.

Luce, Ross G.: *See*—
Boiarski, Anthony A.; and Luce, Ross G., 4,268,460, Cl. 261-1.000.

Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., to Masonite Corporation. Post-press molding of man-made boards to produce contoured furniture parts. 4,268,565, Cl. 428-161.000.

Ludlow Corporation: *See*—
Whiting, Philip C., Jr., 4,268,531, Cl. 426-126.000.

Lueth, Roy C.: *See*—
Hale, Thomas E.; and Lueth, Roy C., 4,268,582, Cl. 428-446.000.

Luhrsen, Ernst; Sussmuth, Godehard; and Walden, Klaus, to Didier-Werke AG; and Hamburger Stahlwerke GmbH. Bottom outlet or discharge for use in metallurgical vessels for steel melts, particularly tundishes. 4,268,015, Cl. 266-236.000.

Lui, Kenneth, to TRW Inc. Optical reflector having a nickel-iron alloy reflecting surface. 4,268,124, Cl. 350-310.000.

Lukevics, Al: *See*—
Sheck, Wah; and Lukevics, Al, 4,268,184, Cl. 401-218.000.

Lumalampan AB: *See*—
Bjorkman, Karl-Ake G., 4,268,306, Cl. 75-81.000.

Lundquist, Jerry R.: *See*—
Barlow, Malcolm; and Lundquist, Jerry R., 4,268,369, Cl. 204-192.00D.

Lustig, Leopold P. Contra-angle head for dentistry. 4,268,252, Cl. 433-128.000.

Lutskov, Nikolai Z.: *See*—
Koshkin, Lev N.; Semenov, Valery M.; Repin, Jury A.; Pozdnyakov, Anatoly M.; and Lutskov, Nikolai Z., 4,268,243, Cl. 425-575.000.

Lynch, Paul C.; and Driver, Ervin M. Pipe supporting apparatus. 4,267,994, Cl. 248-65.000.

Lyszczarz, Walter: *See*—
Chekirda, Russell F.; Murphy, Randall T.; and Lyszczarz, Walter, 4,267,999, Cl. 248-418.000.

Maag Gearwheel & Machine Company Ltd.: *See*—
Haupt, Fritz, 4,268,232, Cl. 418-135.000.

Mac Valves, Inc.: *See*—
Neff, James A.; Fagerlie, Richard A.; and Bowman, Walter J., 4,267,862, Cl. 137-625.640.

Macchine Tessili Circolari MATEC S.p.A.: *See*—
Chietti, Giovanni, 4,267,708, Cl. 66-56.000.

MacDonald, Gene W., to GMSG, Inc. Bowling ball. 4,268,034, Cl. 273-63.00C.

Mackal, Glenn H. Automatic inflator. 4,267,944, Cl. 222-5.000.

MacKenzie, Harold L., to Riverwood Enterprises & Manufacturing, Ltd. Work bench with self-contained air cleaner. 4,268,282, Cl. 55-101.000.

Madruga, Luis: *See*—
Bourke, Donall G.; Mendelson, Richard N.; and Madruga, Luis, 4,268,906, Cl. 364-200.000.

Maeda, Akio; Hashimoto, Kinro; Inagami, Masaaki; and Fukushima, Hiroshi, to Nippon Zeon Co. Ltd. Vulcanizable rubber composition. 4,268,644, Cl. 525-403.000.

Maeda Industries, Ltd.: *See*—
Yamasaki, Kazuto, 4,267,744, Cl. 74-475.000.

Maeda, Sajiro: *See*—
Oshima, Nobuo; and Maeda, Sajiro, 4,268,127, Cl. 350-337.000.

Maeda, Syuichi: *See*—
Imahori, Seiichi; Murata, Yukichi; Maeda, Syuichi; and Suzuki, Sumio, 4,268,671, Cl. 544-245.000.

Magill, Barrie J.: *See*—
Harris, John F.; and Magill, Barrie J., 4,268,694, Cl. 568-763.000.

Magnavox Government and Industrial Electronics Co.: *See*—
Congdon, John C., 4,268,912, Cl. 367-163.000.

Maguire, Edward J., Jr.: *See*—
Flautt, Thomas J., Jr.; Maguire, Edward J., Jr.; and Richardson, David L., 4,268,738, Cl. 219-10.55F.

Maillot, Philippe: *See*—
d'Auria, Luigi; and Maillot, Philippe, 4,268,114, Cl. 350-96.200.
Maistre, Michel, to Societe Europeenne de Propulsion. Three-dimensional structure having a preferential direction. 4,268,560, Cl. 428-105.000.
Maitland, Roy, to Count Numbering Machine, Inc. Ink supply cartridge. 4,267,772, Cl. 101-103.000.
Majewicz, Wlodzimierz I.: *See*—
Tsang, David L.; and Majewicz, Wlodzimierz I., 4,268,234, Cl. 425-32.000.
Majima, Osamu, to Sony Corporation. Magnetic head assembly. 4,268,880, Cl. 360-109.000.
Makimoto, Mitsuo; and Yamashita, Sadahiko, to Matsushita Electric Industrial Co., Ltd. Microwave filter having means for capacitive interstage coupling between transmission lines. 4,268,809, Cl. 333-202.000.
Maliarik, Mary: *See*—
Rohrbach, Ronald P.; and Maliarik, Mary, 4,268,423, Cl. 252-430.000.
Mallory, Henry R.: *See*—
Bartunek, William; and Mallory, Henry R., 4,268,894, Cl. 362-158.000.
Malott, Richard C., to General Motors Corporation. Thrust balancing. 4,268,220, Cl. 415-104.000.
Manger, Josef W. Loudspeaker arrangements. 4,268,719, Cl. 179-1.00E.
Manke, Steven A.: *See*—
Noack, Manfred G.; and Manke, Steven A., 4,268,486, Cl. 423-55.000.
Manley, Michael T.; and Solomon, Edward G. Apparatus for analyzing the forces acting on a human foot. 4,267,728, Cl. 73-172.000.
Mann, Ray R. Lampshade means. 4,268,896, Cl. 362-311.000.
Mannesmann Aktiengesellschaft: *See*—
Huber, Walter; and Stratenhoff, Wolfgang, 4,268,203, Cl. 414-100.000.
Mannesmann Demag AG: *See*—
Langlitz, Karlheinz; and Schmitz, Gunter, 4,268,014, Cl. 266-165.000.
Mannon, Alfred T., Jr., to Union Oil Company of California. Dual-rotating eccentric drilling apparatus and method. 4,267,893, Cl. 175-65.000.
Mansson, Inge G., to EKA Aktiebolag. Method of treating pulp bleaching effluents. 4,268,350, Cl. 162-29.000.
Mansson, Siwer: *See*—
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,267,937, Cl. 220-267.000.
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,268,336, Cl. 156-244.130.
Manteufel, Rolf P. C. Liquid distribution device in liquid-vapor contact apparatus. 4,267,978, Cl. 239-193.000.
Manzara, Anthony P., to Minnesota Mining and Manufacturing Company. Friction element containing phenol-formaldehyde-alkylphenol binder. 4,268,657, Cl. 528-155.000.
Marc, Michel, to Clint, Inc. Flow molding. 4,268,238, Cl. 425-174.80E.
Marchaj, Tadeusz J., to Preload Technology, Inc. Earthquake resisting tank and methods of constructing same. 4,267,676, Cl. 52-167.000.
Marcus, Guy: *See*—
Leclerc, Jacques; Cormet, Rene; and Marcus, Guy, 4,268,305, Cl. 75-48.000.
Marets, Maurice, to Trailigaz, Compagnie Generale de l'Ozone. Device for measuring a physical operating characteristic of an ozonizer. 4,268,480, Cl. 422-98.000.
Mark, Victor, to General Electric Company. Process for preparing polycarbonates using iminoethers as catalysts. 4,268,658, Cl. 528-199.000.
Mars, Inc.: *See*—
McLaughlin, Donald L.; and Beshenich, Paul J., 4,267,915, Cl. 194-1.00N.
Marshall, Claude J., Jr., to Rockwell International Corporation. Wheel trim assembly. 4,268,091, Cl. 301-37.00R.
Martija, Henry M.: *See*—
Grant, Frederic F.; and Martija, Henry M., 4,267,951, Cl. 226-195.000.
Martikainen, Kaarlo, to Oy Wartsila Ab. Disc cylinder lock. 4,267,717, Cl. 70-366.000.
Martin, Alexander: *See*—
Hall, Norman; Martin, Alexander; and Tomlinson, Alan D., 4,268,424, Cl. 252-546.000.
Martin, David J.: *See*—
Scott, Harold A.; and Martin, David J., 4,268,826, Cl. 340-707.000.
Martin, Dean W., to Caterpillar Tractor Co. Fixture and method for repairing track links. 4,268,019, Cl. 269-43.000.
Martin, Joe O., to Eli Lilly and Company. Cosmetic tonic formulation. 4,268,502, Cl. 424-83.000.
Martin, John K., III: *See*—
Whitney, Douglass G.; and Martin, John K., III, 4,267,836, Cl. 128-215.000.
Martin Marietta Corporation: *See*—
Wills, Milton H., Jr., 4,268,316, Cl. 106-97.000.
Martin, Merrill D. Automatic sheet handling apparatus. 4,268,028, Cl. 271-201.000.
Martin & Pagenstecher GmbH: *See*—
Hoffken, Erich; and Beckers, Karl-Dieter, 4,268,543, Cl. 427-230.000.
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., to Eastman Kodak Company. Photocrosslinkable, high-temperature-resistant polymers and their use in color imaging devices. 4,267,961, Cl. 250-226.000.
Maruyama, Tsuneo: *See*—
Mine, Katsutoshi; Kubota, Yoshitaka; and Maruyama, Tsuneo, 4,268,452, Cl. 260-37.0SB.
Marvin Glass & Associates: *See*—
Hanson, Stephen P., 4,267,661, Cl. 46-1.00K.
Maryland Cup Corporation: *See*—
Herbst, David H., 4,268,335, Cl. 156-218.000.
Marzouki, Taieb; and Schweisser, Bernd, to USM Corporation. Method for double glazing units. 4,268,553, Cl. 428-34.000.
Masak, Raymond J.: *See*—
Baurle, Herbert F.; and Masak, Raymond J., 4,268,829, Cl. 343-100.0LE.
Maschinenfabrik Schweiter AG: *See*—
Leu, Erwin, 4,267,983, Cl. 242-35.60E.
Mase, Yasushi; and Okamura, Toshikazu, to Nissan Motor Company, Limited. Exhaust gas recirculation control system. 4,267,809, Cl. 123-409.000.
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, to Farmitalia Carlo Erba S.p.A. Daunomycin derivatives, their aglycones and the use thereof. 4,268,451, Cl. 260-376.000.
Maslen, John; and Nield, Eric, to Imperial Chemical Industries Limited. Polyamide compositions. 4,268,432, Cl. 260-45.75B.
Mason, Donald G., to Mason Engineering & Designing Corporation. Air freshening apparatus. 4,268,285, Cl. 55-271.000.
Mason Engineering & Designing Corporation: *See*—
Mason, Donald G., 4,268,285, Cl. 55-271.000.
Mason, Gene C. Combined duplicator and preformer for lapidary use. 4,267,670, Cl. 51-101.00R.
Masonite Corporation: *See*—
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,268,565, Cl. 428-161.000.
Massachusetts Institute of Technology: *See*—
Melngailis, John, 4,268,808, Cl. 333-195.000.
Millner, Alan R., 4,268,095, Cl. 308-10.000.
Schreiber, William F.; and Troxel, Donald E., 4,268,861, Cl. 358-138.000.
Suh, Nam P.; and Erwin, Lewis, II, 4,268,465, Cl. 264-25.000.
Masson Scott Thrissell Engineering: *See*—
Byrt, Graham A. B.; and Chandler, Kenneth, 4,267,752, Cl. 83-74.000.
Masuda, Ikuo: *See*—
Suzuki, Hajime; Masuda, Ikuo; and Kosaka, Masaki, 4,268,579, Cl. 428-413.000.
Matagne, Daniel M.: *See*—
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Matoba, Yasuo, to Osaka Soda Co. Ltd. Curable composition of halogen-containing polymer. 4,268,640, Cl. 525-346.000.
Matsubara, Masaki: *See*—
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Matsuda, Tetsuo: *See*—
Sakakibara, Hideo; Fujiwara, Tatsuro; Okegawa, Osamu; Watanabe, Toshiyuki; Watanabe, Susumu; and Matsuda, Tetsuo, 4,268,665, Cl. 536-17.00R.
Matsui, Takeki: *See*—
Akiyama, Minoru; Akashi, Kageyasu; Shiga, Tetsuo; Ito, Yoshinobu; Kimura, Takeo; and Matsui, Takeki, 4,268,626, Cl. 430-620.000.
Matsui, Takeshi: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.
Matsumoto, Fuyuhiko: *See*—
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Matsumoto Yushi-Seiyaku Co., Ltd.: *See*—
Yonezawa, Yoshimichi, 4,268,615, Cl. 430-320.000.
Matsuno, Yoshio: *See*—
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Matsuo, Kazumasa, to Olympus Optical Co., Ltd. Endoscope having an extension guide for observation. 4,267,828, Cl. 128-6.000.
Matsuo, Syunji: *See*—
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Matsuo, Takaharu; Sawamura, Norio, both of Osaka; Hashimoto, Yukio; and Hashida, Wataru, to Fuji Oil Company, Ltd. Method for producing cacao butter substitute. 4,268,527, Cl. 426-33.000.
Matsuoka, Hideoki; and Yamamoto, Yoshimi, to Nissan Motor Company, Limited; and Fuji Kiko Kabushiki Kaisha. Safety alarm system for an automatic seat belt. 4,268,816, Cl. 340-52.00E.
Matsushita Electric Industrial Co., Ltd.: *See*—
Makimoto, Mitsuo; and Yamashita, Sadahiko, 4,268,809, Cl. 333-202.000.
Uragaki, Tamotsu; Inoue, Morio; Koike, Susumu; and Iwasa, Hitoo, 4,268,327, Cl. 148-171.000.
Mauch, Jerry L.: *See*—
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Maul Technology Corporation: *See*—
Rhett, Chester K., 4,268,298, Cl. 65-327.000.
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Maurice, Jean; and Quesnel, Raymond, to Regie Nationale des Usines Renault. Cooling tower. 4,267,883, Cl. 165-129.000.
Maxwell, David A.: *See*—
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May, Michael A. Swimming pool accessory. 4,268,386, Cl. 210-169.000.
Mayer, Fritz: *See*—
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Mayer, James R., to Cooper Industries, Inc. Positioning control system for rock drill support apparatus. 4,267,892, Cl. 173-43.000.
Mayfran, Div. of Fischer Industries, Inc.: *See*—
Vacca, Miguel; and Morris, James C., 4,268,205, Cl. 414-219.000.
Maynard, Walter P., Jr. Liquid funnel and container piercing blade combination. 4,267,945, Cl. 222-83.500.
McAdams, Ronald P.: *See*—
Kekas, Dennis H.; McAdams, Ronald P.; and Polischuk-Sawtschenko, Alexander, 4,268,100, Cl. 339-17.0LM.
McCahill, William: *See*—
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McCall, Francis J. Apparatus for electrical impulse acupressure treatment. 4,267,838, Cl. 128-303.00R.
McCarthy, Roy F. J., to Dowty Rotol Limited. Foam-containing structures. 4,268,571, Cl. 428-236.000.
McColl, Bruce J., to B. J. McColl & Company, Ltd. Composite high mobility tire for off-road vehicles. 4,267,873, Cl. 152-339.000.
McCord, Kenneth R.: *See*—
Barger, Larry N.; and McCord, Kenneth R., 4,267,833, Cl. 128-214.00F.
Barger, Larry N.; McCord, Kenneth R.; and Vidal, Claude A., 4,267,834, Cl. 128-214.00F.
Barger, Larry N.; and McCord, Kenneth R., 4,267,835, Cl. 128-214.00E.
McCormick, Everett N. Method of enhancing bimanual dexterity. 4,268,254, Cl. 434-247.000.
McCrickerd, John T., to Laser Products Corporation. Curved mirror lasers and methods of operating same. 4,268,799, Cl. 331-94.50C.
McDonald, Ray S.; and Hartlaub, Jerome T., to Medtronic, Inc. Means to inhibit a digital cardiac pacemaker. 4,267,843, Cl. 128-419.0PT.
McDonnell Douglas Corporation: *See*—
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McDonnell, William R. Helicopter airborne load systems and composite aircraft configurations. 4,267,987, Cl. 244-2.000.
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McGeary, Thomas C. Score processing system for use with ID cards. 4,268,744, Cl. 235-375.000.
McGregor, Kenneth: *See*—
Henbest, Richard G. C.; and McGregor, Kenneth, 4,268,351, Cl. 162-146.000.
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Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., 4,268,533, Cl. 426-577.000.
McKay, Dwight L.: *See*—
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McKee, Fount E., to Delta-X Corporation. Hydraulic pumping unit. 4,268,228, Cl. 417-390.000.
McKinley, Fred D.: *See*—
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McKinley, Victor W.; and McKinley, Fred D. Training device for developing roping skills. 4,268,037, Cl. 273-359.000.
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McLaughlin, Donald L.; and Beshenich, Paul J., to Mars, Inc. Vending apparatus price interface. 4,267,915, Cl. 194-1.00N.
McMillan, Ronald R. Wire holder. 4,267,995, Cl. 248-74.00R.
McReynolds, Kent B.: *See*—
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Mead Corporation, The: *See*—
Huliba, David A.; and Robinson, Lonnie P., 4,268,836, Cl. 346-75.000.
Stolfo, John J., 4,268,069, Cl. 282-27.500.
Medtronic, Inc.: *See*—
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Megumi, Hiroshi: *See*—
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Meier, William E. Support frame for a flexible bag. 4,267,997, Cl. 248-97.000.
Meiners, Larry G., to United States of America, Navy. Insulated gate field-effect transistors. 4,268,844, Cl. 357-23.000.
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Melkonian, Dennis J.: *See*—
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Melkonian, Douglas H.; Melkonian, Mark S.; Melkonian, Dennis J.; and Melkonian, Suren M., to Melkonian, Douglas H.; Melkonian, Mark S.; Melkonian, Dennis J.; and Melkonian, Suren. Raisin separating device. 4,267,930, Cl. 209-3.100.
Melkonian, Mark S.: *See*—
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Melngailis, John, to Massachusetts Institute of Technology. Acoustic wave device. 4,268,808, Cl. 333-195.000.
Melvin, Lawrence S., Jr.: *See*—
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Mendelson, Richard N.: *See*—
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Mendenhall, Charles E.: *See*—
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Meredith, James E., to Bigelow-Sanford, Inc. Method and apparatus for immersion printing of pile fabrics. 4,268,263, Cl. 8-149.000.
Meschkat, Ursula; and Bimczok, Rudolf, to Blendax-Werke R. Schneider GmbH & Co. Liquid detergent compositions having washing and softening properties. 4,268,401, Cl. 252-8.800.
Mesco, Bernard, to Hughes Aircraft Company. Kinematic mount. 4,268,123, Cl. 350-310.000.
Messer, Leonard, to American Minechem Corporation. Method of making activated carbon. 4,268,417, Cl. 252-421.000.
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Metallgesellschaft Aktiengesellschaft: *See*—
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Serbent, Harry; Rosenstock, Friedrich; and Kotzschke, Gunter, 4,268,304, Cl. 75-36.000.
Metals Research Limited: *See*—
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Metzeler Kautschuk Aktiengesellschaft: *See*—
Willmerding, Gunter, 4,268,475, Cl. 264-315.000.
Micciche, Peter. Buoyancy energy engine. 4,267,695, Cl. 60-473.000.
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Midorikawa, Susumu, deceased: *See*—
Iizuka, Yo; Yusa, Haruhiko; Midorikawa, Susumu, deceased; and Midorikawa, Taeko, heir, 4,268,636, Cl. 525-85.000.
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Iizuka, Yo; Yusa, Haruhiko; Midorikawa, Susumu, deceased; and Midorikawa, Taeko, heir, 4,268,636, Cl. 525-85.000.
Mietens, Gerhard: *See*—
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Ellis, Paul B.; and Morris, David L., 4,268,631, Cl. 435-190.000.
Pavlicek, Cleone J., 4,267,936, Cl. 220-262.000.
Miller, Dale C.: *See*—
Hitt, William H., Jr., 4,267,826, Cl. 126-440.000.
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Cottrell, Merlyn F.; Gauthier, Dale J.; and Miller, Lester C., 4,268,742, Cl. 219-532.000.
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Milles, Peter, to S. Franzen Sohne (GmbH & Co.). Combination lock for baggage. 4,267,716, Cl. 70-70.000.
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Brown, Robert S.; and Satterfield, Larry S., 4,267,617, Cl. 15-320.000.
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Doi, Yasuhiko; Iwao, Soichi; and Takagishi, Takaharu, 4,268,163, Cl. 355-14.0SH.
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Imahori, Seiichi; Murata, Yukichi; Maeda, Syuichi; and Suzuki, Sumio, 4,268,671, Cl. 544-245.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Iwaki, Yoshiyuki; and Fujioka, Katsuhiko, 4,268,770, Cl. 310-72.000.

Mitsubishi Gas Chemical Company, Inc.: *See*—
Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, 4,268,690, Cl. 562-416.000.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.

Mitsubishi Paper Mills, Ltd.: *See*—
Tsukahara, Hirokazu; Fuchigami, Mitsuru; and Kagota, Nobuhiro, 4,268,634, Cl. 525-471.000.

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Shindo, Mizuo; Yamamoto, Takashi; and Kamada, Kensuke, 4,268,279, Cl. 55-16.000.

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Miyamoto, Takayoshi: *See*—
Kobori, Toshio; and Miyamoto, Takayoshi, 4,268,151, Cl. 354-219.000.

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Miyashita, Tsuneo; Sato, Yoshio; and Ando, Yoshitsugu, to Nippon Kokan Kabushiki Kaisha. Method for continuously manufacturing high-temperature reducing gas. 4,268,412, Cl. 252-373.000.

Miyata, Junji; and Kurohara, Kazuaki, to Kubota, Ltd. Structure for attaching hitch to tractor. 4,268,056, Cl. 280-456.00A.

Miyata, Teruo; Rubin, Albert L.; Stenzel, Kurt H.; and Dunn, Michael W., to Opticol Corporation. Fiber collagen contact lens. 4,268,131, Cl. 351-160.00H.

Mizobuchi, Yuzo: *See*—
Shinozaki, Fumiaki; Namiki, Tomizo; Kitajima, Masao; Ikeda, Tomoaki; and Mizobuchi, Yuzo, 4,268,575, Cl. 428-336.000.

Mizuno Sporting Goods Co., Ltd.: *See*—
Imamichi, Yoshio, 4,267,710, Cl. 66-196.000.

Mizutani, Nagao; Okawara, Yasuo; and Shimazaki, Toshikazu, to Citizen Watch Co., Ltd. Device for detecting travel condition of inkribbon for printers. 4,268,182, Cl. 400-247.000.

Mobil Oil Corporation: *See*—
Fahmy, Mohamed A., 4,268,508, Cl. 424-222.000.
Herrington, F. John, Jr., 4,268,239, Cl. 425-467.000.
Mills, William R., Jr., 4,268,749, Cl. 250-269.000.
Paul, Jill H., 4,268,525, Cl. 424-326.000.

Modern Machinery Company, Ltd.: *See*—
Kobayasi, Sohei, 4,268,260, Cl. 493-194.000.

Moerre, Manfred, to Singer Company, The. Fuse holder assembly. 4,268,106, Cl. 339-147.00R.

Moerre, Manfred, to Singer Company, The. Fuse holder. 4,268,107, Cl. 339-147.00R.

Moertel, George B., to Textron, Inc. Method of molding using a molding wheel and flexible belt. 4,268,474, Cl. 264-252.000.

Mogensen, Vagn; Jorgensen, Villy E.; and Krebs, Peter, to Dansk Industri Syndikat A/S. Apparatus for producing casting mould parts by compressing sand or a similar material between a pressure plate and a counter-pressure plate. 4,267,878, Cl. 164-187.000.

Mohan, Raam R.; Silbernagel, Bernard G.; and Singhal, Gopal H., to Exxon Research & Engineering Co. Regeneration of spent hydrodesulfurization catalysts with heteropoly acids and hydrogen peroxide. 4,268,415, Cl. 252-413.000.

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Sovish, Richard C.; and Moisson, Marc F. L., 4,268,041, Cl. 277-1.000.

Moller, Werner: *See*—
Gesswein, Eberhard; and Moller, Werner, 4,268,594, Cl. 430-24.000.

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Dobo, Emerick J.; and Graham, Tommy E., 4,268,278, Cl. 55-16.000.
Howe, Robert K., 4,268,299, Cl. 71-76.000.
Kocay, Witold R., 4,267,864, Cl. 139-420.00R.
Terry, Alvah B., 4,267,626, Cl. 29-163.50F.
Tinker, Harold B.; and Solodar, Arthur J., 4,268,688, Cl. 560-177.000.
Tolbert, William R.; Kuo, Mau-Jung; and Feder, Joseph, 4,268,629, Cl. 435-41.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,268,704, Cl. 585-428.000.
Williams, Louis B., Jr., 4,268,550, Cl. 427-429.000.
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Monsarrat, William G.; and Neal, William F., to United Technologies Corporation. Compressor structure adapted for active clearance control. 4,268,221, Cl. 415-116.000.

Montgomery, Lionel C., to Union Carbide Corporation. High density refractory composites and method of making. 4,268,314, Cl. 106-65.000.

Montgomery, Lon W.: *See*—
Salon, Sheppard J.; and Montgomery, Lon W., 4,268,883, Cl. 361-21.000.

Montigny, Jean, to Harle & Lechopiez. Preparation of cheese from ultrafiltered milk. 4,268,528, Cl. 426-40.000.

Montmarquet, Francis H., Jr., to Repeat-O-Type Stencil Manufacturing Co., Inc. Stencil sheet with solventless coating and method of preparation. 4,268,576, Cl. 428-342.000.

Moog GmbH: *See*—
Handte, Herbert; and Kollmar, Friedrich, 4,268,794, Cl. 328-185.000.

Moore, Christopher H. Time-modulated delay system and improved reverberation simulator using same. 4,268,717, Cl. 179-1.00J.

Moore, Mack W., Jr., to Cavalier Carpets. Artificial grass surface and method of installation. 4,268,551, Cl. 428-17.000.

Moran, Gregory F.: *See*—
Eddelman, Roy T.; and Moran, Gregory F., 4,267,729, Cl. 73-425.40P.

Moran, Michael J.: *See*—
Cieslak, Patrick J.; and Moran, Michael J., 4,267,768, Cl. 493-203.000.

Mori, Akinori, to Sumitomo Electric Industries, Ltd. Shielded wire. 4,268,714, Cl. 174-108.000.

Mori, Masaharu: *See*—
Amazawa, Kiyoshi; Mori, Masaharu; and Taniyama, Takashi, 4,268,793, Cl. 328-165.000.

Mori, Ryutaro; and Iwamoto, Akira, to West Electric Company, Ltd. Photo-detection adapter for an automatic flash device. 4,268,141, Cl. 354-35.000.

Morimura Chemetron Ltd.: *See*—
Miyaguchi, Akinori; Morita, Yasuomi; and Chino, Yasuyoshi, 4,268,427, Cl. 260-23.70C.

Morio, Minoru; Kambara, Masahiro; Kubota, Yukio; and Yamashita, Keitaro, to Sony Corporation. Avoidance of disturbance of horizontal sync signals in video signal reproduced at other than standard tape speed. 4,268,875, Cl. 360-10.000.

Moris, Alfred H.; and Wysocki, Steven S., to Minnesota Mining and Manufacturing Company. Recording and/or playback machine which affords use of various sized magazines. 4,268,877, Cl. 360-94.000.

Morita, Yasuomi: *See*—
Miyaguchi, Akinori; Morita, Yasuomi; and Chino, Yasuyoshi, 4,268,427, Cl. 260-23.70C.

Morris, David L.: *See*—
Ellis, Paul B.; and Morris, David L., 4,268,631, Cl. 435-190.000.

Morris, James C.: *See*—
Vacca, Miguel; and Morris, James C., 4,268,205, Cl. 414-219.000.

Morris, Ralph F., to Dunlop Limited. Tube type pump and wave motor. 4,268,226, Cl. 417-332.000.

Morrison, Donald E.: *See*—
Fung, Anthony K. L.; Morrison, Donald E.; and Pernet, Andre G., 4,268,691, Cl. 568-322.000.

Morrison, Raymond C., to Raytheon Company. Cathode cup having support flanges sloped symmetrically in opposing axial directions. 4,268,776, Cl. 313-446.000.

Mosher, Larry: *See*—
Benson, Donald H.; and Mosher, Larry, 4,267,814, Cl. 125-15.000.

Moskowitz, Ilene J. Instructional writing paper for perceptually impaired children. 4,268,256, Cl. 434-162.000.

Mostmans, Joseph H.: *See*—
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,268,680, Cl. 548-336.000.

Motonami, Masanao: *See*—
Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, 4,268,068, Cl. 280-804.000.

Motorenfabrik Hatz GmbH & Co. KG: *See*—
Schmuck, Johann, 4,267,805, Cl. 123-198.00E.

Motorola, Inc.: *See*—
Casey, John F.; and Vyne, Robert L., 4,268,848, Cl. 357-60.000.
Eckert, Kim, 4,268,764, Cl. 307-354.000.
Eickerman, Curtis L., 4,267,776, Cl. 102-215.000.
Little, Richard I.; Lubin, Barry D.; and Spear, Stephen L., 4,268,722, Cl. 179-2.0EB.
Parmei, Bernard S., 4,268,915, Cl. 455-158.000.
Reichart, Elwood C., 4,268,798, Cl. 330-289.000.

Motosugi, Katsuhiko: *See*—
Kanda, Mutsumi; Nakanishi, Kiyoshi; and Motosugi, Katsuhiko, 4,267,806, Cl. 123-287.000.

Muenker, Adolf H.; and Young, Archie R., II, to Exxon Research & Engineering Co. High temperature solar absorber coating and method of applying same. 4,268,319, Cl. 106-288.00B.

Muhr, Richard; and Schroder, Werner, to Muhr und Bender. Holddown for power shear. 4,267,756, Cl. 83-463.000.

Muhr, Richard; and Schroder, Werner, to Muhr und Bender. Actuator mount for power shear or punch. 4,267,758, Cl. 83-571.000.

Muhr und Bender: *See*—
Muhr, Richard; and Schroder, Werner, 4,267,756, Cl. 83-463.000.
Muhr, Richard; and Schroder, Werner, 4,267,758, Cl. 83-571.000.

Mull, John D. Method of introducing a liquid into a measuring tube. 4,267,723, Cl. 73-61.400.

Mullenberg, Ralph. Mounting attachment. 4,268,185, Cl. 403-16.000.

Muller, Rolf: *See*—
Jellinek, Karl; and Muller, Rolf, 4,268,649, Cl. 525-504.000.

Muller, Thomas P., to Caterpillar Tractor Co. Guard structure for fluid conduits of hydraulic cylinders of mobile apparatus. 4,267,674, Cl. 52-115.000.

Muller, Werner, to Hermann Berstorff Maschinenbau GmbH. Planetary extruder for thermoplastics material. 4,268,176, Cl. 366-83.000.

Muller, Zdenek. Air brake safety mechanism. 4,268,093, Cl. 303-89.000.

Multinorm B.V.: *See*—
Vissers, Hermanus H.; and Mijnders, Gijsbert J., 4,267,688, Cl. 56-16.400.

Mumford, Robin B., to Allied Chemical Corporation. Thermal-pane window with liquid crystal shade. 4,268,126, Cl. 350-331.00R.

Muntwyler, Rene; and Burdeska, Kurt, to Ciba-Geigy Corporation. 3-Hydroxydiphenyl ethers. 4,268,693, Cl. 568-637.000.

Murakami, Eugene T.; and Gray, Thomas A., to Thomas Gray & Associates, Inc., Division LevelLink. Level detection device for enclosed tanks. 4,268,753, Cl. 250-357.000.

Murakami, Tadayoshi: *See*—
Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.

Muramatsu, Toshio, to Konishiroku Photo Industry Co., Ltd. Electrophotographic copying apparatus capable of reproducing electric signal image. 4,268,160, Cl. 355-3.00R.

Murari, Bruno: *See*—
Ghiringelli, Giovanni; and Murari, Bruno, 4,268,887, Cl. 361-93.000.

Murase, Ichiki: *See*—
Sano, Takezo; Shimomura, Takatoshi; and Murase, Ichiki, 4,268,662, Cl. 528-486.000.

Murata, Yukichi: *See*—
Imahori, Seiichi; Murata, Yukichi; Maeda, Syuichi; and Suzuki, Sumio, 4,268,671, Cl. 544-245.000.

Murayoshi, Seizi, to Ricoh Company, Ltd. Sheet feeding apparatus. 4,268,025, Cl. 271-112.000.

Muren, James F.: *See*—
Lombardino, Joseph G.; Otterness, Ivan G.; and Muren, James F., 4,268,516, Cl. 424-273.00P.

Murphy, Randall T.: *See*—
Chekirda, Russell F.; Murphy, Randall T.; and Lyszczarz, Walter, 4,267,999, Cl. 248-418.000.

Murray, Robert C., to Valeron Corporation, The. Controller for tool compensation system. 4,268,783, Cl. 318-565.000.

Murrell, Lawrence L.: *See*—
Oswald, Alexis A.; and Murrell, Lawrence L., 4,268,682, Cl. 556-465.000.

Murtha, Timothy P.; and Zuech, Ernest A., to Phillips Petroleum Company. Hydroalkylation using nickel-ruthenium catalyst on zeolite type support. 4,268,699, Cl. 585-268.000.

Muskegon Piston Ring Company: *See*—
Nisper, Kenneth J., 4,268,046, Cl. 277-139.000.

Muxfeldt, Hans; and Dahlke, Hermann, to Ethicon, Inc. Injectable embolization and occlusion solution. 4,268,495, Cl. 424-1.000.

Muzyczko, Thaddeus M.; and Jones, Thomas H., to Richardson Company, The. Device for use in photochemical and photomechanical processes. 4,268,608, Cl. 430-270.000.

Myers, Jimmy D.; and Fratzke, Lawrence F., to Caterpillar Tractor Co. Fire extinguishing system including sensor comparable to determine charge. 4,267,890, Cl. 169-75.000.

Naab, Carlton W.; and Jankowiak, Roman, to Conax Corporation. Flood valve. 4,267,854, Cl. 137-72.000.

Nagahara, Sin. Radio-controlled steering device for toy motorcycles. 4,267,663, Cl. 46-254.000.

Nagai, Hisao: *See*—
Shimokawa, Shin-ichi; Yamamoto, Yuji; and Nagai, Hisao, 4,268,638, Cl. 525-263.000.

Nagano, Katsumi, to Tokyo Shibaura Denki Kabushiki Kaisha. Limiter circuit. 4,268,789, Cl. 323-315.000.

Nagano, Keisuke: *See*—
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Naganuma, Tsutomu; Hoshi, Hisao; Kumagai, Hiroji; and Yoshida, Kaneki, to Toppan Printing Co., Ltd. Dry planographic printing apparatus. 4,268,158, Cl. 355-3.00R.

Nagatani, Toshio: *See*—
Iytaka, Tateshi; Matsuo, Syunji; Nagatani, Toshio; Takahashi, Kazuo; and Habu, Takeshi, 4,268,620, Cl. 430-403.000.

Nakada, Mitsugu: *See*—
Teraoka, Akira; and Nakada, Mitsugu, 4,268,048, Cl. 280-5.00A.

Nakagawa, Kazuhiko; Fujieda, Yasuhiko; Hara, Shozo; Tanaka, Toshikazu; and Taira, Akira, to Kobe Steel, Limited. Green tire conveying method and apparatus. 4,268,219, Cl. 414-786.000.

Nakagawa, Sadayoshi; and Shinohara, Mitsuharu, to Hosiden Electronics Co., Ltd. Electret microphone. 4,268,725, Cl. 179-111.00E.

Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, to Citizen Watch Co., Ltd. Electronic calculator watch. 4,268,913, Cl. 368-10.000.

Nakahata, Kimio; Aguro, Yoshinori; and Tamura, Yasuyuki, to Canon Kabushiki Kaisha. Electrophotographic apparatus with corona discharge control. 4,268,161, Cl. 355-3.0CH.

Nakajima, Yukio: *See*—
Kondo, Isao; and Nakajima, Yukio, 4,268,140, Cl. 354-34.000.

Nakamura, Hiroya: *See*—
Yajima, Tatsuo; and Nakamura, Hiroya, 4,268,164, Cl. 355-41.000.

Nakamura, Kotaro: *See*—
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,268,605, Cl. 430-216.000.

Nakamura, Makoto: *See*—
Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiiba, Kiyonori, 4,268,362, Cl. 203-28.000.

Nakamura, Takashi, to Sony Corporation. Sync generator for a color television system. 4,268,852, Cl. 358-17.000.

Nakamura, Takashi; and Taki, Akira, to Sony Corporation. Synchronizing signal generator for a PAL television signal processing system. 4,268,853, Cl. 358-17.000.

Nakane, Hisashi: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, 4,268,539, Cl. 427-108.000.

Nakanishi, Kiyoshi: *See*—
Kanda, Mutsumi; Nakanishi, Kiyoshi; and Motosugi, Katsuhiko, 4,267,806, Cl. 123-287.000.

Nakano, Kazuo; Iwabuchi, Toshiyuki; and Yamamoto, Ichiji, to OKI Electric Industry Co., Ltd. Thermal recording system. 4,268,838, Cl. 346-76.0PH.

Nakao, Sho: *See*—
Shiba, Keisuke; Toyama, Tadao; and Nakao, Sho, 4,268,609, Cl. 430-271.000.

Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, to Tokyo Denshi Kagaku Kabushiki Kaisha. Liquid coating composition for forming transparent conductive films and a coating process for using said composition. 4,268,539, Cl. 427-108.000.

Nakayama, Shozo; Kato, Kimio; and Fujii, Tomoo, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Structure of a shoe for a swash plate type compressor. 4,268,225, Cl. 417-269.000.

Nakayama Steel Works, Limited: *See*—
Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, 4,268,295, Cl. 65-19.000.

Nalco Chemical Company: *See*—
Cosper, David R.; and Soll, Patricia R., 4,268,352, Cl. 162-191.000.

Namiki, Ryo: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Namiki, Tomizo; Shinozaki, Fumiaki; and Ikeda, Tomoaki, to Fuji Photo Film Co., Ltd. Photosensitive image forming material and an image forming method using same. 4,268,601, Cl. 430-159.000.

Namiki, Tomizo: *See*—
Shinozaki, Fumiaki; Namiki, Tomizo; Kitajima, Masao; Ikeda, Tomoaki; and Mizobuchi, Yuzo, 4,268,575, Cl. 428-336.000.

Napco, Inc.: *See*—
Johnson, Charles M., 4,268,206, Cl. 414-222.000.

Narasimhan, Mandayam C., to Allied Chemical Corporation. Strips of metallic glasses containing embedded particulate matter. 4,268,564, Cl. 428-143.000.

Narato, Kiyoshi: *See*—
Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.

Natinsky, Ronald E. Power window lift assembly. 4,267,668, Cl. 49-349.000.

National Research Development Corporation: *See*—
Banister, Arthur J.; Fielder, Andrew J.; Hauptman, Zdenek V.; and Smith, Nigel R. M., 4,268,491, Cl. 423-406.000.
Capaccio, Giancarlo; and Ward, Ian M., 4,268,470, Cl. 528-502.000.

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Gray, Bruce; Harris, James M.; and Gouin, William M., 4,268,849, Cl. 357-71.000.

National Starch and Chemical Corporation: *See*—
Ray-Chaudhuri, Dilip K.; Chiao, Wen B.; and Schoenberg, Jules E., 4,268,656, Cl. 528-103.000.

National Steel Corporation: *See*—
Smith, James T., 4,267,954, Cl. 228-173.00D.

Natori, Minoru: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Natter, Howard. Pedagogic molding apparatus. 4,268,242, Cl. 425-182.000.

Nava, Pierluigi: *See*—
Albano, Amedeo, 4,267,651, Cl. 36-131.000.

Navias, Louis: *See*—
Park, Dong-Sil; and Navias, Louis, 4,268,313, Cl. 106-54.000.

Neal, William F.: *See*—
Monsarrat, William G.; and Neal, William F., 4,268,221, Cl. 415-116.000.

Nealy, Robert B. Leash to surf mat connector. 4,267,615, Cl. 9-310.00E.

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Neel, Robert M.; Waite, James B.; and Yoknis, Myron, to Teledyne Industries, Inc. Programmable thermostat. 4,267,966, Cl. 236-46.00A.

Neff, James A.; Fagerlie, Richard A.; and Bowman, Walter J., to Mac Valves, Inc. Directional control valve with flow path through valve spool. 4,267,862, Cl. 137-625.640.

Negro, Guido, to Bielomatik Leuze GmbH & Co. Apparatus for producing coils. 4,267,865, Cl. 140-92.940.

Nelson, Cecil O. Solar energy collector. 4,267,821, Cl. 126-417.000.

Nelson, Hoyt H.: *See*—
Curchod, Donald B.; and Nelson, Hoyt H., 4,267,730, Cl. 73-462.000.

Nemeth, William R., to Diamond Shamrock Corporation. Dental compositions of improved properties. 4,268,310, Cl. 106-38.350.

Neopharmed S.p.A.: *See*—
Reiner, Alberto, 4,268,685, Cl. 560-56.000.

Nercessian, Sarkis, to Kepco, Inc. Programmable high voltage power supply with negative ground. 4,268,790, Cl. 323-318.000.

Neti, Radhakrishna M., to Beckman Instruments, Inc. High temperature, CO_2 interference free, electrochemical O_2 sensor. 4,268,370, Cl. 204-195.00P.

Neuhring, Harley D. Combination combine and hay head. 4,267,687, Cl. 56-14.400.

Neville, Robert S., to ICI Australia Limited. Processes of making prilled ammonium nitrate compositions. 4,268,490, Cl. 423-266.000.

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Kearns, William J., 4,268,878, Cl. 360-97.000.

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Randolph, Travis M.; and Newhouse, Thomas J., 4,267,677, Cl. 52-242.000.

Nguyen Mong, Lan, to Symphar S.A. Monophosphonate compounds as hypoglycemic and/or antiatherogenic agents. 4,268,507, Cl. 424-217.000.

Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., to Continental Pharma. Pharmaceutical composition and therapeutical method for treating degenerative affections of the articular cartilage. 4,268,517, Cl. 424-283.000.

Nield, Eric: *See*—
Maslen, John; and Nield, Eric, 4,268,432, Cl. 260-45.75B.

Nieling, James R.: *See*—
Berglund, Neil C.; and Nieling, James R., 4,268,902, Cl. 364-200.000.

Nielson, Donald L.; Fylstra, David J.; and Stehle, Roy H., to SRI International. Portable telephone communication device for the hearing impaired. 4,268,721, Cl. 179-2.00C.

Nierlich, Franz: *See*—
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,268,448, Cl. 260-346.750.

Niesen, George P.: *See*—
Oleksiak, Richard L.; and Niesen, George P., 4,268,027, Cl. 271-153.000.

Nightingale, Douglas D. J., to Imperial Chemical Industries Limited Valve. 4,268,472, Cl. 264-230.000.

Nilsson, Bengt: *See*—
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,267,937, Cl. 220-267.000.
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,268,336, Cl. 156-244.130.

Ninomiya, Masakazu: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Nintendo Company Limited: *See*—
Yokoi, Gunpei, 4,268,036, Cl. 273-316.000.

Nippon Clean Engine Laboratory Co.: *See*—
Onishi, Shigeru; and Kato, Satoshi, 4,268,461, Cl. 261-39.00B.

Nippon Electric Co., Ltd.: *See*—
Hareyama, Kyuichi, 4,268,820, Cl. 340-347.0NT.
Kurakami, Osamu; Koshimaru, Shigeru; and Yamanaka, Takashi, 4,268,847, Cl. 357-52.000.
Takahashi, Hiroshi, 4,268,855, Cl. 358-36.000.
Tokunaga, Tadatsugu; and Fujii, Akira, 4,268,760, Cl. 307-562.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Aoki, Eiichiro; and Suzuki, Tsutomu, 4,267,762, Cl. 84-1.030.
Futamase, Tsuyoshi; and Chibana, Masanobu, 4,267,763, Cl. 84-1.220.

Nippon Kogaku K.K.: *See*—
Daitoku, Koichi, 4,268,154, Cl. 354-238.000.
Ishibashi, Kazufumi; and Ichimura, Takeo, 4,268,312, Cl. 106-47.00Q.
Wakabayashi, Hiroshi, 4,268,148, Cl. 354-173.000.

Nippon Kokan Kabushiki Kaisha: *See*—
Miyashita, Tsuneo; Sato, Yoshio; and Ando, Yoshitsugu, 4,268,412, Cl. 252-373.000.

Nippon Mining Co., Ltd.: *See*—
Kawakami, Katsuhiko; Komori, Kenji; and Megumi, Hiroshi, 4,268,414, Cl. 252-412.000.

Nippon Soken, Inc.: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Nippon Steel Corporation: *See*—
Iwayama, Kenzo; and Tanaka, Osamu, 4,268,326, Cl. 148-113.000.

Nippon Zeon Co. Ltd.: *See*—
Maeda, Akio; Hashimoto, Kinro; Inagami, Masaaki; and Fukushima, Hiroshi, 4,268,644, Cl. 525-403.000.
Miyaguchi, Akinori; Morita, Yasuomi; and Chino, Yasuyoshi, 4,268,427, Cl. 260-23.70C.

Nippondenso Co., Ltd.: *See*—
Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, 4,268,910, Cl. 364-431.000.

Nishida, Minoru: *See*—
Imanaka, Hiroshi; and Nishida, Minoru, 4,268,503, Cl. 424-114.000.

Nishikawa, Yasuhisa; and Kanai, Takao. Pushbutton tuner. 4,267,739, Cl. 74-10.330.

Nishimori, Toyohiko: *See*—
Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, 4,268,781, Cl. 318-434.000.

Nishimura, Fumio: *See*—
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, 4,268,464, Cl. 264-22.000.

Nishimura, Toshihiro: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, 4,268,539, Cl. 427-108.000.

Nishiyama, Yukinori: *See*—
Kita, Yasuo; and Nishiyama, Yukinori, 4,267,903, Cl. 188-72.600.

Nisper, Kenneth J., to Muskegon Piston Ring Company. Multiple seal stationary sealing ring. 4,268,046, Cl. 277-139.000.

Nissan Motor Company, Limited: *See*—
Hiraiwa, Kazuyoshi, 4,267,907, Cl. 192-3.560.
Mase, Yasushi; and Okamura, Toshikazu, 4,267,809, Cl. 123-409.000.
Matsuoka, Hideoki; and Yamamoto, Yoshimi, 4,268,816, Cl. 340-52.00E.
Ota, Tadaki; Yoshikawa, Katsushi; and Saito, Masaaki, 4,268,462, Cl. 261-40.000.
Shimizu, Kenzo; and Matsuno, Yoshio, 4,267,993, Cl. 248-27.100.
Tanaka, Yoshiyuki, 4,267,743, Cl. 74-473.0SW.
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,267,910, Cl. 192-17.00R.

Nissen, Axel: *See*—
Horner, Michael; and Nissen, Axel, 4,268,446, Cl. 260-345.500.

Nissin Electric Co., Ltd.: *See*—
Goto, Takeshi; Tanaka, Akio; and Suzuki, Yasuo, 4,267,975, Cl. 239-83.000.

Nitto Electric Industrial Co., Ltd.: *See*—
Oshima, Nobuo; and Maeda, Sajiro, 4,268,127, Cl. 350-337.000.

Nix, Lothar H. W.: *See*—
Kourimsky, Josef A.; and Nix, Lothar H. W., 4,268,731, Cl. 200-67.0AA.

NL Industries, Inc.: *See*—
Khan, Farooq A., 4,268,013, Cl. 254-392.000.

Noack, Manfred G.; and Manke, Steven A., to Olin Corporation. Selective chromate removal from a chlorate solution. 4,268,486, Cl. 423-55.000.

Noel, Francis E., Jr., to International Business Machines Corporation. Signal coupling element for substrate-mounted optical transducers. 4,268,113, Cl. 350-96.200.

Noguchi, Kenzo: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.

Noik, Simon P., to Schlumberger Technology Corporation. Well pressure testing method. 4,267,726, Cl. 73-151.000.

Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Shock absorbing bumper. 4,268,078, Cl. 293-120.000.

Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Shock absorbing bumper. 4,268,079, Cl. 293-120.000.

Norlie, Bruce D.: *See*—
Norlie, Robert N.; and Norlie, Bruce D., 4,268,175, Cl. 366-19.000.

Norlie, Robert N.; and Norlie, Bruce D. Tractor mounted self-loading concrete mixing apparatus. 4,268,175, Cl. 366-19.000.

Norlin, Eric C.: *See*—
Wick, John B., Jr.; and Norlin, Eric C., 4,267,942, Cl. 221-2.000.

Norman, Robert W., Jr.: *See*—
Porter, Marion G.; Norman, Robert W., Jr.; and Flynn, Richard T., 4,268,907, Cl. 364-200.000.

Norris, Richard M., to Avco Corporation. Apparatus for improving particle separator efficiency. 4,268,287, Cl. 55-306.000.

Norris, Richard M.: *See*—
Kent, Peter; Norris, Richard M.; and Charlton, Alan J., 4,268,284, Cl. 55-269.000.

Northern Telecom Limited: *See*—
Chu, Pak-Jong, 4,268,726, Cl. 179-164.000.

Northrop Corporation: *See*—
Stappaerts, Eddy A., 4,268,801, Cl. 331-94.5ML.

Nortron Corporation: *See*—
Curchod, Donald B.; and Nelson, Hoyt H., 4,267,730, Cl. 73-462.000.

Nuerrenbach, Axel: *See*—
Kropp, Rudolf; Thoemel, Frank; Nuerrenbach, Axel; Hoffman, Werner; Wenisch, Franz; and Fuchs, Hartwig, 4,268,445, Cl. 260-345.200.

Numakura, Toshihiko: *See*—
Yamagiwa, Kazuo; Kamakur, Masatoshi; and Numakura, Toshihiko, 4,268,874, Cl. 360-10.000.

N.V. Bekaert S.A.: *See*—
Baillievier, Freddy, 4,268,573, Cl. 428-295.000.

N.V. Raychem S.A.: *See*—
Sovish, Richard C.; and Moisson, Marc F. L., 4,268,041, Cl. 277-1.000.

Oakland Corporation, The: *See*—
Wallace, Richard B., 4,268,544, Cl. 427-264.000.

Obbink Industries, Inc.: *See*—
Obbink, Scott M., 4,268,213, Cl. 414-563.000.

Obbink, Scott M., to Obbink Industries, Inc. Vehicle hoist and towing device. 4,268,213, Cl. 414-563.000.

O'Brien, Thomas P.; and Benjamin, Lawrence, to Procter & Gamble Company, The. Liquid detergent composition. 4,268,406, Cl. 252-105.000.

O'Brien, William J., to Breville Holdings Pty. Limited. Electric fry pan. 4,268,741, Cl. 219-439.000.

Occidental Research Corporation: *See*—
Broniewski, Bogdan M., 4,268,366, Cl. 204-98.000.
Compton, Leslie E., 4,268,378, Cl. 208-254.00R.

O'Connor, Bernard J.; Ficken, William H.; Carnevale, Tony R.; and Lanni, Michael J., to Bendix Corporation, The. Dual suspension gyroscopic device having powered gimbal support. 4,267,737, Cl. 74-5.470.

Oda, Akira: *See*—
Ga, Eiichi; Chino, Koichi; Kikuchi, Makoto; Oda, Akira; and Horiuchi, Susumu, 4,268,409, Cl. 252-301.10W.

Oda, Ryoichi: *See*—
Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, 4,268,690, Cl. 562-416.000.

Oehler, Hermann, to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH; and Oehler Maschinenbau GmbH. Fur-cutting apparatus. 4,267,755, Cl. 83-423.000.

Oehler Maschinenbau GmbH: *See*—
Oehler, Hermann, 4,267,755, Cl. 83-423.000.

Ogawa, Hiroshi: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Ogawa, Hisashi: *See*—
Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, 4,268,068, Cl. 280-804.000.

Ogawa, Junkichi; and Hamanka, Tsutomu, to Fuji Photo Film Co., Ltd. Process for forming photographic images. 4,268,616, Cl. 430-364.000.

Ogawa, Masasi: *See*—
Sera, Hidefumi; Kitatani, Katuzi; Ogawa, Masasi; Ishigaki, Kunio; and Shiraishi, Hisashi, 4,268,627, Cl. 430-623.000.

Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiiba, Kiyonori, to Chisso Corporation. Method for purifying acetic acid. 4,268,362, Cl. 203-28.000.

Ogi, Keiji; Sasaki, Takashi; Okaniwa, Kenichiro; and Tosaka, Yasuo, to Konishiroku Photo Industry Co., Ltd. Direct positive photographic material. 4,268,621, Cl. 430-409.000.

Oguchi, Toshiaki: *See*—
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

O'Halloran, John T., to Hayakawa Associates. Solar concentrator. 4,267,824, Cl. 126-426.000.

O'Handley, Robert C.; and Sullivan, Michael O., to Allied Chemical Corporation. Magnetic glassy metal alloy sheets with improved soft magnetic properties. 4,268,325, Cl. 148-108.000.

Ohashi, Azusa: *See*—
Okishi, Yoshio; Ohashi, Azusa; and Watanabe, Masaru, 4,268,611, Cl. 430-302.000.

Ohbayashi, Gentaro: *See*—
Yoshino, Tsuneo; and Ohbayashi, Gentaro, 4,268,602, Cl. 430-192.000.

Ohno, Shigeru; and Sekigawa, Fujio, to Shin-Etsu Chemical Co. Ltd. Sustained-release solid pharmaceutical dosage forms and preparation thereof. 4,268,496, Cl. 424-19.000.

Ohta, Naoto: *See*—
Kawada, Shigeki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Ohta, Naoto, 4,268,782, Cl. 318-434.000.

Ohta, Shigeto: *See*—
Katagiri, Kazuharu; Ishikawa, Shozo; Ohta, Shigeto; and Kitahara, Makoto, 4,268,595, Cl. 430-48.000.

Ohta, Tazuo: *See*—
Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, 4,268,690, Cl. 562-416.000.

Ohta, Wasaburo: *See*—
Ebi, Yutaka; Hirakura, Koji; Matsumoto, Fuyuhiko; Ohta, Wasaburo; and Tomita, Satoru, 4,268,157, Cl. 355-3.0TR.

Ohtsuka, Kunio: *See*—
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,267,910, Cl. 192-17.00R.

Oka, Hiroshi: *See*—
Yoshida, Yoshinori; and Oka, Hiroshi, 4,268,447, Cl. 260-346.110.

Okamura, Toshikazu: *See*—
Mase, Yasushi; and Okamura, Toshikazu, 4,267,809, Cl. 123-409.000.

Okaniwa, Kenichiro: *See*—
Ogi, Keiji; Sasaki, Takashi; Okaniwa, Kenichiro; and Tosaka, Yasuo, 4,268,621, Cl. 430-409.000.

Okano, Takashi, to Universal Pioneer Corporation. Tracking servo drawing device in optical type information reading device. 4,268,745, Cl. 369-44.000.

Okawara, Yasuo: *See*—
Mizutani, Nagao; Okawara, Yasuo; and Shimazaki, Toshikazu, 4,268,182, Cl. 400-247.000.

Okazaki, Haruhiko: *See*—
Sakakibara, Takao; and Okazaki, Haruhiko, 4,268,542, Cl. 427-195.000.

Okegawa, Osamu: *See*—
Sakakibara, Hideo; Fujiwara, Tatsuro; Okegawa, Osamu; Watanabe, Toshiyuki; Watanabe, Susumu; and Matsuda, Tetsuo, 4,268,665, Cl. 536-17.00R.

OKI Electric Industry Co., Ltd.: *See*—
Nakano, Kazuo; Iwabuchi, Toshiyuki; and Yamamoto, Ichiji, 4,268,838, Cl. 346-76.0PH.

Okishi, Yoshio; Ohashi, Azusa; and Watanabe, Masaru, to Fuji Photo Film Co., Ltd. Contact photographic process for producing a planographic printing plate. 4,268,611, Cl. 430-302.000.

Okishi, Yoshio, to Fuji Photo Film Co., Ltd. Agent for protecting the surface of lithographic printing plate. 4,268,613, Cl. 430-309.000.

Okudaira, Haruo: *See*—
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, 4,268,464, Cl. 264-22.000.

Okuyama, Teiji, to Aisin Seiki Kabushiki Kaisha. Seat assembly for an automobile. 4,268,086, Cl. 297-63.000.

Okuyama, Yoshio: *See*—
Takasugi, Mitsuo; and Okuyama, Yoshio, 4,268,251, Cl. 433-75.000.

Olberg, Stirling M.; Fowler, Vernon J.; and Anderson, Bruce, to GTE Laboratories Incorporated. Scrambler speech transmission and synchronization system. 4,268,720, Cl. 179-1.50R.

Olds, Peter J.: *See*—
Blakeway, Richard S.; Blakeway, Stanley R.; and Olds, Peter J., 4,267,610, Cl. 5-60.000.

Oleksiak, Richard L.; and Niesen, George P., to A. B. Dick Company. Sheet feeding apparatus. 4,268,027, Cl. 271-153.000.

Olin Corporation: *See*—
Kershner, Stuart D., 4,267,952, Cl. 227-9.000.
Noack, Manfred G.; and Manke, Steven A., 4,268,486, Cl. 423-55.000.

Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, to SKF Kugellagerfabriken GmbH. Conveyor belt roll. 4,267,920, Cl. 198-842.000.

Olschewski, Armin: *See—*
Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, 4,267,913, Cl. 192-98.000.

Olsen, Everett O., to Foxboro Company, The. Apparatus for determining the state of each of a plurality of bi-state devices. 4,268,822, Cl. 340-533.000.

Olsfors, Jan: *See—*
Bois, Daniel; and Olsfors, Jan, 4,268,039, Cl. 369-220.000.

Olszewski, Egon: *See—*
Benteler, Hubertus; Olszewski, Egon; Hansen, Rainer; and Wecker, Ferdinand, 4,267,718, Cl. 72-59.000.

Olympus Optical Co., Ltd.: *See—*
Kondo, Isao; and Nakajima, Yukio, 4,268,140, Cl. 354-34.000.
Matsuo, Kazumasa, 4,267,828, Cl. 128-6.000.
Saito, Shoichi, 4,268,881, Cl. 360-109.000.
Uetake, Toshifumi; and Matsubara, Masaki, 4,268,128, Cl. 350-410.000.

Omori, Norio; Fujisawa, Hideya; Kawashima, Yutaka; Ninomiya, Masakazu; Kawai, Hisasi; and Matsui, Takeshi, to Nippondenso Co., Ltd.; and Nippon Soken, Inc. Method for controlling timing of spark ignition for an internal combustion engine by feedback related to the detection of knocking. 4,268,910, Cl. 364-431.000.

Omron Tateisi Electronics Co.: *See—*
Iwakiri, Norio, 4,268,735, Cl. 200-314.000.

Omura, Yoshio: *See—*
Yoshikumi, Chikao; Omura, Yoshio; and Hotta, Tetsuya, 4,268,505, Cl. 424-180.000.

Onishi, Shigeru; and Kato, Satoshi, to Nippon Clean Engine Laboratory Co. Temperature compensating float arm for use in carburetors. 4,268,461, Cl. 261-39.00B.

Ono, Jun: *See—*
Sakai, Kunitaka; and Ono, Jun, 4,268,085, Cl. 296-217.000.

Ono, Shigetoshi: *See—*
Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, 4,268,625, Cl. 430-562.000.

Onoda, Mamoru: *See—*
Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, 4,268,303, Cl. 75-34.000.

Oppenheimer, Jess. Transverse force indicating device for swing teaching. 4,268,035, Cl. 273-186.00A.

Optelecom Incorporated: *See—*
Schmadel, Donald; Culver, William H.; and Gould, Gordon, 4,268,116, Cl. 350-96.290.

Optical Coating Laboratory, Inc.: *See—*
Gurev, Harold S., 4,268,711, Cl. 136-256.000.

Opticol Corporation: *See—*
Miyata, Teruo; Rubin, Albert L.; Stenzel, Kurt H.; and Dunn, Michael W., 4,268,131, Cl. 351-160.00H.

Orilio, Paul F.: *See—*
Beck, Joseph H.; and Orilio, Paul F., 4,267,967, Cl. 236-49.000.

Orth, Norman W.: *See—*
Hoffman, Charles A.; Weeton, John W.; and Orth, Norman W., 4,267,953, Cl. 228-118.000.

Orzikowski, Gunter, to Hellige GmbH. Ink jet recording instrument. 4,268,837, Cl. 346-75.000.

Osaka Soda Co. Ltd.: *See—*
Matoba, Yasuo, 4,268,640, Cl. 525-346.000.

Oshima, Nobuo; and Maeda, Sajiro, to Nitto Electric Industrial Co., Ltd. Light transmitting and reflecting polarizer. 4,268,127, Cl. 350-337.000.

Oshio, Hiromichi: *See—*
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,268,301, Cl. 71-90.000.

Osho, Takatori, to Takatori Machinery Works Ltd. Automatic apparatus for feeding and fitting a gore piece to the inside thigh opening of a stocking material. 4,267,785, Cl. 112-121.120.

Ost, Clarence S. High-security cable television access system. 4,268,859, Cl. 358-114.000.

Oswald, Alexis A.; and Murrell, Lawrence L., to Exxon Research & Engineering Co. ω-Alkenyl silanes and $\alpha\omega$-silyl alkanes. 4,268,682, Cl. 556-465.000.

Ota, Tadaki; Yoshikawa, Katsushi; and Saito, Masaaki, to Nissan Motor Company, Limited. Variable venturi carburetor. 4,268,462, Cl. 261-40.000.

Otterness, Ivan G.: *See—*
Lombardino, Joseph G.; Otterness, Ivan G.; and Muren, James F., 4,268,516, Cl. 424-273.00P.

Outboard Marine Corporation: *See—*
Beem, W. Wayne, 4,268,258, Cl. 440-63.000.

Outokumpu Oy: *See—*
Leiponen, Matti O.; and Tonteri, Ossi T., 4,267,877, Cl. 164-155.000.

Ovens, Christopher W.: *See—*
Hughen, James F.; Herring, Jimmy R.; Biedermann, David A.; and Ovens, Christopher W., 4,268,827, Cl. 340-715.000.

Overall, Colin D., to U.S. Philips Corporation. Electron display tubes. 4,268,712, Cl. 174-50.630.

Owatonna Manufacturing Company, Inc.: *See—*
Rypka, Dann B., 4,267,804, Cl. 123-179.00K.

Owens-Corning Fiberglas Corporation: *See—*
Johnson, Donald T., 4,268,292, Cl. 65-2.000.

Owens-Illinois, Inc.: *See—*
Augsburger, William F., 4,267,624, Cl. 29-25.150.
Boling, Norman L., 4,268,709, Cl. 136-247.000.
Pfaender, Lawrence V., 4,268,296, Cl. 65-90.000.

Oy Wartsila Ab: *See—*
Martikainen, Kaarlo, 4,267,717, Cl. 70-366.000.

Oyama, Shigeaki: *See—*
Kawada, Shigeki; Oyama, Shigeaki; Fujioka, Yoshiki; Hirota, Mitsuhiko; and Nishimori, Toyohiko, 4,268,781, Cl. 318-434.000.

Ozawa, Keiji, to Victor Company of Japan, Ltd. System for transmitting carrier chrominance signals of color video signals. 4,268,854, Cl. 358-27.000.

Palara, Sergio, to SGS-ATES Componenti Elettronici S.p.A. Linear amplifier with distortion correction. 4,268,796, Cl. 330-267.000.

Palmer, Richard F., to Phillips Petroleum Company. Addition of monomer in production of liquid polymers. 4,268,705, Cl. 585-429.000.

Palmquist, Philip V.; and Bradshaw, Thomas I., to Minnesota Mining and Manufacturing Company. Sheeting useful as a projection screen. 4,268,118, Cl. 350-128.000.

Pantec S.r.l.: *See—*
Peccenini, Paolo; and Romini, Paolo, 4,268,574, Cl. 428-315.000.

Paquette, James P., to Berlyn Corporation, The. Leak proof filter plate system for slide plate filters. 4,268,391, Cl. 210-236.000.

Park, Dong-Sil; and Navias, Louis, to General Electric Company. Sodium resistant sealing glasses. 4,268,313, Cl. 106-54.000.

Park Fastener Company: *See—*
Bloomfield, Roger D., 4,267,876, Cl. 160-392.000.

Parke, Davis & Company: *See—*
Von Wattenwyl, Andre R., 4,268,265, Cl. 8-438.000.

Parmet, Bernard S., to Motorola, Inc. Universal automotive electronic radio with display for tuning or time information. 4,268,915, Cl. 455-158.000.

Parsons, Donald G.: *See—*
Rauscher, L. Andrew; and Parsons, Donald G., 4,267,827, Cl. 128-1.100.

Paschakarnis, Peter; and Fischer, Wolfgang, to Sachs-Systemtechnik GmbH. Cordless inductive flat iron apparatus. 4,268,737, Cl. 219-10.49R.

Patel, Pradeep V., to B. F. Goodrich Company, The. Inhibiting polymerization in extractive distillation of C-4 hydrocarbons using alkoxynitrile-containing solvent. 4,268,361, Cl. 203-9.000.

Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., to Exxon Research & Engineering Co. Microbiological production of ketones from C_3-C_6 alkanes. 4,268,630, Cl. 435-148.000.

Patience, Donald: *See—*
Fitzgerald, Harry G.; and Patience, Donald, 4,268,340, Cl. 156-296.000.

Patin, Pierre; and Plagne, Jean, to Regie Autonome des Transports Parisiens. Chain with a single direction of curvature and application to a handrail. 4,267,922, Cl. 198-851.000.

Patzer, Helmut: *See—*
Bauer, Walter; Fabricius, Emilio; Lanzerath, Gunther; Patzer, Helmut; and Vogele, Richard, 4,267,912, Cl. 192-53.00F.

Paul, Jill H., to Mobil Oil Corporation. Amidoximether insecticides. 4,268,525, Cl. 424-326.000.

Paull, Sheldon A. Device for setting-up a baseball diamond. 4,267,637, Cl. 33-1.00G.

Pavlicek, Cleone J., to Miles Laboratories, Inc. Remotely operable lid for storage bins. 4,267,936, Cl. 220-262.000.

Pavlov, Vladimir V.: *See—*
Zolotenko, Vladimir A.; Pavlov, Vladimir V.; Sokolov, Viktor E.; and Syromyatnikov, Alexei N., 4,268,795, Cl. 350-9.000.

Pearce, Robert J.: *See—*
Galt, Ronald H. B.; and Pearce, Robert J., 4,268,514, Cl. 424-267.000.

Pearson, Carl R.: *See—*
Wilbur, Robert L.; and Pearson, Carl R., 4,268,248, Cl. 432-62.000.

Peccenini, Paolo; and Romini, Paolo, to Pantec S.r.l. Prefabricated self-supporting panels and manufacture process thereof. 4,268,574, Cl. 428-315.000.

Peddinghaus, Rolf: *See—*
Regenbrecht, Ludwig, 4,268,195, Cl. 408-16.000.

Pedrotty, Doulas G., to Minnesota Mining and Manufacturing Company. Rigid magnetic recording disks lubricated with fluorinated telechelic polyether. 4,268,556, Cl. 428-65.000.

Peille, Jean M. R., to Societe Industrielle de Stratifies. Distribution and calibration system for expanded plastic panel manufacture. 4,268,236, Cl. 425-115.000.

Pellenen, Anatoly P.: *See—*
Vydrin, Vladimir N.; Ageev, Leonid M.; and Pellenen, Anatoly P., 4,267,720, Cl. 72-205.000.

Penelizer Corporation: *See—*
Stone, Eugene M., 4,268,318, Cl. 106-277.000.

Penn Virginia Corporation: *See—*
Klingaman, Richard M.; and Ehrenreich, Leo C., 4,268,320, Cl. 106-288.00B.

Pennington, Keith S.: *See—*
Aviram, Ari; Pennington, Keith S.; and Kuhn, Lawrence, 4,268,368, Cl. 204-181.00C.

Pennwalt Corporation: *See—*
Shaw, Douglas R., 4,268,380, Cl. 209-167.000.

Pennzoil Company: *See—*
Sardisco, John B.; and Drechsel, Erhart K., 4,268,492, Cl. 423-482.000.

Pentel Kabushiki Kaisha: *See—*
Iwata, Masahiro; and Taka, Yuichi, 4,268,411, Cl. 252-316.000.

Pernet, Andre G.: *See—*
Fung, Anthony K. L.; Morrison, Donald E.; and Pernet, Andre G., 4,268,691, Cl. 568-322.000.

Perreault, Arthur W.; and Dupre, Leo H. Load carrying apparatus. 4,268,217, Cl. 414-740.000.

Perrett, Thomas R.; and Carter, Gilbert T., to Synthes AG. Medical device sterilization case. 4,267,939, Cl. 220-318.000.

Perricone, Alphonse C.: *See—*
Lucas, James M.; Perricone, Alphonse C.; and Enright, Dorothy P., 4,268,400, Cl. 252-8.50C.

Persidsky, Maxim D.; and Ling, Nan-Sing, to Institutes of Medical Sciences, The. Apparatus for centrifugal separation of platelet-rich plasma. 4,268,393, Cl. 210-516.000.

Peskin, Samuel. Full view dual-use mirror apparatus. 4,268,121, Cl. 350-306.000.

Peter Paul Electronics: *See—*
Allen, Walter, Jr., 4,268,009, Cl. 251-138.000.

Peters, Gunter. Truck having a load platform and superstructure. 4,268,084, Cl. 296-148.000.

Peters, Robert W., to Greenleaf Corporation. Indexable insert drill. 4,268,198, Cl. 408-186.000.

Peterson Electronic Die Co.: *See—*
Peterson, Everett A., 4,268,338, Cl. 156-251.000.

Peterson, Everett A., to Peterson Electronic Die Co. Method and apparatus for RF sealing of thermoplastic layers. 4,268,338, Cl. 156-251.000.

Peterson, Kenneth P., to International Telephone and Telegraph Corporation. Fiber optic connector using gradient index lenses. 4,268,112, Cl. 350-96.180.

Peterson, Marvin L.: *See—*
Garnett, Donald I.; and Peterson, Marvin L., 4,268,421, Cl. 252-441.000.

Peterson, Richard: *See—*
Hodapp, Gary; Peterson, Richard; and Schulz, Richard, 4,267,767, Cl. 91-404.000.

Petitpas, Jean-Marie L.: *See—*
Verdenne, Serge J. C.; Petitpas, Jean-Marie L.; and Boirin, Jean-Claude A. E., 4,268,202, Cl. 414-39.000.

Petri AG: *See—*
Herold, Horst, 4,267,908, Cl. 192-8.00C.
Herold, Horst, 4,267,909, Cl. 192-8.00C.

Pez, Guido P.; and Grey, Roger A., to Allied Chemical Corporation. Anionic group VIII metal hydride catalysts. 4,268,454, Cl. 260-439.00R.

Pfaender, Lawrence V., to Owens-Illinois, Inc. Method and apparatus for manufacture of glass film. 4,268,296, Cl. 65-90.000.

Pfeiffer, Horst, to J. Hengstler K.G. Counting-down counter. 4,268,743, Cl. 235-130.00R.

Pfeiffer, Peter; and Tomforde, Johann, to Daimler-Benz Aktiengesellschaft. Diffusion lens for rear lights of vehicles, especially motor vehicles. 4,268,892, Cl. 362-83.000.

Pfizer Inc.: *See—*
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,523, Cl. 424-308.000.
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,268,692, Cl. 568-326.000.
Eggler, James F.; and Hess, Hans-Jurgen E., 4,268,522, Cl. 424-305.000.
Lombardino, Joseph G.; Otterness, Ivan G.; and Muren, James F., 4,268,516, Cl. 424-273.00P.

Philip A.D. Machine, Inc.: *See—*
Wierenga, Allen J., 4,268,038, Cl. 273-416.000.

Philip A. Hunt Chemical Corp.: *See—*
Klavan, Irving L.; Calabrese, Peter J.; Finch, Theron R.; Greenberg, Arthur; and McElroy, Robert P., 4,268,597, Cl. 430-102.000.

Phillips Petroleum Company: *See—*
Bertus, Brent J.; McKay, Dwight L.; and Roberts, John S., 4,268,188, Cl. 405-128.000.
Box, E. O., Jr.; and Farha, Floyd E., Jr., 4,268,399, Cl. 210-762.000.
Ganaway, Franklin D., 4,268,784, Cl. 318-610.000.
Murtha, Timothy P.; and Zuech, Ernest A., 4,268,699, Cl. 585-268.000.
Palmer, Richard F., 4,268,705, Cl. 585-429.000.
Young, Jerry W., 4,268,342, Cl. 156-357.000.

Phillips, Reed E. Plant soil moisture level-signaling device for household and commercial use. 4,268,824, Cl. 340-604.000.

Picker Corporation: *See—*
Shinozaki, Tamotsu; Gallant, Thomas E.; Deane, Robert S. D.; and Cunningham, Daniel, 4,267,641, Cl. 33-365.000.

Pieri, Giampiero; Rosati, Enzo; Battisti, Ruggero; and Burei, Giovanni, to Aziende Colori Nazionali Affini Acna S.p.A. Process for preparing diazonium salts of 3-amino-pyrazole. 4,268,436, Cl. 260-141.000.

Pike, Carl A.; and Hixson, J. Ellsworth. Disc reel mower and method and means of manufacturing the same. 4,267,690, Cl. 56-294.000.

Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, to AB Akerlund & Rausing. Tear opening device for containers. 4,267,937, Cl. 220-267.000.

Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, to AB Akerlund & Rausing. Method of manufacturing containers. 4,268,336, Cl. 156-244.130.

Pinkham, Carlos F. A.: *See—*
Wallace, Volney; and Pinkham, Carlos F. A., 4,267,665, Cl. 47-26.000.

Pioneer Electronic Corporation: *See—*
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Pipes, George R., to Eaton Corporation. Load support and shuttle. 4,268,207, Cl. 414-277.000.

Pitney Bowes, Inc.: *See—*
Russell, John J., Jr., 4,268,599, Cl. 430-108.000.

Plagne, Jean: *See—*
Patin, Pierre; and Plagne, Jean, 4,267,922, Cl. 198-851.000.

Plaisted, Richard E., to Gillette Company, The. Hair curling device. 4,267,851, Cl. 132-33.00R.

Plantard, Dominique: *See—*
Levecque, Marcel, deceased; Levecque, Marc, administrator; Battigelli, Jean A.; and Plantard, Dominique, 4,268,293, Cl. 65-5.000.

Platz, Rolf; Fuchs, Werner; Rieber, Norbert; Samel, Ulf-Rainer; Jung, Johann; and Wuerzer, Bruno, to BASF Aktiengesellschaft. Tri/penta/aza-tetracyclo-dodeca/enes/dienes or-decaenes. 4,268,300, Cl. 71-76.000.

Plessey Peripheral Systems: *See—*
Veale, John R., 4,268,177, Cl. 400-55.000.

Polakowski, Ted D., Jr.: *See—*
Beckenbaugh, William M.; Goldman, Patricia J.; and Polakowski, Ted D., Jr., 4,268,536, Cl. 427-54.100.

Polaner, Mardy, to Barbron Corporation. Flame arresting air filter element. 4,268,289, Cl. 55-486.000.

Polaroid Corporation: *See—*
Coppa, Richard J.; Ellin, Seymour; and Stempeck, John W., 4,268,138, Cl. 354-27.000.
Johnson, Bruce K., 4,268,146, Cl. 354-145.000.
Reynard, John M., 4,268,142, Cl. 354-86.000.

Polischuk-Sawtschenko, Alexander: *See—*
Kekas, Dennis H.; McAdams, Ronald P.; and Polischuk-Sawtschenko, Alexander, 4,268,100, Cl. 339-17.0LM.

Polzhofer, Kurt: *See—*
Seidel, Hartmut; and Polzhofer, Kurt, 4,268,639, Cl. 525-303.000.

Pope, Clarence. Expandable burglar proof window. 4,267,874, Cl. 160-92.000.

Porter, Marion G.; Norman, Robert W., Jr.; and Flynn, Richard T., to Honeywell Information Systems Inc. Cache unit bypass apparatus. 4,268,907, Cl. 364-200.000.

Post Office, The: *See—*
Groves, Ian S.; Guard, David R.; and Whalley, Steven, 4,268,716, Cl. 179-1.0CN.

Poulos, Andrew C.; and Hightower, John D., to American Cyanamid Company. Selective flocculation for increased coal recovery by froth flotation. 4,268,379, Cl. 209-5.000

Powell, James; Hsieh, Shih-Yung; and Lehner, John R., to United States of America, Energy. Demountable externally anchored low-stress magnet system and related method. 4,268,353, Cl. 176-3.000.

Powers, John V.: *See—*
Ahn, Kie Y.; Bajorek, Christopher H.; Ho, Paul S.; Miller, Robert J.; and Powers, John V., 4,268,584, Cl. 428-620.000.

Powers, Richard J. Pallet and post construction therefor. 4,267,781, Cl. 108-56.100.

Pozdnyakov, Anatoly M.: *See—*
Koshkin, Lev N.; Semenov, Valery M.; Repin, Jury A.; Pozdnyakov, Anatoly M.; and Lutskov, Nikolai Z., 4,268,243, Cl. 425-575.000.

PPG Industries, Inc.: *See—*
Fahey, Dennis M., 4,268,577, Cl. 428-394.000.
Keim, William A.; and Cook, James A., Jr., 4,268,456, Cl. 260-455.00R.
Lavanish, Jerome M., 4,268,675, Cl. 548-137.000.
Lavanish, Jerome M., 4,268,679, Cl. 548-247.000.

Preload Technology, Inc.: *See—*
Marchaj, Tadeusz J., 4,267,676, Cl. 52-167.000.

Prewo, Karl M.: *See—*
Bacon, James F.; and Prewo, Karl M., 4,268,562, Cl. 428-113.000.

Price, Charles A., to United States Steel Corporation. Preventing the overcharging of coke ovens. 4,268,218, Cl. 414-786.000.

Price, Herbert S.; and Hunter, Glen E., to Texasgulf Inc. Shortwall mining of trona. 4,268,088, Cl. 299-11.000.

Procter & Gamble Company, The: *See—*
Flautt, Thomas J., Jr.; Maguire, Edward J., Jr.; and Richardson, David L., 4,268,738, Cl. 219-10.55F.
Gibson, Thomas W., 4,268,697, Cl. 568-911.000.
O'Brien, Thomas P.; and Benjamin, Lawrence, 4,268,406, Cl. 252-105.000.

Proffitt, William P.: *See—*
Johnston, Thomas F., Jr.; and Proffitt, William P., 4,268,800, Cl. 331-94.50C.

Proudfoot, Clare B., to Sherwin-Williams Company, The. Field test method for estimation of concentration of organic materials in water. 4,268,269, Cl. 23-230.00M.

Pruett, Earl M. Single hand-operated dual brake actuator. 4,267,746, Cl. 74-489.000.

Pulido, Miguel L.: *See—*
Buckman, Robert H.; Young, Peter J.; and Pulido, Miguel L., 4,268,403, Cl. 252-8.55D.

Purdy, Robert W.; and Arneson, Don A., to SBR Lab Inc. Blood collection monitoring device and method. 4,267,837, Cl. 128-275.000.

Purex Corporation: *See—*
Wade, Charles E., 4,267,940, Cl. 220-321.000.

Pyrenco, Inc.: *See—*
Chittick, Donald E., 4,268,275, Cl. 48-111.000.

Quate, Calvin F., to Stanford University Board of Trustees. Acoustic microscope and method. 4,267,732, Cl. 73-606.000.

Quesnel, Raymond: *See—*
Maurice, Jean; and Quesnel, Raymond, 4,267,883, Cl. 165-129.000.

Quist, Bo T.: *See—*
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,267,937, Cl. 220-267.000.
Piltz, Lars-Eric; Quist, Bo T.; Kiellarson, Folke; Mansson, Siwer; and Nilsson, Bengt, 4,268,336, Cl. 156-244.130.

Racki, Francis R.: *See—*
Kmonk, Stanley; Alder, John L.; and Racki, Francis R., 4,268,356, Cl. 176-78.000.

Radici, Pierino; Custro, Sergio; and Colombo, Paolo, to Societa Italiana Resine S.I.R. S.p.A. Process for improving the stability of acetal polymers. 4,268,643, Cl. 525-400.000.

Raftis, Spiros G.; and Schneider, Lawrence L., to Red Valve Company, Inc. Pinch valve. 4,268,005, Cl. 251-5.000.

Raible, Donald A., to Bentley Laboratories, Inc. Blood oxygenator. 4,268,476, Cl. 422-46.000.

Railroad Concrete Crosstie Corporation: *See—*
Hales, Harvey E.; and Fredrick, Edmund R., 4,267,969, Cl. 238-8.000.

Ramage, Alfred B.: *See—*
Gillis, Clifford J.; and Ramage, Alfred B., 4,268,255, Cl. 434-128.000.

Rammler, Roland; Dreher, Ingo; and Rudisch, Rainer, to Metallgesellschaft Aktiengesellschaft. Method for cooling dustlike or fine-grained solids. 4,268,359, Cl. 201-31.000.

Ranco Incorporated: *See—*
Houk, William J., 4,267,702, Cl. 62-115.000.

Randall, Ross D., to Cameron Iron Works, Inc. Stud tensioner for blowout preventer. 4,268,011, Cl. 254-29.00A.

Randolph, Travis M.; and Newhouse, Thomas J., to Herman Miller, Inc. Filler insert for a wall baseboard assembly in a space divider system. 4,267,677, Cl. 52-242.000.

Rank Organisation Limited, The: *See—*
Millward, John D., 4,268,865, Cl. 358-216.000.

Rapp, Walter W.; and Crosby, Gary A., to Red Fox Industries Inc. Sewage treatment. 4,268,389, Cl. 210-195.300.

Rasberger, Michael: *See—*
Leppard, David G.; and Rasberger, Michael, 4,268,593, Cl. 430-17.000.

Rasche, Peter: *See—*
Harnisch, Horst; and Rasche, Peter, 4,268,668, Cl. 8-685.000.

Raspet, Thomas M., to Ciba-Geigy Corporation. Solid cyanuric chloride handling improvements with tricalcium phosphate. 4,268,408, Cl. 252-182.000.

Ratajczak, Hans-Josef: *See—*
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,268,448, Cl. 260-346.750.

Rathe, Eric J.: *See—*
Schupbach, Hans-Rudolf; and Rathe, Eric J., 4,267,902, Cl. 188-62.000.

Rauch, August H.: *See—*
Bower, Richard K.; Rauch, August H.; and Richard, John F., 4,268,473, Cl. 264-234.000.

Rauchut, Robert F.; and Caparoni, Louis J., to ICI Americas Inc. Protective electrical system for providing indications of removal of objects from plural monitored locations by use of parallel-connected object-sensors. 4,268,823, Cl. 340-570.000.

Rauscher, L. Andrew; and Parsons, Donald G., to Univ. of California, The Regents of the. Ventilator apparatus for life-support and lung scan. 4,267,827, Cl. 128-1.100.

Ray-Chaudhuri, Dilip K.; Chiao, Wen B.; and Schoenberg, Jules E., to National Starch and Chemical Corporation. Co-curing agents for epoxy resins. 4,268,656, Cl. 528-103.000.

Raychem Corporation: *See—*
Jervis, James E., 4,268,329, Cl. 156-51.000.

Rayl, Layton L. Lightweight insulating structural concrete. 4,268,317, Cl. 106-98.000.

Raymond International Builders, Inc.: *See—*
Colle, Ervin R., 4,268,192, Cl. 405-239.000.

Raytheon Company: *See—*
Morrison, Raymond C., 4,268,776, Cl. 313-446.000.

RCA Corporation: *See—*
Goodman, Lawrence A., 4,268,537, Cl. 427-88.000.
Rodgers, Robert L., III, 4,268,866, Cl. 358-228.000.
Wu, Chin T., 4,267,640, Cl. 33-361.000.

Reba, Imants, to Crown Zellerbach Corporation. Liquid distributing apparatus. 4,267,795, Cl. 118-302.000.

Red Fox Industries Inc.: *See—*
Rapp, Walter W.; and Crosby, Gary A., 4,268,389, Cl. 210-195.300.

Red Valve Company, Inc.: *See—*
Raftis, Spiros G.; and Schneider, Lawrence L., 4,268,005, Cl. 251-5.000.

Redington Inc.: *See—*
Vogel, Walter H., 4,267,917, Cl. 198-457.000.

Rees, Herbert; and Schad, Robert D., to Husky Injection Molding Systems. Actuating mechanism for gate valve of injection nozzle. 4,268,240, Cl. 425-548.000.

Rees, Herbert; and Schad, Robert D., to Husky Injection Molding Systems. Heated injection nozzle. 4,268,241, Cl. 425-549.000.

Reese, Max, to Becton Dickinson & Company. Automated direct serum radioassay. 4,268,494, Cl. 424-1.000.

Reeve, James J. Orthodontic appliance. 4,268,250, Cl. 433-20.000.

Regenbrecht, Ludwig, to Peddinghaus, Rolf. Apparatus for making holes in arm sections of structural components. 4,268,195, Cl. 408-16.000.

Regie Autonome des Transports Parisiens: *See—*
Patin, Pierre; and Plagne, Jean, 4,267,922, Cl. 198-851.000.

Regie Nationale des Usines Renault: *See—*
Maurice, Jean; and Quesnel, Raymond, 4,267,883, Cl. 165-129.000.

Reichart, Elwood C., to Motorola, Inc. High performance summing amplifier. 4,268,798, Cl. 330-289.000.

Reichlin, Roland: *See—*
Rutishauser, Thomas; Reichlin, Roland; Viviani, Claudius; and Rutishauser, Albert, 4,268,021, Cl. 271-4.000.

Reid, James A.: *See—*
Fischer, David J.; Wooten, Idella B.; Thomas, John C.; and Reid, James A., 4,268,133, Cl. 351-161.000.

Reid, William W., to British-American Tobacco Company Limited. Tobacco additives. 4,267,847, Cl. 131-275.000.

Reiner, Alberto, to Neopharmed S.p.A. Salicylamide esters and related pharmaceutical composition. 4,268,685, Cl. 560-56.000.

Reiner, Ralph E. Charge feeding and sleeve valve constructions for automatic platen press. 4,267,770, Cl. 100-122.000.

Reinhardt, Bruce A.: *See—*
Arnold, Fred E.; and Reinhardt, Bruce A., 4,268,654, Cl. 526-259.000.

Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, to Institut fur Biomedizinische Technik. Electrolytic process for the sterilization of liquids. 4,268,367, Cl. 204-149.000.

Remers, William A., to University Patents, Inc. Mitomycin analogs. 4,268,676, Cl. 548-181.000.

Remley, Gilbert W.: *See—*
Wassel, William W.; and Remley, Gilbert W., 4,268,354, Cl. 176-19.0EC.

Repeat-O-Type Stencil Manufacturing Co., Inc.: *See—*
Montmarquet, Francis H., Jr., 4,268,576, Cl. 428-342.000.

Repetto, Silvio, to S.p.A. Luigi Rizzi & C. Hydraulic device for producing a to-and-fro movement. 4,267,714, Cl. 69-32.000.

Repin, Jury A.: *See—*
Koshkin, Lev N.; Semenov, Valery M.; Repin, Jury A.; Pozdnyakov, Anatoly M.; and Lutskov, Nikolai Z., 4,268,243, Cl. 425-575.000.

Repromed, Inc.: *See—*
Laufe, Leonard E.; and Wheeler, Robert G., 4,267,839, Cl. 128-303.00A.

Research Corporation: *See—*
Bahl, Om P., 4,268,435, Cl. 260-112.00R.

Rettew, Richard, to Contraves Goerz Corporation. Positioning of an abrasive belt on a grinding machine. 4,267,671, Cl. 51-135.0BT.

Revill, Peter L.: *See—*
Debenham, Michael; Dalli, Allan G.; and Revill, Peter L., 4,267,938, Cl. 226-268.000.

Revlon, Inc.: *See—*
Gedeon, Harvey; Joyce, James F.; and Kellner, David, 4,268,498, Cl. 424-59.000.

Rexnord Inc.: *See—*
Schoenick, Ralph R., 4,267,691, Cl. 59-85.000.
Schrader, Preston H., 4,267,919, Cl. 198-756.000.

Reynard, John M., to Polaroid Corporation. Camera employing web for film ejection and processing. 4,268,142, Cl. 354-86.000.

Rhett, Chester K., to Maul Technology Corporation. Molten glass feeding bowl. 4,268,298, Cl. 65-327.000.

Rhoades, Colin C.: *See—*
Vessey, Rodney W.; and Rhoades, Colin C., 4,267,932, Cl. 212-92.000.
Vessey, Rodney W.; and Rhoades, Colin C., 4,267,933, Cl. 212-108.000.

Rhone-Poulenc Industries: *See—*
Erard, Francois; and Soussan, Salomon, 4,268,651, Cl. 526-65.000.

Richard, John F.: *See—*
Bower, Richard K.; Rauch, August H.; and Richard, John F., 4,268,473, Cl. 264-234.000.

Richards, Lawrence, to GLJ Toy Co., Inc. Inflatable action toy 4,268,030, Cl. 272-77.000.

Richardson Company, The: *See—*
Muzyczko, Thaddeus M.; and Jones, Thomas H., 4,268,608, Cl 430-270.000.

Richardson, David L.: *See—*
Flautt, Thomas J., Jr.; Maguire, Edward J., Jr.; and Richardson, David L., 4,268,738, Cl. 219-10.55F.

Richter, Steven I.: *See—*
Stine, Laurence O.; and Richter, Steven I., 4,268,416, Cl. 252-416.000.

Ricoh Company, Ltd.: *See—*
Anderson, Carl P., 4,268,023, Cl. 271-94.000.
Ebi, Yutaka; Hirakura, Koji; Matsumoto, Fuyuhiko; Ohta, Wasaburo; and Tomita, Satoru, 4,268,157, Cl. 355-3.0TR.
Murayoshi, Seizi, 4,268,025, Cl. 271-112.000.
Sasaki, Masaomi; Hashimoto, Mitsuru; and Kawakami, Tomiko, 4,268,596, Cl. 430-72.000.

Rieber, Norbert: *See—*
Platz, Rolf; Fuchs, Werner; Rieber, Norbert; Samel, Ulf-Rainer; Jung, Johann; and Wuerzer, Bruno, 4,268,300, Cl. 71-76.000.

Riegel, David P.: *See—*
Longenecker, Ned; Becker, Clair M.; Riegel, David P.; and Vogt, Alan G., Jr., 4,267,721, Cl. 73-1.00G.

Rijckaert, Franciscus N., to B. V. Arenco P.M.B. Method and device for conditioning tobacco leaves or parts thereof in a coil or bobbin. 4,267,848, Cl. 131-304.000.

Ring, Stefan: *See—*
Weber, Robert; Ring, Stefan; and Heeschen, Ulf, 4,268,755, Cl. 250-506.000.

Riou, Claude R.: *See—*
Robillard, Jean J.; and Riou, Claude R., 4,268,600, Cl. 430-142.000.

Rippingille, Edward V., Jr.: *See—*
Kwok, Clyde C. K.; and Suchy, Leszek, 4,267,856, Cl. 137-119.000.

Rist, Bruno A.: *See—*
Tanner, James L.; Rist, Bruno A.; and Sanchez, George, 4,268,805, Cl. 333-129.000.

Rite Hite Corporation: *See—*
Grunewald, Lynn O.; and Hipp, Steven J., 4,267,748, Cl. 74-529.000.

Ritter, Ernst: *See—*
Djordjevic, Ilija; and Ritter, Ernst, 4,267,808, Cl. 123-367.000.

Riverwood Enterprises & Manufacturing, Ltd.: *See—*
MacKenzie, Harold L., 4,268,282, Cl. 55-101.000.

RK Industries: *See—*
Roth, Verlon C., 4,267,861, Cl. 137-625.480.

RKC Corporation: *See—*
Dunagan, Kenneth M., 4,268,619, Cl. 430-398.000.

Roba, Joseph L.: *See—*
Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.

Robert Bosch GmbH: *See—*
Bodig, Bernd; and Jundt, Werner, 4,268,888, Cl. 361-236.000.
Djordjevic, Ilija; and Ritter, Ernst, 4,267,808, Cl. 123-367.000.
Espenschied, Helmut; Kiencke, Uwe; and Schulz, Alfred, 4,267,750, Cl. 74-866.000.
Esper, Friedrich J.; and Wiedenmann, Hans-Martin, 4,268,468, Cl. 264-131.000.
Hohne, Gerd; and Sohner, Gerhard, 4,267,813, Cl. 123-609.000.
Seiler, Hartmut, 4,267,633, Cl. 29-578.000.
Wesemeyer, Jurgen; Haubner, Georg; Meier, Werner; and Schrumpf, Hans, 4,267,810, Cl. 123-416.000.

Roberts, Allen L., to W-K-M Wellhead Systems, Inc. Fluid control means for geothermal wells. 4,268,283, Cl. 55-189.000.

Roberts, John S.: *See—*
Bertus, Brent J.; McKay, Dwight L.; and Roberts, John S., 4,268,188, Cl. 405-128.000.

Robertshaw Controls Company: *See—*
Dykzeul, Theodore J., 4,267,859, Cl. 137-550.000.
Scott, Douglas R., 4,267,968, Cl. 236-49.000.

Robertson, Charles H., Jr.; and Bradley, Mark E. Method and apparatus for measuring pulmonary ventilation. 4,267,845, Cl. 128-721.000.

Robillard, Jean J.; and Riou, Claude R., to Issec and Tissages de Soieries Rennis. Process for photochemically coloring textiles using photosensitive triazene and coupler therefor. 4,268,600, Cl. 430-142.000.

Robinson, Edwin, to Deborah Fluidised Combustion Limited. Circulating fluidized bed boiler. 4,267,801, Cl. 122-4.00D.

Robinson, Lonnie P.: *See—*
Huliba, David A.; and Robinson, Lonnie P., 4,268,836, Cl. 346-75.000.

Roche, William J.; and Sadoski, Tadius T., to GTE Products Corporation. Integrated fluorescent-incandescent lamp assembly. 4,268,780, Cl. 315-179.000.

Rock, John D.; and Garnett, John L., to Unisearch Limited. Radiation cured coating for leather. 4,268,580, Cl. 428-423.400.

Rockwell, Albert M.: *See—*
Barraco, Anthony J.; and Rockwell, Albert M., 4,268,775, Cl. 313-337.000.

Rockwell International Corporation: *See—*
Eshghy, Siavash, 4,267,629, Cl. 29-407.000.
Frankel, Milton B.; and Flanagan, Joseph E., 4,268,450, Cl. 260-349.000.
Marshall, Claude J., Jr., 4,268,091, Cl. 301-37.00R.

Rodgers, Aubrey, to United States of America, Army. Snap-lock mechanism for high-g platform. 4,267,988, Cl. 244-3.160.

Rodgers, Robert L., III, to RCA Corporation. Peak-response controller for average-responding automatic iris. 4,268,866, Cl. 358-228.000.

Roeder, George K. Downhole, hydraulically-actuated pump and cavity having closed power fluid flow. 4,268,227, Cl. 417-358.000.

Rogel, Albert P.; and Scalese, Joseph J., to United States of America, Air Force. Dual trace automatic eddy current detection system for multilayer structures. 4,268,791, Cl. 324-238.000.

Rogemoser, David R.: *See—*
Williams, Roy C.; and Rogemoser, David R., 4,268,426, Cl. 260-22.0TN.

Rogers, Edward J.: *See—*
Evans, David M.; and Rogers, Edward J., 4,268,811, Cl. 337-156.000.

Rogers, Edward R. Water wheel electric generation device. 4,268,757, Cl. 290-53.000.

Rogers, John W. Strip separator and payout apparatus. 4,267,985, Cl. 242-56.400.

Rognmo, Tore: *See—*
Sjotun, Kyrre; and Rognmo, Tore, 4,267,775, Cl. 102-208.000.

Rohm GmbH: *See—*
Fink, Herbert; Suetterlin, Norbert; Dinklage, Horst; and Tilch, Willi, 4,268,549, Cl. 427-393.500.

Rohrbach, Ronald P., to UOP Inc. Support matrices for immobilized enzymes. 4,268,419, Cl. 252-430.000.

Rohrbach, Ronald P.; and Maliarik, Mary, to UOP Inc. Support matrices for immobilized enzymes. 4,268,423, Cl. 252-430.000.

Rohrle, Josef, to Siemens Aktiengesellschaft. Position pickup for numerically controlled machine tools. 4,268,786, Cl. 318-661.000.

Rokas, Gary J., to Sperry Corporation. Bridge-doubler rectifier. 4,268,899, Cl. 363-61.000.

Romeo, Samuel T. System for waste disposal. 4,268,388, Cl. 210-180.000.

Romini, Paolo: *See—*
Peccenini, Paolo; and Romini, Paolo, 4,268,574, Cl. 428-315.000.

Rooker, Mitchel L., to Combustion Engineering, Inc. Multi-tubular centrifugal liquid separator and method of separation. 4,268,277, Cl. 55-1.000.

Roos, Leo, to Hercules Incorporated. Photoresist formulations. 4,268,610, Cl. 430-281.000.

Rosaen, Borje O.; and Fosdick, Dale P. Spin-off filter head assembly. 4,268,384, Cl. 210-133.000.

Rosati, Enzo: *See—*
Pieri, Giampiero; Rosati, Enzo; Battisti, Ruggero; and Burei, Giovanni, 4,268,436, Cl. 260-141.000.

Rose, John B., to Imperial Chemical Industries Limited. Sulphonated polyaryletherketones. 4,268,650, Cl. 525-534.000.

Rose, John B.: *See—*
Hoy, Leslie R. J.; and Rose, John B., 4,268,635, Cl. 525-68.000.

Rose, William H., to AMP Incorporated. Switch encoder. 4,268,728, Cl. 200-16.00R.

Rosendahl, Franz: *See—*
Becker, Heinrich; Klein, Edgar; Rosendahl, Franz; and Weber, Helmut, 4,268,422, Cl. 252-461.000.

Rosenstock, Friedrich: *See—*
Serbent, Harry; Rosenstock, Friedrich; and Kotzschke, Gunter, 4,268,304, Cl. 75-36.000.

Rosenthal, Walter. Composition and method for improving meat production and quality as well as feed utilization by animals. 4,268,493, Cl. 424-1.000.

Roth, Jac M.; and Roth nee Werner, Veronika. Arrangement for registering loads. 4,267,725, Cl. 73-862.650.

Roth nee Werner, Veronika: *See—*
Roth, Jac M.; and Roth nee Werner, Veronika, 4,267,725, Cl. 73-862.650.

Roth, Verlon C., to RK Industries. Plural modular fluid transfer valves. 4,267,861, Cl. 137-625.480.

Roth, Walter L.: *See—*
Farrington, Gregory C.; and Roth, Walter L., 4,268,587, Cl. 429-193.000.

Rowland, Chester A., Jr., to Allis-Chalmers Corporation. Grinding system and method utilizing constant feed rate source. 4,267,981, Cl. 241-30.000.

RP Rorprodukter AB: *See—*
Forssell, Bror I., 4,268,043, Cl. 277-34.000.

Rubin, Albert L.: *See—*
Miyata, Teruo; Rubin, Albert L.; Stenzel, Kurt H.; and Dunn, Michael W., 4,268,131, Cl. 351-160.00H.

Rudisch, Rainer: *See—*
Rammler, Roland; Dreher, Ingo; and Rudisch, Rainer, 4,268,359, Cl. 201-31.000.

Ruehle, Walter J.; and Bronson, Robert E. Adjustable length strap tie down apparatus. 4,268,012, Cl. 254-223.000.

Ruf, Wolfgang: *See—*
Cocron, Istvan; Huber, Theodor; and Ruf, Wolfgang, 4,268,137, Cl. 354-23.00D.

Rupenthal, Leland A.: *See—*
Schantz, Spencer C.; and Rupenthal, Leland A., 4,267,669, Cl. 51-5.00D.

Rush, Kim E., to McCahill, William; and Anderson, Barbara L., part interest to each. Imbalance compensating vehicle wheel attachment. 4,268,090, Cl. 301-5.0BA.

Russell, John J., Jr., to Pitney Bowes, Inc. Treated toner magnetic carrier and method of making the same. 4,268,599, Cl. 430-108.000.

Rustin, Francis: *See—*
Keller, Morris C.; and Rustin, Francis, 4,267,800, Cl. 119-72.500.

Rutgerswerke Aktiengesellschaft: *See—*
Jellinek, Karl; and Muller, Rolf, 4,268,649, Cl. 525-504.000.

Rutishauser, Albert: *See—*
Rutishauser, Thomas; Reichlin, Roland; Viviani, Claudius; and Rutishauser, Albert, 4,268,021, Cl. 271-4.000.

Rutishauser Data AG: *See—*
Rutishauser, Thomas; Reichlin, Roland; Viviani, Claudius; and Rutishauser, Albert, 4,268,021, Cl. 271-4.000.

Rutishauser, Thomas; Reichlin, Roland; Viviani, Claudius; and Rutishauser, Albert, to Rutishauser Data AG. Transportation arrangement for sheetlike recording carriers. 4,268,021, Cl. 271-4.000.

Rypka, Dann B., to Owatonna Manufacturing Company, Inc. Neutral start and centering device for power transmission mechanism. 4,267,804, Cl. 123-179.00K.

S.B.W. Engineers Limited: *See—*
Workman, John, 4,268,772, Cl. 310-197.000.

S&C Electric Company: *See—*
Evans, David M.; and Rogers, Edward J., 4,268,811, Cl. 337-156.000.

S. Franzen Sohne (GmbH & Co.): *See—*
Milles, Peter, 4,267,716, Cl. 70-70.000.

S&S Corrugated Paper Machinery Co. Inc.: *See—*
Huhne, Paul, 4,268,341, Cl. 156-352.000.

Saar, David A., to Black & Decker Inc. Anti-kickback power tool control. 4,267,914, Cl. 192-147.000.

Sachs-Systemtechnik GmbH: *See—*
Paschakarnis, Peter; and Fischer, Wolfgang, 4,268,737, Cl. 219-10.49R.

Sadoski, Tadius T.: *See—*
Roche, William J.; and Sadoski, Tadius T., 4,268,780, Cl. 315-179.000.

Sagami Chemical Research Center: *See—*
Kondo, Kiyosi; Fujimoto, Tamotsu; Suda, Minoru; and Tunemoto, Daiei, 4,268,442, Cl. 260-326.200.

Saint-Gobain Industries: *See—*
Levecque, Marcel, deceased; Levecque, Marc, administrator; Battigelli, Jean A.; and Plantard, Dominique, 4,268,293, Cl. 65-5.000.

Saito, Kazumasa: *See—*
Sawatari, Norio; Watanabe, Isao; Saito, Kazumasa; and Adachi, Katsura, 4,268,433, Cl. 525-193.000.

Saito, Masaaki: *See—*
Ota, Tadaki; Yoshikawa, Katsushi; and Saito, Masaaki, 4,268,462, Cl. 261-40.000.

Saito, Shoichi, to Olympus Optical Co., Ltd. Azimuth adjusting device for magnetic head. 4,268,881, Cl. 360-109.000.

Saitoh, Katsunori: *See—*
Kokaji, Norio; Kinoshita, Kunio; Urano, Toshihiro; and Saitoh, Katsunori, 4,268,872, Cl. 358-301.000.

Sakaguchi, Shinji: *See—*
Yoshida, Takashi; and Sakaguchi, Shinji, 4,268,604, Cl. 430-215.000.

Sakai, Kunitaka; and Ono, Jun, to Honda Giken Kogyo Kabushiki Kaisha. Wind deflector arrangement in sliding roof device for vehicle. 4,268,085, Cl. 296-217.000.

Sakakibara, Hideo; Fujiwara, Tatsuro; Okegawa, Osamu; Watanabe, Toshiyuki; Watanabe, Susumu; and Matsuda, Tetsuo, to Toyo Jozo Kabushiki Kaisha. Derivatives of antibiotic tylosin. 4,268,665, Cl. 536-17.00R.

Sakakibara, Takao; and Okazaki, Haruhiko, to Dai Nippon Toryo Co., Ltd. Process for forming multi-layer coatings. 4,268,542, Cl. 427-195.000.

Sakamaki, Hisashi: *See—*
Kitamura, Takashi; Sakamaki, Hisashi; and Kawamura, Naoto, 4,268,870, Cl. 358-296.000.

Sakamoto, Hitoshi; and Yamayoshi, Ryuichi, to Sony Corporation. Magnetic reproducing device. 4,268,876, Cl. 360-78.000.

Sakane, Kazuo: *See—*
Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, 4,268,509, Cl. 424-246.000.

Sako, Junichi: *See—*
Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, 4,268,653, Cl. 526-255.000.

Sakura, Shigehiko: *See—*
Iwasa, Yoshisuke; and Sakura, Shigehiko, 4,268,810, Cl. 336-205.000.

Salon, Sheppard J.; and Montgomery, Lon W., to Westinghouse Electric Corp. Reverse voltage protection for brushless excitation systems. 4,268,883, Cl. 361-21.000.

Salvador, Thomas R. Shopping cart. 4,268,049, Cl. 280-33.99H.

Samejima, Yasushi: *See—*
Iizima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,372, Cl. 204-252.000.

Samel, Ulf-Rainer: *See—*
Platz, Rolf; Fuchs, Werner; Rieber, Norbert; Samel, Ulf-Rainer; Jung, Johann; and Wuerzer, Bruno, 4,268,300, Cl. 71-76.000.

Sanchez, George: *See—*
Tanner, James L.; Rist, Bruno A.; and Sanchez, George, 4,268,805, Cl. 333-129.000.

Sanderford, Dorsey W., to Cybar, Inc. Method and apparatus for optimizing production in a continuous or intermittent gas-lift well. 4,267,885, Cl. 166-250.000.

Sanders Associates, Inc.: *See—*
Brodeur, Lester R., 4,268,830, Cl. 343-103.000.

Sanders, Harold D., to Central Welding Supply Co., Inc. Flex head welding torch having disc spring biasing elements. 4,268,740, Cl. 219-137.510.

Sandhu, Mohammad A.: *See—*
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,267,961, Cl. 250-226.000.

Sanmiya, Tugumi: *See—*
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,078, Cl. 293-120.000.
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,079, Cl. 293-120.000.

Sano, Takezo; Shimomura, Takatoshi; and Murase, Ichiki, to Sumitomo Chemical Company, Limited. Process for improving semipermeable membranes by treating with protic acids or inorganic salts. 4,268,662, Cl. 528-486.000.

Sard, Richard; and Walton, Kenneth R., to Bell Telephone Laboratories, Incorporated. Lubricated electrical contacts. 4,268,568, Cl. 428-209.000.

Sardisco, John B.; and Drechsel, Erhart K., to Pennzoil Company. Process for production of potassium sulfate and hydrochloric acid. 4,268,492, Cl. 423-482.000.

Sasaki, Masaomi; Hashimoto, Mitsuru; and Kawakami, Tomiko, to Ricoh Company, Ltd. Electrophotographic element having 1,4-bis-(azostyryl)-2,5 dimethoxy benzene compounds as photoconductors. 4,268,596, Cl. 430-72.000.

Sasaki, Tadao, to Sony Corporation. Synchronizing signal detector particularly for use in television AFT. 4,268,862, Cl. 358-153.000.

Sasaki, Takashi: *See—*
Ogi, Keiji; Sasaki, Takashi; Okaniwa, Kenichiro; and Tosaka, Yasuo, 4,268,621, Cl. 430-409.000.

Sasse, Klaus; Beck, Gunther; Eue, Ludwig; and Schmidt, Robert R.; to Bayer Aktiengesellschaft. Novel 4,5-dichloro-imidazole derivatives and their use as plant protection agents. 4,268,681, Cl. 548-337.000.

Sato, Hisao. Tags for use with staplers. 4,267,654, Cl. 40-2.00R.

Sato, Takayuki, to Tokyo Ohka Kogyo Kabushiki Kaisha. Photoresist compositions. 4,268,603, Cl. 430-196.000.

Sato, Yasushi: *See—*
Fujii, Motoharu; Koumura, Noboru; Ayata, Naoki; and Sato, Yasushi, 4,268,841, Cl. 346-138.000.

Sato, Yoshio: *See—*
Miyashita, Tsuneo; Sato, Yoshio; and Ando, Yoshitsugu, 4,268,412, Cl. 252-373.000.

Satterfield, Larry S.: *See—*
Brown, Robert S.; and Satterfield, Larry S., 4,267,617, Cl. 15-320.000.

Satterlee, Jesse D. Miniature device for sensing overheating of bearings. 4,268,812, Cl. 337-380.000.

Saunier Duval: *See—*
Charron, Jean-Claude, 4,267,820, Cl. 126-351.000.

Savage, Dennis J.: *See—*
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,267,961, Cl. 250-226.000.

Saveliev, Igor B.: *See—*
Srapeniants, Rigo A.; Saveliev, Igor B.; Kovtun, Jury L.; Sidorov, Alexandr V.; Tsagolov, Kim S.; and Miroshnikova, Nadezhda N., 4,268,754, Cl. 250-391.000.

Savin Corporation: *See—*
Landa, Benzion, 4,268,178, Cl. 400-118.000.

Sawamura, Norio, both of Osaka: *See—*
Matsuo, Takaharu; Sawamura, Norio, both of Osaka; Hashimoto, Yukio; and Hashida, Wataru, 4,268,527, Cl. 426-33.000.

Sawatari, Norio; Watanabe, Isao; Saito, Kazumasa; and Adachi, Katsura, to Fujitsu Limited. 1,2-Polyhutadiene compositions and cured flame retarded 1,2-polybutadiene resin materials. 4,268,433, Cl. 525-193.000.

SBR Lab Inc.: *See—*
Purdy, Robert W.; and Arneson, Don A., 4,267,837, Cl. 128-275.000.

Scalese, Joseph J.: *See—*
Rogel, Albert P.; and Scalese, Joseph J., 4,268,791, Cl. 324-238.000.

Schad, Robert D.: *See—*
Rees, Herbert; and Schad, Robert D., 4,268,240, Cl. 425-548.000.
Rees, Herbert; and Schad, Robert D., 4,268,241, Cl. 425-549.000.

Schafer, Paul; Abel, Heinz; and Mayer, Fritz, to Ciba-Geigy Corporation. Propylene oxide reaction products. 4,268,686, Cl. 560-91.000.

Schank, Richard L.; and Johnson, Gordon E., to Xerox Corporation. Optical recording member. 4,268,840, Cl. 346-135.100.

Schantz, Spencer C.; and Rupenthal, Leland A., to Schantz, Spencer C. Method and apparatus for grinding small cutting blades. 4,267,669, Cl. 51-5.00D.

Schaumberger, Alfred: *See—*
Heller, Arthur; Schaumberger, Alfred; Schuster, Klaus; and Dollinger, Friedrich, 4,268,851, Cl. 358-10.000.

Schefers, Wilhelm: *See—*
Schneider, Rudolf; and Schefers, Wilhelm, 4,267,689, Cl. 56-53.000.

Schering Aktiengesellschaft: *See—*
Burba, Christian; Volland, Hans-Gunter; and Esper, Norbert, 4,268,548, Cl. 427-387.000.

Scherp, Sven; and Eriesson, Sylve J. D., to Svecia Silkscreen Maskiner AB. Silkscreen printing machine. 4,267,773, Cl. 101-123.000.

Schiel, Christian, to J. M. Voith GmbH. Rotatable hollow cylinder, particularly useful as the drying cylinder for a paper machine. 4,267,644, Cl. 34-110.000.

Schierwagen, Alfred W.; and La Mountain, Thomas D., to Templet Industries, Inc. Self-locking louver for lighting fixture. 4,268,897, Cl. 362-325.000.

Schiffer, Rainer: *See—*
Lehnert, Gunther; and Schiffer, Rainer, 4,268,155, Cl. 354-293.000.

Schildkraut, Alan L.; Luca, Vincent A., Jr.; and Knapp, Carl L., to Bendix Corporation, The. Electrical connector assembly having anti-decoupling mechanism. 4,268,103, Cl. 339-89.00M.

Schlumberger Technology Corporation: *See—*
Hoppe, Joachim A., 4,267,727, Cl. 73-151.000.
Noik, Simon P., 4,267,726, Cl. 73-151.000.

Schmadel, Donald; Culver, William H.; and Gould, Gordon, to Optelecom Incorporated. Method and apparatus for radiant energy modulation in optical fibers. 4,268,116, Cl. 350-96.290.

Schmid, Eduard; and Griehl, Wolfgang, to Inventa AG fur Forschung und Patentverwertung, Zurich. Method for the manufacture of glass clear transparent polyamide. 4,268,661, Cl. 528-338.000.

Schmid, Gunter: *See—*
Daur, Rolf; Hoffmann, Herbert; and Schmid, Gunter, 4,268,585, Cl. 428-622.000.

Schmidt, Manfred: *See—*
Biermann, Peter; Feucht, Rudi; and Schmidt, Manfred, 4,268,063, Cl. 280-615.000.

Schmidt, Robert R.: *See—*
Sasse, Klaus; Beck, Gunther; Eue, Ludwig; and Schmidt, Robert R., 4,268,681, Cl. 548-337.000.

Schmitz, Gunter: *See—*
Langlitz, Karlheinz; and Schmitz, Gunter, 4,268,014, Cl. 266-165.000.

Schmuck, Johann, to Motorenfabrik Hatz GmbH & Co. KG. Internal combustion engine. 4,267,805, Cl. 123-198.00E.

Schneider, Eugene S.; and Schneider, Kent A. Kindle maker. 4,268,273, Cl. 44-35.000.

Schneider, Kent A.: *See—*
Schneider, Eugene S.; and Schneider, Kent A., 4,268,273, Cl. 44-35.000.

Schneider, Lawrence L.: *See—*
Raftis, Spiros G.; and Schneider, Lawrence L., 4,268,005, Cl. 251-5.000.

Schneider, Rudolf; and Schefers, Wilhelm, to Busatis-Werke KG. Maize cutter. 4,267,689, Cl. 56-53.000.

Schoenberg, Jules E.: *See—*
Ray-Chaudhuri, Dilip K.; Chiao, Wen B.; and Schoenberg, Jules E., 4,268,656, Cl. 528-103.000.

Schoenick, Ralph R., to Rexnord Inc. Chain having pivot pins also preventing disassembly. 4,267,691, Cl. 59-85.000.

Scholten, Gerard J.: *See—*
Bouwknegt, Jan; Verbeek, Hendrik J.; and Scholten, Gerard J., 4,268,469, Cl. 264-138.000.

Schomburg, Fay G., to Dama, Anthony, a part interest. Play and exercising device. 4,268,031, Cl. 272-128.000.

Schrader, Preston H., to Rexnord Inc. Vibrating spiral conveyor drive. 4,267,919, Cl. 198-756.000.

Schreiber, William F.; and Troxel, Donald E., to Massachusetts Institute of Technology. Image coding. 4,268,861, Cl. 358-138.000.

Schroder, Werner: *See—*
Muhr, Richard; and Schroder, Werner, 4,267,756, Cl. 83-463.000.
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Schroeder, Dale W., to Westinghouse Electric Corp. Document feed jam detector for a document reading apparatus. 4,268,746, Cl. 250-223.00R.

Schrumpf, Hans: *See—*
Wesemeyer, Jurgen; Haubner, Georg; Meier, Werner; and Schrumpf, Hans, 4,267,810, Cl. 123-416.000.

Schukei, Glen E.: *See—*
Formanek, Frank J.; and Schukei, Glen E., 4,268,357, Cl. 176-78.000.

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Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., 4,268,533, Cl. 426-577.000.

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Schulz, Alfred: *See—*
Espenschied, Helmut; Kiencke, Uwe; and Schulz, Alfred, 4,267,750, Cl. 74-866.000.

Schulz, Richard: *See—*
Hodapp, Gary; Peterson, Richard; and Schulz, Richard, 4,267,767, Cl. 91-404.000.

Schulze, Ehrhart, to Stiegler, Karl Heinz. Machine for working on a web of material by means of a welding tool. 4,268,343, Cl. 156-361.000.

Schupbach, Hans-Rudolf; and Rathe, Eric J., to Schweizerische Bundesbahnen (Bauabteilung der Generaldirektion). Railway car retarder. 4,267,902, Cl. 188-62.000.

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Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, 4,267,913, Cl. 192-98.000.
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Schuster, Ernst, to L. & C. Steinmuller GmbH. Method of reducing the sulfur content of coal reduced to dust. 4,268,358, Cl. 201-9.000.

Schuster, Klaus: *See—*
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Schwarz, Hans G. Process of making highly adhesive plastic top coatings on metallic substrates. 4,268,333, Cl. 156-161.000.

Schwebke, Donald D. Guide device for boat trailers. 4,268,211, Cl. 414-535.000.

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Marzouki, Taieb; and Schweisser, Bernd, 4,268,553, Cl. 428-34.000.

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Dorner, John R.; Wiltse, Jon F.; and Hollis, Roger E., 4,268,769, Cl. 310-67.00R.

Scott, Harold A.; and Martin, David J., to Grundy & Partners Limited. Interactive display devices. 4,268,826, Cl. 340-707.000.

Scott, Lawrence M.; Wolf, Irving W.; and Lee, Yu C., to Ampex Corporation. Particles for magnetic recording. 4,268,540, Cl. 427-127.000.

Scribner, Albert W. Stock feeder for punch presser and the like. 4,267,950, Cl. 226-146.000.

Sebring, Robert E., to Albany International Corp. Method of fabrication of coreless hollow filament separatory module. 4,267,630, Cl. 29-411.000.

Segawa, Takashi; and Ueno, Tadashi, to Shimano Industrial Company Limited. Multi-speed sprockets for a bicycle and the like. 4,268,259, Cl. 474-160.000.

Seidel, Hartmut; and Polzhofer, Kurt. Self-curing composition based upon polymethylmethacrylate and process for manufacturing said self-curing composition. 4,268,639, Cl. 525-303.000.

Seiler, Hartmut, to Robert Bosch GmbH. Method to make an integrated circuit with severable conductive strip. 4,267,633, Cl. 29-578.000.

Sekigawa, Fujio: *See—*
Ohno, Shigeru; and Sekigawa, Fujio, 4,268,496, Cl. 424-19.000.

Sekiguchi, Kazuhiko, to Zebra Co., Ltd. Composite writing instrument. 4,268,183, Cl. 401-30.000.

Selfe, Barry D. Indicating instruments. 4,267,639, Cl. 33-172.00R.

Semchuck, Mario E., to General Binding Corporation. Continuous laminating system. 4,268,345, Cl. 156-499.000.

Semenov, Valery M.: *See—*
Koshkin, Lev N.; Semenov, Valery M.; Repin, Jury A.; Pozdnyakov, Anatoly M.; and Lutskov, Nikolai Z., 4,268,243, Cl. 425-575.000.

Senesac, Joseph. Dredging system and apparatus. 4,267,652, Cl. 37-66.000.

Senge, Ferdinand: *See—*
Freitag, Dieter; Beer, Wolfgang; and Senge, Ferdinand, 4,268,648, Cl. 525-485.000.

Senuma, Michio: *See—*
Date, Nobuaki; Senuma, Michio; and Yoshida, Syozo, 4,268,147, Cl. 354-147.000.

Sera, Hidefumi; Hori, Kiyotaka; and Sugimoto, Naohiko, to Fuji Photo Film Co., Ltd. Photographic light-sensitive material having a carboxylic acid polymer antistatic layer. 4,268,623, Cl. 430-529.000.

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Serbent, Harry; Rosenstock, Friedrich; and Kotzschke, Gunter, to Metallgesellschaft Aktiengesellschaft. Direct reduction process in a rotary kiln. 4,268,304, Cl. 75-36.000.

Serino, Yoichi; Suganuma, Tetsuya; and Takahashi, Yoshitaka, to Toyota Jidosha Kogyo Kabushiki Kaisha. Wear-resisting sintered alloy. 4,268,309, Cl. 75-230.000.

Servo Corporation of America: *See—*
Villar, Luis F., 4,268,257, Cl. 434-373.000.

Sethi, Gurdip S.: *See—*
Harvey, Frederick W.; Sethi, Gurdip S.; and Sikorski, Stephen L., 4,268,145, Cl. 354-121.000.

Sevelin, Charles V., to Minnesota Mining and Manufacturing Company. Sheet assembly for forming imaged retroreflective sheeting. 4,268,117, Cl. 350-105.000.

SGS-ATES Componenti Elettronici S.p.A.: *See—*
Ghiringelli, Giovanni; and Murari, Bruno, 4,268,887, Cl. 361-93.000.
Palara, Sergio, 4,268,796, Cl. 330-267.000.

Shaffer, John W.: *See—*
Hall, Harold H., Jr.; Bouchard, Andre C.; Shaffer, John W.; and Gavenonis, Thomas L., 4,267,774, Cl. 102-201.000.

Shapiro, Howard S., to ICI Americas Inc. Pyrrolo [3,4-c]quinoline compounds and pharmaceutical compositions, methods for their use and preparation. 4,268,513, Cl. 424-258.000.

Shappir, Joseph, to Intel Corporation. Process for fabricating a high density electrically programmable memory array. 4,267,632, Cl. 29-571.000.

Sharma, Vinod C. Fabrication of spectrally selective solar surfaces by the thermal treatment of austenitic stainless steel AISI 321. 4,268,324, Cl. 148-31.500.

Sharpe, Thomas H. Staged induction engine. 4,267,694, Cl. 60-269.000.

Shaw, Douglas R., to Pennwalt Corporation. Froth flotation process. 4,268,380, Cl. 209-167.000.

Sheck, Wah; and Lukevics, Al. Twin roller paint applicator. 4,268,184, Cl. 401-218.000.

Shenoi, Kishan: *See—*
Agrawal, Bhagwati P.; and Shenoi, Kishan, 4,268,727, Cl. 179-170.200.

Sherwin-Williams Company, The: *See—*
Proudfoot, Clare B., 4,268,269, Cl. 23-230.00M.

Shiba, Keisuke; Toyama, Tadao; and Nakao, Sho, to Fuji Photo Film Co., Ltd. Process for preparing photosensitive lithographic printing plate precursor. 4,268,609, Cl. 430-271.000.

Shibata, Tatsuhisa: *See—*
Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, 4,268,614, Cl. 430-315.000.

Shibaura Denki Kabushiki Kaisha: *See—*
Yokota, Tsuneshi; and Ike, Toshio, 4,268,868, Cl. 358-286.000.

Shiga, Masaaki: *See—*
Arashi, Norio; Murakami, Tadayoshi; Narato, Kiyoshi; Shiga, Masaaki; and Ishikawa, Tomihisa, 4,268,482, Cl. 422-171.000.

Shiga, Tetsuo: *See—*
Akiyama, Minoru; Akashi, Kageyasu; Shiga, Tetsuo; Ito, Yoshinobu; Kimura, Takeo; and Matsui, Takeki, 4,268,626, Cl. 430-620.000.

Shiiba, Kiyonori: *See—*
Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiiba, Kiyonori, 4,268,362, Cl. 203-28.000.

Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, to Kansai Electric

Power Co. Inc., The; and Mitsubishi Jukogyo Kabushiki Kaisha. Torsional vibration monitoring method and an apparatus for performing the same. 4,267,733, Cl. 73-650.000.

Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho. Torsional vibration monitoring apparatus for rotating shaft system. 4,267,734, Cl. 73-650.000.

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Segawa, Takashi; and Ueno, Tadashi, 4,268,259, Cl. 474-160.000.

Shimazaki, Toshikazu: *See*—
Mizutani, Nagao; Okawara, Yasuo; and Shimazaki, Toshikazu, 4,268,182, Cl. 400-247.000.
Nakagiri, Tadahiko; Daigo, Kunihiro; Oguchi, Toshiaki; Natori, Minoru; Hatuse, Toshikazu; Shimazaki, Toshikazu; Kawanobe, Kouhei; Ogawa, Hiroshi; Kashima, Yoshinobu; Ichikawa, Singo; Namiki, Ryo; and Yamagata, Hisao, 4,268,913, Cl. 368-10.000.

Shimizu, Kenzo; and Matsuno, Yoshio, to Nissan Motor Company, Limited. Arrangement for mounting speaker unit to vehicle panel. 4,267,993, Cl. 248-27.100.

Shimizu, Masami: *See*—
Aizawa, Hiroshi; Uchidoi, Masanori; Urushibara, Kazunobu; Suzuki, Nobuyuki; and Shimizu, Masami, 4,268,152, Cl. 354-234.000.

Shimokawa, Ryushi: *See*—
Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, 4,268,136, Cl. 354-23.00D.

Shimokawa, Shin-ichi; Yamamoto, Yuji; and Nagai, Hisao, to Japan Synthetic Rubber Co., Ltd. Process for the preparation of rubber-modified thermoplastic resins. 4,268,638, Cl. 525-263.000.

Shimomura, Takatoshi: *See*—
Sano, Takezo; Shimomura, Takatoshi; and Murase, Ichiki, 4,268,662, Cl. 528-486.000.

Shin-Etsu Chemical Co. Ltd.: *See*—
Ohno, Shigeru; and Sekigawa, Fujio, 4,268,496, Cl. 424-19.000.

Shindo, Mizuo; Yamamoto, Takashi; and Kamada, Kensuke, to Mitsubishi Rayon Co., Ltd. Gas transfer process with hollow fiber membrane. 4,268,279, Cl. 55-16.000.

Shinohara, Mitsuharu: *See*—
Nakagawa, Sadayoshi; and Shinohara, Mitsuharu, 4,268,725, Cl. 179-111.00E.

Shinozaki, Fumiaki; Namiki, Tomizo; Kitajima, Masao; Ikeda, Tomoaki; and Mizobuchi, Yuzo, to Fuji Photo Film Co., Ltd. Thermal recording elements. 4,268,575, Cl. 428-336.000.

Shinozaki, Fumiaki: *See*—
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, 4,268,541, Cl. 427-177.000.
Namiki, Tomizo; Shinozaki, Fumiaki; and Ikeda, Tomoaki, 4,268,601, Cl. 430-159.000.

Shinozaki, Tamotsu; Gallant, Thomas E.; Deane, Robert S. D.; and Cunningham, Daniel, to Picker Corporation. Radiographic film inclinometer. 4,267,641, Cl. 33-365.000.

Shiozawa, Kazuo: *See*—
Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, 4,268,136, Cl. 354-23.00D.

Shiraishi, Hisashi: *See*—
Sera, Hidefumi; Kitatani, Katuzi; Ogawa, Masasi; Ishigaki, Kunio; and Shiraishi, Hisashi, 4,268,627, Cl. 430-623.000.

Shuck, William D.; Lind, Frederick D.; and Cole, John W. Sludge agitating method. 4,268,398, Cl. 210-758.000.

Sidmar N.V.: *See*—
Haese, Egon, 4,268,489, Cl. 423-242.000.

Sidorov, Alexandr V.: *See*—
Srapeniants, Rigo A.; Saveliev, Igor B.; Kovtun, Jury L.; Sidorov, Alexandr V.; Tsagolov, Kim S.; and Miroshnikova, Nadezhda N., 4,268,754, Cl. 250-391.000.

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Beckord, Ulrich; and Eder, Helmut, 4,268,768, Cl. 310-62.000.
Grassmann, Hans-Christian, 4,268,758, Cl. 307-105.000.
Hacke, Hans-Juergen; and Hadersbeck, Hans, 4,268,349, Cl. 156-656.000.
Rohrle, Josef, 4,268,786, Cl. 318-661.000.
Silbermann, Erich, 4,268,890, Cl. 361-335.000.
Widmann, Dietrich, 4,268,563, Cl. 428-138.000.

Siemer, Klaus: *See*—
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Allison, David F.; and Maxwell, David A., 4,268,348, Cl. 156-645.000.
Johnson, Stephen C., 4,268,763, Cl. 307-605.000.

Sikora, Orwill G., to Chicago Bridge & Iron Company. Method and apparatus for metal object heat treatment. 4,268,246, Cl. 432-4.000.

Sikorski, Stephen L.: *See*—
Harvey, Frederick W.; Sethi, Gurdip S.; and Sikorski, Stephen L., 4,268,145, Cl. 354-121.000.

Silbermann, Erich, to Siemens Aktiengesellschaft. Breaker combination for bus bar installations. 4,268,890, Cl. 361-335.000.

Silbernagel, Bernard G.: *See*—
Mohan, Raam R.; Silbernagel, Bernard G.; and Singhal, Gopal H., 4,268,415, Cl. 252-413.000.

Simjian, Luther G. Check controlled metering device. 4,268,817, Cl. 340-147.00A.

Sindlinger, Ronald E.: *See*—
Brower, Boyd G.; Sindlinger, Ronald E.; and Holmes, James L., 4,268,891, Cl. 362-11.000.

Singer Company, The: *See*—
Moerre, Manfred, 4,268,106, Cl. 339-147.00R.
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Valles, Henry; Taylor, Allen R.; and Beneventano, Thomas, 4,267,735, Cl. 74-5.700.

Singer, Mortimer. Method and apparatus for positioning a treating liquid at the bottom of a well. 4,267,888, Cl. 166-312.000.

Singhal, Gopal H.: *See*—
Mohan, Raam R.; Silbernagel, Bernard G.; and Singhal, Gopal H., 4,268,415, Cl. 252-413.000.

Sjotun, Kyrre; and Rognmo, Tore, to A/S Kongsberg Vapenfabrikk. Arrangement in ram air turbines. 4,267,775, Cl. 102-208.000.

Skaggs, Kenneth D. Toy hot air balloon. 4,267,989, Cl. 244-31.000.

SKF Kugellagerfabriken GmbH: *See*—
Ernst, Horst M.; Olschewski, Armin; Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Burkl, Erich, 4,267,913, Cl. 192-98.000.
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Skirvin, Carl L.: *See*—
Skirvin, Paul G.; Skirvin, Walter W.; and Skirvin, Carl L., 4,268,051, Cl. 280-145.000.

Skirvin, Paul G.; Skirvin, Walter W.; and Skirvin, Carl L., to Enoch Skirvin & Sons, Inc. Log bunk structures. 4,268,051, Cl. 280-145.000.

Skirvin, Walter W.: *See*—
Skirvin, Paul G.; Skirvin, Walter W.; and Skirvin, Carl L., 4,268,051, Cl. 280-145.000.

Skold, Carl N., to Syva Company. Macromolecular glycosidase substrates. 4,268,663, Cl. 536-4.000.

Slater Electric Inc.: *See*—
Williams, Malcolm, 4,268,885, Cl. 361-45.000.

Slemon, Charles S.; and Braun, Steven W., to Tetra-Tech, Inc. Quick-release fiber-optic connector. 4,268,115, Cl. 350-96.210.

Sloan, Albert H. Electronic control for switching variable speed/variable voltage electric generator. 4,268,787, Cl. 322-8.000.

Sloan, Kenneth B.: *See*—
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,268,441, Cl. 260-239.500.

Small Business Promotion Corporation: *See*—
Kobayasi, Sohei, 4,268,260, Cl. 493-194.000.

Smart, William A., Jr.: *See*—
Barnum, Thomas G.; and Smart, William A., Jr., 4,268,008, Cl. 251-44.000.

Smayling, Michael C.: *See*—
Long, George R.; and Smayling, Michael C., 4,268,179, Cl. 400-120.000.

Smith, Charles W., Jr.; and Zimmerman, Franz X., to Autoclave Engineers, Inc. Apparatus for vacuum sintering and hot isostatic pressing. 4,268,708, Cl. 13-20.000.

Smith, Ernest A. Cigarette holder. 4,267,849, Cl. 131-84.00R.

Smith, Gardner M. Interchangeable shoe. 4,267,649, Cl. 36-101.000.

Smith, Garth L.; and Whitehead, Gordon, to Wallace Murray Canada Limited. Self-guiding circular saw. 4,267,760, Cl. 83-835.000.

Smith, James T., to National Steel Corporation. Method of making nailable steel floor channels. 4,267,954, Cl. 228-173.00D.

Smith, John C., to Fletcher Sutcliffe Wild Limited. Mine roof supports. 4,268,193, Cl. 405-292.000.

Smith, Nigel R. M.: *See*—
Banister, Arthur J.; Fielder, Andrew J.; Hauptman, Zdenek V.; and Smith, Nigel R. M., 4,268,491, Cl. 423-406.000.

Smith, Norman A.: *See*—
Gulati, Suresh T.; Smith, Norman A.; and Spycher, Anton A., 4,268,134, Cl. 351-163.000.

Smuckler, Jack H., to Electronized Chemicals Corporation. Heat-shrinkable article. 4,268,559, Cl. 428-99.000.

SNIA VISCOSA Societa Nazionale Industria Applicazioni Viscosa S.p.A.: *See*—
Baldini, Alberto; Leoni, Roberto; Calloni, Angelo; and Angelini, Gianfranco, 4,268,666, Cl. 536-57.000.

Societa Italiana Resine S.I.R. S.p.A.: *See*—
Radici, Pierino; Custro, Sergio; and Colombo, Paolo, 4,268,643, Cl. 525-400.000.

S.p.A. Luigi Rizzi & C.: *See*—
Repetto, Silvio, 4,267,714, Cl. 69-32.000.

S.A. A C M A G: *See*—
Vernay, Henri, 4,267,934, Cl. 212-184.000.

Societe Anonyme Francaise du Ferodo: *See*—
Jacquet, Maurice A., 4,267,880, Cl. 165-41.000.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See*—
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Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France: *See*—
Thominet, Michel; Bulteau, Gerard; Acher, Jacques; and Collignon, Claude, 4,268,512, Cl. 424-250.000.

Societe Europeenne de Propulsion: *See*—
Maistre, Michel, 4,268,560, Cl. 428-105.000.

Societe Industrielle de Stratifies: *See*—
Peille, Jean M. R., 4,268,236, Cl. 425-115.000.

Societe Nationale Industrielle Aerospatiale: *See*—
Bernard, Louis A., 4,268,222, Cl. 416-1.000.

Sohner, Gerhard: *See*—
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Sokolov, Viktor E.: *See*—
Zolotenko, Vladimir A.; Pavlov, Vladimir V.; Sokolov, Viktor E.; and Syromyatnikov, Alexei N., 4,268,795, Cl. 350-9.000.

Soll, Patricia R.: *See*—
Cosper, David R.; and Soll, Patricia R., 4,268,352, Cl. 162-191.000.

Sollott, Gilbert P.; Gilbert, Everett E.; and Warman, Maurice, to United States of America, Army. Method for preparing hexanitrostilbene. 4,268,696, Cl. 568-931.000.

Solodar, Arthur J.: *See*—
Tinker, Harold B.; and Solodar, Arthur J., 4,268,688, Cl. 560-177.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,268,704, Cl. 585-428.000.

Solomon, Edward G.: *See*—
Manley, Michael T.; and Solomon, Edward G., 4,267,728, Cl. 73-172.000.

Solomon, Jack, to Esselte Pendaflex Corp. Copy holder. 4,267,656, Cl. 40-352.000.

Sony Corporation: *See*—
Akazawa, Susumu, 4,268,856, Cl. 358-67.000.
Isono, Katsuo; and Imayasu, Tomoyoshi, 4,268,857, Cl. 358-67.000.
Majima, Osamu, 4,268,880, Cl. 360-109.000.
Morio, Minoru; Kambara, Masahiro; Kubota, Yukio; and Yamashita, Keitaro, 4,268,875, Cl. 360-10.000.
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Nakamura, Takashi; and Taki, Akira, 4,268,853, Cl. 358-17.000.
Sakamoto, Hitoshi; and Yamayoshi, Ryuichi, 4,268,876, Cl. 360-78.000.
Sasaki, Tadao, 4,268,862, Cl. 358-153.000.
Yamagiwa, Kazuo; Kamakur, Masatoshi; and Numakura, Toshihiko, 4,268,874, Cl. 360-10.000.

Sorenson, Richard W., to Carlingswitch, Inc. Environmentally sealed toggle switch. 4,268,734, Cl. 200-302.000.

Sorrells, Frank D., to Cole National Corporation. Lens processing method. 4,267,672, Cl. 51-284.00R.

Sorrentino, Vincent P., to Bright Industries Inc. Swinging chaise lounge. 4,268,087, Cl. 297-273.000.

Soussan, Salomon: *See*—
Erard, Francois; and Soussan, Salomon, 4,268,651, Cl. 526-65.000.

Sovish, Richard C.; and Moisson, Marc F. L., to N.V. Raychem S.A. Sealing device and method. 4,268,041, Cl. 277-1.000.

Spear, Stephen L.: *See*—
Little, Richard I.; Lubin, Barry D.; and Spear, Stephen L., 4,268,722, Cl. 179-2.0EB.

Special Instruments Laboratory, Inc.: *See*—
Allen, John D., Jr., 4,267,620, Cl. 19-239.000.

Spector, George: *See*—
Brown, Clarence C.; and Spector, George, 4,267,658, Cl. 43-42.060.

Spellman, Gordon B.; Schutten, Herman P.; and Jaskolski, Stanley V., to Eaton Corporation. Integrated gate turn-off device with lateral regenerative portion and vertical non-regenerative power portion. 4,268,846, Cl. 357-38.000.

Spenadel, Lawrence: *See*—
Duvdevani, Ilan; and Spenadel, Lawrence, 4,268,552, Cl. 428-31.000.

Spence, Adam M.; and Goff, James R., to Winster Mining Limited. Mounting means for pick on mining drum vane. 4,268,089, Cl. 299-87.000.

Spence, Lewis C. Band-pass filter and gain stage. 4,268,807, Cl. 333-191.000.

Sperry Corporation: *See*—
Jacobson, Peter E., 4,267,731, Cl. 73-505.000.
Rokas, Gary J., 4,268,899, Cl. 363-61.000.
Valentino, Pasquale A.; Herper, John C.; and Stangel, John J., 4,268,831, Cl. 343-754.000.
Verdenne, Serge J. C.; Petitpas, Jean-Marie L.; and Boirin, Jean-Claude A. E., 4,268,202, Cl. 414-39.000.

Sperry Rand Corporation: *See*—
Johann, Donald F.; and Mendenhall, Charles E., 4,268,905, Cl. 364-200.000.

Spicer, Howard G.: *See*—
Spicer, Martin J.; and Spicer, Howard G., 4,268,215, Cl. 414-715.000.

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Spoor, Martin, to Bofors America, Inc. Strain-gage transducer bridge gages with integral calibration resistors. 4,267,724, Cl. 73-862.650.

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Heyer, Arthur J.; Springer, Edward M.; and Clay, Wallace C., 4,268,869, Cl. 358-287.000.

Springer, Willi, to Daimler-Benz Aktiengesellschaft. Cylinder head for a mixture-compressing internal combustion engine. 4,267,811, Cl. 123-432.000.

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Gulati, Suresh T.; Smith, Norman A.; and Spycher, Anton A., 4,268,134, Cl. 351-163.000.

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Nielson, Donald L.; Fylstra, David J.; and Stehle, Roy H., 4,268,721, Cl. 179-2.00C.

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Dewaele, Daniel C. C., 4,268,168, Cl. 356-58.000.

Stabilus GmbH: *See*—
Langanke, Rolf, 4,268,018, Cl. 267-120.000.

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Klotz, Marvin R., 4,268,420, Cl. 252-432.000.
Lark, John C., 4,268,645, Cl. 525-437.000.

Stanford University Board of Trustees: *See*—
Quate, Calvin F., 4,267,732, Cl. 73-606.000.

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Suska, Charles R., 4,267,619, Cl. 16-48.500.

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Lazarek, Gerald M.; and Staub, Fred W., 4,268,850, Cl. 357-82.000.

Staudacher, Werner, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Method for steering an aircraft. 4,267,990, Cl. 244-52.000.

Staufer, Adolf, to Fischer Gesellschaft m.b.H. Process and apparatus for forming a profiled tread surface on a ski. 4,268,059, Cl. 280-604.000.

Stauffer Chemical Company: *See*—
Fearing, Ralph B., 4,268,633, Cl. 521-168.000.
Teach, Eugene G., 4,268,677, Cl. 548-215.000.

Stearns, Charles F., to United Technologies Corporation. Hydromechanical fuel control with independent electromechanical interface. 4,267,693, Cl. 60-39.28R.

Stedman, Robert N.: *See*—
Chambers, Robert O.; and Stedman, Robert N., 4,267,749, Cl. 74-690.000.

Steelite, Inc.: *See*—
Thompson, Leroy, 4,267,679, Cl. 52-311.000.

Steer, Peter L.; and Edwards, John V., to Kingsdown Medical Consultants Limited. Attachable filter and ostomy bag including same. 4,268,286, Cl. 55-278.000.

Steffen, Klaus D., to Dynamit Nobel Aktiengesellschaft. Method of preparing bis-(chloromethyl)-tetrachlorobenzenes. 4,268,698, Cl. 570-198.000.

Stehle, Roy H.: *See*—
Nielson, Donald L.; Fylstra, David J.; and Stehle, Roy H., 4,268,721, Cl. 179-2.00C.

Steinbrecher, Bernhard. Packaging machine. 4,267,918, Cl. 198-472.000.

Stellfox, Samuel K.; and Urban, Hermann, to Dravo Corporation. Continuous ship unloader. 4,268,204, Cl. 414-139.000.

Stempeck, John W.: *See*—
Coppa, Richard J.; Ellin, Seymour; and Stempeck, John W., 4,268,138, Cl. 354-27.000.

Stenning, Charles. Flaw detection probe for cylindrical bores. 4,268,169, Cl. 356-241.000.

Stenzel, Kurt H.: *See*—
Miyata, Teruo; Rubin, Albert L.; Stenzel, Kurt H.; and Dunn, Michael W., 4,268,131, Cl. 351-160.00H.

Stephens, Richard B., to Exxon Research & Engineering Co. Low reflectivity surface formed by particle track etching. 4,268,347, Cl. 156-628.000.

Sterling Drug Inc.: *See*—
Diana, Guy D.; and Carabateas, Philip M., 4,268,678, Cl. 548-247.000.

Sternberg, James C., to Beckman Instruments, Inc. Method determining concentration in rate nephelometric immunochemical analysis. 4,268,171, Cl. 356-341.000.

Stevens, James N. Method for making a fluid filled ring. 4,268,331, Cl. 156-145.000.

Stewart, James J. Parking lot and highway safety line painting machine. 4,267,973, Cl. 239-73.000.

Stewart, Oscar. Portable display rack and sample carrying case. 4,267,905, Cl. 190-13.00R.

Stewart, Robert D., to Babcock-Brown Boveri Reaktor GmbH. Extraction by solid stabilized emulsions. 4,268,395, Cl. 210-634.000.

Stieff, Lorin R. Field method for detecting deposits containing uranium or thorium. 4,268,748, Cl. 250-255.000.

Stiegler, Karl-Heinz: *See*—
Schulze, Ehrhart, 4,268,343, Cl. 156-361.000.

Stine, Laurence O.; and Richter, Steven L., to UOP Inc. Gaseous passivation of metal contaminants on cracking catalyst. 4,268,416, Cl. 252-416.000.

Stirbis, James S., to Coors Container Company. Self-aligning mandrel for can printing machines. 4,267,771, Cl. 101-40.000.

Stocker, Arthur: *See*—
Beck, Edwin; and Stocker, Arthur, 4,268,773, Cl. 310-269.000.

Stockner, Alan R.; and Stratton, Michael K., to Caterpillar Tractor Co. Temperature controlled unit injector. 4,267,977, Cl. 239-132.300.

Stolfo, John J., to Mead Corporation, The. Paper coated with a microcapsular coating composition containing a hydrophobic silica. 4,268,069, Cl. 282-27.500.

Stoltz, Michael: *See*—
Klose, Sigmar; Batz, Hans-Georg; Stoltz, Michael; Hagen, Alexander; and Weimann, Gunter, 4,268,628, Cl. 435-22.000.

Stolz, Robert: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; Kunkel, Heinrich; Halliger, Leonard; Stolz, Robert; and Schurger, Rainer, 4,267,920, Cl. 198-842.000.

Stone, Eugene M., to Penelizer Corporation. Asphalt and emulsions thereof for pavements. 4,268,318, Cl. 106-277.000.

Stone, Robert D. Integral dome and collar electrical connector. 4,268,101, Cl. 339-61.00R.

Straitz, John F., III, to Combustion Unlimited Incorporated. Offshore-subsea flares. 4,268,245, Cl. 431-202.000.

Strand, Arne: *See—*
Korterod, Lars; Strand, Arne; Ellingsen, Odd; and Broen, Harry, 4,267,929, Cl. 206-603.000.

Stratenhoff, Wolfgang: *See—*
Huber, Walter; and Stratenhoff, Wolfgang, 4,268,203, Cl. 414-100.000.

Stratton, Michael K.: *See—*
Stockner, Alan R.; and Stratton, Michael K., 4,267,977, Cl. 239-132.300.

Straub, Immanuel. Pipe coupling for interconnecting pipes experiencing length changes. 4,268,072, Cl. 285-112.000.

Struble, Glenn E., to Diamond International Corporation. Quickly erected scoop-type carton and layout for cutting. 4,267,955, Cl. 229-16.00R.

Suarato, Antonino: *See—*
Masi, Paolo; Suarato, Antonino; Bernardi, Luigi; and Arcamone, Federico, 4,268,451, Cl. 260-376.000.

Subrizi, Angelo; and Violino, Ettore, to Ing. C. Olivetti & C., S.p.A. Variable configuration accounting machine with automatic identification of the number and type of connected peripheral units. 4,268,901, Cl. 364-200.000.

Suchy, Leszek: *See—*
Kwok, Clyde C. K.; and Suchy, Leszek, 4,267,856, Cl. 137-119.000.

Suda, Minoru: *See—*
Kondo, Kiyosi; Fujimoto, Tamotsu; Suda, Minoru; and Tunemoto, Daiei, 4,268,442, Cl. 260-326.200.

Suetterlin, Norbert: *See—*
Fink, Herbert; Suetterlin, Norbert; Dinklage, Horst; and Tilch, Willi, 4,268,549, Cl. 427-393.500.

Suganuma, Tetsuya: *See—*
Serino, Yoichi; Suganuma, Tetsuya; and Takahashi, Yoshitaka, 4,268,309, Cl. 75-230.000.

Sugimoto, Naohiko: *See—*
Sera, Hidefumi; Hori, Kiyotaka; and Sugimoto, Naohiko, 4,268,623, Cl. 430-529.000.

Sugiura, Yoji; and Kiuchi, Masayoshi, to Canon Kabushiki Kaisha. Electromagnetically driven shutter. 4,268,153, Cl. 354-234.000.

Suh, Nam P.; and Erwin, Lewis, II, to Massachusetts Institute of Technology. Method of accelerating the cooling of polymeric articles. 4,268,465, Cl. 264-25.000.

Sullivan, James L. Mud flap assembly. 4,268,052, Cl. 280-153.00R.

Sullivan, Michael O.: *See—*
O'Handley, Robert C.; and Sullivan, Michael O., 4,268,325, Cl. 148-108.000.

Sullivan, Richard D.; and Knies, Allen E., to Kimball International, Inc. Tool safety lock ring. 4,267,759, Cl. 83-665.000.

Sumitomo Bakelite Company Limited: *See—*
Iwasa, Yoshisuke; and Sakura, Shigehiko, 4,268,810, Cl. 336-205.000.

Sumitomo Chemical Company, Limited: *See—*
Sano, Takezo; Shimomura, Takatoshi; and Murase, Ichiki, 4,268,662, Cl. 528-486.000.
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,268,301, Cl. 71-90.000.

Sumitomo Electric Industries, Ltd.: *See—*
Kita, Yasuo; and Nishiyama, Yukinori, 4,267,903, Cl. 188-72.600.
Mori, Akinori, 4,268,714, Cl. 174-108.000.

Sumitomo Rubber Industries, Ltd.: *See—*
Kimura, Tamisuke; Kashiwara, Tomokazu; and Yamaguchi, Tetsuo, 4,267,792, Cl. 114-219.000.

Sun Trac Industries, Inc.: *See—*
Winders, Gordon R., 4,268,332, Cl. 156-160.000.

Sung, Pei; Klaus, Irving; and Lee-You, James, to Johnson & Johnson. Dental alloys. 4,268,308, Cl. 75-171.000.

Suovaniemi, Osmo A.; and Tervamaki, Jukka, to Kommandittiyhtio Finnpipette Osmo A. Suovaniemi. Pipette. 4,268,481, Cl. 422-100.000.

Suska, Charles R., to Stanley Works, The. Controlled release door holder. 4,267,619, Cl. 16-48.500.

Sussmuth, Godehard: *See—*
Luhrsen, Ernst; Sussmuth, Godehard; and Walden, Klaus, 4,268,015, Cl. 266-236.000.

Suzuki, Hajime; Masuda, Ikuo; and Kosaka, Masaki, to Daicel Ltd. Primer for powder coating. 4,268,579, Cl. 428-413.000.

Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, to Toyota Jidosha Kogyo Kabushiki Kaisha. Passive seatbelt system. 4,268,068, Cl. 280-804.000.

Suzuki, Kazuo; and Yokota, Kenichi, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Ferrite composition having higher initial permeability and process for preparing molding product therefrom. 4,268,430, Cl. 260-37.00R.

Suzuki, Kijiro: *See—*
Ishihara, Haruji; Shimokawa, Ryushi; Yagi, Michio; Shiozawa, Kazuo; Suzuki, Kijiro; and Aratame, Kazuhisa, 4,268,136, Cl. 354-23.00D.

Suzuki, Nobuyuki: *See—*
Aizawa, Hiroshi; Uchidoi, Masanori; Urushibara, Kazunobu; Suzuki, Nobuyuki; and Shimizu, Masami, 4,268,152, Cl. 354-234.000.

Suzuki, Seigo; and Eguchi, Seiji, to Tokyo Shibaura Electric Co., Ltd. Interruption control method for multiprocessor system. 4,268,904, Cl. 364-200.000.

Suzuki, Sumio: *See—*
Imahori, Seiichi; Murata, Yukichi; Maeda, Syuichi; and Suzuki, Sumio, 4,268,671, Cl. 544-245.000.

Suzuki, Tsutomu: *See—*
Aoki, Eiichiro; and Suzuki, Tsutomu, 4,267,762, Cl. 84-1.030.

Suzuki, Yasoji; and Iida, Tetsuya, to Tokyo Shibaura Denki Kabushiki Kaisha. Interface circuit for converting logic signal levels. 4,268,761, Cl. 307-264.000.

Suzuki, Yasuo: *See—*
Goto, Takeshi; Tanaka, Akio; and Suzuki, Yasuo, 4,267,975, Cl. 239-83.000.

Suzuki, Yoshiaki: *See—*
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,268,605, Cl. 430-216.000.
Mitsui, Akio; and Suzuki, Yoshiaki, 4,268,617, Cl. 430-373.000.

Svecia Silkscreen Maskiner AB: *See—*
Scherp, Sven; and Ericsson, Sylve J. D., 4,267,773, Cl. 101-123.000.

Svendsen, Gordon D., to Ampex Corporation. Transient overshoot, undershoot and delay compensation circuit in systems comprising reactive filter networks. 4,268,785, Cl. 318-620.000.

Svoboda, Josef, to TMC Corporation. Ski brake. 4,268,060, Cl. 280-605.000.

Svoboda, Josef, to TMC Corporation. Sole holder. 4,268,064, Cl. 280-625.000.

Sybron Corporation: *See—*
Wolfe, Gerald D., 4,268,394, Cl. 210-525.000.

Symphar S.A.: *See—*
Nguyen Mong, Lan, 4,268,507, Cl. 424-217.000.

Synthes AG: *See—*
Perrett, Thomas R.; and Carter, Gilbert T., 4,267,939, Cl. 220-318.000.

Syromyatnikov, Alexei N.: *See—*
Zolotenko, Vladimir A.; Pavlov, Vladimir V.; Sokolov, Viktor E.; and Syromyatnikov, Alexei N., 4,268,795, Cl. 350-9.000.

Syva Company: *See—*
Skold, Carl N., 4,268,663, Cl. 536-4.000.

Tada, Tsukasa, to VLSI Technology Research Association. Method of patterning a resist layer for manufacture of a semiconductor element. 4,268,607, Cl. 430-270.000.

Taggart, Robert B. Parabolic reflector. 4,268,835, Cl. 343-915.000.

Taira, Akira: *See—*
Nakagawa, Kazuhiko; Fujieda, Yasuhiko; Hara, Shozo; Tanaka, Toshikazu; and Taira, Akira, 4,268,219, Cl. 414-786.000.

Taka, Yuichi: *See—*
Iwata, Masahiro; and Taka, Yuichi, 4,268,411, Cl. 252-316.000.

Takagishi, Takaharu: *See—*
Doi, Yasuhiko; Iwao, Soichi; and Takagishi, Takaharu, 4,268,163, Cl. 355-14.0SH.

Takahashi, Hiroshi, to Nippon Electric Co., Ltd. Noise reduction system for color television signal. 4,268,855, Cl. 358-36.000.

Takahashi, Kazuo: *See—*
Iytaka, Tateshi; Matsuo, Syunji; Nagatani, Toshio; Takahashi, Kazuo; and Habu, Takeshi, 4,268,620, Cl. 430-403.000.

Takahashi, Yoshitaka: *See—*
Serino, Yoichi; Suganuma, Tetsuya; and Takahashi, Yoshitaka, 4,268,309, Cl. 75-230.000.

Takamizawa, Yuji: *See—*
Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, 4,268,690, Cl. 562-416.000.

Takasugi, Mitsuo; and Okuyama, Yoshio. Boring needle device for treatment of a dental root canal. 4,268,251, Cl. 433-75.000.

Takatori Machinery Works Ltd.: *See—*
Osho, Takatori, 4,267,785, Cl. 112-121.120.

Takeda, Masanobu; and Anzai, Shigeaki, to Denyo Kabushiki Kaisha. A.C. Generator exciting method. 4,268,788, Cl. 322-59.000.

Takeshima, Sadao, to Jidosha Kiki Co. Ltd. Electro-mechanical converters and control apparatus for power steering units utilizing the same. 4,267,897, Cl. 180-143.000.

Takeuchi, Hideaki: *See—*
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, 4,268,541, Cl. 427-177.000.

Takeuchi, Kunio: *See—*
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, 4,268,464, Cl. 264-22.000.

Taki, Akira: *See—*
Nakamura, Takashi; and Taki, Akira, 4,268,853, Cl. 358-17.000.

Talbott, Gene B. Portable, hand-held device for forming crop-receiving cavities in the ground. 4,267,782, Cl. 111-7.100.

Tamagawa Seiki Kabushiki Kaisha: *See—*
Wakayama, Masashi, 4,268,819, Cl. 340-870.340.

Tamminen, Pentti J., to Imatra Paristo Oy. Cell having improved rechargeability. 4,268,589, Cl. 429-207.000.

Tamura, Yasuyuki: *See—*
Nakahata, Kimio; Aguro, Yoshinori; and Tamura, Yasuyuki, 4,268,161, Cl. 355-3.0CH.

Tanaka, Akio: *See—*
Goto, Takeshi; Tanaka, Akio; and Suzuki, Yasuo, 4,267,975, Cl. 239-83.000.

Miki, Yusaku; Yamamoto, Hidemi; Kimihira, Yuichi; and Tanaka, Akio, 4,268,903, Cl. 364-200.000.

Tanaka, Osamu: *See—*
Iwayama, Kenzo; and Tanaka, Osamu, 4,268,326, Cl. 148-113.000.

Tanaka, Shigeho: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.

Tanaka, Toru: *See—*
Komatsu, Makoto; Ohta, Tazuo; Tanaka, Toru; Oda, Ryoichi; and Takamizawa, Yuji, 4,268,690, Cl. 562-416.000.

Tanaka, Toshikazu: *See—*
Nakagawa, Kazuhiko; Fujieda, Yasuhiko; Hara, Shozo; Tanaka, Toshikazu; and Taira, Akira, 4,268,219, Cl. 414-786.000.

Tanaka, Yoshiyuki, to Nissan Motor Company, Limited. Transmission control device. 4,267,743, Cl. 74-473.0SW.

Tanaka, Yukitaka: *See—*
Kawada, Tsukasa; and Tanaka, Yukitaka, 4,268,534, Cl. 426-607.000.

Tang, David Y.; and Foster, Arthur M., to Hooker Chemicals & Plastics Corp. Method of making methyl and ethyl esters of (3-trifluoromethylphenyl)-acetic acid. 4,268,687, Cl. 560-105.000.

Taniyama, Takashi: *See—*
Amazawa, Kiyoshi; Mori, Masaharu; and Taniyama, Takashi, 4,268,793, Cl. 328-165.000.

Tanner Electronic Systems Technology, Inc.: *See—*
Tanner, James L.; Rist, Bruno A.; and Sanchez, George, 4,268,805, Cl. 333-129.000.

Tanner, James L.; Rist, Bruno A.; and Sanchez, George, to Tanner Electronic Systems Technology, Inc. Citizens band broadcast band coupling circuit. 4,268,805, Cl. 333-129.000.

Tao, Thomas M.: *See—*
Bean, William C.; and Tao, Thomas M., 4,268,235, Cl. 425-83.100.

Tarasov, Alexandr E.: *See—*
Ivanov, Jury P.; Evstafiev, Evgeny A.; and Tarasov, Alexandr E., 4,267,789, Cl. 114-65.00R.

Tashiro, Tsuneo, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrographic copying apparatus. 4,268,159, Cl. 355-3.00R.

Tashlick, Irving, to Interpace Corporation. Underground pipe joint with hydratable cement in polyurethane gasket. 4,268,047, Cl. 277-207.00A.

Tata, Peter. Cigarette container and lighter combination. 4,267,924, Cl. 206-87.000.

Taura, Miyako, to Ito, Eiichi; and Taura, Teruchika. Exothermic composition and warming bag containing the same. 4,268,272, Cl. 44-3.00R.

Taura, Teruchika: *See—*
Taura, Miyako, 4,268,272, Cl. 44-3.00R.

Taylor, Allen R.: *See—*
Valles, Henry; Taylor, Allen R.; and Beneventano, Thomas, 4,267,735, Cl. 74-5.700.

Taylor, Douglas R., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Brittanic Majesty's Government of the. Portable runway. 4,267,991, Cl. 244-63.000.

Taylor, Edwin E., to Vega Industries, Inc. Damper construction. 4,267,818, Cl. 126-121.060.

Taylor, Michael A.: *See—*
Boyle, Francis T.; and Taylor, Michael A., 4,268,510, Cl. 424-248.530.

Taylor, Raymond G., to Western Electric Company. Circuits and methods for initializing the loop current of a telephone set. 4,268,723, Cl. 179-81.00R.

TDK Electronics Co., Ltd.: *See—*
Fukuda, Kazumasa, 4,268,882, Cl. 360-118.000.
Uemura, Noboru; Hatakeyama, Shunzo; and Hashimoto, Hidehisa, 4,267,986, Cl. 242-199.000.

Teach, Eugene G., to Stauffer Chemical Company. Substituted oxazolidines and thiazolidines. 4,268,677, Cl. 548-215.000.

Teledyne Industries, Inc.: *See—*
Neel, Robert M.; Waite, James B.; and Yoknis, Myron, 4,267,966, Cl. 236-46.00A.

Templet Industries, Inc.: *See—*
Schierwagen, Alfred W.; and La Mountain, Thomas D., 4,268,897, Cl. 362-325.000.

Tenneco Chemicals, Inc.: *See—*
Feldman, Martin L.; and De Groff, James T., 4,268,431, Cl. 260-40.00R.

Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, to Fujisawa Pharmaceutical Co., Ltd. New cephem compounds and processes for preparation thereof. 4,268,509, Cl. 424-246.000.

Teraoka, Akira; and Nakada, Mitsugu, to Kubota, Ltd. Fuel tank mounting structure for a tractor. 4,268,048, Cl. 280-5.00A.

Terry, Alvah B., to Monsanto Company. Fiber bed element and method for making the same. 4,267,626, Cl. 29-163.50F.

Terumo Corporation: *See—*
Aoyagi, Juuro; and Ichikawa, Toshizi, 4,268,463, Cl. 264-22.000.

Tervamaki, Jukka: *See—*
Suovaniemi, Osmo A.; and Tervamaki, Jukka, 4,268,481, Cl. 422-100.000.

Teshima, Hiroshi: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.

Teshima, Tunehiko: *See—*
Kobori, Yasunori; Itoh, Toshi; Tokunaga, Yoichi; and Teshima, Tunehiko, 4,268,873, Cl. 360-9.000.

Tesson, Prosper A. Pipe handling method and apparatus. 4,268,190, Cl. 405-169.000.

Tetra Pak International AB: *See—*
Holmstrom, Sven N. H., 4,267,957, Cl. 229-37.00R.

Tetra-Tech, Inc.: *See—*
Slemon, Charles S.; and Braun, Steven W., 4,268,115, Cl. 350-96.210.

Texaco Development Corp.: *See—*
Knifton, John F., 4,268,689, Cl. 560-263.000.

Texaco Inc.: *See—*
Kalfoglou, George, 4,267,886, Cl. 166-273.000.

Texas Instruments Incorporated: *See—*
Blaha, Robert F., 4,267,635, Cl. 29-622.000.
Henrion, W. S.; and Erickson, Raymond K., 4,268,814, Cl. 338-32.00H.

Texasgulf Inc.: *See—*
Price, Herbert S.; and Hunter, Glen E., 4,268,088, Cl. 299-11.000.

Textron, Inc.: *See—*
Moertel, George B., 4,268,474, Cl. 264-252.000.
Williams, Roy C.; and Rogemoser, David R., 4,268,426, Cl. 260-22.0TN.

Thatcher, Gary G. Particulate matter dispensing device. 4,267,946, Cl. 222-345.000.

Thermasol Ltd.: *See—*
Altman, Gilbert; and Bellasalma, Gerard, 4,267,609, Cl. 4-580.000.

Theurer, Josef; and Folser, Karl, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Mobile ballast cleaning machine. 4,267,777, Cl. 104-7.00R.

Thiery, Joachim: *See—*
Reis, August K.; Kirmaier, Norbert L.; Determann, Helmut; Thiery, Joachim; Haker, Rolf; and Kruger, Dietrich, 4,268,367, Cl. 204-149.000.

Thoemel, Frank: *See—*
Kropp, Rudolf; Thoemel, Frank; Nuerrenbach, Axel; Hoffman, Werner; Wenisch, Franz; and Fuchs, Hartwig, 4,268,445, Cl. 260-345.200.

Thomas & Betts Corporation: *See—*
Izraeli, Hyman, 4,267,628, Cl. 29-235.000.

Thomas Gray & Associates, Inc., Division LevelLink: *See—*
Murakami, Eugene T.; and Gray, Thomas A., 4,268,753, Cl. 250-357.000.

Thomas, John C.: *See—*
Fischer, David J.; Wooten, Idella B.; Thomas, John C.; and Reid, James A., 4,268,133, Cl. 351-161.000.

Thomas, Rudy V., to Allied Chemical Corporation. Seat belt tension eliminator. 4,268,067, Cl. 280-802.000.

Thomas, Samuel J.: *See—*
Harris, George M.; and Thomas, Samuel J., 4,268,334, Cl. 156-187.000.

Thominet, Michel; Bulteau, Gerard; Acher, Jacques; and Collignon, Claude, to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France. Substituted 2,3-alkylene bis (oxy) benzamides and derivatives and method of preparation. 4,268,512, Cl. 424-250.000.

Thompson, James D.; and Gates, Dennis E. Means and method of manufacturing a high strength bar. 4,268,561, Cl. 428-111.000.

Thompson, Leroy, to Steelite, Inc. Insulated building panel wall construction. 4,267,679, Cl. 52-311.000.

Thomson-CSF: *See—*
Croset, Michel; and Velasco, Gonzalo, 4,268,535, Cl. 427-38.000.
d'Auria, Luigi; and Maillot, Philippe, 4,268,114, Cl. 350-96.200.
Eranian, Armand; Dubois, Jean C.; Couttet, Andre; and Datamanti, Evelyne, 4,268,590, Cl. 430-5.000.

Thul, Fred M.: *See—*
Fritzlen, Jack D.; Thul, Fred M.; and Vogel, Douglas R., 4,268,751, Cl. 250-343.000.

Thuringer, Ferdinand: *See—*
Hartmann, Max; and Thuringer, Ferdinand, 4,267,698, Cl. 60-756.000.

Thurler, James E.: *See—*
Engelmann, Roger F.; and Thurler, James E., 4,268,057, Cl. 280-474.000.

Tiger Manufacturing Company: *See—*
Hayes, John, 4,268,392, Cl. 210-238.000.

Tilch, Willi: *See—*
Fink, Herbert; Suetterlin, Norbert; Dinklage, Horst; and Tilch, Willi, 4,268,549, Cl. 427-393.500.

Timeter Instrument Corp.: *See—*
Longenecker, Ned; Becker, Clair M.; Riegel, David P.; and Vogt, Alan G., Jr., 4,267,721, Cl. 73-1.00G.

Tinker, Harold B.; and Solodar, Arthur J., to Monsanto Company. Asymmetric hydroformylation process. 4,268,688, Cl. 560-177.000.

Tino, Al. Body garment. 4,267,607, Cl. 2-409.000.

TMC Corporation: *See—*
Svoboda, Josef, 4,268,060, Cl. 280-605.000.
Svoboda, Josef, 4,268,064, Cl. 280-625.000.
Wittmann, Heinz, 4,268,062, Cl. 280-611.000.

Tobitani, Hiroshi: *See—*
Tsuzuki, Akira; and Tobitani, Hiroshi, 4,268,360, Cl. 202-270.000.

Toho Gasu Kabushiki Daisha: *See—*
Yamaguchi, Yukio; Ishihara, Kenji; and Yonekura, Kikuo, 4,267,853, Cl. 137-67.000.

Toimil, Ramon, to Fabriques de Tabac Reunies S.A. Box for smoking articles in the form of cigarettes or the like. 4,267,926, Cl. 206-268.000.

Tokunaga, Tadatsugu; and Fujii, Akira, to Nippon Electric Co., Ltd. Amplitude-limiter. 4,268,760, Cl. 307-562.000.

Tokunaga, Yoichi: *See—*
Kobori, Yasunori; Itoh, Toshi; Tokunaga, Yoichi; and Teshima, Tunehiko, 4,268,873, Cl. 360-9.000.

Tokyo Denshi Kagaku Kabushiki Kaisha: *See—*
Nakayama, Muneo; Nishimura, Toshihiro; Hashimoto, Akira; Nakane, Hisashi; and Kimura, Teruo, 4,268,539, Cl. 427-108.000.

Tokyo Ohka Kogyo Kabushiki Kaisha: *See—*
Sato, Takayuki, 4,268,603, Cl. 430-196.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Honma, Hiroshi, 4,268,180, Cl. 400-124.000.
Kusakabe, Hiromi, 4,268,916, Cl. 455-333.000.
Nagano, Katsumi, 4,268,789, Cl. 323-315.000.
Suzuki, Yasoji; and Iida, Tetsuya, 4,268,761, Cl. 307-264.000.
Tashiro, Tsuneo, 4,268,159, Cl. 355-3.00R.

Tokyo Shibaura Denki Kabusiki Kaisha: *See—*
Miki, Yusaku; Yamamoto, Hidemi; Kimihira, Yuichi; and Tanaka, Akio, 4,268,903, Cl. 364-200.000.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Suzuki, Seigo; and Eguchi, Seiji, 4,268,904, Cl. 364-200.000.

Toland, William G., to Chevron Research Company. Sulfur-based roof shingles. 4,268,572, Cl. 428-281.000.

Tolbert, William R.; Kuo, Mau-Jung; and Feder, Joseph, to Monsanto Company. Production of angiogenic factor by cell culture. 4,268,629, Cl. 435-41.000.

Tomforde, Johann: *See—*
Pfeiffer, Peter; and Tomforde, Johann, 4,268,892, Cl. 362-83.000.

Tomioka, Shouji: *See—*
Horie, Toshio; Tomioka, Shouji; and Mine, Nobuyoshi, 4,268,397, Cl. 210-746.000.

Tomita, Masahiro: *See—*
Kaneko, Dentaro; Onoda, Mamoru; Kimura, Yoshio; Inada, Yutaka; and Tomita, Masahiro, 4,268,303, Cl. 75-34.000.

Tomita, Satoru: *See—*
Ebi, Yutaka; Hirakura, Koji; Matsumoto, Fuyuhiko; Ohta, Wasaburo; and Tomita, Satoru, 4,268,157, Cl. 355-3.0TR.

Tomlinson, Alan D.: *See—*
Hall, Norman; Martin, Alexander; and Tomlinson, Alan D., 4,268,424, Cl. 252-546.000.

Tonteri, Ossi T.: *See—*
Leiponen, Matti O.; and Tonteri, Ossi T., 4,267,877, Cl. 164-155.000.

Toole, Monte M.; and Klein, Raphael, to Atomel Corporation. High-pressure, high-temperature gaseous chemical method for silicon oxidation. 4,268,538, Cl. 427-93.000.

Toppan Printing Co., Ltd.: *See—*
Naganuma, Tsutomu; Hoshi, Hisao; Kumagai, Hiroji; and Yoshida, Kaneki, 4,268,158, Cl. 355-3.00R.

Toppins, Charles R.; Williams, Cecil L.; and Korth, Otto H., to Dempster Systems Inc. Wheel fender assembly. 4,268,053, Cl. 280-154.000.

Toray Industries, Ltd.: *See—*
Yoshino, Tsuneo; and Ohbayashi, Gentaro, 4,268,602, Cl. 430-192.000.

Toray Silicone Company, Ltd.: *See—*
Mine, Katsutoshi; Kubota, Yoshitaka; and Maruyama, Tsuneo, 4,268,452, Cl. 260-37.0SB.

Torck, Bernard: *See—*
Dang Vu, Quang; Juguin, Bernard; Torck, Bernard; and Hellin, Michel, 4,268,700, Cl. 585-302.000.
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,268,701, Cl. 585-329.000.

Tosaka, Yasuo: *See—*
Ogi, Keiji; Sasaki, Takashi; Okaniwa, Kenichiro; and Tosaka, Yasuo, 4,268,621, Cl. 430-409.000.

Toscano, William M., to Helix Technology Corporation. Helium liquefaction plant. 4,267,701, Cl. 62-86.000.

Tournier, Claude. Machine for depilating the skins of slaughtered animals. 4,267,713, Cl. 69-24.000.

Toyama, Tadao: *See—*
Shiba, Keisuke; Toyama, Tadao; and Nakao, Sho, 4,268,609, Cl. 430-271.000.

Toyo Boseki Kabushiki Kaisha: *See—*
Imanaka, Hiroshi; and Kijima, Yoshihiko, 4,268,570, Cl. 428-216.000.
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, 4,268,464, Cl. 264-22.000.

Toyo Jozo Kabushiki Kaisha: *See—*
Sakakibara, Hideo; Fujiwara, Tatsuro; Okegawa, Osamu; Watanabe, Toshiyuki; Watanabe, Susumu; and Matsuda, Tetsuo, 4,268,665, Cl. 536-17.00R.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Kanda, Mutsumi; Nakanishi, Kiyoshi; and Motosugi, Katsuhiko, 4,267,806, Cl. 123-287.000.
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,078, Cl. 293-120.000.
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,079, Cl. 293-120.000.
Serino, Yoichi; Suganuma, Tetsuya; and Takahashi, Yoshitaka, 4,268,309, Cl. 75-230.000.
Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, 4,268,068, Cl. 280-804.000.

Trailigaz, Compagnie Generale de l'Ozone: *See—*
Marets, Maurice, 4,268,480, Cl. 422-98.000.

Traino, James C., to Xerox Corporation. Pixel clock for scanner. 4,268,867, Cl. 358-285.000.

Traub, Henry A., to W. S. Shamban & Co. Seal assembly. 4,268,045, Cl. 277-121.000.

Treczka, Leo: *See—*
Spinner, Georg; and Treczka, Leo, 4,268,804, Cl. 333-125.000.

Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., to Monsanto Company. Dehydrocoupling of toluene. 4,268,704, Cl. 585-428.000.

Tremont, Samuel J.: *See—*
Williamson, Alex N.; and Tremont, Samuel J., 4,268,703, Cl. 585-428.000.

Tribotech: *See—*
Cain, Earl S.; Carlson, Jerome A.; and Goodrich, George E., 4,268,096, Cl. 308-15.000.

Trio Kabushiki Kaisha: *See—*
Ienaka, Masanori; Wada, Takeshi, Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,268,762, Cl. 307-268.000.

Triumph-Werke Nurnberg A.G.: *See—*
Decker, Herbert, 4,268,181, Cl. 400-208.000.

Trobaugh, Arnold G., to Johnson Controls, Inc. Flow system control with time delay override means. 4,268,383, Cl. 210-103.000.

Troxel, Donald E.: *See—*
Schreiber, William F.; and Troxel, Donald E., 4,268,861, Cl. 358-138.000.

TRW Inc.: *See—*
Crouse, Ronald J.; and Wade, Edward C., 4,268,756, Cl. 250-551.000.
Lui, Kenneth, 4,268,124, Cl. 350-310.000.

Tsagolov, Kim S.: *See—*
Srapeniants, Rigo A.; Saveliev, Igor B.; Kovtun, Jury L.; Sidorov, Alexandr V.; Tsagolov, Kim S.; and Miroshnikova, Nadezhda N., 4,268,754, Cl. 250-391.000.

Tsang, David L.; and Majewicz, Wlodzimierz I., to United Tire & Rubber Co. Limited. Tire curing assembly with improved seal. 4,268,234, Cl. 425-32.000.

Tschopp, Paul, to Ciba-Geigy AG. Material for color photography. 4,268,591, Cl. 430-17.000.

Tschopp, Paul, to Ciba-Geigy AG. Material for color photography. 4,268,592, Cl. 430-17.000.

Tsujimura, Tozaburo, to Yasui Sangyo Co., Ltd. Dual type free-wheel/drive-on vehicle lift. 4,267,901, Cl. 187-8.540.

Tsukahara, Hirokazu; Fuchigami, Mitsuru; and Kagota, Nobuhiro, to Mitsubishi Paper Mills, Ltd. Desensitizer for no-carbon copy paper. 4,268,634, Cl. 525-471.000.

Tsunekawa, Tokuichi: *See—*
Uchiyama, Takashi; Tsunekawa, Tokuichi; and Kiyohara, Takehiko, 4,268,139, Cl. 354-34.000.

Tsuzuki, Akira; and Tobitani, Hiroshi, to Koritsu Machine Industrial Limited. Temporary heat-proof apparatus for use in repairing coke ovens. 4,268,360, Cl. 202-270.000.

Tubefabrikken A/S: *See—*
Korterod, Lars; Strand, Arne; Ellingsen, Odd; and Broen, Harry, 4,267,929, Cl. 206-603.000.

Tunemoto, Daiei: *See—*
Kondo, Kiyosi; Fujimoto, Tamotsu; Suda, Minoru; and Tunemoto, Daiei, 4,268,442, Cl. 260-326.200.

Turcott, Joseph A. Bag holder apparatus. 4,267,996, Cl. 248-97.000.

Turner, Charles D.: *See—*
Green, John R.; and Turner, Charles D., 4,268,111, Cl. 350-70.000.

Turner, Christopher H.: *See—*
Gross, Michael J.; and Turner, Christopher H., 4,268,253, Cl. 433-221.000.

Turner, David M., to Fisons Limited. Method of treating cystitis. 4,268,518, Cl. 424-283.000.

Turner, David M., to Fisons Limited. Method of treating otitis media. 4,268,519, Cl. 424-283.000.

Tuson, Samuel, to Entreprise d'Equipments Mecaniques et Hydraulics. Stand-by service structure for casual off-shore attendance. 4,268,191, Cl. 405-195.000.

Twitchell, Brent L.; and Twitchell, Kendel S. Child transport vehicle. 4,268,054, Cl. 280-242.0WC.

Twitchell, Kendel S.: *See—*
Twitchell, Brent L.; and Twitchell, Kendel S., 4,268,054, Cl. 280-242.0WC.

Tyers, Peter R.: *See—*
Agger, Reginald T.; and Tyers, Peter R., 4,268,646, Cl. 525-440.000.

Tyler Refrigeration Corporation: *See—*
Abraham, Fayez F., 4,267,706, Cl. 62-256.000.

Tyler, Wesley R.: *See—*
Deffeyes, Robert J.; and Tyler, Wesley R., 4,268,302, Cl. 75-0.5AA.

Uchidoi, Masanori: *See—*
Aizawa, Hiroshi; Uchidoi, Masanori; Urushibara, Kazunobu; Suzuki, Nobuyuki; and Shimizu, Masami, 4,268,152, Cl. 354-234.000.

Uchidoi, Masataka; Iwama, Kiyonori; Iwamoto, Tsutomu; Sako, Junichi; and Higashihata, Yoshihide, to Pioneer Electronic Corporation; and Daikin Kogyo Co., Ltd. Process for preparation of a polymeric piezo-electric material and material prepared by said process. 4,268,653, Cl. 526-255.000.

Uchiyama, Takashi; Tsunekawa, Tokuichi; and Kiyohara, Takehiko, to Canon Kabushiki Kaisha. Camera for daylight and flash photography. 4,268,139, Cl. 354-34.000.

Ueda, Shigeo: *See—*
Aramaki, Kuninori; and Ueda, Shigeo, 4,268,186, Cl. 404-6.000.

Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, to Sumitomo Chemical Company, Limited. 1,4-Benzothiazines. 4,268,301, Cl. 71-90.000.

Uemura, Noboru; Hatakeyama, Shunzo; and Hashimoto, Hidehisa, to TDK Electronics Co., Ltd. Magnetic tape cassette. 4,267,986, Cl. 242-199.000.

Ueno, Tadashi: *See—*
Segawa, Takashi; and Ueno, Tadashi, 4,268,259, Cl. 474-160.000.

Uetake, Toshifumi; and Matsubara, Masaki, to Olympus Optical Co., Ltd. Ocular of large visual field. 4,268,128, Cl. 350-410.000.

Ueyama, Tamotsu; Wada, Yukihiko; Homma, Masaji; Aisawa, Hitoshi; Komatsu, Takayoshi; Shibata, Tatsuhisa; and Kamiyama, Hiroharu, to Hitachi Chemical Company, Ltd. Method of making printed circuit board. 4,268,614, Cl. 430-315.000.

Ulm, Heinz J. Apparatus for fixing sheets on a base. 4,268,000, Cl. 248-467.000.

Ulrich, Urban: *See—*
Domitrovic, Josip; and Ulrich, Urban, 4,268,767, Cl. 310-53.000.

Umemoto, Yoshiro: *See—*
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,078, Cl. 293-120.000.
Nomura, Takao; Umemoto, Yoshiro; Mishima, Yasuhiro; and Sanmiya, Tugumi, 4,268,079, Cl. 293-120.000.

Umezawa, Hamao; and Kondo, Shinichi, to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai. Process for the preparation of 1-N-isoseryl- or 1-N-(L-4-amino-2-hydroxybutyryl)-3',4'-dideoxykanamycin B and intermediates thereof. 4,268,664, Cl. 536-10.000.

Unger, Paul. Ski brake. 4,268,061, Cl. 280-605.000.

Union Carbide Corporation: *See—*
Kantz, John F., 4,268,555, Cl. 428-35.000.
Koenig, Harvey S.; and Bryant, George M., 4,268,641, Cl. 525-367.000.
Montgomery, Lionel C., 4,268,314, Cl. 106-65.000.

Union Oil Company of California: *See—*
Mannon, Alfred T., Jr., 4,267,893, Cl. 175-65.000.
Watanabe, David J., 4,267,887, Cl. 166-300.000.

Union Siderurgique du Nord et de l'est de la France: *See—*
Leclerc, Jacques; Cormet, Rene; and Marcus, Guy, 4,268,305, Cl. 75-48.000.

Unisearch Limited: *See—*
Rock, John D.; and Garnett, John L., 4,268,580, Cl. 428-423.400.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Brittanic Majesty's Government of the: *See—*
Taylor, Douglas R., 4,267,991, Cl. 244-63.000.

United States of America
Air Force: *See—*
Arnold, Fred E.; and Reinhardt, Bruce A., 4,268,654, Cl. 526-259.000.
Bacon, James F.; and Prewo, Karl M., 4,268,562, Cl. 428-113.000.
Rogel, Albert P.; and Scalese, Joseph J., 4,268,791, Cl. 324-238.000.
Army: *See—*
Baurle, Herbert F.; and Masak, Raymond J., 4,268,829, Cl. 343-100.0LE.
Christian, J. Robert; and Mink, James W., 4,268,832, Cl. 343-786.000.
Rodgers, Aubrey, 4,267,988, Cl. 244-3.160.
Sollott, Gilbert P.; Gilbert, Everett E.; and Warman, Maurice, 4,268,696, Cl. 568-931.000.
Energy: *See—*
Powell, James; Hsieh, Shih-Yung; and Lehner, John R., 4,268,353, Cl. 176-3.000.
National Aeronautics and Space Administration: *See—*
Harper, Philip M., Sr., 4,267,992, Cl. 244-103.00R.
Hoffman, Charles A.; Weeton, John W.; and Orth, Norman W., 4,267,953, Cl. 228-118.000.
Navy: *See—*
Meiners, Larry G., 4,268,844, Cl. 357-23.000.
Widmayer, Henry J.; and Cronin, Albert T., 4,268,105, Cl. 339-147.00R.

U.S. Philips Corporation: *See—*
Bouwknegt, Jan; Verbeek, Hendrik J.; and Scholten, Gerard J., 4,268,469, Cl. 264-138.000.
Heller, Arthur; Schaumberger, Alfred; Schuster, Klaus; and Dollinger, Friedrich, 4,268,851, Cl. 358-10.000.
Jacob, Guy M.; and Boulou, Michel, 4,268,842, Cl. 357-17.000.
Overall, Colin D., 4,268,712, Cl. 174-50.630.
van Roosmalen, Johannes H. T., 4,268,777, Cl. 315-1.000.

United States Steel Corporation: *See—*
Box, William A., 4,267,984, Cl. 242-56.400.
Price, Charles A., 4,268,218, Cl. 414-786.000.

United Technologies Corporation: *See—*
Monsarrat, William G.; and Neal, William F., 4,268,221, Cl. 415-116.000.
Stearns, Charles F., 4,267,693, Cl. 60-39.28R.

United Tire & Rubber Co. Limited: *See—*
Tsang, David L.; and Majewicz, Wlodzimierz I., 4,268,234, Cl. 425-32.000.

United Wiring & Manufacturing Co.: *See—*
Evans, Evan J., 4,268,739, Cl. 219-56.100.

Univ. of California, The Regents of the: *See—*
Rauscher, L. Andrew; and Parsons, Donald G., 4,267,827, Cl. 128-1.100.

Universal Pioneer Corporation: *See—*
Araki, Yositugu, 4,268,129, Cl. 350-486.000.
Okano, Takashi, 4,268,745, Cl. 369-44.000.

University of Minnesota, The Regents of the: *See—*
Vince, Robert, 4,268,672, Cl. 544-265.000.

University of Texas System, The: *See—*
Cowart, Ronald W., 4,268,750, Cl. 250-315.100.

University Patents, Inc.: *See—*
Remers, William A., 4,268,676, Cl. 548-181.000.

Uniweld Inc.: *See—*
Hooper, Anthony W., 4,267,982, Cl. 241-257.00R.
Hooper, Anthony W., 4,268,381, Cl. 209-273.000.

UOP Inc.: *See—*
Antos, George J., 4,268,377, Cl. 208-139.000.
Antos, George J., 4,268,706, Cl. 585-430.000.
Antos, George J., 4,268,707, Cl. 585-434.000.
Ginger, Edward A., 4,268,488, Cl. 423-239.00A.
Rohrbach, Ronald P., 4,268,419, Cl. 252-430.000.
Rohrbach, Ronald P.; and Maliarik, Mary, 4,268,423, Cl. 252-430.000.
Stine, Laurence O.; and Richter, Steven I., 4,268,416, Cl. 252-416.000.

Upjohn Company, The: *See—*
Bundy, Gordon L., 4,268,669, Cl. 542-429.000.
Crankshaw, Gary K.; and Erber, Roger A., 4,267,925, Cl. 206-221.000.

Uragaki, Tamotsu; Inoue, Morio; Koike, Susumu; and Iwasa, Hitoo, to Matsushita Electric Industrial Co., Ltd. Method for growing semiconductor epitaxial layers. 4,268,327, Cl. 148-171.000.

Urano, Toshihiro: *See—*
Kokaji, Norio; Kinoshita, Kunio; Urano, Toshihiro; and Saitoh, Katsunori, 4,268,872, Cl. 358-301.000.

Urban, Hermann: *See—*
Stellfox, Samuel K.; and Urban, Hermann, 4,268,204, Cl. 414-139.000.

Urban, Raymond C., to General Electric Company. Process for radiation cured continuous laminates. 4,268,339, Cl. 156-272.000.

Urquhart, Andrew W.: *See—*
Hanneman, Rodney E.; Urquhart, Andrew W.; and Vermilyea, David A., 4,268,586, Cl. 428-661.000.

Urushibara, Kazunobu: *See—*
Aizawa, Hiroshi; Uchidoi, Masanori; Urushibara, Kazunobu; Suzuki, Nobuyuki; and Shimizu, Masami, 4,268,152, Cl. 354-234.000.

USM Corporation: *See—*
Agger, Reginald T.; and Tyers, Peter R., 4,268,646, Cl. 525-440.000.
Marzouki, Taieb; and Schweisser, Bernd, 4,268,553, Cl. 428-34.000.

Vacca, Miguel; and Morris, James C., to Mayfran, Div. of Fischer Industries, Inc. Method and apparatus for removing material from the ends of a rotary air lock. 4,268,205, Cl. 414-219.000.

Valentino, Pasquale A.; Herper, John C.; and Stangel, John J., to Sperry Corporation. Antenna for scanning a limited spatial sector. 4,268,831, Cl. 343-754.000.

Valeron Corporation, The: *See—*
Murray, Robert C., 4,268,783, Cl. 318-565.000.

Valles, Henry; Taylor, Allen R.; and Beneventano, Thomas, to Singer Company, The. Gyro motor control system. 4,267,735, Cl. 74-5.700.

van der Lely, Ary; and Bom, Cornelis J. G., to C. van der Lely N.V. Soil cultivating machines. 4,267,891, Cl. 172-28.000.

van Haaften, Henry M. T. Duct system containing a movable plug body. 4,267,857, Cl. 137-119.000.

van Leeuwen, Geertruida C.: *See—*
Akkerman, Antony M.; and van Leeuwen, Geertruida C., 4,268,673, Cl. 546-97.000.

van Nederynen, Gerrit: *See—*
Wallace, William K.; Giardino, David A.; and van Nederynen, Gerrit, 4,267,747, Cl. 74-526.000.

van Roosmalen, Johannes H. T., to U.S. Philips Corporation. Cathode-ray tube. 4,268,777, Cl. 315-1.000.

Vargas, Ovidio; and Herrold, Anne M., to Eli Lilly and Company. Cosmetic cream formulation. 4,268,526, Cl. 424-358.000.

Varian Associates, Inc.: *See—*
Bassan, Benjamin, 4,268,230, Cl. 418-15.000.

Veale, John R., to Plessey Peripheral Systems. Paper thickness adjusting mechanism for impact printer. 4,268,177, Cl. 400-55.000.

Vega Industries, Inc.: *See—*
Taylor, Edwin E., 4,267,818, Cl. 126-121.000.

Velasco, Gonzalo: *See—*
Croset, Michel; and Velasco, Gonzalo, 4,268,535, Cl. 427-38.000.

Verbeek, Hendrik J.: *See—*
Bouwknegt, Jan; Verbeek, Hendrik J.; and Scholten, Gerard J., 4,268,469, Cl. 264-138.000.

Verdenne, Serge J. C.; Petitpas, Jean-Marie L.; and Boirin, Jean-Claude A. E., to Sperry Corporation. Bale wagon. 4,268,202, Cl. 414-39.000.

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Biermann, Peter; Feucht, Rudi; and Schmidt, Manfred, 4,268,063, Cl. 280-615.000.

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Vernay, Henri, to S.A. A C M A G. Telescopically extendible mast crane. 4,267,934, Cl. 212-184.000.

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Vessey, Rodney W.; and Rhoades, Colin C. Logging carriage. 4,267,933, Cl. 212-108.000.
Vick, Wiley D. Combination spine board and head stabilizer. 4,267,830, Cl. 128-87.00R.
Victor Company of Japan, Ltd.: *See*—
Ozawa, Keiji, 4,268,854, Cl. 358-27.000.
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Barger, Larry N.; McCord, Kenneth R.; and Vidal, Claude A., 4,267,834, Cl. 128-214.00F.
Villar, Luis F., to Servo Corporation of America. Wheel simulator. 4,268,257, Cl. 434-373.000.
Vince, Robert, to University of Minnesota, The Regents of the. Adenosine deaminase resistant antiviral purine nucleosides and method of preparation. 4,268,672, Cl. 544-265.000.
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Niebes, Paul J.; Vincze, Andras B.; Roba, Joseph L.; Lambelin, Georges E.; Matagne, Daniel M.; Hanon, Etienne T.; and Franz, Michel R., 4,268,517, Cl. 424-283.000.
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Vissers, Hermanus H.; and Mijnders, Gijsbert J., to Multinorm B.V. Mowing device. 4,267,688, Cl. 56-16.400.
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Hanke, Reinhard; and Jahn, Kornel, 4,268,382, Cl. 209-273.000.
Vogel, Douglas R.: *See*—
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Vogel, Walter H., to Redington Inc. Article transfer mechanism. 4,267,917, Cl. 198-457.000.
Vogele, Richard: *See*—
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Von Wattenwyl, Andre R., to Parke, Davis & Company. Natural dyestuffs for gelatine capsules. 4,268,265, Cl. 8-438.000.
Vydrin, Vladimir N.; Ageev, Leonid M.; and Pellenen, Anatoly P. Mill for rolling metal strips. 4,267,720, Cl. 72-205.000.
Vyne, Robert L.: *See*—
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Roberts, Allen L., 4,268,283, Cl. 55-189.000.
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Traub, Henry A., 4,268,045, Cl. 277-121.000.
Wada, Takeshi: *See*—
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Wada, Yukihiko: *See*—
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Wade, Charles E., to Purex Corporation. Removable clamp structure for tank sections which at times block said removal. 4,267,940, Cl. 220-321.000.
Wade, Edward C.: *See*—
Crouse, Ronald J.; and Wade, Edward C., 4,268,756, Cl. 250-551.000.
Wagner, Harry H., to Carlisle Corporation. Process for making friction products. 4,268,467, Cl. 264-111.000.
Wagner, Wayne M.; and Winnes, David E., to Donaldson Company, Inc. Muffler assembly. 4,267,899, Cl. 181-272.000.
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Wakabayashi, Hiroshi, to Nippon Kogaku K.K. Motor drive mechanism. 4,268,148, Cl. 354-173.000.
Wakayama, Masashi, to Tamagawa Seiki Kabushiki Kaisha. Synchro motor type instrument. 4,268,819, Cl. 340-870.340.
Walden, Klaus: *See*—
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Walker, Robert G., to Industra Products, Inc. Apparatus for assembling dynamoelectric machine stators. 4,267,719, Cl. 72-122.000.
Wallace Murray Canada Limited: *See*—
Smith, Garth L.; and Whitehead, Gordon, 4,267,760, Cl. 83-835.000.
Wallace, Richard B., to Oakland Corporation, The. Method of applying friction materials to threaded article. 4,268,544, Cl. 427-264.000.
Wallace, Volney; and Pinkham, Carlos F. A. Double walled thermal protective coverings. 4,267,665, Cl. 47-26.000.
Wallace, William K.; Giardino, David A.; and van Nederynen, Gerrit, to Chicago Pneumatic Tool Company. Safety lever. 4,267,747, Cl. 74-526.000.
Walter, Lothar: *See*—
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Warner, John R., to Ferry Cap & Set Screw Co., The. Screw fastener with multi-point wrenching head and locking capabilities. 4,267,870, Cl. 411-98.000.
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Belotta, Anthony S., 4,267,931, Cl. 211-153.000.
Boiarski, Anthony A.; and Luce, Ross G., 4,268,460, Cl. 261-1.000.
Wassel, William W.; and Remley, Gilbert W., to Westinghouse Electric Corp. Nuclear reactor in core flux mapping system. 4,268,354, Cl. 176-19.0EC.
Wasserstrom, Henry, to Alco Foodservice Equipment Company. Beverage dispenser valve arrangement. 4,267,947, Cl. 222-399.000.
Watanabe, David J., to Union Oil Company of California. Method for acidizing high temperature subterranean formations. 4,267,887, Cl 166-300.000.
Watanabe, Haruhiko: *See*—
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Watanabe, Koichi: *See*—
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Watrous, Robert B., to International Business Machines Corporation. Suspension for air bearing head arm assembly. 4,268,879, Cl 360-104.000.
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Weary, Robert D. Boat cart for trailers. 4,268,212, Cl. 414-539.000
Webb, Jimmy L.; and Williams, Joseph B., to General Electric Company. Novel flame retardant polycarbonate compositions. 4,268,429, Cl. 260-37.0PC.
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Weidler, Erhard A. Tire protector chain. 4,267,871, Cl. 152-189.000.
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Weirich, James F. Stand. 4,267,998, Cl. 248-165.000.

Weisz, Vera C. Shoe sole with low profile integral spring system. 4,267,648, Cl. 36-28.000.
Weldy, Winfred E., to Hercules Incorporated. Elimination of bloom in [vul-cup] peroxide crosslinked elastomer compounds. 4,268,637, Cl. 525-105.000.
Wellard, Charles L., to American Components Inc. Method for making a chip circuit component. 4,267,634, Cl. 29-620.000.
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Wesemeyer, Jurgen; Haubner, Georg; Meier, Werner; and Schrumpf, Hans, to Robert Bosch GmbH. Control system for control of repetitive events, e.g. ignition, fuel injection, in internal combustion engines. 4,267,810, Cl. 123-416.000.
West Electric Company, Ltd.: *See*—
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Westerman, William J. Vehicle carrier for collapsible vehicle. 4,268,209, Cl. 414-462.000.
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Blitchington, Frank H., 4,268,172, Cl. 356-431.000.
Hardesty, Edwin C., 4,268,109, Cl. 339-205.000.
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Kmonk, Stanley; Alder, John L.; and Racki, Francis R., 4,268,356, Cl. 176-78.000.
Salon, Sheppard J.; and Montgomery, Lon W., 4,268,883, Cl. 361-21.000.
Schroeder, Dale W., 4,268,746, Cl. 250-223.00R.
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Wheaton, George B. Motorized bicycle conversion apparatus. 4,267,898, Cl. 180-205.000.
Wheeler, Alton D., to KW Research and Development. Image bearing template for instant camera film packs. 4,268,144, Cl. 354-108.000.
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Wick, John B., Jr.; and Norlin, Eric C., to Wick, John B., Jr.; and Norlin, Eric C. Pharmaceutical dispensing cabinet. 4,267,942, Cl. 221-2.000.
Widmann, Dietrich, to Siemens Aktiengesellschaft. Radiation mask for producing structural configurations in photo-sensitive resists by X-ray exposure. 4,268,563, Cl. 428-138.000.
Widmayer, Henry J.; and Cronin, Albert T., to United States of America, Navy. Transient suppression connector. 4,268,105, Cl. 339-147.00R.
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Wilbur, Robert L.; and Pearson, Carl R., to Wilbur, Lincoln A. Portable preheater. 4,268,248, Cl. 432-62.000.
Wildman, Samuel G.; and Kwanyuen, Prachuab, to Leaf Proteins, Inc. Process for isolation of ribulose 1,5-diphosphate carboxylase from plant leaves. 4,268,632, Cl. 435-232.000.
Wilkie, William V. Overhead conveyor track system. 4,267,778, Cl. 104-94.000.
Williams, Carter P., to Kobe, Inc. Centrifugal separator with rotating pick-up tube. 4,267,964, Cl. 233-21.000.
Williams, Cecil L.: *See*—
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Williams, Louis B., Jr., to Monsanto Company. Metered finish. 4,268,550, Cl. 427-429.000.
Williams, Malcolm, to Slater Electric Inc. GFI Sensor circuit. 4,268,885, Cl. 361-45.000.
Williams, Richard A.; Eydt, Andre J.; Lambert, Charles E.; McGuire, Michael T.; Schulok, Walter W.; and Waitman, Reuben H., to General Foods Corporation. Quick-set low methoxyl pectin composition. 4,268,533, Cl. 426-577.000.
Williams, Robert M. Explosion suppression system for fire or explosion susceptible enclosure. 4,267,889, Cl. 169-61.000.
Williams, Roy C.; and Rogemoser, David R., to Textron, Inc. Water-dispersible urethane polymers, aqueous polymer dispersions and half-esters useful therein. 4,268,426, Cl. 260-22.0TN.
Williamson, Alex N.; and Tremont, Samuel J., to Monsanto Company. Dehydrocoupling of toluene. 4,268,703, Cl. 585-428.000.
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Wolfendale, Peter C. F., to Automatic Systems Laboratories Limited. Rotary displacement capacitive transducers. 4,268,889, Cl. 361-292.000.
Wolters, Hendrik W., to Hawo B.V. Apparatus for manufacturing a tubular body provided with a sealing ring. 4,268,237, Cl. 425-116.000.
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Workman, John, to S.B.W. Engineers Limited. Laminated rotor with cast end windings. 4,268,772, Cl. 310-197.000.
Wu, Chin T., to RCA Corporation. System for ascertaining magnetic field direction. 4,267,640, Cl. 33-361.000.

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Yajima, Tatsuo; and Nakamura, Hiroya, to Konishiroku Photo Industry Co., Ltd. Composite information recording apparatus and original position designating mechanism therefor. 4,268,164, Cl. 355-41.000.
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Yamagiwa, Kazuo; Kamakur, Masatoshi; and Numakura, Toshihiko, to Sony Corporation. Transducer deflection apparatus for use in a video signal reproducing device. 4,268,874, Cl. 360-10.000.
Yamaguchi, Tetsuo: *See—*
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Yamaguchi, Yukio; Ishihara, Kenji; and Yonekura, Kikuo, to Toho Gasu Kabushiki Daisha; and Kabushiki Kaisha Togawa Gomu Seizosho. Self-closing gas pipes and pipe joints. 4,267,853, Cl. 137-67.000.
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Clutch drum assembly for automatic power transmission. 4,267,910, Cl. 192-17.00R.
Yamamoto, Hidemi: *See—*
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Yamamoto, Katsuji; Iwasaki, Yuichiro; Adachi, Akira; Kawata, Toshiro; Nagano, Keisuke; Fujita, Seiichi; and Harada, Mikio, to Nakayama Steel Works, Limited. Method for manufacturing crushed sands from blast furnace water granulated slags. 4,268,295, Cl. 65-19.000.
Yamamoto, Takashi: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.
Shindo, Mizuo; Yamamoto, Takashi; and Kamada, Kensuke, 4,268,279, Cl. 55-16.000.
Yamamoto, Tatsuo: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.
Yamamoto, Toshiharu: *See—*
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,268,365, Cl. 204-98.000.
Iijima, Tokuzo; Yamamoto, Toshiharu; Kishimoto, Kazuo; Komabashiri, Takamichi; Kano, Toshiji; and Hisanaga, Akinori, 4,268,373, Cl. 204-252.000.
Yamamoto, Yoshimi: *See—*
Matsuoka, Hideoki; and Yamamoto, Yoshimi, 4,268,816, Cl. 340-52.00E.
Yamamoto, Yuji: *See—*
Shimokawa, Shin-ichi; Yamamoto, Yuji; and Nagai, Hisao, 4,268,638, Cl. 525-263.000.
Yamanaka, Takashi: *See—*
Kurakami, Osamu; Koshimaru, Shigeru; and Yamanaka, Takashi, 4,268,847, Cl. 357-52.000.
Yamanishi, Akio, to Minolta Camera Kabushiki Kaisha. Medical instrument for determining jaundice. 4,267,844, Cl. 128-633.000.
Yamanouchi Pharmaceutical Co., Ltd.: *See—*
Konno, Yutaka; and Kawamura, Shigeo, 4,268,501, Cl. 424-80.000.
Yamasaki, Kazuto, to Maeda Industries, Ltd. Bicycle speed change lever. 4,267,744, Cl. 74-475.000.
Yamashita, Keitaro: *See—*
Morio, Minoru; Kambara, Masahiro; Kubota, Yukio; and Yamashita, Keitaro, 4,268,875, Cl. 360-10.000.
Yamashita, Sadahiko: *See—*
Makimoto, Mitsuo; and Yamashita, Sadahiko, 4,268,809, Cl. 333-202.000.
Yamato Scale Company, Limited: *See—*
Hirano, Takashi; and Aga, Takashi, 4,267,894, Cl. 177-25.000.
Yamayoshi, Ryuichi: *See—*
Sakamoto, Hitoshi; and Yamayoshi, Ryuichi, 4,268,876, Cl. 360-78.000.
Yamazaki, Yoshio: *See—*
Kamogawa, Nin-ichi; and Yamazaki, Yoshio, 4,267,796, Cl. 118-658.000.
Yaniger, Christopher J., to AAI Corporation. Arrangement for use in projectile launch simulation. 4,267,764, Cl. 89-25.000.
Yapp, Jack. Timing circuit for air conditioner chiller. 4,267,704, Cl. 62-158.000.
Yasui Sangyo Co., Ltd.: *See—*
Tsujimura, Tozaburo, 4,267,901, Cl. 187-8.540.
Yin-Lung, Yang. Emergency escape system. 4,267,900, Cl. 182-13.000.
Yoknis, Myron: *See—*
Neel, Robert M.; Waite, James B.; and Yoknis, Myron, 4,267,966, Cl. 236-46.00A.
Yokoi, Gunpei, to Nintendo Company Limited. Shooting game apparatus. 4,268,036, Cl. 273-316.000.
Yokota, Kenichi: *See—*
Suzuki, Kazuo; and Yokota, Kenichi, 4,268,430, Cl. 260-37.00R.
Yokota, Tsuneshi; and Ike, Toshio, to Shibaura Denki Kabushiki Kaisha. Beam scanning type electronic copying apparatus. 4,268,868, Cl. 358-286.000.
Yonekura, Kikuo: *See—*
Yamaguchi, Yukio; Ishihara, Kenji; and Yonekura, Kikuo, 4,267,853, Cl. 137-67.000.
Yonezawa, Yoshimichi, to Matsumoto Yushi-Seiyaku Co., Ltd. Method for producing relief. 4,268,615, Cl. 430-320.000.
Yoshibayashi, Shigeru: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,267,733, Cl. 73-650.000.
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Mitsuyama, Yoshiaki; and Tanaka, Shigeho, 4,267,734, Cl. 73-650.000.
Yoshida, Kaneki: *See—*
Naganuma, Tsutomu; Hoshi, Hisao; Kumagai, Hiroji; and Yoshida, Kaneki, 4,268,158, Cl. 355-3.00R.
Yoshida Kogyo K.K.: *See—*
Akashi, Shunji, 4,267,621, Cl. 24-205.11R.
Yoshida, Satoshi: *See—*
Ikeda, Tomoaki; Yoshida, Satoshi; Takeuchi, Hideaki; Shinozaki, Fumiaki; and Kido, Keishiro, 4,268,541, Cl. 427-177.000.
Yoshida, Syozo: *See—*
Date, Nobuaki; Senuma, Michio; and Yoshida, Syozo, 4,268,147, Cl. 354-147.000.
Yoshida, Takashi; and Sakaguchi, Shinji, to Fuji Photo Film Co., Ltd. Photographic element for color diffusion transfer process. 4,268,604, Cl. 430-215.000.
Yoshida, Yoshinobu: *See—*
Fujita, Shinsaku; Harada, Tooru; and Yoshida, Yoshinobu, 4,268,624, Cl. 430-562.000.
Fujita, Shinsaku; Hayashi, Hidetoshi; Ono, Shigetoshi; Yoshida, Yoshinobu; and Harada, Tooru, 4,268,625, Cl. 430-562.000.
Yoshida, Yoshinori; and Oka, Hiroshi, to Japan Synthetic Rubber Co., Ltd. Process for producing tetrahydrofuran and 1,4-butanediol. 4,268,447, Cl. 260-346.110.
Yoshikawa, Katsushi: *See—*
Ota, Tadaki; Yoshikawa, Katsushi; and Saito, Masaaki, 4,268,462, Cl. 261-40.000.
Yoshikawa, Norihiro, to Dengyosha Engineering Co., Inc. Centrifugal rotating disc assembly for biological waste water treatment apparatus. 4,268,385, Cl. 210-150.000.
Yoshikumi, Chikao; Omura, Yoshio; and Hotta, Tetsuya, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pharmaceutical composition comprising a nitrogen-containing polysaccharide and an antibiotic agent, and a method of treating an infectious disease therewith. 4,268,505, Cl. 424-180.000.
Yoshino, Tsuneo; and Ohbayashi, Gentaro, to Toray Industries, Ltd. Photosensitive O-quinone diazide containing composition. 4,268,602, Cl. 430-192.000.
Yoshino, Yasutomi; Nishimura, Fumio; Watanabe, Haruhiko; Kobayashi, Masahiro; Takeuchi, Kunio; and Okudaira, Haruo, to Toyo Boseki Kabushiki Kaisha. Electrostatic pinning of extruded polyamide film. 4,268,464, Cl. 264-22.000.
Yoshizaki, Norio: *See—*
Ogawa, Tetsuya; Yoshizaki, Norio; Katsuragi, Tadakatsu; Nakamura, Makoto; and Shiiba, Kiyonori, 4,268,362, Cl. 203-28.000.
Young, Alastair J., to Automotive Products Limited. Hydraulic braking systems. 4,268,092, Cl. 303-22.00R.

Young, Archie R., II: *See—*
Muenker, Adolf H.; and Young, Archie R., II, 4,268,319, Cl. 106-288.00B.
Young, Jerry W., to Phillips Petroleum Company. Apparatus for assembling closures and control systems therefor. 4,268,342, Cl. 156-357.000.
Young, Peter J.: *See—*
Buckman, Robert H.; Young, Peter J.; and Pulido, Miguel L., 4,268,403, Cl. 252-8.55D.
Yuasa, Takeo: *See—*
Ibata, Jyoji; Fukui, Hisaaki; Yuasa, Takeo; and Katoh, Michio, 4,268,337, Cl. 156-244.170.
Yusa, Haruhiko: *See—*
Iizuka, Yo; Yusa, Haruhiko; Midorikawa, Susumu, deceased; and Midorikawa, Taeko, heir, 4,268,636, Cl. 525-85.000.
Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai: *See—*
Umezawa, Hamao; and Kondo, Shinichi, 4,268,664, Cl. 536-10.000.
Zarnoch, Kenneth P.: *See—*
Herrick, Carlyle S.; and Zarnoch, Kenneth P., 4,268,405, Cl. 252-70.000.
Zebra Co., Ltd.: *See—*
Sekiguchi, Kazuhiko, 4,268,183, Cl. 401-30.000.
Zeldman, Maurice I., to Bucyrus-Erie Company. Excavator front end. 4,268,214, Cl. 414-694.000.
Ziegelmeyer, Lynn J. Saw chain depth-grinding apparatus. 4,267,751, Cl. 76-25.00A.
Zimmerman, Franz X.: *See—*
Smith, Charles W., Jr.; and Zimmerman, Franz X., 4,268,708, Cl. 13-20.000.
Zinsmeyer, Thomas M.: *See—*
Leonard, Gary S.; and Zinsmeyer, Thomas M., 4,267,705, Cl. 62-195.000.
Zoli, Theodore P., Jr.: *See—*
Formato, Richard A., 4,267,803, Cl. 123-146.50A.
Zolotenko, Vladimir A.; Pavlov, Vladimir V.; Sokolov, Viktor E.; and Syromyatnikov, Alexei N. Pulsed voltage amplification device with drift correction. 4,268,795, Cl. 350-9.000.
Zuech, Ernest A.: *See—*
Murtha, Timothy P.; and Zuech, Ernest A., 4,268,699, Cl. 585-268.000.
Zurbruggen, Hugo, to Westfalia Separator Aktiengesellschaft. Safety device for centrifugal separator. 4,267,963, Cl. 233-1.00B.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF MAY, 1981

NOTE —Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Burk, Michael T.: *See—*
Sweany, Louis P.; and Burk, Michael T., Re. 30,620, Cl. 340-629.000.

Butler, David F.; and Hodil, Elmer R., to Olin Mathieson Chemical Corporation. Power actuated tool. Re. 30,617, Cl. 227-8.000.

Decker, Cloyd E., to Robertshaw Controls Company. Control system and method and control device therefor. Re. 30,619, Cl. 219-506.000.

Gillette Company, The: *See—*
Van Dyck, Kenneth A.; Wyatt, James B.; Stephenson, Charles F.; and Miller, Scott W., Re. 30,618, Cl. 219-225.000.

Hayashi, Masataka: *See—*
Matsumura, Sakujiro; Yamamura, Tadashi; Ogura, Akira; and Hayashi, Masataka, Re. 30,614, Cl. 57-58.540.

Hodil, Elmer R.: *See—*
Butler, David F.; and Hodil, Elmer R., Re. 30,617, Cl. 227-8.000.

Hofer, Otto, to Interondo AG. Box for ampoules having a packaging insert that provides a closure arrangement and reinforcement. Re. 30,616, Cl. 206-443.000.

Interondo AG: *See—*
Hofer, Otto, Re. 30,616, Cl. 206-443.000.

Itou, Hidehiko: *See—*
Nakamura, Masahiko; and Itou, Hidehiko, Re. 30,613, Cl. 30-94.000.

Matsumura, Sakujiro; Yamamura, Tadashi; Ogura, Akira; and Hayashi, Masataka. Simultaneous multiple twisting apparatus. Re. 30,614, Cl. 57-58.540.

Matsuzaka Iron Works, Inc.: *See—*
Nakamura, Masahiko; and Itou, Hidehiko, Re. 30,613, Cl. 30-94.000.

Miller, Scott W.: *See—*
Van Dyck, Kenneth A.; Wyatt, James B.; Stephenson, Charles F.; and Miller, Scott W., Re. 30,618, Cl. 219-225.000.

Mirtain, Henri J. Pneumatic tire with reinforcing belt that minimizes belt end gyroscopic effect. Re. 30,615, Cl. 152-361.0FP.

Nakamura, Masahiko; and Itou, Hidehiko, to Matsuzaka Iron Works, Inc. Shearing tool for synthetic resin tubes. Re. 30,613, Cl. 30-94.000.

Ogura, Akira: *See—*
Matsumura, Sakujiro; Yamamura, Tadashi; Ogura, Akira; and Hayashi, Masataka, Re. 30,614, Cl. 57-58.540.

Olin Mathieson Chemical Corporation: *See—*
Butler, David F.; and Hodil, Elmer R., Re. 30,617, Cl. 227-8.000.

P. R. Mallory & Co. Inc.: *See—*
Sweany, Louis P.; and Burk, Michael T., Re. 30,620, Cl. 340-629.000.

Robertshaw Controls Company: *See—*
Decker, Cloyd E., Re. 30,619, Cl. 219-506.000.

Stephenson, Charles F.: *See—*
Van Dyck, Kenneth A.; Wyatt, James B.; Stephenson, Charles F.; and Miller, Scott W., Re. 30,618, Cl. 219-225.000.

Sweany, Louis P.; and Burk, Michael T., to P. R. Mallory & Co. Inc. High output smoke and heat detector alarm system utilizing a piezoelectric transducer and a voltage doubling means. Re. 30,620, Cl. 340-629.000.

Van Dyck, Kenneth A.; Wyatt, James B.; Stephenson, Charles F.; and Miller, Scott W., to Gillette Company, The. Collapsible portable electric hair curling iron. Re. 30,618, Cl. 219-225.000.

Wyatt, James B.: *See—*
Van Dyck, Kenneth A.; Wyatt, James B.; Stephenson, Charles F.; and Miller, Scott W., Re. 30,618, Cl. 219-225.000.

Yamamura, Tadashi: *See—*
Matsumura, Sakujiro; Yamamura, Tadashi; Ogura, Akira; and Hayashi, Masataka, Re. 30,614, Cl. 57-58.540.

LIST OF DESIGN PATENTEES

Abbott, J. Carl, Jr.: *See—*
Howey, John R.; and Abbott, J. Carl, Jr., 259,282, Cl. D25-18.000.

Acker, Stanley. Combined bottle and hang tab. 259,252, 5-19-81, Cl D9-338.000.

American Home Products Corporation: *See—*
Givner, Morris L.; and Tiffany, Douglas, 259,254, Cl. D10-81.000.

Argante, Louis C. Free roll creeper guard. 259,243, 5-19-81, Cl. D8-375.000.

Autsin-Berryhill Fabricators, Inc.: *See—*
Berryhill, Robert A., 259,275, Cl. D23-94.000.

Baysdon, Donald J. Inspection mirror for automobiles or the like. 259,263, 5-19-81, Cl. D16-48.000.

Berryhill, Robert A., to Autsin-Berryhill Fabricators, Inc. Stove. 259,275, 5-19-81, Cl. D23-94.000.

Bielefelder Elektronik und Apparatebau GmbH: *See—*
Schuldt, Gerhard, 259,264, Cl. D18-4.000.

Black & Decker Inc.: *See—*
Dibbern, John E., Jr.; Somers, Robert I.; Schafebook, Richard A.; and Mitchell, Richard L., 259,235, Cl. D8-66.000.

Blomberg, Knut H. Telephone instrument. 259,260, 5-19-81, Cl. D14-53.000.

Box, Theodor M. Beverage case. 259,294, 5-19-81, Cl. D99-50.000.

Brandt, Hugh J. W.; and Murray, Donald, to J. L. Prescott Co. Bottle. 259,246, 5-19-81, Cl. D9-404.000.

Bretschger, Edward B.; and Routzong, James R., to Louis Marx & Co., Inc. Toy vehicle steering simulation device. 259,269, 5-19-81, Cl. D21-124.000.

Bunger, Richard E. Interlocking flume platform panel for animal confinement pens. 259,285, 5-19-81, Cl. D30-2.000.

Bunger, Richard E. Interlocking flume platform panel for animal confinement pens. 259,286, 5-19-81, Cl. D30-2.000.

Bunger, Richard E. Interlocking flume platform panel for animal confinement pens. 259,287, 5-19-81, Cl. D30-2.000.

Bunger, Richard E. Interlocking flume platform panel for animal confinement pens. 259,288, 5-19-81, Cl. D30-02.000.

Bunger, Richard E. Flume platform panel for animal confinement pens. 259,289, 5-19-81, Cl. D30-2.000.

Bunger, Richard E. Interlocking bridging platform panel for animal confinement pens. 259,290, 5-19-81, Cl. D30-2.000.

Bunger, Richard E. Interlocking flume platform panel for animal confinement pens. 259,291, 5-19-81, Cl. D30-2.000.

Chacon, Anibal R. Support bracket for a bathroom fixture. 259,227, 5-19-81, Cl. D6-103.000.

Collins, Thomas H.: *See—*
Small, Larry K.; and Collins, Thomas H., 259,220, Cl. D2-400.000.

Conrad, Robert. Fish bowl. 259,292, 5-19-81, Cl. D30-6.000.

Cooper, Herbert. Combined animal litter scooper and container. 259,293, 5-19-81, Cl. D30-99.000.

Coussens, Marie K. Combined cover and seal for tip out unit of a recreational trailer. 259,256, 5-19-81, Cl. D12-106.000.

Daiko Co., Ltd.: *See—*
Takeda, Hidetaka, 259,279, Cl. D24-67.000.

DeClute, Robert G. Spacing pad for floor slabs. 259,283, 5-19-81, Cl. D25-88.000.

DeWitt, F. Carlos. Handcuff key. 259,239, 5-19-81, Cl. D8-347.000.

Dibbern, John E., Jr.; Somers, Robert I.; Schafebook, Richard A.; and Mitchell, Richard L., to Black & Decker Inc. Circular saw. 259,235, 5-19-81, Cl. D8-66.000.

Dobias, John J. Wrench. 259,233, 5-19-81, Cl. D8-21.000.

Driver, Ervin M.: *See—*
Lynch, Paul C.; and Driver, Ervin M., 259,241, Cl. D8-363.000.

Duffey, Thomas E.; and Ulanoff, Claire R., to Riviana Foods Inc. Insect trap or similar article. 259,272, 5-19-81, Cl. D22-19.000.

Fabian, Samuel F. Foldable garment hanger. 259,228, 5-19-81, Cl. D6-124.000.

Forbyn, Richard J. Combined mirror and cleaning device therefor. 259,257, 5-19-81, Cl. D12-188.000.

Gebbia, Richard S. Combined coupon holder, writing instrument and memo pad. 259,221, 5-19-81, Cl. D3-60.000.

Gemvik, Ake O. V. Reinforcing and protector element for the edges of pallet goods. 259,245, 5-19-81, Cl. D8-403.000.

Gilb, Tyrell T., to Simpson Manufacturing Co., Inc. Connector for wood members. 259,242, 5-19-81, Cl. D8-373.000.

Givner, Morris L.; and Tiffany, Douglas, to American Home Products Corporation. Diagnostic test device. 259,254, 5-19-81, Cl. D10-81.000.

Grecol, Paul S., Jr., to National Service Industries, Inc. Cable hanger. 259,244, 5-19-81, Cl. D8-380.000.

Hallerman, Edith O. Exerciser. 259,270, 5-19-81, Cl. D21-198.000.

Heuel, Jeffrey P.; and Palisek, William F., to Interstate Industries, Inc. Electronic baseball game casing. 259,265, 5-19-81, Cl. D21-13.000.

Heuel, Jeffrey P.; Palisek, William F.; and Radke, Lee, to Interstate Industries, Inc. Electronic pinball game housing. 259,266, 5-19-81, Cl. D21-13.000.

Heuel, Jeffrey P.; and Palisek, William F., to Interstate Industries, Inc. Electronic game casing. 259,267, 5-19-81, Cl. D21-13.000.

Hitachi, Ltd.: *See—*
Masatsugu, Shigeki; Miki, Tsutomu; and Misaka, Hirotsugu, 259,259, Cl. D14-5.000.

Hogreff, William E. Butterfly fish lure. 259,273, 5-19-81, Cl. D22-29.000.

Howey, John R.; and Abbott, J. Carl, Jr. Shelter. 259,282, 5-19-81, Cl. D25-18.000.

Humes, Darla L. Infant bath support. 259,274, 5-19-81, Cl. D23-52.000.

Interstate Industries, Inc.: *See—*
Heuel, Jeffrey P.; and Palisek, William F., 259,265, Cl. D21-13.000.
Heuel, Jeffrey P.; Palisek, William F.; and Radke, Lee, 259,266, Cl. D21-13.000.
Heuel, Jeffrey P.; and Palisek, William F., 259,267, Cl. D21-13.000.

Isaacs, Harold. Torque applying hand tool. 259,236, 5-19-81, Cl. D8-82.000.

Itakura, Hitoshi, to Tomy Kogyo Co., Inc. Amusement toy. 259,268, 5-19-81, Cl. D21-59.000.

J. L. Prescott Co.: *See—*
Brandt, Hugh J. W.; and Murray, Donald, 259,246, Cl. D9-404.000.

Jones, Robert E.: *See—*
Malafouris, Dannie O.; and Jones, Robert E., 259,276, Cl. D23-95.000.

King-Seeley Thermos Co.: *See—*
Tarozzi, Richard A., 259,232, Cl. D7-61.000.

Kozlow, William, Sr. Drinking cup lid for dispensing solid medication. 259,231, 5-19-81, Cl. D7-40.000.

Kushnir, Richard A. Curling stone. 259,271, 5-19-81, Cl. D21-203.000.

Lady, Charles S. Rug or similar article. 259,229, 5-19-81, Cl. D6-210.000.

Lester, Roy J. Razor holding rack. 259,226, 5-19-81, Cl. D6-88.000.

Levin, Gary M. Railroad restaurant. 259,281, 5-19-81, Cl. D25-11.000.

Louis Marx & Co., Inc.: *See—*
Bretschger, Edward B.; and Routzong, James R., 259,269, Cl. D21-124.000.

Lynch, Paul C.; and Driver, Ervin M. Pipe hanger. 259,241, 5-19-81, Cl. D8-363.000.

M & M Luggage Co., Inc.: *See—*
Stark, Ted, 259,222, Cl. D3-71.000.
Stark, Ted, 259,223, Cl. D3-71.000.

MacLaren, David S. Aerator motor assembly for a sewer system. 259,261, 5-19-81, Cl. D15-7.000.

Malafouris, Dannie O.; and Jones, Robert E. Fireplace forced air heating apparatus. 259,276, 5-19-81, Cl. D23-95.000.

Mark, Samuel. Building. 259,280, 5-19-81, Cl. D25-5.000.

Masatsugu, Shigeki; Miki, Tsutomu; and Misaka, Hirotsugu, to Hitachi, Ltd. Combined cassette tape recorder, radio and television receiver. 259,259, 5-19-81, Cl. D14-5.000.

McCaw, Michael R.; and Sullivan, Michael P., to Shiley Inc. Tubing connector for blood and other medical applications. 259,278, 5-19-81, Cl. D24-53.000.

McDermott, Theodore V. Ventilator housing. 259,277, 5-19-81, Cl. D23-151.000.

Megna, Salvatore J. Styling attachment for blow dryer. 259,284, 5-19-81, Cl. D28-18.000.

Menzies, John I.; and Menzies, Maureen. Portable burglar alarm. 259,255, 5-19-81, Cl. D10-106.000.

Menzies, Maureen: *See—*
Menzies, John I.; and Menzies, Maureen, 259,255, Cl. D10-106.000.

Miki, Tsutomu: *See—*
Masatsugu, Shigeki; Miki, Tsutomu; and Misaka, Hirotsugu, 259,259, Cl. D14-5.000.

Misaka, Hirotsugu: *See—*
Masatsugu, Shigeki; Miki, Tsutomu; and Misaka, Hirotsugu, 259,259, Cl. D14-5.000.

Mitchell, Richard L.: *See—*
Dibbern, John E., Jr.; Somers, Robert I.; Schafebook, Richard A.; and Mitchell, Richard L., 259,235, Cl. D8-66.000.

Murray, Donald: *See—*
Brandt, Hugh J. W.; and Murray, Donald, 259,246, Cl. D9-404.000.

Myron, Clayton E. Boat bow roller. 259,240, 5-19-81, Cl. D8-356.000.

National Service Industries, Inc.: *See—*
Grecol, Paul S., Jr., 259,244, Cl. D8-380.000.

Nelson, Kenneth R., to Schlage Lock Company. Display box. 259,253, 5-19-81, Cl. D9-418.000.

Palisek, William F.: *See—*
Heuel, Jeffrey P.; and Palisek, William F., 259,265, Cl. D21-13.000.
Heuel, Jeffrey P.; Palisek, William F.; and Radke, Lee, 259,266, Cl. D21-13.000.
Heuel, Jeffrey P.; and Palisek, William F., 259,267, Cl. D21-13.000.

Pfeil, Frank N. Flameless heat gun. 259,234, 5-19-81, Cl. D8-30.000.

Radke, Lee: *See—*
Heuel, Jeffrey P.; Palisek, William F.; and Radke, Lee, 259,266, Cl. D21-13.000.

Riviana Foods Inc.: *See—*
Duffey, Thomas E.; and Ulanoff, Claire R., 259,272, Cl. D22-19.000.

Routzong, James R.: *See—*
Bretschger, Edward B.; and Routzong, James R., 259,269, Cl. D21-124.000.

Savnik, Davorin, to UNIOR kovaska industrija Zrece. Handle for a shank-type tool. 259,237, 5-19-81, Cl. D8-83.000.

Schafebook, Richard A.: *See—*
Dibbern, John E., Jr.; Somers, Robert I.; Schafebook, Richard A.; and Mitchell, Richard L., 259,235, Cl. D8-66.000.

Scheer, Lewis R. Urinal deflector. 259,225, 5-19-81, Cl. D6-86.000.

Schenck, John F., III. Garment carrier handle. 259,238, 5-19-81, Cl. D8-307.000.

Schlage Lock Company: *See—*
Nelson, Kenneth R., 259,253, Cl. D9-418.000.

Schuldt, Gerhard, to Bielefelder Elektronik und Apparatebau GmbH. Cash register. 259,264, 5-19-81, Cl. D18-4.000.

Schweiger Industries, Inc.: *See—*
Sonnenleiter, George R., 259,224, Cl. D6-63.000.

Sendecki, Steve. Accessory handle. 259,262, 5-19-81, Cl. D16-47.000.

Shiley Inc.: *See—*
McCaw, Michael R.; and Sullivan, Michael P., 259,278, Cl. D24-53.000.

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Gilb, Tyrell T., 259,242, Cl. D8-373.000.

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Dibbern, John E., Jr.; Somers, Robert I.; Schafebook, Richard A.; and Mitchell, Richard L., 259,235, Cl. D8-66.000.

Sonnenleiter, George R., to Schweiger Industries, Inc. Seat or similar article. 259,224, 5-19-81, Cl. D6-63.000.

Stark, Ted, to M & M Luggage Co., Inc. Luggage. 259,222, 5-19-81, Cl. D3-71.000.

Stark, Ted, to M & M Luggage Co., Inc. Luggage. 259,223, 5-19-81, Cl. D3-71.000.

Sullivan, Michael P.: *See—*
McCaw, Michael R.; and Sullivan, Michael P., 259,278, Cl. D24-53.000.

Sztuden, Luis. Bottle. 259,247, 5-19-81, Cl. D9-310.000.
Sztuden, Luis. Bottle. 259,248, 5-19-81, Cl. D9-310.000.
Sztuden, Luis. Bottle. 259,249, 5-19-81, Cl. D9-313.000.
Sztuden, Luis. Bottle. 259,250, 5-19-81, Cl. D9-318.000.
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Takeda, Hidetaka, to Daiko Co., Ltd. Earplug. 259,279, 5-19-81, Cl. D24-67.000.

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Givner, Morris L.; and Tiffany, Douglas, 259,254, Cl. D10-81.000.

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Itakura, Hitoshi, 259,268, Cl. D21-59.000.

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UNIOR kovaska industrija Zrece: *See—*
Savnik, Davorin, 259,237, Cl. D8-83.000.

Valerio, Robert M. Terminal post for a side terminal battery. 259,258, 5-19-81, Cl. D13-10.000.

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Cottage Gardens, Inc., The: *See—*
Meivogel, Simon P., 4,718, Cl. 57.000.

Duffett, William E.: *See—*
Meek, Jack M.; and Duffett, William E., 4,722, Cl. 82.000.

Meek, Jack M.; and Duffett, William E., to Yoder Brothers, Inc. Chrysanthemum plant. 4,722, 5-19-81, Cl. 82.000.

Meivogel, Simon P., to Cottage Gardens, Inc., The. Evergreen azalea 4,718, 5-19-81, Cl. 57.000.

Moore, Ralph S. Climbing miniature rose plant. 4,717, 5-19-81, Cl. 6.000.

Ryan, John J. Impatiens plant named Mohave. 4,719, 5-19-81, Cl 68.000.

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CLASSIFICATION OF PATENTS

ISSUED MAY 19, 1981

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

409 4,267,607

CLASS 3

1.91 4,267,608

CLASS 4

580 4,267,609

CLASS 5

60 4,267,610
453 4,267,611

CLASS 6

4 B 4,267,612
10 4,267,613

CLASS 8

137 4,268,262
149 4,268,263
410 4,268,264
438 4,268,265
543 4,268,266
549 4,268,267
685 4,268,668

CLASS 9

4 R 4,267,614
310 E 4,267,615

CLASS 13

20 4,268,708

CLASS 15

182 4,267,616
320 4,267,617
339 4,267,618

CLASS 16

48.5 4,267,619

CLASS 19

239 4,267,620

CLASS 23

230 B 4,268,268
230 M 4,268,269
230.3 4,268,270

CLASS 24

205.11 R 4,267,621
274 WB 4,267,622

CLASS 27

2 4,267,623

CLASS 29

25.15 4,267,624
148.4 A 4,267,625
163.5 F 4,267,626
217 4,267,627
235 4,267,628
407 4,267,629
411 4,267,630
426.1 4,267,631
571 4,267,632
578 4,267,633
620 4,267,634
622 4,267,635

CLASS 30

90.3 4,267,636
94 Re.30,613

CLASS 33

1 G 4,267,637
27 C 4,267,638
172 R 4,267,639
361 4,267,640
365 4,267,641
473 4,267,642

CLASS 34

48 4,267,643
110 4,267,644
213 4,267,645

CLASS 35

19 A 4,267,647

CLASS 36

28 4,267,648
101 4,267,649
4,267,650
131 4,267,651

CLASS 37

66 4,267,652
142 A 4,267,653

CLASS 40

2 R 4,267,654
159 4,267,655
352 4,267,656
549 4,267,657

CLASS 43

42.06 4,267,658
43.12 4,267,659
96 4,267,660

CLASS 44

1 R 4,268,271
3 R 4,268,272
35 4,268,273

CLASS 46

1 K 4,267,661
25 4,267,662
254 4,267,663

CLASS 47

1.1 4,267,664
26 4,267,665

CLASS 48

111 4,268,274
4,268,275

CLASS 49

63 4,267,666
252 4,267,667
349 4,267,668

CLASS 51

5 D 4,267,669
101 R 4,267,670
135 BT 4,267,671
284 R 4,267,672
295 4,268,276

CLASS 52

97 4,267,673
115 4,267,674
118 4,267,675
167 4,267,676
242 4,267,677
302 4,267,678
311 4,267,679
384 4,267,680
657 4,267,682
664 4,267,681

CLASS 53

331.5 4,267,683
472 4,267,684

CLASS 54

1 4,267,685

CLASS 55

4,268,277
16 4,268,278
4,268,279
54 4,268,280
92 4,268,281
101 4,268,282
189 4,268,283
269 4,268,284
271 4,268,285
278 4,268,286
306 4,268,287
337 4,268,288
486 4,268,289
521 4,268,290

CLASS 56

12.7 4,267,686
14.4 4,267,687
16.4 4,267,688
53 4,267,689
294 4,267,690

CLASS 57

58.54 Re.30,614

CLASS 59

85 4,267,691

CLASS 60

39.18 R 4,267,692
39.28 R 4,267,693
269 4,267,694
473 4,267,695
526 4,267,696
589 4,267,697
756 4,267,698

CLASS 62

66 4,267,699
70 4,267,700
86 4,267,701
115 4,267,702
117 4,268,291
123 4,267,703
158 4,267,704
195 4,267,705
256 4,267,706
514 R 4,267,707

CLASS 65

2 4,268,292
5 4,268,293
10 4,268,294
19 4,268,295
90 4,268,296
104 4,268,297
327 4,268,298

CLASS 66

56 4,267,708
87 4,267,709
196 4,267,710

CLASS 68

12 R 4,267,711
205 R 4,267,712

CLASS 69

24 4,267,713
32 4,267,714

CLASS 70

58 4,267,715
70 4,267,716
366 4,267,717

CLASS 71

76 4,268,299
4,268,300
90 4,268,301

CLASS 72

59 4,267,718
122 4,267,719
205 4,267,720

CLASS 73

1 G 4,267,721
10 4,267,722
61.4 4,267,723
151 4,267,726
4,267,727
172 4,267,728
425.4 P 4,267,729
462 4,267,730
505 4,267,731
606 4,267,732
650 4,267,733
4,267,734
862.65 4,267,724
4,267,725

CLASS 74

5.22 4,267,736
5.47 4,267,737
5.7 4,267,735
8 4,267,738
10.33 4,267,739
128 4,267,740
339 4,267,741
471 XY 4,267,742
473 SW 4,267,743
475 4,267,744
476 4,267,745
489 4,267,746
526 4,267,747
529 4,267,748
690 4,267,749
866 4,267,750

CLASS 75

0.5 AA 4,268,302
34 4,268,303
36 4,268,304
48 4,268,305
81 4,268,306
101 R 4,268,307
171 4,268,308
230 4,268,309

CLASS 76

25 A 4,267,751

CLASS 83

74 4,267,752
124 4,267,753
187 4,267,754
423 4,267,755
463 4,267,756
464 4,267,757
571 4,267,758
665 4,267,759
835 4,267,760

CLASS 84

1.01 4,267,761
1.03 4,267,762
1.22 4,267,763

CLASS 89

25 4,267,764

CLASS 91

186 4,267,765
369 A 4,267,766
404 4,267,767

CLASS 98

33 A 4,267,769

CLASS 100

122 4,267,770

CLASS 101

40 4,267,771
103 4,267,772
123 4,267,773

CLASS 102

201 4,267,774
208 4,267,775
215 4,267,776

CLASS 104

7 R 4,267,777
94 4,267,778
247 4,267,779

CLASS 106

38.35 4,268,310
45 4,268,311
47 Q 4,268,312
54 4,268,313
65 4,268,314
84 4,268,315
97 4,268,316
98 4,268,317
277 4,268,318
288 B 4,268,319
4,268,320

CLASS 108

52.1 4,267,780
56.1 4,267,781

CLASS 111

7.1 4,267,782
52 4,267,783

CLASS 112

80 4,267,784
121.12 4,267,785
168 4,267,786
266.2 4,267,787

CLASS 114

45 4,267,788
65 R 4,267,789
106 4,267,790
4,267,791
219 4,267,792

CLASS 116

324 4,267,793

CLASS 118

50 4,267,794
302 4,267,795
658 4,267,796
4,267,797

CLASS 119

3 4,267,798
29 4,267,799
72.5 4,267,800

CLASS 122

4 D 4,267,801

CLASS 123

146.5 A 4,267,803
179 K 4,267,804
198 E 4,267,805
287 4,267,806
323 4,267,807
367 4,267,808
409 4,267,809
416 4,267,810
432 4,267,811
523 4,267,802
570 4,267,812
609 4,267,813

CLASS 125

15 4,267,814

CLASS 126

39 G 4,267,815
41 R 4,267,816
60 4,267,817
121 4,267,818
285 B 4,267,819
351 4,267,820
417 4,267,821
4,267,822
422 4,267,823
426 4,267,824
433 4,267,825
440 4,267,826

CLASS 128

1.1 4,267,827
6 4,267,828
79 4,267,829
87 R 4,267,830
203.14 4,267,831
205.24 4,267,832
214 E 4,267,835
214 F 4,267,833
4,267,834
215 4,267,836
275 4,267,837
303 A 4,267,839
303 R 4,267,838
303.13 4,267,840
305 4,267,841
334 R 4,267,842
419 PT 4,267,843
633 4,267,844
721 4,267,845
765 4,267,846

CLASS 131

84 R 4,267,849
275 4,267,847
304 4,267,848

CLASS 132

9 4,267,850
33 R 4,267,851
73 4,267,852

CLASS 136

205 4,268,710
247 4,268,709
256 4,268,711

CLASS 137

67 4,267,853
72 4,267,854
85 4,267,855
119 4,267,856
4,267,857
529 4,267,858
550 4,267,859
596.2 4,267,860
625.48 4,267,861
625.64 4,267,862

CLASS 138

109 4,267,863

CLASS 139

420 R 4,267,864

CLASS 140

92.94 4,267,865

CLASS 141

1 4,267,866

CLASS 148

1.5 4,268,321
12.7 A 4,268,322
15.5 4,268,323
31.5 4,268,324
108 4,268,325
113 4,268,326
171 4,268,327
187 4,268,328

CLASS 150

11 4,267,868
50 4,267,869

CLASS 152

189 4,267,871
209 D 4,267,872
339 4,267,873
361 FP Re.30,615

CLASS 156

51 4,268,329
111 4,268,330
145 4,268,331
160 4,268,332
161 4,268,333
187 4,268,334
218 4,268,335
244.13 4,268,336
244.17 4,268,337
251 4,268,338
272 4,268,339
296 4,268,340
352 4,268,341
357 4,268,342
361 4,268,343
383 4,268,344
499 4,268,345
510 4,268,346
628 4,268,347
645 4,268,348
656 4,268,349

CLASS 157

17 4,267,867

CLASS 160

92 4,267,874
176 R 4,267,875
392 4,267,876

CLASS 162

29 4,268,350
146 4,268,351
191 4,268,352

CLASS 164

155 4,267,877
187 4,267,878

CLASS 165

1 4,267,879
41 4,267,880
45 4,267,881
83 4,267,882
129 4,267,883
179 4,267,884

CLASS 166

250 4,267,885
273 4,267,886
300 4,267,887
312 4,267,888

CLASS 169

61 4,267,889
75 4,267,890

CLASS 172

28 4,267,891

CLASS 173

43 4,267,892

CLASS 174

50.63 4,268,712
52 PE 4,268,713
108 4,268,714

CLASS 175

65 4,267,893

CLASS 176

3 4,268,353
19 EC 4,268,354
30 4,268,355
78 4,268,356
4,268,357

CLASS 177

25 4,267,894

CLASS 178

22 4,268,715

CLASS 179

1 CN 4,268,716
1 E 4,268,718
4,268,719
1 J 4,268,717
1.5 R 4,268,720
2 C 4,268,721
2 EB 4,268,722
81 R 4,268,723
111 E 4,268,725
164 4,268,726
170.2 4,268,727

CLASS 180

54 A 4,267,895
73 R 4,267,896
143 4,267,897
205 4,267,898

CLASS 181

272 4,267,899

CLASS 182

13 4,267,900

CLASS 187

8.54 4,267,901

CLASS 188

62 4,267,902
72.6 4,267,903
73.3 4,267,904

CLASS 190

13 R 4,267,905

CLASS 191

49 4,267,906

CLASS 192

3.56 4,267,907
8 C 4,267,908
4,267,909
17 R 4,267,910
18 A 4,267,911
53 F 4,267,912
98 4,267,913
147 4,267,914

CLASS 194

1 N 4,267,915
102 4,267,916

CLASS 198

457 4,267,917
472 4,267,918
756 4,267,919
842 4,267,920
847 4,267,921
851 4,267,922

CLASS 200

16 R 4,268,728
50 B 4,268,729
52 R 4,268,730
67 AA 4,268,731
148 R 4,268,732
150 G 4,268,733
302 4,268,734
314 4,268,735

CLASS 201

9 4,268,358
31 4,268,359

CLASS 202

270 4,268,360

CLASS 203

9 4,268,361
28 4,268,362

CLASS 204

39 4,268,363
43 Z 4,268,364
98 4,268,365
4,268,366
149 4,268,367
181 C 4,268,368
192 D 4,268,369
195 P 4,268,370
196 4,268,371
252 4,268,372
4,268,373
298 4,268,374

CLASS 206

5 4,267,923
87 4,267,924
221 4,267,925
268 4,267,926
443 Re.30,616
524 4,267,927
583 4,267,928
603 4,267,929

CLASS 208

72 4,268,375
120 4,268,376
139 4,268,377
254 R 4,268,378

CLASS 209

3.1 4,267,930
5 4,268,379
167 4,268,380
273 4,268,381
4,268,382

CLASS 210

103 4,268,383
133 4,268,384
150 4,268,385
169 4,268,386
4,268,387
180 4,268,388
195.3 4,268,389
232 4,268,390
236 4,268,391
238 4,268,392
516 4,268,393
525 4,268,394
634 4,268,395
670 4,268,396
746 4,268,397
758 4,268,398
762 4,268,399

CLASS 211

153 4,267,931

CLASS 212

92 4,267,932
108 4,267,933
184 4,267,934

CLASS 213

72 4,267,935

CLASS 219

8.5 4,268,736
10.49 R 4,268,737
10.55 F 4,268,738
56.1 4,268,739
137.51 4,268,740
225 Re.30,618
439 4,268,741
506 Re.30,619
532 4,268,742

CLASS 220

85 SP 4,267,941
262 4,267,936
267 4,267,937
268 4,267,938
318 4,267,939
321 4,267,940

CLASS 221

2 4,267,942

CLASS 222

1 4,267,943
5 4,267,944
83.5 4,267,945
345 4,267,946
399 4,267,947

CLASS 224

42.34 4,267,948

CLASS 225

106 4,267,949

CLASS 226

146 4,267,950
195 4,267,951

CLASS 227

8 Re.30,617
9 4,267,952

CLASS 228

118 4,267,953
173 D 4,267,954

CLASS 229

16 R 4,267,955
30 4,267,956
37 R 4,267,957
44 CB 4,267,958
52 B 4,267,959
55 4,267,960

CLASS 232

15 4,267,962

CLASS 233

1 B 4,267,963
21 4,267,964

CLASS 235

130 R 4,268,743
375 4,268,744

CLASS 236

1 G 4,267,965
46 A 4,267,966
49 4,267,967
4,267,968

CLASS 238

8 4,267,969
310 4,267,970

CLASS 239

11 4,267,971
66 4,267,972
73 4,267,973
74 4,267,974
83 4,267,975
102 4,267,976
132.3 4,267,977
193 4,267,978
419 4,267,979

CLASS 241

20 4,267,980
30 4,267,981
257 R 4,267,982

CLASS 242

35.6 E 4,267,983
56.4 4,267,984
4,267,985
199 4,267,986

CLASS 244

2 4,267,987
3.16 4,267,988
31 4,267,989
52 4,267,990
63 4,267,991
103 R 4,267,992

CLASS 248

27.1 4,267,993
65 4,267,994
74 R 4,267,995
97 4,267,996
4,267,997
165 4,267,998
418 4,267,999
467 4,268,000

CLASS 249

58 4,268,001
127 4,268,002
142 4,268,003

CLASS 250

223 R 4,268,746
226 4,267,961
231 SE 4,268,747
255 4,268,748
269 4,268,749
315.1 4,268,750
343 4,268,751
353 4,268,752
357 4,268,753
391 4,268,754
506 4,268,755
551 4,268,756

CLASS 251

5 4,268,004
4,268,005
11 4,268,006
30 4,268,007
44 4,268,008
138 4,268,009
144 4,268,010

CLASS 252

8.5 C 4,268,400
8.55 D 4,268,403
8.8 4,268,401
4,268,402
25 4,268,404
70 4,268,405
105 4,268,406
171 4,268,407
182 4,268,408
301.1 W 4,268,409
312 4,268,410
316 4,268,411
373 4,268,412
408 4,268,413
412 4,268,414
413 4,268,415
416 4,268,416
421 4,268,417
429 B 4,268,418
430 4,268,419
4,268,423
432 4,268,420
441 4,268,421
461 4,268,422
546 4,268,424

CLASS 254

29 A 4,268,011
223 4,268,012
392 4,268,013

CLASS 260

19 A 4,268,425
22 TN 4,268,426
23.7 C 4,268,427
28.5 AS 4,268,428
37 PC 4,268,429
37 R 4,268,430
37 SB 4,268,452
40 R 4,268,431
45.75 B 4,268,432
112 R 4,268,434
4,268,435
141 4,268,436
4,268,437
158 4,268,438
205 4,268,439
239.3 A 4,268,440
239.5 4,268,441
326.2 4,268,442
340.3 4,268,443
340.7 4,268,444
345.2 4,268,445
345.5 4,268,446
346.11 4,268,447
346.75 4,268,448
347.3 4,268,449
349 4,268,450
376 4,268,451
397.5 4,268,453
439 R 4,268,454
448 R 4,268,455
455 R 4,268,456
544 P 4,268,457
927 R 4,268,459

CLASS 261

1 4,268,460
39 B 4,268,461
40 4,268,462

CLASS 264

22 4,268,463
4,268,464
25 4,268,465
42 4,268,466
111 4,268,467
131 4,268,468
138 4,268,469
229 4,268,471
230 4,268,472
234 4,268,473
252 4,268,474
315 4,268,475

CLASS 266

165 4,268,014
236 4,268,015
4,268,016
265 4,268,017

CLASS 267

120 4,268,018

CLASS 269

43 4,268,019
88 4,268,020

CLASS 271

4 4,268,021
7 4,268,022
94 4,268,023
95 4,268,024
112 4,268,025
121 4,268,026
153 4,268,027
201 4,268,028

CLASS 272

3 4,268,029
77 4,268,030
128 4,268,031
137 4,268,032

CLASS 273

2 4,268,033
63 C 4,268,034
186 A 4,268,035
316 4,268,036
359 4,268,037
416 4,268,038

CLASS 277

1 4,268,040
4,268,041
4,268,042
34 4,268,043
59 4,268,044
121 4,268,045
139 4,268,046
207 A 4,268,047

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5 A 4,268,048
33.99 H 4,268,049
38 4,268,050
145 4,268,051
153 R 4,268,052
154 4,268,053
242 WC 4,268,054
278 4,268,055
456 A 4,268,056
474 4,268,057
481 4,268,058
604 4,268,059
605 4,268,060
4,268,061
611 4,268,062
615 4,268,063
625 4,268,064
737 4,268,065
763 4,268,066
802 4,268,067
804 4,268,068

CLASS 282

27.5 4,268,069

CLASS 285

15 4,268,070
18 4,268,071
112 4,268,072

CLASS 290

53 4,268,757

CLASS 292

113 4,268,073
149 4,268,074
167 4,268,075
216 4,268,076
336.3 4,268,077

CLASS 293

120 4,268,078
4,268,079

CLASS 294

1 R 4,268,080
55 4,268,081
88 4,268,082

CLASS 296

10 4,268,083
148 4,268,084
217 4,268,085

CLASS 297

63 4,268,086
273 4,268,087

CLASS 299

11 4,268,088
87 4,268,089

CLASS 301

5 BA 4,268,090
37 R 4,268,091

CLASS 303

22 R 4,268,092
89 4,268,093

CLASS 307

105 4,268,758
264 4,268,761
268 4,268,762
354 4,268,764
490 4,268,759
562 4,268,760
605 4,268,763

CLASS 308

9 4,268,094
10 4,268,095
15 4,268,096

CLASS 310

11 4,268,765
53 4,268,767
62 4,268,768
67 R 4,268,769
72 4,268,770
155 4,268,771
197 4,268,772
269 4,268,773

CLASS 312

137 4,268,097
210 4,268,098
280 4,268,099

CLASS 313

141 4,268,774
337 4,268,775
446 4,268,776

CLASS 315

1 4,268,777
3.5 4,268,778
105 4,268,779
179 4,268,780

CLASS 318

434 4,268,781
4,268,782
565 4,268,783
610 4,268,784
620 4,268,785
661 4,268,786

CLASS 322

8 4,268,787
59 4,268,788

CLASS 323

315 4,268,789
318 4,268,790

CLASS 324

238 4,268,791

CLASS 328

24 4,268,792
165 4,268,793
185 4,268,794

CLASS 330

267 4,268,796
277 4,268,797
289 4,268,798

CLASS 331

94.5 C 4,268,799
4,268,800
94.5 M1 4,268,801

CLASS 332

37 D 4,268,802

CLASS 333

12 4,268,803
125 4,268,804
129 4,268,805
165 4,268,806
191 4,268,807
195 4,268,808
202 4,268,809

CLASS 336

205 4,268,810

CLASS 337

118 4,268,813
156 4,268,811
380 4,268,812

CLASS 338

32 H 4,268,814
69 4,268,815

CLASS 339

17.1 M 4,268,100
61 R 4,268,101
75 M 4,268,102
89 M 4,268,103
98 4,268,104
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4,268,106
4,268,107
198 GA 4,268,108
205 4,268,109

CLASS 340

52 E 4,268,816
147 A 4,268,817
347 NT 4,268,820
378.1 4,268,821
533 4,268,822
570 4,268,823
604 4,268,824
629 Re.30,620
684 4,268,825
707 4,268,826
715 4,268,827
870.34 4,268,819
870.38 4,268,818

CLASS 343

5 W 4,268,828
100 LE 4,268,829
103 4,268,830
754 4,268,831
786 4,268,832

833 4,268,833
858 4,268,834
915 4,268,835

CLASS 346

75 4,268,836
4,268,837
76 PH 4,268,838
107 R 4,268,839
135.1 4,268,840
138 4,268,841

CLASS 350

6.7 4,268,110
9 4,268,795
70 4,268,111
96.18 4,268,112
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96.21 4,268,115
96.29 4,268,116
105 4,268,117
128 4,268,118
173 4,268,119
302 4,268,120
306 4,268,121
307 4,268,122
310 4,268,123
4,268,124
320 4,268,125
331 R 4,268,126
337 4,268,127
410 4,268,128
486 4,268,129

CLASS 351

121 4,268,130
160 H 4,268,131
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163 4,268,134

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121 4,268,145
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147 4,268,147
173 4,268,148
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206 4,268,150
219 4,268,151
234 4,268,152
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293 4,268,155
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3 TR 4,268,157
14 R 4,268,162
14 SH 4,268,163
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55 4,268,165
84 4,268,166

CLASS 356

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58 4,268,168
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334 4,268,170
341 4,268,171
431 4,268,172
445 4,268,173

CLASS 357

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38 4,268,846
52 4,268,847
60 4,268,848
71 4,268,849
82 4,268,850
10 4,268,851
17 4,268,852
4,268,853
27 4,268,854
36 4,268,855
67 4,268,856
4,268,857
86 4,268,858
114 4,268,859
118 4,268,860
138 4,268,861
153 4,268,862
160 4,268,863
166 4,268,864
216 4,268,865
228 4,268,866
285 4,268,867
286 4,268,868
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296 4,268,870
298 4,268,871
301 4,268,872

CLASS 360

9 4,268,873
10 4,268,874
4,268,875
78 4,268,876
94 4,268,877
97 4,268,878
104 4,268,879
109 4,268,880
4,268,881
118 4,268,882

CLASS 361

21 4,268,883
22 4,268,884
45 4,268,885
80 4,268,886
93 4,268,887
236 4,268,888
292 4,268,889
335 4,268,890

CLASS 362

11 4,268,891
83 4,268,892
96 4,268,893
158 4,268,894
307 4,268,895
311 4,268,896
325 4,268,897

CLASS 363

20 4,268,898
61 4,268,899
71 4,268,900

CLASS 364

200 4,268,901
4,268,902
4,268,903
4,268,904
4,268,905
4,268,906
4,268,907
4,268,908
4,268,909
431 4,268,910

CLASS 365

104 4,268,911

CLASS 366

18 4,268,174
19 4,268,175
83 4,268,176

CLASS 367

163 4,268,912

CLASS 368

10 4,268,913

CLASS 369

7 4,268,724
44 4,268,745
220 4,268,039

CLASS 370

118 4,268,914

CLASS 400

55 4,268,177
118 4,268,178
120 4,268,179
124 4,268,180
208 4,268,181
247 4,268,182

CLASS 401

30 4,268,183
218 4,268,184

CLASS 403

16 4,268,185

CLASS 404

6 4,268,186
118 4,268,187

CLASS 405

128 4,268,188
154 4,268,189
169 4,268,190
195 4,268,191
239 4,268,192
292 4,268,193

CLASS 407

22 4,268,194

CLASS 408

16 4,268,195
39 4,268,196
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186 4,268,198

CLASS 411

98 4,267,870

CLASS 414

24.5 4,268,199
31 4,268,200
35 4,268,201
39 4,268,202
100 4,268,203
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222 4,268,206
277 4,268,207
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462 4,268,209
497 4,268,210
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563 4,268,213
694 4,268,214
715 4,268,215
719 4,268,216
740 4,268,217
786 4,268,218
4,268,219

CLASS 415

104 4,268,220
116 4,268,221

CLASS 416

1 4,268,222
196 R 4,268,223

CLASS 417

32 4,268,224
269 4,268,225
332 4,268,226
358 4,268,227
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407 4,268,229

CLASS 418

15 4,268,230
60 4,268,231
135 4,268,232
270 4,268,233

CLASS 422

46 4,268,476
64 4,268,477
68 4,268,478
4,268,479
98 4,268,480
100 4,268,481
171 4,268,482
246 4,268,483
259 4,268,484

CLASS 423

3 4,268,485
55 4,268,486
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239 A 4,268,488
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406 4,268,491
482 4,268,492

CLASS 424

1 4,268,493
4,268,494
4,268,495
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27 4,268,497
59 4,268,498
68 4,268,499
70 4,268,500
80 4,268,501
83 4,268,502
114 4,268,503
143 4,268,504
180 4,268,505
202 4,268,506
217 4,268,507
222 4,268,508
246 4,268,509
248.53 4,268,510
248.57 4,268,511
250 4,268,512
258 4,268,513
267 4,268,514
4,268,515
273 P 4,268,516
283 4,268,517
4,268,518
4,268,519
285 4,268,520
298 4,268,521
305 4,268,522
308 4,268,523
311 4,268,524
326 4,268,525
358 4,268,526

CLASS 425

32 4,268,234
83.1 4,268,235
115 4,268,236
116 4,268,237
174.8 E 4,268,238
182 4,268,242
467 4,268,239
548 4,268,240
549 4,268,241
575 4,268,243

CLASS 426

33 4,268,527
40 4,268,528
72 4,268,529
121 4,268,530
126 4,268,531
231 4,268,532
577 4,268,533
607 4,268,534

CLASS 427

38 4,268,535
54.1 4,268,536
88 4,268,537
93 4,268,538
108 4,268,539
127 4,268,540
177 4,268,541
195 4,268,542
230 4,268,543
264 4,268,544
282 4,268,545
385.5 4,268,547
387 4,268,548
393.5 4,268,546
4,268,549
429 4,268,550

CLASS 428

17 4,268,551
31 4,268,552
34 4,268,553
35 4,268,554
4,268,555
65 4,268,556
71 4,268,557
4,268,558
4,268,559
105 4,268,560
111 4,268,561
113 4,268,562
138 4,268,563
143 4,268,564
161 4,268,565
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4,268,568
209 4,268,569
215 4,268,570
236 4,268,571
281 4,268,572
295 4,268,573
315 4,268,574
336 4,268,575
342 4,268,576
394 4,268,577
413 4,268,578
4,268,579
423.4 4,268,580
428 4,268,581
446 4,268,582
516 4,268,583
620 4,268,584
622 4,268,585
661 4,268,586

CLASS 429

193 4,268,587
194 4,268,588
207 4,268,589

CLASS 430

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17 4,268,591
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24 4,268,594
48 4,268,595
72 4,268,596
102 4,268,597
107 4,268,598
108 4,268,599
142 4,268,600
159 4,268,601
192 4,268,602
196 4,268,603
215 4,268,604
216 4,268,605
223 4,268,606
270 4,268,607
4,268,608
271 4,268,609
281 4,268,610
302 4,268,611
306 4,268,612
309 4,268,613
315 4,268,614
320 4,268,615
364 4,268,616
373 4,268,617
393 4,268,618
398 4,268,619
403 4,268,620
409 4,268,621
513 4,268,622
529 4,268,623
562 4,268,624
4,268,625
620 4,268,626
623 4,268,627

CLASS 431

170 4,268,244
202 4,268,245

CLASS 432

4 4,268,246
21 4,268,247
62 4,268,248

CLASS 433

10 4,268,249
20 4,268,250
75 4,268,251
128 4,268,252
221 4,268,253

CLASS 434

111 4,267,646
128 4,268,255
162 4,268,256
247 4,268,254
373 4,268,257

CLASS 435

22 4,268,628
41 4,268,629
148 4,268,630
190 4,268,631
232 4,268,632

CLASS 440

63 4,268,258

CLASS 455

158 4,268,915
333 4,268,916

CLASS 474

160 4,268,259

CLASS 493

194 4,268,260
203 4,267,768
231 4,268,261

CLASS 521

168 4,268,633

CLASS 525

68 4,268,635
85 4,268,636
105 4,268,637
193 4,268,433
263 4,268,638
303 4,268,639
346 4,268,640
367 4,268,641
382 4,268,642
400 4,268,643
403 4,268,644
437 4,268,645
440 4,268,646
471 4,268,634
474 4,268,647
485 4,268,648
504 4,268,649
534 4,268,650

CLASS 526

65 4,268,651
217 4,268,652
255 4,268,653
259 4,268,654

CLASS 528

15 4,268,655
103 4,268,656
155 4,268,657
199 4,268,658
288 4,268,659
315 4,268,660
338 4,268,661
486 4,268,662
502 4,268,470

CLASS 536

4 4,268,663
10 4,268,664
17 R 4,268,665
57 4,268,666

CLASS 542

402 4,268,667
429 4,268,669
435 4,268,670

CLASS 544

245 4,268,671
265 4,268,672

CLASS 546

97 4,268,673

CLASS 548

125 4,268,674
137 4,268,675
181 4,268,676
215 4,268,677
247 4,268,678
4,268,679
336 4,268,680
337 4,268,681

CLASS 556

465 4,268,682

CLASS 560

24 4,268,683
4,268,684
56 4,268,685
91 4,268,686
105 4,268,687
177 4,268,688
263 4,268,689

CLASS 562

416 4,268,690

CLASS 564

305 4,268,458

CLASS 568

322 4,268,691
326 4,268,692
637 4,268,693
763 4,268,694
864 4,268,695
911 4,268,697
931 4,268,696

CLASS 570

198 4,268,698

CLASS 585

268 4,268,699
302 4,268,700
329 4,268,701
411 4,268,702
428 4,268,703
4,268,704
429 4,268,705
430 4,268,706
434 4,268,707

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D2—	400	259,220	D8—	21	259,233	D9—	310	259,247	D14—	5	259,259		203	259,271		88	259,283
D3—	60	259,221		30	259,234			259,248		53	259,260	D22—	19	259,272	D28—	18	259,284
	71	259,222		66	259,235		313	259,249	D15—	7	259,261		29	259,273	D30—	2	259,285
		259,223		82	259,236		318	259,250	D16—	47	259,262	D23—	52	259,274			259,286
D6—	63	259,224		83	259,237			259,251		48	259,263		94	259,275			259,287
	86	259,225		307	259,238		338	259,252	D18—	4	259,264		95	259,276			259,289
	88	259,226		347	259,239		404	259,246	D21—	13	259,265		151	259,277			259,290
	103	259,227		356	259,240		418	259,253			259,266	D24—	53	259,278			259,291
	124	259,228		363	259,241	D10—	81	259,254			259,267		67	259,279		6	259,292
	210	259,229		373	259,242		106	259,255		59	259,268	D25—	5	259,280		02	259,288
D7—	2	259,230		375	259,243	D12—		259,256		124	259,269		11	259,281		99	259,293
	40	259,231		380	259,244		188	259,257		198	259,270		18	259,282	D99	50	259,294
	61	259,232		403	259,245	D13—	10	259,258									

CLASSIFICATION OF PLANTS

P—	6	4,717		57	4,718		68	4,719			4,720			4,721		82	4,722

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5 : 4,267,802	4,267,998	4,268,715	4,268,473	4,268,250	4,268,792
6 : 4,267,730	4,268,023	4,268,721	4,268,486	4,268,263	4,268,798
4,268,521	4,268,028	4,268,744	4,268,516	4,268,551	4,268,811
9 : Re.30,618	4,268,035	4,268,753	4,268,522	16 : 4,267,685	4,268,812
01 : 4,267,971	4,268,042	4,268,763	4,268,523	4,267,798	4,268,869
4,267,988	4,268,045	4,268,775	4,268,562	4,267,932	4,268,915
02 : 4,267,700	4,268,049	4,268,785	4,268,599	4,267,933	18 Re.30,620
04 : 4,267,731	4,268,075	4,268,791	4,268,660	17 : 4,267,623	4,267,719
4,267,776	4,268,081	4,268,799	4,268,692	4,267,637	4,267,759
4,267,997	4,268,090	4,268,800	4,268,727	4,267,643	4,267,766
4,268,037	4,268,096	4,268,801	4,268,734	4,267,674	4,267,852
4,268,212	4,268,099	4,268,805	4,268,849	4,267,678	4,267,954
4,268,380	4,268,101	4,268,815	4,268,864	4,267,711	4,267,965
4,268,567	4,268,105	4,268,821	10 : 4,268,179	4,267,749	4,268,210
4,268,676	4,268,111	4,268,828	4,268,421	4,267,781	4,268,218
4,268,907	4,268,115	4,268,835	4,268,513	4,267,816	4,268,220
4,268,909	4,268,123	4,268,844	4,268,520	4,267,890	4,268,269
06 : 4,267,615	4,268,124	4,268,878	4,268,637	4,267,916	4,268,398
4,267,631	4,268,143	4,268,879	4,268,667	4,267,917	4,268,502
4,267,632	4,268,150	4,268,885	11 : 4,267,647	4,267,941	4,268,526
4,267,659	4,268,169	4,268,905	12 : 4,267,642	4,267,947	4,268,658
4,267,661	4,268,171	4,268,911	4,267,652	4,267,956	4,268,884
4,267,682	4,268,177	08 : 4,267,771	4,267,692	4,267,962	4,268,896
4,267,690	4,268,201	4,267,793	4,267,702	4,267,977	4,268,912
4,267,704	4,268,229	4,267,825	4,267,722	4,268,003	19 : 4,267,660
4,267,729	4,268,247	4,267,868	4,267,753	4,268,006	4,267,687
4,267,732	4,268,271	4,267,892	4,267,790	4,268,019	4,267,818
4,267,761	4,268,281	4,267,966	4,267,923	4,268,027	4,267,881
4,267,765	4,268,328	4,268,012	4,267,969	4,268,070	4,268,209
4,267,768	4,268,329	4,268,165	4,267,996	4,268,215	4,268,211
4,267,772	4,268,348	4,268,283	4,268,031	4,268,258	4,268,213
4,267,799	4,268,366	4,268,318	4,268,055	4,268,285	4,268,746
4,267,826	4,268,369	4,268,392	4,268,083	4,268,315	20 4,267,884
4,267,827	4,268,370	4,268,751	4,268,087	4,268,331	4,267,972
4,267,833	4,268,376	4,268,848	4,268,119	4,268,345	4,267,995
4,267,834	4,268,378	09 : Re.30,617	4,268,133	4,268,352	4,268,196
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4,267,838	4,268,450	4,267,636	4,268,256	4,268,418	4,267,885
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4,267,861	4,268,504	4,267,864	4,268,441	4,268,423	4,268,492
4,267,887	4,268,538	4,267,882	4,268,550	4,268,488	4,268,723
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4,267,928	4,268,610	4,268,009	4,268,807	4,268,566	24 4,267,764
4,267,930	4,268,612	4,268,112	4,268,817	4,268,608	4,267,769
4,267,940	4,268,632	4,268,206	4,268,906	4,268,645	4,267,914
4,267,948	4,268,647	4,268,221	13 : 4,267,783	4,268,706	4,268,050
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4,267,974	4,268,691	4,268,357	4,267,945	4,268,729	4,268,116
4,267,989	4,268,711	4,268,363	4,268,097	4,268,771	4,268,121

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PLANT PATENTS

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Vol. 1006 Number 4

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UNITED STATES PATENT AND TRADEMARK OFFICE

May 26, 1981

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May 26, 1981 Volume 1006 Number 4

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Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90-95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATION FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,933,781, Re. S.N. 044,626, Filed June 1, 1979, Cl. 125/260, PROCESS FOR THE PREPARATION OF ALPHA-L-ASPARTYL-L-PHENYLALANINE ALKYL ESTERS, Gerald L. Bachman, et al., Owner of Record: *Monsanto Co., St. Louis, Mo.,* Attorney or Agent: R. E. Wexler, Ex. Gp.: 125

PATENT NOTICES

Certificates of Correction for the Week of May 26, 1981

Re. 30,429	4,229,476	4,246,113	4,251,712
Re. 30,456	4,229,520	4,246,131	4,251,757
Re. 30,508	4,231,529	4,246,197	4,251,865
D. 254,541	4,233,029	4,246,292	4,251,870
D. 257,389	4,233,296	4,246,363	4,251,953
3,566,639	4,233,337	4,246,587	4,252,033
3,780,300	4,233,406	4,247,057	4,252,064
3,874,712	4,234,176	4,247,259	4,252,082
3,882,112	4,234,307	4,247,326	4,252,092
4,058,564	4,234,475	4,247,805	4,252,158
4,091,895	4,234,603	4,247,900	4,252,173
4,125,407	4,235,276	4,248,000	4,252,204
4,130,663	4,235,545	4,248,034	4,252,290
4,139,545	4,236,772	4,248,037	4,252,395
4,152,426	4,237,318	4,248,055	4,252,456
4,173,149	4,237,765	4,248,151	4,252,587
4,177,601	4,238,957	4,248,242	4,252,747
4,184,380	4,239,663	4,248,410	4,252,876
4,186,211	4,239,848	4,248,535	4,252,895
4,193,071	4,239,897	4,248,538	4,253,462
4,195,160	4,240,250	4,248,633	4,254,045
4,197,809	4,240,439	4,248,745	4,254,052
4,198,126	4,240,723	4,248,825	4,254,207
4,199,804	4,240,792	4,248,918	4,254,282
4,209,087	4,241,071	4,249,016	4,254,549
4,212,981	4,241,481	4,249,270	4,254,670
4,213,849	4,241,545	4,249,409	4,254,879
4,215,222	4,242,379	4,249,495	4,254,906
4,216,796	4,242,779	4,249,534	4,254,920
4,217,583	4,243,000	4,249,747	4,255,037
4,218,531	4,243,078	4,249,881	4,255,052
4,219,922	4,244,032	4,250,057	4,255,209
4,221,031	4,244,336	4,250,107	4,255,214
4,221,058	4,244,497	4,250,133	4,255,250
4,221,128	4,244,698	4,250,345	4,255,523
4,223,404	4,244,949	4,250,928	4,255,614
4,224,848	4,244,976	4,251,055	4,255,618
4,226,167	4,244,994	4,251,187	4,255,747
4,226,269	4,245,009	4,251,206	4,255,758
4,228,919	4,245,041	4,251,247	4,256,234
4,228,938	4,245,102	4,251,336	4,256,241
4,228,984	4,245,231	4,251,463	4,256,257

Disclaimers

3,407,741.—*Robert L. Weber,* Lacon and *Noel D. Wiggins,* Chillicothe, Ill. COMPACT OIL PUMP FOR INTERNAL COMBUSTION ENGINES. Patent dated Oct. 29, 1968. Disclaimer filed Mar. 11, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1, 2, 3 and 8 of said patent.

3,898,088.—*Hyman L. Cohen; Frederick Koeng* and *I. Ponticello,* Rochester, N.Y. PHOTOGRAPHIC ELEMENTS CONTAINING POLYMERIC MORDANTS. Patent dated Aug. 5, 1975. Disclaimer filed Mar. 18, 1981, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,944,424.—*Hyman L. Cohen; Frederick Koeng* and *Ignazio Ponticello,* Rochester, N.Y. PHOTOGRAPHIC OR IMAGE RECEIVING ELEMENTS CONTAINING POLYMERIC MORDANTS. Patent dated Mar. 16, 1976. Disclaimer filed Mar. 18, 1981, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

4,114,897.—*Dean R. Bainard,* Bethel Township, York County, S.C. METHOD FOR INSTALLING SEAL OVER SPLINED SHAFT. Patent dated Sept. 19, 1978. Disclaimer filed Feb. 23, 1981, by the assignee, *Garlock Inc.*

Hereby enters this disclaimer to claim 9 of said patent.

4,177,421.—*David D. Thornvurg,* Los Altos, Calif. CAPACITIVE TRANSDUCER. Patent dated Dec. 4, 1979. Disclaimer filed Mar. 30, 1981, by the assignee, *Xerox Corp.*

Hereby enters this disclaimer to claims 1, 2, 3, 6, 7, 8, 9, 10, 11, 12 and 16 of said patent.

4,212,457.—*Joachim Guenther,* Webster, N.Y. PRE/POST-COLLATION COPYING SYSTEM. Patent dated July 15, 1980. Disclaimer filed Mar. 30, 1981, by the assignee, *Xerox Corp.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

4,222,987.—*David P. Keller,* Morrisville, Pa. MUFFLE CALCINER HAVING COUNTER-ROTATING SCREW CONVEYORS. Patent dated Sept. 16, 1980. Disclaimer filed Mar. 30, 1981, by the assignee, *Columbian Chemicals Co.*

The term of the patent subsequent to Mar. 17, 1981, has been disclaimed.

4,244,823.—*Francis Henry Wessel;* North Bend, *Matthew F. Kluesener;* Cincinnati and *Donald Lee Hurley* and *Joseph Bernard Bange;* Hamilton, Ohio. CENTRIFUGAL BASKET VALVE MECHANISM. Patent dated Jan. 13, 1981. Disclaimer filed Mar. 16, 1981, by the assignee, *The Western States Machine Co.*

Hereby enters this disclaimer to claims 1, 3 and 4 of said patent.

Dedication

Re. 27,172.—*Andrew J. Van Noord,* Grand Rapids, Mich. REMOTE CONTROL MIRROR. Patent dated Sept. 20, 1971. Dedication filed Dec. 29, 1980, by the inventor.

Hereby dedicates to the Public the entire term of said patent.

Disclaimers and Dedications

4,183,872.—*John T. Carlock,* Ponca City, Okla. POLYMER BOUND(PENTAHAPTOCYCLOPENTADIENYL)-BISCARBONYL RHODIUM HYDROFORMYLATION CATALYST. Patent dated Jan. 15, 1980. Disclaimer and dedication filed Mar. 9, 1981, by the assignee, *Conoco Inc.*

Hereby disclaims and dedicates to the Public the entire remaining term of said patent.

4,214,109.—*John T. Carlock,* Ponca City, Okla. POLYMER BOUND(PENTAHAPTOCYCLOPENTADIENYL)BISCARBONYL RHODIUM HYDROFORMYLATION CATALYST. Patent dated July 22, 1980. Disclaimer and dedication filed Mar. 9, 1981, by the assignee, *Conoco Inc.*

Hereby disclaims and dedicates to the Public the entire remaining term of said patent.

National Technical Information Services

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DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE ARMY/OTJAG
Chief, Intellectual Property Division
Room 2D 444, Pentagon
Washington, D.C. 20310

Patent application 6-149,205. Erosion Lithography to Abrade a Pattern Onto a Substrate. Filed May 12, 1980.

Patent 4,174,162. Aerial Camera Mounting Means. Filed July 7, 1978. Patented Nov. 13, 1979. Not available NTIS.

Patent 4,188,908. Novel Microscope Slide Smoker. Filed Jan. 15, 1979. Patented Feb. 19, 1980. Not available NTIS.

Patent 4,191,087. Rocket Detent and Release Mechanism. Filed Aug. 14, 1978. Patented Mar. 4, 1980. Not available NTIS.

Patent 4,191,088. Ammunition Feeder Having Two Feed Pawls. Filed Apr. 10, 1978. Patented Mar. 4, 1980. Not available NTIS.

Patent 4,191,886. Radiation Dose Rate Indicator. Filed July 31, 1978. Patented Mar. 4, 1980. Not available NTIS.

Patent 4,191,959. Microstrip Antenna with Circular Polarization. Filed July 17, 1978. Patented Mar. 4, 1980. Not available NTIS.

Patent 4,192,349. Air Conditioning Valve. Filed Aug. 7, 1978. Patented Mar. 11, 1980. Not available NTIS.

Patent 4,193,286. Vehicle Control Arm Spreader Tool. Filed May 18, 1978. Patented Mar. 18, 1980. Not available NTIS.

Patent 4,194,187. Analog-to-Digital Conversion by Charge Coupled Device. Filed Aug. 7, 1978. Patented Mar. 18, 1980. Not available NTIS.

Patent 4,194,304. Loader and Recoil Simulation Trainer for Artillery Crews. Filed Nov. 2, 1978. Patented Mar. 25, 1980. Not available NTIS.

Patent 4,194,431. Active Armor. Filed July 5, 1966. Patented Mar. 25, 1980. Not available NTIS.

Patent 4,194,643. Method and Apparatus for Frit-Sealing High Temperature CRT Faceplate to Conventional CRT Envelope. Filed Dec. 19, 1978. Patented Mar. 25, 1980. Not available NTIS.

Patent 4,194,929. Technique for Passivating Stainless Steel. Filed Sept. 8, 1978. Patented Mar. 25, 1980. Not available NTIS.

Patent 4,195,144. Copolymers of Alpha-N-Alkylsytrenes and Styrene. Filed Oct. 19, 1978. Patented Mar. 25, 1980. Not available NTIS.

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Patent 4,200,028. Multi-Purpose Gun Safety. Filed Aug. 18, 1978. Patented Apr. 29, 1980. Not available NTIS.

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U.S. DEPARTMENT OF THE AIR FORCE
AF/JACP
1900 Half St., S.W.
Washington, D.C. 20234

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Patent application 6-175,794. Compensated Temperature Sensing Device. Filed Aug. 6, 1980.

Patent application 6-175,795. Adaptive Interference Tracker for Suppression of Narrow Band Interference. Filed Aug. 6, 1980.

Patent application 6-176,434. Simultaneous Signal Detector for an Instantaneous Frequency Measurement Receiver. Filed Aug. 8, 1980.

Patent application 6-176,435. Self-Calibrating Interferometer. Filed Aug. 8, 1980.

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Patent 4,231,248. Laser Tensile Test Sample Holder. Filed June 15, 1979. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,231,293. Submissile Disposal System. Filed Oct. 26, 1977. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,231,533. Static Self-Contained Laser Seeker System for Active Missile Guidance. Filed July 9, 1975. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,231,534. Active Optical Tracking System. Filed Nov. 4, 1977. Patented Nov. 4, 1980. Not available NTIS.

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Patent 4,232,446. Gage for Measuring Decrease in Dimension of Test Specimen in Tensile Test. Filed Mar. 30, 1979. Patented Nov. 11, 1980. Not available NTIS.

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U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
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Office of Naval Research
Code 302
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Patent 4,227,170. Current-Reducing Device. Filed June 22, 1977. Patented Oct. 7, 1980. Not available NTIS.

Patent 4,228,437. Wideband Polarization-Transforming Electromagnetic Mirror. Filed June 26, 1979. Patented Oct. 14, 1980. Not available NTIS.

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Patent 4,231,103. Fast Fourier Transform Spectral Analysis System Employing Adaptive Window. Filed Feb. 12, 1979. Patented Oct. 28, 1980. Not available NTIS.

Patent 4,231,891. Solid Compositions for Generation of Gases Containing a High Percentage of Hydrogen or Its Isotopes. Filed June 16, 1978. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,234,142. High Angle-of-Attack Missile Control System for Aerodynamically Controlled Missiles. Filed June 8, 1978. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,234,852. Coherent Frequency Shift Key Demodulator. Filed Nov. 15, 1978. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,236,546. Electronic Breathing Mixture Control. Filed Oct. 23, 1978. Patented Dec. 2, 1980. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

Patent application 6-182,880. Modified Spiral Wound Retaining Ring. Filed Aug. 29, 1980.

Patent application 6-195,226. Beam Connector Apparatus and Assembly. Filed Oct. 8, 1980.

Patent 4,217,633. Solar Cell System Having Alternating Current Output. Filed Aug. 10, 1979. Patented Aug. 12, 1980. Not available NTIS.

Errata

"All reference to Patent No. D. 258,989 to Frank R. Wilkerson of Oklahoma for DENTAL DELIVERY TRAY appearing in the Official Gazette of Apr. 21, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,258,932 to Thomas S. Moore and Terrence Smith both of Michigan for FABRICATED LOAD SUPPORT STRUCTURAL MEMBER appearing in the Official Gazette of Mar. 31, 1981 should be deleted since no patent was granted."

"All reference to patent No, 4,260,133 to Earl Clayton Thompson, Morris C. Keller and Francis Rustin of Texas and Missouri for ANIMAL WATERING VALVE WITH PROTECTED BIASING SPRING appearing in the Official Gazette of Apr. 7, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,262,308 to Walter G. Gibson of New Jersey for SIGNAL SEPARATION NETWORKS appearing in the Official Gazette of Apr. 14, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,265,392 to Samuel C. K. Saw of Australia for REINFORCED CONTAINER appearing in the Official Gazette of May 5, 1981 should be deleted since no patent was granted."

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	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 223
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1458
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF Mar. 21, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director ..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	10-22-79
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	2-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-01-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT ..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	7-10-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-05-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	7-09-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director ..... Industrial Arts; Household, Personal and Fine Arts.	2-12-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-29-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-01-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-18-77
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	7-27-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during Feb. 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,122,749 to 3,127,613, inclusive

Plant Patents ..... Numbers 2,368 to 2,388, inclusive

REISSUES

MAY 26, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,621

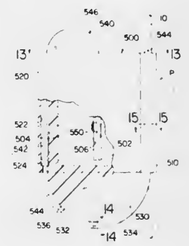
CARRIER FOR EXPLOSIVE PRIMER AND METHOD OF USING SAME

Brooke J. Calder, Jr., Aurora, Ohio; David L. Childs, Madisonville, Ky.; Roger N. Prescott, Lyndhurst, Ohio, and Donald W. Lyons, Madisonville, Ky., assignors to Austin Powder Company, Beachwood, Ohio

Original No. 4,141,296, dated Feb. 27, 1979, Ser. No. 740,799, Nov. 11, 1976. Application for reissue Apr. 16, 1980, Ser. No. 140,744

Int. Cl.[3] **F42B** *3/10*

U.S. Cl. 102—313 **27 Claims**



27. A carrier for supporting a primer and for guiding said primer along a detonating cord extending into a borehole from the open, charging end thereof and into a location with said primer in detonating relationship with a charge of explosive material spaced from said charging end of said borehole, said charge being generally immune from detonation by said detonating cord and detonatable by said primer, said carrier including: means for holding said primer spaced from said detonating cord a distance preventing said cord from detonating said primer directly; means for slidably securing said carrier with respect to said detonating cord whereby said carrier can move freely and longitudinally along said cord; means on said carrier for supporting an elongated time delay detonation element having an input portion and extending in a generally linear path from said extending detonating cord to said primer; said element supporting means including positional control means external of said primer for holding said input portion in a predetermined relationship with respect to said detonating cord as said carrier slides along said detonating cord.

Re. 30,622

FUEL METERING APPARATUS FOR A CARBURETOR

Jose F. Regueiro, Waterloo, Iowa, assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Original No. 4,007,721, dated Feb. 15, 1977, Ser. No. 471,345, May 17, 1974. Application for reissue Apr. 17, 1978, Ser. No. 897,659

Int. Cl.[3] **F02M** *17/18*

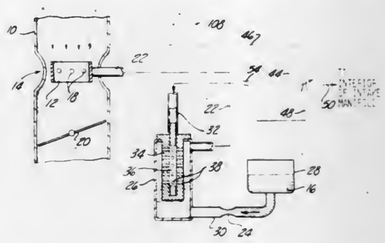
U.S. Cl. 123—523 **13 Claims**

1. In combination: an internal combustion engine having an intake manifold, an air induction pipe, a venturi throat disposed within said air induction pipe, a fuel reservoir, a fuel nozzle means connecting said fuel reservoir and said fuel nozzle means including an emulsifying well disposed intermediate said fuel reservoir and said fuel nozzle means, said fuel nozzle means disposed in said venturi throat for introducing fuel into a stream of air flowing through said air induction pipe,

said emulsifying well including a passage means for directing air into the fuel whereby the fuel delivered to said venturi throat is mixed with air.

means in communication with the interior of said intake manifold for sensing the pressure therein; and

valve means connected intermediate said air induction pipe, upstream of said fuel nozzle means, and said emulsifying well, said valve means being connected to and responsive to said manifold pressure sensing means to regulate air flow through an outlet to said emulsifying well to decrease the amount of air introduced into said fuel upon a predetermined increase in the pressure in said intake mani-



fold and to increase the amount of air introduced into said fuel upon a predetermined decrease in the pressure in said intake manifold whereby a predetermined optimum air/fuel mixture is provided for said internal combustion engine over a wide range of engine speeds and loads said valve means comprising a tubular member having apertures therein connecting the interior thereof in the area adjacent said manifold pressure sensing means to said outlet.

Re. 30,623

APPARATUS FOR SELECTIVELY HEATING AN INDIVIDUAL FOOD ITEM IN A REFRIGERATED ENVIRONMENT

William J. Schulz, West Cornwall, Conn.; Ralph R. Pecoraro, Jacksonville, Fla., and Gerard T. Hogan, Roscoe, Ill., assignors to UOP Inc., Des Plaines, Ill.

Original No. 4,180,125, dated Dec. 25, 1979, Ser. No. 889,763, Mar. 24, 1978. Application for reissue May 2, 1980, Ser. No. 145,953

Int. Cl.[3] **F25B** *29/00*

U.S. Cl. 165—48 R **11 Claims**



1. An apparatus for heating at least one covered container on a meal service tray while other items on the tray are refrigerated comprising an enclosed housing having a plurality of cooperative pairs of guide rails therein for supporting a first pair of opposed side edges of a plurality of trays; means for supplying a refrigerated atmosphere within said enclosure; a

plurality of generally horizontal, thin, heater shelves extending from a side wall of said housing for less than one-half the width of the trays; a ramp surface on at least one end of each of said heater shelves; a plurality of trays, each of said trays having at least one pair of abutment portions integrally supported by said trays and extending transversely over a portion thereof relative to said first opposed pair of side edges, said abutment portions being located sufficiently far above the serving surface of the trays to permit end contact with said at least one covered container while allowing the trays to be slid along said cooperating pairs of guide rails so that said thin heater shelves will pass above the tray surfaces and [beneath the] *under said container contacted by said* abutment portions, the ramp surface on each of said heater shelves being adapted to lift a covered container located on said tray between said at least one pair of abutments, [and] *whereby to* permit said heater shelf with which said container is frictionally engaged to pass under it as said container is restrained by one of said at least one pair of abutment portions.

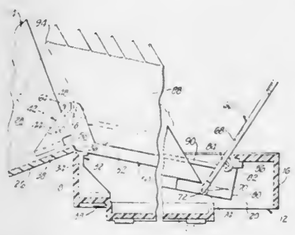
Re. 30,624
CONTAINER-CARD FILE STRUCTURE

George Soulakis, Hormosa Beach, and Charles G. Mandala, Rancho Palos Verdes, both of Calif., assignors to Eldon Industries, Inc., Hawthorne, Calif.

Original No. 4,091,918, dated May 30, 1978, Ser. No. 763,802, Jan. 31, 1977. Application for reissue Feb. 25, 1980, Ser. No. 124,120

Int. Cl.[3] **B65D** *5/50, 85/00*

U.S. Cl. 206—45.13 **14 Claims**



1. A container which includes a hollow base having an open top and spaced front and rear ends, a lid fitting over and enclosing said top of said base, said lid having front and rear ends, a first pivot means pivotally connecting said rear end of said base with said rear end of said lid so that said lid can be rotated about a first axis between a closed position covering said top of said base and an open position in which said lid extends generally in back of said rear end of said base, carrier means having front and rear ends, for supporting a load, said carrier means being located generally within the interior of said base when said lid is in said closed position, second pivot means pivotally connecting said rear end of said carrier means to said lid adjacent to said rear end of said lid so that said carrier means is rotated about a second axis which is parallel to said first axis during rotation of said lid in which the improvement comprises:

link means for use in pivotally supporting said front end of said carrier means, said link means extending between said carrier means and said base,

third pivot means pivotally connecting said link means and said carrier means so that said carrier means may be rotated relative to said link means about a third axis, said third axis being parallel to said first and said second axes,

fourth pivot means pivotally connecting said link means and said base so that said link means may be rotated about a fourth axis relative to said base, said fourth axis being parallel to said first, second and third axes[.]

arm means attached to said lid, said arm means having an extremity remote from said lid which extends into the interior of said base beneath said first pivot when said lid is in said closed position and which extends above said first pivot when said lid is in said open position,

said second pivot means is located at said extremity of said arm means, and

said arm means supporting the rear end of said carrier means so that during movement of said lid from said closed position to said open position the rear end of said carrier means is elevated relative to the front end of said carrier means and is moved rearwardly of its location when said lid is in said closed position.

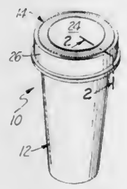
Re. 30,625
SAFETY CAP AND CONTAINER

Edward G. Akers, 647 Briarfield, Pecan Plantation, Granbury, Tex. 76048

Original No. 3,880,313, dated Apr. 29, 1975, Ser. No. 710,032, Mar. 4, 1968. Continuation of Ser. No. 790,681, Apr. 25, 1977, abandoned. Application for reissue Oct. 30, 1978, Ser. No. 955,708

Int. Cl.[3] **B65D** *55/02*

U.S. Cl. 215—211 **13 Claims**



10. A safety package comprising:

a container having a mouth portion with an annular rim, and having an internal annular sloping surface adjacent to said mouth portion;

a one piece cap having a base with a peripheral flange projecting axially therefrom for receiving said mouth portion;

interengageable locking elements on the outer wall of said container mouth portion and on the inner wall of said cap flange, the cap locking elements being spaced peripherally from each other and engageable with and disengageable from the container locking elements by combined axial and rotative motion of the cap relative to the container;

a member joined to said cap base, providing a resilient, flexible, annular wall extending generally axially therefrom and terminating in an outer annular free end; the inner end of said annular wall being joined integrally to said cap base; said outer annular free end being engageable with said container sloping surface and being deflected radially inward thereby, to exert a biasing force in an axial direction between said cap base and said container effective to maintain said locking elements engaged; and said annular free end of said annular wall being the only portion of said cap engaging said container to exert said axial biasing force.

Re. 30,626
SPHERES OBTAINED BY VAPOR DEPOSITION FOR USE IN BALL POINT PENS

Richard B. Kaplan, Santa Monica, and Sebastian Gonnella, Arleta, both of Calif., assignors to Ultramet of Pacoima, Pacoima, Calif.

Original No. 4,150,905, dated Apr. 24, 1979, Ser. No. 766,880, Feb. 9, 1977. Application for reissue Sep. 14, 1979, Ser. No. 75,611

Int. Cl.[3] **B43K** *7/10;* **C23C** *11/00, 13/00*

U.S. Cl. 401—215 **19 Claims**

1. A ball particularly suitable for a ball point pen and comprising:

(a) a core consisting of a refractory material capable of withstanding a temperature in excess of [800°] *500°* C.; and

(b) a coating on said core, said coating being deposited from the vapor phase by hydrogen reduction of a refractory metal halide, said core and coating having a combined diameter of from approximately 0.5 mm to approximately 1 mm and being substantially spherical.



Re. 30,627
APPARATUS FOR PERFORMING CHEMICAL AND BIOLOGICAL ANALYSIS

Kenneth D. Bagshawe, London, and James E. Kemble, Burgess Hill, both of England, assignors to Picker Corporation, Cleveland, Ohio

Original No. 3,923,463, dated Dec. 2, 1975, Ser. No. 404,720, Oct. 9, 1973. Application for reissue Apr. 4, 1977, Ser. No. 784,648

Claims priority, application United Kingdom, Oct. 9, 1972, 46521/72

Int. Cl.[3] **G01N** *31/00, 33/56*

U.S. Cl. 23—230 R **54 Claims**

10. Analysis apparatus for performing at least two operations on a liquid sample in a sample container comprising first and second support means at respective first and second stations, each support means being adapted to removably receive a cassette having therein a plurality of sample containers, means at substantially fixed points on said respective support means for performing respective first and second operations on the liquid samples in the respective containers, drive means carried by the respective support means and arranged to project into a cassette when on said support means and engage the containers therein for moving the same in a closed path sequentially from an initial relationship to one another past an operation performing means at the fixed points on the respective support means and back to the initial relationship, and means for operating the respective operation performing means upon arrival of a container at each of the respective fixed points.

Re. 30,628
WEB CUTTING CONTROL SYSTEM

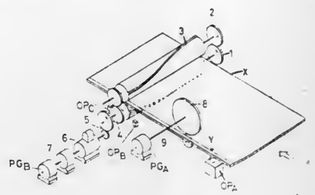
Masateru Tokuno, Nishinomiya; Masayuki Matsuura, Yokohama; Noboru Shinmura, Yokohama, and Masayoshi Kaneko, Yokohama, all of Japan, assignors to Rengo Kabushiki Kaisha (Rengo Co., Ltd.), Osaka and Nippon Riraiansu Kabushiki Kaisha, Yokohama, both of, Japan

Original No. 4,020,406, dated Apr. 26, 1977, Ser. No. 582,406, May 29, 1975. Application for reissue Apr. 24, 1979, Ser. No. 32,886

Claims priority, application Japan, Jun. 7, 1974, 49-65416; Aug. 16, 1974, 49-95260

Int. Cl.[3] **G05B** *19/26;* **B26D** *5/20*

U.S. Cl. 318—600 **8 Claims**



1. A control system for cutting a web fed [at a constant-speed] by means of a rotary cutter driven by a motor selectively either into predetermined lengths or at fixed positions thereof, said control system comprising in combination:

a. first transducer for generating pulses, the number thereof being proportional to the length of the web which has been fed;

b. a second transducer for generating pulses, the number thereof being proportional to the angle through which said rotary cutter has rotated;

c. a first setting means for setting reference pulses, the number thereof being predetermined by a fixed rotating angle of said rotary cutter;

d. a first sensor for detecting the marks put beforehand on the web to give a mark detection signal,

e. a second sensor for detecting completion of each cutting operation to give a cutting completion detection signal;

f. a third sensor for giving a mark distance discriminating signal for discrimination whether the detection of the next mark occurs before or after the completion of cutting on the last mark;

g. a second setting means for digitally setting selectively either a desired cutting length or the distance between the mark detection point and the cutting completion detection point;

h. a first reversible counting means responsive to a detection signal from said first sensor for counting any difference between the value preset on said first setting means and the value preset on said second setting means;

i. an addition/subtraction discriminating means for comparing the value from said first setting means with the value from said second setting means to couple said difference between said two values to said first reversible counting means as a signal to be added or a signal to be subtracted according to the result of comparison;

j. [said first] *a second* reversible counting means receiving the pulses from said first transducer as a signal to be subtracted and the pulses from said second transducer as a signal to be added as well as the difference between said two values and performing reversible counting thereof;

k. a [differentiating] *differencing* means for obtaining any difference between the result of said reversible counting by said [first] *second* reversible counting means and a voltage proportional to the web feed speed;

l. a motor speed control means for discriminating the polarity of the output voltage from said [differentiating] *differencing* means and controlling the speed of the motor

for driving the rotary cutter according to the polarity and quantity of said output voltage; and

m. [a second] *said first* reversible counting means *further being* for subtracting from the preset value on said [first sensing] *second setting* means a value corresponding to the length of the web which has been fed from the instant of detection by said first sensor to the instant of detection by said second sensor, in case the mark detection signal from said first sensor arrives [inn] *in* advance of the cutting completion detection signal from said second sensor after the mark distance discriminating signal has come from said third sensor.

2. A control system for controlling the cutting of a web into predetermined lengths by means of a rotary cutter driven by a motor; said control system comprising in combination;

(a) a first transducer means for generating pulses, the number thereof being proportional to the length of the web which has been fed;

(b) a signal generator means for generating a signal proportional to the web speed;

(c) a second transducer means for generating pulses, the number thereof being proportional to the angle through which said rotary cutter has rotated;

(d) means for providing a first reference value, the magnitude thereof being related to the swept circumference of said rotary cutter;

(e) a sensor for establishing a knife position datum signal during each cutting cycle;

(f) a setting means for providing a second value representative of a desired predetermined cutting length;

(g) a combining means for combining said first and second values for obtaining a third value representative of the difference therebetween;

(h) a reversible counting means which receives the third value from said combining means in response to each datum signal and which subtracts therefrom the pulses from said first transducer means and adds thereto the pulses from said second transducer means to achieve a resultant count and producing a signal proportional to the resultant count;

(i) a differencing means for obtaining a signal proportional to any difference between said signal proportional to said resultant count and said signal proportional to the web speed; and

(j) motor control means responsive to the signal from said differencing means for controlling the operation of the motor to cut the web into said predetermined lengths.

PLANT PATENTS

GRANTED MAY 26, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,723

ROSE PLANT

Herbert C. Swim, Ontario, and Arnold W. Ellis, Garden Grove, both of Calif., assignors to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Jan. 9, 1980, Ser. No. 110,766
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—26 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described herein, and being particularly characterized by the vigor of its growth habit and the profusion of its blooms, said blooms being of a two-toned pink coloration which accentuates the classic form of the new blooms, said flowers having moderately thick heavy petals, and preserving their freshness over a vase life somewhat longer than average for roses of this class.

4,724

APPLE TREE

J. Ralph Shay, deceased, late of Corvallis, Oreg. by Robert E. Witters; Edwin B. Williams, Lafayette, Ind.; Daniel F. Dayton, Urbana, Ill.; L. Fredric Hough, Bloomsbury; Catherine H. Bailey, Englishtown, both of N.J.; Frank H. Emerson, and Jules Janick, both of West Lafayette, Ind., assignors to State of Oregon Acting by and through the State Board of Higher Education on Behalf of Oregon State University, Corvallis, Oreg.

Filed Mar. 17, 1980, Ser. No. 131,141
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct apple tree substantially as shown and described, particularly characterized by field immunity to apple scab, good fresh fruit quality, smooth waxy attractive skin, and maturity approximately two (2) weeks before Jonathan and three (3) weeks before Delicious.

4,725

IMPATIENS PLANT

Cornelis P. Van den Berg, and James C. Mikkelsen, both of Ashtabula, Ohio, assignors to Mikkelsens Inc., Ashtabula, Ohio

Filed Dec. 12, 1979, Ser. No. 103,085
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of impatiens known by the cultivar name Halo, as described and illustrated, and particularly characterized as to novelty by the combined characteristics of good self-branching; spreading habit; highly variegated foliage; bright orange and large flowers; early flowering; suitability for growing both outside in full sunlight and in hanging baskets; and by its good keeping quality both outside in full sunlight and in hanging baskets.

4,726

KALANCHOE PLANT

James C. Mikkelsen, and Cornelis P. Van den Berg, both of Ashtabula, Ohio, assignors to Mikkelsens Inc., Ashtabula, Ohio

Filed Mar. 26, 1980, Ser. No. 134,114
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of Kalanchoe plant known by the cultivar name Yellow Nugget, as described and illustrated, and particularly characterized by its uniform deep yellow flower color, on both its top and under sides; excellent branching; dense foliage, and by its adaptability to growth in various pot sizes.

4,727

KALANCHOE PLANT

Cornelis P. Van den Berg, and James C. Mikkelsen, both of Ashtabula, Ohio, assignors to Mikkelsens Inc., Ashtabula, Ohio

Filed Mar. 26, 1980, Ser. No. 134,116
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of kalanchoe plant, known by the cultivar name Sensation, as described and illustrated, and particularly characterized by its excellent keeping quality, free branching habit, well clustered, red-purple flowers, highly floriferous and vigorous habit, and adaptability to various pot sizes and to growth regulators.

4,728

KALANCHOE PLANT

Cornelis P. Van den Berg, and James C. Mikkelsen, both of Ashtabula, Ohio, assignors to Mikkelsens Inc., Ashtabula, Ohio

Filed Mar. 26, 1980, Ser. No. 134,127
Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of kalanchoe known by the cultivar name Firefly, as described and illustrated, and particularly characterized by its large, bright yellow and well clustered flowers; vigorous plant growth relatively large leaves and strong peduncles, and by its adaptability to growth in varying size pots and to treatment with growth regulators.

PATENTS

GRANTED MAY 26, 1981

ERRATA

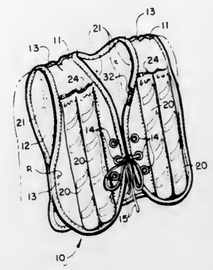
For CLASS	See PATENT NO.
434–330	4,268,978
434–046	4,268,979
368–073	4,269,025
411–034	4,269,106
081–460	4,269,246
411–186	4,269,248
294–163	4,269,337
493–437	4,269,402
369–256	4,269,416
354–323	4,269,501
075–101 R	4,269,699
562–600	4,269,705
518–718	4,269,783
518–715	4,269,784
424–274	4,269,873
219–438	4,270,067
368–118	4,270,068
307–221 D	4,270,144

PATENTS

GRANTED MAY 26, 1981

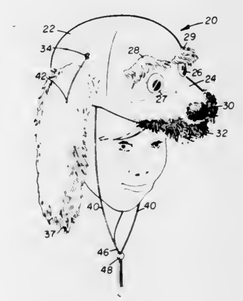
GENERAL AND MECHANICAL

4,268,917
VARIABLY WEIGHTED VEST
Emmett B. Massey, P.O. Box 685, Concord, N.C. 28025
Filed May 18, 1979, Ser. No. 40,185
Int. Cl.[3] A41D *1/04, 1/00;* A63B *21/12*
U.S. Cl. 2—102 **10 Claims**



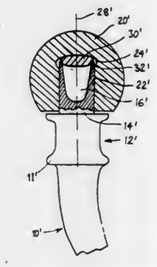
1. A variably weighted vest comprising front and rear panels, means joining the front and rear panels, together at their proximate top and side edges, the joining means at the side edges being above the waist and below the bustline of the wearer, fastening means on opposite sides of the front of the vest occupying only substantially the same horizontal plane as the joining means at the sides of the vest, pockets on the front and back panels of the vest for the reception of desired quantities of weighty material within the range of about one to about thirty pounds, and means for closing the pockets.

4,268,918
NOVELTY CAP
Lois E. Lee, 1917 Oregon St., Berkeley, Calif. 94703
Filed Apr. 25, 1980, Ser. No. 143,946
Int. Cl.[3] A42B *1/24*
U.S. Cl. 2—199 **5 Claims**



1. A novelty cap comprising:
a dome-shaped crown portion whose major diameter is adjustable to fit various head sizes;
a forwardly extending brim located on a front end of the cap;
a first pair of small holes, each of which is located midway up the cap dome on opposite sides of the cap brim;
at least one movable animal feature directly integral with the outer surface of the cap crown portion;
first string connector means having outer end portions connected to the movable animal features;
said string connector means extending through the first pair of holes and downwardly below the cap to form a first loop which can easily fit under the chin of a wearer of the cap;
whereby the wearer of the cap can cause movement of the animal features by pulling and releasing the string loop.

4,268,919
JOINT ENDOPROSTHESIS
Anton Zeibig, Ottensoos, Fed. Rep. of Germany, assignor to Rosenthal Technik AG, Fed. Rep. of Germany
Division of Ser. No. 808,449, Jun. 21, 1977, Pat. No. 4,198,711.
This application Aug. 3, 1979, Ser. No. 63,153
Claims priority, application Fed. Rep. of Germany, Oct. 14, 1976, 2646478
Int. Cl.[3] A61F *1/24*
U.S. Cl. 3—1.91 **7 Claims**



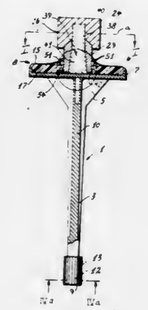
1. Joint endoprosthesis, comprising: an implantable shaft; said shaft having an end; a pin formed at said end of said shaft; said pin having a free end; said pin having a recess defined therein by the material of said pin and extending from said pin free end, and by means of said recess in said pin, the radial compressibility of said pin being increased in the zone of said pin through which said recess passes;
a pivot body having a hole defined by the material of said pivot body, and extending into said pivot body; said hole being shaped such that said pivot body is press fit onto and over said pin free end; said pin recess extending a first distance along the length of and inside of said hole;
a wedging member, positioned in said hole at said free end of said pin and at said recess for being urged into said recess for spreading said pin at said free end thereof, thereby to secure said pin in said hole in said body; said wedging member being generally disc shaped and being shorter in its height dimension into said recess than said first distance, whereby said wedging member is so shaped with respect to the shape of said recess, that said wedging member applies force to spread said pin free end; said wedging member and said hole being so shaped as to clamp said wedging member against said free end of said pin just inside said recess of said pin for squeezing said wedging member against said pin, thereby to secure said pin in said hole.

4,268,920
ENDOPROSTHESIS FOR A KNEE JOINT
Eckart Engelbrecht, Hamburg, and Elmar Nieder, Jork, both of Fed. Rep. of Germany, assignors to GMT Gesellschaft für med. Technik mbH, Hamburg, Fed. Rep. of Germany
Filed Sep. 29, 1978, Ser. No. 946,872
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1977, 2744710
Int. Cl.[3] A61F *1/03*
U.S. Cl. 3—1.911 **32 Claims**

1. In a knee joint endoprosthesis including a femoral compo-

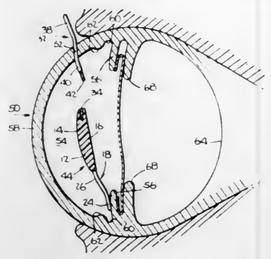
nent, a tibial component and slide bearing means joining the femoral and tibial components to one another and supporting the femoral component on the tibial component; the improvement wherein said slide bearing means comprises

(a) a platform affixed to said tibial component and having
  (1) first and second planar support surfaces spaced from one another and
  (2) an elevation situated between said planar support surfaces and rising above their level; said elevation having first and second inclined lateral surfaces oriented towards the respective first and second planar support surfaces and sloping towards the femoral component;
(b) articulating means mounted on said platform between said planar support surfaces and adjacent said elevation; said articulating means being jointed to said femoral component to provide for flexing motions, rotary motions and shifting motions of said femoral component and said tibial component with respect to one another; said flexing motions having a pivotal axis and a direction which lies in a plane perpendicular to said planar support surfaces of said platform; said rotary motions having a rotary axis perpendicular to said planar support surfaces of said platform; said shifting motions being displacements of said femoral component and said tibial component toward or away from one another; and
(c) first and second parallel-arranged, spaced skid-shaped members affixed to said femoral component and having respective curved first and second bearing faces normally engaging respective said first and second planar support faces of said platform; said skid-shaped members flanking said elevation, whereby upon rotary motion of said femoral and tibial components with respect to one another about said rotary axis, said first and second bearing faces run up on respective said first and second inclined lateral surfaces of said elevation effecting a shifting motion of said femoral and tibial components away from one another.

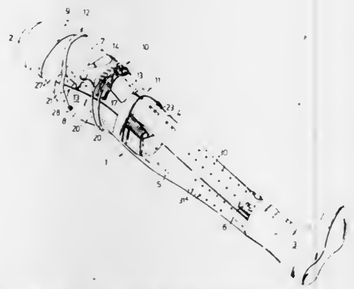


4,268,921
INTRAOCULAR LENSES
Charles D. Kelman, 73 Bacon Rd., Old Westbury, N.Y. 11568
Filed Oct. 22, 1979, Ser. No. 86,804
Int. Cl.³ A61F *1/16, 1/24*
U.S. Cl. 3—13 **26 Claims**

26. An intraocular insert suitable for use as an artificial lens in the interior of a human eye, said eye interior having a groove extending circumferentially at upper and lower portions of the eye when viewed in cross-section, said upper and lower groove portions having respective interior peripheral surfaces, said insert comprising a medial light-focusing lens body with first and second opposite peripheral sections corresponding to said upper and lower groove portions, first position fixation means comprising a first support member joined to said first peripheral section of said lens body and extending generally radially beyond said first peripheral section to define a first seating portion engageable with one of said groove portions, second position fixation means comprising independent second and third members joined to said second peripheral section of said lens body said second and said third support members extending radially beyond said second peripheral section at a predetermined angle with respect to each other to define respective second and third seating portions engageable with the other said groove portion such that the engagement of the first and second position fixation means with respective said groove portions align the lens body with respect to the pupil of the eye, at least one of said second and said third support members being formed separately of and detached from said lens body for connection to said lens body when said insert is inserted into said eye and means for connecting said one of said second and said third support members to said lens body.

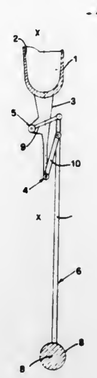


4,268,922
PREFABRICATABLE, ARTIFICIAL LOWER LEG
Gunnar Marsh, Karlskrona, and Christer B. Olander, Lyckeby, both of Sweden, assignors to Landstingens Inköpscentral, Lic, ekonomisk förening, Solna, Sweden
Filed Oct. 9, 1979, Ser. No. 82,757
Claims priority, application Sweden, Oct. 12, 1978, 7810653
Int. Cl.³ A61F *1/08*
U.S. Cl. 3—21 **8 Claims**



1. A prosthesis for replacing an amputated lower leg comprising a front plate and a back plate opposing the front plate, said plates having lower portions and upper portions and being rigidly joined to each other at their lower portions and adapted to be articulately connected at their lower portions to a prosthetic foot, the upper portion of each plate being shaped as a sleeve half and cooperating with the other sleeve half in a circular configuration to form an upward bowl-like enlarged carrying sleeve, the material of the plates being sufficiently spring-like to allow the upper portions of the plates to be resiliently pulled apart so that a leg stump can be inserted into the carrying sleeve; means for pulling the sleeve halves together so as to maintain a firm grip around a leg stump, means for laterally adjusting the prosthesis relative to a stump, and means for fixing the prosthesis longitudinally relative to a stump.

4,268,923
THIGH PROSTHESIS
Lamberto Staffieri, Via Matteotti 28, Torbole Sul Garda, Italy
Filed Jan. 17, 1980, Ser. No. 112,763
Int. Cl.³ A61F *1/04, 1/08*
U.S. Cl. 3—22 **6 Claims**



1. A thigh prosthesis or artificial leg comprising an upper socket portion designed to be secured, in use, to an amputee's stump, a lower leg portion, an articulation frame joining the socket portion to the leg portion, and resilient means for limiting and cushioning the articulation motion of the said articulation frame;

the said socket portion having a downwardly extending projection carrying a lower pivot mounting and an upper pivot mounting which is arranged in a forward position, in the forward deambulation direction, with respect to the said lower pivot mounting and is in vertical misalignment therewith;

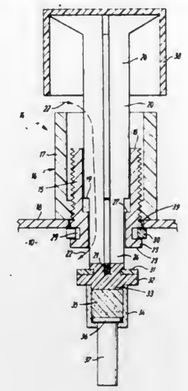
the said leg portion comprising a rod or bar carrying a weight or foot at its lower end and being linked to the said articulation frame at, or close to, its upper end; and

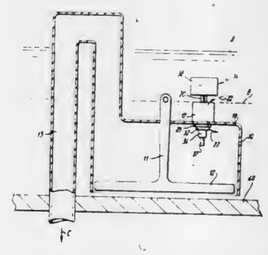
the said articulation frame includes at least one upper link transversely extending with respect to the said downwardly extending projection and being secured at one end thereof to the said upper pivot mounting and at the other end thereof to the said upper end of said rod or bar, and at least one lower link having one end pivotally secured to the said lower pivot mounting and its other end pivotally secured to the said rod or bar in an intermediate position thereof close to its upper end.

4,268,924
SYPHON-OPERATED CLOSET BOWL FLUSH TANK
William Price, 7 Fletcher St., and Howard W. Ellison, 25 Burgess Ave., both of Warrington, England
Filed Nov. 13, 1979, Ser. No. 93,109
Claims priority, application United Kingdom, Nov. 11, 1978, 44166/78
Int. Cl.³ E03D *1/08, 1/14, 3/12*
U.S. Cl. 4—373 **5 Claims**

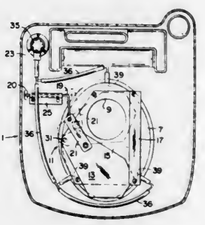
1. In a syphon-operated closet bowl flush tank of the kind comprising an inverted bell containing a liftable plunger disc to initiate syphon action, a valve comprising:

(a) a tubular body part mounted vertically on the top of the bell and extending above said bell;
(b) a stem movable in and guided by the body part, shaped to define a flow path through the body part, and having lower and upper portions extending respectively below and above the top of the bell;
(c) a valve seat on a downward facing surface of the body part inside the bell;
(d) a co-operating valve seat on an upwardly facing surface on the lower portion of the valve stem; and
(e) a float on the upper portion of the valve stem: arranged so that: with the tank filled with water, the float acts on the stem to urge the valve seats together; with the plunger lifted and retained lifted, the seats are held together; and with the plunger lifted and released immediately after the flush starts the float falls as water level falls so that the seats move apart to allow air to enter the bell when the water level reaches the top of the tubular body part to break the syphon and arrest the flush.





4,268,925
SEWAGE TREATMENT SYSTEM
Elwood Marple, Tampa, Fla., assignor to W. L. Burke, Inc., Brandon, Fla.
Continuation of Ser. No. 22,860, Mar. 22, 1979, abandoned. This application Jan. 3, 1980, Ser. No. 109,202
Int. Cl.³ A47K *11/02*
U.S. Cl. 4—449 **12 Claims**



1. A biochemical sewage treatment system for progressive

digestion of organic material disposed in water, comprising in combination:

a main digestive tank for receiving the organic material;

a weir disposed in said main digestive tank dividing said main digestive tank into a first chamber and a second chamber;

a first and a second air diffusor respectively disposed in said first chamber and said second chamber for aeration of the organic material;

the floors of said first chamber and said second chamber sloped downwardly toward said weir;

a series of secondary digestion tanks serially disposed in fluid communication with said main digestive tank to progressively digest the organic material;

an air diffusor disposed in one of said secondary digestion tanks to aerate the organic material;

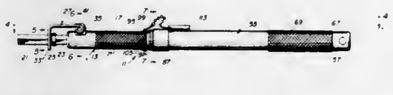
a final digestion tank disposed in fluid communication with the last said secondary digestion tank for storing the essentially organic-free water.

4,268,926

RESCUE TOOL

George F. Roxton, Wheeling, Ill., assignor to Paratech Incorporated, Frankfort, Ill.

Filed Dec. 1, 1978, Ser. No. 965,577
Int. Cl.³ B25D *1/04*
U.S. Cl. 7—143 13 Claims



1. A rescue tool comprising:

an extended hollow housing;

a tool bit having a shaft mounted in one end of said housing for reciprocable motion within a relatively short length of said housing;

retention means for selectively preventing the removal of said tool bit from said housing and for limiting the extent to which said tool bit travels into said housing;

a substantially solid hammer extending into said holding from the end opposite said tool bit and mounted for reciprocable motion therein to strike said tool bit, said hammer extending for the greater portion of the length of said housing when striking said tool bit;

a shroud adapted to be gripped by the human hand and fitting over a portion of said housing with sufficient clearance to permit reciprocation relative thereto, said shroud secured to said hammer at the end of said hammer away from said tool bit to provide for manual reciprocation of said hammer with respect to said housing;

lock means for selectively preventing relative movement between said hammer and said housing to permit use of the rescue tool as a pry bar;

a keeper flange with an outer diameter greater than the outer diameter of said housing but slightly less than the inner diameter of said shroud, said keeper flange being mounted on the end of said housing away from said tool bit;

a counterbored portion of said shroud at its end toward said tool bit;

a groove formed in said counterbored portion of said shroud;

a lock ring having an outer diameter slightly less than the inner diameter of said counterbored portion of said shroud and an inner diameter less than the outer diameter of said keeper flange; and

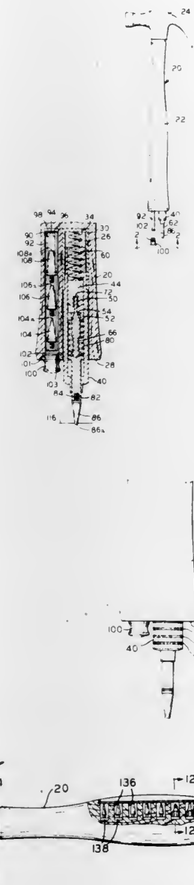
a snap ring to fit in said groove and hold said lock ring in said counterbored portion of said shroud, said lock ring engaging said keeper flange to prevent complete withdrawal of said hammer from said housing.

4,268,927

COMBINATION TOOL

Phillip P. Bridwell, R.R. #1, P.O. Box 535, Anna, Ill. 62906

Filed Feb. 26, 1979, Ser. No. 14,969
Int. Cl.³ B26B *9/02;* B26F *1/00*
U.S. Cl. 7—143 10 Claims



1. A tool comprising:

an elongated hammer handle adapted to receive a hammer

head at one end and having an elongated cylindrical passage with an opening at the other handle end;

an elongated cylinder member having a cylinder axis and being inserted in said opening;

an impact member reciprocably mounted for inward and outward movement in said cylinder and extendible outwardly from said opening;

impact means mounted in said cylinder for providing a sudden impact force to drive said member outwardly from said opening upon a predetermined inward movement of said member and including adjustment means for providing manual adjustment of the impact force of said impact means, said impact means further comprising a spring loaded drive piston reciprocably mounted in said cylinder, and said adjustment means comprising means for varying the spring preload of said drive piston;

said cylinder member extending outwardly from said other end of said handle by an amount which is related to the preload on said spring;

axially spaced markings on said cylinder member, said markings being successively visible as said cylinder member is threadedly adjusted from said cap outwardly from said other end of said handle;

a plurality of differently marked impact tools each for use with a respective different adjusted position of said cylinder member as indicated by the nearest visible first marking to said other end of said handle; and

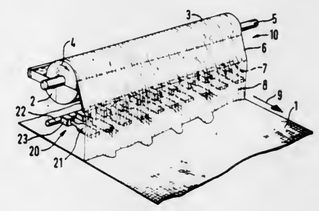
said impact means having means for releasably retaining an impact tool, whereby by matching the markings of said tools to a respective marking on said cylinder member that is first visible will obtain the proper impact force for each tool.

4,268,928

METHOD AND APPARATUS FOR APPLYING A LIQUID ON A MOVING WEB IN PATTERNS

Heinz Grüber, Tönisvorst, Fed. Rep. of Germany, assignor to Eduard Küsters, Krefeld, Fed. Rep. of Germany

Division of Ser. No. 918,947, Jun. 26, 1978, Pat. No. 4,202,188.
This application Mar. 13, 1980, Ser. No. 130,099
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1977, 2730891
Int. Cl.³ D06B *11/00*
U.S. Cl. 8—149 6 Claims



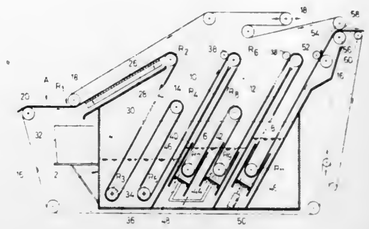
1. In a method for applying a liquid to a moving web in patterns, wherein a cohesive liquid shroud falling on the web from above is interrupted in a pattern, the improvement comprising blowing a fluid medium transversely against the falling shroud to displace portions thereof without affecting said cohesiveness.

4,268,929

METHOD AND APPARATUS FOR CLEANING RUGS AND MATS

Finn L. Sörensen, and Robert Neubert, both of Hornslet, Denmark, assignors to Clean-Tex A/S, Mörke, Denmark

Filed Feb. 4, 1980, Ser. No. 118,090
Int. Cl.³ D06B *3/12, 3/20;* B08B *3/10*
U.S. Cl. 8—151 11 Claims



1. A method for cleaning of rugs and mats having a nap or pile on one side, preferably for washable dust control mats, whereby the mats are successively conveyed along a conveying path and are exposed to different cleaning operations in a number of stations, characterized in that the mats in at least one of the stations are exposed to a relatively abrupt change of direction of conveyance in order to open an area of pile at the pile side of the mat, and that the opened pile area is exposed to a pulsating fluid pressure.

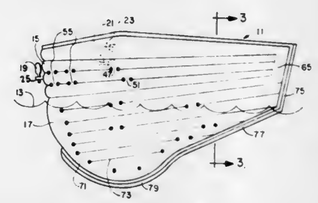
3. A washing machine for cleaning rugs or mats having a nap or pile on one side thereof, e.g. washable dust control mats, the machine comprising a mat treatment vessel and guiding and conveying means to convey mat successively along a bandlike conveying path through the treatment vessel, characterized in that the guiding and conveying means are arranged so as to define a conveying path showing a relatively sharp bend at a predetermined treatment position in said vessel to effectively cause the nap or pile in the bent area to open or expand when it passes through said bend, said nap or pile in said bend being the radially outermost part or layer of the mat, and that a fluid pulsating means is arranged in the vessel operable to expose the area of the nap or pile thus opened or expanded to a fluid pulsation treatment.

4,268,930

INFLATABLE MINI BOAT

George P. Gillespie, Plumstead Township, Bucks County, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 1, 1977, Ser. No. 812,034
Int. Cl.³ B63B *7/00*
U.S. Cl. 9—2 A 2 Claims



1. An inflatable boat having a hull of inner and outer panels contoured to closely conform to an occupant seated in the stern with his legs extended forwardly, and partitioned by continuous seams between the opposed surfaces of said panels into first and second separately inflatable cells co-directional with the length of said boat; wherein the improvement comprises:

first and second intercommunicating sections formed in said second cell respectively above and below the first cell, said first section forming thereby the gunwale of said boat; and

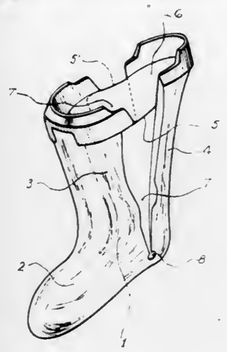
first and second inflatable channels disposed in the bow of said boat intercommunicating between said first and second sections and causing the bow to assume a blunt shape.

4,268,931

PROCESS OF MANUFACTURING AN INNER BOOT

Georges P. J. Salomon, Annecy, France, assignor to Etablissements Francois Salomon et Fils, Annecy, France

Filed Oct. 19, 1977, Ser. No. 843,381
Claims priority, application France, Oct. 21, 1976, 76 31719
Int. Cl.³ A43D *9/00*; A43B *5/04, 3/10*
U.S. Cl. 12—146 R **9 Claims**



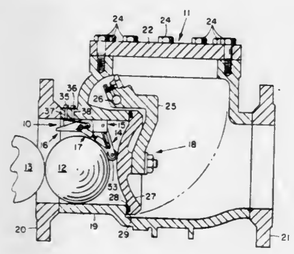
1. Molding process for an article of footwear to be placed in a boot, said article of footwear being molded as a single piece with its upper part having substantially the shape of said article in its open position, whereby said article can be conveniently put on and taken off.

4,268,932

SPHERE LAUNCHING APPARATUS

Alfred D. Hogan, Tulsa, Okla., assignor to Geosource, Inc., Houston, Tex.

Filed Mar. 23, 1979, Ser. No. 23,233
Int. Cl.³ B08B *9/04*
U.S. Cl. 15—104.06 A **26 Claims**



1. A sphere launching apparatus for use with a valve having a valve closure member for releasing spheres into a pipeline, comprising:

a support means for mounting adjacent a valve closure member of a valve;

a sphere releasing means having a first pivot axis pivotally mounted on the support means about the first pivot axis for operatively engaging the valve closure member on the valve to provide angular movement to the releasing means in response to angular movement of the valve closure member between open and closed positions;

a sphere catcher means having a second pivot axis pivotally mounted on the support means about the second pivot axis spaced from the first pivot axis for releasably engaging a sphere; and

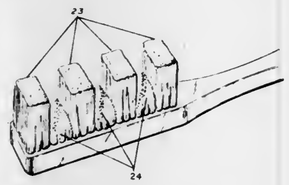
actuating means operatively connecting the releasing means and catcher means for pivoting the catcher means to provide angular movement of the catcher means into and out of engagement with successive spheres upon angular pivoting of the releasing means to position a sphere for release and to release a single sphere upon opening and closing of the valve closure member.

4,268,933

BRISTLES FOR AN INTERPROXIMAL AND PERIODONTAL TOOTHBRUSH

Sophia Papas, 49 Mellow La., Jericho, N.Y. 11753

Filed Nov. 30, 1979, Ser. No. 98,859
Int. Cl.³ A46B *9/04*
U.S. Cl. 15—167 R **3 Claims**



1. In a toothbrush having bristles attached to the end of a rigid frame for the purpose of inserting the bristles into the mouth to brush the teeth, wherein the improvement comprises:

(a) groups of long, soft, bristles alternating with groups of shorter, soft, bristles from which shorter bristles are shaped four (4) sloping sides rising together to form the apex of a pyramidal shaped group, and

(b) which group of pyramidal shaped, soft bristles, begin at the perimeter of the base of the pyramid, on the frame, with bristles rising, convexly, from the perimeter of the four sides to a common apex shorter in height than the bristles of the longer clump, with two of the four sides perpendicular to the long axis of the frame and the other two sides, opposite each other, parallel to the long axis of the frame, and

(c) with the spacing of the alternating clumps of different sized bristles closely approximating the average width of the teeth with the longer bristles fitting into and between the spaces between the teeth, and the shorter pyramidal bristles fitting reversely into the gingival border around the base of the crowns of the teeth, and

(d) allowing the bristles to both clean the crowns and the spaces between the teeth while at the same time massaging and exercising the gingiva bordering the teeth.

4,268,934

CLEANER FOR CIRCUIT BOARDS

Anthony Q. Testone, Lee, Mass., assignor to Statics, Inc., Lee, Mass.

Filed Sep. 12, 1979, Ser. No. 74,739
Int. Cl.³ A47L *5/22*
U.S. Cl. 15—306 B **21 Claims**

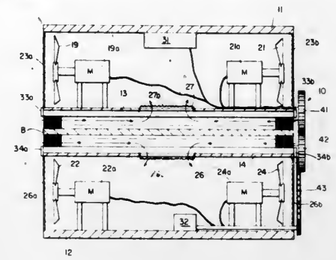
1. A cleaner for a printed circuit board or the like comprising:

an upper hollow, elongate housing having a lower wall having an aperture therein,

a lower hollow, elongate housing having an upper wall having an aperture therein,

means for mounting said housings with their longitudinal axes substantially parallel with their said walls spaced apart to provide a slot therebetween having ends, an entry portion between said ends in advance of said apertures and an exit portion between said ends behind said apertures,

means for drawing air into said housings through said apertures, and



means for restricting entry of air into said slot to the ends thereof,

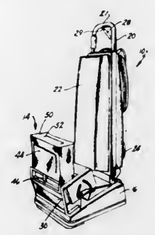
whereby a circuit board passing from said entry portion to said exit portion along a path across said slot is swept by air entering said slot at the ends thereof and entering said housings through said apertures.

4,268,935

CARPET CLEANING MACHINE

Walter L. Bessinger, Grand Haven, Mich., assignor to Clarke-Gravely Corporation, Muskegon, Mich.

Division of Ser. No. 921,194, Jul. 3, 1978. This application Sep. 21, 1979, Ser. No. 77,569
Int. Cl.³ A47L *11/202*
U.S. Cl. 15—320 **20 Claims**



1. In combination, a vacuum cleaner of the type including a housing, an agitator brush rotatably supported within said housing, a suction nozzle, a dust collection tank, and a source of vacuum connected to said nozzle by a suction passage and an attachment for dispensing a powdered cleaning compound adjacent said agitator brush, the attachment including a hopper defining an elongated outlet slot and being securable to said cleaner housing, said attachment further including rotatable discharge assistant means supported within said hopper for metering said powder to said outlet slot, the improvement comprising:

means carried by said hopper for rotating said discharge assistant means including an air driven turbine having an air inlet and an air outlet passage;

an air throttle valve disposed within said turbine outlet passage;

an operator control member mounted on said cleaner; and

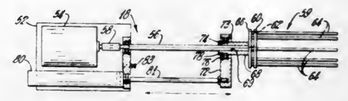
connection means permanently mounted on said vacuum cleaner and said hopper for automatically connecting said operator control member to said air throttle valve upon attachment of said dispensing attachment to said vacuum cleaner housing.

4,268,936

APPARATUS FOR CHOPPING STRANDS

Fred S. Coffey, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 10, 1979, Ser. No. 65,690
Int. Cl.³ D01G *1/04*
U.S. Cl. 19—0.56 **6 Claims**



1. Apparatus for removing undesirably long sections of strand from advancing discrete segments of strand comprising:

means for forming said discrete segments of strand;

drive means for rotating a shaft;

a first member rigidly fastened at the distal end of said shaft, said member having a plurality of apertures adapted to slidably receive a plurality of after-defined rods adapted to collect said undesirably long sections of strand thereon;

a second member adapted to move along the length of said shaft; and

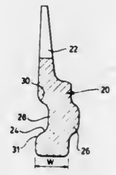
a plurality of rods rigidly fastened to said second member such that as said second member is moved along the length of said shaft, said rods are moved through said first member such that said undesirable sections of strand attached to said rods are removed therefrom.

4,268,937

METALLIC WIRE TYPE CARD-CLOTHING

Keith Grimshaw, Todmorden, England, assignor to The English Card Clothing Company Limited, Huddersfield, England

Filed May 24, 1979, Ser. No. 42,113
Claims priority, application United Kingdom, May 25, 1978, 22658/78
Int. Cl.³ D01G *15/88*
U.S. Cl. 19—114 **10 Claims**



1. Interlocking metallic wire type card-clothing having a rib portion and a tooth portion, a male section protruding along one side of said rib, and a female section formed in the other side of said rib, the pitch width of said rib measured from one flank to the other being not greater than 1.65 millimeters, and the maximum depth of said female section, measured from the flank of the female side of said rib, and perpendicular to that flank, being not substantially greater than half the pitch width of said rib.

4,268,938

CLOSURE DEVICE FOR CONTAINER

John R. Walchli, Palos Verdes Estates, Calif., assignor to Enviropak Inc., El Segundo, Calif.

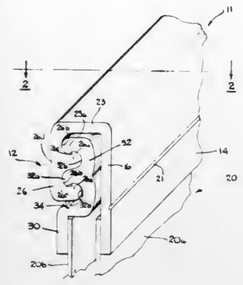
Filed Jul. 23, 1979, Ser. No. 59,975
Int. Cl.³ A44B *19/10*
U.S. Cl. 24—201 C **5 Claims**

1. A closure for detachably joining together the edges of an opening in a container, said closure including first and second

elongated closure pieces each having an attachment flap attached to one of the edges of said opening and a fastener strip having alternate elongated grooves and hooked ridges which interlock with each other, the improvement wherein means is included in said second piece for forming a cover over the joining edges of said closure comprising:

a riser portion attached at one end thereof to the attachment flap of said second piece and extending substantially normally therefrom and

a head portion attached at one end thereof to the other end



of said riser portion and extending substantially normally from said riser portion towards the fastener strip of said first piece,

the fastener strip of said second piece extending substantially normally from the other end of the head portion and opposite the riser portion,

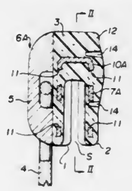
whereby the riser portion, head portion and fastener strip of said second piece form a cover over the closure thereby limiting access to the joinder edge of the closure to the portions thereof directly opposite the attachment flap of the first piece.

4,268,939

SLIDER FOR A LARGE SIZED SLIDE FASTENER

Takeo Fukuroi, Uozu, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Jul. 3, 1979, Ser. No. 54,439
Claims priority, application Japan, Jul. 7, 1978, 53/93721[U]
Int. Cl.³ A44B *19/00*
U.S. Cl. 24—205.15 R **7 Claims**



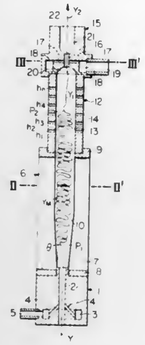
1. In a slider for a large sized slide fastener comprising a slider body of synthetic resin material and an integrally formed metal core member embedded in said slider body, said slider body including opposed top and bottom planes and a neck portion connecting said top and bottom planes at one end thereof, said core member including portions each corresponding to said top plane, the bottom plane and the neck portion of said slider body and substantially uniformly extending throughout the entire area of said slider body, characterized in that said core member including in the portions corresponding to the top plane, bottom plane and neck portion of said slider body a plurality of apertures or recesses which receive a portion of the synthetic resin material of said slider body upon molding thereof.

4,268,940

PROCESS AND APPARATUS FOR CRIMPING FILAMENT YARN

Toshimasa Kuroda, Takatsuki, and Mitsuo Matsumoto, Ibaraki, both of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Dec. 29, 1978, Ser. No. 974,463
Claims priority, application Japan, May 16, 1978, 53-57128
Int. Cl.³ D02G *1/12*
U.S. Cl. 28—255 **10 Claims**



1. In a process for fluid crimping filament yarn comprising forcing a hot fluid entrained filament yarn into a stuffing chamber in one direction to form a filament pad which extends into a staying control chamber downstream of said stuffing chamber, forcing a cold fluid into said staying control chamber from an opposite direction, exhausting the hot fluid from a hot fluid outlet located in said stuffing chamber, and exhausting the cold fluid through a plurality of exhaust orifices located in series along the length of said staying control chamber whereby the end of said filament yarn pad in said staying control chamber controls the number or orifices exposed for outlet of said cold fluid to control the back pressure acting on the filament yarn pad, the improvement comprising withdrawing the filament yarn from the end of said staying control chamber opposite said stuffing chamber through a yarn intermingle bore having a diameter less than the diameter of said staying control chamber and imparting a filament cohesion to the yarn by injecting said cold fluid into said yarn intermingle bore against said yarn through at least two cold fluid jet bores which are symmetrically and radially disposed at right angles to the yarn intermingle bore and which intersect said yarn intermingle bore between the midpoint of said yarn intermingle bore and said staying control chamber with the ratio of the total cross-sectional area of said jet bores to the cross-sectional area of said yarn intermingle bore being from 0.80 to 1.23.

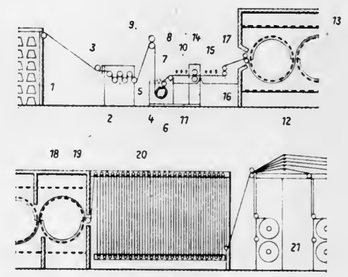
5. In an apparatus for crimping a filament yarn comprising a stuffing chamber having a hot fluid jet nozzle at one end thereof to plasticize and drive the filament yarn into said stuffing chamber and a hot fluid outlet to exhaust the hot fluid separated from the filament yarn supplied through said hot fluid jet nozzle, a staying control chamber disposed in communication with said stuffing chamber downstream thereof, said staying control chamber having a plurality of small outlet orifices for the exhaust of a cold fluid located in series along the length of said staying control chamber, the improvement comprising nozzle means located in said staying control chamber adjacent the end thereof opposite said stuffing chamber, a yarn intermingle bore extending through said nozzle means and having a diameter less than the diameter of said staying control chamber and at least two jet bores symmetrically intersecting said yarn intermingle bore radially at right angles thereto, said jet bores intersecting said yarn intermingle bore between the midpoint of said yarn intermingle bore and said staying control chamber and the ratio of the total cross-sectional area of the jet bores to the cross-sectional area of said yarn intermingle bore being from 0.80 to 1.23 whereby cold fluid may be injected into said bore through said jet bores to impact upon the filament yarn passing therethrough to impart filament cohesion to the yarn.

4,268,941

PROCESS FOR THE CONTINUOUS SHRINKING OF YARNS

Hans Fleissner, Riehen/Basel, Switzerland, assignor to Vepa Aktiengesellschaft, Riehen/Basel, Switzerland

Filed May 17, 1979, Ser. No. 39,891
Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2822026
Int. Cl.³ D02J *1/22*
U.S. Cl. 28—281 **6 Claims**



1. A process for the continuous shrinking of textile material by initially exposing the material to the effect of a hot treatment liquid prior to placing the material on a curved support, allowing the same hot treatment liquid to flow through the material, disposed loosely on the support to obtain complete shrinkage, and thereafter drying the material and setting the material on sieve drums under a suction draft, characterized by the steps of shrinking a plurality of twisted yarn threads in the wet state together in parallel, side-by-side relationship at temperatures of from about 60° to the boiling point of the treatment liquid; then cooling the threads by cold water and subsequently, in the wet state, to continue the thus initiated shrinking process, depositing the threads without tension on a first sieve drum of a plurality of successive drums subjected to a through flow of a heated gas, to develop the thus obtained shrinkage, during which the threads are initially gradually dried in the region of the saturation temperature limits, and compressed by differences in the speeds of the successive sieve drums, and only thereafter setting the shrinkage value, by drawing a gas heated to a temperature of from 180° to 200° C. through the threads which are further guided in parallel to one another on another sieve drum of said plurality of successive drums.

4,268,942

METHOD AND APPARATUS FOR MANUFACTURING BOXED ENCAPSULATED CAPACITORS

John R. Meal, Naperville, and Donald K. Sandmore, Oak Lawn, both of Ill., assignors to Western Electric Company, Inc., New York, N.Y.

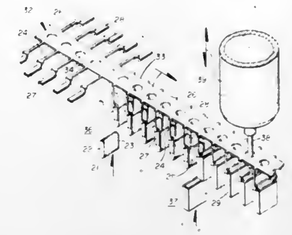
Filed Sep. 4, 1979, Ser. No. 72,394
Int. Cl.³ H01G *4/06*
U.S. Cl. 29—25.42 **8 Claims**

1. A method of encasing and encapsulating an electrical component, which comprises:

cyclically advancing a lead frame strip having pairs of depending leads between which are secured electrical components;

partially filling a succession of cases with encapsulant;

moving each case toward each advanced electrical component to partially submerge each of said components in said encapsulant;



supporting each of said cases during subsequent cyclic advance of the lead frame strip to advance the cases; and

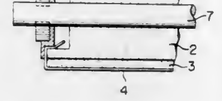
injecting into each of said subsequently advanced cases additional encapsulant to completely submerge the electrical component therein.

4,268,943

ELASTIC ROLLER FOR IMAGE FORMING

Tsuyoshi Watanabe, Kawasaki; Hidetoshi Murase; Akira Murayama, both of Yokohama, and Mikio Nakasugi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 9, 1979, Ser. No. 55,559
Claims priority, application Japan, Jul. 26, 1978, 53-91046
Int. Cl.³ B21B *27/02*; G03G *15/06*
U.S. Cl. 29—131 **9 Claims**



1. An elastic roller comprising an axial core member, and an elastic, liquid retentive layer of foam structure, having a uniform thickness, surrounding the circumference of said core member, said elastic roller further comprising a flexible, liquid permeable member in the form of a sleeve having an inner diameter smaller than the outer diameter of said roller, said flexible member being disposed to cover the circumference of said roller and having extensions extending beyond both ends of said roller and being shrunk along both ends of said elastic foam structure layer so as to cover also said both ends of the layer with said flexible member.

4,268,944

TENSION CONTROL OF FASTENERS

Siavash Eshghy, Pittsburgh, Pa., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Division of Ser. No. 912,151, Jun. 2, 1978, Pat. No. 4,179,786, which is a continuation-in-part of Ser. No. 766,429, Feb. 7, 1977, Pat. No. 4,106,570, and Ser. No. 712,554, Aug. 9, 1976, abandoned. This application Apr. 19, 1979, Ser. No. 31,352
Int. Cl.³ B23P *19/06*
U.S. Cl. 29—407 **6 Claims**

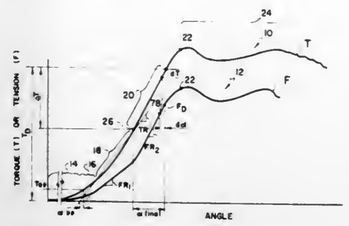
1. A method of tightening seriatim a multiplicity of substantially identical joints comprising a plurality of pieces and a

threaded fastener pair including first and second components for clamping the pieces together, comprising

applying torque to the fastener pair for threadably advancing the same and imparting tension to the first component;

determining the torque rate of the fastener pair;

normally terminating tightening of the fastener pair in response to a tightening parameter at a tension value adjacent a desired final tension value;



determining whether the first fastener component is developing tension including comparing the determined torque rate with a predetermined minimum torque rate; and

terminating tightening of the fastener pair prior to the attainment of the tightening parameter in the event the determined torque rate is below a minimum predetermined torque rate.

4,268,945

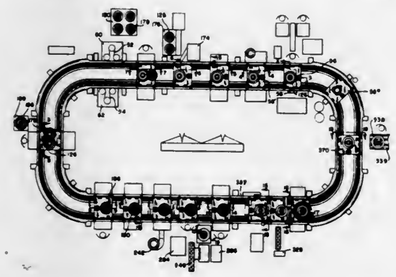
METHOD OF ASSEMBLYING A SEALED STRUCTURE

William L. Van Arman, Niles, Mich.; Russell A. Kambs, Michigan City, Ind.; Steven G. Ivankovics, South Bend, Ind.; Frederick W. Hansen, South Bend, Ind., and Thomas M. Julow, South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Jun. 5, 1979, Ser. No. 45,713

Int. Cl.[3] B23Q *17/00*

U.S. Cl. 29—407 **19 Claims**



1. A method of assembling a servomotor wherein a first shell having a first peripheral surface is located on a fixture, a diaphragm assembly is positioned on the first peripheral surface to define a first chamber between the first shell and the diaphragm assembly, a spring is connected to the diaphragm assembly, and a second shell having a second peripheral surface is placed on the spring, the improvement comprising:

applying a force for moving the second shell in opposition to the spring toward the first shell unit the diaphragm assembly is between the first and second peripheral surfaces, said diaphragm assembly and second shell defining a second chamber;

evacuating air from the first and second chambers to create a pressure differential therebetween with the surrounding environment; and

removing said force from the second shell, said pressure differential acting on said first and second shells to hold the first and second peripheral surfaces against the diaphragm assembly until such time as any air may enter the first and second chambers and allow said spring to urge the second shell away from the first shell.

4,268,946

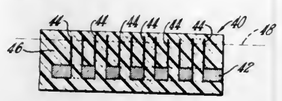
METHOD FOR FINISHING A PLATE

Arnold J. Eisenberg, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jun. 8, 1977, Ser. No. 804,825

Int. Cl.[3] B23P *17/00*

U.S. Cl. 29—424 **11 Claims**



1. Method of finishing a high temperature resistant plate having projections extending therefrom for use in the manufacture of glass fibers comprising:

(a) reinforcing the projections of the plate with a material which can be removed without damage to the reinforced projections;

(b) cutting off the end regions of the reinforced projections such that the projections extending from the plate are each of a desired length; and

(c) removing the material.

4,268,947

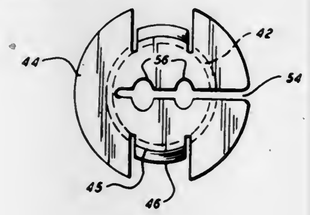
METHOD OF SECURING A CAPILLARY TUBE PASSING THROUGH A WALL

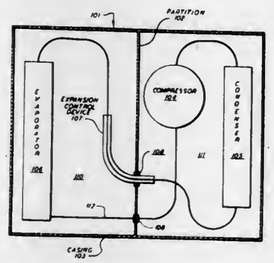
James R. Hile, Kirkville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 828,447, Aug. 29, 1977, Pat. No. 4,175,402. This application Dec. 14, 1978, Ser. No. 969,507

Int. Cl.[3] B23P *11/02*

U.S. Cl. 29—451 **2 Claims**





1. A method of securing at least one small diameter component in an opening extending through a wall of a refrigeration machine which comprises the steps of:

securing the component in a retainer plate having apertures for the receipt of the component, said step of securing including

forming a slot in the retainer plate, said slot joining the apertures of the retainer plate to an exterior edge of the retainer plate;

spreading the retainer plate such that the component may be slid into the slot therein;

sliding the component into the slot to an aperture where the component may be secured; and

releasing the retainer plate so that the component is secured within the aperture connected to the slot; and

affixing the retainer plate to the wall, said retainer plate having a body attached thereto and at least one fastening leg formed from the body but movable separate therefrom and wherein the step of affixing further includes

compressing the fastening leg; and

inserting the compressed fastening leg through the opening in the wall such that the fastening leg resumes its original position contacting the wall on one side and the retainer plate contacting the wall on the other side such that the retainer plate is secured to the wall and the component are secured within the retainer plate.

4,268,948

PARTING DEVICE

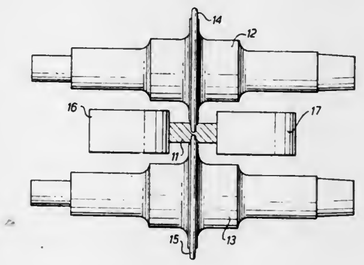
Per O. Strandell, Taeby; Erik M. Thorslund, Upplands Vaesby, both of Sweden; Colin R. MacKenzie, Motherwell, and Norman Smith, Wishaw, both of Scotland, assignors to British Steel Corp., London, England

Filed Feb. 12, 1979, Ser. No. 11,637

Claims priority, application United Kingdom, Feb. 28, 1978, 7899/78

Int. Cl.[3] B21B *1/44*

U.S. Cl. 29—527.6 **30 Claims**



1. A device for forming parting grooves in a flat plastically deformable metal workpiece having a maximum thickness of h_o by impressing tools into its opposite flat sides and permitting lateral spread of the workpiece, the portions of the tools forming the parting grooves each having the shape of a ridge which, when viewed in cross section, has substantially straight or slightly convexly curved convergent flank edges which at their closer ends merge into a straight or curved end edge, wherein the angle α included by chords through the end points of the flank edges is from 20° to 60°, the distance ϵ between the flank edges at their points of transition into the end edge is from 0.06 to 0.20, preferably from 0.07 to 0.16, times the maximum thickness h_o and also $\epsilon \cdot \tan \alpha/2$ exceeds 2.3 mm.

4,268,949

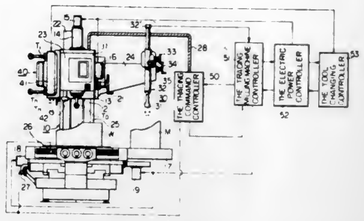
TRACING MILLING MACHINE

Makoto Sato, Aikawamachi, Japan, assignor to Makino Milling Machine Co., Ltd., Tokyo, Japan

Filed Oct. 4, 1979, Ser. No. 81,648

Int. Cl.[3] B23Q *3/157;* **B23C** *1/16*

U.S. Cl. 29—568 **6 Claims**



1. A tracing milling machine including a machine body, a vertical spindle head supporting therein a rotatable spindle to which a cutting tool is removably attached, a tracer portion having a displaceable tracer for tracing a model and a tracer head capable of issuing a signal that indicates the amount of displacement of the tracer, a movable work table on which the model and a workpiece to be machined into a product corresponding to the model are fixedly mounted, respectively, and a tracing milling machine controller for controlling a servo movement of the work table in a vertical and a horizontal direction upon being supplied with tracing commands and with the displacement amount signals of the tracer, wherein an improvement comprises a combination of:

means for issuing information that indicates the vertical and horizontal positions of said work table;

a tracing command controller for generating said tracing commands from selected tracing operation inputs and said position information, said tracing command controller being connected to said tracing milling machine controller and said position information issuing means;

an automatic tool changing means having a tool magazine for storing therein a plurality of cutting tools and a tool changing operating means for effecting the replacement of a cutting tool attached to said spindle by another cutting tool stored in said tool magazine at each tool changing time, said automatic tool changing means being attached to said machine body;

means for generating a signal indicating each of said tool changing times from said displacement amount signal issued by said tracer head, and;

a tool changing controller controlling the starting of a tool replacement operation of said automatic tool changing means in response to said tool changing time signal of said signal generating means.

4,268,950

POST-METAL ION IMPLANT PROGRAMMABLE MOS READ ONLY MEMORY

Pallab K. Chatterjee, Dallas, and Al F. Tasch, Jr., Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 5, 1978, Ser. No. 912,774

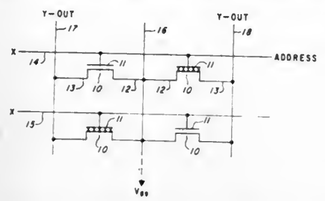
Int. Cl.[3] B01J *17/00*

U.S. Cl. 29—571 **10 Claims**

1. A method of making a read-only-memory comprising the steps of:

forming a plurality of insulated gate field effect transistors in a face of a semiconductor body, each of said transistors having a source, a drain and a gate, said transistors being in a regular pattern to provide an array of memory cells; and programming the array of memory cells by masked ion implant through the gate and gate insulator into said

semiconductor body beneath selected ones of said transistors, laser annealing to activate said implanted ions, and



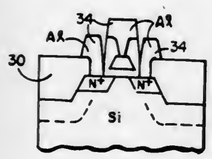
r.f. annealing to eliminate implant induced interface charge.

4,268,951

SUBMICRON SEMICONDUCTOR DEVICES

Michael T. Elliott, Cypress; Michael R. Splinter, Silverado; Addison B. Jones, Yorba Linda, and John P. Reekstin, Orange, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 13, 1978, Ser. No. 959,536
Int. Cl.³ B01J *17/00*
U.S. Cl. 29—571 **1 Claims**



1. A method of fabricating semiconductor devices having dimensions less than one micron, comprising the steps of

masking a suitable semiconductor substrate with etchant resist mask,

etching portions of the substrate in accordance with the pattern defined by the etchant resist mask,

implanting selected dopants into said substrate after masking,

growing an insulating layer onto the etched and implanted substrate,

further implanting the substrate in the region under said mask after removing the mask and after said growing step such that said substrate has dopants implanted therein at different depths,

growing a polycrystalline layer on said substrate after said further implanting step,

masking and etching said polycrystalline layer to leave a portion over said region,

additionally implanting said substrate using said polycrystalline portion as a mask to define self-aligned portions of a semiconductor device,

masking said additionally implanted substrate to define metallization patterns, and

metallizing said substrate to provide electrical contacts to selected portions thereof.

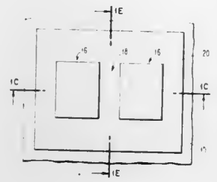
4,268,952

METHOD FOR FABRICATING SELF-ALIGNED HIGH RESOLUTION NON PLANAR DEVICES EMPLOYING LOW RESOLUTION REGISTRATION

Fritz H. Gaensslen, Yorktown Heights, and Eberhard A. Spiller, Mt. Kisco, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,461
Int. Cl.³ H01L *21/302*
U.S. Cl. 29—571 **5 Claims**





1. A method of fabricating structures containing high resolution conductive lines on a supporting substrate comprising the steps of:

applying a layer of resist material over a horizontal substrate at a first height level,

exposing patterns of selected regions of said resist material through a high resolution lithography mask,

etching said patterned layer of resist material and said substrate down to at least one other different height level wherein selected regions of said patterned resist material and said substrate material subtending said selected regions of said resist material are not etched due to said patterned exposure and remain at a said first height level wherein said first and at least one other different height levels are separated by vertical walls formed by said etching step, and the step of applying a layer of conductive material to said horizontal surfaces of said structure at said first and at least one other different height levels to produce conductive patterns, which are electrically isolated from each other by said vertical walls formed by said etching step and wherein said electrically isolated conductive patterns are electrically isolated by substantially zero distance separation in the horizontal direction to provide said high resolution.

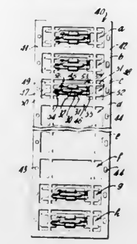
4,268,953

METHOD OF MAKING AN ENCAPSULATED MAGNETIC-REED SWITCH CIRCUIT ELEMENT ADAPTED FOR USE IN INTERCONNECTED ARRAY

Roland G. Tetro, Bristol, Conn., assignor to Transamerica DeLaval Inc., Princeton, N.J.

Division of Ser. No. 912,218, Jun. 5, 1978. This application Nov. 13, 1979, Ser. No. 93,177
Int. Cl.³ H01F *41/00;* **H01R** *43/00*
U.S. Cl. 29—602 R **5 Claims**

1. The method of making an encapsulated magnetic-reed switch circuit element adapted for use in interconnected array, which comprises selecting a blank of conductive sheet material, wherein the blank is a peripherally continuous elongate rectangular frame about an otherwise open lattice pattern of interconnected strips which are connected by a first severable-strip portion connecting the elongate sides of the frame near but spaced from one end of said frame and by a second severable-strip portion connecting the elongate sides of the frame near but spaced from the other end of the frame, there being two laterally spaced terminal-strip portions integral with and in cantilevered projection longitudinally from each of the first and second severable-strip portions toward but short of the adjacent end of the frame, there being a bus-strip portion near but laterally spaced from one of the elongate sides of the frame and integrally connecting the severable-strip portions at generally the alignment of the terminal-strip portions which are near the one elongate side of the frame, there being a mounting-strip portion integral with and in cantilevered projection from each of the first and second severable-strip portions and in the direction of the remote end of the frame and at generally the alignment of the terminal-strip portions which are near the other



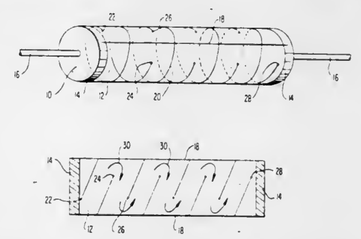
elongate side of the frame, selecting a resistor element and electrically connecting the same to and between the mounting-strip portions and at lateral offset from the frame, selecting a glass-enclosed magnetic-reed switch element and electrically connecting the same to and between one of the mounting-strip portions and the bus-strip portion, embedding said switch element and said resistor element and their connections to said lattice in an elongate body of plastic potting material, wherein the body is in lateral clearance with adjacent elongate sides of the frame and is in longitudinal clearance with said first and second severable-strip portions, and severing each of said severable strip portions (a) between terminal-strip portions associated therewith and (b) between each terminal-strip portion and the adjacent elongate side of the frame.

4,268,954

METHOD OF MAKING NON-INDUCTIVE CYLINDRICAL THIN FILM RESISTOR

D. Lamar Sease, Rouzerville, Pa.; Benjamin Solow, North Hollywood, Calif.; Eduard F. Boeckmann, Hagerstown, and David Rabinow, Rockville, both of Md., assignors to Angstrohm Precision Incorporated, Hagerstown, Md.

Division of Ser. No. 809,469, Jun. 23, 1977, Pat. No. 4,159,459. This application Mar. 2, 1979, Ser. No. 17,158
Int. Cl.³ H01C *17/06*
U.S. Cl. 29—620 **19 Claims**



1. A method of making a low-inductance electrical device comprising the steps of:

(a) depositing a resistive film on a generally cylindrical, insulating substrate; and

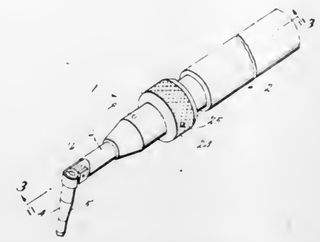
(b) forming said resistive film into a serpentine current path by cutting through the film substantially longitudinally to the axis of the substrate and also cutting through the film in the form of an interrupted spiral.

4,268,955

CONTACT INSERTION AND REMOVAL TOOL

William A. Daniels, Birmingham, Mich., assignor to Daniels Manufacturing Corp., Bloomfield Hills, Mich.

Continuation of Ser. No. 835,057, Sep. 21, 1977, abandoned. This application Mar. 22, 1979, Ser. No. 22,908
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—747 **10 Claims**



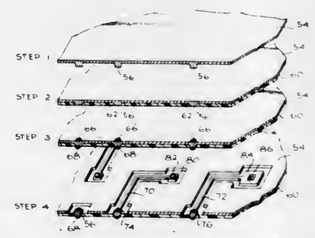
1. A manually operable tool for handling contacts in electrical connectors, comprising: an elongated handle housing having means for manually gripping and supporting the tool; a movable member longitudinally slidable in said housing; opposed parallel jaws affixed to the forward extremities of said member and said housing, respectively, said jaws having opposing, concave faces; spring means biasing said movable member with respect to said housing in a direction tending to close said jaws; and a collar surrounding said housing and being movable with respect thereto, said collar being connected to said movable member for manually moving said movable member relative to said housing.

4,268,956

METHOD OF FABRICATING AN INTERCONNECTION CABLE

Howard L. Parks, Woodland Hills, and John M. Kuronen, Camarillo, both of Calif., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Division of Ser. No. 841,917, Oct. 13, 1977, Pat. No. 4,184,729. This application Mar. 15, 1979, Ser. No. 20,714
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—869 **2 Claims**



1. A method of fabricating an interconnection cable including the steps of:

forming a laminate structure comprised of flexible layers of electrically-insulative and electrically-conductive material;

removing selective portions of said layer of electrically-conductive material to define an electrically continuous

ground plane and one or more circuit paths each physically spaced and electrically-isolated from said ground plane and from each other circuit path;

removing selected portions of said layer of electrically-insulative material to expose the bottom surface of said circuit paths; and

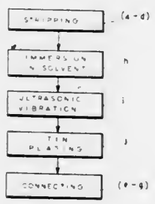
depositing ductile electrically-conductive material on the top surface of said circuit paths and on the exposed bottom surface of said circuit paths.

4,268,957

PROCESS FOR SPLICING A COAXIAL CABLE WITH A CONDUCTOR COMPOSED OF INDIVIDUALLY ENAMELED WIRE STRANDS TO A COAXIAL CONNECTOR

Anes Sbuelz, Milan, Italy, assignor to Italtel S.p.A., Milan, Italy

Filed Feb. 21, 1979, Ser. No. 13,230
Claims priority, application Italy, Feb. 21, 1978, 20426 A/78
Int. Cl.³ H01R *43/04*
U.S. Cl. 29—871 **5 Claims**



1. A process for splicing a coaxial cable to a coaxial connector, said cable having an inner and an outer conductor at least one of which is composed of individually enameled wire strands, a first layer of insulation separating said conductors, and a second layer of insulation surrounding said outer conductor, comprising the steps of:

(I) stripping away parts of said first and second layers to expose a tip of said inner conductor and a portion of said outer conductor, set back from said tip, on a cable extremity to be spliced;

(II) immersing said cable extremity in a solvent for the enamel covering said wire strands;

(III) removing the dissolved enamel by subjecting said cable extremity to ultrasonic vibration in a bath;

(IV) immersing said extremity in a chemical tin-plating solution; and

(V) thereafter joining said tip of said inner conductor and said portion of said outer conductor to corresponding conductors of said connector.

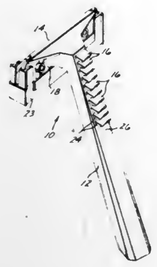
4,268,958

APPARATUS AND METHOD FOR COUNTING THE NUMBER OF SHAVES FOR WHICH A RAZOR BLADE IS USED

Ray Hilbert, 2085 Daisy Ave., Long Beach, Calif. 90806

Filed Nov. 1, 1979, Ser. No. 90,281
Int. Cl.³ B26B *21/00*
U.S. Cl. 30—34 A **2 Claims**

1. In a disposable razor having molded plastic handle with front and back surfaces and a blade holder within which a razor blade is captured, the improvement comprising a plurality of separate, manually frangible, thin plastic tabs all having bases and cantilevered tips protruding outwardly from said back surface of said handle at a uniform sloping angle thereto away from said blade holder, and said tabs are arranged in a row along the back surface of said handle with sharp demarkations defined between said bases and said back surface of said handle.

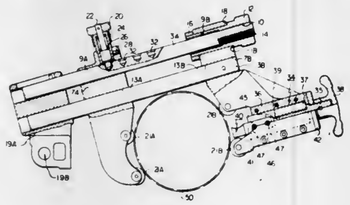


4,268,959

PIPE CUTTER

Tsuneo Taira, Nara, Japan, assignor to Rex Industries Co., Ltd., Osaka, Japan

Filed Feb. 22, 1979, Ser. No. 14,266
Claims priority, application Japan, Oct. 18, 1978, 53-142055[U]
Int. Cl.³ B23D *21/10*
U.S. Cl. 30—94 **2 Claims**



1. A pipe cutter comprising, in combination:

first and second support arms;

guide bar means receiving said support arms for relative sliding movement therebetween;

roller means on said support arms for engaging a pipe to be cut at at least three points around the periphery thereof;

a cutting bit carried by said first support arm for radial movement with respect to a pipe engaged by said roller means;

means operable to cause sliding movement of said first support arm with respect to said guide bar means;

and positioning means for said second support arm, comprising a plurality of aligned depressions spaced along said guide bar means and detent means carried by said second support arm for releasably engaging any one of the depressions to fix the position of said second support arm along said guide bar means,

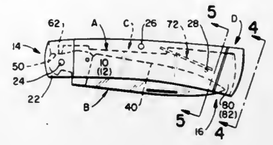
said detent means comprising a pin having a first end configured for reception in any of said depressions, means guiding said pin along an axis for movement toward and away from said guide bar means to enable insertion of said first end into and retraction of said first end from said depressions, means resiliently urging said pin towards said guide bar means, and means for manually actuating said pin away from said guide bar means.

4,268,960

KNIFE WITH BLADE LOCKING MECHANISM

Merwyn R. Reinschreiber, Lyndhurst, Ohio, assignor to Cole Consumer Products, Inc., Cleveland, Ohio

Filed Aug. 1, 1979, Ser. No. 62,671
Int. Cl.³ B26B *1/00*
U.S. Cl. 30—161 **7 Claims**



1. A self locking knife construction comprising in combination:

a handle including a pair of laterally spaced apart parallel side portions secured in a fixed relationship to each other for defining an elongated knife blade receiving channel therebetween, said handle side portions having elongated top and bottom edges, front end portions, and rear edges extending transversely between said top and bottom edges;

a knife blade having an elongated cutting edge portion and a tang portion, said blade being pivotally mounted at said tang portion to said handle intermediate said front end portions of said handle side portions for allowing pivotal movement of said blade between an extended position having said cutting edge portion thereof exposed and a retracted position having said cutting edge portion thereof received in said channel, said tang portion including a locking notch therein for receiving a releasable locking member when said blade is in said expanded position for locking said blade against movement toward said retracted position;

an elongated rocker arm positioned intermediate said handle side portions to extend over at least a major portion of the length of said handle side portions along said top edges thereof to form a wall-like area between said handle side portions and thereby define a pocket for said blade cutting edge portion when said blade is in said retracted position, said rocker arm including a forward end having a locking member which lockingly engages said tang portion locking notch when said blade is pivotally moved to said extended position, said rocker arm including a rearward end portion positioned axially beyond said rear edges of said handle side portions and extending along said rear edges of said handle side portions between said top and bottom edges thereof;

said rocker arm being pivotally mounted to said handle on a rocker arm pivot axis located intermediate said front end portions of said handle side portions and said rear edges thereof for movement of said rocker arm forward end toward and away from said blade tang portion;

spring biasing means received in said pocket acting against said rocker arm rearwardly of said rocker arm pivot axis to continuously urge said locking member into engagement with said tang portion; and,

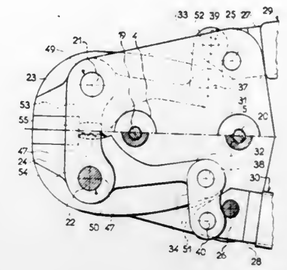
a handle end fixedly secured to said rocker arm rearward end portion adjacent said rear edges of said handle side portions, said handle end being selectively movable with said rocker arm rearward end portion relative to said rear edges of said handle side portions against the force of said spring biasing means to pivot said rocker arm about said rocker arm pivot axis and thereby move said locking member out of engagement with said locking notch for allowing movement of said blade from said extended to said retracted position.

4,268,961

CUTTING DEVICE IN PARTICULAR PIN CUTTING

Alfred Muller, Ottrott, and Jean-Paul Muller, Molsheim, both of France, assignors to J. Muller S.A., France

Filed May 15, 1979, Ser. No. 39,281
Claims priority, application France, May 17, 1978, 78 15170
Int. Cl.³ B26B *17/00*
U.S. Cl. 30—191 **6 Claims**



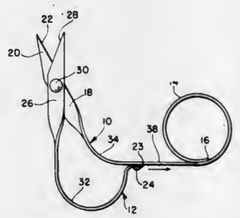
1. A cutting device, particularly a bolt cutting device comprising two parallel side plates spaced apart from one another, means rigidly connecting said side plates with one another, two cutting blades pivoted respectively around two fixed pins held by said side plates and having rear end portions extending rearwardly of said pivot pins, two lever arms pivoting respectively around two other fixed pins held by said side plates and having end portions extending forwardly of said latter pivot pins, pivot elements interposed between the rear ends of said cutting blades and the front ends of said lever arms respectively, said pivot elements being connected to the rear ends of said cutting blades and to the front ends of said lever arms by pivot pins having their longitudinal axes substantially perpendicular to the median axis of the cutting device, whereby a pull is exerted on each rear end of each cutting blade by said pivot elements upon movement of rear ends of said lever arms toward one another.

4,268,962

FINGER HELD SCISSORS

Joseph G. Doiron, Saugus, Calif., assignor to Donald Doiron, Saugus, Calif.

Filed Mar. 28, 1980, Ser. No. 135,208
Int. Cl.³ B26B *13/00*
U.S. Cl. 30—261 **9 Claims**



1. A pair of scissors comprising a pair of lightweight steel ribbonlike members,

said members having cutting edges at corresponding ends and including a pivot pivoting said members together for the severing operation,

one member extending for relatively longer length and terminating in a finger hold,

the second being provided with an intermediate curve forming an arc extending away from the first named member, and terminating in a free end slidably associated with a midpoint area of the first member.

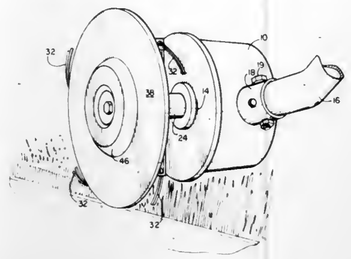
4,268,963
HAND TOOLS
Christopher R. B. Harrison, Porthcawl, Wales, assignor to Wilkinson Sword, Ltd., Buckinghamshire, England
Filed Sep. 7, 1979, Ser. No. 73,443
Claims priority, application United Kingdom, Sep. 9, 1978, 36286/78
Int. Cl.³ B26B *13/00*
U.S. Cl. 30—262 **3 Claims**



1. A hand tool comprising two cooperating members, two handles each secured to a separate one of said members, means interconnecting the members in mutually overlapping relationship to permit movement of the members relatively to one another by said handles, means defining an elongate slot in one of said members, the slot having a portion thereof which is enlarged in relation to the width of the remainder of the slot, a catch pin having a head portion of a size greater than said enlarged portion of the slot, a foot portion of a size to enable it to pass through the enlarged portion of the slot but not through the remainder of the slot and a shank portion interconnecting the head portion and foot portion and of a size to fit slidingly within the remainder of the slot, the catch pin being insertable into the slot before assembly of the tool, the other of said members having a recess in one edge thereof into which the catch pin can engage to lock the members against relative movement, the members in their assembled state overlapping to mask at least part of said enlarged portion of the slot and thereby prevent removal of the catch pin from the slot.

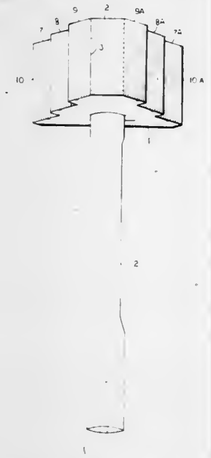
4,268,964
APPARATUS FOR CUTTING, TRIMMING AND EDGING VEGETATION AND THE LIKE
James R. Moore, Columbus, Miss., assignor to AMBAC Industries, Incorporated, Farmington, Conn.
Filed Jul. 2, 1979, Ser. No. 53,827
Int. Cl.³ A01D *50/00*
U.S. Cl. 30—276 **7 Claims**

1. An apparatus for cutting vegetation and the like comprising:
- a rotatable cutting head including attachment means for attaching at least one flexible flail which extends outward in a plane essentially perpendicular to the axis during rotation;
- handle means providing hand grip means and supporting the rotatable cutting head spaced from the handle means to enable a user, while standing, to support the cutting head near the ground in selected attitudes including with its axis of rotation generally perpendicular to the ground,
- a motor supported on the handle means remote from the hand grip so that its rotatable shaft and the cutting head which it supports and drives may be positioned selectively either generally parallel or perpendicular to the ground while held by the handle when the user is standing, and;
- a shield formed so as to alternatively function as a wheel that is rotatably supported on the drive shaft outboard from the cutting head, spaced from and parallel to the plane of rotation of the flail, so that the shield is independent of the



rotation of the shaft and is functionable in supporting and positioning the cutting head when its axis of rotation is horizontal to the ground.

4,268,965
MASONRY CLEANING TOOL
Henry E. Askew, 1249 S. 50th St., Birmingham, Ala. 35222
Filed Feb. 27, 1980, Ser. No. 125,290
Int. Cl.³ B26B *23/00*
U.S. Cl. 30—304 **1 Claim**

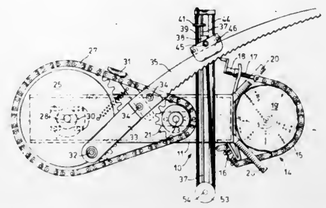


1. A hand-held tool for cleaning foreign matter from a rigid surface, said tool being comprised of a metal head with a handle of suitable material extending from the centroid of said head, with said head having on each end three short protuberances, or blades, with said blades arranged symmetrically so that each end mirrors the other end, the said blades being a long blade, then a medium length blade, then a short blade, with said blades being parallel to the length of said handle, and with the cutting edge of each said blade being formed with a chisel point.

4,268,966
RECIPROCATING SAW FOR TREE TOPPING
Franklin G. Williams, 1743 N. Valley View Dr., East Layton, Utah 84041
Filed Mar. 3, 1980, Ser. No. 126,642
Int. Cl.³ B27B *11/00*
U.S. Cl. 30—372 **7 Claims**

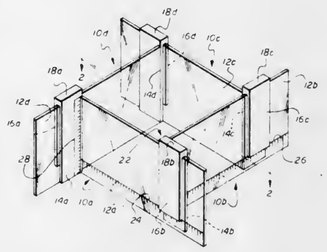
1. An apparatus for topping trees, comprising in combination:

frame means having a horizontal and vertical elongate frame member attached together at the respective end perpendicularly of each other;
a power source detachably mounted on said frame means for providing rotationally directed power;
drive means attached to said frame means and said power source for receiving said rotational power and translating it into reciprocally directed power;



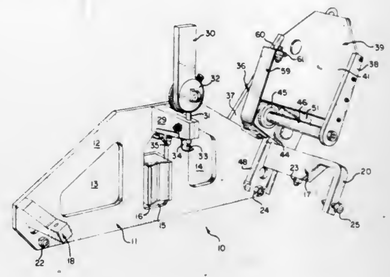
elongate saw blade means having a serrated side and a non-serrated side and being attached to said drive means at one end, so that said blade means can be reciprocated;
blade guide means slidingly attached to said blade means along the non-serrated side of the blade means;
biasing means attached to said blade guide means and said frame means for applying pressure to said blade guide means and transmitting that pressure against the non-serrated side of said blade means; and
securing means for attaching said frame means to a tree.

4,268,967
PACKAGE SIZER
Lejo C. Brana, 7121 Cecil St., Houston, Tex. 77030, and John W. Scott, 1510 Johanna, Houston, Tex. 77055
Filed Sep. 14, 1979, Ser. No. 75,426
Int. Cl.³ G01B *5/00*
U.S. Cl. 33—1 V **7 Claims**



1. Package sizing apparatus comprising:
- a first pair of wall members defining a first pair of generally opposed, substantially parallel, planar wall surfaces;
- a second pair of wall members connected to said first pair of wall members and defining a second pair of generally opposed, substantially parallel, planar wall surfaces, said second pair of wall surfaces being contiguous and perpendicular to said first pair of wall surfaces, whereby said wall surfaces define a rectangular enclosure;
- each of said wall members comprising a plate defining said wall surface, and further comprising connection means including a channel body rigidly adjoining one end of said plate and extending perpendicularly therefrom and having an open lower end and a closed upper end defining a slideway for receipt of the plate of one of the other wall members; whereby each of said wall members of each of said pairs is slidable toward and away from the other wall member of that pair to vary the dimensions of said rectangular enclosure.

4,268,968
RAILWAY WHEEL PROFILOMETER AND DIAMETER GAGE
Phillip G. Przybylinski, Schererville, Ind.; James J. Schuller, Crete, Ill., and Eugene I. Varda, Saint John, Ind., assignors to Pullman Incorporated, Chicago, Ill.
Filed Aug. 20, 1979, Ser. No. 68,120
Int. Cl.³ G01B *5/20, 5/08*
U.S. Cl. 33—174 P **13 Claims**

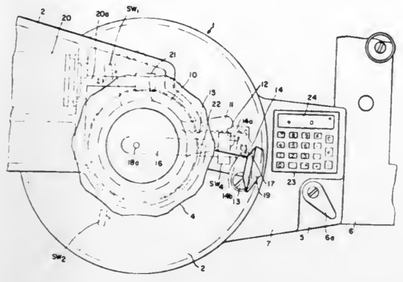


1. A profilometer and wheel gaging device for recording the profile of the wheel tread of a vehicle wheel comprising:
- a support structure adapted to be mounted on a single vehicle wheel engaging and positioned by the surface thereof,
- tread follower means adapted to engage the wheel tread of said vehicle wheel,
- a bracket member connected to said support structure,
- mounting means for supporting said follower means on said bracket member for movement of said follower means transversely of said wheel tread whereby said follower means engages and follows the transverse contour of said wheel tread,
- recording means on said bracket member, and
- stylus means mounted on said mounting means for tracing the transverse contour of said wheel tread on said recording means in response to movement of the follower means following the transverse contour of said wheel tread.

4,268,969
UNIVERSAL PARALLEL RULER INCLUDING SCALE SETTING DEVICE
Masao Koenuma, Tokyo, Japan, assignor to Asahi Seimitsu Kabushiki Kaisha, Tokyo, Japan
Filed May 22, 1979, Ser. No. 41,420
Claims priority, application Japan, May 30, 1978, 53-65212; Sep. 18, 1978, 53-114360; Feb. 20, 1979, 54-18764
Int. Cl.³ B43L *13/08*
U.S. Cl. 33—438 **12 Claims**

1. A device for angular setting a preset member in a universal parallel ruler, a scale rotating into contact with said preset member, said device comprising:
- input means for introducing a given first angular amount by which said scale is to be set, said first angular amount representing a new position for said preset member;
- digital display means for displaying said first angular amount which has been introduced via said input means;
- drive means responsive to actuation of said input means for rotating said preset member by a second angular amount; and

locking means for locking said scale when said second angular amount of the rotated preset member substantially



equals the first angular amount displayed on said digital display means and introduced via said input means.

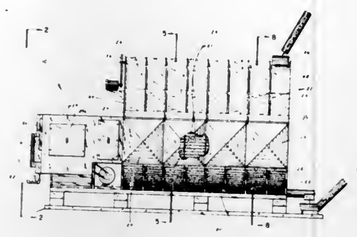
4,268,970
Patent Not Issued For This Number

4,268,971
OPTIMUM LOW PROFILE CONTINUOUS CROSSFLOW GRAIN DRYING AND CONDITIONING METHOD AND APPARATUS

Ronald T. Noyes, 901 Eastwood Dr.; Gregory A. Lynch, 1256 N. John, and Eugene E. Williams, 1009 Given St., all of, Frankfort, Ind. 46041

Filed Oct. 9, 1979, Ser. No. 82,812
Int. Cl.³ F26B *3/04*
U.S. Cl. 34—34 **29 Claims**

1. Apparatus for drying and conditioning grain comprising:
wall means including an upper portion, a lower portion and an intermediate portion between the upper and lower portions, for containing and guiding grain downwardly by gravity from the upper portion to the lower portion;
air flow means connected to said wall means for permitting air to pass through the grain as such grain moves downwardly;
a plenum chamber in communication with said air flow means;
plenum divider means for separating said plenum chamber into a first zone and a second zone;
air circulation means, including an inlet and an outlet, for causing air movement;
means for connecting the outlet of the air circulation means to the first zone of the plenum chamber whereby said first zone is pressurized and air is thereby forced through a first portion of the air flow means for drying the grain;
means for heating the air being forced into said first zone of the plenum chamber;
recirculation means for selectively directing at least some of the heated air that has passed through the grain back to the inlet of the air circulation means; and
means for selectively directly connecting the second zone of the plenum chamber to the inlet of the air circulation



means for causing ambient air to be drawn through a second portion of the air flow means for cooling the grain when said connecting means is open and causing the air in the second zone to be forced through said second portion of the grain when said connecting means is closed.

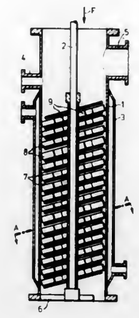
4,268,972
THIN LAYER CONTACT DRIER

Hans-Heinz Mölls, Leverkusen; Vaclav Kaspar, Cologne, and Asterios Moutsokapas, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 6, 1979, Ser. No. 73,046
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840481
Int. Cl.³ F26B *19/00*
U.S. Cl. 34—60 **11 Claims**

1. Apparatus for drying solutions, dispersions or suspensions comprising an elongated drying chamber, a heating jacket therearound for heating the internal surface of the chamber, a feed device, a discharge device for dried product and a vapour outlet, and rotatable means in the chamber comprising an axially disposed rotatable shaft, at least one annular set of distributor elements and means mounting the distributor elements between several parallel planes for permitting free movement between these planes in the annular space between the shaft and the internal surface of the chamber and for permitting vertical travel of the product to be dried from plane to plane, wherein the planes are non-perpendicular to the axial shaft and the outermost set of distributor elements at least partly touch the internal surface of the chamber and all of the distributor elements are set into motion both vertically and angularly relative to the internal surface of the chamber in response to the rotation of the shaft such that the paths of the points of contact of the edges of the distributor elements of adjacent planes touching or overlapping each other, whereby

the free movement of the distributing elements and the vertical travel of the product permitted by said mounting means effects

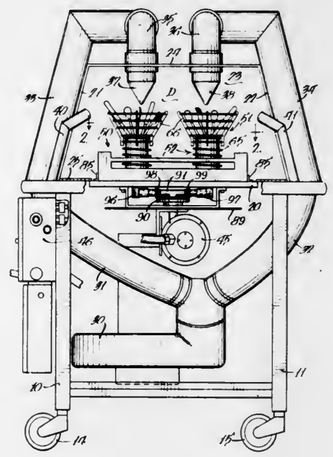


a secondary effect of preventing formation of lumps during drying.

4,268,973
SILVERWARE DRYER

Arthur D. Jezuit, Wood Dale, and Edwin J. Geu, Norridge, both of Ill., assignors to Hooper, Inc., Elmhurst, Ill.

Filed Sep. 24, 1979, Ser. No. 78,571
Int. Cl.³ F26B *11/18*
U.S. Cl. 34—69 **16 Claims**

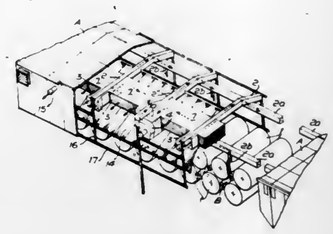


1. A silverware dryer comprising, a casing having means for directing air to a drying chamber, a portable basket positionable in said drying chamber, a vibratory holder for silverware mounted on said basket for rotational and up and down movement, flexible means mounting said holder to said basket for relatively free vibration, and motor-driven means for rotating and vibrating said holder with a snap action.

4,268,974
HOODS FOR THE CYLINDER DRYING SECTION OF PAPER MAKING MACHINES AND OTHER CYLINDER DRYING MACHINES

Donald Price, Turton, England, assignor to Greenbank-Cast Basalt Engineering Co. Limited, Lancaster, England

Continuation of Ser. No. 893,819, Apr. 5, 1978, abandoned. This application Feb. 29, 1980, Ser. No. 125,771
Claims priority, application United Kingdom, Apr. 5, 1977, 14424/77
Int. Cl.³ F26B *13/08*
U.S. Cl. 34—86 **1 Claim**



1. A hood for the drying section of paper making machines and other cylinder drying machines, consisting of a plurality of end to end, interconnected sections or modules, each section being self contained and comprising: an enclosed structure; an inclined diaphragm wall dividing said enclosed structure into two chambers, these being a heater chamber and a cylinder chamber; a centrally arranged supply fan located in the heater chamber; a pair of air inlet duct means located one to each side of said supply fan for receiving air from outside said section; a pair of elongate, honeycombed air to air heat exchangers interposed between a respective inlet duct means and said supply fan whereby air is directed from said inlet ducts through said air to air heat exchangers to said supply fan; a steam heated battery located directly upstream of said supply fan, in between said pair of heat exchangers and said supply fan, for heating the inlet air; a framework of supporting ducts for supporting said section and for directing heated air downstream and from said supply fan to said cylinder chamber; nozzles at the ends of said supporting duct means for discharging heated air into the machines to dry the paper passing therethrough; damper valve means in said diaphragm wall for directing exhaust air from said cylinder chamber to said heater chamber; and an exhaust fan in said heater chamber, said heat exchangers being positioned between said damper means and exhaust fan so that exhaust air is drawn over and through said heat exchangers to thereby heat inlet air passing through said heat exchangers, said heat exchangers, inlet fan and battery all being located within said heater chamber and thus segregated from said cylinder chamber.

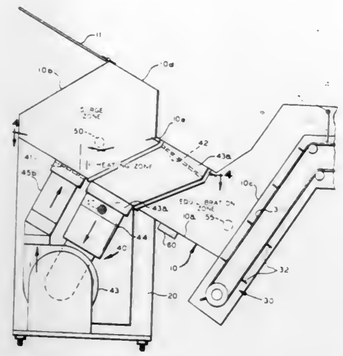
4,268,975
APPARATUS FOR PRE-HEATING THERMOPLASTIC PARISONS

Wayne E. Schall; John E. Miller, both of Toledo, and John F. Gabriel, Sylvania, all of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Jan. 28, 1980, Ser. No. 116,327
Int. Cl.³ F26B *13/12*
U.S. Cl. 34—105 **7 Claims**

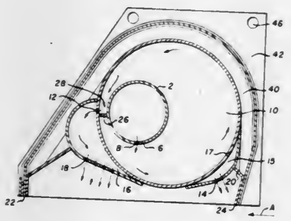
1. Apparatus for thermally pre-conditioning generally cylindrical thermoplastic parisons for introduction into a blow molding machine, comprising, in combination:
(1) an enclosed hopper having an inclined bottom floor, generally vertical side walls and a top wall, said floor

having sufficient inclination to produce bodily displacement of randomly positioned parisons by gravity from the upper end to the lower end thereof,
(2) said hopper having a parison receiving opening adjacent the upper end of the inclined floor,
(3) a parison conveyor movable upwardly past the lower most end of said floor to convey parisons upwardly out of said hopper,
(4) means for producing a stream of heated air,



(5) means for directing said heated air around said parison from the inclined floor to the top wall of the hopper thereby defining a heating zone,
(6) means for controlling the temperature of said heated air entering the hopper to maintain same uniform, and
(7) said hopper defining a space intermediate said heating zone and said parison conveyor constituting a temperature equalization zone, whereby all parisons removed by the conveyor have all portions thereof preheated to substantially equal temperatures.

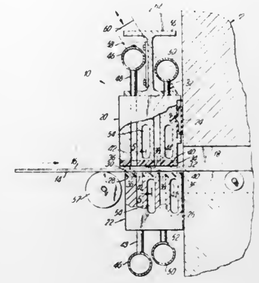
4,268,976
STEAM DISTRIBUTION APPARATUS
Norman F. Dove, 3187 Hoskins Rd., North Vancouver, B.C., Canada (3TJ 3B5)
Continuation-in-part of Ser. No. 924,639, Jul. 14, 1978, abandoned. This application Jul. 23, 1980, Ser. No. 171,482
Int. Cl.³ D21F *5/00*
U.S. Cl. 34—155 **9 Claims**



1. A steam distribution apparatus comprising:
a header having means defining an inlet for steam and means defining a first plurality of discrete outlets for steam arranged along the header, the outlets increasing in size with the distance from the inlet;
means defining a first chamber surrounding the header to receive steam from the outlets in said header;
means defining first, relatively large outlets in said first chamber;
the relative positions of the header and the first chamber ensuring that, in use, steam leaving said plurality of outlets in the header impinges on the interior of the chamer and must travel around the chamber to reach the first outlets in the first chamber, the exterior of the header being relatively close to that part of the first chamber containing the first outlets so as to form a restricted zone immediately before said outlets to assist in obtaining uniform steam pressure along the length of the steam distribution apparatus;
means for defining a second chamber communicating with said first outlets from the first chamber;
means defining outlets in said second chamber; and
a shrouding positionable above a paper web and communicating with said outlets in said second chamber whereby, in use, uniform steam flow along the entire length of the steam distribution apparatus can be achieved.
9. A steam distribution apparatus comprising:
a header having means defining an inlet for steam and means defining a first plurality of discrete outlets for steam arranged along the header, the outlets increasing in size with distance from the inlet;
means defining a first chamber surrounding the header to receive steam from the outlets in said header;
means defining first, relatively large outlets in said first chamber;
the relative positions of the header and the first chamber ensuring that, in use, steam leaving said plurality of outlets in the header impinges on the interior of the first chamber and must travel around the first chamber to reach the first outlets in the first chamber;
means defining a second chamber communicating with said first outlets from the first chamber, said second chamber being divided into compartments;
a plurality of pipes each having an inlet communicating with said first chamber and an outlet communicating with a compartment in said second chamber, each said pipe extending outwardly from said first chamber and then returning through said first chamber to a compartment in said second chamber;
a valve in each pipe to regulate steam flow through the pipe;
means defining outlets in said second chamber; and
a shrouding positionable above a paper web and communicating with said elongate outlets in said second chamber whereby in use, uniform steam flow along the entire length of the steam distribution apparatus can be achieved.

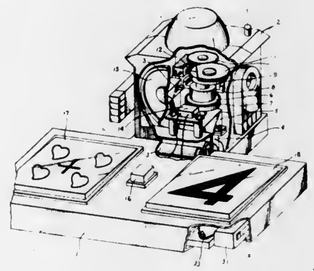
4,268,977
SEALING APPARATUS FOR OVENS
Joseph T. Geiger, Houston, Tex., assignor to Exxon Research & Engineering Company, Florham Park, N.J.
Filed Dec. 3, 1979, Ser. No. 99,665
Int. Cl.³ F26B *25/12*
U.S. Cl. 34—242 **20 Claims**

1. In a film treating oven having substantially wide and narrow entrance and exit openings for a substantially continuous thin film conveyed therethrough for treatment therewithin, sealing apparatus comprising:
means for defining a substantially narrow slit sealingly engaged with at least one of said oven entrance and exit openings extending both across the width of and longitudinally with respect to said oven opening having an end proximal to said oven opening and a free end distal thereto, said slit being dimensioned such that the film is conveyable therethrough into or out of said oven, said slit defining means including upper and lower sealing members sealingly engaged to and extending transversely over said oven opening and having upper and lower, opposed, substantially parallel slit defining surfaces, respectively;
eductor means fluidly communicating with said slit in an area adjacent to the distal end thereof for educing gases present in said slit;
buffer means fluidly communicating with said slit in an area between said area wherein said eductor means communicates with said slit and the proximal end thereof for introducing an inert gas into said slit; and
means for selectively adjusting the position of at least one of said upper and lower sealing members to adjust the height of said slit, at least one of said sealing members being sealingly engaged to said oven openings by a flexible seal,



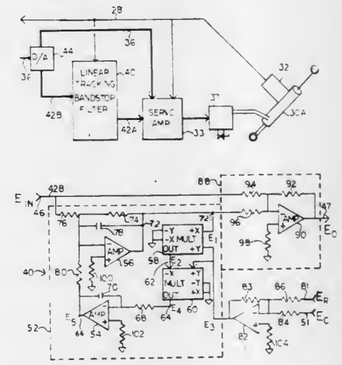
whereby gases leaking from the oven through the openings thereof are prevented from reaching the atmosphere external of said oven through the action of one or both of the flow of inert gas and ambient atmosphere exterior of said oven into said eductor means while the ambient atmosphere is prevented from entering the oven.

4,268,978
AUTOMATIC SOUND-EMITTED SELF-LEARNING TOY
Lin P. Houn, No. 6, Lane 107, Sec. 1, Tzu Yen Rd., Shih Pai, Peitou, Taipei, Taiwan
Filed Jun. 21, 1979, Ser. No. 50,632
Int. Cl.³ G09B *3/00*
U.S. Cl. 434—330 **1 Claim**



1. An automatic sound-emitting self-learning toy comprising:
a base;
a movable figure supported on said base, said figure having two movable arms disposed thereon;
a plurality of question cards which are insertable within said base, magnets being disposed on said question cards;
a plurality of answer cards insertable within said base, magnets being disposed on said answer cards;
a plurality of parallel horizontal beams disposed within said base, said beams having a plurality of holes at both ends wherein a plurality of cylindrically shaped magnets are disposed;
a movable pad disposed on said base, said pad having a triangular flange connected thereto, said flange being in mechanical connection with a first movable arm which traverses said beams along their first ends;
a biasing means for forcing said first arm in a first direction;
a second movable arm positioned perpendicular to said beams and lying across their second ends;
a third movable arm positioned abutting said second ends of said beams;
a biasing means forcing said third movable arm in said first direction;
an electrical switching means in mechanical connection with said second movable arm;
a means for electronically interpreting a magnetic recording, said means being in electrical contact with said switching means;
a magnetic recording tape held within said means for electronically interpreting, said tape having an affirmative and a negative response recorded thereon, said toy being comprised such that when a question card and an answer card are inserted in said base, said answer card corresponding to said question card, and said pad is depressed, said switching means activates said means for electronically interpreting and an affirmative response is emitted.

4,268,979
METHOD AND APPARATUS TO EXTEND THE BANDWIDTH OF BUFFETING IN FLIGHT SIMULATORS
George E. Minnich, Vestal, N.Y., assignor to The Singer Company, Binghamton, N.Y.
Filed Aug. 17, 1978, Ser. No. 934,352
Int. Cl.² G09B *9/08*
U.S. Cl. 434—46 **7 Claims**



1. Apparatus for modifying a command signal to produce a drive signal for controlling a drivable physical element having a frequency variable resonance characteristic comprising:
(a) control input means for providing a control signal representative of a monitored variable physical condition of said drivable physical element; and
(b) band-stop filter means having a center frequency corresponding to the frequency of said variable resonance characteristic, comprising
(1) band-pass filter means for providing a band-pass function on said command signal to produce an output pass band signal, including inverting means such that said output pass band signal is opposite in polarity to said command signal, and multiplying feedback means, responsive to said control signal, for feeding back a portion of said output pass band signal multiplied by said control signal,

whereby the center frequency of said band-pass circuit means varies in accordance with said control signal and

(2) summing means for summing said output pass band signal with said command signal to produce said drive signal.

6. A method for modifying a command signal to produce a drive signal for controlling a drivable physical element having a frequency variable response characteristic, comprising the steps of:

(a) providing a control signal representative of a monitored variable physical condition of said drivable physical element;

(b) providing a band-pass filter having a multiplying feedback means responsive to said control signal, and inverting means for inverting in polarity a signal applied thereto;

(c) applying said command signal to said band-pass filter to produce a pass band output signal;

(d) applying said control signal to said band-pass filter to vary the center frequency of said band-pass filter in accordance with said control signals; and

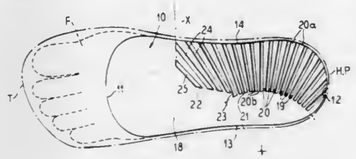
(e) summing said pass band output signal with said command signal to produce said drive signal.

4,268,980

DETORQUING HEEL CONTROL DEVICE FOR FOOTWEAR

Charles J. Gudas, Lockport, Ill., assignor to Scholl, Inc., Chicago, Ill.

Filed Nov. 6, 1978, Ser. No. 958,208
Int. Cl.³ A43B *13/38, 19/00, 21/32*
U.S. Cl. 36—43 **19 Claims**



1. A detorquing heel control device for footwear which comprises a relatively rigid but resilient sole for footwear having a sole member shaped to extend from the rear of the heel to the metatarsal headrest area of footwear and having a smooth top surface inclined from a thin front edge to a transverse varus heel ridge followed by a heel cup and inclined upwardly from the lateral to the medial side and extending at the high level around the medial side of the heel cup, said member having a flat solid lateral bottom surface at the initial heel impact zone and extending forwardly therefrom with ribs radiating medially in an arc from the flat solid lateral bottom separated by grooves and widening along their lengths to terminal ends at the medial side thereof, and said ribs being positioned to successively flatten and shift forwardly as they are loaded to rotate the member laterally for decreasing pronation of the foot during the normal gait of a wearer of the footwear.

4,268,981

ICE SKATING FOOTWEAR

Icaro Olivieri, Montebelluna, Italy, assignor to Icesij A.G., Vaduz, Liechtenstein

Filed Jun. 7, 1979, Ser. No. 46,204
Claims priority, application Switzerland, Jun. 28, 1978, 7034/78
Int. Cl.³ A43B *15/16*
U.S. Cl. 36—115 **10 Claims**

1. Ice skating footwear comprising a shoe having a neck, a hull, a sole and a heel, and a legging at the neck of the hull, characterized in that the legging extends downwardly on



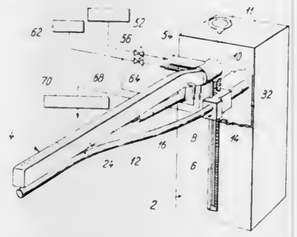
opposite sides of the neck along the sides of the hull in substantial contact therewith and is attached to the heel.

4,268,982

SEAM PRESS FOR TUBULAR CLOTHING PARTS

Holger Andersen, Grönnegade 11, 8700 Horsens, Denmark

Filed Nov. 2, 1978, Ser. No. 957,042
Claims priority, application United Kingdom, Nov. 2, 1977, 45654/77
Int. Cl.³ D06F *71/40*
U.S. Cl. 38—12 **14 Claims**



1. A method of steam pressing the seam areas of tubular articles of clothing or parts thereof, such as trouser legs, of the type having an interior seam flap to be laid against the inside of the fabric to one side of the seam and fixed by steam pressing in this laid down position, characterized in that the tubular clothing in a right or non-turned position is introduced onto a narrow pressing beam and is manipulated from the outside in such a manner that the interior seam flap as backed by the pressing beam is caused to be laid down to one side as required, whereafter the seam area is forced against a surface portion of the beam by the operator causing a pull to be exerted in a portion of the clothing part opposite to the seam area, and the seam area is subjected to steam pressing by means of steam supplied through a channel in the beam to the inside of the seam area through perforations in the seam area backing portion of the beam.

4,268,983

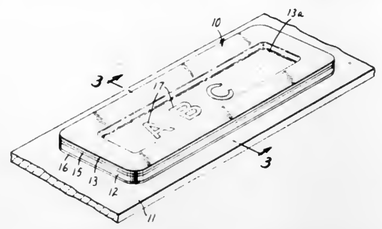
SECURITY LABEL

Jack E. Cook, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 26, 1978, Ser. No. 973,734
Int. Cl.³ G09F *3/02*
U.S. Cl. 40—2.2 **12 Claims**

1. Transfer-inhibiting label comprising a handleable support sheet and a fragile easily tearable heat-softenable film adhered to the support sheet; said film having a sensible component extending over the area of the film, and a portion of the film extending beyond at least one edge of the support sheet and

carrying an adhesive layer by which the extending portion may be adhered to an article to which the label is applied,



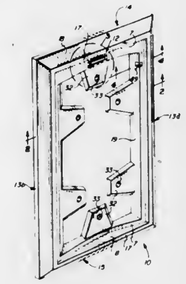
whereby the extending portion will tear from the rest of the film and remain adhered to the article upon removal of the label from the article.

4,268,984

SIGN ASSEMBLY

Warren A. Taylor, 4025 - 11th Ave. South, Minneapolis, Minn. 55407

Continuation-in-part of Ser. No. 836,381, Sep. 26, 1977, abandoned. This application Sep. 4, 1979, Ser. No. 71,848
Int. Cl.³ A47G *1/06*; G09F *1/12*
U.S. Cl. 40—154 **19 Claims**



1. A front loading multi-sided sign frame assembly for a flexible sign element, comprising:

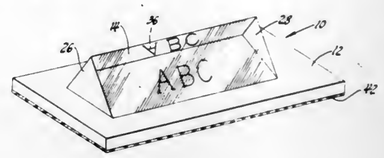
a plurality of frame portions disposed in a multi-sided manner, two of said frame portions being spaced opposite to each other and each having a first sign engaging surface and a second sign engaging surface contiguous to said first sign engaging surface and inclined with respect thereto, said second sign engaging surface being inclined inwardly with respect to the plane of the sign frame assembly whereby a flexible sign element slightly wider than the distance between the first sign engaging surfaces of said opposed frame portions, when inserted from the front of the frame, is maintained in an inwardly bowed position when engaging the first sign engaging surfaces and overlies the second sign engaging surfaces, at least one of said second sign engaging surfaces having a recess therein which is normally covered by the sign element, said recess being exposed upon deflection of said sign element inwardly in sliding engagement with the second sign engaging surfaces to cause the edges of the sign element normally in abutment with the first sign engaging surfaces to be withdrawn from engagement with at least the one of said first sign engagement surfaces adjacent said recess so as to expose said recess to enable the engagement of the rear of the sign element to provide for the removal thereof.

4,268,985

DESK NAME PLATE

Joseph F. Lecznar, 26837 Lyndon, Redford, Mich. 48239

Continuation-in-part of Ser. No. 912,425, Jun. 5, 1978, abandoned. This application May 5, 1980, Ser. No. 146,751
Int. Cl.³ G09F *13/12*
U.S. Cl. 40—219 **1 Claim**



1. A desk name plate, comprising:

base means including a glass mirror having an upper surface and an upwardly facing reflective surface spaced beneath the upper surface a distance corresponding to the thickness of the mirror;

a glass prism having a first face, and a second face, and a third face, the first face being disposed at a 90° angle with respect to the second face and a 45° angle with respect to the third face, said prism being disposed such that the third face thereof is parallel to and adjacent the upper surface of the mirror; and

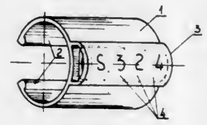
an exhibit mounted on the first face of the prism so as to be viewable through the second face and to provide a first image and a second image of the exhibit, each of said images being viewable through the second face, the first image being upside down with respect to the exhibit and comprising a reflection of the exhibit from the third face of the prism, and the second image being right side up with respect to the exhibit and comprising a reflection of the exhibit from the reflective surface of the mirror.

4,268,986

IDENTIFICATION DEVICE

Ivana Piana, Genova-Cogoleto, Italy, assignor to Grafoplast S.A.S., Genova-Cogoleto, Italy

Filed Sep. 8, 1978, Ser. No. 940,860
Claims priority, application Italy, May 15, 1978, 12613 A/78
Int. Cl.³ G09F *3/06*
U.S. Cl. 40—316 **1 Claim**



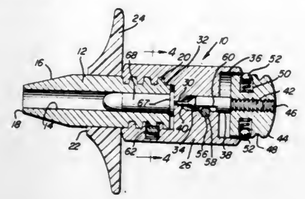
1. A device for affixing identification indicia to an object comprising a body portion, said body having a substantially rectangular plate portion and a pair of longitudinally aligned, substantially straight ribs disposed on one face of said plate portion, said ribs being enlarged at their ends distal to said plate and being operable to grip said object, and a channel defining portion disposed on the other face of and integral with said body portion, said channel defining portion being operable to receive said identification indicia, said body portion being composed of a first, hard, resilient plastic material and said channel defining portion being composed of a second, soft transparent plastic material.

4,268,987

HAND WEAPON FOR SURVIVAL PURPOSES

Charles Cash, Star Rte. Box 671, Kerrville, Tex. 78028

Filed Aug. 29, 1979, Ser. No. 70,426
Int. Cl.³ F41C *3/00*
U.S. Cl. 42—1 R **10 Claims**



1. A hand weapon including an elongated tubular barrel having a longitudinal bore formed therethrough and front and rear ends through which said bore opens, an elongated breech body having a longitudinal firing pin bore formed therethrough having front and rear ends, the front end of said firing pin bore including an enlarged threaded counterbore, the rear end of said barrel being externally threaded and removably threaded into said counterbore, the rear end of said firing pin bore including a diametrically enlarged rear counterbore, an elongated abutment including front and rear ends, an elongated firing pin supported and projecting outwardly from one end of said abutment, said front end of said abutment projecting into and being sliding and guidingly received in said rear counterbore with said firing pin projecting into and being slidingly received within said firing pin bore, said abutment and portions of said breech portion defining said rear counterbore including coacting means spaced about said rear counterbore and abutment yeildingly resisting inward movement of said abutment further into said rear counterbore to a position with the forward end of said firing pin projecting through said firing pin bore and into said threaded counterbore, said coacting means including structure, in response to a forward thrust on said abutment relative to said breech portion in excess of a predetermined amount to allow forward movement of said abutment relative to said breech portion in a "snap action" for sharply impacting the forward end of said firing pin with a primer of a cartridge shell seated in said threaded counterbore.

4,268,988

2 IN 1 BOBBER SUPER AND REGULAR

Clarence Johnson, Jr. II, P.O. Box 43, 730 Hoffman Ave., Bellport, Long Island, N.Y. 11713

Filed Mar. 8, 1979, Ser. No. 18,563
Int. Cl.³ A01K *93/00, 91/04*
U.S. Cl. 43—43.11 **1 Claim**



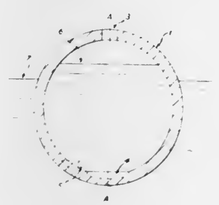
1. A "2 in 1" floater, comprising, in combination, a spherical bobber consisting of a hollow shell around a sealed air chamber therewithin, a tubular portion vertically through a center of said bobber, a fishing line extending through said tubular portion, a bead along said line being located above said bobber, a first sinker along said line being located immediately below said bobber, a lower end of said line extending downwardly from said first sinker, a terminal lower end of said line having a second sinker and supporting a plurality of lower hooks; a trough formed around an equatorial outer side of said spherical shell, a ring-shaped reel rotatably adjusted in said trough and surrounding said spherical shell, said reel including a radially outwardly upper and lower flanges, a plurality of second lines wound around said reel, one end of each said second line being tied in a hole on said reel upper flange, a plurality of holes also through a bottom wall of said trough, each said second line having its opposite end extended around a peripheral edge of said reel lower flange and through one said hole in said trough bottom wall, a single upward protrusion on said trough bottom wall selectively being engaged in one of a circular row of upward indentations around said reel lower flange, and a ring-shaped cover screw-threaded to a vertical, outer peripheral wall of said trough, retaining said reel in said trough and against said protrusion, and a fish hook on said opposite end of each said second line.

4,268,989

BUOYANT DEVICE WITH MEANS FOR PRODUCING THRUST

David J. Wickham, 13 Conway Rd., Chippenham, Wilts., England

Filed Dec. 26, 1978, Ser. No. 972,871
Int. Cl.³ A63H *23/04, 23/10*
U.S. Cl. 46—92 **6 Claims**



1. A floatable device comprising a body of a generally convex shape formed with a cavity defined by an outer shell of bouyant material, said shell being provided with means such that the body will float in water stably wherein said cavity is filled with water, said means being a recess at the bottom of the inner surface of said shell, the cavity having an upper relatively large, continuously open aperture opposite said recess and a lower aperture forming a restrictive flow passage between the cavity and the underwater level when the body is floating in water, said passage being oriented to produce a thrust component for causing the floating body to rotate in the water when the internal water level in the cavity is higher than the external water level, the buoyancy being such as to cause the floating body to rise progressively in the water as water in the cavity flows out through said lower aperture so as to tend to maintain a head of water in the cavity above the external water level.

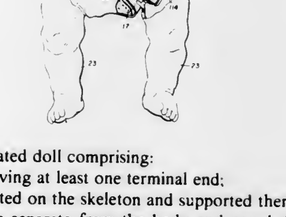
4,268,990

TOY ACTIVATING MECHANISM

James F. Kubiatowicz, Minneapolis, Minn., assignor to Custom Concepts, Incorporated, Minneapolis, Minn.

Filed Jan. 30, 1979, Ser. No. 7,712
Int. Cl.³ A63H *11/00*
U.S. Cl. 46—119 **8 Claims**

1. A toy activating mechanism adapted to be operated by a common rubber band, said mechanism comprising:
a first portion including a wall having an opening and an annular friction surface around said opening, and a fixed post spaced from the side of said wall opposite said friction surface adapted to engage portions of a said rubber band with other portions of said rubber band extending through said opening;
a rotor having tabs adapted to retain portions of a said rubber band thereabout for assembly of said rotor to said first portion adjacent said wall, said rotor being shaped to position the parts of said rubber band adjacent said retained portions against said friction surface to restrict



rotation of said rotor relative to said first portion under the influence of wound portions of said rubber band between said post and said rotor;
a second portion;
means for mounting said first and second portions to one another for relative pivotal movement about an axis; and
cam means on said rotor and said second portion for causing relative pivotal motion between said portions upon rotation of said rotor.

4,268,991

SOFT FLEXIBLE ARTICULATED DOLL

John Cotey, Haddonfield, and Lee S. Volpe, Collingswood, both of N.J., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Feb. 9, 1979, Ser. No. 10,826
Int. Cl.³ A63H *3/46*
U.S. Cl. 46—163 **22 Claims**

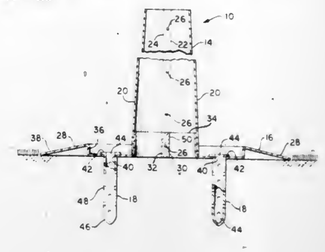
1. An articulated doll comprising:
a skeleton having at least one terminal end;
a body mounted on the skeleton and supported thereby;
an appendage separate from the body and coupled to the skeleton; and
means interposed between the appendage and the terminal end of the skeleton for joining the appendage directly to the terminal end for rotational movement of the appendage relative to the skeleton and body.

4,268,992

TREE PROTECTOR

Raymond J. Scharf, Sr., Rte. 5, Box 41D, Poplar Bluff, Mo. 63901

Filed Mar. 28, 1979, Ser. No. 24,563
Int. Cl.³ A01G *13/10*
U.S. Cl. 47—23 **1 Claim**



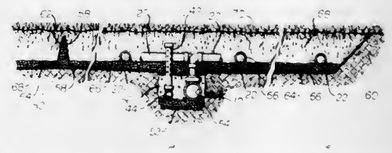
1. A tree protector comprising:
(a) a vertical, hollow shaft including a pair of substantially identical, half-round overlappingly connectible sections,
(b) a separate annular ground-engaging base including a pair of substantially identical, half-round, overlappingly connectible sections, said base including an annular trough disposed for use above the ground having substantially vertical inner and outer sides and interfitted with said shaft at said inner side, a pair of circumferentially spaced openings disposed in said trough and said base including an inwardly and upwardly inclined substantially planar peripheral portion adapted to lie above the ground disposed adjacent said trough and having a ground-engaging rim to facilitate use with uneven ground, said inclined peripheral portion extending between said ground-engaging rim and said trough outer side at a relatively small angle of inclination to permit lawn mower wheels to ride thereupon, and
(c) a pair of hollow, hold-down spikes, each including a flanged upper end defining an opening for receiving liquid, a pointed lower end for driving the spike into the ground, and a plurality of side openings disposed between said upper and lower ends for dispensing liquid into the adjacent ground, said spikes being received by said trough openings and said flanged upper end being engageable with the bottom of the trough and said trough sides being higher than said spike upper end openings whereby liquid in said trough is received within said spike upper end openings.

4,268,993

GRASS SPORTS SURFACES AND A METHOD FOR MAINTAINING THEM

Percy C. Cunningham, 3545 Wellington Crescent, N. Vancouver, B.C. V7R 3B3, Canada

Filed May 18, 1979, Ser. No. 40,194
Int. Cl.³ E02B *11/00;* **A01G** *31/00*
U.S. Cl. 47—58 **28 Claims**



1. A system for growing and sustaining a grass playing field, comprising:
a graded subsoil base;
liquid impervious means supported by said subsoil base to form a subsurface liquid reservoir;

an upper layer of primarily sand-containing particulate material in which grass may be anchored and supported for growth and in which liquid characteristically moves primarily in the vertical direction; and

a lower layer of particulate material located substantially adjacent said upper layer, between said upper layer and said liquid impervious means, said lower layer consisting essentially of gravel in which liquid characteristically moves well in the horizontal direction, as well as downwardly, such that liquid in said lower layer tends to be distributed substantially uniformly in the horizontal direction,

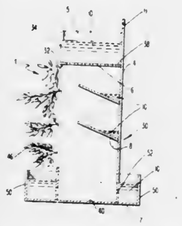
wherein the physical characteristics of the essentially gravel particulate material of said lower layer and the primarily sand-containing particulate material of said upper layer are such that the sand-containing particulate material does not significantly penetrate into the gravel, so that, consequently, the void ratio of the gravel remains substantially unimpaired.

4,268,994

THREE-DIMENSIONAL PLANTER

Muneharu Urai, 3-419-3, Takagi, Higashiyamatoshi Tokyo, Japan

Filed Dec. 29, 1978, Ser. No. 974,561
Claims priority, application Japan, Dec. 27, 1977, 52-175178
Int. Cl.³ A01G *9/02*
U.S. Cl. 47—79 **27 Claims**



1. A three-dimensional planter, comprising:

(a) a cultivation body;

(b) a vertically disposed frame for holding said cultivation body, at least one vertical wall of said frame having a substantially unobstructed opening providing a vertically disposed planting surface on said cultivation body, the area of said opening being greater than one-half the area of said one vertical wall;

(c) a liquid reservoir formed by said frame above and proximate said cultivation body;

(d) means for restrictively conducting liquid from said reservoir to said cultivation body;

(e) means for retention and distribution of liquid within said cultivation body; and

(f) a liquid collection trough secured to the bottom of said frame for collecting excess liquid from said cultivation body.

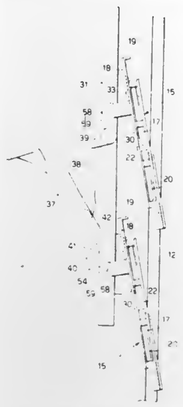
4,268,995

WINDOW FRAMES HAVING SWINGABLE BLIND-SLATS

Genesio Villa, Via Ariosto 215, Sesto San Giovanni (Milan), Italy

Filed Apr. 10, 1979, Ser. No. 28,882
Claims priority, application Italy, Apr. 13, 1978, 22290 A/78
Int. Cl.³ E06B *7/086*
U.S. Cl. 49—87 **24 Claims**

1. A swingable-slat window of the type including a window frame, a plurality of slat carriers pivotally mounted at intermediate points on said window frame, a control rod disposed parallel to one side of said window frame and having a pivotal connection with each of said slat carriers, a control lever pivotally mounted on said window frame adjacent said control rod, a connecting rod having one end pivotally connected to said control rod and the opposite end pivotally connected to said control lever for positioning said control rod in accordance with the position of said control lever; characterized in that said control lever has means fixedly forming a part thereof in resilient snapping engagement with means on said window frame.

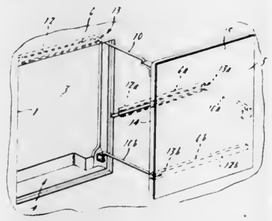


4,268,996

TRACK FOR SLIDING CLOSURE

Denis L. C. Allen, Chelmsford, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 1, 1979, Ser. No. 80,607
Claims priority, application United Kingdom, Nov. 15, 1978, 44683/78
Int. Cl.³ E05D *15/10*
U.S. Cl. 49—212 **15 Claims**



1. A track assembly for a sliding closure member comprising a track extending in a longitudinal direction and a support arm mounted at one end in the track for traveling movement along the track by a connecting means which retains the arm generally perpendicular to the track during part of the traveling movement and permits rotation of the arm about an axis perendicular to the common plane of the track and arm in one end region of the track,

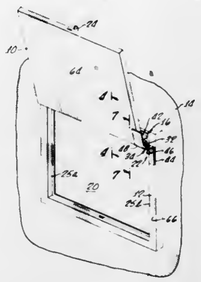
control means engageable with the connecting means when the arm is in the end region of the track for effecting a rolling movement of the arm along the track in the said common plane, the control means for effecting the rolling movement of the arm comprising a rack which is fixed relative to the track at least when the connecting means is in the end region of the track, the rack being engageable with a pinion portion of the connecting means, the connecting means comprising a ball roller mounted on the arm for rolling movement along the track when the arm is generally perpendicular to the track while permitting rotation of the connecting means about the axis perpendicular to the common plane of the arm and the track, and holding means engageable with the connecting means to prevent such rotation when the connecting means is not positioned in the end region of the track.

4,268,997

COMPARTMENT DOOR HOLDER FOR RECREATIONAL VEHICLES

Walter J. Conkey, 3821 Ferntower, West Covina, Calif. 91792

Filed Jun. 18, 1979, Ser. No. 49,424
Int. Cl.³ E06B *7/16*
U.S. Cl. 49—383 **13 Claims**



1. A door holder adapted to be removably attached to a pinless door hinge to hold a door in an open position, said hinge pivotally securing said door to a frame and having an axially extending end opening, said door holder comprising:

(a) door holding means for contacting radially opposed surfaces on said door and frame and holding said door in said open position when said door holder is attached to said hinge with said door in said open position, and

(b) an attachment member carried by said door holding means,

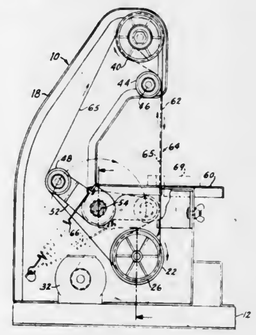
said attachment member having a rigid end portion projecting outwardly of said door holding means and having a cross-section and length of sufficiently small size for removable insertion into said hinge opening.

4,268,998

BELT SANDER FOR SANDING EXTERNAL AND INTERNAL SURFACES

John M. Hansen, Racine, Wis., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 10, 1980, Ser. No. 139,075
Int. Cl.³ B24B *21/16*
U.S. Cl. 51—148 **6 Claims**



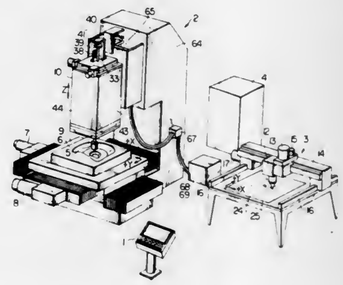
1. In a belt sanding machine, a frame, a drive pulley and an idler pulley rotatably mounted on said frame in fixed, spaced relationship, an endless sander belt extending over said pulleys, a freely swinging arm having one end pivotally mounted on said frame, an idler drum mounted for rotation on the other end of said arm for engaging the inner surface of one run of said belt and to deflect and tension it in a direction away from the other belt run when said arm is rotated in one direction to a first position, and for engaging the outer surface of said one belt run and to deflect and tension it in a direction toward said other belt run when said arm is rotated in an opposite direction to a second position, said belt being of such length as to permit the engaged portion of said one belt run to be moved in close proximity with said other belt run when said arm is rotated to said second position, and means tensioning said belt in both positions of said freely swinging arm comprising over center acting spring means connected to said arm and said frame.

4,268,999

AUTOMATIC POLISHING APPARATUS

Koichi Noto, and Tsuneo Kawai, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 16, 1979, Ser. No. 39,600
Claims priority, application Japan, May 17, 1978, 53-57657; Jun. 28, 1978, 53-87962[U]
Int. Cl.³ B24B *49/12*
U.S. Cl. 51—165.72 **15 Claims**



1. An automatic polishing apparatus comprising, in combination:

a profiling device including a tracer adapted to automatically trace a line which has been drawn in a drawing to give a path of movement for a polishing tool in a plane defined by X and Y-axes, and detecting means for detecting the displacement of said tracer in the directions of the X and Y axes; and

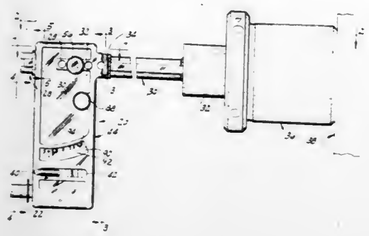
a polishing machine including feeding means adapted to feed one of a table mounting a workpiece to be ground and a polishing head body carrying a polishing tool relative to each other in the directions of the X and Y axes in accordance with signals derived from said detecting means of said profiling device and representing said displacements of said tracer in the directions of the X and Y-axes, a detector provided on said polishing head body for detecting one of a pressure applied to said polishing tool and a displacement caused by said pressure with respect to the workpiece, and polishing control means adapted to move one of said polishing head body and said table relative to each other in a direction of a Z-axis in accordance with an output signal derived from said detector so that a self-controlled profiling movement for polishing a three-dimensional curved surface is carried out under a substantially constant pressure of the polishing tool on a three-dimensional curved surface of the workpiece.

4,269,000

FIXTURE FOR ALIGNING AND LOCATING THE AXIS OF ROTATION OF A ROTATABLE MEMBER

Harold T. Rutter, Kirkwood, Mo., assignor to Sunnen Products Company, St. Louis, Mo.

Filed Oct. 4, 1979, Ser. No. 81,624
Int. Cl.³ B24B *49/00;* **G01B** *5/24*
U.S. Cl. 51—165.74 **11 Claims**



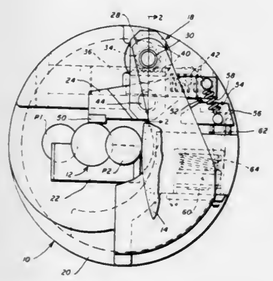
1. An alignment fixture for use in aligning the rotational axis of a rotatable member mounted on a device, the device having a shaft in spaced relation to the rotatable member comprising a housing structure having first and second end portions, means on one end portion for mounting the housing structure on the shaft, means adjacent to the second end portion for engaging a rotatable member to be aligned, said engaging means including a pair of spaced contacts for engaging the rotatable member at axially spaced locations therealong, one of the said pair of spaced contacts including means threadedly engageable with the housing structure, the other of said contacts including means pivotally mounting the other contact on the housing structure, scale means on the housing structure and a movable indicator having a first portion movable adjacent to the scale means to provide a scale reading and a second portion operatively connected to the other contact, and means to lock the housing in fixed position on the shaft.

4,269,001

WORK CLAMPING FIXTURE

Herbert G. Bottomley, Skipton, England, assignor to Landis Lund, Limited, Keighley, England.

Filed Mar. 25, 1980, Ser. No. 133,714
Int. Cl.³ B24B *5/42*
U.S. Cl. 51—237 CS **3 Claims**



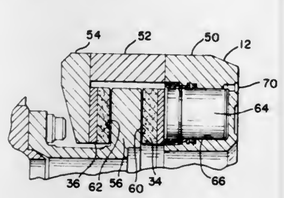
1. A workholding fixture for clamping a workpiece for rotation about a selected axis comprising:
- at least one throwblock for receiving a workpiece portion to be clamped,
- a clamp arm associated with said throwblock including a jaw at one end and a control surface at the other end,
- means for pivotally supporting said clamp arm intermediate said ends,
- means for selectively displacing said pivotally supporting means along an arc from a predetermined advanced position to a predetermined retracted position,
- means for pivotally displacing said clamp arm about said pivotally supporting means including
- cylinder means having bearing surface means selectively displaceable from a retracted position to an advanced position,
- said bearing surface means having a selected length to permit engagement with said control surface means as said pivotally supporting means and said bearing surface means are displaced between said advanced and retracted positions, and
- means for maintaining said bearing and control surfaces in engagement.

4,269,002

METHOD FOR RESURFACING DISC BRAKE ROTORS

Lawrence A. Venere, Wood Dale, and E. A. Domes, Carpentersville, both of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Jun. 4, 1979, Ser. No. 45,511
Int. Cl.³ B24B *1/00, 23/02*
U.S. Cl. 51—281 SF **4 Claims**



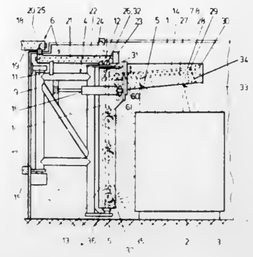
1. In a self propelled vehicle supported on driven wheels driven through a drive train including an engine, a gear equipped transmission and a differential equipped axle, said vehicle having a service brake system including a disc brake rotor mounted for rotational movement on said axle and a disc brake caliper having service brake pads carried thereby adjacent said disc brake rotor and a fluid pressure supply line connected to said disc brake caliper, a method of resurfacing said disc brake rotor while installed in said vehicle comprising the steps of removing said service brake pads from said disc brake caliper, installing special abrasive pads in said disc brake caliper, rotating said disc brake rotor after raising said driven wheels of said vehicle off the ground and engaging said gear of said transmission while said vehicle engine drive said differential equipped axle to which the disc brake rotor to be resurfaced is attached, the improved method of urging said special abrasive pads into contact with said disc brake rotor comprises:
- disconnecting the fluid pressure supply line to the disc brake caliper of the rotor to be resurfaced;
- capping said supply line to prevent leakage of fluid under pressure;
- connecting an auxiliary source of fluid pressure, including a metering valve means, to the disc brake caliper of the rotor to be turned;
- allowing metered flow from said auxiliary source of fluid pressure to said disc brake caliper to urge said special abrasive pads into contact with said disc brake rotor.

4,269,003

CENTRIFUGAL BLASTING MACHINE FOR LARGE WORKPIECES

Wolfgang Walter, Hallau, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Switzerland

Filed Jun. 26, 1979, Ser. No. 52,182
Claims priority, application Switzerland, Jun. 29, 1979, 7083/78
Int. Cl.³ B24C *3/04, 3/22*
U.S. Cl. 51—421 **11 Claims**



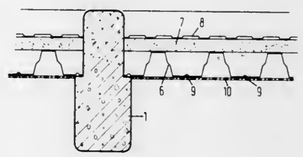
1. A machine for centrifugal blasting of workpieces having large volumes or surface areas, the machine having a closed blasting chamber and means for fixedly or rotatably supporting a workpiece therein, and wherein the machine comprises
- a first support bracket structure pivotally supported for movement about a first axis within the blasting chamber;
- a second support bracket structure pivotally supported on said first bracket structure for movement about a second axis movable with said first structure, said second bracket structure having at least two angularly related carrier portions;
- a plurality of blasting wheel units mounted on said angularly related carrier portions of said second bracket structure for propelling blasting medium toward the workpiece; and
- means for feeding blasting medium to said blasting wheel units, said means including conveying conduits having substantially rigid portions extending to and between said first and second axes and swivel joints at said axes.

4,269,004

EXPLOSION-PROOF BUILDING

Cornelis J. M. Schiebroek, Parklaan 60, Eindhoven, Netherlands

Filed Aug. 9, 1978, Ser. No. 932,374
Claims priority, application Netherlands, Aug. 15, 1977, 7708979
Int. Cl.³ E04H *9/00*
U.S. Cl. 52—1 **8 Claims**



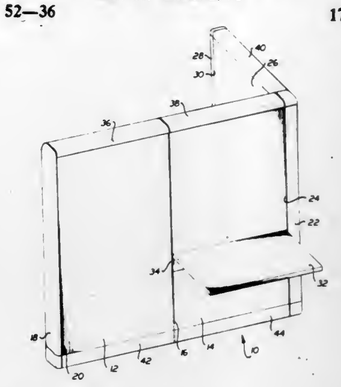
1. An explosion proof building comprising a wall and a roof, said wall comprising a plurality of horizontally spaced apart vertically extending structural load bearing members of concrete, and panel means in the spaces between said members, and
- means for plastically deforming under tension when said building is subjected to an external explosion comprising elongated elements between said load bearing members, and having the ends thereof anchored, said elongated elements being pre-stressed steel wires, said panels abutting said elements, and being on the exterior thereof.

4,269,005

PANEL JOINING SYSTEM

Jay Timmons, Palos Verdes Estates, Calif., assignor to Hiebert, Inc., Torrance, Calif.

Filed Jun. 11, 1979, Ser. No. 47,027
Int. Cl.³ E04B *2/78*
U.S. Cl. 52—36 **17 Claims**



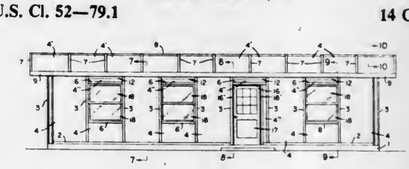
1. An arrangement for joining first and second panel members at facing portions thereof, the facing portions of each of the first and second panel members having a length extending between top and bottom portions of the panel, the arrangement comprising a first elongated member disposed between the facing portions of the first and second panel members, the first elongated member extending along at least a substantial portion of the length of each of the facing portions, a second elongated member disposed between the facing portions of the first and second panel members along a least a substantial portion of the length of each of the facing portions and generally parallel to and spaced-apart from the first elongated member, a top connecting element extending between and fastened to the top portions of the first and second panel members and a bottom connecting element extending between and fastened to the bottom portions of the first and second panel members.

4,269,006

HOUSE ASSEMBLY WITH PREFABRICATED ELEMENTS

Kenneth Larrow, 1300 Belcher Rd. So., Largo, Fla. 33543

Continuation of Ser. No. 855,986, Nov. 30, 1977, abandoned, which is a continuation-in-part of Ser. No. 723,809, Sep. 16, 1976, Pat. No. 4,071,984. This application Sep. 5, 1979, Ser. No. 72,360
Int. Cl.³ E04C *1/00*
U.S. Cl. 52—79.1 **14 Claims**



1. A component building system, comprising in combination:
- a plurality of unitary panels each having an inner and an outer skin with insulation means secured therebetween;
- said inner and outer skins extending beyond the terminal ends of said insulation means creating a panel groove about the perimeter of said panel;
- a first support stud secured relative to the earth;

a first interpanel stud secured in extending relationship to said first support stud;

means for mounting a first of said plurality of panels with said panel groove on adjoining ends of said first panel at least partially receiving said first support stud and said first interpanel stud respectively;

a second interpanel stud secured in extending relationship to said first support stud and within said panel groove of said first panel;

means for mounting a second of said plurality of panels with said panel groove on adjoining ends of said second panel at least partially receiving said first support stud and said second interpanel stud respectively;

a third interpanel stud secured in extending relationship to said first support stud and within said panel groove of said second panel;

a second support stud mounted within said panel groove of said first and second panels and secured to said interpanel studs thereby locking said first and second panels between said stud while concealing said studs within said panel groove;

strap means disposed within said panel grooves for securing said interpanel stud to said support studs; and

fastening means extending through said strap means into at least one of said studs for securing said studs together.

4,269,007

VENT AND BAFFLES

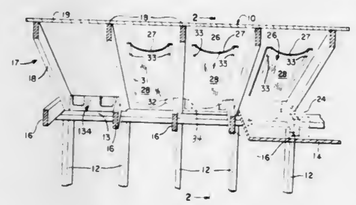
Bruce K. Ward, St. Louis Park, Minn., assignor to Insulation Sales Co., Minneapolis, Minn.

Division of Ser. No. 896,890, Apr. 17, 1978, which is a continuation-in-part of Ser. No. 834,322, Sep. 19, 1977, Pat. No. 4,125,971. This application Apr. 24, 1979, Ser. No. 32,879

The portion of the term of this patent subsequent to Nov. 21, 1995, has been disclaimed.

Int. Cl.[1] **E04B** *7/02*

U.S. Cl. 52—92 **18 Claims**



1. A vent and baffle for providing an air passage between the soffit and attic of a structure having a top wall plate, roof rafters, ceiling joists, and a roof cover secured to the roof rafters comprising:

a vent having an elongated body, said body having opposite longitudinal sides and an arcuate shaped cross section forming a longitudinal groove with open ends, and outwardly directed side flanges secured to and extended along said opposite sides of the body;

a baffle having a top arcuate recess and side pockets for accommodating a transverse portion of the body and side flanges, said baffle having a bottom portion engageable with the top wall plate whereby the baffle holds the side flanges of the vent in engagement with the roof cover so that the groove of the body forms with the roof cover an air passage between the soffit and attic.

4,269,008

DEVICE TO KEEP BIRDS FROM ALIGHTING ON BUILDINGS

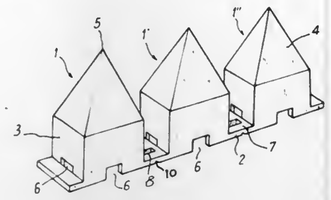
David Assouline, 103 Ave. Philippe Auguste, 75011 Paris, France

Filed Nov. 19, 1979, Ser. No. 95,442

Claims priority, application France, Nov. 20, 1978, 78 32679

Int. Cl.[1] **E04B** *1/72*

U.S. Cl. 52—101 **6 Claims**



1. Device to drive away birds and prevent them from alighting and nesting on roofs, cornices and other surfaces of buildings, edifices, parts of constructions or the like, comprising a series of shaped elements extending vertically and each having a pointed summit, on a support base, each said shaped element comprising a polyhedron with transparent lateral faces, able to give a prism effect and which come together at the summit in the form of a sharp point.

4,269,009

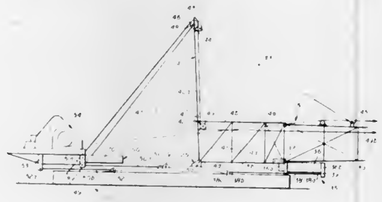
LOW LIFT, ELEVATABLE HIGH FLOOR DRILLING MAST AND SUBSTRUCTURE ARRANGEMENT THEREFOR

Larry K. Lawrence, Houston, Tex., assignor to Pyramid Manufacturing Company, Houston, Tex.

Filed Aug. 29, 1979, Ser. No. 70,894

Int. Cl.[1] **B66C** *23/06*

U.S. Cl. 52—116 **10 Claims**



1. A low lift, high floor drilling mast and substructure arrangement therefor comprising:

a. base means for resting on the earth's surface;

b. drilling mast support means pivotally connected to said base means with a drilling mast thereon;

c. setback tower means pivotally connected to said drilling mast support means and to said base means;

d. elevatable drawworks support means pivotally mounted on said base means with drawworks means thereon;

e. means to secure said drilling mast support means to said base means when in upright position thereon;

f. lifting frame means connected to said drilling mast support means whereby said drilling mast means, support means therefor and setback tower means may be simultaneously elevated from a reclined position to an upright position on said base means; and

g. means to secure said lifting frame means in an erect position adjacent the upright mast support means.

4,269,010

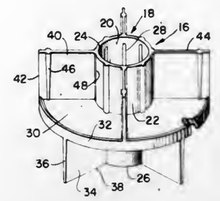
MULTI FIN POST ANCHOR SYSTEM

Carl R. Glass, 1036 Partin Dr., Kissimmee, Fla. 32741

Filed Nov. 21, 1979, Ser. No. 96,267

Int. Cl.[1] **E04N** *12/20*

U.S. Cl. 52—154 **3 Claims**



1. A post anchor formed of non-metallic material for use with an elongated post having a portion embedded in the earth, the post anchor comprising:

a main sleeve portion having an inner sleeve surface and an outer sleeve surface, and having a top end and a bottom end;

a series of radially spaced, elongated, inwardly projecting, vertical splines on the inner sleeve surface;

a substantially flat horizontal disc member extending from the outer sleeve surface at a midlength location between the top and bottom ends of the sleeve;

the disc member having a peripheral vertical flange extending about the perimeter thereof;

a plurality of lower radial fin members extending from the outer sleeve surface, the fin members having outer edges coextensive with the flange, and lower edges coextensive with the bottom end of the main sleeve portions;

a plurality of upper radial fin members extending from the outer sleeve surface, at locations intermediate the locations of the lower fin members, the upper fin members having vertical edges coextensive with the flange, and upper edges coextensive with the top of the main sleeve, the upper fins having rigidifying vertical braces incorporated therein adjacent the vertical edges thereof;

strengthening ribs on the outer sleeve surface extending from the disc members to the top of the main sleeve portions;

the post anchors being adapted to be engaged on the portion of the post embedded in the earth with the vertical splines and frictional engagement therewith such that the fins resist lateral movement in the earth of the post.

4,269,011

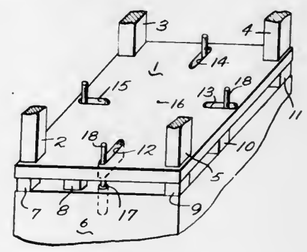
EARTHQUAKE GUARDING SYSTEM

Aristarchos S. Ikonomou, 90 Evrow St., Athens 609, Greece

Filed Jun. 8, 1979, Ser. No. 46,760

Int. Cl.[3] **E02D** *27/34*

U.S. Cl. 52—167 **3 Claims**



1. In a structure having a superstructure and at least one load distributing base supporting said superstructure, the connections between said structure and the earth being essentially a support means and a connecting means, said support means transferring to the ground the load of the structure in a first direction from said load distributing base, said support means providing elastic resistance to movement of the structure in all directions perpendicular to said first direction so that said support means is able to follow dynamic movements of the ground in said perpendicular directions without transferring great forces from the ground to said base in said perpendicular directions, said structure being provided with peripheral clearance from the ground in said perpendicular directions so that said base can move a predetermined distance through said clearance relative to the ground in said perpendicular directions,

said connecting means being connected respectively to said base and to the ground in a said perpendicular direction, said connecting means being sufficiently strong to substantially prevent movement of said structure under forces in said perpendicular directions less than a predetermined magnitude but sufficiently weak to abruptly disconnect the connection between the ground and the base immediately upon being subject to a force of said predetermined magnitude when said base has moved a small proportion of said predetermined distance in said perpendicular direction, thereby removing the restraint against movement of the structure in said perpendicular direction by removing the transmission of forces in said perpendicular direction through said connecting means so that the load of said structure remains supported on said support means which thereafter provides the only essential connection to the ground, said support means having sufficient elastic stiffness in said perpendicular direction to apply restoring forces to said sturcture and to safely transfer loads in said perpendicular direction from the structure to the ground, after said connecting means has disconnected, thereby permitting the structure to move relative to the ground in said perpendicular direction through said peripheral clearance against the elastic resistance of said support means and in accordance with abruptly changed dynamic characteristics and to withstand said dynamic movements of the ground;

the improvement in which said connecting means comprises an elongated bar connected to said load distributing base and to the ground, the long dimension of said bar extending in said first direction, said bar being subjected to shear forces during relative movement between said base and the ground and being constructed and arranged to break in shear when subjected to said force of predetermined magnitude, and in which there is an elongated slot in said base having a width approximately the same as said bar, which receives said bar, whereby movement of said base relative to said bar can occur along the length of said slot.

4,269,012

STANDING SEAM ROOF, PANEL THEREFOR, AND METHOD OF INSTALLATION

John A. Mattingly, St. Louis, and Hasmukh S. Mehta, Manchester, both of Mo., assignors to The Binkley Company, Warrenton, Mo.

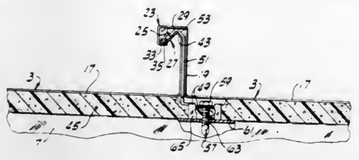
Filed Feb. 1, 1979, Ser. No. 8,434

Int. Cl.[1] **E04D** *3/362*

U.S. Cl. 52—394 **12 Claims**

1. An elongate sheet metal panel for a standing seam roof having a web adapted to bear on panel supporting means of a roof and first and second flanges both extending up from the web at opposite sides of the web, said panel being adapted to be mounted on said supporting means adjacent another panel with the webs of the panels bearing on said supporting means, with said flanges standing up from said supporting means, and with the outside of the first flange of one panel alongside the outside of the second flange of the other, the first flange of the panel having an integral downwardly opening channel section ex-

tending longitudinally along its upper margin on the outside thereof, said channel section being provided with sealing means therein before assembly with another panel on said supporting means, said second flange having an integral sealing lip section extending longitudinally along its upper margin on the inside thereof adapted to fit in the channel section of an adjacent panel on said supporting means and sealingly engageable with the sealing means in the latter channel section to form a sealed standing seam, the channel section comprising an upper web extending laterally outwardly from the first flange at the upper edge of the first flange, and an outer flange extending down from the upper web at the outer edge of the upper web, the sealing means extending along said outer flange of said channel section, said lip section of the panel having an outer edge portion engageable with the sealing means of the channel section of the adjacent panel, said channel section further comprising a lower lip extending laterally inwardly from the outer flange of the channel section at the lower edge of said outer flange, said sealing means comprising a strip of flexible resilient material adhered to the inside of said outer flange between said upper web and said lower lip and facing toward the first flange of the panel.

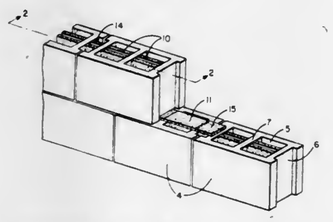


4,269,013

INSULATED BUILDING BLOCK WALL CONSTRUCTION

Earl L. West, 17990 Ixonia Ave. West, Lakeville, Minn. 55044

Filed Apr. 26, 1979, Ser. No. 33,793
Int. Cl.³ E04B *2/00*
U.S. Cl. 52—405 **3 Claims**



1. In combination with a plurality of masonry building blocks having cavities formed therein and having masonry divider webs interposed between adjacent cavities,

insulating barrier panels inserted into each cavity and constructed to define a cap-receiving groove in the upper portion thereof,

a cap element with a portion thereof extending above each cavity and extending horizontally beyond each cavity to overlie a portion of each web and form with adjacent cap portions, a continuous barrier strip between adjacent rows of blocks while providing an insulating barrier within each block cavity,

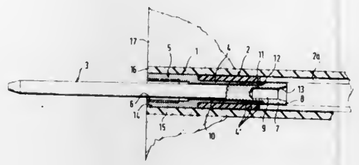
said cap element having a portion adapted to extend downward into the groove to produce a sealing retaining fit with the respective upper edges of said cavity barrier panels.

4,269,014

PROCESS FOR FASTENING A BONDING AND SEALING DEVICE TO CONSTRUCTION COMPONENTS AND/OR BUILDINGS BY FORCING INJECTION MATERIAL INTO CRACKS, FLAWS, AND THE LIKE

Werner Grammerstorf, Munich, Fed. Rep. of Germany, assignor to IPA Bauchemie GmbH, Egling, Fed. Rep. of Germany

Filed Jul. 31, 1979, Ser. No. 62,348
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833546
Int. Cl.³ E04D *15/00*
U.S. Cl. 52—749 **9 Claims**



1. A device for fastening a bonding and sealing device in a drilled hole by forcing injection material into cracks or flaws of construction parts or buildings comprising:

an elongated sleeve;

a sealing bushing of an elastic material, said bushing encasing at least a portion of said sleeve and being radially expandable from the inside thereof; and

pull pin means arranged within said sleeve for expanding from the inside at least a portion of the length of said sleeve encased by said sealing bushing, said sealing bushing being sealingly clamped between the wall of said drilled hole and the encased portion of said sleeve;

said pull pin means including a shank, and a head adapted to be torn off, said head of said pull pin means including a coaxial blind hole extending into the end of said pull pin means toward the shank thereof.

4,269,015

APPARATUS FOR PACKAGING ARTICLES IN A WIRE-BOUND BOX ASSEMBLY

Quentin T. Woods, San Jose; Paul H. Becker, Saratoga, and William D. Gerverdinck, San Jose, all of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Jun. 14, 1979, Ser. No. 48,415
Int. Cl.³ B65B *5/02, 11/02*
U.S. Cl. 53—526 **7 Claims**

1. An apparatus for packaging articles in a box assembly, wherein the box assembly includes a blank comprised of a top board, a bottom board, a first side board, and a second side board, all of said boards being foldably bound to each other, the box assembly further including a pair of separate end boards, said packaging apparatus comprising:

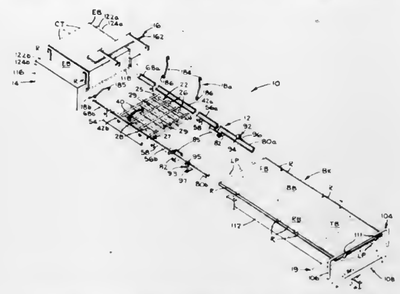
means for initially supporting the blank in a horizontal orientation;

platform means for receiving the articles and the end boards and for supporting the same in an arrangement such that the end boards are vertically positioned in a spaced relationship enclosing said articles and in a preassembled configuration suitable for placement on the bottom board of the blank;

means for moving said platform means with the end boards and articles thereon to a drop position directly above and aligned with the bottom board of the blank on said blank supporting means and for thereafter moving said platform means away from said bottom board along a horizontal path which is parallel to the blank;

means for selectively engaging the articles and end boards on said platform means as said platform means is moved in said horizontal path to strip the articles and end boards from said platform means and cause them to drop onto the bottom board of the blank;

means for upwardly folding the first and second side boards into vertical positions and for thereafter folding the top board downwardly to the first side board and into a horizontal position to encompass the articles and end boards within the folded blank; and



means positioned above said folding means for pressing the end boards against the articles as the end boards and articles are supported on said platform means in said drop position directly above and aligned with the bottom board of the blank and for continuing to press the end boards against the articles in said preassembled configuration as they drop onto the bottom board and thereafter until the first and second side boards and said top board have been folded around said end boards by said folding means, whereby the free edges of the top board and first side board can be secured together to complete the assembly of a box with the articles packaged within.

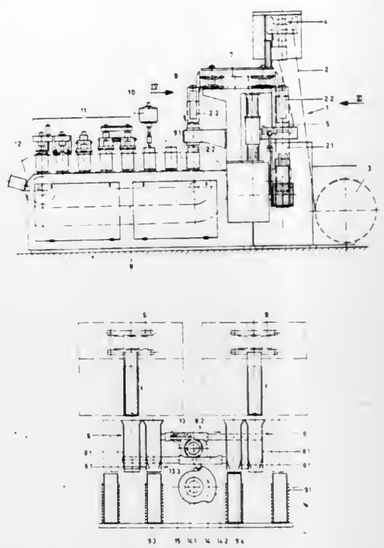
4,269,016

PLURAL LINE BAG FORMING AND FILLING APPARATUS

Josef Kopp, Griesheim; Ernst Hüther, Darmstadt, and Ernst Bohländer, Ueberau, all of Fed. Rep. of Germany, assignors to Zupack-Gesellschaft mbH, Darmstadt, Fed. Rep. of Germany

Filed Dec. 1, 1978, Ser. No. 966,131
Int. Cl.³ B65B *9/08*
U.S. Cl. 53—546 **4 Claims**

1. In a packaging apparatus, a combination comprising a pair of packaging machines arranged side-by-side and each including a tube station in which a web of packaging material is withdrawn from a supply roll and shaped into a tube, a bag-forming station in which the tube is subdivided into tube sections which are converted into bags, a filling station in which a product is filled into the bags, a sealing station in which the filled bags are sealed, and a delivery station, said stations in respective machines being arranged sequentially; a conveyor extending along all of said stations and having two side-by-side pairs of conveyor tracks; means for delivering bags from each of said bag-forming stations alternately to the respective tracks of an associated one of said pairs of tracks, said means comprising two intermediate magazines, one in each of said machines, displaceable in timed movements transversely of the conveyor elongation, each magazine receiving bags individually from the respective bag-forming station and alternately displacing the formed bags towards the respective conveyor track; means for transferring bags at the respective bag-forming station to a respective one of said intermediate magazines; and means for



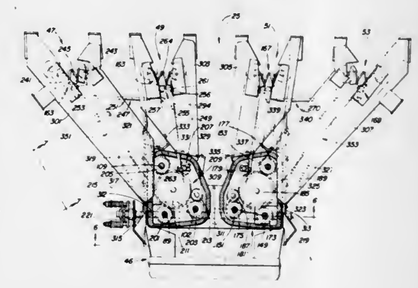
transferring bags from the intermediate magazines to the respective conveyor track.

4,269,017

HARVESTER HEADER WITH A MAIN FRAME OF MODULAR SUBFRAMES

Harold E. deBuhr, and Henry W. Suechting, both of Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Sep. 11, 1979, Ser. No. 74,575
Int. Cl.³ A01D *45/02*
U.S. Cl. 56—106 **7 Claims**



1. In a header for a row crop harvester having a crop receiving throat, said header comprising:

a rear attachment frame couplable to said harvester;

first and second sealed gear cases attached together and attached to said rear frame;

first and second row unit frames attached to and extending generally fore-and-aft from said first gear case;

third and fourth row units frames attached to, and extending generally fore-and-aft from, said second gear case;

first and second pairs of conveyors attached to and extend-

ing generally fore-and-aft between (1) the forward ends, respectively, of said first and second row unit frames, respectively, and (2) said first gear case;

third and fourth pairs of conveyors attached to and extending generally fore-and-aft between (1) the forward ends of said third and fourth row unit frames, respectively and (2) said second gear case; and

each pair of conveyors defining therebetween a passageway with a crop entry and crop exit at the forward and rearward ends thereof, respectively, each pair of conveyors for conveying severed crop along said passageway defined therebetween and into said throat, said first and second conveyors comprising drive means having an input drive gear train enclosed in said first gear case, said third and fourth pair of conveyors comprising drive means having an input drive gear train enclosed in said second gear case;

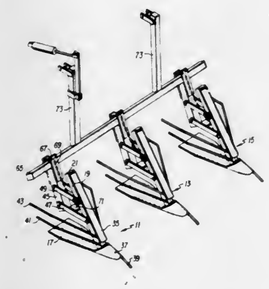
wherein the improvement comprises the attachments between (1) the rear frame and the first and second gear cases, (2) the first gear case and the second gear case, (3) the first and second row unit frames and the first gear case, and (4) the third and fourth row unit frames and the second gear case being mechanical attachments.

4,269,018

BEAN DIVIDER

John P. Pickett, Rte. 1, Murtaugh, Id. 83344

Filed Oct. 2, 1979, Ser. No. 81,157
Int. Cl.[3] A01D *45/02, 63/00*
U.S. Cl. 56—119 5 Claims



1. A bean divider mechanism for attachment to a drawing vehicle comprising

at least one bean divider including a shoe;

a first support bar secured to said divider and extending upwardly therefrom;

at least one substantially vertical bar;

means for pivotally securing said vertical bar to said driving vehicle;

a substantially horizontal bar secured to the lower end of said vertical bar;

a second support bar secured to said horizontal bar and subtending therefrom at a predetermined angle α from the vertical;

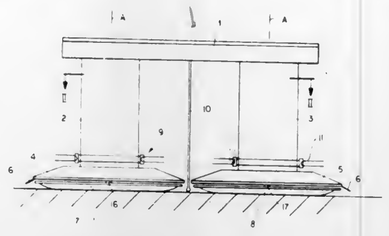
means for pivotally supporting said first support bar relative to said second support bar, said first support bar being at an angle θ to the vertical greater than said angle α.

4,269,019

TEDDING ATTACHMENT FOR ROTARY HARVESTING MOWER

Gerhard Strobel, Ehingen, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Gottmadingen, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,220
Claims priority, application Fed. Rep. of Germany, Jun. 24, 1978, 2827786
Int. Cl.[3] A01D *57/30*
U.S. Cl. 56—192 14 Claims



1. In a mowing machine having at least one upright mowing drum centered on and rotatable about an upright axis and having a lower end provided with at least one radially projecting blade defining a blade orbit on rotation of said drum, a crop spreader comprising:

a ring surrounding said drum above said blade and having a pair of ends;

means for tightening said ring to said drum for joint rotation therewith; and

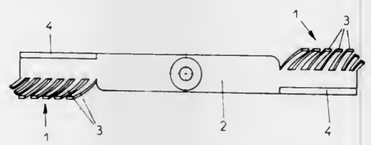
at least one set of radially extending tines having inner ends clamped between said ends of said ring above said blade for joint rotation therewith and with said drum.

4,269,020

MEANS FOR IMPELLING GRASS CLIPPINGS IN A ROTARY-SCYTHE GRASS MOWER

Elmar Wolf, Wissembourg, France, assignor to Sarl O. Wolf, Wissembourg, France

Filed Mar. 27, 1979, Ser. No. 24,373
Claims priority, application France, Apr. 7, 1978, 78 11630; Sep. 14, 1978, 78 27561
Int. Cl.[3] A01O *55/18*
U.S. Cl. 56—295 1 Claim



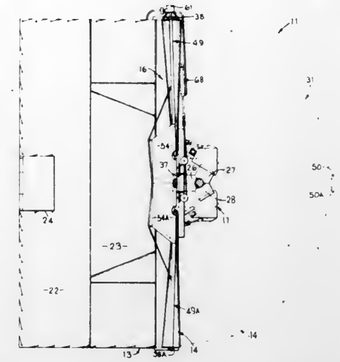
1. In a rotary-scythe grass mower, a cutter blade which is an elongated horizontal metal plate having spaced tines stamped from the metal thereof, the tines being spaced apart from each other and extending in a curved configuration from the horizontal part of the blade upwardly and endwise outwardly of the blade, said tines being disposed on trailing edges of said blade, there being cutting edges on the leading edges of the blade.

4,269,021

FRUIT AND NUT HARVESTING APPARATUS

Philip L. Friday, Hartford Township, Van Buren County, Mich., assignor to Friday Tractor Co., Inc., Hartford, Mich.

Filed Apr. 2, 1979, Ser. No. 26,300
Int. Cl.[3] A01G *19/06*
U.S. Cl. 56—329 19 Claims



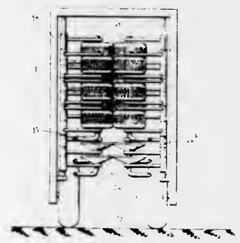
1. Fruit catching apparatus for receiving fruit shaken from a tree, comprising: frame means; an elongated roll rotatably mounted on said frame means, said roll being of progressively increasing size from one end to the other end thereof; a flexible, generally planar sheet which has substantially the shape of a quadrant: in plan view, one radial edge of said sheet being affixed to said roll along the lengthwise extent thereof so that said sheet can be rolled up on said roll; a support member affixed to the other radial edge of said sheet; means supporting said support member on said frame means for pivotal movement about an axis substantially perpendicular to the axis of rotation of said roll and located close to said one end of said roll; said sheet having an upwardly projecting wall extending along the perimeter thereof and between the outer ends of the radial edges thereof for retaining fruit on said sheet; and a plurality of upwardly projecting pushers extending inwardly from the perimeter of said sheet at circumferentially spaced-apart locations thereon toward said other radial edge of said sheet for pushing fruit over the top of said roll during winding up of said sheet on said roll.

4,269,022

DEVICE FOR HARVESTING GRAPES OR OTHER BERRIES AND APPARATUS PROVIDED WITH THIS DEVICE

Albert Adams, Domaine de St. Aubin 34170, Lespignan, France

Filed Apr. 17, 1979, Ser. No. 30,884
Claims priority, application France, Apr. 19, 1978, 78 12860
Int. Cl.[3] A01D *46/00*
U.S. Cl. 56—330 19 Claims



1. A device adapted to automatically harvest fruit during movement through vegetation containing said fruit, said device comprising:

(a) two hollow volumes facing each other and maintained in contact with each other over an area by an adjustable elastic pressure for bursting said fruit being harvested, said hollow volumes including multiple perforations at the area of said contact which are large enough to permit passage of the largest fruit being harvested, said hollow volumes being defined by a material sufficiently flexible to be adjustably displaced within the vegetation through which said volumes are moved such that the portions of the vegetation carrying the fruit to be harvested will be successively introduced and elastically pressed between said perforated surfaces adjacent said contact area; and

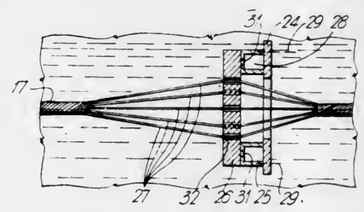
(b) means for creating suction for pulling said harvested fruit through said perforations into said hollow volumes and for conducting said harvest to a storage reservoir, wherein flexible portions of said hollow volumes are adapted to be displaced for bursting said fruit by moving said device through the vegetation being treated.

4,269,023

APPARATUS FOR USE IN FLUIDIZED POWDER FILLING OF MULTIPLE CORE UNIT CABLES

John N. Garner, Pointe Claire, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Continuation-in-part of Ser. No. 930,236, Aug. 2, 1978, Pat. No. 4,205,515. This application Jul. 9, 1979, Ser. No. 56,282
Int. Cl.[3] H01B *13/00*
U.S. Cl. 57—1 UN 10 Claims



1. An opening device for opening a multiple core unit cable core into a plurality of core units comprising:

a support member comprising a tubular housing having a cylindrical central portion and cylindrical end portions on either side of said central portion;

an opening member comprising a rotor rotatably mounted in said housing and having a centre portion with end walls and end portions, one on each side of the centre portion, the centre and end portions of the rotor, respectively, being a close rotatable fit in said central portion and end portions of the housing, the rotor also defining a plurality of holes spaced apart around an axis of the rotor and extending axially there-through, each for passage of a core unit;

the rotor defining axially extending grooves around the periphery of its centre portion, the grooves opening outwardly onto and closed by the housing, at least one nozzle member in the central portion of the housing and directed inwardly onto the grooves, air supply means to said nozzle member to eject pressurized air from said nozzle member and onto said grooves to provide a rotational force on the rotor, and at least one exhaust for pressurized air, said exhaust opening onto said grooves and circumferentially spaced around the central portion of the housing from the nozzle member;

said end portions of said housing including surfaces in opposition to said end walls, and means to supply pressurized air between said end walls and said surfaces; and

means to supply pressurized air between the periphery of the centre portion of the rotor and the central portion of the

housing axially away from the at least one nozzle member to form at least one air bearing therebetween.

4,269,024

STRENGTH MEMBERS FOR THE REINFORCEMENT OF OPTICAL FIBRE CABLES

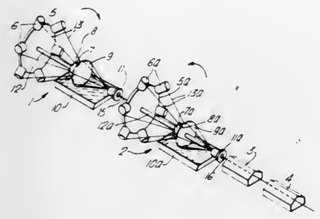
Raymond S. Ashpole, Leighton Buzzard; Colin J. Peachey, Bushey, and Arup K. Kar, Teddington, all of England, assignors to Associated Electrical Industries Limited, London, England

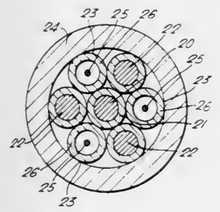
Filed Jul. 19, 1979, Ser. No. 58,797

Claims priority, application United Kingdom, Aug. 1, 1978, 31797/78

Int. Cl.³ D02G *3/36, 3/44;* D07B *7/14*

U.S. Cl. 57—232 **9 Claims**





1. A continuous elongate strength member for use in reinforcing an optical fibre cable, which is composed of an assembly of aromatic polyamide filaments impregnated with a synthetic resin, wherein all the said filaments forming the said assembly are individually coated with the resin, wherein the said assembly consists of a first bundle of said resin-coated filaments constituting the core of the assembly, and at least one further bundle of said resin-coated filaments helically stranded in at least one layer around said core, and wherein successive helical layers are stranded in opposite directions.

4,269,025

ELECTRONIC ALARM TIMEPIECE WITH PRESETTABLE ALARM TIME MEMORY

Kenichi Kondo, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

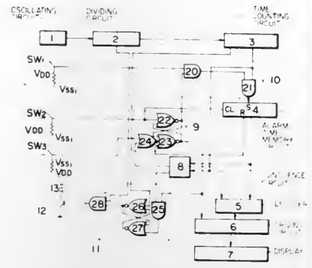
Filed Jul. 3, 1978, Ser. No. 921,466

Claims priority, application Japan, Jul. 20, 1977, 52-87113

Int. Cl.² G04C *21/00*

U.S. Cl. 368—73 **5 Claims**

1. An electronic alarm timepiece comprising: an oscillating circuit for producing a time standard signal; a time counter for counting the time standard signal; an alarm time memory circuit; a display device for displaying the alarm time and the time count; an actuatable alarm device; a coincidence detector for detecting a coincidence between the time count and the memorized alarm time to produce a signal for actuating the alarm device; and means for effecting memorization of the



present time count in the alarm time memory circuit to preset same for the later setting to a desired alarm time.

4,269,026

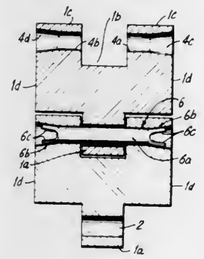
CONNECTOR PIN FOR LINK BRACELETS

Marcel Bulle, Franois, and Jean Vuillaume, Besancon, both of France, assignors to Timex Corporation, Waterbury, Conn.

Filed Aug. 23, 1979, Ser. No. 68,985

Int. Cl.³ F16G *13/18*

U.S. Cl. 59—82 **2 Claims**



1. An improved flexible bracelet of the type having a plurality of links each with at least one projecting tongue at one end and spaced projecting lugs defining at least one groove at the other end, the links being arranged in end-to-end relation with the tongue of one link received in the groove of the adjacent link to provide a plurality of tongue and groove joints along the length of the bracelet, characterized in that:

(a) the tongue of each link includes a cylindrical bore extending transversely therethrough and the spaced lugs of each link each include an enlarged chamber outwardly tapered, truncated-conical in shape extending at least partially transversely therethrough in communication with said tongue bore in coaxial alignment therewith to define a transverse passage with open ends through each joint when the links are arranged end-to-end; and

(b) a connector pin disposed in the transverse passage through each tongue and groove joint to hold adjacent links together in releasable yet secure fashion such that links can be readily removed from the bracelet for length adjustment purposes, said connector pin including an intermediate cylindrical shaft adapted to be disposed in the cylindrical bore of the tongue to provide an axis for relative rotation between adjacent links and also including an enlarged retaining head outwardly tapered, truncated-conical in shape at opposite ends of said intermediate shaft, said retaining heads each being received in a respective one of the enlarged lug chambers with each head being bifurcated so as to be compressible so that said connector pin can be easily removed from the passage through adjacent links simply by exerting axial force on one of said compressible retaining heads to force it into

and through said passage and out the opposite end, thereby disengaging the adjacent links from one another.

4,269,027

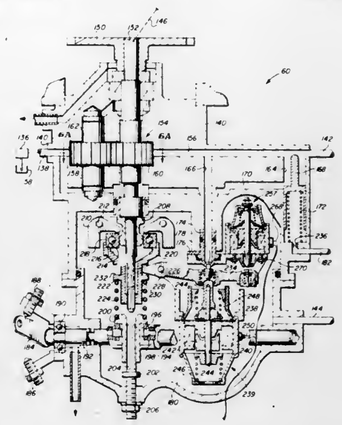
GAS TURBINE ENGINE IDLE CONTROL AND METHOD

George B. Mattson, Scottsdale, and Geoffrey D. Woodhouse, Phoenix, both of Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 22, 1977, Ser. No. 863,375

Int. Cl.³ F02C *9/02*

U.S. Cl. 60—39.04 **25 Claims**



24. A method of controlling fuel flow to and during idling of a free turbine type gas turbine engine powering a ground vehicle having a final drive for delivering power to ground engaging wheels, and a clutch with input and output shafts respectively connectable with the engine and the final drive, said method comprising the steps of:

sensing engine speed and clutch output shaft speed; and

adjusting fuel flow to maintain engine speed at a first idle level and a second higher idle level whenever said clutch output shaft speed is respectively above and below a predetermined value.

4,269,028

SECONDARY AIR SUPPLY SYSTEM FOR THE EXHAUST SYSTEM OF AN INTERNAL COMBUSTION ENGINE

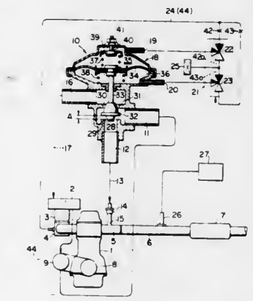
Kyo Hattori, Susono, Japan, assignor to Toyoto Jidosha Kogyo Kabushiki Kaisha, Japan

Filed Apr. 4, 1978, Ser. No. 893,402

Claims priority, application Japan, Dec. 29, 1977, 52-159306

Int. Cl.³ F01N *3/10;* F16K *31/42*

U.S. Cl. 60—276 **5 Claims**



1. A secondary air supply system for the exhaust system of an internal combustion engine, comprising a source of compressed air, an air control valve which supplies a part of the air delivered from said source to the exhaust system of the engine while relieving the rest of the air, an oxygen detector for detecting residual oxygen contained in the exhaust gases flowing through the exhaust system, a source of actuating fluid pressure different from atmospheric pressure, a change-over valve for said actuating fluid pressure, a controller which changes over said change over valve in accordance with the output of said oxygen detector, said air control valve having an inlet port for receiving air from said source of compressed air, an outlet port for supplying a part of the air received to the exhaust system, a relief port for relieving the rest of the air received, a first passage which connects said inlet port and said outlet port, a second passage which connects said inlet port and ssaid relief port, a valve element which reciprocally controls the openings of said first and second passages, first and second diaphragm chambers selectively supplied with either said actuating fluid pressure or atmospheric pressure by way of said change-over valve, at least one diaphragm which defines said individual diaphragm chambers and is connected with said valve element, first and second springs which are separate from said diaphragm and which reciprocally operate to balance said valve element at a neutral position where a predetermined opening ratio of said first passage to said second passage is established, said change-over valve having a first change-over position wherein it connects said first diaphragm chamber to said source of actuating fluid pressure while it connects said second diaphragm chamber to the atmosphere and a second change-over position where it connects said second diaphragm chamber to said source of actuating fluid pressure while it connects said first diaphragm chamber to the atmosphere, and throttle means for throttling only either one of two flows of fluid, one of which is the flow of fluid which flows through said change-over valve between said source of actuating fluid pressure and said diaphragm chambers, and the other of which is the flow of fluid which flows through said change-over valve between the atmosphere and said diaphragm chambers, wherein said diaphragm or diaphragms are adapted so as to shift said valve element against the balancing force of said first and second springs in the direction to increase the opening of said first passage and to decrease the opening of said second passage when the fluid pressure in said first diaphragm chamber is lower than the fluid pressure in said second diaphragm chamber, and so as to shift said valve element against the balancing force of said first and second springs in the direction to increase the opening of said second passage and to decrease the opening of said first passage when the fluid pressure in said second diaphragm chamber is lower than the fluid pressure in said first diaphragm chamber, said spring and said throttle means cooperating each time said change-over valve is actuated, to rapidly return said valve element to said neutral position by said first and second springs and to maintain said element for a while at said neutral position due to the delay of fluid flow caused by said throttle means and thereafter to gradually shift said element in one of said two directions in accordance with the fluid pressure in said first and second diaphragm chambers.

4,269,029

INTERNAL COMBUSTION ENGINE WITH EXHAUST EMISSION CONTROL SYSTEM

Francesco Cavallino, Pinerolo; Pasquale Martinez, Turin; Michele Allione, Turin, and Roberto Schiavuzzi, Turin, all of Italy, assignors to Fiat Auto S.p.A., Turin, Italy

Filed Feb. 22, 1979, Ser. No. 13,994

Claims priority, application Italy, Mar. 23, 1978, 67636 A/78

Int. Cl.³ F02M *23/10;* F01N *3/10*

U.S. Cl. 60—293 **2 Claims**

1. A spark ignition internal combustion engine having an air filter,

first, second, third and fourth cylinders,

an exhaust manifold

first, second, third and fourth exhaust ports leading from said first, second, third and fourth cylinders respectively to said exhaust manifold, and

an exhaust emission control system including means for admitting air into the engine exhaust system, said means being constituted by;

automatic "reed" valve means,

air conduit means interconnecting said air filter of said engine and said automatic "reed" valve means,

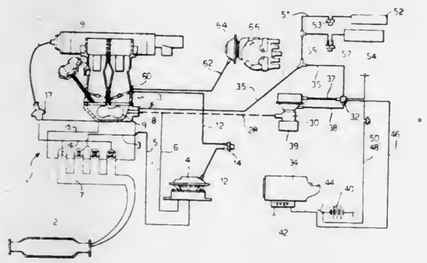
means carrying said automatic "reed" valve means on the cylinder head of said engine, and

means defining internal passageways in said cylinder head, said internal passageways communicating at one end with said automatic "reed" valve means and at the other end with said first and fourth exhaust ports leading from said first and fourth cylinders of said engine, said engine having an engine starter motor and further including means for the admission of supplementary air into the induction manifold, said means comprising:

means defining a supplementary air inlet into said induction manifold of said engine,

a pneumatic "gulp" valve having an air inlet, an air outlet and first and second control pressure inlets,

means connecting said air outlet of said "gulp" valve to said supplementary air inlet into said induction manifold of the engine,



a three port, two position pneumatic solenoid valve having an electrical winding,

means connecting first and second ports of said three port solenoid valve to said first and second control pressure inlets of said pneumatic "gulp" valve,

means defining a hole in said induction manifold,

means connecting said hole in said induction manifold to the third of said three ports of said solenoid valve,

means connecting said electrical winding of said solenoid valve to the winding of said engine starter motor,

an electrical battery,

temperature sensitive switch means mounted on the cylinder head of said engine and connected in series between said solenoid valve and said electrical battery, said temperature sensitive switch means being sensitive to the temperature of the engine coolant and closed when the engine coolant is below a predetermined threshold,

electrical conductor means connected in parallel with said temperature sensitive switch means between said winding of said solenoid valve and said engine starter motor, and

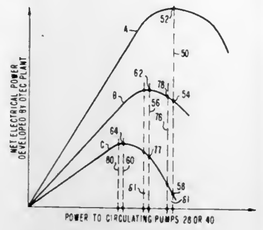
selectively operable switch means closable to connect said electrical conductor means and said engine starter motor to said battery whereby said solenoid valve is energized when said selectively operable switch means is closed to energize said starter motor and when said temperature sensitive switch means is closed.

4,269,030

POWER PLANT OPTIMIZATION CONTROL

Robert L. Osborne, Wallingford, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 6, 1979, Ser. No. 64,458
Int. Cl.³ F03G 7/04
U.S. Cl. 60—641 R **25 Claims**



1. In a thermal energy conversion power plant, which generates electrical energy at a desired power level, including a working fluid; a circulating fluid; and at least one heat exchanger which conducts immiscibly the circulating and working fluids therethrough for transferring heat therebetween, said heat transfer process having an influence on the net power level being generated by said plant, the improvement being a method of optimizing the net power level generated by said plant comprising the steps of:

perturbing the heat transfer process of said at least one heat exchanger about a substantially quiescent heat transfer state;

identifying a direction of perturbation which results in an increase in generated net power level with respect to the generated net power level corresponding to said substantially quiescent heat transfer state; and

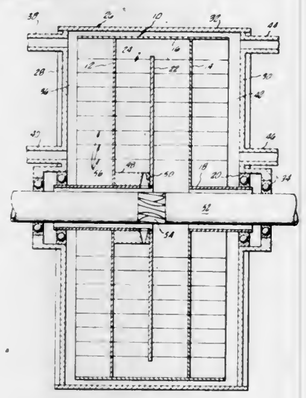
adjusting the heat transfer process in said identified direction from said substantially quiescent heat transfer state until an optimum level in generated net power is substantially reached.

4,269,031

HEAT ENGINE

John E. Loskot, Death Valley Star Route, Baker, Calif. 92309

Filed Mar. 2, 1979, Ser. No. 16,836
Int. Cl.³ F01K 11/04
U.S. Cl. 60—669 **8 Claims**



1. A heat engine comprising

a housing;

an output shaft rotatably mounted centrally through said housing;

a container including container drive shaft means rotatably mounting said container in said housing concentrically about said output shaft, first and second circular panels radially extending from said container drive shaft means, and an annular panel mounted to the peripheries of said first and second circular panels, said container being centrally located in said housing to divide same into a first cavity adjacent a first end of said housing, a second cavity adjacent a second end of said housing and the enclosure of said container;

a partition within and fixed to rotate with said container and radially extending from adjacent said output shaft, said partition permitting flow around said partition adjacent said annular panel;

hot circulation means in said housing to circulate hot fluid through said first cavity;

cold circulation means in said housing to circulate cold fluid through said second cavity;

a closure member extending from said first panel to said partition adjacent said output shaft to prevent flow from said container toward said output shaft between said first panel and said partition;

a nozzle through said closure member to direct conditioned flow from said container toward said output shaft; and

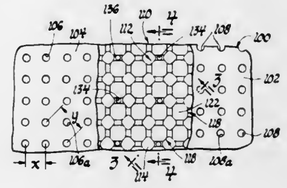
a turbine fixed to said output shaft and aligned with said nozzle to be driven by flow through said nozzle.

4,269,032

WAFFLE PATTERN POROUS MATERIAL

George B. Meginnis, and John A. Spees, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 13, 1979, Ser. No. 48,131
Int. Cl.³ F02C 7/18
U.S. Cl. 60—754 **3 Claims**



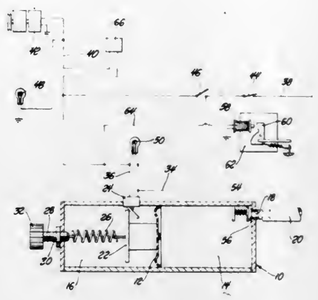
1. A porous laminated wall comprising: an inner sheet and an outer sheet, a first plurality of mechanically formed holes in said inner sheet and a second plurality of mechanically formed holes formed in said outer sheet, said first and second plurality of holes being offset from each other throughout the full extent of said wall segment, and a mechanically press-formed core sheet interposed between said inner and outer sheets having offset depressions formed on either face thereof and raised segments forming flat spaced land surfaces, means for bonding said land surfaces to said inner and outer sheets, respectively, to define a bond joint therebetween, drill holes formed in said core sheet having a width less than that of said offset depressions and having the margins thereof located at spaced relationship to the land surfaces thereby to prevent burr formation thereon from interfering with the interconnection defined by the bond joint between the corrugated core sheet and said inner and outer sheets, said core sheet having a total metal mass equivalent to the original metal mass by displacement of metal to form the depressions and lands therein except for the metal removed by formation of the small drill holes therethrough, said small drill holes communicating the offset depressions on opposite sides of said core sheet to form a tortuous intercommunicating flow path through said core sheet to offset ones of said mechanically formed holes in said inner and outer sheets for flow of coolant through the laminated sheets of said wall segment.

4,269,033

SWITCHING DEVICE

Robert J. Birch, 5273 Folkstone, Troy, Mich. 48098

Filed Jan. 30, 1980, Ser. No. 116,939
Int. Cl.³ B60H 3/04; F25B 27/00
U.S. Cl. 62—133 **3 Claims**



1. Means for selectively disengaging an air conditioner compressor and removing the drag and load imposed thereby on a vehicle engine that is operative thereof, and comprising:

a vacuum responsive switching device,

means for electrically connecting said switching device in circuit between the magnetic clutch for an air conditioner compressor and its electrical power source,

means for connecting said switching device to a source of intake manifold vacuum pressure for sensing the changing conditions thereof under varying engine conditions,

and means for selectively and readily adjusting the sensitivity and response of said switching device to different load and power demands made by said engine for varying the extent and duration of the disengagement of said compressor from said engine for comfort and economy control,

having the switching device and its adjustable means provided within the passenger compartment of the vehicle driven by said engine and serviced by said air conditioner, for each of access thereto and for adjustment and selective settings in accord with road conditions as and when encountered,

said switching device including a diaphragm member having one side thereof responsive to engine intake manifold pressure,

said readily adjustable means including spring means connected to said diaphragm member and for counteracting the effects of said manifold pressure,

and threaded means for varying the strength and effects of said spring means,

said spring means including a tension spring connected between said diaphragm and said threaded means on the opposite side of said diaphragm from that which is responsive to said manifold pressure,

a check valve provided in said switching device for closing and shutting off vacuum pressure to said switching device,

said check valve being biased to a closed position and being responsive to an overriding decrease in vacuum pressure by opening,

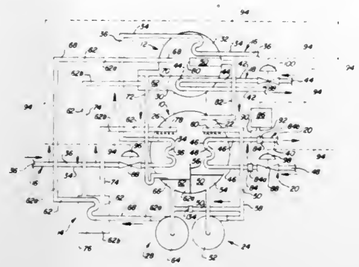
and means provided for bleed-by around said check valve when in a closed position.

4,269,034

ABSORPTION UNIT WITH VARIANT CONTROL SYSTEM

Joseph A. Rzechula, 459 E. Park Ave., Elmhurst, Ill. 60126

Filed Sep. 10, 1979, Ser. No. 73,851
Int. Cl.³ F25B *15/00*
U.S. Cl. 62—141 **46 Claims**



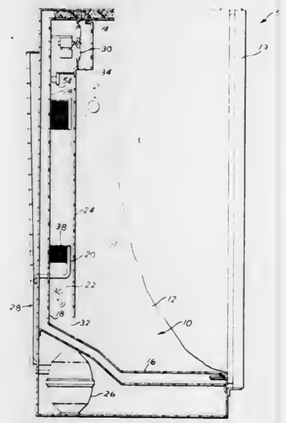
1. An absorption refrigeration system responsive to variant load demands comprising:
an evaporator for receiving and retaining refrigerant;
chilled fluid supply means for providing chilled fluid to said evaporator and for directing said chilled fluid from said evaporator;
vaporizing means providing said refrigerant in the proximity of said chilled fluid supply means for vaporization of a portion of said refrigerant within said evaporator;
an absorber communicating with said evaporator for receiving and retaining solution for absorbing refrigerant vaporized within said evaporator, thereby diluting said solution;
a generator coupled with said absorber for receiving and retaining said dilute solution from said absorber;
heating means for providing a heat source for vaporizing said refrigerant contained within said dilute solution while said dilute solution is retained within said generator, thereby separating said refrigerant from said solution and making said solution more concentrated;
a condenser communicating with said generator for condensing said refrigerant vaporized in said generator and for retaining refrigerant condensate separate from said solution;
condenser fluid supply means for directing condenser fluid to said absorber and for directing said condenser fluid from said absorber to said condenser; said condenser fluid for absorbing heat radiated from said refrigerant during condensation;
control means for adjusting the operation of said absorption refrigeration system to respond to variations in load demand upon said absorption refrigeration system, said control means comprising:
a plurality of temperature sensitive means for monitoring temperature comprising:
first temperature responsive means engaging said chilled fluid supply means for providing a first signal having magnitude dependent upon the temperature of said chilled fluid entering said evaporator; and,
second temperature responsive means engaging said chilled fluid supply means for providing a second signal having magnitude dependent upon the temperature of said chilled fluid exiting said evaporator;
comparison means connected to said first and second temperature responsive means for receiving said first and second signals, for comparing said first signal with said second signal, and for comparing said first and second signals with predetermined values, said comparison means providing a resultant signal having a magnitude dependent upon the instantaneous relationship of said first and second signals and said predetermined values; and,
a plurality of valves coupled with said comparison means and responsive to said resultant signal comprising:
a chilled fluid valve engaging said chilled fluid supply means for regulating the flow of chilled fluid entering said evaporator, said chilled fluid valve permits chilled fluid flow in an amount dependent upon the magnitude of said resultant signal;
a condenser fluid valve engaging said condenser fluid supply means for regulating the flow of condenser fluid entering said absorber, said condenser fluid valve permits condenser fluid flow in an amount dependent upon the magnitude of said resultant signal; and,
a heat source valve engaging said heating means for regulating the amount of heat entering said generator, said heat source valve permits passage of heat in an amount dependent upon the magnitude of said resultant signal.

4,269,035

DEFROST CONTROL

Robert B. Gelbard, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Nov. 19, 1979, Ser. No. 95,713
Int. Cl.³ F25D *21/06*
U.S. Cl. 62—155 **4 Claims**



4. A defrost control for a refrigeration system having means for terminating defrost comprising:
a liner, including spaced side walls and a back wall, defining a freezer chamber;
a vertically extending evaporator adjacent said back wall;
means including a wall member spaced from said back wall defining a heat exchanger enclosure, said evaporator enclosure having an inlet opening and an outlet opening spaced from said inlet;
air moving means arranged in said outlet opening for causing circulation of air from said chamber through said enclosure inlet and outlets, and back to said chamber;
said evaporator comprising a serpentine tubular member arranged intermediate said openings in said enclosure having spaced turns defining passes extending in the direction of air flow between said openings, said spaced turns being spaced apart so that the connecting tubes therebetween converge toward one another in the direction of said air flow, said evaporator being provided with integral fins having their distal ends in abutment with said back wall to thermally link said back wall with the evaporator frost load;

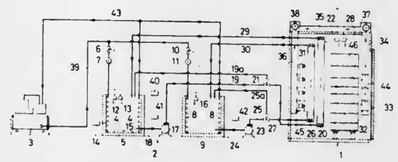
a defrost heater means arranged in said enclosure being positioned between the lower portion of said evaporator and said inlet opening;
air sensing control means being arranged in said heat exchanger space upstream of said evaporator, said control means including a sensing surface being arranged to be within the boundary layer thickness of air passing through said enclosure in natural convection;
switching means responsive to the temperature of said air flow in said boundary layer thickness for terminating said defrost cycle when said air flow passing over evaporator is at a predetermined temperature.

4,269,036

FOOD DEFROSTING APPARATUS

Fumiharu Koide, Yokohama, and Masami Ohshima, Musashino, both of Japan, assignors to Gomi Patent Office and Shinsei Reizo Kogyo Kabushiki Kaisha, both of Tokyo, Japan, a part interest

Filed Aug. 15, 1979, Ser. No. 66,654
Claims priority, application Japan, Aug. 23, 1978, 53-103199
Int. Cl.³ F25B *29/00, 27/02;* **F25D** *11/02*
U.S. Cl. 62—159 **4 Claims**



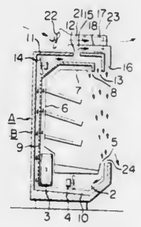
1. In a food defrosting and storing apparatus for a cabin, a refrigeration system including a thawing water tank evaporator and a storage water tank evaporator, a thawing water tank containing the thawing water tank evaporator, a storage water tank containing the storage water tank evaporator, a heater means in the thawing water tank, a first electromagnetically operable switch electrically connected to the heater means, an electric supply source, a first thermostat in the thawing water tank electrically connected to the first electromagnetically operable switch for controlling the first switch in dependency upon the temperature of the water in the thawing water tank, a first line for delivering refrigerant medium into the thawing water tank evaporator, a first branch line connecting the first line and the storage water tank evaporator for delivering refrigerant medium into the storage water tank evaporator, a second line for discharging refrigerant medium from the thawing water tank evaporator, a second branch line connecting the second line and the storage water tank evaporator for discharging refrigerant medium from the storage water tank evaporator, a first expansion valve on the first line, a first electromagnetically operable valve on the first line, a second thermostat in the thawing water tank electrically connected with the first electromagnetically operable valve for controlling the first valve in dependency upon the temperature of the water in the thawing water tank, a second expansion valve on the first branch line, a second electromagnetically operable valve on the first branch line, a third thermostat in the storage water tank and electrically connected to the second electromagnetically operable valve for controlling the second valve in dependency upon the temperature of the water in the storage water tank; a thawing water circulation system including a thawing heat exchanger in the cabin, a thawing water delivery circuit connecting the thawing water tank and the thawing heat exchanger, a thawing water discharging circuit connecting the thawing heat exchanger and the thawing water tank, an electrically driven first pump on the thawing water delivery circuit for conducting thawing water from the thawing water tank to the thawing heat exchanger, a first bypass circuit connecting an upstream portion on the thawing water delivery circuit of the thawing heat exchanger to the thawing tank, a third electromagnetically operable valve at the upstream portion on the thawing water delivery circuit for providing a passage of thawing water bypassing the thawing heat exchanger back into the thawing water tank through the first bypass circuit, and a fourth thermostat in the cabin electrically connected to the third electromagnetically operable valve for controlling the third valve in dependency upon the temperature in the cabin; a storage water circulation system including a storage heat exchanger in the cabin, a storage water delivery circuit connecting the storage water discharging circuit connecting the storage heat exchanger and the storage water tank, an electrically driven second pump on the storage water delivery circuit for conducting storage water from the storage water tank to the storage heat exchanger, a second bypass circuit connecting an upstream portion on the storage water delivery circuit of the storage heat exchanger to the storage water tank, a fourth electromagnetically operable valve at the upstream portion on the storage water delivery circuit for providing a passage of storage water bypassing the storage heat exchanger back into the storage water tank through the second bypass circuit, and a fifth thermostat in the cabin electrically connected to the fourth electromagnetically operable valve in dependency upon the temperature in the cabin.

4,269,037

REFRIGERATED SHOW CASE

Masashi Karashima, 88-5, Nakano, Ebina-shi, Kanagawa-ken, Japan

Filed Aug. 7, 1979, Ser. No. 64,628
Claims priority, application Japan, Jul. 3, 1979, 54-83441
Int. Cl.³ A47F *3/04*
U.S. Cl. 62—256 **1 Claim**

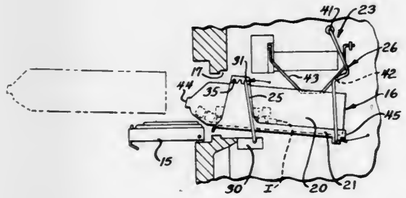


1. In a refrigerated show case in which a cold air flow is circulated along a show case bottom wall, rear wall and top wall and across a show case front opening between an ejection port and a suction port disposed along the upper and lower edges, respectively, of said front opening between an ejection port and a suction port disposed along the upper and lower edges, respectively, of said front opening to refrigerate the interior of said show case, the improvement wherein said show case further comprises a by-pass port in said top wall for by-passing a part of said cold air flow, a heat-exchanger disposed of said top wall and communicated with said by-pass port, and an ejection port of a moderated air flow communicated with said heat-exchanger and disposed outside of and in parallel to

said ejection port of said cold air flow, said moderated air flow being formed from said by-passed cold air flow by heat-exchange with hot ambient air above said refrigerated show case through said heat-exchanger.

4,269,038
Patent Not Issued For This Number

4,269,039
ICE RECEPTACLE SUPPORT
Cecil J. Baker, Ohio Township. Warrick County, Ind., assignor to Whirlpool Corporation, Benton Harbor, Mich.
Filed Sep. 13, 1979, Ser. No. 75,524
Int. Cl.³ F25C *5/18*
U.S. Cl. 62—344 **31 Claims**



1. In a refrigeration apparatus having an upwardly opening ice storage receptacle disposed within a refrigerated space, the improvement comprising:

swing support means for supporting the receptacle and applying a horizontally forwardly directed gravity-biased force and a weaker horizontally rearwardly gravity-biased force thereto for causing resultant gravity-biased urging of the receptacle from a storage position within said space to an access position providing access to the ice in the receptacle from exteriorly of said space; and

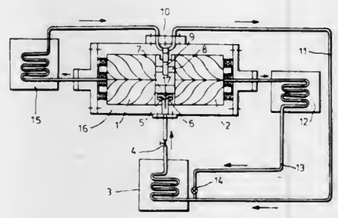
means for providing an adjustable amount of resultant gravity biasing of the receptacle comprising means for adjusting at least one of said gravity-biased forces.

28. In a refrigeration apparatus having wall means defining a refrigerated space and ice storage means movable between a storage position within said space and an access position, the improvement comprising:

first support means connected to said ice storage means and providing a first, forward biasing force urging said ice storage means toward said access position; and

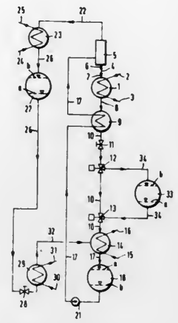
second support means connected to said ice storage means and arranged to provide a second, rearward biasing force urging said storage means toward said storage position, said first biasing force being greater than said second biasing force when said receptacle is in said storage position.

4,269,040
HEAT PUMP DRIVE
Edgard Grundmann, and Winfried Bernhardt, both of Wolfsburg, Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany
Filed Feb. 12, 1979, Ser. No. 11,668
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1978, 2806729
Int. Cl.³ F25B *43/02*
U.S. Cl. 62—467 PR **6 Claims**



1. In a heat pump arrangement including an evaporator, a first condenser and a compressor connected in a circuit containing a heat-carrying medium and each having an inlet and an outlet; the compressor being arranged downstream of the evaporator and the first condenser being arranged downstream of the compressor as viewed in the direction of the flow of the medium, whereby the compressor receives medium in the vapor phase from the outlet of the evaporator and delivers medium in the liquid phase to the inlet of the evaporator through the first condenser; the improvement comprising an expander having an inlet coupled to the outlet of said evaporator; medium splitting means situated between the outlet of said evaporator and the inlet of said expander and said compressor for dividing the vaporized medium exiting from said evaporator into a first partial stream and a second partial stream; said first partial stream being introduced into said expander for driving said expander; a second condenser having an inlet coupled to the outlet of said expander for receiving medium therefrom; a pump having an inlet coupled with the outlet of said second condenser and an outlet coupled with the inlet of said evaporator; force-transmitting means connecting said expander with said compressor and said pump for driving said compressor and said pump from said expander energized by said first partial stream; said second partial stream being introduced into said compressor; and further wherein said first condenser is arranged for extracting useful heat from said second partial stream and the temperature of the medium exiting from said first condenser is higher than and the temperature of the medium exiting from said second condensor is lower than the temperature of the medium exiting from said evaporator.

4,269,041
ABSORPTION REFRIGERATING MACHINE WITH STORAGE DEVICE FOR OPERATION WITH YIELD OF HEAT ENERGY AND REFRIGERATING REQUIREMENT DIFFERENT IN TIME
Günther Holldorff, Berlin, Fed. Rep. of Germany, assignor to Borsig GmbH, Berlin, Fed. Rep. of Germany
Filed Jan. 4, 1980, Ser. No. 109,636
Claims priority, application Fed. Rep. of Germany, Jan. 4, 1979, 2900388
Int. Cl.³ F25B *15/00*
U.S. Cl. 62—476 **7 Claims**



1. An absorption refrigerating machine, utilizing a refrigeration medium, for operation with refrigeration requirement and heat energy yield at any time relationshp therebetween, and machine comprising:

a condenser for liquefying refrigeration medium vapor;

first storage means, in communication with and located after said condenser in the direction of flow of refrigeration medium, for storing refrigeration medium-fluid;

a solution heat exchanger;

a continuous conduit in communication with and located after said heat exchanger in the direction of flow of refrigeration medium solution;

a bypass conduit operatively communicable with said continuous conduit by means of a first and second distributor valve, said first distributor valve being closer to said heat exchanger in the direction of flow of refrigeration medium solution;

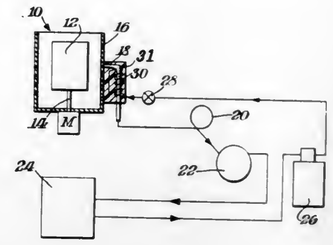
second storage means arranged in and in communication with said bypass conduit for storing weak refrigeration medium-solution;

an absorber operatively communicable with said continuous conduit and said first storage means; and

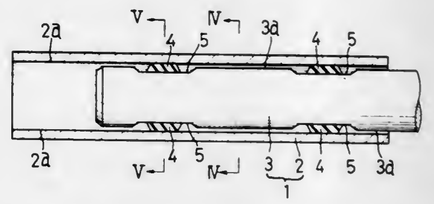
third storage means in communication with, and located in the direction of flow after, said absorber for storing rich refrigeration medium-solution.

4,269,042
CENTRIFUGE REFRIGERATION SYSTEM
John F. Williams, New Canaan, Conn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Sep. 28, 1979, Ser. No. 80,083
Int. Cl.³ F25B *41/00*
U.S. Cl. 62—513 **3 Claims**

1. In a centrifuge system having a fluid interconnected compressor, condenser, expansion valve, evaporator, located contiguous the rotor cavity of said centrifuge for cooling said cavity, and finally a suction line connected between the outlet of said evaporator and said compressor, said system operating to transfer a referigerant for expansion in said evaporator to effect cooling of said centrifuge rotor, the improvement wherein a capillary sized line is connected between said expansion valve and said evaporator to permit locating said expansion valve at a point removed from said centrifuge rotor.



4,269,043
COUPLING FOR RESILIENTLY CONNECTING TWO SHAFTS FOR TRANSMISSION OF TORQUE
Kyohei Kizu; Taketo Matoba; Yasuo Oguni, and Hideaki Sakurai, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Jul. 10, 1979, Ser. No. 56,415
Claims priority, application Japan, Feb. 24, 1979, 54-23398[U]
Int. Cl.³ F16D *3/68*
U.S. Cl. 64—11 R **7 Claims**



1. A coupling interposed between a driving shaft and a driven shaft for transmitting torque from said driving shaft to said driven shaft, said coupling comprising:

a tubular member having an inner peripheral surface, a pair of longitudinally symmetrical, outwardly curved, accuate portions and a pair of longitudinally parallel plane portions;

a solid member including a pair of longitudinally parallel plane portions and being received in said tubular member and having an outer peripheral surface spaced apart from said inner peripheral surface of said tubular member; and

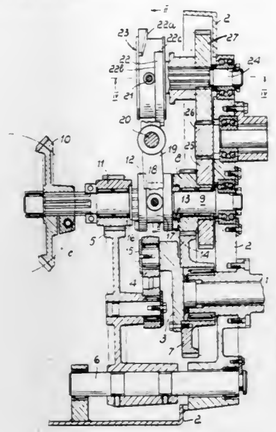
a plurality of impact absorbing members made of elastic material and fixed to said outer peripheral surface of said solid member, said impact absorbing members being so dimensioned and positioned as to prevent contact of said inner peripheral surface of said tubular member and said outer peripheral surface of said solid member when relative torque working therebetween is under a certain level and permit contact of said inner peripheral surface of said tubular member and said outer peripheral surface of said solid member when said torque is at or over said level.

4,269,044

CIRCULAR KNITTING MACHINE

Francesco Lonati, Brescia, Italy, assignor to Costruzioni Meccaniche Lonati S.p.A., Brescia, Italy

Filed Mar. 19, 1979, Ser. No. 21,536
Claims priority, application Italy, Mar. 22, 1978, 21504 A/78
Int. Cl.³ D04B *15/16*
U.S. Cl. 66—56 **7 Claims**



1. A circular knitting machine for stockings and like articles, having at least one needle cylinder and means for switching from continuous rotary motion of said at least one needle cylinder to reciprocating motion thereof, and vice versa, comprising a stationary structure, a driven shaft rotatably supported by said stationary structure for rotating said at least one needle cylinder, two pinion gears idly arranged on said driven shaft axially spaced from one another, a gear segment meshing with one of said pinion gears, means for causing said gear segment to perform a rocking movement for causing said one of said pinion gears to reciprocate for at least 360°, a gear wheel meshing with another of said pinion gears, means for continuously rotating said gear wheel, a coupling member rotatively rigid with said driven shaft and axially displaceable along said driven shaft between said pinion gears, means on said coupling member and said pinion gears for alternate rotational engagement with said pinion gears, a control lever having an intermediate point journalled in said stationary structure and one end slideably engaging with said coupling member for axial displacement thereof, rotatable cams slideably engaging another end of said control lever to cause angular displacement thereof and corresponding axial displacement of said coupling member for alternate rotational engagement between said coupling member and said pinion gears, driving means for rotating and rotatable cams with an angular speed corresponding to that of said driven shaft, and means for coupling said rotatable cams with, and uncoupling said rotatable cams from, said driving means.

4,269,045

HOME KNITTING MACHINE FOR PRODUCING PROGRAMMED DESIGNS

Takashi Hida, Toyota; Tsutomu Mitsui, Chityu; Kazutaka Kuwana, and Tadaaki Hashiride, both of Toyota, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Mar. 30, 1978, Ser. No. 891,777
Claims priority, application Japan, Mar. 31, 1977, 52-37372
Int. Cl.³ D04B *7/00, 15/66*
U.S. Cl. 66—75.2 **7 Claims**

1. A home knitting machine for producing programmed designs comprising:

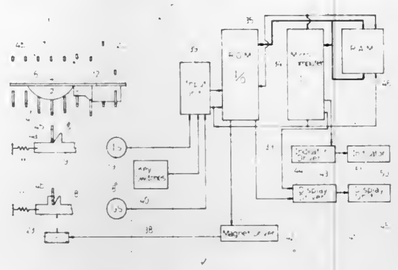
a needle bed supporting a plurality of needles in side by side relation;

a carriage mounted on the bed for movement traversing the needles;

detection means for generating carriage position signals in response to traversing movement of the carriage;

needle selection means for selecting needles to knit a design pattern in response to design pattern data;

an electronic control system including a semiconductor read only memory device having two separate sections, one for



storing basic design pattern unit data and the other for storing specific design fabrication programs said two separate sections functioning together to yield specific combination design patterns in response to a series of design fabrication instructions, said electronic control system further comprising a central control unit for supplying out design pattern data in accordance with appointed programs in response to the carriage position signal; and

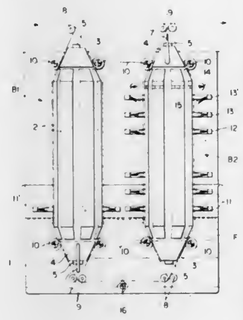
key switches for appointing codes corresponding to the specific programs to the electronic control system.

4,269,046

EXTERNALLY HELD CYLINDRICAL SPREADING MEANS FOR TUBULAR FABRIC

Christian Strahm, Küsnacht, Switzerland, and Fritz Gageur, Lindau-Bodolz, Fed. Rep. of Germany, assignors to Lindauer Dornier Gesellschaft mbH, Fed. Rep. of Germany

Filed Nov. 7, 1979, Ser. No. 92,100
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848409
Int. Cl.³ D06F *29/00;* **D06C** *5/00*
U.S. Cl. 68—13 R **15 Claims**



1. In an externally held cylindrical spreading means for tubular fabric material, particularly for the treatment of the material with a fluid treating agent, with a central carrier for radially displaceable supports and segment-like guide elements carried by the supports,

the improvement comprising body means at each end of the central carrier, each of said body means being tapered in the longitudinal direction,

said guide elements extending in the longitudinal direction of said spreading means between said body means,

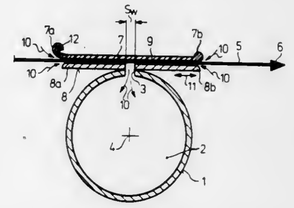
and supporting and transporting roller means mounted against the exterior of said body means, said roller means having a profile adapted to the form of said tapered body means.

4,269,047

APPARATUS FOR PASSING A WORKING MEDIUM THROUGH A CONTINUOUSLY MOVING PERMEABLE FABRIC WEB

Manfred Schuierer, Michelstadt, Fed. Rep. of Germany, assignor to Bruckner Apparatebau, Erbach, Fed. Rep. of Germany

Filed May 17, 1979, Ser. No. 40,063
Claims priority, application Fed. Rep. of Germany, May 22, 1978, 2822214
Int. Cl.³ D06B *5/08*
U.S. Cl. 68—181 R **9 Claims**



1. Apparatus for passing a working fluid through a continuously moving permeable fabric web, comprising a tube having a longitudinal slot which extends over the entire working width of the apparatus, and extends transverse to and immediately below the fabric web, wherein the improvement comprises

(a) a flexible strip which has one edge fixed against movement, immediately above the moving fabric web, said fixed edge being substantially ahead of the slot in the direction of travel of the fabric web, the remainder of the strip extending past the slot and resting loosely on the fabric web and on any exposed end portions of the slot,

(b) a pair of guide surfaces on which the fabric rests, one extending forward and the other extending rearward from the slot,

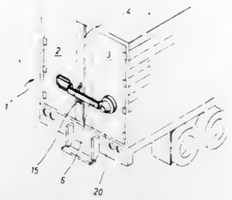
(c) the guide surfaces together being substantially coextensive with the flexible strip, and forming with the flexible strip a stationary flow channel for the fluid, which flow channel extends forward from the slot for a distance which is from about 7 to 20 times the width of the slot, and also extends rearward from the slot for a distance which is from about 7 to 20 times the width of the slot, whereby the fluid passing through the slot is caused to flow longitudinally through the fabric in such flow channel in two flow paths, one flow path extending forward from the slot for such distance along the flow channel, and the other flow path extending rearward from the slot for such distance along the flow channel.

4,269,048

DOOR LOCKING SYSTEM

Robert L. McDorman, P.O. Box 473, La Porte, Tex. 77571

Continuation-in-part of Ser. No. 825,823, Aug. 8, 1977, Pat. No. 4,132,093. This application Dec. 19, 1978, Ser. No. 971,024
The portion of the term of this patent subsequent to Jan. 2, 1996, has been disclaimed.
Int. Cl.³ E05B *65/48*
U.S. Cl. 70—13 **8 Claims**



1. A lock assembly comprising:

a lock pin having a reduced portion intermediate its ends;

a pin cover for locking engagement over said pin comprising:

a housing having a solid base;

a sleeve secured to the inside surface of said base and extending therefrom for substantially the height of said housing, said sleeve having inside dimensions larger than the outside dimensions of said pin to provide a sliding fit between the sleeve and the pin, said sleeve having a pair of opposed slots intermediate its length;

a pair of jaw elements adapted to fit within said slots and providing opposed locking surfaces on their lower faces when fully inserted into said slots, said jaw elements having upper cam surfaces for engaging the pin as it is inserted into said sleeve for camming the jaw elements outwardly during insertion;

means for biasing said jaw elements into said slots comprising pivotally mounted jaw carriers substantially surrounding said sleeve and secured to said jaw elements and resilient means for urging said jaw carriers inwardly;

a lock recessed in the sidewall of said housing and having rotatable cam elements operable to engage mating surfaces on said jaw carriers to urge said jaw carriers outwardly against the bias of said resilient means; and

a cover plate detachably secured to the larger end of said housing and having a central opening for passing the pin.

4,269,049

WHEEL LOCK

George H. Henderson, 1098 Meadow Dr., Lennon, Mich. 48449

Filed Jul. 20, 1978, Ser. No. 926,494
Int. Cl.³ E05B *71/00, 73/00*
U.S. Cl. 70—227 **3 Claims**

1. A wheel locking mechanism comprising:

(a) a pair of opposed jaws, adapted to matingly abut, the jaws being configured to encircle the wheel of a vehicle when in mating abutment;

(b) at least one pivot, the pivot mounting one jaw thereon such that at least one jaw is pivotally rotatable toward the other jaw;

(c) a housing, the jaws being mounted for pivotal rotation within the housing;

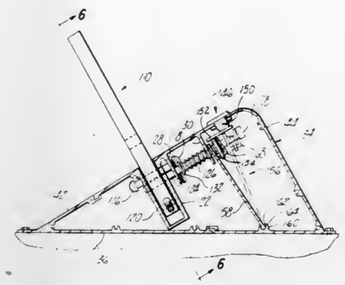
(d) first means for locking the pivotally rotatable jaw against rotation when the jaws are in mating abutment; said first locking means comprising:

1. a pair of spaced apart brackets disposed in the housing;

2. a locking pin supported by the brackets and projecting therethrough, and

3. means for biasing the locking pin toward the pivotal jaw;

(e) a release for releasing the first locking means from its locking position; and
(f) a second locking means for locking the release in a first position, the first position maintaining the first locking means in locking position to prevent the jaw from rotating;
wherein the jaw has an aperture which receives the locking pin upon mating abutment of the jaws, the locking pin preventing rotation of the pivotal jaw when in the aperture, the second locking means preventing the first locking means from being removed from the aperture when in the first position;
said release comprising:
a wall rotatably mounted in the housing and connected to the second locking means and being responsive thereto, the wall engaging the locking pin, and
wherein rotation of the second locking means to the first position causes the wall to approach one of the support brackets and rotation of the second locking means to a second position causes the wall to engage the locking pin to force it out of the aperture against the normal bias.

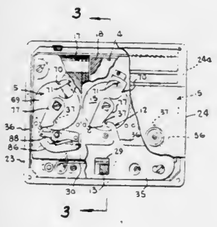


4,269,050

TIME LOCK WITH KICKER ARM CARRIER ACTUATOR

Charles G. Bechtiger, La Chaux-de-Fonds, Switzerland, and James C. Miller, Nicholasville, Ky., assignors to Sargent & Greenleaf, Inc., Nicholasville, Ky.

Filed Sep. 7, 1978, Ser. No. 940,834
Int. Cl.³ E05B *43/00*
U.S. Cl. 70—272 **24 Claims**



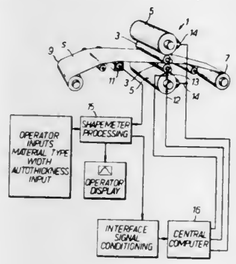
1. A time lock for bank vault doors and the like, comprising a housing, a plurality of timer units of the settable dial type mounted in said housing, a carrier assembly movably mounted in the housing for movement between a first locking position and a second release position, snubber bar blocking means in said housing movable between a snubber bar blocking position and a release position and control means therefor releasibly held by the carrier assembly for holding the blocking means in blocking position while said carrier assembly occupies said locking position, each of said timer units having a rotatable time indicating dial and a clockwork mechanism intercoupled therewith including manual setting means for rotating the dial to the desired time lapse indication, snap action carrier trip means including a spring driven kicker arm supported for movement forwardly adjacent the face of the dial through a trip stroke between a cocked position and a disarmed position, latch means for releasably latching said kicker arm in the cocked position when said dial occupies time indicating positions above zero time, and release means driven by the clockwork mechanism for activating the latch means to release the kicker arm in spring forced condition from said cocked position when the dial reaches zero time to cause the kicker arm to be abruptly kicked by the spring force thereon against said carrier assembly for abruptly shifting the carrier assembly to release position.

4,269,051

ROLLING MILLS AND OPERATION THEREOF

Robin Clarke, Sheffield; Douglas J. Thomas, Poole; George T. F. Kilmister, Christchurch, and Robert R. Beal, North Anston, Nr. Sheffield, all of England, assignors to Loewy Robertson Engineering Co. Ltd., Poole, England

Filed Apr. 2, 1979, Ser. No. 26,186
Claims priority, application United Kingdom, Mar. 31, 1978, 12668/78
Int. Cl.³ B21B *37/00*
U.S. Cl. 72—9 **11 Claims**



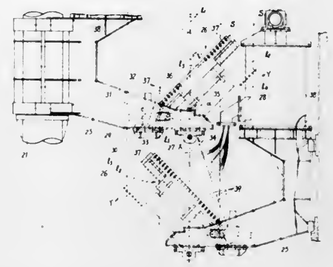
1. A method of operating a rolling mill, for rolling metal strip, which includes a pair of roll assemblies, means for adjusting the gap between said roll assemblies at each of their ends, means for bending said roll assemblies, means for adjusting the temperature of said roll assemblies along their length, and means located downstream of said roll assemblies for detecting the tension of a strip being rolled at a plurality of zones defined across the width thereof, comprising the steps of:
utilizing signals from said detecting means to substantially continuously determine the best straight line which fits the shape of said strip being rolled as represented by said signals;
utilizing at least one parameter of said straight line to initiate differential adjustment of said roll gap in such a sense as to change said parameter substantially to a predetermined value;
utilizing said signals from said detecting means to substantially continuously determine the best symmetrical parabola which fits the shape of said strip being rolled as represented by said signals;
utilizing at least one parameter of said parabola to initiate the operation of said roll bending means in such a sense as to change said parameter substantially to a predetermined value;
estimating the resulting effect of said differential adjustment and said roll bending action upon said signals from said detecting means; and
subtracting said estimated effects from said signals from said detecting means so as to produce residual signals which are used to operate said temperature adjusting means in order to adjust the temperature of said roll assemblies at localized regions along their length so as to even out residual variations of said tension of said strip across its width.

4,269,052

MECHANICAL DESCALING DEVICE

Isao Imai; Hiromasa Hirata, both of Yokohama; Takao Kawanami, and Yasuhiro Omura, both of Tokai, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha and Nippon Steel Corporation, both of Tokyo, Japan

Filed May 11, 1979, Ser. No. 38,262
Claims priority, application Japan, Jun. 9, 1978, 53-69627
Int. Cl.³ B21B *45/06*; B08B *3/02*
U.S. Cl. 72—39 **8 Claims**



1. A device for mechanically descaling at least one surface of a generally planar linearly-displaced metal sheet (S), comprising
(a) a stationary frame (**21, 22, 23, 25**) arranged adjacent the path of travel of the metal sheet; and
(b) at least one nozzle assembly (**26**) connected with said frame adjacent the sheet surface, each of said nozzle assemblies including
(1) a nozzle support member (**28**);
(2) shaft means (**34**) connecting said support member with said frame for pivotal movement about a first axis (X) normal to the centerline (l_1) of the sheet;
(3) a plurality of parallel nozzle members (**37**) connected in equally spaced relation with said support member,
(a) the tips of said nozzle members being contained in a common line (l_3);
(b) said nozzle members having parallel axes (l_2) contained in a common plane that
(1) contains said common line, and
(2) is arranged at a first angle (β) relative to the sheet surface; and
(4) first drive means (**32, 33**) for pivoting said support member about said first axis to vary a second angle (α) between said common line and the sheet centerline, whereby when a slurry is applied to said nozzle members to direct a plurality of descaling slurry jets against the sheet surface, the support member may be pivoted about said first axis to control the extent of the impingement area of the descaling slurry jets on the sheet surface.

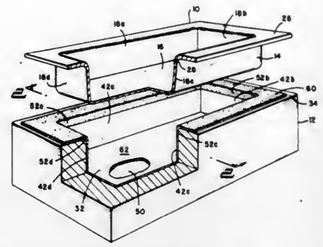
4,269,053

METHOD OF SUPERPLASTIC FORMING USING RELEASE COATINGS WITH DIFFERENT COEFFICIENTS OF FRICTION

Suphal P. Agrawal, Torrance, and Edward D. Weisert, Rolling Hills Estates, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 25, 1979, Ser. No. 60,263
Int. Cl.³ B21D *37/18*
U.S. Cl. 72—42 **15 Claims**

1. In the method of making a structure by superplastic forming, wherein portions of a preform, are expanded in a superplastic condition against a forming member, the improvement comprising the step, prior to expanding said preform, of applying a material between said preform and said forming member that provides a lower coefficient of friction between said portions of said preform to be expanded and said forming member than exists between said portions of said preform where expansion is to be minimal and said forming member.

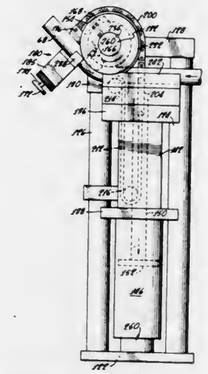


4,269,054

BENDING METHOD

Homer L. Eaton, Leucadia, Calif., assignor to Eaton-Leonard Corporation, Carlsbad, Calif.

Division of Ser. No. 887,725, Mar. 17, 1978, Pat. No. 4,201,073.
This application Nov. 13, 1979, Ser. No. 93,850
Int. Cl.³ B21D *7/04*
U.S. Cl. 72—151 **11 Claims**



1. A method of bending comprising
clamping a forward portion of a member to be bent against a rotary bend die,
exerting a bending force on said bend die to effect rotation thereof, so as to pull the member around the bend die and
applying frictional restraint to said member by clamping a rearward portion thereof with a force that is a function of said bending force that pulls the member.

4,269,055

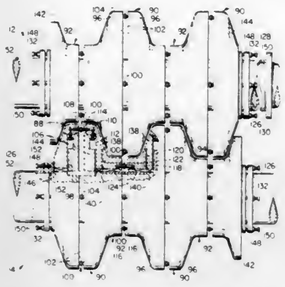
LARGE PROFILE SHEET METAL CORRUGATOR

Eugene W. Sivachenko, 6471 Riverside Dr., Redding, Calif. 96001; Artemas M. Larkin, Redding, and Bogdan W. Bernert, Fair Oaks, both of Calif., assignors to Eugene W. Sivachenko, Redding, Calif.

Filed Apr. 10, 1979, Ser. No. 28,767
Int. Cl.³ B21D *13/04*
U.S. Cl. 72—180 **33 Claims**

1. In an apparatus for roll forming a flat sheet into a corrugated sheet having an undulating profile defined by alternating corrugation peaks and corrugation troughs each forming a

generally concave surface and a parallel, generally convex surface, the peaks and trough being interconnected by slanting corrugation sides, the apparatus including at least an upper forming roll disposed on one side of the sheet and a cooperating lower forming roll disposed on another side of the sheet, the improvement to the rolls of said one pair of rolls comprising for each roll: a first, generally disc shaped die having, in profile a generally convexly shaped periphery and a relatively large maximum diameter, means for rotatably mounting the first die; a second, generally disc shaped die having, in profile, a generally concave periphery and a relatively smaller maximum diameter; means for rotatably mounting the second die in an axially spaced relation from the first die so that the peripheries of the dies, in profile, corresponds to the desired shape of the convex and concave surfaces of the corrugated sheet and so that the dies rotate about parallel axes; a third disc shaped die mounted to the shaft and disposed between the first and second dies, the third die having a surface for contacting a corresponding corrugation side which is shaped complementary to the shape of the side; means for power-rotating at least one of the disc shaped dies; and means permitting the first, second and third dies to rotate at differing rates of rotation.

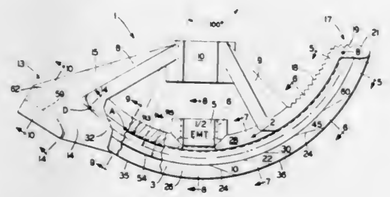


4,269,056

CONDUIT BENDER CONSTRUCTION

Richard R. Kozinski, 2205 Dunkeith Dr., NW., Canton, Ohio 44708

Filed May 29, 1979, Ser. No. 43,094
Int. Cl.³ B21D *7/02*
U.S. Cl. 72—459 **8 Claims**



1. A bender construction including:

(a) a body having a curved base portion, a fixed hooked end formation formed integrally with said base portion at one end thereof and socket means, said socket means being adapted to receive an end of an operating handle;

(b) said base portion having a pair of laterally spaced, longitudinally extending, arcuate-shaped side walls forming a longitudinally extending conduit-receiving opening therebetween;

(c) an end wall integrally connected to and extending between the side walls opposite of said conduit-receiving opening; and

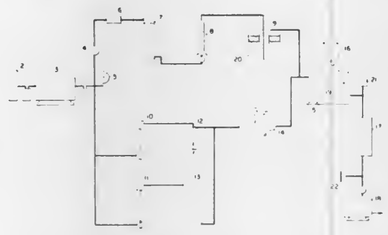
(d) the side walls having two pairs of spaced, concavely curved inner surfaces forming inner and outer overlapping longitudinally extending conduit-receiving grooves therebetween, said grooves each having an arcuate bending length of approximately 100° with said grooves being in concurrent relationship with respect to each other for approximately 70° of their individual 100° bending arcs, and with the bending arc of the outer groove starting approximately 15° before the bending arc of the inner groove with respect to the hooked end formation of the curved base portion.

4,269,057

MULTIPURPOSE HUMIDITY CONTROLLED AGENT GENERATOR

Kwok Y. Ong, Aberdeen; Michael T. Packard, Bel Air, and Charles J. McDowell, Edgewood, all of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 24, 1979, Ser. No. 87,892
Int. Cl.³ G01N *31/00*
U.S. Cl. 73—1 G **23 Claims**



1. A system for generating a stable concentration of agent vapors and aerosols under variable controlled conditions of relative humidity and temperature for testing agent detector systems comprising:

means for providing a regulated, pressurized air flow to an agent generator reservoir means;

an agent generator reservoir means containing a dilute liquid agent solution through which air is passed to produce an agent-laden air stream;

temperature control means for maintaining a desired constant temperature of liquid agent solution within the reservoir means;

interconnected means for adding a regulated flow of air having a controlled relative humidity to produce a dilute agent-laden air having controlled conditions of relative humidity and temperature;

a combination mixing and testing chamber means for mixing the resulting dilute agent-laden air and providing dynamic exposure of an agent detector system disposed within said chamber to said agent; and

associated exhaust means for removing excess agent-laden air from said system.

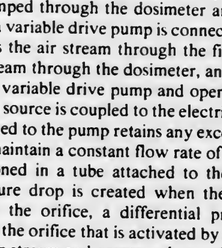
4,269,058

METHOD AND APPARATUS FOR DETERMINING THE ACCURACY OF A SPHYGMOMANOMETER

Stephan S. Richman, Winnetka, Ill., assignor to Marshall Electronics, Inc., Skokie, Ill.

Filed Oct. 22, 1979, Ser. No. 86,823
Int. Cl.³ G01L *27/00*
U.S. Cl. 73—4 R **10 Claims**

1. A method of calibrating and checking the accuracy of a sphygmomanometer pressure gauge comprising: removing a bellows-operated sphygmomanometer pressure gauge having a neck portion and an indicator and pressure indicia on a face thereof from a sphygmomanometer device; mounting said neck portion of said sphygmomanometer pressure gauge in an air tight manner on one end of a constant air passageway located in a body member, said passageway communicating at an opposite end thereof with a source of variablee air pressure; generating an air pressure in said source of variable air pressure by compressing a selected air volume to a second selected volume within said air pressure source; determining said air pressure by the amount of compression and not by means of a pressure gauge; introducing said known air pressure from said



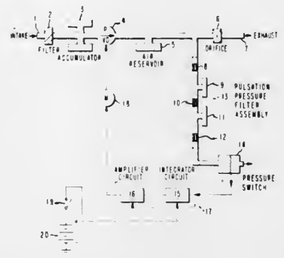
air pressure source through said passageway into said sphygmomanometer pressure gauge; monitoring the pressure reading from said face of said sphygmomanometer pressure gauge against said known air pressure; and adjusting said bellows of the sphygmomanometer pressure gauge to conform with said known air pressure.

4,269,059

DOSIMETER HAVING CONSTANT FLOW PUMP

William B. Baker, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 19, 1979, Ser. No. 21,810
Int. Cl.³ G01N *1/24*
U.S. Cl. 73—28 **10 Claims**



1. An improved dosimeter that has an intake port connected to a filter means in which particles or vapors present in an air stream being pumped through the dosimeter are collected on the filter means, a variable drive pump is connected to the filter means and draws the air stream through the filter means and pumps the air stream through the dosimeter, an electric motor is coupled to the variable drive pump and operates the pump, an electric power source is coupled to the electric motor, an air reservoir connected to the pump retains any excess air supplied by the pump to maintain a constant flow rate of the air stream, an orifice positioned in a tube attached to the air reservoir whereby a pressure drop is created when the air stream is pumped through the orifice, a differential pressure switch positioned before the orifice that is activated by a change in air pressure of the air stream and creates a low voltage electrical input signal; an integrator circuit electrically connected to the power source and to the pressure switch uses the low voltage input signal of the pressure switch and integrates this signal, an amplifier circuit electrically connected to the power source and the integrator circuit which amplifies the signal from the integrator circuit and feeds the amplified signal to the electric motor thereby controlling the speed of the motor driving the pump in relationship to the signal generated by the pressure switch to maintain the air stream at a constant flow rate; the improvement in use therewith comprises:

an accumulator positioned before and connected to the variable drive pump which retains air and maintains an even flow of air to the inlet of the pump and

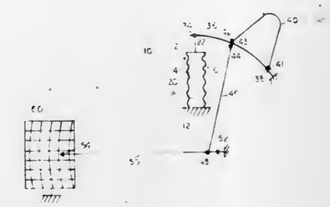
a pulsation air pressure filter assembly positioned between the orifice and the pressure switch which reduces pulsations in the air stream in contact with the pressure switch thereby limiting the activity of the pressure switch to substantial changes in air pressure of the air stream.

4,269,060

CONTINUOUS RECORDING OF VAPOR PRESSURE

Lancelot I. Kethley, 840 York St. #8, Oakland, Calif. 94610

Filed Dec. 28, 1979, Ser. No. 108,212
Int. Cl.³ G01W *1/06;* **G01N** *19/10*
U.S. Cl. 73—29 **2 Claims**



1. A device for continuously measuring the pressure of the vapor phase of a material within a gaseous mixture comprising:

a. A curved elongated relative humidity sensor within the predetermined gaseous mixture, the curvature of said sensor controlling a displacement of a portion of said sensor with respect to changes in the relative humidity of said gaseous mixture;

b. saturation vapor pressure sensor comprising a temperature sensitive element giving a displacement of a portion of said saturation vapor sensor an exponential response characteristic with respect to temperature;

c. a displaceable component and,

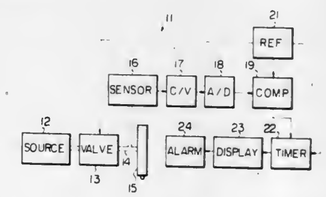
d. contrasting means acting on said displaceable component to contrast the temperature varying displacement with the relative humidity displacement, said contrasting means displacing said component as a function of the product of saturation vapor pressure and relative humidity experienced by the sensors.

4,269,061

LEAKAGE SENSOR APPARATUS FOR FLUID PASSAGEWAY

Hiroshi Hatsuno; Toshio Machida; Mitsuo Fukushima, and Shinji Ogawa, all of Higashi Matsuyana, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Apr. 16, 1979, Ser. No. 30,231
Claims priority, application Japan, Apr. 24, 1978, 53-48419
Int. Cl.³ G01M *3/26*
U.S. Cl. 73—40 **12 Claims**



1. An apparatus for measuring a degree of leakage from a fluid passageway, comprising:

pressure sensor means connected to the passageway for producing an electric sensor signal corresponding to fluid pressure in the passageway;

pressure source means for applying fluid pressure of at least an upper predetermined value to the passageway;

valve means for disconnecting the source from the passageway when the pressure in the passageway is at least equal to the upper predetermined value;

comparator means responsive to the sensor means for comparing the sensor signal with first and second reference signals corresponding to the upper predetermined value of pressure and a lower predetermined value of pressure and producing first and second output signals respectively in response to coincidence thereof; and

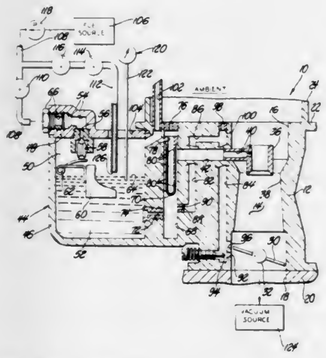
timer means for measuring a length of time between generation of the first and second output signals by the comparator means.

4,269,062

METHOD FOR GAUGING FLUID FLOW

Marion L. Smitley, Birmingham, Mich., assignor to Colt Industries Operating Corp., New York, N.Y.

Filed Oct. 10, 1979, Ser. No. 83,464
Int. Cl.³ F02M *3/08*
U.S. Cl. 73—118 **10 Claims**



1. A method for establishing a preselected rate of fuel flow through the idle fuel metering system of a carburetor having a fuel reservoir, idle fuel discharge conduit means, and idle fuel discharge restrictor means wherein said restrictor means comprises an adjustable valve member and cooperating valve orifice, said method comprising the steps of supplying fuel to said fuel reservoir at a rate of flow equal to said preselected rate of fuel flow, and adjusting said adjustable valve member relative to said valve orifice in response to sensed variations of the fuel level in said reservoir so as to have the rate of flow of fuel passing through said idle fuel discharge conduit means and said restrictor means equal to the rate of fuel being supplied to said fuel reservoir.

4,269,063

DOWNHOLE FORCE MEASURING DEVICE

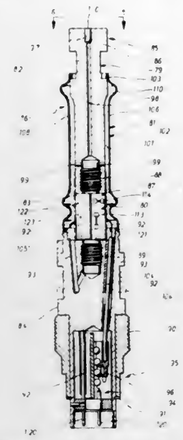
Pierre C. Escaron, Houston, and Joachim A. Hoppe, Spring, both of Tex., assignors to Schlumberger Technology Corporation, Houston, Tex.

Filed Sep. 21, 1979, Ser. No. 77,648
Int. Cl.³ E21B *47/00*
U.S. Cl. 73—151 **6 Claims**

1. An apparatus for measuring the downhole force applied to a cable suspending a well-logging apparatus in a borehole, comprising:

(a) an elongated sensitive element adapted to be connected between the cable and the well-logging apparatus to deform elastically under the effect of the downhole tension;

(b) strain gauge means integrally bonded upon the sensitive element for measuring the downhole force, wherein said strain gauge means includes at least one sputter deposited strain gauge; and



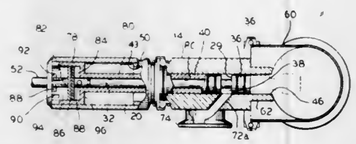
(c) means for compensating for pressure and temperature changes in the borehole, including an elongated envelope, having at least three sides, sealingly disposed about the strain gauge means and formed to allow said sides to deflect inwardly and outwardly from said strain gauge means in response to changes in pressure and temperature, said envelope being filled with oil.

4,269,064

ON-LINE SAMPLER

Julius T. Johnson, 348 20th St. S. E., Cedar Rapids, Iowa 52406, and Robert R. Johnson, 416 Jacolyn Dr. NW., Cedar Rapids, Iowa 52405

Filed May 31, 1979, Ser. No. 44,107
Int. Cl.³ G01N *1/12*
U.S. Cl. 73—422 TC **14 Claims**



1. Apparatus adapted to be mounted on a fluid conduit for sampling a fluid flowing through said conduit, said sampling apparatus comprising:

a housing having an axial passage with an open end adapted to be in communication with the fluid flowing through said conduit;

a sample-taking means including a collapsible, annular sampling chamber of predetermined volume;

means for reciprocating said sample-taking means within said axial passage between a first sample-taking position wherein said sample-taking means projects from said open end of said axial passage and is exposed to the fluid flowing through said conduit and a second sample-discharge position wherein said sample-taking means is withdrawn within said axial passage;

said annular sampling chamber of predetermined volume being defined by the inner wall of said axial passage when said sample-taking means is reciprocated to its second sample-discharge position, by the annular face of the end of a tubular member reciprocably mounted in said axial passage, by an opposed annular face of a sampling piston mounted on a piston rod reciprocably mounted in said tubular member and extending therethrough, and by said piston rod extending between said sampling piston annular face and the opposed annular face of the end of said tubular member;

drive means operatively connected to said sample-taking means to reciprocate one of said sampling piston or said tubular member away from and towards the other between extreme positions whereby, when said sample-taking means is reciprocated to its second sample-discharge position, said sampling chamber of predetermined volume will be collapsed to a position where said sampling piston annular face and the opposed annular face of the end of said tubular member are substantially in face-to-face contact, and whereby when said sample-taking means is reciprocated to its first sample-taking position said sampling chamber will be expanded back to its predetermined volume; and

a fluid discharge means in said housing communicating with said sampling chamber when said sample-taking means is reciprocated to its second sample-discharge position whereby the predetermined volume of sampled fluid will be discharged into said fluid discharge means upon the collapse of said sampling chamber.

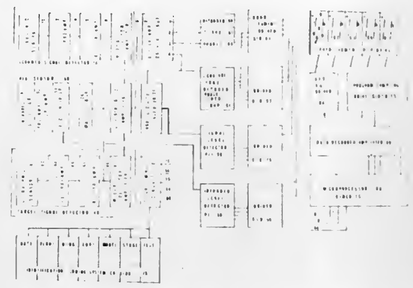
9. Apparatus for sampling a fluid flowing through fluid conduit means comprising a sampler adapted to be mounted on said conduit means; said sampler embodying a housing having an axial passage with an open end portion adapted to be in communication with fluid flowing through said conduit means; sample-taking means with opposed annular faces normally spaced apart at a constant, predetermined spacing, said spaced, annular faces forming, in conjunction with the wall of said axial passage, a collapsible, annular sampling chamber of constant, predetermined volume; means to reciprocate said sample-taking means within said passage between a first position wherein the sampling taking means, with its opposed, annular faces spaced apart at said constant, predetermined spacing, projects at said open end portion of said passage into the fluid in said conduit means and a second position wherein said sample-taking means, with its opposed, annular faces spaced apart at said constant, predetermined spacing, is within said passage and said annular sampling chamber of constant, predetermined volume is thereby formed; drive means operatively connected with said sample-taking means to bring said opposed, annular faces into substantially face-to-face contact and thereby substantially completely collapse said sampling chamber when it is in sample discharge position within said passage; and fluid discharge means in said housing for discharge of the sampled volume of fluid from said passage under positive pressure upon the collapse of said sampling chamber, said annular sampling chamber being defined by said axial passage, by the annular face of the end of a tubular member reciprocably mounted in said axial passage, by an opposed annular face of a piston mounted on a piston rod reciprocably mounted in said tubular member and extending therethrough, and by said piston rod, and said drive means being operable to move one of said sampling piston and said tubular member toward and away from the other between extreme positions providing said substantially face-to-face contact and said constant, predetermined spacing.

4,269,065

ULTRASONIC DETECTOR APPARATUS

Robert N. Clark, 530 E. Lime, Lakeland, Fla. 33800

Continuation-in-part of Ser. No. 882,361, Mar. 1, 1978, abandoned, which is a continuation-in-part of Ser. No. 798,821, May 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 698,011, Jun. 21, 1976, abandoned. This application Aug. 16, 1979, Ser. No. 67,149
Int. Cl.³ G01H *1/00*
U.S. Cl. 73—587 **8 Claims**



1. An apparatus for detecting an incipient failure of equipment which failure is characterized by the emission of ultrasonic signals from the equipment wherein the signals have a specific ultrasonic frequency distribution about a primary frequency, comprising, in combination:

a first ultrasonic sensor for receiving the primary frequency signal generated by the equipment;

a local oscillator for generating a signal selected to be a predetermined frequency difference relative to the primary frequency signal; and

a second ultrasonic sensor for receiving ambient background noise operatively connected to said apparatus to substantially cancel ambient background noise, whereby said primary frequency will be better observed; and

a mixer detector amplifier operatively connected to receive the outputs of said first and second ultrasonic sensors and of said local oscillator whereby the differences between said outputs may be detected to provide a demodulated frequency within a predetermined bandpass; and

a means for processing said demodulated frequency.

4,269,066

ULTRASONIC SENSING APPARATUS

Christopher L. Fischer, 1438 Wildrose Way, Mountain View, Calif. 94040

Filed Aug. 16, 1979, Ser. No. 67,115
Int. Cl.³ A61B *10/10*; G01N *29/00*
U.S. Cl. 73—639 **13 Claims**

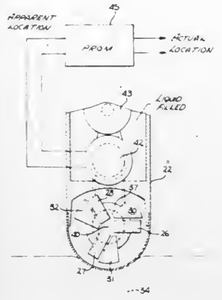
1. An ultrasound sensing apparatus comprising:

a plurality of ultrasound transducers each having a beam axis;

a rotating member for receiving said transducers, said member having an axis of rotation, said transducers being mounted on said member such that said beam axis of each of said transducers is spacedly offset from and non-intersecting with, said axis of rotation; and

a housing for receiving said transducers and said rotating member, said housing including a transmission window through which said beam axis of each of said transducers sequentially crosses as said member rotates about said axis of rotation;

each of said transducers being selectively actuated, whereby ultrasound associated with said transducers passes



through said window without being normal to said window.

4,269,067

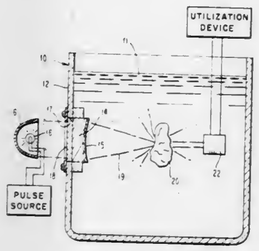
METHOD AND APPARATUS FOR FOCUSING ELASTIC WAVES CONVERTED FROM THERMAL ENERGY

Eugene E. Tynan, Mahopac; Russell W. Dreyfus, Mt. Kisco, and Robert J. von Gutfeld, New York, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 18, 1979, Ser. No. 40,340

Int. Cl.³ G01N *29/00*

U.S. Cl. 73—643 **28 Claims**



1. A transducer apparatus including:

a medium;

and unitary converting means within said medium to simultaneously convert pulses of thermal energy into acoustic waves for transmission through said medium and focus the acoustic waves.

4,269,068

ULTRASONIC COUPLANT COMPOSITIONS AND METHOD FOR EMPLOYING SAME

Orlando G. Molina, Westminster, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 444,432, Feb. 21, 1974, Pat. No. 3,915,885, and a continuation-in-part of Ser. No. 444,433, Feb. 21, 1974, Pat. No. 3,915,886, and a continuation-in-part of Ser. No. 521,730, Nov. 7, 1974, Pat. No. 3,939,092, and a continuation-in-part of Ser. No. 535,262, Dec. 23, 1974, Pat. No. 3,981,185, and a continuation-in-part of Ser. No. 580,442, May 23, 1975, Pat. No. 4,049,568. This application Aug. 13, 1975, Ser. No. 604,407

The portion of the term of this patent subsequent to Sep. 20, 1994, has been disclaimed.

Int. Cl.³ C09K *3/00;* **G01N** *29/04*

U.S. Cl. 73—644 **27 Claims**

1. A heat resistant biodegradable composition for ultrasonic inspection of surface and subsurface flaws and discontinuities in an object, in the form of a gel consisting essentially of (1) a biodegradable nonionic liquid surfactant as the sole liquid vehicle, said surfactant selected from the group consisting of (a) straight chain, primary, aliphatic oxyalkylated alcohols, wherein said alcohols can contain from 8 to 20 carbon atoms and the oxyalkyl groups are a mixture of ethylene oxide and propylene oxide groups, and (b) ethoxylates of linear secondary aliphatic alcohols, with the hydroxyl groups randomly distributed, the linear aliphatic portion of said alcohols being a mixture of alkyl chains containing in the range from 10 to 17 carbon atoms, and containing an average of from 3 to 12 moles of ethylene oxide, and (2) an amount of silica sufficient to convert said surfactant liquid into a gel.

15. A method for detecting surface and subsurface flaws and discontinuities in an object, which comprises applying to a surface of said object a water washable biodegradable heat resistant ultrasonic couplant composition in the form of a gel which consists essentially of (1) a biodegradable nonionic liquid surfactant as the sole liquid vehicle, said surfactant selected from the group consisting of (a) straight chain, primary, aliphatic oxyalkylated alcohols, wherein said alcohols can contain from 8 to 20 carbon atoms and the oxyalkyl groups are a mixture of ethylene oxide and propylene oxide groups, and (b) ethoxylates of linear secondary aliphatic alcohols, with the hydroxyl groups randomly distributed, the linear aliphatic portion of said alcohols being a mixture of alkyl chains containing in the range from 10 to 17 carbon atoms, and containing an average of from 3 to 12 moles of ethylene oxide, and (2) an amount of silica sufficient to convert said liquid surfactant into a gel, contacting a transducer of an ultrasonic testing device with said gel on said surface of said object, and transmitting ultrasonic energy through said gel and into said object to inspect said object and locate any surface or subsurface flaws, cracks or discontinuities in said object, and removing said ultrasonic couplant composition from said surface.

4,269,069

PRESSURE SENSOR, ESPECIALLY FOR INTAKE AIR SUCTION PRESSURE

Dieter Handtmann, Sindelfingen; Helmut Rau, Gerlingen, and Erich Zabler, Karlsruhe, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 23, 1980, Ser. No. 114,573

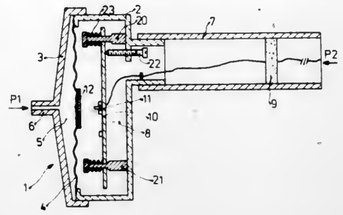
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 2908808

Int. Cl.³ G01L *9/00*

U.S. Cl. 73—705 **6 Claims**

1. A pressure sensor, including a housing defining a movable pressure chamber which is connectable to a source of pressure to be measured, and further including transducer means for generating an electrical signal related to the magnitude of said pressure and wherein, according to the invention, said transducer means comprises a diffuse reflector **(12)** coupled to said movable chamber and a detector assembly **(11)** including a

light source **(13)**, a first light-sensitive detector **(17)** and a second light-sensitive detector **(18)** for detecting light reflected by said reflector **(12)** and further comprising regulator means for so controlling the electrical power of said light source **(13)**



that the photo-current induced in at least one of said detectors **(17,18)** remains substantially constant independently of the prevailing distance (e) between said reflector **(12)** and said detector assembly **(11)**.

4,269,070

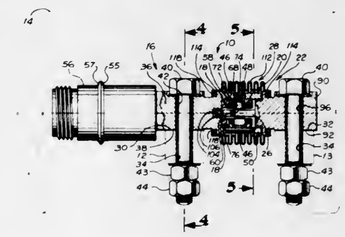
STRAIN/DEFLECTION SENSITIVE VARIABLE RELUCTANCE TRANSDUCER ASSEMBLY

Harold K. Nelson, Seattle; Charles A. Kleingartner, and LeRoy E. Vetsch, both of Bothell, all of Wash., assignors to Weico Corporation, Lynnwood, Wash.

Filed Sep. 28, 1979, Ser. No. 80,048

Int. Cl.³ G01B *7/16*

U.S. Cl. 73—779 **28 Claims**



1. A variable reluctance transducer assembly adapted to be mounted between two spaced apart, relatively movable mounting points subject to movement in response to a load, comprising:

(a) an elongate housing adapted to be mounted on one of the two mounting points to move therewith;

(b) a pair of magnetic cores supported by said housing in spaced apart relationship;

(c) a coil secured to each of said two cores substantially in aligned, spaced parallel relationship to each other; and

(d) target means adapted to be mounted on the opposite of the two mounting points to move therewith and independently of the movement of said housing, said target means including a mounting base and a magnetically permeable target cantilevered outwardly from said mounting base toward said housing to lie nominally in spaced relation with respect to said two magnetic cores and their corresponding coils, said target having a first planar surface disposed nominally parallel to the plane defined by one of said magnetic cores and its corresponding coil and a second planar surface disposed nominally parallel to the plane defined by the second of said two magnetic cores and its corresponding coil.

4,269,071

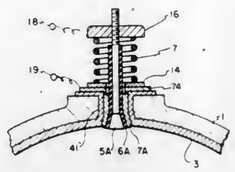
ELECTRODES FOR AN ELECTROMAGNETIC FLOW METER

Norikazu Wada, Chiba, Japan, assignor to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 832,872, Sep. 13, 1977, Pat. No. 4,181,013. This application Apr. 11, 1979, Ser. No. 29,131

Int. Cl.³ G01F *1/58*

U.S. Cl. 73—861.12 **4 Claims**



1. An electrode structure comprising a center electrically conductive electrode having a tapered head at one end and a threaded portion at the other end of said electrode,

an electrically insulating tube surrounding a portion of said center electrode including the sides of said tapered head while allowing at least a portion of said threaded end to project from said tube,

an outer electrically conductive electrode surrounding a portion of said tube at said tapered head end of said center electrode and

clamping means for compressing said center and outer electrodes against said insulating tube while maintaining said insulating tube therebetween,

wherein said clamping means includes a nut on said threaded end of said center electrode projecting from said insulating tube, and electrically insulating washer means slidably mounted on said insulating tube and bearing on said outer electrode and a spring means between said nut and said washer means.

4,269,072

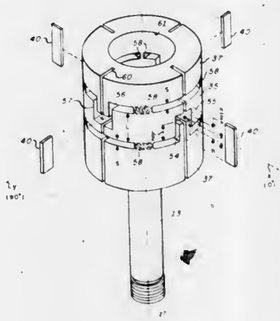
FLEXURE ASSEMBLY FOR A DYNAMICALLY TUNED GYROSCOPE

Damon H. Duncan, Phoenix, Ariz., assignor to Sperry Corporation, New York, N.Y.

Filed Feb. 14, 1979, Ser. No. 11,965

Int. Cl.³ G01C *19/22*

U.S. Cl. 74—5 F **11 Claims**



1. A flexure assembly for a dynamically tuned flexure suspended free rotor gyroscopic sensor comprising

first and second axially spaced hollow, equal diameter cylindrical members, the first of said members being driven by a gyro spin shaft about a spin axis and the second of said

members supporting a gyro rotor normally coaxially with said spin axis,

a first hollow cylindrical gimbal member between said coaxial with said first and second members having a diameter substantially equal to said first and second cylindrical members and adapted to support said rotor on said spin shaft for tilting about first and second mutually orthogonal tilt axes normal to said spin axis, said gimbal and the first of said cylindrical members including a first pair of diametrically opposite gap-defining means and said gimbal and the second of said cylindrical members including a second pair of diametrically opposite gap-defining means, said gap-defining means being so constructed that all of said gaps are of substantially equal length and the centers of one pair of gaps lie along said first tilt axis and the centers of the other pair of gaps lie along said second tilt axis, each of said gap-defining means on said gimbal and first and second cylindrical members including elongated narrow slits collinearly extending from said gaps and into said gap defining means to an extent such as to provide separated, elongated flexure plate support surfaces, said slits being normal to said respective first and second axes, and

a thin, high strength, elongated flexure blade having its ends secured between each of said elongated narrow slits and its mid portion bridging each of said gaps, each of said blades having as nearly identical spring characteristics as possible whereby to provide substantially identical flexure characteristics between said gimbal and first and second members in response to angular tilt of said rotor about said first and second axes.

9. The method of fabricating a flexure assembly as defined in claim 1 comprising the steps of

partially forming in an elongated hollow cylindrical blank a pair of parallel axially spaced isolation slots through the walls of said blank for separating said blank into said first and second axially spaced cylindrical members and said gimbal member but leaving a plurality of web portions interconnecting said gimbal and members whereby to retain a substantially rigid integral structure,

forming said gap-defining means in said gimbal and first and second members,

forming said narrow slits in said gap-defining means,

assembling and securing said flexure blades in said slits, and finally

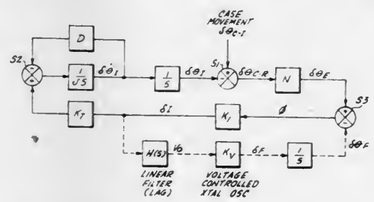
removing said interconnecting webs whereby to leave said gimbal flexibly interconnected between said first and second cylindrical members by said flexure blades.

4,269,073

GYROSCOPE CLOSED-LOOP SPEED CONTROLLER

Melville D. McIntyre, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Jul. 24, 1978, Ser. No. 927,453
Int. Cl.³ G01C *19/08*; H02P *7/00*
U.S. Cl. 74—5.7 **23 Claims**



1. A gyroscope comprising:

a multiphase synchronous gyroscope motor including armature windings for receiving power from a suitable multiphase gyroscope power source and rotating the wheel of said gyroscope at a speed related to the frequency of the power received from said multiphase gyroscope power source;

a multiphase gyroscope power source, connected to said synchronous gyroscope motor, for: drawing power from a power supply; receiving a frequency control signal from a suitable control source; and, producing multiphase AC power having a frequency controlled by said frequency control signal; and

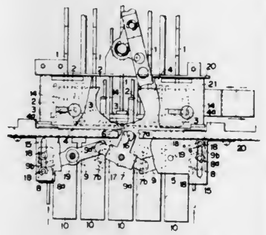
a closed-loop speed controller for: sensing the power drawn by said multiphase gyroscope power source from said power supply, including fluctuations in said drawn power; producing a frequency control signal that fluctuates in accordance with said fluctuations in said drawn power; and, applying said frequency control signal to said multiphase gyroscope power source to control the frequency of the multiphase AC power produced by said multiphase gyroscope power source.

4,269,074

CHANGEOVER MECHANISM FOR PUSHBUTTON TUNER

Takao Chaki, and Chuji Akasaka, both of 50 Kamitoda, Todashi, Saitama-ken, Japan

Filed Jun. 4, 1979, Ser. No. 45,068
Claims priority, application Japan, Jun. 6, 1978, 53-76152[U]
Int. Cl.³ H03J *5/12*
U.S. Cl. 74—10.33 **5 Claims**



1. A changeover mechanism for a pushbutton tuner comprising;

a plurality of button slides having each a push button secured at one end of the respective button slide;

auxiliary slide members disposed on opposite sides of each of the button slides;

lock members pivotally mounted on the button slides to rock thereon, respectively;

a changeover member adapted to engage the lock members and displaceable to change over the relationship between said lock members and said changeover member;

an operative member adapted to engage the changeover member and rotatable to displace said changeover member; and

operating means adapted to engage either one of opposite ends of the operative member to rotate said operative member for the displacement of the changeover member.

4,269,075

COUPLING ARRANGEMENT FOR DETACHABLY CONNECTING A DRIVEN UNIT TO A DRIVE UNIT

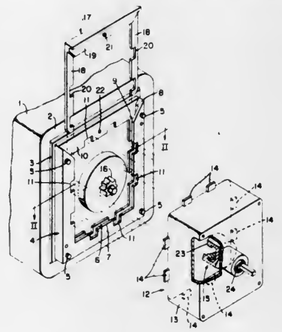
Gerald L. Crist, 6468 Hahn Rd., Bradford, Ohio 45308, and Arlen E. Flora, 4379 Childrens Home Rd., Greenville, Ohio 45331

Filed Apr. 16, 1979, Ser. No. 30,233
Int. Cl.³ F16H *57/02*
U.S. Cl. 74—16 **5 Claims**

1. A coupling arrangement for detachably connecting a driven unit, to which a tool is operatively connectable, to a drive unit, which is connected to the housing of a power source, said coupling arrangement comprising:

a frame which forms part of said drive unit, is open toward the center, is mounted to said housing, and has any desired shape, said frame including a first part which is continuous and is mounted directly to said housing, and a second part which has an open portion and is connected to said first part along at least part of the outer peripheral edges of both of said frame parts, said frame parts having inwardly directed portions spaced from one another to form a slot, said open portion of said second part forming an opening into said slot, each of said inwardly directed portions of said frame parts being provided with at least two essentially identically dimensioned grooves, corresponding grooves of said first and second frame parts being aligned with one another, said grooves being uniformly and symmetrically distributed in said frame parts, the width of a given groove on said first and second frame parts being less than the distance between two adjacent grooves;

a locking slide which has an open interrupted portion, is open toward the center, and has outer peripheral edges, those outer peripheral edges of said slide adjacent said open interrupted portion being shaped in conformity with the dimensions of said slot, so that said slide is adapted to be displaceably received, through said open portion of said second frame part, in said slot in such a way that when said slide is located in said slot, said open interrupted portion of said slide is diametrically opposite said open portion of said second frame part, said slide having



inwardly directed portions which extend inwardly, in the fully inserted state of said slide, to the same extent as do said inwardly directed portions of said frame parts, those inwardly directed portions of said slide adjacent said open interrupted portion being provided with grooves dimensioned and distributed essentially identical to said grooves of said frame parts, said slide having at least one not fully inserted state in said slot whereby said slide grooves are aligned with corresponding aligned grooves of said first and second frame parts;

means for retaining said slide and its fully inserted state in said slot;

a drive gear rotatably mounted to said housing in the vicinity of said open portion of said frame, said drive gear being operatively connected to said power source;

an adaptor forming part of said driven unit and including a housing, said housing having an outer dimension which conforms essentially to that part of said frame which is open to the center, said adaptor housing having an outer periphery provided with outwardly directed projections in the form of tangs, said tangs corresponding essentially in dimension, number, and symmetrical distribution to said grooves of said first frame part, so that said tangs are adapted to be received in said grooves of said first frame part; and

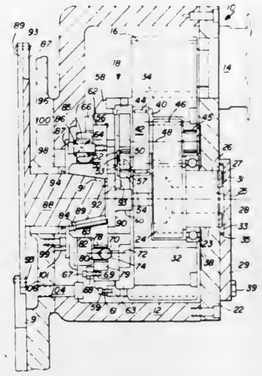
a driven gear rotatably mounted to and within said adaptor housing and operatively connectable to said tool, said driven gear being mounted and shaped in such a way that it operatively engages said drive gear when said tangs are received in said grooves of said first frame part.

4,269,076

MOTION GENERATING MECHANISM

Bart Obra, St. Clair Shores, Mich., assignor to Easom Engineering & Manufacturing, Corp., St. Clair Shores, Mich.

Filed Jan. 18, 1979, Ser. No. 4,466
Int. Cl.³ F16H *37/12*
U.S. Cl. 74—52 **6 Claims**



1. A combined motion generating mechanism comprising:

a support frame;

a first rotary member carried by said support frame for rotation about a fixed first axis;

first driving means for driving said first rotary member;

a second rotary member carried by said first rotary member and rotatable therewith about said first axis as said second rotary member rotates about a second movable axis that is parallel to said first axis;

rotation inducing means carried by said support frame, a third rotary member for rotation about said first axis, said third rotary member being axially spaced from said first and second rotary members, said third rotary member having one side thereof adjacent said second rotary member, said one side having a radial slot;

a coupling member carried by said second rotary member and disposed along an axis which is spaced from said second axis, said coupling member movably engaging said third rotary member slot to rotate said third rotary member about said first axis as said second rotary member rotates whereby the motion of said third rotary member varies in a combined epicycloidal and harmonic manner relative to the acceleration and velocity of said first driving means;

said rotation inducing means is a stationary sun gear carried by said support frame, said second rotary member having a gear formed thereon positioned radially outward from the sun gear and engaging said stationary sun gear such that said second rotary member rotates about said second movable axis as said first rotary member moves said second rotary member relative to said stationary gear;

said coupling member being disposed along an axis which is spaced from said second axis; and

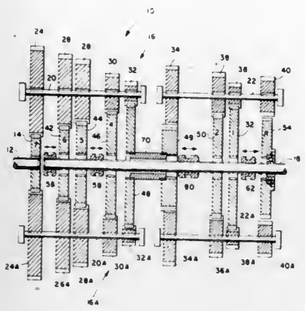
means for shifting an angular position of the combined epicycloidal and harmonic motion of said third rotary member relative to the position of the first member comprising the stationary gear rotatably supported about the first axis by the frame; an adjustment plate attached to a shaft of the stationary gear, the adjustment plate rotatable about the first axis with the stationary gear, and means for selectively attaching the adjustment plate to the frame.

4,269,077

CHANGE GEAR TRANSMISSION

John R. Vandervoort, Richland, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 30, 1978, Ser. No. 956,468
Int. Cl.[3] F16H 3/08
U.S. Cl. 74—331 7 Claims



1. An improved simple change gear transmission of the type comprising:

an input shaft having an input gear thereon; a mainshaft, said mainshaft guided for floating movement at the end thereof closest the input shaft and mounted for pivotal movment at the other end thereof; at least two substantially identical compound countershafts each having an axis of rotation substantially parallel with the axis of rotation of said mainshaft, each countershaft having a plurality of countershaft gears mounted thereon which are grouped with identical countershaft gears on the other countershaft, said coutershafts each having a first portion carrying a countershaft gear in engagement with said input

gear and a second portion; a countershaft gear on each of said first portions and a countershaft gear on each of said second portions in constant engagement with an idler means to establish a driving relation between said first and second portions, rotation of said input gear causing said first portions to have greater angular velocity than said second portions; a plurality of floating mainshaft gears surrounding said mainshaft and constantly meshed with and supported by a group of said countershaft gears; and clutch means for selectively clutching said floating mainshaft gears one at a time to said mainshaft, the improvement comprising:

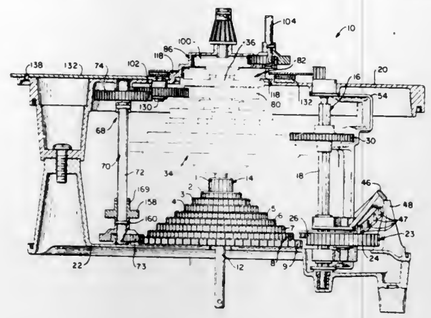
said idler means comprising an idler gear surrounding said mainshaft and constantly meshed with and supported by a group of countershaft gears on one of said first and second portions of said countershafts, and idler gear coupled by a coupling means for rotation with a floating mainshaft gear constantly meshed with a group of countershaft gears on the other of said first and second portions of said countershaft, said coupling means surrounding and radially movable relative to said mainshaft, the mainshaft gear closest the pivot point of the mainshaft being constantly meshed with a group of countershaft gears, selectively clutchable to the mainshaft and supported on the mainshaft by means of an antifriction bearing for radial movement therewith and rotational movement relative thereto.

4,269,078

EXTENDED RANGE VARIATOR CONVERSION MECHANISM

Raymond H. Devanney, Winsted, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed Aug. 29, 1979, Ser. No. 70,718
Int. Cl.[3] F16H 3/22
U.S. Cl. 74—348 6 Claims



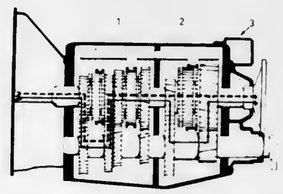
1. In an extended range unit volume price variator settable for establishing the amount of each place of a multiple place unit volume price and having a rotary input with a primary stack of coaxial gears adapted to be rotated by a fluid meter in accordance with the volume amount of metered fluid; a plurality of rotatable drive range arm assemblies for a plurality of places of ascending order respectively of the multiple place unit volume price having respective rotatable range arm shafts with axes radially offset from and generally parallel to the axis of the primary gear stack, respective range arms pivotally and axially shiftable on the respective range arm shafts for selective engagement with the primary stack of gears for rotating the respective range arm shafts therewith, and a range arm output gear on each range arm shaft; a rotary differential gear mechanism coaxial with the primary gear stack in engagement with the range arm output gears for combining the rotatable drives through the range arms with relative drive ratios in accordance with their respective places; and an auxiliary higher place price selector mechanism for establishing a next higher place price to said plurality of places of ascending order and having an auxiliary rotatable drive take-off assembly with a rotatable take-off shaft generally parallel to and radially offset from the primary gear stack, a take-off shaft input gear driven by the rotary input and rotatably mounted on the take-off shaft for being coupled for directly rotating the take-off shaft therewith, and an auxiliary take-off shaft driven gear driven by the take-off shaft; a rotary auxiliary differential in operative engagement with said differential gear mechanism; and an auxiliary higher place selector with a shiftable selector lever shiftable between first and second positions thereof and a selector gear rotatably mounted on the selector lever for operatively interconnecting the auxiliary take-off shaft driven gear and auxiliary differential in the first position of the selector lever; the auxiliary differential being operable for combining the rotatable drives through the differential gear mechanism and selector gear with relative drive ratios in accordance with the respective places of the unit volume price and whereby, with the take-off shaft input gear coupled for directly rotating the take-off shaft, the selector gear is adapted to be selectively shifted to its first position for selectively establishing a said next higher place price of "1"; the improvement wherein the extended range variator further comprises a standby conversion mechanism for selectively converting the auxiliary higher place price selector mechanism for selectively establishing a said next higher place price of "2", the conversion mechanism comprising an auxiliary compound gear with first and second relative small and large diameter gears respectively, means for rotatably supporting the auxiliary compound gear with the first relatively small diameter gear thereof in operative engagement with said take-off shaft input gear to be driven thereby, a take-off shaft drive gear rotatably mounted on the take-off shaft in operative engagement with the second relatively large diameter gear of said compound gear and for being selectively coupled to the take-off shaft, and means for selectively coupling said take-off shaft input gear and said take-off shaft drive gear to the take-off shaft for selectively driving the shaft directly with said input gear at a first drive ratio and via the compound gear and said take-off shaft drive gear at a second drive ratio which is twice the said first drive ratio for selectively establishing a said next higher place price of "2" with the selector lever.

4,269,079

ARRANGEMENT FOR PREVENTING INCORRECT SHIFTING IN A VEHICLE GEARBOX

Sören Fredell, Göthenborg, and Stig Jarl, Mölnlycke, both of Sweden, assignors to AB Volvo, Göthenborg, Sweden

Filed Apr. 4, 1979, Ser. No. 27,092
Claims priority, application Sweden, Apr. 24, 1978, 7804650
Int. Cl.[1] F16H 3/08; B60K 41/06
U.S. Cl. 74—365 7 Claims



1. Arrangement for preventing incorrect shifting in a gearbox preferably intended for heavier motor vehicles, said gearbox having a base portion with a number of gear ratios and a two-speed range portion, coupled to the output shaft of the base portion, and having such gear ratios that the total gear ratio of the gearbox, when the higher gear ratio of the range portion is used together with the lowest gear ratio of the base portion, is higher than that when the lower gear ratio of the range portion is used together with the highest gear ratio of the base portion, the range portion having a gear selector mechanism coupled to a shift unit, said device comprising a first blocking system which is coordinated with the shift unit of the range portion and a gear selector mechanism of the base portion to oppose shifting in the base portion during the shifting movement of the shift unit in the range portion, and a second blocking system which is coordinated with means for sensing the rotational speed of the output shaft and with the gear selector mechanism of the base portion to prevent shifting to a certain gear or certain gears in the base portion when the rotational speed of the output shaft exceeds a certain value or certain values, characterized in that the first and the second blocking systems have a common blocking device, that the first system has means which sense the shifting movement of the shift unit, said means being disposed to activate the blocking device to block the gear selector of the base portion in the neutral position during the shifting movement, and that the second system has means for sensing the lateral position of the gear lever, said means being disposed, depending on the rotational speed of the output shaft, in the lateral position of first and second gear to actuate the blocking device to block the gear selector of the base portion in the neutral position.

4,269,080

COUPLING ARRANGEMENT FOR TRANSMITTING TORQUE

Artur Fischer, Weinhalde 34, 7244 Waldachtal 3 (Tumlingen), Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 51,413
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1978, 2829268
Int. Cl.[3] F16D 3/04, 1/00, 3/44
U.S. Cl. 74—425 9 Claims



1. A coupling arrangement of a toy model for transmitting torque from a worm gear arranged on a shaft of a motor which is mounted on a structural plate, to a gearing element connected with an axle, comprising a Cardan joint having two end portions spaced from one another; first coupling means for coupling one of said end portions of said Cardan joint with the worm gear of the shaft of the motor, said first coupling means including a cap nut screwed on the worm gear of the shaft of the motor and connected with said one end portion of said Cardan joint, and a counter nut fixing said cap nut on said worm gear; and second coupling means for coupling the other of said end portions of said Cardan joint with the gearing element, said second coupling means including a structural element mounted on the mounting plate, and a driving shaft supported in said structural element, said driving shaft being connected with said other end portion of said Cardan joint and engaging the gearing element.

4,269,081

NEUTRAL POSITIONING DEVICE FOR A GEAR SHIFT LEVER

James F. Peterson, Franklin; Joe Crabtree, Lewisburg, and Donald C. Coleman, Gallatin, all of Tenn., assignors to The Murray Ohio Manufacturing Co., Brentwood, Tenn.

Filed Nov. 21, 1979, Ser. No. 96,330
Int. Cl.[3] G05G 9/12; F16F 1/18
U.S. Cl. 74—473 R 4 Claims

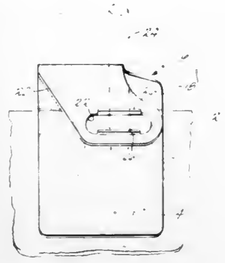
1. A device for resisting inadvertent actuation of a shift lever from a neutral position to a gear-engaging position, said device comprising:

a spring operatively associated with said lever, said spring including:

(a) a cantilevered main resilient section; and

(b) an extension joined to an outer end of the cantilevered main section and lying in a plane angularly related to that of the main section, said extension being provided with an elongated slot adapted to receive said lever and having a major axis extending parallel to the plane of

the main section, said spring being oriented with respect to the transaxle so as to urge the lever towards the



neutral position when the lever is displaced in a direction normal to said major axis.

4,269,082

RESETTING DEVICE FOR THE CAM HEAD ON A DEEP-WELL PUMP DRIVE

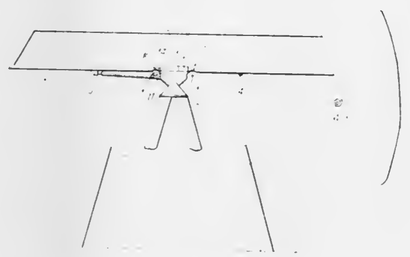
Hermann Engbers, Hoogstede OT Tinholt, Fed. Rep. of Germany, assignor to Wintershall Aktiengesellschaft, Kassel, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,785

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1978, 2828110

Int. Cl.³ G05G *1/04*

U.S. Cl. 74—522 **4 Claims**



1. A device for displacing the walking beam of deepwell pump drives comprising: a pivot bearing having a walking beam support; guide means for said walking beam; said walking beam support having long sides and narrow sides; sliding arrangements located on said narrow sides for slightly raising and supporting said walking beam during lengthwise displacement; a two way-shifting device hinged to said pivot bearing, a crank assembly; said two-way shifting device having another end connected to a part of said walking beam engaging said crank assembly.

4,269,083

CONNECTING ROD

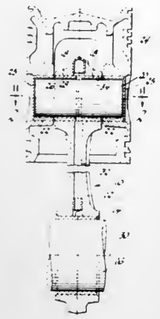
David M. Wandel, Farmington Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 27, 1979, Ser. No. 61,499

Int. Cl.³ G05G *1/00*; F16J *1/14*

U.S. Cl. 74—579 E **5 Claims**

5. A connecting rod assembly for a two-stroke cycle internal combustion engine having a crankshaft and a piton provided with a pair of co-axially spaced piston pin bushings, said assembly comprising a connecting rod member having a crankshaft bearing adapted to receive said crankshaft and further having a pair of co-axially spaced piston pin bushings, and a piston pin received by said bushings of said connecting rod assembly and adapted for reception by said bushings of said piston, wherein both the axis of said crankshaft bearing and the axis of said piston pin are normal to a line intersecting said axes, and wherein the axis of said piston pin is not substantially parallel



to the axis of said crankshaft bearing whereby limited lubrication clearance is alternately provided at opposite ends of said piston pin between said piston pin and said bushings during operation of said connecting rod assembly in said in said engine.

4,269,084

TOE CLIP FOR A BICYCLE PEDAL

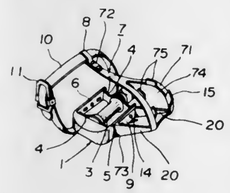
Shinpei Okajima, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

Filed Aug. 10, 1979, Ser. No. 65,448

Claims priority, application Japan, Aug. 11, 1978, 53-110685[U]

Int. Cl.³ G05G *1/16*

U.S. Cl. 74—594.6 **3 Claims**



1. A toe clip for attachment to a bicycle pedal having a front and a rear plate for holding, in cooperation with a toe strap, a driver's foot onto said pedal, said toe clip comprising:

a clip body formed of an elongate plate curved forward at its substantially intermediate portion to form a curved portion having upper and lower ends and a first and second free end portion respectively extending rearwardly from the upper and lower ends of said curved portion, said second free end portion sloping downwardly to the rearmost end of said clip body, said rearmost end of said second free end portion at its lowest level terminating at the lowest level of said pedal front plate, said clip body being provided at both side edges thereof between the lower end of said curved portion and the rearmost edge of said second free end portion with a pair of rising sidewall pieces which are triangular in shape, each of said rising sidewall pieces having an upper surface which terminates substantially at the level of upper surfaces of said front and rear plates of said pedal and being in horizontal continuation of the level of said upper surfaces so that, when said clip body is mounted on said pedal, said second free end covers the front surface of said front plate of said pedal so as to introduce air flow rearwardly without striking against the front surface of said front plate, thereby reducing resistance against air flow; and, a holder provided at said first free end portion of said clip body for holding said toe strap;

said toe clip, when attached to a bicycle pedal, providing a reduced resistance against air flow.

4,269,085

DRIVE MEANS FOR A CASCADE EXTRUDER

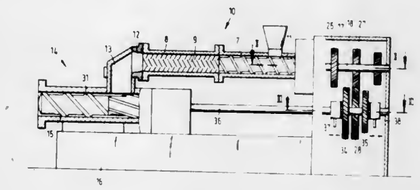
Dietmar Anders, and Wilhelm Brand, both of Hanover, Fed. Rep. of Germany, assignors to Hermann Berstorff Maschinenbau GmbH, Hanover Kleefeld, Fed. Rep. of Germany

Filed Oct. 2, 1978, Ser. No. 948,095

Claims priority, application Fed. Rep. of Germany, Oct. 1, 1977, 2744337

Int. Cl.³ F16H *37/06*

U.S. Cl. 74—665 GA **6 Claims**



1. Drive means for two screw extruders combined in a cascade arrangement, comprising a drive motor acting through reduction gearing on a screw shaft of one stage of the extruder and through coupling gearing on a screw shaft of the other stage of the extruder, said coupling gearing including shift gearing comprising two gear wheels mounted on an intermediate shaft and respective opposed gear wheels meshing with said gear wheels and mounted on an extended drive shaft of said screw shaft of said other stage extruder, and clutch means for selectively and alternatively drivably coupling said two gear wheels and said opposed gear wheels to the shaft on which they are mounted, with the transmission ratios of the two pairs of meshing gear wheels differing one from the other, and means for operatively connecting said coupling gearing to said reduction gearing such that the speed of said screw shaft of said other stage of said extruder can be varied, thereby to obtain different speed ratios between said screw shaft of said one stage and said screw shaft of said other stage of the extruder.

4,269,086

SELF-LOCKING DIFFERENTIAL GEAR FOR MOTOR VEHICLES, ESPECIALLY BEVEL GEAR DIFFERENTIAL GEAR

Werner Altmann, Remchingen-Nöttingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

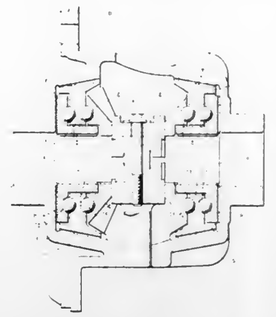
Filed Feb. 10, 1978, Ser. No. 877,030

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1977, 2706050

Int. Cl.³ F16H *1/44, 1/40*

U.S. Cl. 74—711 **12 Claims**

1. A self-locking differential gear means for motor vehicles, comprising a pair of output shaft means, a driven gear rotatably arranged on each output shaft means, locking means operatively connected to each driven gear for automatically locking the driven gear to a differential gear housing, characterized in that an abutment means is non-rotatably secured on each output shaft means for connecting each driven gear to its respective output shaft means, each of said driven gears is mounted so as to be rotatable relative to its associated abutment means, the respective locking means are disposed between said abutment means and the associated driven gear, and in that a further means is interposed between each driven gear and associated locking means and between each abutment means and associated locking means for retaining the respective locking means in an ineffectual position when a torque equilibrium exists between the driven gear and an associated output shaft means and for automatically transferring the respective locking means into an effective position upon a disturbance of the torque equilibrium.



4,269,087

TOOL ASSEMBLY FOR MOUNTING A WIRE CLIP TO A GRID MEMBER OF A FALSE CEILING

Lawrence J. Wand, 6607 N. Ponchartrain, Chicago, Ill. 60646

Filed Feb. 27, 1979, Ser. No. 15,880

Int. Cl.³ B25B *7/00*

U.S. Cl. 81—5.1 R **9 Claims**



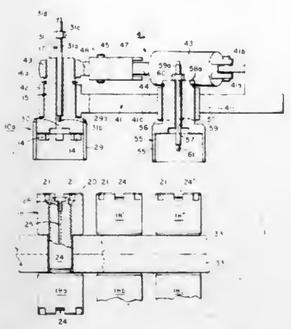
1. A pliers for mounting a tear drop shaped, wire spring clip with upper opposed laterally extending ends to a grid member of a false ceiling, said pliers comprising two elongate members, each elongate member having a handle portion and a jaw portion and being pivotally connected to the other elongate member at the junction between said handle portion and said jaw portion by a pivot fastener, said jaw portions being opposed to and aligned with each other and each jaw portion having an arcuate end section with a concave curved inner surface and with an elongate groove extending arcuately longitudinally of the end section in the concave inner surface thereof, and said groove facing and being aligned with a like groove in the opposing jaw portion, and the grooves in the arcuate sections of the jaw portions being sized and configured to readily grip the tear drop portion of a tear drop shaped wire spring clip.

4,269,088

WRENCH TOOLS FOR CASTELLATED NUTS

Bobby W. Dukes, Austin, Tex., assignor to N-S-W Corporation, Austin, Tex.

Filed Sep. 14, 1979, Ser. No. 75,620
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—57.39 **5 Claims**



1. A power tool for rotating one of a plurality of adjacently positioned castellated nuts threadedly connectable to studs, each nut having a body defining a plurality of radial slots therein, and each stud having a threaded axial hole, said tool comprising:

(1) a wrench driver positionable over one threaded castellated nut for transmitting a torque thereto, said wrench driver having

(a) a head,

(b) a plurality of radial lugs extending outwardly from said head for engaging the corresponding radial slots in said castellated nut,

(c) a skirt extending outwardly from said head for capturing a portion of the body of the castellated nut being torqued;

(2) a reaction-support beam having a ring loosely receiving said wrench driver therethrough for free relative rotations therebetween in the clockwise and counter-clockwise directions;

(3) a fluid-operated cylinder mounted over and being pivotably coupled to said beam, said cylinder having a reciprocating ram;

(4) means operatively coupling said ram to said wrench driver for transmitting a torque thereto;

(5) an anchor adapter having a socket anchorable over the body of an adjacent castellated nut, and having an axial bore therethrough;

(6) means movably coupling said anchor adapter to said beam, whereby said fluid-operated cylinder can exert a torque on said one threaded castellated nut through said wrench driver; and

(7) a retainer bolt extending through said bore into said threaded hole of said stud for longitudinally interconnecting said anchor adapter to said adjacent nut.

4,269,089

ADJUSTABLE RATCHET PLIERS

Charles E. Hastings, 3404 Paris Pl., Orlando, Fla. 32808

Continuation-in-part of Ser. No. 963,433, Nov. 24, 1978. This application Dec. 10, 1979, Ser. No. 101,552
Int. Cl.³ B25B *7/04*
U.S. Cl. 81—410 R **5 Claims**

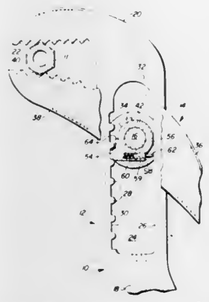
1. An adjustable ratchet pliers comprising in combination:

a first jaw member including a handle and a jaw portion, said first jaw member having an elongated slot formed therein and a plurality of notched positions formed in said elongated slot;

a second jaw member including a handle and a jaw portion, said second jaw member being pivotally coupled to said first jaw member;

slide track means formed along said elongated slot in said first jaw member, said slide track means including a sunken area on at least two sides of said elongated slot in said first jaw member;

slide means for sliding said second jaw member relative to said first jaw member, said slide means having a shaft and a sliding member, said shaft being connected to said second jaw member and extended through said elongated slot in said first jaw means, said slide member being attached to said shaft and slidably positioned on said slide track, and said slide means sliding member being a flat member sliding in said slide track means sunken area adjacent said elongated slot in said first jaw member;



locking means pivotally mounted on said slide means shaft and extending into said elongated slot for engaging said notched positions therein, said locking means biasing means including a spring biased pin mounted in a bore in said locking means biasing said pin against the opposite side of said first jaw member elongated slot from said plurality of notched positions;

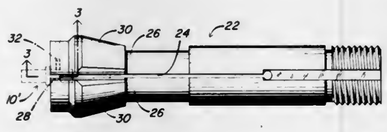
releasing means for rapidly releasing said locking means from a notched position,, said releasing means including a stop on said second jaw member for engaging a portion of said locking means when said first and second jaw members are rotated relative to each other to engage said stop on said second jaw with said portion of said locking means whereby said adjustable pliers can be locked into an adjusted position and rapidly released for changing positions.

4,269,090

METHOD AND APPARATUS FOR MARKING MINIATURE TURNED PARTS

Lawrence K. Ingber, Boston, and Francis J. Strangio, Watertown, both of Mass., assignors to Swisstronics, Inc., Watertown, Mass.

Filed Aug. 1, 1979, Ser. No. 62,738
Int. Cl.³ B23B *3/00*; B31F *1/07*; B23B *5/22*
U.S. Cl. 82—1 C **2 Claims**



1. A method for simultaneously machining a part to a predetermined configuration and embossing the part with a selected indicia, in a precision turning machine having tools for turning the part to a predetermined configuration and supplemental tools located at different work stations for performing secondary operations on the workpiece, said machine further including workpiece holding means adapted to grip the workpiece and transfer it to a subsequent work station in the machine, the method comprising:

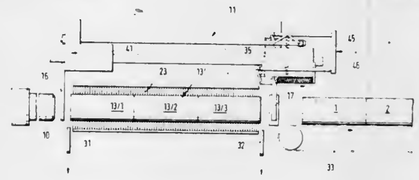
simultaneously embossing the workpiece with a selected indicia during the operating cycle of the turning machine by providing a stamp bearing the indicia in the workpiece holder at a location which will emboss the indicia on the workpiece as the workpiece holder grips the work piece.

4,269,091

ARRANGEMENT FOR CUTTING GUIDED CYLINDRICAL SLEEVES

Otto Hodapp, Tuebingen, and Ulrich Lindner, Rottenburg, both of Fed. Rep. of Germany, assignors to Christian Majer KG Maschinenfabrik, Tuebingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 911,304, Jun. 1, 1978. This application Sep. 5, 1979, Ser. No. 72,655
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1977, 2724936
Int. Cl.³ B23B *5/14, 15/00*
U.S. Cl. 82—48 **6 Claims**



1. A machine for automatically cutting and dividing cylindrical sleeves, comprising in combination,

a spindle operatively mounted in said machine;

a knife support beam having a plurality of rotary knives transversely movably mounted in said machine relative to said spindle;

a transport arrangement operatively mounted in said machine and adapted to transport uncut sleeve onto said spindle so that they may be cut and divided by said rotary knives and then transporting the cut sleeves from said spindle, said transport arrangement including a pair of oppositely movable end pressure members adapted to grip said cut and uncut sleeves therebetween;

a carrier sled transversely movably mounted in said machine relative to the axis of said spindle and having a pair of adjustable parallel sleeve receiving troughs adapted to be reciprocably moved between precisely defined relative positions with respect to the carrier and the rotary knife supporting beam for delivering uncut sleeves to said transport arrangement and receiving cut sleeves therefrom.

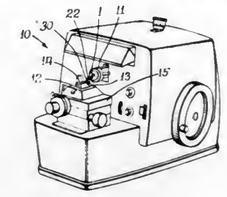
4,269,092

METHOD OF MICROTOMY UTILIZING VITREOUS CARBON BLADE

Dale R. Disharoon, 2480 Newcastle Ave., Cardiff, Calif. 92007, assignor to Dale R. Disharoon, Cardiff, Calif.

Filed Jul. 11, 1979, Ser. No. 56,469
Int. Cl.³ G01N *1/06*
U.S. Cl. 83—42 **9 Claims**

1. A method for sectioning a sample for microscopic examination comprising the steps of providing a sample to be sectioned, providing a microtome knife element comprising a vitreous carbon body having two intersecting substantially plane surfaces which intersect along a substantially linear



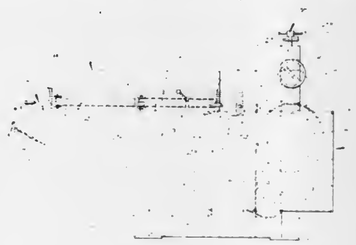
intersection edge, and cleaving said sample against said edge to provide a cleaved specimen of said sample.

4,269,093

ROTARY DIE CUTTING MACHINE

Robert H. Nickum, Cincinnati, Ohio, assignor to Cincinnati Rotary Press Company, Cincinnati, Ohio

Filed Mar. 29, 1979, Ser. No. 24,978
Int. Cl.³ B31B *1/20*
U.S. Cl. 83—174 **15 Claims**



1. A rotary die cutting and scoring machine having a rotatably mounted cylindrical die cutting roll including die means affixed to the outer surface of said roll, means for rotating said roll, a free wheeling rotatably mounted cylindrical anvil roll having a resilient outer surface overlying said cutting roll, the outer surfaces of said rolls making rolling contact for rotating said anvil roll in a direction opposite to the direction of rotation of said cutting roll, a horizontal planar table-like surface positioned adjacent said rolls for supporting a stack of sheets in order to feed the bottommost of said sheets between said rolls, a pusher for feeding said bottommost sheet, guide means attached to said table-like surface mounting said pusher for reciprocating movement in synchronism with the rotation of said cutting roll along said table-like surface parallel to the direction of sheet feed between a first position wherein said bottommost sheet is engaged by said pusher and a second position wherein the leading edge of said sheet is fed between said rolls, said guide means comprising a pair of spaced rail-like tracks extending along and attached to said table-like surface parallel to the direction of feed, said pusher comprising a horizontal plate-like truck including a first set of wheels rotatably supported on horizontal axles extending outwardly from the sides of said truck and a second set of wheels rotatably supported on vertical axles extending downwardly from said truck, said first set of wheels making rolling contact with the upper surfaces of said rails, said second set of wheels making rolling contact with the inside surfaces of said rails, said pusher mounting a plate-like support hingedly and pivotally attached to the leading edge of said truck and extending upwardly and rearwardly therefrom, said plate-like support being urged upwardly against the lower surface of said bottommost sheet and including a transversely extending raised lip configured to

abut the rear edge of said sheet, means for reciprocating said pusher between said first and second positions such that said pusher moves away from said first position with a relatively slow initial velocity but accelerates such that the velocity of the leading edge of said sheet substantially matches the peripheral speed of said cutting roll as said leading edge is fed between said rolls, said reciprocating means comprising a first crank arm having one end non-rotatably attached to said cutting roll for rotation therewith, a pitman having one end rotatably attached to said first crank arm and the other end pivotally attached to a second crank arm, a rotatable shaft non-rotatably secured to one end of said second crank arm extending beneath and transverse to said table-like surface, adjustment means associated with at least one of said crank arms for changing the movement of said pusher, an upstanding rocker arm connected to said shaft terminating at its upper end in a downwardly concave arcuate plaste, said rocket arm being imparted with a rocking motion in synchronism with the rotation of said cutter roll, a cable having one end secured to the forward edge of said arcuate plate and extending rearwardly in a direction parallel to said direction of feed, first sheave means rotatably attached adjacent the rear part of said table-like surface, said cable passing around said first sheave means and continuing in a forward direction, second sheave means rotatably attached adjacent the forward part of said table-like surface, said cable passing around said second sheave means and continuing in a rearward direction, the opposite end of said cable being secured to the rear edge of said arcuate plate, means for attaching said pusher to said cable between said sheave means, means for providing adjustment of the location of said forward position of said pusher with respect to the angular position of said cutting roll in order to correctly register the position of said die means with respect to the leading edge of said sheet, said adjustment means comprising a plate-like support underlying said pusher and mounted for movement with respect to said table-like surface in directions parallel to said direction of feed means for moving said plate-like support a desired distance, said sheave means being rotatably attached to the forward and rearward ends of said plate-like support, respectively, means for positioning and guiding the side edges of said blanks comprising a pair of spaced plate-like side guides extending parallel to said direction of feed and a pantograph-like operating mechanism, the inner surfaces of said side guides being configured to abut the side edges of said sheets, each of said guides being independently movable in a direction transverse to said direction of feed so that said inner surface remains parallel to said direction of feed throughout the range of movement of said guide, said operating mechanism comprising a pair of arms each having one end pivotally attached at spaced locations to the outer surface of said guide, each arm having its distal end pivotally attached to said table-like surface and terminating in an outwardly extending member, a connecting link pivotally connecting the outermost ends of said members, a clamp affixed to said table-like surface for restraining movement of said link to lock said guide in a desired position, and means for removing a selected portion of said resilient material to produce a relatively smooth outer surface on said roll comprising a cutting tool mounted to contact said resilient surface and means for moving said tool in a direction parallel to the direction of rotation of said anvil roll.

4,269,094

DEVICE FOR PUNCHING HOLES IN TUBING

Kelso M. Long; Leonard Pharr, both of Ringgold, and Earl J. Pharr, Rossville, all of Ga., assignors to Burner Systems International, Inc., Rossville, Ga.

Continuation-in-part of Ser. No. 862,472, Dec. 20, 1977, abandoned. This application Sep. 17, 1979, Ser. No. 76,046

Int. Cl.[3] **B26D** *5/24;* **B21D** *28/28*

U.S. Cl. 83—188 **8 Claims**

1. Porting apparatus for punching holes in tubing apparatus, comprising:

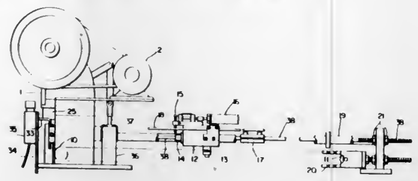
A. A base;

B. A plurality of punch arbors supported in side-by-side array upon said base, each punch arbor including:

(i) a reciprocably actuated vertical punch; and

(ii) a tube collar, aligned with said punch so as to circumferentially engage tubing being punched;

C. A plurality of corresponding tube arbors supported in side-by-side array and movably positioned upon said base away from said tube arbors, so as to engage an end of tubing being punched within said punch arbor, while moving longitudinally with respect to said punch arbor, each said tube arbor further including:



(i) a horizontal guide means concentrically aligning said tube arbor with respect to said tube collar;

(ii) a longitudinally extending guide, limiting longitudinal advance of said tube arbor with respect to said punch arbor; and

(iii) a stop means supported upon said horizontal guide as a limit to longitudinal movement of said tube arbor away from said punch arbor; and D. A drive means linked at one end to each of said vertical punches and linked in another portion to each of said tube arbors, so as to move said tube arbors longitudinally, synchronously with reciprocation of said punches.

4,269,095

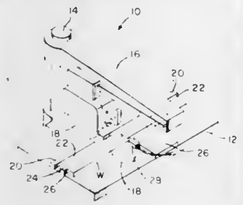
STOP MECHANISM FOR RADIAL ARM SAW

Bror Lundberg, Rte. 5, Box 1251, Camano Island, Wash. 98292

Filed Dec. 31, 1979, Ser. No. 108,806

Int. Cl.[3] **B27B** *27/02, 5/20*

U.S. Cl. 83—391 **6 Claims**



1. A stop mechanism for use with a radial arm saw of the type having a circular saw slidably mounted on an arm which extends horizontally above a planar table, said table having an elongated rail extending perpendicularly beneath said arm to allow an elongated workpiece running along said rail beneath said arm to be cut by moving said saw along said arm, said stop mechanism comprising:

an elongated infeed guide mounted on said table at one side of said arm, said guide having a planar guide surface extending parallel to said rail a first distance from said rail;

a stop member mounted on said table at the side of said arm opposite said infeed guide, said stop member being movable toward and away from said rail a second distance to respective extended and retracted positions, the distance between said rail and said stop member in its retracted position being greater than the sum of said first distance and the width of said workpiece so that the infeed end of a cut piece of said workpiece can clear said stop member in its retracted position, the distance between said rail and said stop member in its retracted position being less than

the sum of first distance, said second distance and the width of said workpiece so that the end of said workpiece strikes said stop member in its extended position, and the distance between said rail and said stop member in its retracted position being greater than the sum of said second distance and the width of said workpiece so that said cut piece can fit between said rail and said stop member in its extended position; and

actuator means for selectively moving said stop member to its extended position as said workpiece is advanced along said infeed guide so that the end of said workpiece contacts said stop member, and for moving said stop member to its retracted position after said workpiece has been cut to allow said workpiece to be further advanced along said infeed guide while said cut piece passes between said stop member and rail as said stop member is once again moved to its extended position.

4,269,096

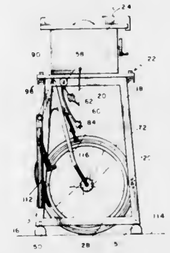
PORTABLE WORKSTAND

Harold B. Boone, R.R. #2, Box 767, Mulvane, Kans. 67110

Filed Aug. 20, 1979, Ser. No. 67,755

Int. Cl.[3] **B23D** *47/02;* **B62B** *1/20*

U.S. Cl. 83—477.2 **12 Claims**



1. A portable workstand adapted for supporting power tools comprising an upstanding workstand having lowermost portions definitive of a horizontal plane and adapted to rest upon a supporting surface for supporting the workstand thereabove, said workstand having front and rear sides and also having a cavity therein, a wheel frame and support wheel rotatably mounted thereon for rotation about a horizontal axis, means mounting said frame to said stand for movement between a retracted position in which the frame and the wheel are received in the cavity and an extended position in which the wheel extends from within the cavity to a position projecting below said horizontal plane, and means for actuating movement of the latter between its retracted and extended positions, said actuating means comprising a pair of actuating handles operatively connected to the frame and pivotally mounted on the rear side of the workstand for limited pivotal movement about a horizontal transverse axis and which handles move from retracted positions thereof in which they are closely spaced to the rear side of the stand and depend from the transverse axis to extended positions thereof in which they extend rearwardly from the rear side of the stand when the frame is moved from its retracted position to its extended position, and means for releasably retaining the handles in their positions, whereby the stand can be wheeled about in wheelbarrow fashion by use of the handles and the wheel when the frame is in extended position.

4,269,097

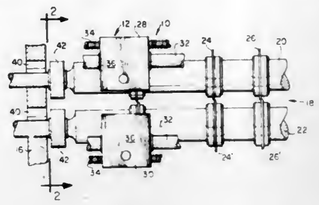
SLITTER HAVING MEANS TO ADJUST SLITTER POSITION ON MOUNTING SHAFT

S. Stephen Linn, Marlton, N.J., assignor to Molins Machine Company, Inc., Cherry Hill, N.J.

Filed Apr. 5, 1978, Ser. No. 893,728

Int. Cl.[3] **B23D** *19/00, 19/06*

U.S. Cl. 83—482 **10 Claims**



1. Apparatus comprising a frame, a rotatable shaft supported by said frame, a plurality of heads slideable along said shaft, means for selectively positioning said heads in predetermined locations along said shaft, said positioning means being supported by said frame for movement only in a direction parallel to the longitudinal axis of said shaft, said shaft having an operative position wherein said positioning means is incapable of moving said heads and an adjusting position wherein said heads are sufficiently close to said positioning means wherein they can be engaged by said positioning means, and means for pivoting said shaft about an axis parallel to its longitudinal axis between said operative position and said adjusting position, means for rotatably driving said shaft, said driving means permitting movement of said shaft between said operative position and said adjusting position.

4,269,098

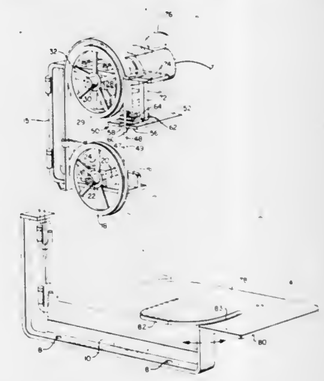
PORTABLE BAND SAW

Peter H. Fogle, 1552 B Washington St. East, Charleston, W. Va. 25311

Filed Jan. 8, 1980, Ser. No. 110,317

Int. Cl.[3] **B23D** *53/06*

U.S. Cl. 83—733 **7 Claims**



1. A portable band saw comprising:

a base;

a first upstanding support integral with the base;

a second upstanding support integral with the base;

a U-shaped frame pivotally supported on the first upstanding support;

a pair of spaced apart pulley wheels having means for rotatably attaching same to the U-shaped frame;

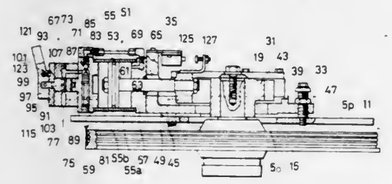
a saw blade extending between the pulley wheels and rotatable thereabout;
saw blade guide means attached to the U-shaped frame for guiding and supporting the saw blade;
a handle attached to the U-shaped frame;
a saw table pivotably supported on the second upstanding support for supporting work to be cut; and
a motor attached to the U-shaped frame and having a drive shaft extending therefrom and connected to one of said pulley wheels causing rotation thereof, whereby said saw blade rotates about said pulley wheels and said work is cut upon pivoting said saw table toward said saw blade.

4,269,099

BANDSAW BLADE TENSIONING APPARATUS FOR HORIZONTAL BANDSAW MACHINES

Shuichi Saito, 990-12, Horinishi, Hadano-shi, Kanagawa-ken, Japan

Filed Jun. 29, 1979, Ser. No. 53,328
Claims priority, application Japan, Jun. 30, 1978, 53-89331[U]
Int. Cl.³ B23D *55/10*; B27B *13/08*
U.S. Cl. 83—819 **2 Claims**



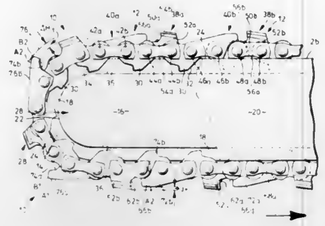
1. A tensioning apparatus for a bandsaw blade which is trained around a pair of wheels, with one wheel being supported on a carriage member which is movable relative to the other wheel, said apparatus comprising:
a hydraulic motor having a cylinder internally subdivided by a reciprocal piston into first and second chambers;
a piston rod extending through said first chamber and said cylinder for connecting said piston to said carriage member;
a reservoir of hydraulic fluid;
a pump for pumping hydraulic fluid under pressure from said reservoir;
valve means;
first and second conduit means respectively connecting said first and second chambers to said valve means;
third and fourth conduit means respectively connecting said valve means to the outlet of said pump and said reservoir;
said valve means being manually adjustable to alternately connect either of said chambers with the outlet of said pump while simultaneously connecting the other of said chambers to said reservoir;
normally closed check valve means in said first conduit means for blocking the flow of fluid therethrough from said first chamber, said check valve means being adjustable to an open position in response to fluid pressure from the outlet of said pump; and,
additional conduit means for connecting said second conduit means to said check valve means, thereby opening said check valve means to permit flow of fluid from said first chamber through said valve means to said reservoir as pressurized fluid is fed from said pump outlet through said valve means to said second chamber.

4,269,100

SAW CHAIN

Hayo E. Deelman, and Gordon S. Porritt, both of Victoria, Canada, assignors to Windsor Machine Company Limited, Burnaby, Canada

Filed Jan. 22, 1979, Ser. No. 5,594
Claims priority, application Canada, Nov. 30, 1978, 317150
Int. Cl.³ B27B *33/14*
U.S. Cl. 83—834 **10 Claims**



1. In saw chain including a series of aligned drive link segments pivotally interconnected forwardly and rearwardly on common pivot axes to a series of aligned connecting link segments and in which certain of said segments present integral allochiral cutter tooth portions in selected spaced relation along said saw chain, each such later mentioned segments (of) presenting associated bearing surface formations (located) forwardly and below said cutter tooth portions and uppermost over their forward common pivot axes, the other of said link segments located in advance thereof having integral trailing extensions of selected configuration overlying said bearing surface formations and matingly engageable thereupon during substantial straight-line path of travel to urge same downwardly, said trailing extensions projecting above said bearing surface formations a selected extent to a limit position forwardly and below said following associated cutter tooth portions to thereby function as a depth gauge, said trailing extensions being adapted to swing about their respective pivot axes through a selected angle upwardly and forwardly out of said mating engagement with said bearing surface formations in accordance with a selected substantially uniform change in direction of the said chain dictated by a change from a straight-line path of travel to a curvate path of travel whereby said trailing extensions effectively limit penetration of said cutter portions throughout the curvate path of travel.

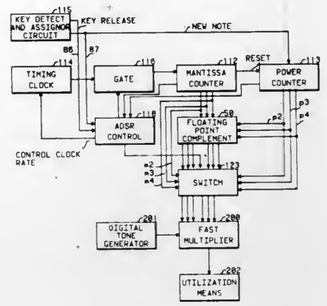
4,269,101

APPARATUS FOR GENERATING THE COMPLEMENT OF A FLOATING POINT BINARY NUMBER

Ralph Deutsch, and Leslie J. Deutsch, both of Sherman Oaks, Calif., assignors to Kawai Musical Instrument Mfg. Co., Ltd, Hamamatsu, Japan

Filed Dec. 17, 1979, Ser. No. 103,896
Int. Cl.³ G06F *7/52*; G10H *5/00*
U.S. Cl. 84—1.01 **8 Claims**

1. A complementer apparatus for forming an output number in binary floating point number form having an output mantissa and output power corresponding to the complement of an input binary floating point number having an input mantissa and input power, comprising;
power decode logic means responsive to power bits of said input binary floating point number for decoding power bits to a plurality of power signals wherein each power signal corresponding to the decimal equivalent of said power bits,
power signal level means responsive to said power signals whereby a level signal is generated if said power signal corresponds to a decimal equivalent of said power bits less than a preselected decimal equivalent,
power bit select means responsive to said level signal whereby the power bits of said output number are given preselected values if said level signal is generated,
power bit generation means responsive to said level signal whereby if said level signal is not generated a power is created in binary form for said output number corresponding to the number of the most significant bits of said input mantissa having a unit binary value,



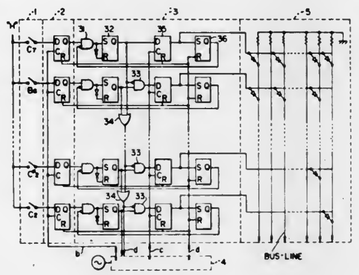
first complement mantissa means responsive to said level signal whereby if said level signal is not generated an output mantissa is created for said output number corresponding to the position of a zero binary value in said input mantissa, and
second complement mantissa means responsive to said level signal whereby if said level signal is generated an output mantissa is created for said output number responsive to said input mantissa and said input.

4,269,102

KEY ASSIGNOR

Tatsunori Kondo, and Hiroshi Kitagawa, both of Hammamatsu, Japan, assignors to Kabushiki Kaisha Kawai Gakki Seisakusho, Hamamatsu, Japan

Continuation-in-part of Ser. No. 842,524, Oct. 17, 1977, abandoned. This application Mar. 31, 1980, Ser. No. 135,997
Claims priority, application Japan, Apr. 26, 1976, 51-47559
Int. Cl.³ G10H *1/00*; G08C *9/00*
U.S. Cl. 84—1.01 **2 Claims**



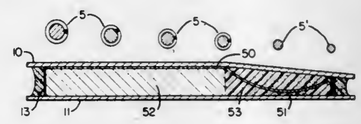
1. A key assignor with a keyboard multiplexer comprising:
a first memory for temporarily storing the state of key depression on a keyboard and producing key depression signals;
a multiplex code generator for generating key codes respectively corresponding to each key;
an inhibit circuit for controlling the key depression signals from the first memory;
a priority circuit for outputting from the first memory only the key depression signal of top priority in accordance with a preset priority of keys of the keyboard;
a second memory for temporarily storing the key depression signal selected by the priority circuit and having an output which causes the multiplex code generator to generate a key code corresponding to the key being depressed;
a third memory directly responsive to said output of the second memory for storing the key depression signal stored in the second memory, and providing a signal to the inhibit circuit to inhibit further key depression signals;
reset means for providing a write signal which resets the second memory after a predetermined period of time and causes the priority circuit to shift the priority of the keys of the keyboard, whereby a key depression signal of the next priority is processed, and wherein upon all depressed keys are processed, a new state of key depression is written in the first memory and the same processing is repeatedly performed, whereby key codes corresponding to depressed keys are sequentially generated.

4,269,103

ELECTROMAGNETIC PICKUP FOR STRINGED MUSICAL INSTRUMENTS

John F. Underwood, 6522 Lenneal Beach Dr., Orlando, Fla. 32810

Continuation-in-part of Ser. No. 657,266, Feb. 11, 1976, Pat. No. 4,050,341. This application Jun. 30, 1977, Ser. No. 811,721
Int. Cl.³ G10H *3/00*
U.S. Cl. 84—1.16 **28 Claims**



1. An electromagnetic pickup device adapted for musical instruments having elongated magnetizable vibrating elements with each of said vibrating elements having a different degree of magnetizability, said pickup device comprising:
(a) a single permanent rectangular bar magnet adapted to be disposed adjacent to vibrating elements having a lower degree of magnetizability, and
(b) a pickup coil surrounding said permanent magnet; the improvement comprising:
at least one metal plate means for varying the magnetic field of said permanent magnet in proportion to the degree of magnetizability of said vibrating elements; said metal plate means being adapted to be interposed between said permanent magnet and said vibrating elements, and extend from said magnet below said vibrating elements having a lower degree of magnetizability; whereby said magnetic field is varied in accordance with the magnetization of said vibrating elements thereby balancing the response from each vibrating element while achieving a pickup of the natural tone of each of said vibrating elements, and
said metal plate means is configured to provide a concave like surface facing said vibrating elements of higher degree of magnetizability.

4,269,104

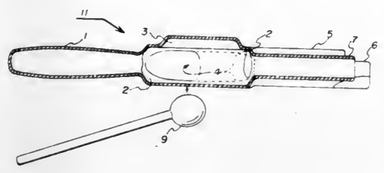
HAND FLUTE AND PERCUSSION INSTRUMENT

Earl J. Cantos, Jr., 5249 Marlborough Dr., San Diego, Calif. 92116

Filed Nov. 23, 1979, Ser. No. 96,699
Int. Cl.³ G10D *7/02, 13/06*
U.S. Cl. 84—330 **6 Claims**

1. A musical instrument which comprises:
an oblong, hollow enclosure having at least one opening;
one face of said enclosure having a blister-like protrusion shaped and dimensioned to rest against the jawbone of a player when said face is pressed against the player's cheek;
said hollow closure being configured in the shape of a

human hand having a plurality of digits or tubular projections, at least four of said plurality of digits having openings in the terminal portions thereof to form fingerholes



for egress of air flow and one of said plurality of digits having an opening in its terminal portion to form a blowhole configured in the shape of a thumb for egress of air flow.

4,269,105

MUSICAL PERCUSSION INSTRUMENT

James E. Salmon, 459-11th Ave., #1, San Francisco, Calif. 94118

Filed Jul. 5, 1979, Ser. No. 54,765
Int. Cl.³ G10D *13/02, 13/06*
U.S. Cl. 84—402 **4 Claims**



1. A musical percussion instrument comprising:

a generally cylindrical, elongate dual purpose clave-handle, said clave-handle being of sufficient length to allow a portion thereof to be exposed when grasped by a user so that the exposed portion can be struck by the user to produce a first sound;

a carrier assembly fixedly attached to one end of said handle and relatively oriented to generally lie in a plane defined by said handle, the carrier assembly including at least one elongate carrier element having formed therein a plurality of apertures, said carrier element including at least one edge having serrations along at least a portion of said edge to produce a second sound when the user draws an object across the serrations; and

at least one disk-like jingle loosely mounted within each one of said plurality of apertures and relatively oriented transverse said carrier element so that when said handle or carrier assembly is shaken, said jingles will generate third sound.

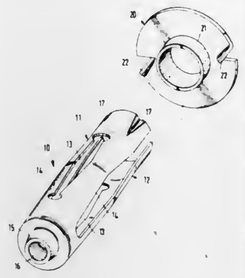
4,269,106

DOWEL FOR A HOLLOW WALL STRUCTURE

Erich Leibhard; Heinz Gruenewald, both of Munich, and Hanno Richter, Unterhaching, all of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Feb. 27, 1979, Ser. No. 15,611
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1978, 2809644
Int. Cl.³ F16B *13/06*
U.S. Cl. 411—34 **9 Claims**

1. Dowel for attaching articles to the surface of a receiving material, such as a ceiling or a wall, which contains a hollow space inwardly of the surface through which the dowel extends and into which hollow space the dowel extends, said dowel comprising an axially extending tubular-shaped dowel body having a leading end which is inserted through the surface of the receiving material and into the hollow space, and a trailing end, said dowel body including an end part at the leading end thereof extending transversely of the axial direction of said dowel body and having a threaded opening extending therethrough with the axis of the opening extending in the axial direction of said dowel body, said dowel body including a pair of legs extending axially from said leading end to the trailing end, a flange member attached to the trailing end of said legs, said flange member comprising an annular flange part extending transversely of the axial direction of said dowel body and a sleeve-shaped projection extending substantially



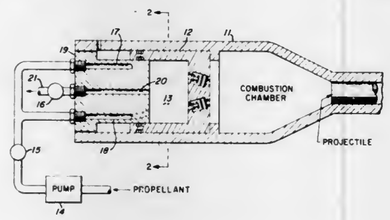
perpendicularly of said flange part, wherein the improvement comprises that said legs being in circumferentially spaced relation relative to one another in the axial diirection of said dowel body from the trailing ends thereof to adjacent said end part said sleeve-shaped projection and a portion of said legs extending from the trailing end thereof are axially coextensive, said sleeve-shaped projection extends into and between the trailing ends of said legs and said sleeve-shaped projection, said legs have radially inwardly directed recesses formed at the trailing ends with said recesses providing line contact extending in the axial direction of said dowel body with said sleeve-shaped projection, and said legs being resistance-welded to said sleeve-shaped projection along the line contact afforded by said recesses.

4,269,107

LIQUID PROPELLANT/REGENERATIVE CHARGING SYSTEM BUBBLE PREVENTER

John Campbell, Jr., Woodland Hills, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 19, 1979, Ser. No. 50,273
Int. Cl.³ F41F *1/04*
U.S. Cl. 89—7 **1 Claim**



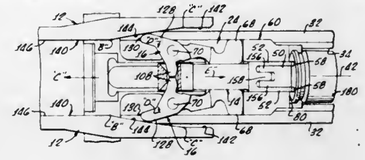
1. The improvement in the charging of cylindrical charging chamber of a rapid fire liquid propellant gun having liquid propellant introduced into the charging chamber through inlet and vent tubes traversing the breech plug, said improvement for removing entrapped gas in the liquid propellant comprising fabricating the said inlet tubes in the said breech plug at an angle and positioning the vent tube substantially on the central axis of the plug whereby the said liquid propellant is injected into the said charging chamber in substantially a tangential direction to the cylindrical inner wall of the said charging chamber and exhausting the said gas out the said vent.

4,269,108

PROGRAMMED SHELL CASING EJECTOR APPARATUS FOR AUTOMATIC CANNON

Eugene M. Stoner, Stuart, Fla., assignor to ARES, Inc., Port Clinton, Ohio

Filed Mar. 27, 1979, Ser. No. 24,184
Int. Cl.³ F41D *11/00*
U.S. Cl. 89—33 R **14 Claims**



1. In an automatic cannon having an axially reciprocating bolt assembly with extractor means operative for holding, during bolt assembly rearward travel after firing of the cannon, a fired shell casing to a forward face of the bolt assembly, and having a shell ejection opening located along the path of bolt assembly travel, programmed shell casing ejector apparatus, which comprises:

(a) an ejector member having a shell base engaging portion and an actuation portion;

(b) means for mounting the ejector member to the bolt assembly for axial movement relative thereto; and

(c) ejector member camming means, including a relatively fixed cam track and an axially reciprocating cam track follower, configured for causing in response to the bolt assembly traveling rearwardly after firing of the cannon, the ejector member to move forwardly relative to the bolt assembly at a controlled velocity which is less than rearward velocity of the bolt assembly, a fired shell casing held to said bolt assembly face by the extractor means being ejected, in response to said relative forward movement of the ejector member, outwardly through the ejection opening in a controlled manner.

4,269,109

OPEN-FRAMEWORK RECEIVER AUTOMATIC CANNON

Eugene M. Stoner, Stuart, Fla., assignor to ARES, Inc., Port Clinton, Ohio

Filed Mar. 27, 1979, Ser. No. 24,186
Int. Cl.³ F41D *11/12*
U.S. Cl. 89—198 **12 Claims**



1. In an automatic cannon weapons system having shell feed means, triggering means and cannon mount means, an open-framework receiver cannon, which comprises:

(a) a cannon barrel having a shell receiving, breech end and a barrel bore axis;

(b) reciprocating bolt means for enabling feeding and firing of the cannon; and

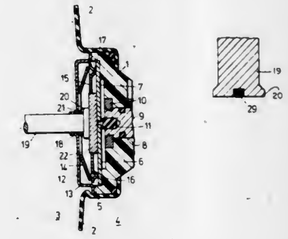
(c) means for supporting the barrel and bolt means in operative relationship with the shell feed means and triggering means, said supporting means including a breech ring having means defining a breech aperture axially therethrough configured for receiving the breech end of the barrel; first and second elongate, rigid support members having forward and rearward ends and intermediate portions therebetween, means for fixing said intermediate portions to the breech ring in laterally spaced apart, symmetrical relationship with longitudinal axes of the members parallel to the barrel bore axis when the barrel is received in the breech ring; forward support means for rigidly interconnecting the member forward ends with the barrel when the barrel is received in the breech ring; means for receiving the bolt means and for guiding reciprocating movement thereof and means for rigidly interconnecting rearward ends of the support members, said means for interconnecting rearward ends of the support members including sear means for enabling searing up of the bolt means at a rearward position thereof.

4,269,110

REACTION LEVER MECHANISM FOR A VACUUM BRAKE BOOSTER

Rolf Weiler, Frankfurt-Sindlingen, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,469
Claims priority, application Fed. Rep. of Germany, May 31, 1978, 2823784
Int. Cl.³ F15B *9/10;* **F01B** *19/00;* **F16J** *3/02*
U.S. Cl. 91—369 B **11 Claims**



1. A reaction lever mechanism for a vacuum brake booster comprising:

a control casing secured to a movable member separating a vacuum chamber and a working chamber of said brake booster;

at least two reaction levers engaging a rectangular indentation in said casing adjacent said vacuum chamber;

a reaction plate guided and secured against lateral displacement in a recess provided on each longitudinal side of said indentation, said recesses being asymmetric with respect to each other and a longitudinal axis of said casing, said plate engaging a side of said levers adjacent said vacuum chamber and including a step-like projection on each longitudinal edge thereof, each of said projections engaging a different one of said asymmetric recesses;

a cap secured to the outer edge of said casing adjacent said vacuum chamber having a guide sleeve therein extending into said vacuum chamber, said cap enclosing said plate and said levers; and

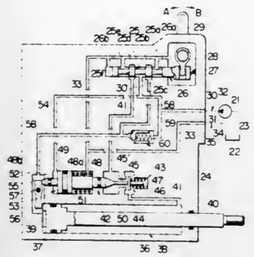
a master cylinder actuating push rod guided in said guide sleeve and having one end thereof abutting against said plate.

4,269,111

HYDRAULIC APPARATUS

Toshio Kamimura, Gifu, Japan, assignor to Teijin Seiki Company Limited, Osaka, Japan

Filed Aug. 29, 1979, Ser. No. 71,026
Claims priority, application Japan, Sep. 7, 1978, 53-110027
Int. Cl.³ F15B *13/042, 13/16*
U.S. Cl. 91—419 **3 Claims**



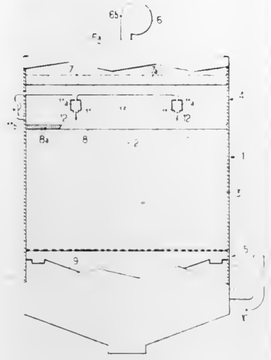
1. A hydraulic apparatus, comprising in combination:
a hydraulic pump, a reservoir tank connected with said hydraulic pump and a change-over valve;
a first fluid passage having one end connected with said hydraulic pump and the other end connected with said change-over valve; a second fluid passage having one end connected with said change-over valve and the other end connected with said tank;
a hydraulic cylinder having first and second cylinder chambers which are partitioned by a piston accommodated in said hydraulic cylinder;
a first inlet-outlet passage having one end connected with said change-over valve and the other end connected with said first cylinder chamber;
a second inlet-outlet passage having one end connected with said change-over valve and the other end connected with said second cylinder chamber;
a valve means provided in said first inlet-outlet passage and closable as fluid under pressure passing through said first inlet-outlet passage from said hydraulic pump comes to be dropped below a predetermined pressure, said valve means including a check valve permitting fluid under pressure to be introduced into said first cylinder chamber from said change-over valve, a biasing plunger disposed in opposing relation with said check valve and movable toward and away from said check valve, a compression coil spring resiliently urging said biasing plunger away from said check valve, and a pilot passage having one end connected with said first fluid passage between said hydraulic pump and said change-over valve and the other end connected with said biasing plunger to enable fluid under pressure to be introduced into said biasing plunger from said hydraulic pump so that said biasing plunger is moved toward said check valve to bias and open said check valve; and
a transmitting means transmitting a force generated by heat expansion of fluid under pressure in the first cylinder chamber to said biasing plunger so as to enable said biasing plunger to be moved toward said check valve against said compression coil spring so that said check valve is opened to cause fluid under pressure in said first cylinder chamber to be discharged therefrom.

4,269,112

ENCLOSURES FOR THE TREATMENT OF WORKPIECES

André G. Cordier, Montrouge, France, assignor to Air Industrie, Courbevoie, France

Filed Oct. 16, 1979, Ser. No. 85,422
Claims priority, application France, Nov. 15, 1978, 78 32300
Int. Cl.³ B05C *15/00*
U.S. Cl. 98—115 SB **12 Claims**



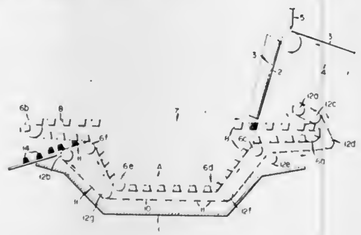
1. In a ventilated enclosure for the treatment of workpieces, particularly an elongated enclosure for painting workpieces, comprising a treatment space situated between a ceiling through which the supply of new air takes place and a floor, said ceiling comprising, particularly from upstream to downstream following the path of the air, filtering means and diffusion means, said enclosure being furthermore equipped with injection means, the improvements consisting in that these injection means are located in the ceiling between the filtering means and the diffusion means and arranged and disposed so as to deliver jets or sheets of air in one or more free spaces situated in the ceiling between the filtering means and the diffusion means.

4,269,113

APPARATUS FOR PRODUCING INSTANT CUPPED NOODLES

Masayuki Ishida, Chigasaki, Japan, assignor to Toyo Suisan Kaisha, Ltd., Tokyo, Japan

Division of Ser. No. 816,893, Jul. 18, 1977, abandoned. This application Aug. 7, 1978, Ser. No. 931,455
Claims priority, application Japan, Jul. 22, 1976, 51/87602
Int. Cl.³ A47J *37/12*
U.S. Cl. 99—404 **8 Claims**



1. Apparatus for producing instant cupped noodles, comprising:
a plurality of liquid permeable metal cups, each having at least one opening for receiving a mass raw noodles therein, said cups each having an inclined or tapered wall,

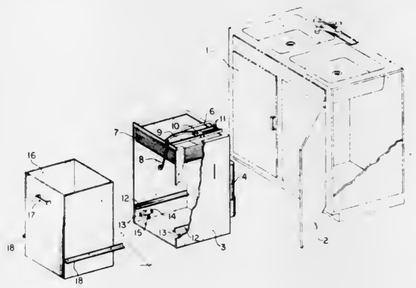
said inclined or tapered wall extending between the top portion and the bottom portion of the respective cups, the bottom portion of the respective cups having a smaller cross-sectional area than the top portion thereof,
means for feeding a mass of raw noodles to each of said cups,
first conveyor means for successively conveying said cups to said feeding means for successively dispensing a mass of raw noodles in each of said cups, while said cups are in an upright position,
a plurality of liquid-permeable metal lids for selectively covering said at least one opening of each of said metal cups, respectively,
second conveyor means carrying said plurality of metal lids to respective positions in registration with respective ones of said plurality of metal cups for closing the respective openings of said plurality of metal cups after the metal cups have received said mass of raw noodles,
said first and second conveyor means having portions which are adjacent each other,
guide means for guiding said adjacent portions of said first and second conveyor means into a bath of heated oil for introducing said cups initially in their covered and inverted state, with their bottom portions up, into said heated oil and completely immersing said metal cups in said heated oil and conveying said inverted metal cups through said heated oil for frying said mass of noodles housed in said respective metal cups, said guide means then guiding said metal cups out of said heated oil, said cups being in their inverted state in said heated oil from the initial stage of heating until their exit from said heated oil to thereby cause said mass of noodles therein to be denser at the inverted bottom portion of the cup than at the upper portion of the cup, such that when the resultant product is placed in a complementary shaped serving container, with the denser noodle portion at the bottom, any condiment and liquid added to said serving container is more rapidly distributed from the top to the bottom,
said guide means further comprising means for separating said first and second conveyor means after said metal cups are fed out of said bath of heated oil so as to remove said liquid permeable metal lids from the respective metal cups to permit the fried mass of noodles to be discharged from said metal cups.

4,269,114

FORCE-EXERTING MACHINE

Gail B. Schwarz, St. Louis, and Lawrence F. Hickinbotham, High Ridge, both of Mo., assignors to General Technology, Inc., St. Louis, Mo.

Filed Jan. 30, 1978, Ser. No. 873,656
Int. Cl.³ B30B *15/16*
U.S. Cl. 100—53 **16 Claims**



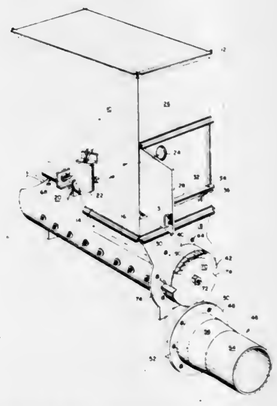
1. A force-exerting device characterized by
(1) a housing, containing
(2) a plunger activated by
(3) a flexible expandable container capable of holding fluid and of expanding in volume from an original position under fluid pressure employed, and capable of maintaining hydraulic pressure and of returning to its original position upon release of said pressure,
(4) a single fluid opening to the flexible container, and
(5) means for exerting pressure to the fluid when it is in the flexible container by way of the fluid opening sufficient to magnify the applied pressure thus causing the plunger to exert the desired force,
(6) said housing providing space for a bucket to be inserted and to be positionable therein for opposing the motion of the plunger, when the bucket contains compactable material therein, as the plunger exerts its force,
(7) wheels on springs in the housing positioned to contact the bucket when positioned therein to aid its positioning in the housing and to support the bucket when positioned therein, and
(8) said spring being so placed as to absorb in compression the force applied to the bucket and to the compactable material therein.

4,269,115

PISTON/CYLINDER TYPE ELEMENTS AND COMPACTORS EMBODYING THOSE ELEMENTS

Andor Gattyan, 242 Nelson Rd., Scarsdale, N.Y. 10583

Division of Ser. No. 851,017, Nov. 14, 1977, Pat. No. 4,188,873, which is a division of Ser. No. 766,405, Feb. 7, 1977, abandoned. This application Jan. 24, 1980, Ser. No. 114,860
Int. Cl.³ B30B *15/08*
U.S. Cl. 100—98 R **14 Claims**



1. A refuse compactor comprising a ram mechanism having a cylinder, a correspondingly circular section ram element received with clearance within said cylinder, and at least two angularly spaced sets of cooperating guide means on said cylinder and ram element for guiding said ram element in longitudinal sliding movement in the cylinder, said ram element moving generally horizontally within said cylinder and said guide means being constituted as means supporting the weight of said ram element to reduce wear which would otherwise result from frictional interengagement of the lowermost portion of said ram element and said cylinder, each set of said guide means comprising a longitudinally extending track on one of said cylinder and ram element and cooperating track follower means on the other of said cylinder and ram element, adjustment means associated with said follower means, said adjustment means being effective to produce adjustment of one of said track and lower means radially of said cylinder whereby after wear produces a clearance between said track and follower means a guiding relationship between those parts can be restored by adjusting said follower means, wherein said adjustment means comprises bolt means permanently fixed to

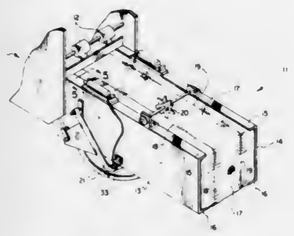
said follower means and extending through an opening of that one of the cylinder and ram element upon which the follower means is mounted, nut means mounted on said bolt means and securing said bolt means and said follower means to said one of said cylinder and ram element and shim means disposable about said bolt means for varying the position of said follower means relative to adjacent parts of said one of said cylinder and ram elements.

4,269,116

APPARATUS FOR DETECTING MALFUNCTION IN TYING OPERATION ON A BALER

Goss E. Gordon, 1544 Julie La., Twin Falls, Id. 83301, and David L. McMillen, Rt. 1, Eden, Id. 83325

Filed May 27, 1980, Ser. No. 153,162
Int. Cl.³ B65B *13/18*; B30B *15/00*
U.S. Cl. 100—99 **7 Claims**



1. Apparatus for detecting when the tying mechanism of a baler has failed to properly tie a twine, cord, or wire around the bale which has been formed in the baler and for producing an alarm for the operator of the baler that the tying mechanism is not functioning properly, said apparatus comprising:

a sensor needle or finger;

means for pivotally mounting the sensor needle to the bale forming chute of a baler, so that the sensor needle is adapted for pivotal movement over one of the surfaces of the bale of material being formed in the baler, whereby the sensor needle swings from a first position pointing generally toward the lead end of the bale which is being formed to a second position pointing across the bale in a direction generally transverse to the longitudinal axis of the bale and beneath a twine, cord, or wire extending lengthwise along the longitudinal surface of the bale of material which is being formed;

means for pivotally moving the sensor needle to swing from its first position to its second position as the tying mechanism of the baler begins its operation of tying the twine, cord or wire around the bale of material which has been formed in the baler;

means for holding the sensor needle in its second position beneath the twine, core, or wire which has been tied around the bale of material until the tied twine, core, or wire engages the sensor needle and swings the sensor needle back toward its first position as the bale of material moves toward the discharge end of the baler;

means for detecting when the sensor needle has been moved back toward its first position;

means for sensing the time interval between the time when the sensor needle swings to its second position and when it is swung back toward its first position by the twine, cord, or wire tied around the bale of material; and

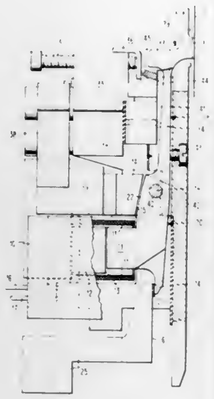
means for giving an alarm to the operator of the baler if the sensor needle has not been swung back toward its first position within a preset time interval.

4,269,117

ELECTRO-MAGNETIC PRINT HAMMER

Ho C. Lee, Endicott; David H. Rickenbach, Chenango Forks, and Jack L. Zable, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 11, 1979, Ser. No. 56,486
Int. Cl.³ B41J *9/42*
U.S. Cl. 101—93.02 **3 Claims**



1. A print hammer device for use in a high speed printer comprising:

a single piece hammer element having a flexible stem portion integrally connected to an armature portion and an impact mass carried at the remote end of said stem portion,

said stem and armature portions extending outwardly from a pivot axis through said armature portion,

said armature portion being part of an electromagnetic circuit having an operating air gap made variable by pivotal movement of said armature portion on said axis,

said stem portion having a flexibility which (1) allows oscillation of said impact mass relative to said armature during flight of said impact mass from a rest position to a point of impact with a print medium upon energization of said electromagnetic circuit and

(2) maintains said impact mass coupled to said armature portion during pivotal movement of said armature portion and allows dynamic decoupling of said mass from said armature portion by abrupt stopping of said armature portion,

said electromagnetic circuit including a stator member having an operating pole piece cooperable with said armature portion of said hammer element to form said operating air gap, and

stop means for abruptly stopping said armature portion to dynamically decouple said impact mass at or near the point of impact with said print medium including

a rigid spur extending from and movable with said armature portion of said hammer element, and

a stationary stop member located in the path of movement of said spur,

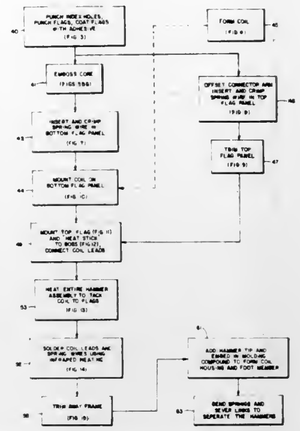
said stop member being positioned to engage said spur at a point which prevents crashing of said armature portion with said pole piece.

4,269,118

PRINT HAMMER ASSEMBLY METHOD

Val K. Jezbera, Thousand Oaks, Calif., assignor to Dataproducts Corporation, Woodland Hills, Calif.

Filed Dec. 11, 1978, Ser. No. 968,278
Int. Cl.³ B41J *9/02*; H01F *41/02*
U.S. Cl. 101—93.34 **29 Claims**



1. A method for making a hammer for a printer, comprising:

punching an elongated thin metal strip to form separate flag panels connected by tabs, each panel including a spring wire connector arm,

inserting spring wires into the connector arm of a first flag panel in said strip and into the connector arm of a separate second flag panel,

sandwiching a flat coil between said first flag panel and said second flag panel while maintaining said first flag panel connected in said strip,

connecting the leads of said coil to the respective connector arms of said first and second flag panels, and

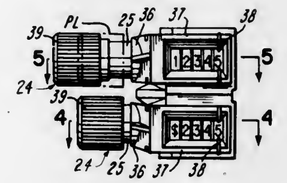
embedding said sandwiched flag panels and coil in a molding compound.

4,269,119

SETTING KNOBS FOR SELECTIVE PRINT HEAD

Larry D. Strausburg, Miamisburg, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Aug. 27, 1979, Ser. No. 70,377
Int. Cl.³ A61B *5/12*; B41J *1/20*
U.S. Cl. 101—111 **10 Claims**



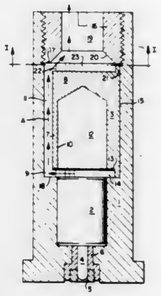
1. A print head, comprising: a plurality of lines of printing members for printing a plurality of lines of data, an axially shiftable and rotatable selector shaft for each line of printing members for selectively advancing any printing member in its line, a manually engageable knob mounted on each selector shaft for both rotating the selector shaft and axially shifting the selector shaft, each knob being non-rotatably mounted relative to the related selector shaft, adjacent knobs being relatively close to each other in certain axial positions, and means providing a lost-motion connection between each knob and its respective selector shaft to enable the knob to be pulled outwardly in the axial direction to a limited extent relative to any other knob to reduce interference with any other knob.

4,269,120

IGNITER ELEMENT WITH A BOOSTER CHARGE

Uwe Brede; Horst Penner, both of Furth, and Erich Zeiher, Furth-Vach, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Nov. 30, 1978, Ser. No. 965,052
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753721
Int. Cl.³ F42C *19/08*
U.S. Cl. 102—202 **14 Claims**



1. An igniter unit for igniting of propellant charges, pyrotechnical mixtures, or the like, which comprises an external housing, an igniter element operatively associated with a booster charge, said igniter element being arranged within one end of the external housing, an internal housing which contains said booster charge and which is within said external housing, said internal housing having a closed, lateral wall and a closed base at one end which is spaced from the igniter element and which is located close to the other end of said external housing, said wall and base withstanding the ignition pressure caused by the generation of a cloud of gas during ignition of said igniter element and said booster charge; in the area of the other end of the internal housing, said internal housing defining at least one opening for permitting the flowing off of the cloud of gas produced by ignition of the igniter element and the booster charge and providing means for choking of said cloud of gas, and means providing at least one discharge duct that connects said at least one opening to the other end of the external housing whereby the cloud of gas is passed via said one opening and said discharge duct to the other end of said external housing.

4,269,121

SEMI-ACTIVE OPTICAL FUZING

Irving I. Sochard, Chevy Chase, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 497,368, Aug. 12, 1974, abandoned. This application Jul. 31, 1978, Ser. No. 929,595
Int. Cl.³ F42C *13/02*
U.S. Cl. 102—213 **31 Claims**

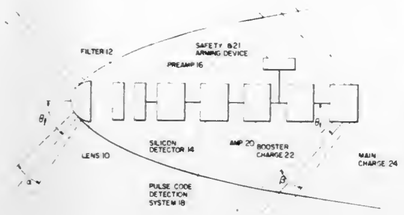
1. A system for fuzing a detonator of a projectile of the type having a longitudinal axis and producing a plurality of fragments within a zone of densest fragmentation, comprising:

designator means for irradiating a target with a beam, the designator coupling to the projectile only via irradiance from the target;

means for fuzing the detonator after reception of irradiance

from the target while the projectile is traversing a trajectory terminating at a point beyond the target;

the means including a single detector sensitive to the irradiance within a limited field-of-view, coupled to the detector;



the field-of-view having a central axis coaxial with the longitudinal axis; and

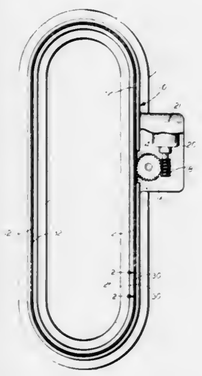
the field-of-view being matched to the zone of densest fragmentation.

4,269,122

MOTION PRODUCING MECHANISM

Daniel Crimaldi, 2002 Reservoir Rd., Reading, Pa. 19604

Filed Aug. 13, 1979, Ser. No. 66,238
Int. Cl.³ B61B *13/00*
U.S. Cl. 104—167 **18 Claims**



11. An apparatus for moving an item along a predetermined path, comprising:

hollow holding means extending along said predetermined path, said holding means including an opening which also extends along said predetermined path;

helically threaded means provided inside said hollow holding means, said helically threaded means having a predetermined spacing between each of its threads;

drive means for meshing with the spacing between each of the threads of said helically threaded means to move said helically threaded means relative to said hollow holding means along said predetermined path; and

mounting means coupled to said helically threaded means including means extending through the opening in said hollow holding means for mounting said item on said helically threaded means,

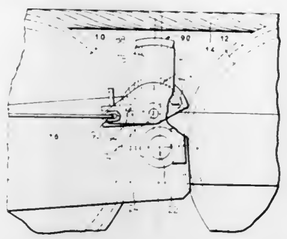
wherein said helically threaded means is a coil spring with a predetermined spacing between its coils, and said mounting means includes threads corresponding to said coil spacings, and is threaded into the interior of said coil spring, and further wherein said means extending through said opening comprises one or more pins which extend from said mounting means through the spacing between the coils of said coil spring.

4,269,123

SAFETY DEVICE FOR A ROCKER OF SHEAVES SUPPORTING AN OVERHEAD CABLE

Andre Segafredo, Seyssinet, France, assignor to Pomagalski S.A., France

Filed Jan. 22, 1979, Ser. No. 5,087
Claims priority, application France, Feb. 1, 1978, 78 03304
Int. Cl.³ B61B *12/00*
U.S. Cl. 104—178 **3 Claims**



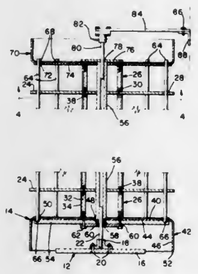
1. A safety device for a sheave rocker assembly, said assembly comprising: a pair of side plates articulated on a support spindle and supporting between them on opposite sides of said spindle two sheaves for supporting an overhead cable, said safety device comprising a crosspiece pivotably mounted between said sheaves above said spindle and arranged traversely of said side plates for equally engaging with said side plates upon their excess rocking movement in either of two rotating directions, a portion of said crosspiece projecting laterally of said side plates to form an area for catching a cable derailling from said sheaves, said crosspiece pivoting in response to movement of a derailed cable thereon to actuate a derailment detector, said crosspiece further including a projection having a bearing surface situated near and under a cable supported by the sheaves for supporting the cable upon loss of one or both of the sheaves and pivoting said crosspiece in response to movement of said cable thereon to actuate said detector.

4,269,124

MERCHANDISE DISPLAY RACK

Stanley H. Rosenthal, Rt. 2, Box 713, Air Harbor Rd., Greensboro, N.C. 27405, and George A. Poteat, Greensboro, N.C., assignors to Stanley H. Rosenthal, Greensboro, N.C.

Filed Oct. 1, 1979, Ser. No. 81,011
Int. Cl.³ A47B *49/00*
U.S. Cl. 108—103 **8 Claims**



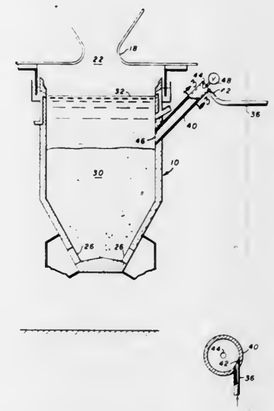
1. In a display apparatus, vertically disposed support means, base means mounting said support means for rotation relative thereto, said support means including an elongated, vertically disposed column mounted for rotation upon said base means, said support means further including a plurality of vertically spaced, relatively thin, disk-like shelves, each defining a central opening therethrough for receiving said vertical column and a plurality of secondary openings therethrough equally spaced radially outwardly of said central opening, and spacer means surrounding said vertical column in spaced relation thereto and supporting said shelves in spaced relation, said spacer means including a plurality of discrete spacer units, each spacer unit including pin means projecting therefrom in opposite directions for extending through adjacent shelf secondary openings and for interlocking with adjacent spacer units, each spacer unit further including recesses therein for lockingly receiving projecting pins of adjacent spacer units, each said disk-like shelf further defining a series of openings spaced radially outwardly of said secondary, pin receiving openings adjacent the shelf outer periphery, and rod-like members extending vertically through said series of openings.

4,269,125

PULVERIZER REJECTS DISPOSAL

Gerald A. Mellinger, Bloomfield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jul. 27, 1979, Ser. No. 61,325
Int. Cl.³ F23J *1/02*
U.S. Cl. 110—171 **3 Claims**



1. In a pulverized coal-fired steam generator having a furnace formed of a plurality of parallel, vertically extending water-filled tubes, a portion of the tubes being inclined inward towards each other from opposite sides so as to form an open trough extending across the bottom of the furnace, a pulverizer for pulverizing the coal to be fired in the furnace, and a water-filled bottom ash hopper having an open top disposed beneath the furnace so as to receive ash discharging from the furnace through the trough; an improved pulverizer rejects disposal assembly having means for conveying a slurry consisting essentially of pulverizer rejects, water and entrained air through a sluice pipe from the pulverizers to said water-filled bottom ash hopper, and separating means disposed at the discharge end of the sluice pipe for removing entrained air from the slurry prior to the slurry discharging into said water-filled bottom ash hopper, characterized in that said separating means comprises:

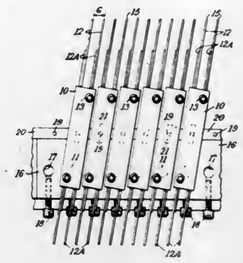
an elongated, capped top cylinder having a tangential inlet in the sidewall thereof for receiving the slurry discharging from the sluice pipe so as to produce a vortex swirl about the axis of said cylinder, a vent hole in the top thereof coaxial with the axis of said cylinder for releasing the separated air, and an open bottom opening into said water-filled bottom ash hopper at a point below the water level therein for discharging the air-free slurry therethrough, said cylinder inclined at an angle with the horizontal.

4,269,126

KNIFE BLOCK FOR A TUFTING MACHINE

Douglas G. Woodcock, Blackpool, England, assignor to Pickering Blackburn Limited, Lancashire, England

Filed Jun. 26, 1979, Ser. No. 52,322
Claims priority, application United Kingdom, Jul. 13, 1978, 29807/78
Int. Cl.³ D05C *15/24*
U.S. Cl. 112—79 R **2 Claims**



1. A knife block for a multi-needle tufting machine producing cut pile fabric, comprising a body member having a pair of opposed outwardly facing surfaces and at least one pair of opposed inwardly facing slots, a peg projecting from one of said outwardly facing surfaces for mounting said body member on a knife bar in the tufting machine, at least one pair of identical flat imperforate knives disposed in face-to-face contact in said body member with opposed edges of said knives received in said slots, one of said knives being an operative knife which projects from one side of said body member to cutting position and the other of said knives projecting from said one side of said body member to a lesser extent and acting solely as a back-up knife to support said operative knife against deflection when cutting a yarn, and at least one clamping screw mounted in said body member with an end of said screw engaging adjacent edges of both said knives to clamp said knives in said slots, whereby said back-up knife may be readily interchanged for said operative knife by unclamping and reclamping said screw when said operative knife becomes worn, and the extent of said back-up knife from said one side of said body member may be adjusted by unclamping and reclamping said screw for imparting the desired cutting tension and rigidity to said operative knife.

4,269,127

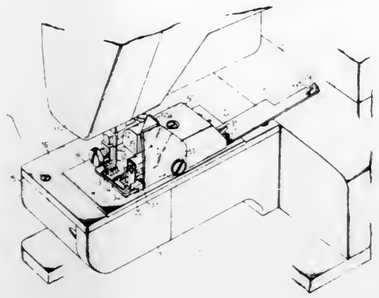
TRIMMING DEVICE FOR SEWING MACHINES

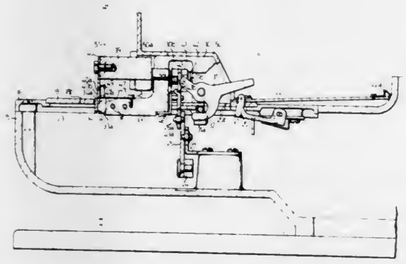
Osamu Kamiya, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jun. 8, 1979, Ser. No. 46,690
Claims priority, application Japan, Jun. 15, 1978, 53-72761
Int. Cl.³ D05B *37/00*
U.S. Cl. 112—122 **5 Claims**

1. A trimming device for a sewing machine having a bed including a work support surface formed with an opening, a cover plate for openably closing said opening, and a motion mechanism mounted in said bed and including a work feeding mechanism, said trimming device comprising: a frame formed with a projection arm, means for removably holding said frame on said bed with said projection arm situated in said opening, a lower stationary blade secured to said projection arm and having a cutting edge which is situated at substantially the same level as said work supporting surface, a vertically-extending gap being formed between said cutting edge and a part of said projection arm, an upper movable blade having a cutting

edge for trimming the marginal edge of a work fabric in cooperation with said cutting edge of said stationary blade, driving means mounted on said frame for reciprocating said movable blade up and down in timed relation with said motion mechanism in said bed, said driving means including locking means adapted to be operably connected with said motion mechanism at least when said frame is held on said bed, said cutting edge of said movable blade penetrating into said gap on the downward movement of said movable blade by the opera-





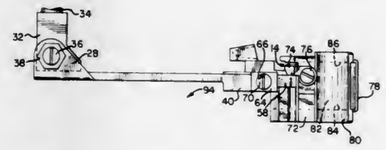
tion of said driving means, and a resilient plate secured at one end thereof to said projection arm for substantially covering said gap with the other end which is normally situated at substantially the same level as said cutting edge of said stationary blade, thereby on the downward movement of said movable blade said resilient plate is deflected into said gap by means of contact with said movable blade, and on the subsequent upward movement of said movable blade said resilient plate returns to the normal position.

4,269,128

LOW INERTIA TANDEMLY MOUNTED PRESSER MECHANISM

Ronald J. Boser, Dix Hills, and Henry J. Watts, E. Northport, both of N.Y., assignors to Union Special Corporation, Chicago, Ill.

Filed Jan. 10, 1979, Ser. No. 2,433
Int. Cl.³ D05B *29/00, 27/04*
U.S. Cl. 112—235 **8 Claims**



1. For use with a sewing machine adapted to sew an elongated strip to a workpiece, said machine including stitch forming instrumentality means, feed mechanism means, a work support means, a pressure biased presser arm and a presser foot assembly comprising:

bifurcated member means attached to one end of said presser arm;

first presser foot sole means;

oscillatable link means for connecting said bifurcated member and said presser foot sole means, said link means being operatively disposed between said first presser foot sole means and said presser arm so as to preclude the pressure of said presser arm from being applied to said first presser foot sole means;

means for applying a variable force against the link means whereby urging the first presser foot sole means toward said work support means;

second presser foot sole means arranged independently of and in tandem with said first presser foot sole means, said second presser foot sole means being carried by said bifurcated member means such that it is flexibly mounted relative to said first presser foot sole means; and

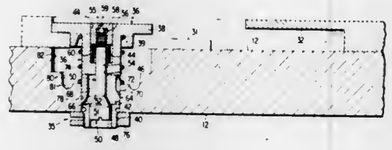
said pressure biased presser arm being effective to separately apply a force having a magnitude greater than the force magnitude applied against said first presser foot sole means for urging the second presser foot sole means toward said work support means.

4,269,129

RETRACTABLE RETAINING DEVICE FOR SEWING MACHINE SUPPORT PLATE

Edward J. Tullman, Union, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Aug. 6, 1979, Ser. No. 63,897
Int. Cl.³ D05B *75/06*
U.S. Cl. 112—257 **13 Claims**



1. A sewing machine comprising a frame including a bed and an arm overhanging said bed, said bed having a flat work supporting surface and supporting internally thereof sewing instrumentalities including a looptaker, said arm supporting an endwise reciprocating needle bar carrying on an end thereof a sewing needle for cooperation with said looptaker in the formation of stitches, and means supported in said bed for retaining a plate for supporting auxiliary devices, said retaining means having a retaining portion held by a latch device at a selected one of two stable positions including a first stable position substantially flush with said work supporting bed and a second stable position exposing said retaining portion for retaining said supporting plate.

4,269,130

SHEET PRODUCTION SYSTEM

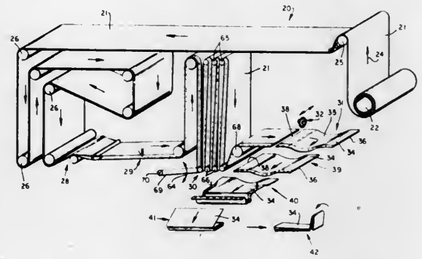
Perry E. Burton, and Charles E. Brocklehurst, both of Fountain Inn, S.C., assignors to Opelika Manufacturing Corporation, Chicago, Ill.

Filed Nov. 1, 1978, Ser. No. 956,792
Int. Cl.³ D05B *97/00*
U.S. Cl. 112—262.3 **16 Claims**

1. A method of cutting and hemming sheet material comprising moving sheet material from a supply along its length toward a cutting station, forming a hem in one edge portion of the sheet material as the sheet material moves toward the cutting station, pulling the leading edge of the sheet material into the cutting station, forming slack in the segment of the sheet material in the cutting station, clamping the leading and trailing edge portions of the segment of the sheet material in

the cutting station against a first pair of parallel conveyor tapes, cutting across the sheet material to form the segment of sheet material in the cutting station in a cut segment, moving the cut segment of sheet material with the conveyor tapes parallel to the cut edges of the sheet material out of the cutting station toward a hemming station, and hemming the cut edges of the cut segment of sheet material at the hemming station after the cut segment has been moved out of the cutting station.

8. In a method of cutting and hemming sheet material, the steps of moving sheet material along its length from a supply into a cutting station, clamping the leading and trailing portions of the segment of sheet material in the cutting station against a first pair of parallel conveyor tapes, cutting the segment of sheet material in the cutting station away from the supply, moving the cut segment of sheet material parallel to its cut edges with the parallel conveyor tapes out of the cutting station onto a second pair of parallel conveyor tapes positioned



outside the first parallel conveyor tapes, clamping the cut segment of sheet material against the second pair of conveyor tapes and releasing the clamping of the cut segment of sheet material against the first pair of conveyor tapes, and moving the cut segment of sheet material with the second pair of conveyor tapes to hemming means.

15. A method of cutting and hemming sheet material comprising moving sheet material from a supply along its length to a cutting station, forming slack width-wise across the length of the sheet material in the cutting station, cutting across the sheet material in the cutting station to form leading and trailing cut edges on pieces of cut sheet material, moving the cut piece of sheet material with slack formed in the cut piece of sheet material away from the cutting station along a path parallel to its cut edges, and hemming at least one of the cut edges of the cut piece of sheet material as the cut piece of sheet material is moved away from the cutting station.

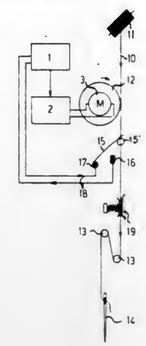
4,269,131

THREAD CONTROL DEVICE FOR STITCHING MACHINES

Viktor Principe, Romanshorn, Switzerland, assignor to Arthur Schmid AG, Romanshorn, Switzerland

Filed Jul. 25, 1979, Ser. No. 60,786
Int. Cl.³ D05B *47/04, 69/36*
U.S. Cl. 112—273 **5 Claims**

1. In a thread control device for stitching machines of the type having a program control means (**1**), a thread-break monitoring device (**5**) having resilient current-conducting contact arms (**15**) each with a terminal eye (**15'**) through which a needle thread (**10**) is led from thread spool **11** and a contact bar (**16**), and a thread disc brake (**19**) each required for maintaining thread tension of each thread, the improvement comprising: said program control means (**1**) is adapted to move a feed roller (**12**) by means of step motor (**3**) in accordance with the number of needle threads (**10**) in operation whereby needle threads (**10**)



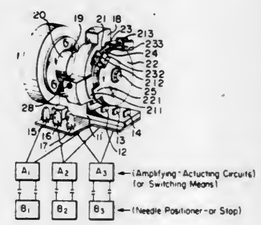
are guided around feed roller (**12**), said needle threads effecting a part of the rotational movement of the feed roller (**12**).

4,269,132

POSITION INDICATING UNIT FOR SEWING MACHINES

Yung-San Hsu, No. 132, Ho Ping Rd., Hsi Men Li, Tao Yuan City, Taiwan

Filed Jan. 13, 1978, Ser. No. 877,300
Int. Cl.³ D05B *69/22*
U.S. Cl. 112—275 **3 Claims**



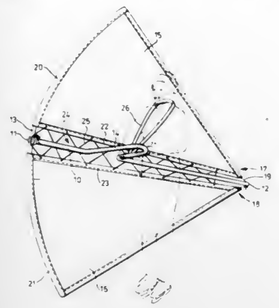
1. A position indicating unit for a sewing machine for indicating predetermined positions of the machine, including a positioning shaft which is connected to the positioner of the sewing machine; a magnet; magnetic pole plates that are disposed at both poles of said magnet; means responsive to said magnet and magnetic pole plates including more than one Hall effect IC; control means operative together with said responsive means to stop the machine at a predetermined down position, said control means also being operative together with said responsive means to stop the machine at a predetermined up position; means including more than one visual signaling device responsive to a juxtaposition of said magnet and said magnetic pole plates; more than one amplifying actuating circuit; and lugs on said magnetic pole plates, wherein the rotation of said magnet and said magnetic pole plates that are fixed onto the positioning shaft which actuates said rotation, makes the magnetic flux in between said pole plates and said lugs rotate through Hall effect ICs, thereby generating a voltage which goes further through amplifying actuating circuits making the visual signal device emit light to indicate the actual operation of said positioner.

4,269,133

HAND-HELD SAIL

Richard L. E. Brown, 382 Mowat Ave., Kingston, Ontario, Canada

Filed Mar. 16, 1979, Ser. No. 21,024
Int. Cl.³ B63H *9/04*
U.S. Cl. 114—103 **9 Claims**



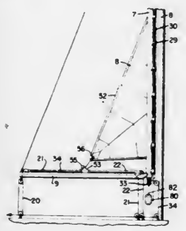
1. A hand-held sail assembly comprising:
a generally sector-shaped sail adapted to define an airfoil configuration,
a frame structure of generally T-shaped configuration for supporting the sail,
the frame structure consisting of a longitudinally extending boom having front and rear ends, and a transverse resiliently flexible mast engageable at its midpoint with the front end of the boom to define therewith said T-shaped configuration,
the sail having an apex portion engageable with the rear end of the boom and a transverse leading edge providing attachment means by which it is attachable to the mast for supporting the sail in a taut condition between said rear end of the boom and the mast,
the boom further comprising end portions joined by a resilient portion of U-shaped configuration, said portion imparting flexibility to the boom in the longitudinal direction, the bight of said U-shaped portion extending in a direction transverse to the plane of said T-shaped configuration thereby to serve as a handle for gripping the assembly.

4,269,134

SAILBOAT WITH UNIVERSAL ROLL FURLING SAIL HOUSING

Earl P. Shapland, 2024 Whitfield Park Dr., Sarasota, Fla. 33580

Filed Aug. 31, 1978, Ser. No. 938,693
Int. Cl.³ B63H *9/10*
U.S. Cl. 114—107 **37 Claims**



1. A sail furling apparatus comprising: an elongate hollow sail housing having a leading edge with hinge means disposed on the leading edge providing a housing pivot axis substantially paralleling said leading edge and a slot opening along the housing trailing edge providing entrance means for a sail to be furled within and unfurled from the housing; and means mounted in the housing for rotatably securing a sail luff wire between the ends of the housing including means at one end of said housing for rotating said luff wire to furl a sail around said luff wire and within said housing.

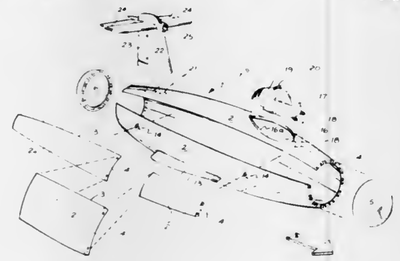
35. A sailboat boom and boom car sub-combination for use in combination with furling sails comprising: an elongate member with fore and aft ends and a track provided along its upper surface between the two ends; said front end comprising a boom attachment goose neck with a forward pivot fitting; outhaul and downhaul sheaves rotatably mounted in said goose neck; a turning sleeve mounted on the boom at the aft end of the track; a sheet sheave mounted on the boom under its aft end; a boom car retained in said track to ride fore and aft along said boom and including a single boom car sheave rotatable on a lateral axis transverse to the path of travel of said car; and means on the front end of said boom car to secure the end of the downhaul.

4,269,135

HYDROPLANES

Michelino Labonia, 44a Grosvenor Crescent, Summer Hill, New South Wales, Australia (2130)

Filed Nov. 13, 1978, Ser. No. 959,570
Claims priority, application Australia, Nov. 14, 1977, PD2411
Int. Cl.³ B63B *1/16*
U.S. Cl. 114—272 **8 Claims**



1. A hydroplane boat hull adapted to support power means for driving the boat propellors, air intake and exhaust lines for the power means, fixed stabilizers, movable stabilizers, a tail control assembly, a cockpit and controls in the cockpit; characterised in that the hull is of cylindrical-ellipsoidal form assembled from fitted sections each having internal flanges integrally formed around the edges thereof with abutting flanges of said sections secured together by external welding to form the hull, whereby said abutting flanges form internal ribs for the hull; the hull includes a keel including an engine supporting base having a step formed externally thereon and a pair of propellor housings joined to the base and extending longitudinally thereof, the step providing a planing surface for the hull and each said propellor housing including an opening located adjacent the step whereby as the hull rises to a planing position on the step the propellors constantly engage the water.

4,269,136

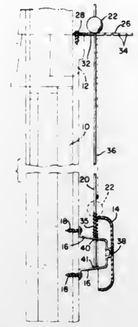
BURGLAR ALARM

Michael D. Hill, P.O. Box 701, Columbia, Tenn. 38401

Continuation-in-part of Ser. No. 2,847, Jan. 12, 1979, Pat. No. 4,203,383. This application Sep. 17, 1979, Ser. No. 76,160
The portion of the term of this patent subsequent to May 20, 1997, has been disclaimed.
Int. Cl.³ G08B *13/08*
U.S. Cl. 116—95 **6 Claims**

1. An assembly of components in a kit, said assembly being adapted from assembly together and affixing to a door and

door frame as a burglar alarm, said assembly comprising (1) a mechanical bell adapted to be fastened to the inside of a door, (2) a bracket having a slot therein, said bracket being adapted



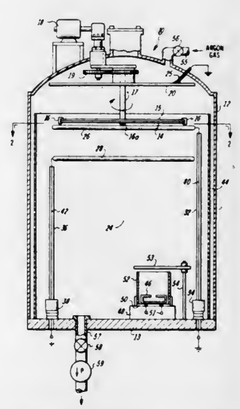
to be fastened to the top of said door frame, (3) an object having a hole therethrough and adapted to rest on said bracket, (4) a rod adapted to project through said slot and said hole and (5) a spring adapted to surround said rod near one end thereof.

4,269,137

PRETREATMENT OF SUBSTRATES PRIOR TO THIN FILM DEPOSITION

Richard I. Johnson, Menlo Park, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 19, 1979, Ser. No. 22,018
Int. Cl.³ C23C *13/00, 17/00*
U.S. Cl. 118—50.1 **4 Claims**



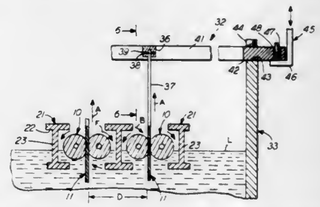
1. Apparatus for the pretreatment of a surface of a support medium prior to deposition of a thin film on said surface comprising
a chamber,
means in said chamber to rotatably support the medium including drive means to rotate the medium at a desired rotational speed,
a first electrode supported in said chamber closely spaced to said medium surface, said first electrode having a planar extent that is in a plane substantially parallel to the plane of the medium as supported by said support means and adapted to cover only a sector of said medium surface, said first electrode being a cathode,
a second electrode supported in said chamber in spaced relation from said first electrode, said second electrode having a planar extent substantially parallel to said first electrode, said second electrode being an anode,
means to evacuate said chamber and introduce and maintain a working gas flow through said chamber as said chamber is continuously evacuated,
means to apply a potential between said electrodes to generate a plasma therebetween,
means to control the pressure in said chamber and the amount of said potential whereby the energy distribution in the gas ions established in said plasma is greater than the energy threshold level necessary to induce ion sputtering of the medium surface, said energy threshold level being a characteristic of the material comprising the medium, whereby ions from said plasma bombard and sputter the medium sector surface through said first electrode as the medium is continuously rotated in said chamber to create a plurality of nucleation sites uniformly over a major portion of the medium surface,
a source of electrons supported in proximity to said plasma to inject electrons into said plasma to intensify ion generation therein, to provide reduction of surface charge of the medium and to stabilize the maintenance of said plasma.

4,269,138

APPARATUS FOR DISTRIBUTING LIQUID OVER A SURFACE

Donald Dinella, Berkley Heights; Albert H. Haller, Clark, and Theodore D. Polakowski, Jr., Bergenfield, all of N.J., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Apr. 23, 1979, Ser. No. 32,616
Int. Cl.³ B05C *11/02*
U.S. Cl. 118—115 **23 Claims**



23. Apparatus for applying a uniform coating of a liquid on the surface of a plurality of substrates, the substrates being suspended in vertical positions spaced a predetermined distance from each other and immersed in a bath of the coating liquid, comprising:
a plurality of support arms horizontally positioned in the bath and capable of being moved in a horizontal direction along the bath, each support arm having a pair of freely rotating rollers mounted thereon with the rollers on each arm being resiliently mounted parallel to each other on opposite sides of the arm, each roller including an outer compressible layer of synthetic chamois or chamois-like material and an inner layer of compliant material in contact with the chamois layer;
means for rotating each of the support arms approximately ninety degrees about a horizontal axis such that the rollers are in one of two positions: (1) a horizontal position with the rollers on each support arm arranged side by side and with less than half of each roller being in contact with the liquid, and (2) a vertical, insert position with the rollers of each support arm arranged one above the other;
means for moving the plurality of support arms horizontally along the bath to either an operation position or a rest position, the operation position being one in which the arms are located in the spaces between the immersed substrates, and the rest position being one in which the arms are retracted from the substrates;
means for removing the substrates from the bath; and
means for activating the removing means after the moving

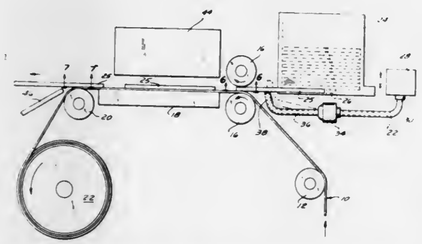
means has moved the arms arranged in the vertical insert positions from the rest position to the operation position with the arms located in the spaces between each of the immersed substrates, and after the rotating means has rotated the arms from the vertical insert positions to the horizontal positions, such that as the substrates are being removed from the bath, the surfaces of the substrates contact and compress the outer layers of the partly immersed resiliently mounted rollers, the removing movement of the substrates causing a synchronous rotation of the contacted rollers whereby the compressed outer layers of the contacted rollers apply a uniform coating of the liquid along the contacted surfaces of the substrates during the synchronous movement of the rollers and substrates.

4,269,139

TRANSFER APPARATUS

Stanford L. Adler, Monsey, N.Y., and Abraham Gordon, Teaneck, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Division of Ser. No. 806,640, Jun. 15, 1977, Pat. No. 4,120,262, which is a continuation of Ser. No. 642,421, Dec. 19, 1975, abandoned. This application Sep. 19, 1978, Ser. No. 944,201
The portion of the term of this patent subsequent to Oct. 17, 1995, has been disclaimed.
Int. Cl.³ B05C *1/02*
U.S. Cl. 118—642 **6 Claims**



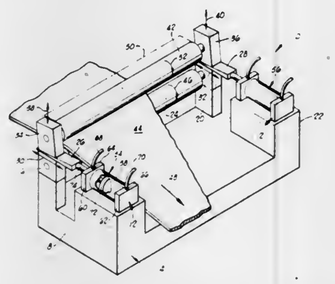
1. Transfer apparatus for transferring a plurality of discrete biological cellular samples from a substrate to a backing element, comprising:
(a) substrate element having a first surface,
(b) a plurality of discrete biological cellular samples,
(c) said biological cellular samples being positioned on said first surface of said substrate element in spaced relationship,
(d) means adapted and constructed to move said substrate element along a predetermined path,
(e) a plurality of backing elements each having a first surface,
(f) supply means for said backing elements,
(g) means adapted and constructed to move said backing element in proximity to said path and in opposing surface relationship with said first surface of said substrate element,
(h) transfer medium,
(i) said transfer medium being transparent and exhibiting a refractive index substantially that of said biological cellular samples,
(j) means adapted and constructed when said transfer apparatus is operated to introduce along said path said transfer medium between the first surface of said backing element and the first surface of said substrate element in sufficient quantity to essentially encapsulate said biological cellular samples,
(k) means adapted and constructed when said transfer apparatus is operated to sandwich said transfer medium between said first surface of said substrate element and said first surface of said backing element along said path whereby said biological cellular samples are encapsulated within said transfer medium,
(l) means adapted and constructed when said transfer apparatus is operated to part said backing element from said substrate element along said path,
(m) said transfer medium having sufficient adhesive properties whereby said transfer medium is selectively adhered to said first surface of said backing element and said biological cellular samples adhere to said transfer medium when said transfer apparatus is operated.

4,269,140

APPARATUS FOR POSITIONING A COATING THICKNESS CONTROL ROLLER IN A WEB COATING MACHINE

James W. Burns, Edmond, and John J. Shelton, Tuttle, both of Okla., assignors to Fife Corporation, Oklahoma City, Okla.

Filed Jul. 25, 1979, Ser. No. 60,652
Int. Cl.³ B30B *15/14, 15/16;* **B05C** *11/02, 1/00*
U.S. Cl. 118—665 **5 Claims**



1. An apparatus for positioning one end of a coating thickness control member on the frame of a web coating machine, comprising:
a hydraulic actuating cylinder mounted on said frame and mechanically linked to said one end of the coating thickness control member so as to move said one end of the coating thickness control member in proportion to a volume of hydraulic fluid introduced into said hydraulic actuating cylinder;
pump means for generating at least one hydraulic fluid pulse train, each of said trains characterized as having the form of a series of volumetrically metered pulses of pressurized hydraulic fluid; and
valve means actuable for transmitting selected pulse trains to the hydraulic actuating cylinder.

4,269,141

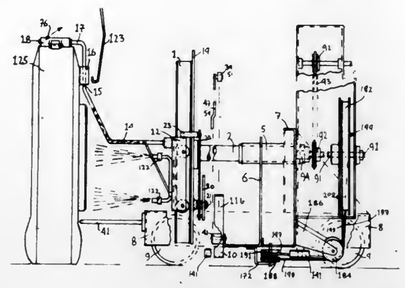
APPARATUS FOR CLEANING THE WHEEL ARCHES OF VEHICLES

John E. Kennett, 11a Vinery Rd., Bury St. Edmunds IP33 2JT, England

Filed Nov. 7, 1978, Ser. No. 958,338
Int. Cl.³ B05B *3/00*
U.S. Cl. 118—708 **36 Claims**

1. Apparatus for cleaning the wheel arches of vehicles comprising support means, a carrier pivotally mounted on said support means about a substantially horizontal pivotal axis, a spraying unit slidably mounted on the carrier and movable substantially inwards and outwards relative to the pivotal axis of the carrier, means for moving the support means whereby the spraying unit is brought into a position alongside a wheel for spraying with the pivotal axis of the carrier adjacent to and

substantially parallel with the axis of the wheel, means for moving said spraying unit inwards and/or outwards in relation



to said pivotal axis of said carrier and means for pivoting the carrier about the pivotal axis relative to said support means.

4,269,142

AQUARIUM

Richard C. Hall, 3828 17th Ave. S., Minneapolis, Minn. 55407

Filed Aug. 15, 1979, Ser. No. 66,529
Int. Cl.³ A01K *64/00*
U.S. Cl. 119—5 **4 Claims**

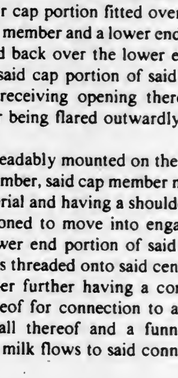
1. An aquarium assembly, comprising, a one piece frame member having a floor section and four vertical wall sections including a front wall section, said wall sections having openings, transparent sheet material for covering said openings being attached to the inside of said wall sections in fluid sealing relation thereto, decorator panels for selected ones of said openings of said vertical wall sections other than said front wall section, said panels being respectively the same sizes as said selected openings and attachable as covers for said selected openings by press fitting from the exteriors of said three vertical wall sections, a hood for said aquarium, said panels having external coverings which harmonize with the external coverings of said frame member and said hood, said panels having aesthetically chosen internal coverings which produce a desired visual effect when viewed through said opening of said front wall section, a bubble bar receptacle having closely spaced side walls of a transparent material, said receptacle being installed in said tank in parallel and closely spaced relation to said front wall section of said tank, a perforated bubble tube in said receptacle extending horizontally along the bottom thereof, said bubble tube having a series of air outlet ports extending in spaced relation at the top and across the length thereof, an air feeding tube in said receptacle connected to said bubble tube and extending vertically in closely spaced relation to one end of said receptacle, an air inlet fitting attached to the top of said tank, tube means between said air feeding tube and said air inlet fitting, and a liquid in said receptacle through which air bubbles from said bubble tube may rise to produce a desired viewing effect.

4,269,143

TEAT CUP ASSEMBLY

Thomas W. Erbach, Madison, Wis., assignor to DEC International, Inc., Madison, Wis.

Continuation of Ser. No. 833,748, Sep. 16, 1977, abandoned. This application Dec. 14, 1979, Ser. No. 103,851
Int. Cl.³ A01J *5/06*
U.S. Cl. 119—14.49 **1 Claim**



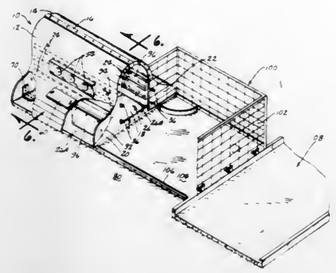
1. A teat cup assembly comprising:
a central shell member of substantially cylindrical shape made of a transparent plastic material and having a vacuum line connector tube connected thereto;
an upper shell member of substantially cylindrical shape mounted on the top portion of said central shell member in telescopic engagement therewith, said upper shell member having a chamfered portion on the lower edge thereof and a knurled lip on the upper end thereof;
stop means for limiting the telescopic engagement of said upper shell member with respect to said central shell member, said stop means being adjustable so that the overall length of said telescopically engaged central and upper shell members can be adjusted, said adjustable stop means being comprised of a plurality of axially spaced circular grooves in the outer surface of said central shell member and further includes a stop ring member adapted for engagement with one of said grooves and with the lower edge of said upper shell member;
an inflation member of resilient material mounted inside said upper and central shell members, said inflation member having an upper cap portion fitted over the upper end of said upper shell member and a lower end portion stretched over and folded back over the lower end of said central shell member, said cap portion of said inflation member having a teat receiving opening therein, said inflation member further being flared outwardly at the lower end thereof; and
a cap member threadably mounted on the lower end of said central shell member, said cap member made of a transparent plastic material and having a shoulder formed thereon which is positioned to move into engagement with said folded over lower end portion of said inflation member when said cap is threaded onto said central shell member, said cap member further having a connector tip in the lower end thereof for connection to a milk line, a vent hole in the wall thereof and a funnel-shaped portion through which milk flows to said connector tip.

4,269,144

SWINE FARROWING HUT AND METHOD OF FARROWING PIGS AND MAINTAINING A DISEASE-FREE FARROWING HUT

Claude W. Ahrens, R.R. 3, Grinnell, Iowa 50112

Filed Sep. 25, 1978, Ser. No. 945,084
Int. Cl.³ A01K *1/02*
U.S. Cl. 119—16 **9 Claims**



1. A swine farrowing hut comprising,

a hut structure including a floor and an enclosure of non-porous material which bacteria cannot penetrate and having a center sow section and oppositely disposed side pig sections and opposite end walls,

said floor including oppositely disposed floor portions under each of said oppositely disposed side pig sections and said floor portions containing heating means for heating said side pig sections only whereby pigs will be attracted to the side sections from the center section where the sow cannot lie on the pigs and injure them, and

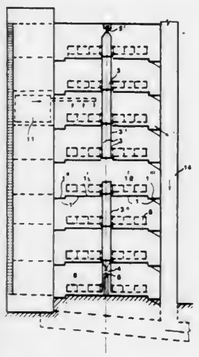
pivot means connecting said floor to one of said end walls for pivoting said hut structure from a lowered position extending over said floor to a raised open ended position off said floor fully exposing said floor and the interior of said hut structure to the sun and atmosphere with said one end wall of said hut structure engaging the ground adjacent said floor.

4,269,145

ANIMAL HOUSE

Yakov Rokhvarg, 269 Ocean Pkwy., Apt. 2E, Brooklyn, N.Y. 11218

Filed Nov. 24, 1978, Ser. No. 963,527
Int. Cl.³ A01K *1/00*
U.S. Cl. 119—16 **18 Claims**



1. An animal housing comprising

a floor part having an axis and including stationary radially inner and radially outer annular elements which are radially spaced from one another so as to form a gap therebetween, and a rotary radially intermediate annular element located between said stationary elements in said gap, said annular elements being concentric relative to one another and said stationary annular elements being arranged to support animals;

a plurality of substantially radial partitions connected with said rotary element and bounding together with the said stationary elements a plurality of compartments for accommodating the animals, said partitions together with said rotary element being rotatable relative to said stationary elements so that the animals accommodated in said compartments are urged to move, each of said stationary elements including a plurality of immovable stator members which are spaced from one another in an upright direction, said rotary element including a plurality of rotor members also spaced from one another in the upright direction and each having such partitions bounding such plurality of compartments, said rotor members together with said stator members forming a plurality of such floors, said rotor members being connected with each other and jointly movable relative to said stator members so that each of said rotor members is movable relative to respective stator members, and said rotor members together form a multi-storey spatial structure; and

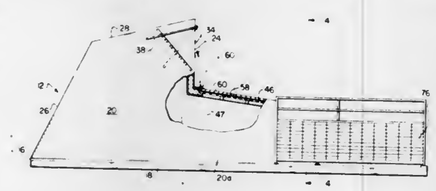
means for driving said rotary element in rotation together with said partitions about said axis.

4,269,146

HOG FARROWING HOUSE

Charles L. Lindenman, P.O. Box 233, Morland, Kans. 67650

Filed Sep. 27, 1979, Ser. No. 79,361
Int. Cl.³ A01K *1/02*
U.S. Cl. 119—16 **8 Claims**



1. A hog farrowing house and pen, comprising:

housing structure including spaced, upright sidewalls, an upright front wall connected to said sidewalls, an obliquely oriented rear wall spaced from said front wall and connected to said sidewalls to cooperatively present a restricted safety zone within the structure for protection of young pigs;

upright barrier means within said housing structure for defining therewithin a main hog area and an enclosed pig creep area and preventing mature hogs from entering the creep area;

a pen assembly adjacent the front wall of said housing structure and comprising

upright hog-confining means forming, with the front of said housing structure, a hog pen outside of said housing structure;

upright young pig-confining means adjacent a portion of said front wall and defining with said front wall portion an enclosed pig pen for young pigs outside of said housing structure which is separate from said hog pen, said pig pen being a sub-pen of said hog pen and including upright partition means extending forwardly from said front wall;

separate hog and pig access doorways through said front wall, on opposite sides of said partition means, and respectively communicating the main hog area of said housing structure with said hog pen, and said creep area with said young pig pen;

a cover wall extending forwardly from said front wall in at least partial covering relationship to said pig pen;

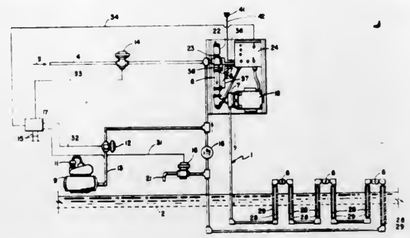
solar energy conveying means located within a portion of said cover wall above said pig pen for allowing young pigs to warm themselves within said pig pen.

4,269,147

ANIMAL WATERING SYSTEM

Donald W. Vorbeck, Napa, Calif., assignor to Atco Manufacturing Co., Inc., Napa, Calif.

Filed Mar. 3, 1980, Ser. No. 126,176
Int. Cl.³ A01K *7/00;* **E03B** *7/10*
U.S. Cl. 119—73 **5 Claims**



1. An animal watering system comprising:

a. a loop water distribution line;

b. a water supply connected to said distribution line by a supply line;

c. demand animal-actuated valves connected to said distribution line;

d. a recirculation water pump connected to said distribution line;

e. an electrical heater element mounted in said distribution line;

f. a compressed air storage tank;

g. air compressor means connected to said air storage tank for filling said tank with compressed air;

h. a normally closed power actuated solenoid air valve mounted in said compressed air line;

i. a normally open power actuated solenoid water supply valve mounted in said water supply line;

j. a normally closed power actuated solenoid water discharge valve mounted in said water distribution line;

k. a check valve in said distribution line downstream of said power actuated solenoid water discharge valve; and

l. system control means operatively connected to said valves for closing said water supply valve, opening said water drain valve, and opening said air valve in the event of an electrical power failure for purging all water from said animal watering system.

4,269,148

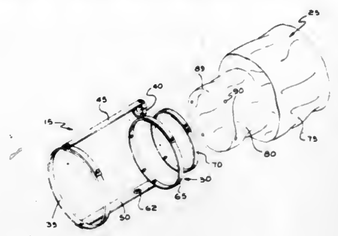
ANIMAL EXCREMENT AND URINE RECEPTACLE APPARATUS

Gloria Holley-Donawa, 284 Sunrise Ter., Springfield, Mass. 01119

Filed Sep. 7, 1979, Ser. No. 73,306
Int. Cl.³ A01K *23/00*
U.S. Cl. 119—95 **8 Claims**

1. Animal excrement receptacle apparatus comprising:

a flexible harness adapted to fit over the posterior of an animal, said harness comprising a plurality of straps interconnected in generally coplanar unfolded configuration with a first of said straps being adapted to girth the tail of said animal and a second of said straps being adapted to extend longitudinally of said animal, and means for removably mounting an excrement receiving bag on said harness, said bag mounting means comprising a pair of concentric frames, a mouth portion of said bag being adapted to be removably received within the inner one of said frames, folded over said frame and fixed between said inner and outer frames, said outer frame, with said inner



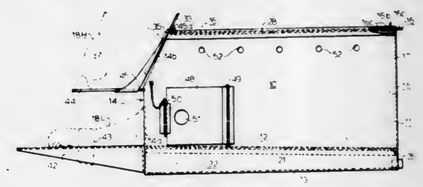
frame and bag, being removably secured to said harness between said first and second straps.

4,269,149

PASSIVE RESTRAINER FOR SMALL ANIMALS

Roy W. Thomas, 1045 "C" Ave., National City, Calif. 92050

Filed May 15, 1979, Ser. No. 39,210
Int. Cl.³ A61D *3/00*
U.S. Cl. 119—103 **2 Claims**



1. In a passive restraining apparatus for use in the administration to small animals of anaesthetics, intravenous fluids and the like, comprising

(a) a housing (**10**) for loosely confining therein the main portion of an animal's body including two rear legs in an unstressed condition;

(b) said housing being provided with a front wall (**14**) having an upper opening (**47**) therein for holding the animal's neck in substantially immobilized position with its head projecting forwardly from said wall;

(c) said front wall being provided with at least one lower opening (**29**) for receiving the forearms of the animal's forelegs (**18L**, **18L**) in forwardly projecting positions;

(d) means for immobilizing the outer end portions of said forearms, and

(e) means (**44**) for vertically supporting the animal's head (**18H**) in spaced relation to and above its immobilized forearms and for relatively free sidewise movement about its neck to thereby prevent access by the head to the forearms and provide a safety zone in which attendants may examine and treat the latter,

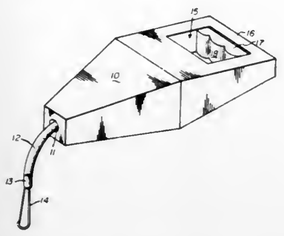
(f) said last-named means positioned below said upper opening and including a substantially horizontal platform constituting the sole support and restraint of the animal's head while permitting uninterrupted sidewise vision by the animal during the sidewise movement of its head.

4,269,150

DOG LEASH

Michael D. McCarthy, 1065 Huntingdon Dr., San Jose, Calif. 95129

Filed Oct. 1, 1979, Ser. No. 80,242
Int. Cl.³ A01K *27/00*
U.S. Cl. 119—109 **6 Claims**



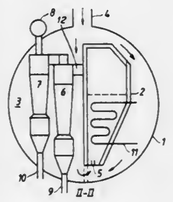
1. A retractable dog leash comprising: a hollow casing having an opening therethrough at one end thereof, a portion of said casing adjacent said opening forming a handgrip area, a leash cable for an animal such as a dog, a shaft supported spool in said casing, a hole in said casing remote from said handgrip area through which said leash cable is threaded, said leash cable extending from said hole within said casing around said opening through said handgrip area and onto said shaft supported spool, spring means operatively connected to said spool to yieldingly retract said cable once said cable has been payed out, and manually activated braking means on said casing movable into braking engagement with the portion of said leash cable within said handgrip area in a direction opposite to the pulling direction of said animal on said cable.

4,269,151

COMBUSTION CHAMBER

Pehr Böjesgard, Finspong; Anders Kullendorff, Aby, and Jan Wikner, Finspong, all of Sweden, assignors to Stal-Laval Turbin AB, Sweden

Filed Feb. 8, 1979, Ser. No. 10,355
Claims priority, application Sweden, Feb. 13, 1978, 7801617
Int. Cl.³ B01J *8/18*
U.S. Cl. 122—4 D **10 Claims**



1. A pressurized combustion chamber assembly capable of providing heated combustion gases for use in gas turbine assemblies and the like, and comprising:

an elongated, hollow outer casing assembly including an inlet aperture extending through a wall thereof to allow a coampressed gas, such as air, to enter said casing;

an elongated, fluidized bed combustion chamber positioned within said outer casing, said fluidized bed combustion chamber having a wall portion confronting an inner surface of said outer casing and defining a fluid passageway sufficient to allow said compressed gas to enter said inlet aperture and flow between said fluidized bed combustion chamber and said outer casing, thereby receiving and transferring excessive heat away from said wall portion of said fluidized bed combustion chamber;

inlet means extending through further wall portions of said fluidized bed combustion chamber for allowing said compressed gas to enter said fluidized bed combustion chamber;

outlet means extending through wall portions of said fluidized bed for allowing hot combustion gases to exit from said fluidized bed combustion chamber; and

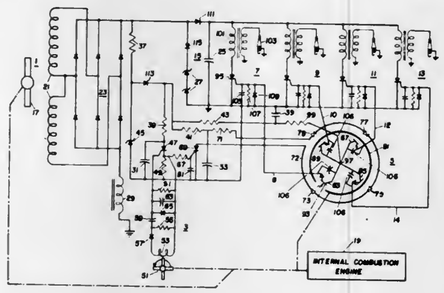
cleaning means positioned within said outer casing separate from said fluidized bed combustion chamber and in fluid connection with said outlet means for receiving hot combustion gases from said combustion chamber and separating debris from said hot combustion gases while flowing therethrough.

4,269,152

BREAKERLESS PULSE DISTRIBUTION SYSTEM AND OPTO-ELECTRICAL DISTRIBUTOR THEREFOR

Howard E. Van Siclen, Jr., Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed May 22, 1978, Ser. No. 908,479
Int. Cl.³ F02P *1/00, 3/06*
U.S. Cl. 123—146.5 A **18 Claims**



1. A breakerless distributor for sequentially distributing electrical pulses to a plurality of electrically energizable output lines at intervals determined by pulses on a single input line, said distributor comprising:

a plurality of electrically activated radiant energy sources, equal in number to the number of output lines, all connected to the input line to emit radiant energy simultaneously for the duration of each pulse on said input line;

a photosensitive switch associated with each radiant energy source and arranged in confronting spaced relation thereto, each of said photosensitive switches being connected in an output line to complete the circuit thereof when turned on by the associated radiant energy source;

a shutter member arranged for movement between said radiant energy sources and said photosensitive switches for blocking the reception of radiant energy from the associated radiant energy source by all but one of the photosensitive switches at a time; and

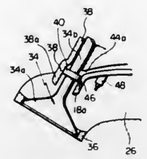
means for moving the shutter member relative to the radiant energy sources and the photosensitive switches in synchronism with the pulses on the input line to sequentially and repetitively unblock the reception of radiant energy by each photosensitive switch in order for each successive pulse on the input line for an interval which exceeds the duration of a timing pulse whereby pulses are sequentially generated on successive output lines and adjustments in the timing pulses can be accommodated.

4,269,153

INTERNAL COMBUSTION ENGINE WITH FUEL INJECTOR

Kazuya Kunii; Saburo Tsutsumi, both of Yokohama, and Shizuo Ishizawa, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Apr. 4, 1979, Ser. No. 27,141
Claims priority, application Japan, Apr. 15, 1978, 53-50416[U]
Int. Cl.³ F02B *31/00*
U.S. Cl. 123—308 **9 Claims**



1. An internal combustion engine having a combustion chamber and an intake valve seatable on a valve seat, comprising:

means for defining an intake passageway through which the combustion chamber is communicable with atmospheric air, a throttle valve being pivotally disposed in said intake passageway;

a fuel injector including a fuel injection nozzle which is projected into the intake passageway downstream of the throttle valve and immediately upstream of the combustion chamber;

means defining a straight elongate opening located adjacent the nozzle of said fuel injector, the axis of said straight elongate opening intersecting the axis of the nozzle of said fuel injector at a predetermined angle;

means defining an additional air passage through which said elongate opening is communicable with said intake passageway upstream of said throttle valve;

means defining an air chamber which is located around the valve stem of said intake valve and communicates with said additional air passage, said straight elongate opening being communicable with said air chamber, said air chamber defining means including a cup-shaped wall section which is formed with an opening through which the interior of said cup-shaped wall section communicates with said additional air passage, said straight elongate opening being formed through said cup-shaped wall section, and an annular valve member secured on the valve stem of said intake valve, the annular periphery of said valve member slidably contacting the inner cylindrical surface of said cup-shaped wall section, said air chamber being defined by the inner surface of said cup-shaped wall section and the annular surface of said valve member.

4,269,154

IGNITION TIMING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

Toshiharu Iwata, Aichi; Tadashi Hattori; Siniti Mukainakano, both of Okazaki; Kenji Goto, and Daisaku Sawada, both of Susono, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

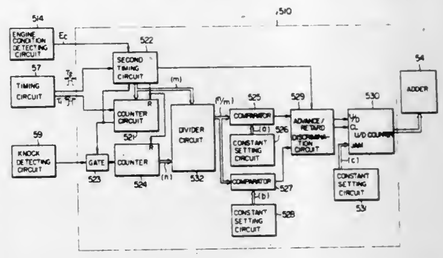
Filed May 23, 1979, Ser. No. 41,933
Claims priority, application Japan, May 24, 1978, 53-62030; Jun. 13, 1978, 53-71249
Int. Cl.³ F02P *5/14*
U.S. Cl. 123—425 **3 Claims**

1. In an ignition timing control system for an internal combustion engine including means for detecting a first set of engine operating parameters and for generating an engine condition signal indicative thereof; means, responsive to said engine condition signal, for computing a base advance angle and for generating a digital signal representative thereof; first counter means for counting the digital signal from said base advance computing means and for generating an output signal when said first counter means reaches a predetermined count value; and igniter means, responsive to the output signal of said first counter means, for generating an ignition signal; the improvement comprising:

means for detecting the occurrence of an engine knock and generating a knock detection signal indicative thereof;

second counter means for counting the number of output signals from said first said counter means and for generating an output signal when a number m of said output signals from said first counter are counted;

timing means, connected to said second counter means, for



determining the number m to which said counter means counts;

third counter means, connected to said knock detecting means and to said counter means, for counting the number n of said knock detection signals during a period that said second counter means counts the number m;

dividing means, connected to said timing means and to said third counter means, for computing a knocking ratio expressed by n/m;

comparator means, connected to said dividing means, for comparing the knocking ratio n/m with an upper and a lower level; and

means, connected to said comparator means and to said first counter means, for altering the count value of said first counter means in accordance with a comparison result from said comparator means.

4,269,155

IGNITION TIMING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

Toshiharu Iwata, Aichi; Tadashi Hattori; Siniti Mukainakano, both of Okazaki; Kenji Goto, and Daisaku Sawada, both of Susono, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Aug. 20, 1979, Ser. No. 68,477
Claims priority, application Japan, Sep. 1, 1978, 53-107746
Int. Cl.³ F02P *5/14*
U.S. Cl. 123—425 **3 Claims**

1. An ignition timing control system for an internal combustion engine comprising:

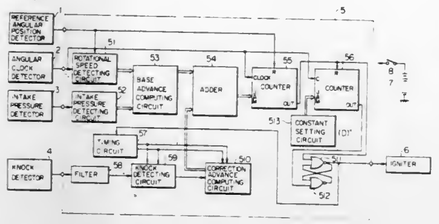
a knock detector for sensing vibrations of said engine;

a knock detecting circuit for comparing an output signal of said knock detector with a predetermined threshold level and for generating a knock detection signal indicating when said output signal is above said predetermined threshold level;

correction advance computing means, responsive to said knock detection signal, for computing an advance correction angle and generating an ignition advance correcting signal related thereto, said advance computing means comprising:

counter means for counting said knock detection signal to determine the number n of knocks occurring within a predetermined number of engine ignitions; and

comparator and computing means for (i) comparing the counted number n with upper and lower limits (a) and (b), respectively; (ii) producing said ignition advance correcting signal effective to retard ignition timing when $n \geqq a$; (iii) producing said ignition advance correcting signal effective to not alter ignition timing when $b < n < a$; and (iv) producing said ignition advance correcting signal effective to advance ignition timing when $n \leqq b$;



ignition timing signal generating means for generating an ignition timing signal as corrected with said advance correction angle thereby to retard or advance the timing of ignition of said engine depending on the amount of knock; and

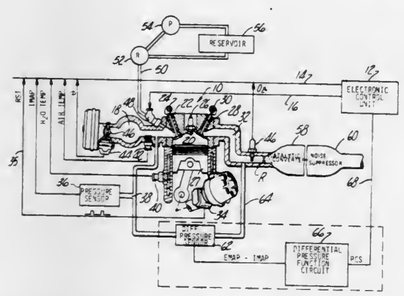
means for supplying electric power to said correction advance computing means even after a key switch associated with said engine is turned off, thereby to maintain said correction advance computing means being to maintain said correction advance computing means being energized to memorize said advance correction angle corresponding to a knock condition just before the key switch is turned off.

4,269,156

AIR/FUEL RATIO MANAGEMENT SYSTEM WITH CALIBRATION CORRECTION FOR MANIFOLD PRESSURE DIFFERENTIALS

Glen J. Drellishak, Rochester, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed May 1, 1979, Ser. No. 35,036
Int. Cl.³ F02B 3/00
U.S. Cl. 123—478 **13 Claims**



1. An air/fuel ratio management system for an internal combustion engine having an intake manifold and an exhaust manifold, said system comprising:

electronic control means for regulating the air/fuel ratio of the engine by controlling the amount of fuel supplied to the engine in response to at least one engine operating parameter;

means for sensing the difference in pressure between the intake manifold of the engine and the exhaust manifold of the engine and for generating a differential pressure signal indicative of that pressure difference; and

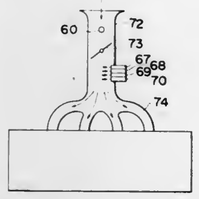
means responsive to said intake manifold pressure and said differential pressure signal for generating a pressure correctional signal for said electronic control means for regulating the air/fuel ratio of the engine.

4,269,157

FUEL INJECTION SYSTEM

Takeshi Fujishiro, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 20, 1979, Ser. No. 50,164
Claims priority, application Japan, Jun. 27, 1978, 53-77020; Aug. 10, 1978, 53-96721; Oct. 5, 1978, 53-122025; Oct. 20, 1978, 53-128586
Int. Cl.³ F02B 3/00
U.S. Cl. 123—478 **12 Claims**



1. A fuel injection system for use in an internal combustion engine having an intake passage, comprising:

(a) at least one fuel injection valve for supplying fuel to said engine when said fuel injection valve is open;

(b) an air flow sensor disposed within said intake passage for generating a pulse signal at a frequency proportional to air flow through said intake passage;

(c) frequency comparator means responsive to said pulse signal for generating a first output signal when the frequency of the pulse signal is less than a reference frequency and a second output signal when the frequency of the pulse signal is greater than the reference frequency;

(d) control circuit means operatively coupled to said air flow sensor and said frequency comparator means for passing the pulse signal in response to said first output signal, and for dividing the frequency of said pulse signal at a predetermined division ratio and passing the frequency-divided pulse signal in response to said second output signal;

(e) pulse generator means responsive to said first output signal for generating a pulse signal having pulses of a first pulse width and responsive to said second output signal for generating a basic pulse signal having pulses of a second pulse width equal to the multiplication of the first pulse width by said division ratio; and

(f) drive circuit means operatively coupled to said control circuit means and said pulse generator means for opening said fuel injection valve for a time determined by the pulse width of a pulse from said pulse generator means in response to each pulse signal from said control circuit means.

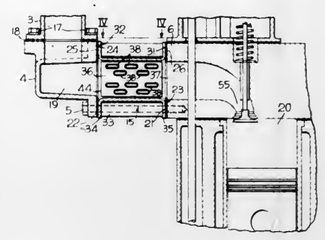
4,269,158

INTERCOOLER FOR INTERNAL COMBUSTION ENGINE

Jerome L. Berti, Chicago Heights, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Continuation of Ser. No. 922,668, Jul. 6, 1978, abandoned. This application Jul. 7, 1980, Ser. No. 166,043
Int. Cl.³ F02B 29/04
U.S. Cl. 123—563 **10 Claims**

1. An internal combustion engine having at least one cylinder comprising, a cylinder head defining a side mounting surface for an intake manifold and an air delivery chamber, an intake manifold defining a plenum chamber for receiving incoming air, an integral intercooler forming a spacer mounted on the side of said cylinder head and providing a cantilever mounting of said intake manifold including, passage walls forming a cross passage between said intake manifold and said cylinder head, peripheral reinforcing structure enclosing said passage walls on said intercooler for rigidly supporting said manifold on said engine head, said peripheral reinforcing structure defining bolt holes extending continuously through said reinforcing structure and aligned with bolt holes in said head and intake manifold for receiving common fastening means, coolant conduits extending the length of said cross passage of



said intercooler for circulating coolant fluid through said conduits, a plurality of cooling fins interleaved along the cooling conduits for cooling air passing through the said cross passage, means defining cooling fluid chambers at the ends of said intercooler for circulating coolant fluid through said intercooler, complementary mounting surfaces including said side mounting surface on said cylinder head and a surface on said intake manifold adapted for selectively mounting said intake manifold directly on said cylinder head to operate the engine as a naturally aspirated engine, said intercooler defining complementary mounting surfaces for selectively mounting said intercooler between said cylinder head and said intake manifold for supporting said intake manifold connected to a supercharger when operating the engine as a supercharged engine.

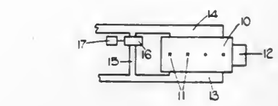
4,269,159

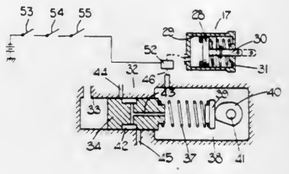
ENGINE SYSTEM

Robert T. J. Skinner, High Wycome, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Sep. 12, 1979, Ser. No. 75,193
Claims priority, application United Kingdom, Oct. 12, 1978, 40331/78
Int. Cl.³ F02M 25/06
U.S. Cl. 123—569 **6 Claims**

1. An engine system including a compression ignition engine, a fuel pumping apparatus for supplying fuel in timed relationship to the combustion chambers of the engine, a fuel control member forming part of the apparatus and adjustable to control the amount of fuel supplied by the apparatus at each delivery stroke thereof, an air inlet and an exhaust gas outlet on the engine, valve means operable to permit exhaust gas from the outlet to pass to the inlet, said valve means including a valve member and the system including a valve actuator for moving said valve member between an open and a closed position, the valve actuator comprising a pressure responsive member which is resiliently biassed to a position in which the valve member assumes the closed position, pump means for supplying fluid under pressure, a piston located within a cylinder, conduit means connecting one end of said cylinder to said pump means, resilient means biassing the piston towards said one end of the cylinder, orifice means defined in the piston and cylinder for controlling the fluid pressure at the other end of the cylinder whereby the force developed by the fluid pressure acting on the end of the piston at the one end of the cylinder is balanced by the force due to the resilient means and the fluid pressure acting on the other end of the piston, further conduit means through which the fluid at the other end of the cylinder is applied to the pressure responsive member of the actuator,





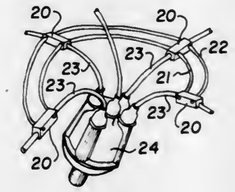
and means responsive to the setting of the fuel control member for varying the force exerted by the resilient means.

4,269,160

IGNITION DEVICE FOR INTERNAL COMBUSTION ENGINE

Eugene Irvin, Jr., 522 Winchester, Richardson, Tex. 75080

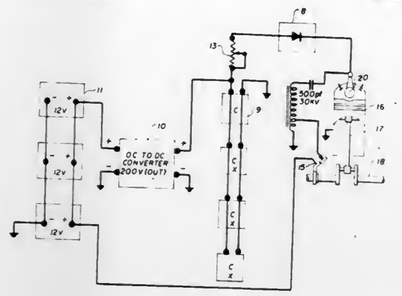
Filed Feb. 8, 1979, Ser. No. 10,330
Int. Cl.³ F02M 27/04
U.S. Cl. 123—620 **12 Claims**



1. An ignition device for improving the combustion process in the combustion chambers of the cylinders of an internal combustion engine having spark plug wires connected between a distributor and the spark plug of each cylinder of said engine, said device comprising: a plurality of separate electrically conductive plates insulated from each other and supported in an assembly means for connection partially around and in insulated relationship with each of said spark plug wires defining a plurality of condenser plates for each of said spark plug wires of an engine for inducing an electrical potential in each of said plates responsive to electrical current flow in one of said spark plug wires through one set of said plates; and a plurality of separate electrical conductors interconnecting corresponding ones of said condenser plates in each of said sets of said plates at all of said spark plug wires, each of said separate conductors and said plates connected with said conductors being insulated from each of the other of said conductors and plates connected with said conductors, whereby current flow through any one of said spark plug wires energizing said wire

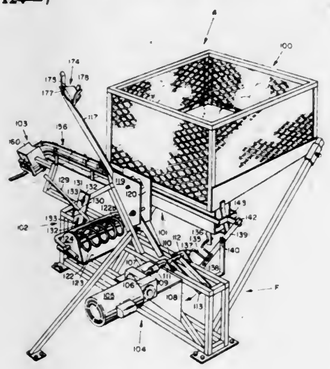
induces an electrical potential in said plates at said wire and said induced electrical potential is communicated with the remainder of said plates connected with each of said conductors at the non-energized ones of said spark plug wires.

4,269,161
VARIABLE FUEL EXPLOSION CHAMBER ENGINE
William F. Simmons, 541 March St., Shillington, Pa. 19607
Filed Jul. 18, 1979, Ser. No. 58,680
Int. Cl.³ F02P *1/00*
U.S. Cl. 123—620 **10 Claims**



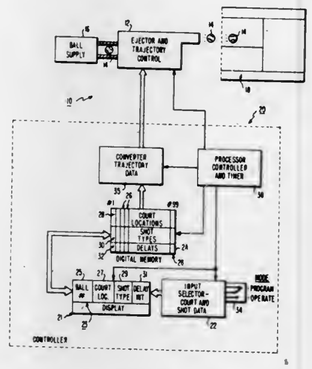
1. A high energy electrical ignition and discharge system for an internal combustion engine to enable explosion of powdered and liquid fuels, comprising an explosion cylinder having a single ignition and discharge electrode inside the top center of said cylinder, an ignition coil connected between ground and said electrode, a bank of high voltage capacitors energized by a source of high D.C. voltage, high voltage high current diode stack which are connected between said electrode and said high voltage capacitors isolated from said ignition coil, whereby high current discharge by said capacitors is effected by said electrode in the fuel mixture of said combustion chamber.

4,269,162
SPRING TYPE BALL PITCHING APPARATUS
Jeffrey L. Abraham, 218 Maplewood, San Antonio, Tex. 78216, and Gary D. Banse, 546 Gilbert, San Antonio, Tex. 78213
Filed Jan. 16, 1978, Ser. No. 869,704
Int. Cl.³ F41B *7/00*
U.S. Cl. 124—7 **4 Claims**



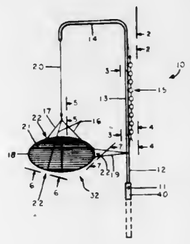
1. A spring powered pitching arm for a ball pitching means for a ball pitching machine, comprising:
an oscillating pitching arm rotatably mounted upon a ball pitching machine for oscillating in a vertical arc;
a power drive means operatively connected with the pitching arm for pivoting the pitching arm one direction in the arc;
a selectively torsionable coil spring operatively connected with the pitching arm to impart a pitching force to the pitching arm upon torsioning of the coil spring by the movement in the one direction by the pitching arm and release of the pitching arm by the power drive means to allow the pitching arm to be moved in the opposite direction by the coil spring to provide the pitching motion;
a spring torsion adjusting means for setting the torsion of the coil spring to a prestressed first predetermined force value prior to additional torsioning of the coil spring by the movement in the said one direction by the pitching arm, said pitching arm applying the additional torsioning force to the coil spring resulting in a second greater predetermined stored force value in the coil spring to control the pitching force imparted to the pitching arm upon release by the drive means; and
an adjustable link extending directly between and connecting the coil spring to the pitching arm to maintain the amount of torsion in the coil spring at the prestressed first predetermined force value prior to torsioning of the coil spring by the movement in the one direction by the pitching arm and at the end the arc of of the pitching arm to control the amount of pitching force imparted to the pitching arm.

4,269,163
SYSTEM AND APPARATUS FOR PROGRAM CONTROLLED DELIVERY OF GAME BALLS
Donald Feith, Elkins Park, Pa., assignor to United States Machine Works, Inc., Lansdale, Pa.
Filed Dec. 30, 1977, Ser. No. 865,932
Int. Cl.³ A01B *65/12, 69/38;* F41F *1/04*
U.S. Cl. 124—77 **19 Claims**



1. Program controlled game ball delivery apparatus comprising:
means for successively ejecting a plurality of game balls, including means for setting the trajectories of said balls; and
a controller including:
an input device for entering court and ball data signals for each of a plurality of balls, said input device including means displaying a tennis court diagram having a multiplicity of court locations distributed over said diagram corresponding to actual positions on a tennis court where an ejected ball would first hit for each of the different ball trajectories, and means for selecting one of said court locations for each ball and for developing electrical identifying data signals for the selected court location, said selecting and signal developing means including a multiplicity of separate manually operated switch means at said respective court locations,
means for converting said court location and ball data signals for each ball to data signals for the corresponding ball trajectory,
memory means for digitally storing data signals respectively associated with a sequence of balls,
and means for operating said trajectory setting means in accordance with the trajectory data signals for each said ball so as to set a sequence of individual ball trajectories in accordance with said sequence of stored data signals,
whereby the operator merely selects the ball type and a court location for each delivered ball to hit on an associated tennis court and the apparatus establishes the corresponding trajectory to deliver the ejected ball thereto.

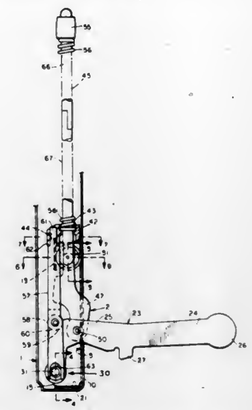
4,269,164
SWING-A-WAY CAMP GRILL
Donald R. Van Grinsven, 405 Buchanan Rd., and Michael H. Winius, 226 Kamps, both of Combined Locks, Wis. 54113
Filed Mar. 5, 1979, Ser. No. 17,734
Int. Cl.³ A47J *33/00;* F16M *11/00;* F24B *3/00*
U.S. Cl. 126—30 **5 Claims**



1. A ground supported adjustable and knockdown grill device comprising a single support leg element formed of a plurality of tubular members, an upper member being an inverted L-shape and having a flexible element extending through to provide a support for a grill member or cooking utensil, said flexible element having an additional flexible element member as an extension thereof to provide vertical adjustment of said grill or cooking utensil, said grill or cooking utensil being secured to the support leg element for stability thereof, the grill or cooking utensil further being pivotal 360 degrees in a horizontal plane by means of a support leg member.

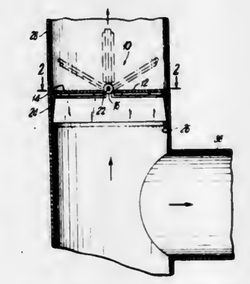
4,269,165
OVEN HINGE
Walter A. Wrotny, Berlin, N.J., and James D. McIntosh, Philadelphia, Pa., assignors to Mitchell Industries, Inc., Philadelphia, Pa.
Filed Jun. 11, 1979, Ser. No. 47,207
Int. Cl.³ F23M *7/00;* F24C *15/04*
U.S. Cl. 126—191 **14 Claims**

1. In a hinge to be secured to an oven door;
a housing to be fixedly secured to the oven door;
arm means for demountably securing the door to the oven;
main pivot means securing said arm to said housing and providing for pivoting of the door as between closed, broil, and open positions;
a compression spring;
first means connected between one end of said spring and said arm including mechanism to condition the first means to accomodate said pivoting of the door;
second means connected between the opposite end of said spring and said main pivot including mechanism to accomodate said pivoting of the door, the spring being compressed between the first and second means;
means forming a closed position detent and a broil position detent;
roller means connected to said second means for engaging said detents to establish the closed and broil positions;
said first and second means being operative as a function of the pivotal position of the door:



(a) to place said roller against one of said detents and compress the spring and transmit force of the same to cause the roller to tightly engage the detent and establish the closed or broil position;
(b) to compress or de-compress said spring and transfer the force of same to said door in opposition to the force developed by the weight of the door and thereby provide for counter-balancing.

4,269,166
STACK DAMPER VALVE
Arthur C. Worley, Mt. Tabor, and Richard J. Basile, Rockaway, both of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.
Filed Dec. 21, 1978, Ser. No. 972,478
Int. Cl.³ F23L *3/00*
U.S. Cl. 126—285 R **1 Claim**



1. A damper valve for use in stack systems comprising a pair of steel semi-circular members having contiguous straight edges and axially aligned hinged pipe sections disposed along said contiguous straight edges which are interconnected by means of a removalbe pin extending through said aligned sections and whose axis is disposed transverse of the axis of said stack, an annular steel seat comprising a truncated circular steel member welded to and extending continuously about the interior of said stack, said semi-circular members having a

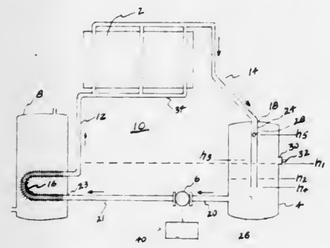
plurality of stiffening ribs facing said seat, said semi-circular members being mounted and arranged for metal-to-metal seating contact with said seat in a closed position of said valve and movable between said closed position and an open position wherein said semi-circular members are disposed downstream of said annular steel seat, said semi-cicrular members interconnected only along said straight edges when said semi-circular members are in either of said open and closed positions, operator means disposed externally of said stack and operably connected for disposing said semi-circular members in said open or closed positions, and counterweight means disposed externally of said stack and operably connected with said semi-cicrcular members for providing fail-safe operation of said semi-circular members.

4,269,167

CLOSED PRESSURIZED SOLAR HEATING SYSTEM WITH AUTOMATIC VALVELESS SOLAR COLLECTOR DRAIN-BACK

John M. Embree, Bee Brook Crossing, Washington Depot, Conn. 06794

Filed Dec. 7, 1979, Ser. No. 89,546
Int. Cl.³ F24J *3/02*; E03B *7/10*
U.S. Cl. 126—420 **12 Claims**



12. In a closed fluid circulating system wherein a fluid is circulated through a supply line from a first container to an elevated second container, said second container having an input port and an output port, and returned to said first container through a return line, said system having a system pump connected in series with said supply line and forcing circulation of said fluid, and a system controller connected to said pump to control the operation of said pump in accordance with detected system parameters, the improvement comprising:

a first container consisting of a sump tank serving as a reservoir for said fluid, said sump tank having a top opening and a bottom opening;

said system pump having an input port in fluid connection with said bottom opening of said sump tank and having an output port in fluid connection with container supply line means connecting said output port of said system pump to said input port of said second container;

said output port of said second container in fluid connection with said top opening of said sump tank through said return line;

said sump tank initially filled with said fluid to an initial fill level at a first height between said top opening and said bottom opening of said sump tank, said system initially filled with air above said initial fill height, said fluid returning essentially to said initial fill level at said first height, upon drain-back of said container; said fluid lowering, when said pump is pumping, to a fluid operating level within said sump tank at a second height below said first height;

said sump tank having an internal pipe conveying the flow from said return line and extending downward from said top opening in said sump tank to a third height within said sump tank, said third height being below said second height fluid operating level, said internal pipe in fluid connection with vacuum break means within said sump tank at a fourth height between said top opening of said sump tank and said first height initial fill level;

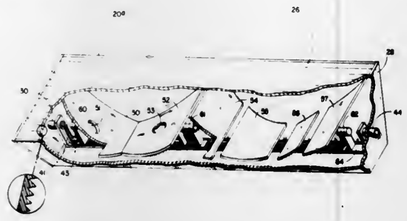
whereby de-energization of said pump by said controller produces a cessation of circulation of said fluid, causing air from within said sump tank to enter said internal pipe through said vacuum break means, breaking the vacuum in said return line and commencing drain-back of said second container.

4,269,168

FOCUSING REFLECTOR SOLAR ENERGY COLLECTOR APPARATUS AND METHOD

Steven A. Johnson, 136 N. 1st West, Preston, Id. 83263

Filed Dec. 18, 1978, Ser. No. 970,761
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—424 **13 Claims**



1. A solar collector comprising:

a shell structure, the shell structure having an open top;

first mounting means for the shell structure for rotating the shell structure about an axis to orient the open top of the shell structure toward the sun;

solar energy absorber means inside the shell structure and mounted coaxially with the axis;

second mounting means for supporting the solar energy absorber means inside the shell structure in a nonrotatable position relative to the sun to thereby accommodate rotational movement of the shell about the solar energy absorber means; and

optical means in the shell structure for directing solar energy toward the solar energy absorber means and focusing the solar energy coaxially on the solar energy absorber means, said optical means comprising a linear Fresnel lens means configurated as a transparent cover for the open top of the shell structure, the linear Fresnel lens means concentrating solar energy into a linear focus, said optical means further comprising parabolic mirror means for focusing said linear focus into said solar energy absorber means.

4,269,169

CARTRIDGE FOR HOT AIR OVEN

Raul Guibert, 8343 W. 4th St., Los Angeles, Calif. 90048

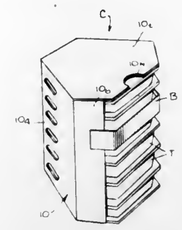
Continuation-in-part of Ser. No. 776,772, Mar. 11, 1977. This application Aug. 16, 1977, Ser. No. 825,037
Int. Cl.³ B65D *21/00*; F25B *13/00*
U.S. Cl. 126—426 **6 Claims**

1. A cartridge usable in conjunction with a hot air oven wherein heated air is blown through a hollow cylindrical core formed by an annular array of such cartridges to create a swirling flow pattern therein, said cartridge comprising:

A. a vertical stack of trays containing pre-cooked meals, said trays having a hexagonal geometry formed by three back sides and three front sides, said trays having spacers to produce circulation spaces therebetween in the stack; and

B. a carton nesting the stack of trays and having a rear wall and first and second inclined side walls corresponding to the three back sides of said hexagonal trays, whereby said carton is open on the front three sides of said trays, the rear walls of the cartons in the array of cartridges defining the cylindrical boundary of said core, the first and second side walls of the cartons defining triangular alcoves which communicate with and project outwardly from said core;

C. said rear wall and said first and second side walls of said carton having vertical rows of openings at corresponding levels, the openings in said rear wall lying in the path of said swirling flow pattern, the openings in said first side



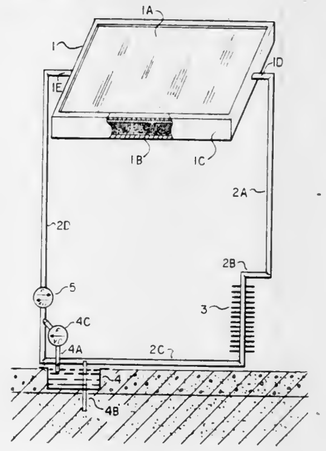
wall being adjacent the junction of this wall and the rear wall and also lying in said path, the openings in the second rear wall being adjacent the apex of the triangular alcove formed thereby and lying outside of said path, whereby heated air is injected into said rear wall and first side wall openings as a result of dynamic pressure forces produced by the swirling flow pattern, and is injected into said second side wall openings as a result of static pressure developed in said alcoves.

4,269,170

ADSORPTION SOLAR HEATING AND STORAGE SYSTEM

John M. Guerra, 56 Matchett St., Brighton, Mass. 02135

Filed Apr. 27, 1978, Ser. No. 900,703
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—428 **1 Claim**



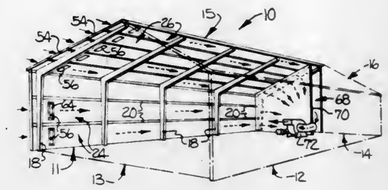
1. A solar thermal energy storage and collector system, comprising a collector housing having a gas inlet and outlet, said housing having therein a bed of zeolite material positioned to absorb heat produced by incident solar energy; a heat exchanger, means for circulating a gas through the heat exchanger, the housing inlet, the zeolite material, and back to the heat exchanger in a closed gaseous flow path, means for injecting atomized water into and condensing water vapor out of the circulating gas in a mutually exclusive operation, said injecting and condensing means positioned in the flow path between the heat exchanger and the housing inlet, whereby the zeolite material releases the latent heat of adsorption to the gas upon exposure of the material to the water adsorbate containing gas, and whereby the zeolite material is purged of the adsorbed water by the combined action of the incident solar energy, the circulating gas, and condensing means, thus completing the solar heating and storage cycle.

4,269,171

BUILDING STRUCTURE AND INTEGRAL SOLAR ENERGY COLLECTING APPARATUS

William H. McArthur, P.O. Box 236, Forest City, N.C. 28043

Continuation-in-part of Ser. No. 827,948, Aug. 26, 1978, Pat. No. 4,184,476. This application Sep. 25, 1978, Ser. No. 945,318
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—429 **19 Claims**



1. A building structure having a solar energy collector integrally incorporated therein, and wherein the solar energy collector is characterized by the absence of components which protrude outwardly beyond the normal contour of the building structure, and comprising

a plurality of exterior wall structures collectively defining an enclosure therebetween, each of said wall structures comprising a plurality of parallel, spaced apart structural support members,

a plurality of solar energy collectors disposed in said exterior wall structures, each of said collectors comprising

(a) exterior panel means which are transparent to solar radiation mounted to the outside edges of two adjacent support members and overlying a substantial portion of the area therebetween,

(b) interior panel means mounted to the inside edges of said two adjacent support members and being generally parallel to and transversely aligned with said exterior panel means, and

(c) solar energy absorptive panel means mounted parallel to and intermediate said exterior and interior panel means, such that an air passageway is defined by said two adjacent support members, interior panel means, and solar energy absorptive panel means,

inlet means adjacent corresponding ends of each of said collectors for admitting air into the associated passageway,

outlet means adjacent the opposite corresponding ends of each of said collectors for permitting air to exhaust from the passageway,

a plenum chamber disposed within said enclosure and communicating with each of said outlet means of said collectors, and

means operatively communicating with said plenum chamber for conveying air along said passageway of each collector from said inlet means to said outlet means thereof, and so as to be in heat transfer relationship with said solar energy absorptive panel means, whereby the solar energy is able to pass through said exterior panel means and warm said solar energy absorptive panel means, and the air passing through said passageways absorbs heat from said solar energy absorptive panel means and exhausts into said plenum chamber.

4,269,172

SOLAR WATER-HEATING APPARATUS

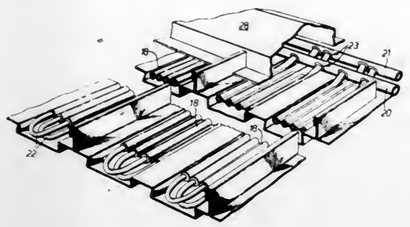
Peter D. Parker; Robert N. Walton, and Lawrence J. Walton, all of 8 Sunshine Blvd., Miami Keys, Queensland, Australia (4217)

Filed Nov. 4, 1977, Ser. No. 848,458

Claims priority, application Australia, Nov. 8, 1976, PC8037; Feb. 4, 1977, PC8945

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—450 **26 Claims**



1. Solar water-heating apparatus including

a header having an inlet for water to be heated,

a duct assembly,

a manifold arranged to communicate with said header through said duct assembly,

a hot water discharge outlet from said manifold,

said duct assembly having a plurality of spaced-apart ducting members each being adapted to communicate with, for through-flow between, said header and said manifold through a respective one of a plurality of spaced-apart, plug-in connections provided along said header and said manifold, said ducting being a resilient plastic extrusion member of indefinite length and having a plurality of substantially identical passageways extending longitudinally therethrough and disposed in spaced side-by-side relationship, and

a roof sheet for supporting said ducting, said roof sheet having a rectantular body portion, upstanding complementary side engagement portions,

said body portion extending between said upstanding complementary side engagement portions whereby said sheet may be connected in operative edge-to-edge overlapping relationship with a similar sheet at each side thereof and said rectangular body portion including a re-entrant recess extending parallel to said engagement portions and arranged to closely accommodate therein said resilient ducting whereby the latter may be operatively retained in said recess by forcing said ducting through the entrance of and into said re-entrant recess.

4,269,173

SYSTEM FOR MOUNTING SOLAR COLLECTOR PANELS

Wallace F. Krueger, Toledo; Anthony R. Shaw, and Jerry L. Smith, both of Waterville, all of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Apr. 27, 1978, Ser. No. 900,494

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—450 **2 Claims**

1. In combination with a solar collector panel, a mounting apparatus for supporting the solar collector panel in a predetermined position comprising:

a. at least two modular sections constructed of standardized components;

b. a pair of mounting spars attached to said modular sections in parallel, spaced-apart relationship for supporting opposed edges of said solar panel, each said mounting spar comprising an elongated base, and upstanding rails;

c. hold-down brackets affixed to said opposed edges of said solar panel and extending over said rails for securing said solar panel to said mounting spars;

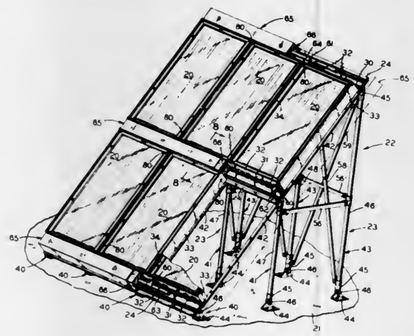
d. means fastening said hold-down brackets on said solar panel to said mounting spars;

e. manifold pipes connected to the solar collector panel for passing a fluid heat exchange medium through said solar collector; and

f. means for covering and insulating said manifold pipes, said covering and insulating means comprising an elongated insulating block and a flashing for covering and attaching said insulating block to said solar panel and said mounting spars, said insulating block comprising top and bottom sections, the bottom section being configured to receive said rails provided on said mounting spars.

2. In combination with a solar collector panel, a mounting system for supporting the solar collector panel in a predetermined position comprising:

a. at least two mounting spars disposed in a spaced-apart horizontally extending parallel relationship for supporting opposed edges of said solar panel, each said mounting spar comprising an elongated member having a base portion and an abutting portion projecting upwardly from the



central area of said base portion and defining a support for one of said opposed edges of said solar panel;

b. means for supporting said mounting spars in said spaced-apart parallel relationship and said solar panel in the predetermined position;

c. at least one hold-down means attached to each said opposed edge of said solar panel and disposed in a position to extend over said abutting position of said mounting spars; and

d. means for securing said hold-down means to said mounting spars whereby said solar panel is supported and held in abutting relationship on said mounting spars, said abutting portion of said mounting spars comprising a pair of parallel rails extending along the length of the base and said hold-down means comprising brackets disposed on the top edges of said rails and said hold-down brackets include elongated slots which register with apertures provided between the rails on said mounting spar and said securing means comprises bolts extending through said slots and said apertures whereby each opposed end of said solar panel is respectively fastened to a said mounting spar in a supporting and abutting relationship.

4,269,174

TRANSCUTANEOUS VASECTOMY APPARATUS AND METHOD

Edwin L. Adair, Littleton, Colo., assignor to Medical Dynamics, Inc., Englewood, Colo.

Filed Aug. 6, 1979, Ser. No. 63,805

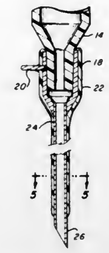
Int. Cl.³ A61B *19/00*

U.S. Cl. 128—1 R **23 Claims**

1. An apparatus to cauterize a body vessel within the body of a patient without incising the patient's skin, said apparatus comprising:

a first electrode including a conducting hollow needle having a tip insertable through the body of the patient and positionable adjacent the vessel; and

a second electrode including a conducting probe having a



distal end positioned and slidably received in said hollow needle, said distal end being positionable adjacent the vessel and electrically insulated from said first electrode so that a source of electrical energy is connectable to said first and second electrodes so that an electrical path is provided between said first and second electrodes through the vessel to cauterize and close the vessel.

4,269,175

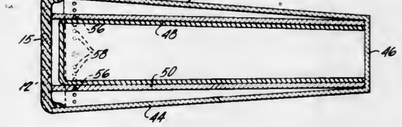
PROMOTING CIRCULATION OF BLOOD

Richard S. Dillon, 150 Mill Creek Rd., Ardmore, Pa. 19003

Continuation-in-part of Ser. No. 803,656, Jun. 6, 1977, abandoned. This application Oct. 30, 1978, Ser. No. 955,620

Int. Cl.³ A61H *1/00*

U.S. Cl. 128—24 R **2 Claims**



2. Apparatus for improving circulation of blood through a leg which comprises; a rigid enclosure having an opening for insertion of a leg and means fitting against the leg to seal the enclosure; an inflatable enclosure within said rigid enclosure; adjustable means comprising rigid walls movable to and temporarily fixable in a plurality of positions at varying distances from the inner wall of said rigid enclosure for varying the volume into which said inflatable enclosure can inflate; and means responsive to heart action for alternately supplying compressed gas to said inflatable enclosure and removing compressed gas therefrom.

4,269,176

TREATMENT HEAD FOR ELECTROMEDICAL DIAGNOSTIC OR THERAPEUTIC TREATMENT OF BODY PARTS

Johann Beyer, Baiersdorf, and Friedrich Strauber, Buckenhof, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

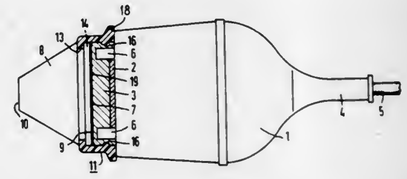
Filed Nov. 24, 1978, Ser. No. 963,583

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1977, 7738446[U]

Int. Cl.³ A61H *1/00*

U.S. Cl. 128—24 A **9 Claims**

1. A treatment head assembly for electromedical treatment of body parts, comprising an applicator with a first treatment surface (7) having an inner side and an outer side, electromedical treatment means (2, 3) coupled with the inner side of said first treatment surface (7) for activating said first treatment surface (7) for effecting electromedical treatment of a body part when the body part is disposed at the outer side of said first treatment surface (7), said electromedical treatment means (2, 3) comprising an ultrasonic transducer (2) with a first adapter piece (3) interposed between the transducer (2) and said first treatment surface (7), a second adapter piece (8) providing a second treatment surface (10) of different configuration than said first treatment surface (7), and having a base (9) in mating conforming overlying relation to said first treatment surface (7) at the outer side thereof such that the electromedical treatment means (2, 3) is coupled with said second treatment surface (10) of said second adapter piece (8) via said first adapter piece (3) and the first treatment surface (7) and said base (9) for effecting electromedical treatment of a body part disposed at said second treatment surface (10), and said second adapter piece having connected therewith an annular collar (11) having a finger emplacement (18) on the collar circumference and having releasable engagement means releasably engagable with said first adapter piece of said applicator for effecting a positive locking of said second adapter piece (8) to said applicator with the base (9) being held in said mating conforming overlying relation to said first treatment surface (7), means comprising said finger emplacement (18) on said annular collar (11) for accommodating a rapid release of said adapter piece (8) from said first adapter piece (3) of said applicator to expose said first treatment surface (7) at the outer side thereof for direct association with a body part for effecting electromedical treatment thereof, said second adapter piece (8) having an annular groove (13) spaced from the base (9) and defining a shoulder (14), said annular collar (11) having a lip (12) engaged in said annular groove (13) and interlocked with said shoulder (14) to connect said second adapter piece (8) with said annular collar (11), the finger emplacement (18) comprising a circumferential ridge on the annular collar (11), said annular collar (11) being formed of resilient material, said electromedical treatment means (2, 3) including said ultrasonic transducer (2), comprising means for energizing said first treatment surface (7) with ultrasonic energy via said first adapter piece (3), and so as to produce an ultrasonic wavelength λ in said second adapter piece (8), said first adapter piece (3) having a thickness equal to a multiple of the half wavelength of the ultrasonic waves, and said second adapter piece (8) providing a length between its base (9) and said second treatment surface (10) equal substantially to a whole number multiple of the half wavelength ($\lambda/2$).



4,269,177

THERAPEUTIC DEVICE

Stanley M. Clark, 8049 Robin La., Brecksville, Ohio 44141

Filed Aug. 16, 1979, Ser. No. 67,112

Int. Cl.³ A61H *15/00*

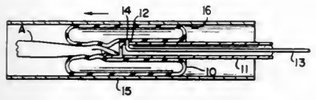
U.S. Cl. 128—57 **14 Claims**

1. A method of urging bodily fluids to flow from a limb into the body which comprises the steps of:

initally applying a fluid pressure to the limb at a first area remote from the body: and

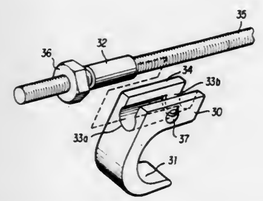
thereafter applying a continuous rolling fluid pressure from

said first area progressively to successive adjacent areas of the limb closer to the body until a substantial portion of



the limb has been subjected to said progressive rolling fluid pressure.

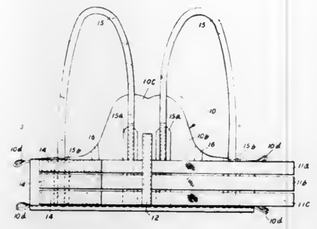
4,269,178
HOOK ASSEMBLY FOR ENGAGING A SPINAL COLUMN
James S. Keene, 6305 Keelson Dr., Madison, Wis. 53705
Filed Jun. 4, 1979, Ser. No. 45,402
Int. Cl.³ A61F *5/01;* **F16B** *7/06*
U.S. Cl. 128—69 **13 Claims**



1. An apparatus for engaging a second device including a second rod, a bone or a portion of a spinal column, said apparatus comprising:
(a) a rod;
(b) a sleeve means slidable along the length of said rod for engaging said rod;
(c) base means having a first and second end for engaging said sleeve means and having a bore extending therethrough from said first end to said second end for receiving said sleeve means; said base means having a slot parallel with and communicating with said bore, said slot having a width which is greater than the diameter of said rod and less than the outside diameter of the sleeve means;
(d) means for preventing said sleeve means from sliding out of said bore through said second end when said sleeve means is received within said bore through said first end;
(e) hook means connected to and projecting from said base means; and
(f) locking means cooperating with and independently moveable relative to said base means and said sleeve means and along said rod for engaging said rod, said locking means having a width greater than the inner diameter of said sleeve means.

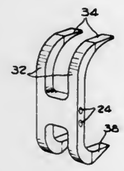
4,269,179
ORTHOPEDIC GRAVITY TRACTION BRACE
Charles V. Burton, Wayzata, and Wallace W. Lossing, Minneapolis, both of Minn., assignors to Abbot-Northwestern Hospitals Inc., Minneapolis, Minn.
Continuation of Ser. No. 683,276, May 5, 1976, abandoned. This application Mar. 22, 1979, Ser. No. 22,712
Int. Cl.³ A61H *1/02*
U.S. Cl. 128—75 **6 Claims**

1. An orthopedic lumbar traction brace, comprising:
(a) a torso surrounding vest having a layer uniformly made from stretchable material to conform to the contour of the lower rib cage and a portion of the torso therebelow;
(b) attachment means for securing the vest to a patient, the attachment means including a plurality of vertically spaced and circumferentially extending straps attached to the vest with each strap extending substantially completely around the vest, and further including means for tightening each strap in a circumferential direction with the lowermost strap being disposed immediately below the rib cage to substantially support the weight of the



patient and the remaining straps being located around the rib cage to firmly grasp the rib cage and prevent movement of the vest relative thereto; and
(c) support means connected to the vest for connecting the vest to means for holding the patient in a desired suspended position to apply gravity traction to the lumbar area of the spine.

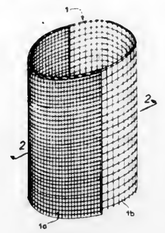
4,269,180
BONE FASTENER FOR THE GREATER TROCHANTER
Desmond M. Dall, 108 Medical Centre, Heerengracht, Cape Town, Cape Province, and Anthony W. Miles, 15 E. Light Way, Kirstenhof, Cape Province, both of South Africa
Filed Mar. 19, 1979, Ser. No. 21,858
Claims priority, application United Kingdom, Mar. 30, 1978, 12365/78
Int. Cl.³ A61F *5/04*
U.S. Cl. 128—92 B **12 Claims**



1. An implant for use in bone surgery, the implant comprising a base structure including a pair of limbs joined by a bridge, the bridge being bounded by a front face, a rear face and edge faces, a plurality of teeth protruding from the base structure, all the teeth lying on the same side of the base structure, and a hole in the base structure for receiving a cable, the hole being elongate in form, extending lengthways through the bridge, and being open at each end.

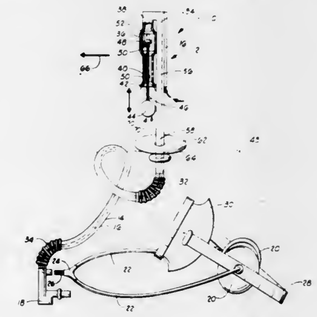
4,269,181
TUBULAR DRESSING WHICH IS COMPLETE BY ITSELF
Robert Delannoy, Paris, France, assignor to Molinier S.A., Loire, France
Filed Apr. 12, 1979, Ser. No. 29,522
Claims priority, application France, Apr. 21, 1978, 78 12864
Int. Cl.³ A61L *15/00*
U.S. Cl. 128—156 **8 Claims**

1. A complete tubular dressing in one piece comprising one sector forming a dressing proper and one section made of extensible material which is sufficient to hold the dressing



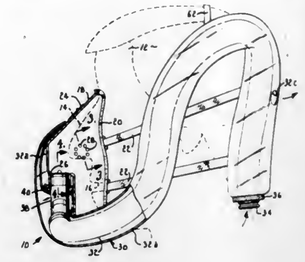
securely on the body of a patient, wherein the dressing proper is made of woven hydrophilic material.

4,269,182
UNDERWATER BREATHING DEVICE FOR A SWIMMER
Be V. Le, 912 S. Terrace, Wichita, Kans. 67218
Filed Nov. 26, 1979, Ser. No. 97,368
Int. Cl.³ B63C *11/16*
U.S. Cl. 128—201.11 **2 Claims**



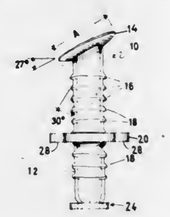
1. An underwater air and sound device for a swimmer, the device comprising:
a first vertical tube having an upper end portion and a opened lower end portion for receiving air therethrough, the lower end portion adapted to be disposed above the water level;
a second vertical tube having an upper end portion and a lower end portion, the upper end portion communicably connected to the upper end portion of the first tube, the tubes having an upside down "J" appearance;
a buoy attached to the lower end portion of the second tube for holding the tubes upright in the water;
a mouth piece adapted for receipt in the swimmer's mouth when the swimmer is under water;
a flexible air line with one end communicably connected to the lower end portion of the second tube, the other end of the air line attached to the mouth piece;
a ball shaped float having a float rod attached thereto, the float rod extending upwardly into the lower end portion of the first tube, the end of the rod attached to a float rod valve, the first tube having a valve seat integrally formed therein, the rod valve received in the valve seat when the float is raised upwardly by water pressure applied thereon;
ear covers adapted for receipt over the swimmers ears; and
a sound tube connected to the upper end portion of the second tube and extending downwardly therethrough and through the flexible airline, the lower end of the sound tube connected to the ear covers.

4,269,183
COLD WEATHER BREATHING MASK
Patrick T. Hunt, R.R. 1, Smithville, Mo. 64089
Continuation-in-part of Ser. No. 24,168, Mar. 26, 1979, abandoned. This application Feb. 13, 1980, Ser. No. 121,119
Int. Cl.³ A61M *15/00*
U.S. Cl. 128—201.13 **10 Claims**



1. A breathing device comprising:
a mask for convering the mouth and nose of a wearer,
said mask having an inlet and an outlet;
air intake conduit means having an outlet in communication with the inside of said mask,
said conduit means adapted to be disposed in a curvilinear path along a substantial portion of the head of the wearer and having an inlet remote from said outlet for air passage;
means for closing said air intake conduit means outlet during exhalation of air by said wearer; and
sack means for enclosing said air intake conduit means over substantially the entire length thereof and therefore, along a substantial portion of the head of the wearer thereby being in heat exchange communication with the head of the wearer,
said sack means being disposed in communication with said mask outlet and having an opening for egress of air remote from the place of communication with said outlet whereby, heat from exhaled air as well as body heat normally lost through radiation from the head adjusts the temperature of air to be inhaled.

4,269,184
SILICONE TRACHEAL CANNULA
William W. Montgomery, 243 Charles St., Boston, Mass. 02114
Filed Feb. 28, 1980, Ser. No. 125,260
Int. Cl.³ A61M *25/00*
U.S. Cl. 128—207.14 **10 Claims**



1. A tracheal cannula adapted to be inserted in a round incision in the patient's trachea in place of the usual tracheotomy tube, said cannula comprising
a tube of tissue-compatible material having an outer open end, an inner open end and a lumen of diameter sufficient to provide an adequate airway for the patient after insertion and an outer diameter adapted to fit said incision,
said tube having
at least one circumferential barb near its inner end adapted

to engage the patient's tissue within the incision to discourage accidental outward displacement after insertion,

a plurality of circumferential ridges located between the outermost of said barbs and its outer open end, and

said inner open end having a periphery which lies in a plane at an acute angle to the longitudinal axis of said tube and is surrounded by a flexible flange also lying in said plane, said inner end being capable of being flexed to a smaller diameter to permit insertion throught the incision,

said flange being adapted to fit the inner anterior tracheal wall so that the cannula will project forward at a predetermined angle to the patient's neck,

said circumferential ridges defining grooves adapted to receive and retain means for engaging the patient's skin surrounding the cannula to secure the latter in place.

4,269,185

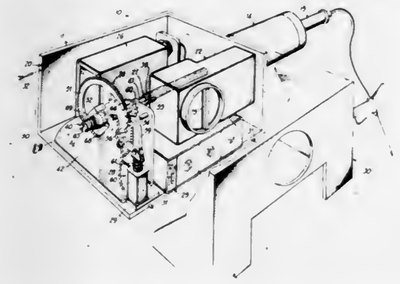
SELF CONTAINED MECHANICAL INJECTOR

Douglass G. Whitney, 2518 W. Wesley Rd., and John K. Martin, III, 2837 Ridge Wood Cir., both of, Atlanta, Ga. 30327

Continuation-in-part of Ser. No. 1,091, Jan. 8, 1979, which is a division of Ser. No. 741,528, Nov. 12, 1976, Pat. No. 4,150,672, and a continuation-in-part of Ser. No. 741,528, Nov. 12, 1976, Pat. No. 4,150,672, and a continuation-in-part of Ser. No. 964,953, Nov. 30, 1978. This application Mar. 29, 1979, Ser. No. 25,047

Int. Cl.³ A61M *5/00, 5/20*

U.S. Cl. 128—214 F **12 Claims**



1. Apparatus for selectively dispensing a fluid at a controlled slow rate into a patient comprising:

container means defining a fluid chamber therein for containing the fluid to be dispensed and defining a fluid outlet therefrom through which the fluid is to be dispensed into the patient;

expelling means operatively associated with the fluid in said container means to expel the liquid from said container means, said expelling means including a piston member slidably mounted in said fluid chamber for positively forcing the fluid from said fluid chamber as said piston member moves toward the outlet end of said fluid chamber, said piston member moved toward the outlet end when said expelling means is driven;

spring operated driving means for selectively driving said expelling means to force said piston member toward the outlet end of said fluid chamber; and

control means operatively connected to said driving means for selectively and successively causing said driving means to move said piston member to successively and incrementally force the fluid from said fluid chamber in said container means into the patient at a selected prescribed average rate over a prolonged period of time, said control means alternatively releasing said driving means for a first prescribed short period of time fo fixed duration so that said driving means causes said expelling means to force fluid from said fluid chamber in said container means at a first prescribed rate greater than the selected prescribed average rate and said control means alternatively arresting the operation of said driving means for a second prescribed short period of time to stop the fluid flow from said fluid chamber so that the fluid is forced from said fluid chamber in said container at the selected prescribed average rate over the sum of said first and second periods of time, said control means including adjustment means for selectively varying the duration of only said second prescribed short period of time without varying the duration of said first prescribed period of time to selectively vary the selected prescribed average rate at which the fluid is forced from said fluid chamber of said container into the patient.

4,269,186

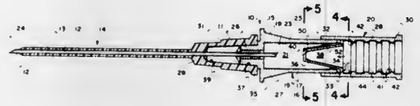
INTRAVENOUS NEEDLE ASSEMBLY WITH AIR BLEED PLUG

James C. Loveless, and Darrel R. Palmer, both of Sandy, Utah, assignors to The Deseret Company, Sandy, Utah

Continuation-in-part of Ser. No. 916,657, Jun. 16, 1978, Pat. No. 4,193,400. This application Sep. 26, 1979, Ser. No. 78,982

Int. Cl.³ A61M *5/00*

U.S. Cl. 128—214.4 **6 Claims**



1. A catheter placement assembly comprising:

a needle for penetrating the vein of a patient;

a catheter tube associated with the needle to be placed in the vein and left indwelling after venipuncture;

a flashback chamber connected at a forward portion thereof to the trailing end of the needle, said flashback chamber having an opening at its trailing end;

an air bleeder male plug formed of a substantially shape-retaining biologically inert material and comprising body means removably secured to the trailing end of the flashback chamber, said male plug having a longitudinal axis and comprising means substantially closing the trailing end opening of the flashback chamber, said closing means comprising a forward closed end portion and sidewall means merging with the forward closed end portion and extending generally rearward in close partial contiguous relation with the trailing end of the flashback chamber, the closing means further comprising transversely directed generally annular flange means disposed entirely beyond said trailing end of said flashback chamber and integrally merging with the trailing end of the sidewall means said annular flange means being disposed within said body means and being transversely spaced from the longitudinal centerline of the male plug, the flange means comprising relatively small generally longitudinally directed port means providing continuous gaseous communication along the side wall means and through the flange means between the flashback chamber and the atmosphere immediately adjacent the trailing end of the flashback chamber, the relation of the body means and flashback chamber being such that a path of least fluid flow resistance from the flashback chamber to the atmosphere exists along said side wall means and through said port means, said small port means having a very small longitudinal dimension for accommodating passage of air to the atmosphere while substantially preventing passage of egress blood through the small opening means.

4,269,187

TAMPON

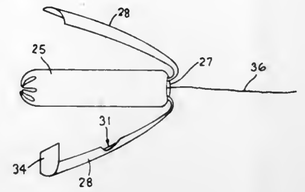
Akira Sakurai, Sakura; Yoshimi Tsuchiya, and Hiroshi Mizutani, both of Yachiyo, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1979, Ser. No. 83,741

Claims priority, application Japan, Nov. 2, 1978, 53/135298

Int. Cl.³ A61F *15/00*

U.S. Cl. 128—263 **3 Claims**



1. A tampon comprising an applicator having an outer cylinder and an absorbent material push-out portion and an absorbing material contained in said applicator, characterized in that the inner diameter of the rear end portion of said outer cylinder is smaller than the inner diameter of the barrel portion of said cylinder and said absorbent material push-out portion has a cavity in the center thereof and comprises a push-out top end contained in said outer cylinder and an inserting supporting piece connected to said push-out top end and folded outwardly from said outer cylinder.

4,269,188

DISPOSABLE DIAPER

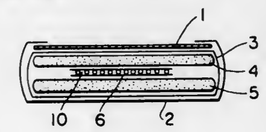
Kazunori Nishizawa, Funabashi; Toshihiro Shirose, Soka, and Osamu Itoh, Funabashi, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Jul. 23, 1979, Ser. No. 59,500

Claims priority, application Japan, Jul. 28, 1978, 53/92196

Int. Cl.³ A41B *13/02*

U.S. Cl. 128—287 **4 Claims**



1. In a disposable diaper comprising a liquid-permeable top sheet, a liquid-impermeable bottom sheet, an upper layer of fluff pulp disposed between said top and bottom sheets and being located adjacent said top sheet, a lower layer of fluff pulp disposed between said top and bottom sheets and being located adjacent said bottom sheet, and a water-absorbing sheet disposed between said upper fluff pulp layer and said lower fluff pulp layer, said water-absorbing sheet being made of upper and lower plies having particles of water-absorbing polymer confined therebetween, said upper and lower plies being located adjacent said upper fluff pulp layer and said lower fluff pulp layer, respectively, said upper and lower plies both having a multitude of slits therethrough, the improvement which comprises: said lower ply is made of a low wet strength paper and said upper ply is made of a high wet strength paper so that urine can permeate relatively freely from said upper fluff pulp layer through the slits into said lower fluff pulp layer and permeation of urine in a direction from said lower fluff pulp layer toward said upper fluff pulp layer is inhibited.

4,269,189

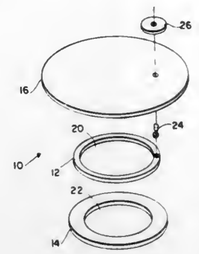
SKIN CONDUCTING ELECTRODE ASSEMBLY

William W. Abraham, New Hartford, N.Y., assignor to Consolidated Medical Equipment Inc., Utica, N.Y.

Filed Jul. 9, 1979, Ser. No. 55,811

Int. Cl.³ A61B *17/39*

U.S. Cl. 128—303.13 **7 Claims**



1. A skin conducting electrode assembly for use on a patient comprising in combination,

an electrode comprising a thin conductive plate containing a wholly enclosed interior aperture therein defined by an inner edge of the electrode, the shapes of both the outer edge of the electrode and the inner edge of the electrode being rounded;

means for making an electrical connection to said electrode;

an adhesive pad in adhesive contact with one said of said electrode;

a gel pad in contact with the other side of the electrode and extending slightly beyond the inner and outer edges of the electrode so as to prevent direct contact by the electrode with the skin of a patient, said gel pad including a wholly enclosed interior aperture, said adheisve pad extending beyond the outer edge of said gel pad around the entire periphery thereto and extending over the interior aperture in the gel pad, said interior aperture in said gel pad corresponding in shape to the shape of the interior aperture of the electrode, and being of a size such as to ensure that when the electrode assembly is placed in contact with a patient's skin, said adhesive pad seals the electrode assembly both around the the periphery thereof and within said interior aperture of said gel pad to maintain said electrode assembly in firm contact with the skin of the patient.

4,269,190

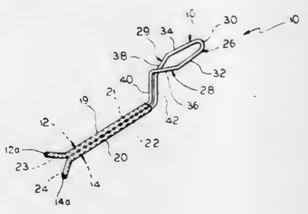
METHOD OF AND CLAMP FOR APPLYING PRESSURE TO A SKIN REGION

Charles A. Behney, Box 4337, Bisbee, Ariz. 85603

Filed Jul. 23, 1979, Ser. No. 59,504

Int. Cl.³ A61B *17/08*

U.S. Cl. 128—325 **7 Claims**



4. A skin clamp which comprises: a length of spring wire bent to form a pair of clamping arms extending forwardly from a manipulating handle, each of said arms having a rearwardly disposed elongated clamping portion and a forwardly disposed

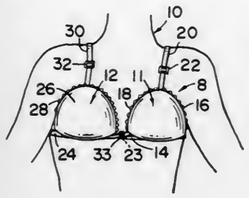
relatively short guiding portion, said clamping portions lying adjacent to each other along their length in a plane for clamping a skin fold between them, said guiding portions extending forwardly from said clamping portions and outwardly from the plane of the clamping portions to one side of such plane, said guiding portions diverging forwardly for guiding a skin fold between the clamping portions, said handle including a bight portion connected to the rear ends of respective clamping portions, whereby the clamping portions are resiliently biased towards each other along their length.

4,269,191

MASTECTOMY BRA

Annette Evans, 16 Lightsey La., Lutz, Fla. 33549

Filed Jul. 16, 1979, Ser. No. 57,846
Int. Cl.³ A41G *3/00*
U.S. Cl. 128—488 **5 Claims**



1. A bra specifically adapted for a female having a single breast, comprising in combination:
a left bra element comprising:
a left bra cup specifically designed for receiving the left breast of the female or a prosthesis,
a left chest band secured to said left bra cup for encircling the chest of the female,
a left shoulder strap secured between said left bra cup and said left chest band for extending across the left shoulder of the female for supporting said left bra cup,
a right bra element comprising;
a right bra cup specifically designed for receiving the right breast of the female or a prosthesis,
a right chest band secured to said right bra cup for encircling the chest of the female,
a right shoulder strap secured between said right bra cup and said right chest band for extending across the right shoulder of the female for supporting said right bra cup,
a bra clasp disposed in at least one of said left and said right chest bands for removably securing one of said left and said right chest bands about the chest of the female;
said left bra element being independent of said right bra element enabling one of said left or right bra cups to be removed to expose the breast of the female while simultaneously enabling the other of said left or right bra cups to remain in place to cover the prosthesis of the female; and
each of said left and right chest bands being a thin elastic material whereby the plural chest bands extending about the back of the female appear as a single conventional chest band.

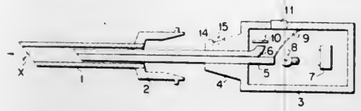
4,269,192

STABBING APPARATUS FOR DIAGNOSIS OF LIVING BODY

Kazumasa Matsuo, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1979, Ser. No. 44,570
Claims priority, application Japan, Dec. 2, 1977, 52-162019
Int. Cl.³ A61B *1/00, 5/00*
U.S. Cl. 128—665 **4 Claims**

1. In a stabbing apparatus for diagnosis of a living body having;
a tubular member having a sharp-edged tip end portion;
a first light guide means inserted in said tubular member and having one end disposed at said tip end portion;
a second light guide means inserted in said tubular member and having one end disposed at said tip end portion;
a light source means applying light to the other end of said first light guide means in order to deliver light through said tip end portion; and
a photosensing means at the other end of said second light guide means for sensing light reflected to said tip end portion; the improvement wherein at least the tip end portions of said first and second light guide means are made of substantially rigid material;
said tubular member has a cylindrical coupler with the inner peripheral surface of the opening thereof tapered and disposed at the opposite end portion to said tip end portion, a case containing said light source means and said photosensing means at the other end side of said first and second light guide means, and a projection on said case having along the outer periphery thereof a tapered surface matching with the tapered surface of said coupler, and penetrated by said first and second light means, whereby said tubular member and said case are coupled with each other by means of the tapered surfaces of said coupler and said projecton engaging each other;



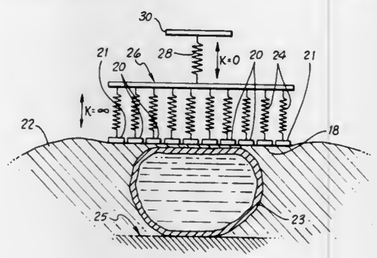
said photosensing means including a photosensitive device disposed at the other end face of said second light guide means, whereby a signal corresponding to the intensity of light emitted from said other end face is delivered, and an indicator device mounted at a given position of said case to indicate the existence of tissue and to reflect light just in front of said tip end portion in accordance with the signal from said photosensitive device.

4,269,193

NONINVASIVE BLOOD PRESSURE MONITORING TRANSDUCER

Joseph S. Eckerle, Redwood City, Calif., assignor to SRI International, Menlo Park, Calif.

Continuation-in-part of Ser. No. 848,754, Nov. 4, 1977, abandoned. This application Nov. 15, 1979, Ser. No. 94,670
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—672 **9 Claims**



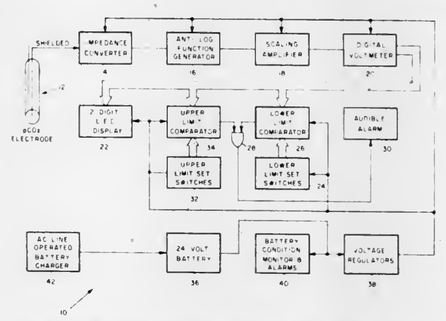
1. A system for the continuous external measurement of blood pressure in an underlying artery including at least one array of individual pressure sensitive elements, each of said individual pressure sensitive elements in said array having at least one dimension smaller than the lumen of the underlying artery in which blood pressure is measured and spaced in such a manner that more than one of said individual pressure sensitive elements is over at least a portion of the underlying artery, each of said pressure sensitive elements being capable of producing a continuous waveform having an amplitude which is a function of blood pressure in an underlying artery, and selecting means to select the one pressure sensitive element that has a local minimum of at least one of the diastolic and systolic pressures from the said individual pressure sensitive elements within substantially one artery diameter of the one of said pressure sensitive elements which generates the waveform of maximum pulse amplitude.

4,269,194

CARBON DIOXIDE MEASUREMENT FROM EXPIRED GASES IN A PARTIAL REBREATHING ANESTHESIA CIRCUIT

Robert L. Rayburn, 12522 La Manana, San Antonio, Tex. 78233; Robert L. Watson, 4019 Bentway, San Antonio, Tex. 78217; Charles R. Elbel, 632 Ogden La., San Antonio, Tex. 78209, and Karl W. Schweickardt, 12914 Cima Linda, San Antonio, Tex. 78233

Continuation of Ser. No. 876,997, Feb. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 840,400, Oct. 7, 1977, Pat. No. 4,188,946. This application May 17, 1979, Ser. No. 40,056
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—719 **7 Claims**



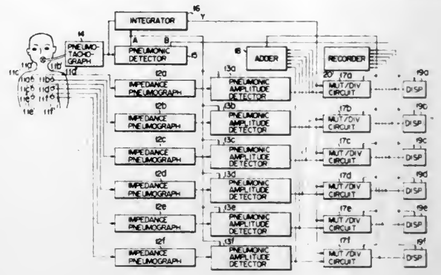
1. A method of determining arterial carbon dioxide tension from mixed expired gases of a patient utilizing a partial rebreathing anesthesia circuit consisting of the following steps:
measuring continuously carbon dioxide tension of said mixed expired gases with an electrode inserted therein, an output of said electrode having a high impedance;
converting said high impedance of said elecrode output in an impedance converter to a lower impedance level;
shielding and isolating said electrode output until conversion to said lower impedance;
generating an antilog function from said lower impedance level of said electrode output;
scaling said anilog function to account for variations between carbon dioxide tension of said mixed expired gases and said arterial carbon dioxide tension, to give a scaled output signal directly related to said arterial carbon dioxide tension, said variations including an arthmetic addition to said antilog function to give said scaled output signal thereby accounting for diffusion, mixing and temperature variations.

4,269,195

APPARATUS FOR MEASURING A PULMONARY FUNCTION

Ayao Itoh, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed May 23, 1979, Ser. No. 41,708
Claims priority, application Japan, May 31, 1978, 53-64290
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—723 **7 Claims**



1. An apparatus for measuring a pulmonary function, comprising:
a plurality of paired electrodes adapted for attachment to locations on a human thorax corresponding to the lungs of a human being, each of said paired electrodes including a current supply electrode element and voltage detection electrode element;
means for measuring impedances at the respective locations of the lungs, said means including a constant current source for supplying a constant current to the current supply electrode of each electrode pair;
detecting means coupled to said voltage detection electrode of each of said paired electrodes for detecting impedance variations indicative of respiratory movement from the impedances at the respective locations of the lungs;
sum calculating means for calculating a sum of the impedance variations detected by said detecting means;
ratio calculating means for calculating a ratio of each of the impedance variations to the sum of the impedance variations which is obtained by said sum calculating means; and
means for determining the pulmonary function using the ratio data obtained by said ratio calculating means.

4,269,196

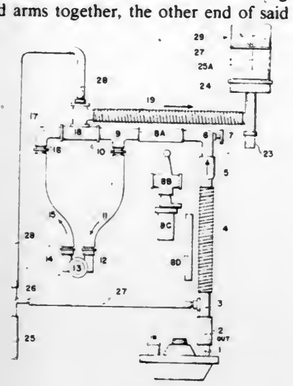
PEDIATRIC TIDAL VOLUME INDICATOR AND VENTILATOR ADAPTATION

Norman D. Toms, P.O. Box 70, Argyle, Manitoba, and Jules O. Legal, 89 Elm Park Rd., Winnipeg, Manitoba, both of Canada

Filed Apr. 3, 1978, Ser. No. 892,838
Claims priority, application United Kingdom, Apr. 5, 1977, 14337/77
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—727 **10 Claims**

1. An improvement in a pediatric tidal volume indicator and ventilator system used therewith comprising in combination, a spirometer, a vertically moving shaft in said spirometer and a read-out amplifier operatively connected to said shaft, selective means operatively connecting said ventilator system to said spirometer, said ventilator system including means to segregate same into a machine system and a patient system whereby, upon inspiration, said spirometer is isolated from said patient system, and upon exhalation, said machine system is isolated from said patient system and said patient system is operatively connected to said spirometer, said means to segregate including a unidirectional check valve between said systems, one side of said unidirectional valve being connected to said machine system, the other side of said unidirectional valve being connected to said patient system, said machine system of

said ventilator system including a source of gas under pressure, and a first exhalation valve assembly operatively connected to said source and to said one side of said unidirectional check valve, said patient system of said ventilator system including a circle tubing component comprising an inspiratory arm and an expiratory arm, an airway bifurcation connecting one end of each of said arms together, the other end of said inspiratory



arm being operatively connected to said other side of said unidirectional check valve, said selective means operatively connecting said ventilator system to said spirometer including a second exhalation valve assembly operatively extending between the other end of said expiratory arm and said spirometer and said second exhalation valve assembly being operatively connected to said source of gas under pressure.

4,269,197

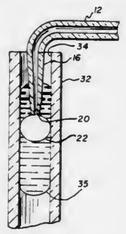
METHOD OF MEASURING TEAR OSMOLARITY AND APPARATUS THEREFOR

Jeffrey P. Gilbard, Box 239, Vanderbilt Hall, 107 Ave. Louis Pasteur, Boston, Mass. 02115

Filed Apr. 5, 1979, Ser. No. 27,373

Int. Cl.³ A61B *10/00*

U.S. Cl. 128—763 **5 Claims**



1. A substantially L-shaped pipette having a continuous bore therethrough, for collection of tear samples comprising:

(a) a stem portion having an internal bore and

(b) a tail portion, oriented generally perpendicular to said stem portion, said tail portion having an internal bore diameter of from about 0.05 mm to about 0.2 mm and an external diameter of from about 0.1 mm to about 0.25 mm wherein the open end of said tail portion is in the part of said tail portion most distant from said stem portion, said tail portion having an internal bore diameter smaller than the internal bore diameter of said stem portion.

4,269,198

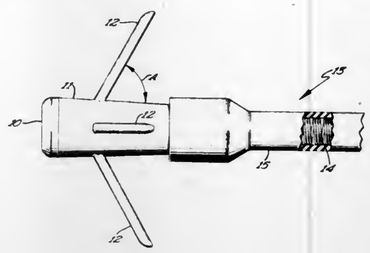
BODY IMPLANTABLE LEAD

Kenneth B. Stokes, Minneapolis, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Dec. 26, 1979, Ser. No. 106,854

Int. Cl.³ A61N *1/04*

U.S. Cl. 128—785 **10 Claims**



1. In a body implantable lead of the type having a lead body, at least one electrode carried by said lead body and tine means extending at an acute angle from said lead body adjacent said electrode, the improvement wherein said lead body has a spring constant of less than 2.0 lb-in./10 in. and said tine means have a stiffness less than 5×10^{-3} lb-in.^{2}, said tines being 2 mm to 6 mm long.

4,269,199

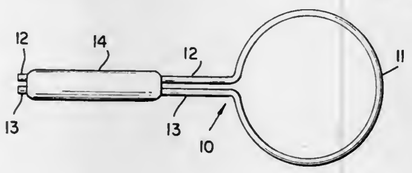
INDUCING LOCAL HYPERTHERMIA BY INDUCTIVE DIATHERMY

David Armitage, Bangor, Wales, assignor to Harry H. Leveen, Charleston, S.C.

Filed Mar. 14, 1979, Ser. No. 20,356

Int. Cl.³ A61N *1/40*

U.S. Cl. 128—804 **5 Claims**



1. A method for inducing local hyperthermia in treating a tumor with short-wave diathermy which comprises positioning an induction coil with the axis thereof transecting a portion of the body containing the tumor while electrically energizing said coil at a radio frequency, and rapidly moving said coil relative to said body through a repetitive path in a direction approximately normal to said axis of said coil such that said axis of said coil constantly transects different portions of said tumor and the normal tissue adjacent said tumor.

4,269,200

FEEDING ARRANGEMENT FOR AN AXIAL FLOW ROTARY COMBINE

Karl G. Gorsler, Zweibrücken, Fed. Rep. of Germany, assignor to Deere & Company, Moline, Ill.

Filed Jun. 25, 1979, Ser. No. 51,591

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1978, 2830162

Int. Cl.³ A01F *7/06, 12/10*

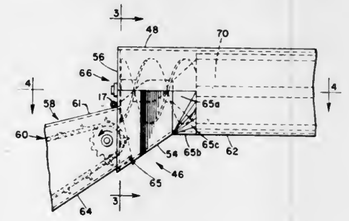
U.S. Cl. 130—27 T **6 Claims**

1. In a combine harvester having a generally fore-and-aft and horizontally disposed axial flow rotary separator including a threshing portion in which a rotor is rotatably mounted and

surrounded by a generally cylindrical separator housing, the rotor having upstream threshing and downstream separating portions and cooperating with the housing to thresh and separate crop material received at the threshing portion of the separator while conveying the material in a spiral path downstream in an annular space between the rotor and the separator housing, the combine also including a forward mounted header including a gatherer for removing crop material from a field as the harvester advances, an improved feeding arrangement for transferring crop material from the gatherer to the threshing portion of the separator comprising:

a rotor infeed portion coaxial and rotatable with the separator rotor and including outwardly extending helically extending conveying elements disposed upstream of the rotor threshing portion and having an outside diameter approximately equal to that of the rotor threshing portion;

a feeder house included in the header and including a chain and slat conveyor having a lower conveying run moving rearwardly and upwardly and a return run above it, the feeder house being wider than the separator and including opposite upright side walls and a rearwardly and upwardly sloping floor parallel to and spaced below the conveying run of the conveyor, the space between the



floor and the conveying run comprising a conveying channel having an inlet in a receiving relationship with the gatherer and an outlet disposed below and adjacent the upstream end of the infeed rotor portion; and

a transition housing having a bottom wall sloping rearwardly and upwardly from adjacent the outlet of the conveying channel to meet the cylindrical separator housing adjacent the upstream end of the rotor threshing portion, a pair of opposite generally upright side walls, each wall extending from adjacent an opposite side wall of the feeder house and converging rearwardly and inwardly to meet the cylindrical separator housing adjacent the upstream end of the threshing portion of the rotor, a top wall which continues the line of the cylindrical separator housing parallel to the rotor axis and a forward transverse wall closely adjacent the forward end of the rotor infeed portion so that in operation crop material discharged from the outlet of the conveying channel is guided rearwardly and upwardly by the bottom wall and at the same time converged inwardly by the opposite side walls to be engaged by a lower portion of the rotor infeed portion and conveyed rearwardly into the threshing portion of the separator.

4,269,201

CIGARETTE WEIGHT CONTROL SYSTEMS

Gordon F. W. Powell; Reginald C. Bolt, and Albert Simmons, all of London, England, assignors to Molins Limited, Great Britain

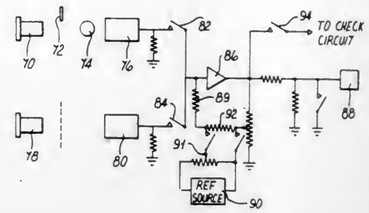
Filed Mar. 27, 1978, Ser. No. 890,816

Claims priority, application United Kingdom, Mar. 31, 1977, 13741/77

Int. Cl.³ A24C *5/32, 5/34*

U.S. Cl. 131—280 **11 Claims**

1. A cigarette weight control system for a continuous-rod cigarette-making machine having a rod guide, said system including a radiation source and a radiation detector positioned on mutually-opposite sides of said rod-guide, shutter means including a shutter for covering the radiation source when no rod or other beta-ray absorbing member is present in the guide, and a test circuit comprising control means connected to the said shutter means for selectively opening the shutter when no rod is present in the guide, signal level detection means con-



nected to the signal output of the radiation detector for producing a test signal representing the radiation level of radiation passing through the guide in the absence of the rod or other beta-ray absorbing member, and means for actuating a warning device if the signal level of said signal is outside of a predetermined range.

4,269,202

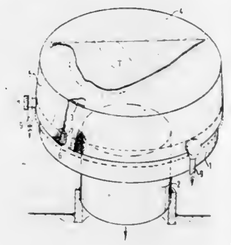
METHOD AND DEVICE FOR STRETCHING TOBACCO LEAVES OR PORTIONS THEREOF

Wilhelmus P. L. Boogers, Eindhoven, Netherlands, assignor to Arenco P.M.B. B.V., Best, Netherlands

Filed Apr. 19, 1978, Ser. No. 897,862

Int. Cl.³ A24B *3/00, 3/16, 3/18*

U.S. Cl. 131—290 **9 Claims**



1. A method of stretching a tobacco leaf or portions thereof characterized by the deposition of each tobacco leaf on an omnidirectionally elastic carrier, by exerting a pressure on the leaf on the side remote from the carrier and by subsequently applying adequate tensile stress around the leaf in the plane of the carrier in order to stretch the leaf omnidirectionally by an excessive extension of the carrier.

4,269,203

ANTI-SMOKING DEVICE

Lacey O. Corbett, 208 Sandwich St., Plymouth, Mass. 02630

Filed Feb. 15, 1980, Ser. No. 121,719

Int. Cl.³ A24F *47/00*

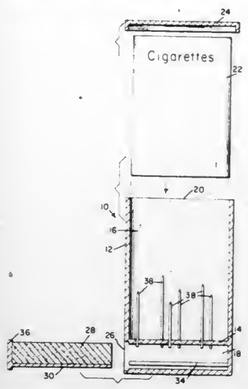
U.S. Cl. 131—270 **12 Claims**

1. A device for use with a package of cigarettes to discourage the user from smoking, comprising:

(a) a hollow carrying case, having an opening at the top,

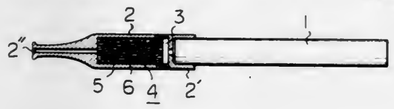
(b) a partition dividing the interior of the carrying case into an upper chamber for receiving a package of cigarettes through said opening so that the bottom of the package rests against the partition, and a lower chamber containing an unpleasant odiferous substance,

(c) a plurality of hollow needles extending from the lower chambers into the upper chamber, the needles being arranged to penetrate at least some of the cigarettes in the cigarette package as said package is inserted into the



upper chamber, the upper and lower ends of each needle having an opening, whereby said odiferous substance is allowed to pass from the lower chamber into each cigarette penetrated by a needle.

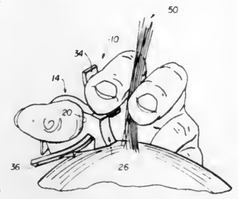
4,269,204
CIGARETTE FILTER
Takeyoshi Yamaguchi, 20-24, Tsurumaki 5-chome, Setagaya-ku, Tokyo 154, Japan
Filed Aug. 10, 1979, Ser. No. 65,533
Claims priority, application Japan, Oct. 13, 1978, 53-125083
Int. Cl.³ A24B *15/00*
U.S. Cl. 131—341 **8 Claims**



1. A cigaret filter comprising dry and active green algae in the form of chlorella incorporated in a columnar carrier of porous material for trapping toxic substances in cigaret smoke while allowing said smoke to pass through the carrier, said chlorella being of an amount in the range of about 20 to 50 mg. for said carrier of 8×20 mm.

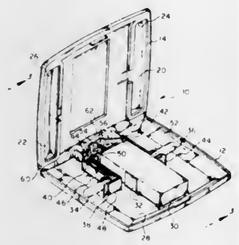
4,269,205
THUMB HAIR GAUGE
Carl A. Clark, and Kathleen J. Clark, both of 701 Broadway, #2, Galveston, Tex. 77550
Filed Oct. 18, 1979, Ser. No. 85,946
Int. Cl.³ A45D *24/36*
U.S. Cl. 132—45 R **7 Claims**

1. A hand-held hair gauge comprising:
support means adopted to fit around the thumb of a user, said support means having a portion engageable with the scalp of a user and an adjustable ring member for receiving a thumb therein,
index finger saddle means movably mounted on said support means, and



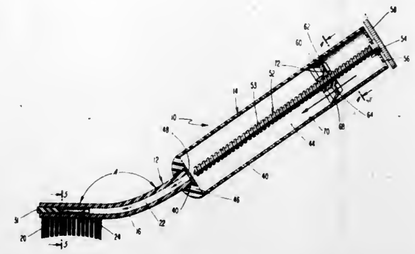
means for releasably retaining said saddle means in a selected position relative to said support means.

4,269,206
LIGHTED HAND MIRROR
Raymond Boyd, 2235 Cambridge Rd., Broomall, Pa. 19008
Filed Aug. 29, 1979, Ser. No. 70,916
Int. Cl.³ B65D *1/34*
U.S. Cl. 132—79 F **7 Claims**



1. A lighted hand mirror comprising:
a shallow bottom case member;
a shallow cover member having a configuration complementary to the peripheral configuration of said bottom case member;
hinge means joining said bottom case member and said cover member, so that said bottom member and said cover member are movable between an open position and a closed position;
a mirror carried by said cover member;
light diffusing means positioned on said cover member adjacent said mirror;
a battery positioned within said bottom case member;
electrically operated illuminating means within said bottom case member and being positioned so as to lie behind said light diffusing means when said bottom case member and said cover member are in said closed position;
switch means within said bottom case member and including movable actuator means;
circuit means electrically interconnecting said battery, said illuminating means and said switch means;
a cam element, axially aligned with, and pivotally mounted on part of, said hinge means, and including a cam surface adapted to engage said actuator means for alternately moving the same between an off position and an on position when said cam element is pivoted, and
a tab means extending from said cam element externally of said bottom case member and said cover member for manually pivoting said cam element.

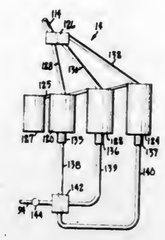
4,269,207
COMBINED TOOTHBRUSH-TOOTHPASTE CONTAINER
Czeslaw Konrad, and Janina Konrad, both of 2687 Neibel, Hamtramck, Mich. 48212
Filed Dec. 27, 1979, Ser. No. 107,642
Int. Cl.³ A45D *44/18*
U.S. Cl. 132—84 B **7 Claims**



1. A disposable toothpaste container for use with a toothbrush of the type comprising a stem, a bristle-carrying head formed integrally of plastic with said stem, a channel extending through said stem and head and opening into the region of said bristles by means of at least one outlet opening in said head, and a manually actuable valve rotatably mounted in said channel with said at least one outlet opening, said valve being frictionally held within the channel such that the valve is easily removable from a forward end of the channel, said container comprising:
a plastic cylindrical housing forming a toothpaste-containing chamber therein, said housing being connectable with said stem and including an outlet aperture at a front thereof,
a threaded pin extending generally axially within said chamber,
a piston threadedly connected to said pin and disposed in contact with an inner wall of said housing between the toothpaste and a rear wall of said housing, said piston comprises a flat rigid disk portion and a sealing edge disposed along the peripheral edge of said disk and inclined toward said front end of said housing, said edge being tapered toward said inner wall of said housing,
a rotary wall located externally of said housing adjacent said rear wall and connected to said threaded pin such that rotation of said wheel produces axial displacement of said piston to express toothpaste through said outlet aperture, and
a removable plug disposed within said outlet aperture.

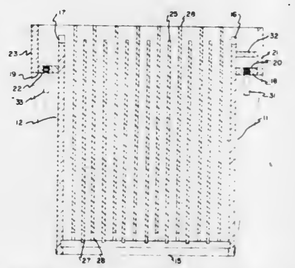
4,269,208
ELECTROPLATING APPARATUS
Dale J. Koering, 1697 Laurel Ave., Saint Paul, Minn. 55104
Division of Ser. No. 937,060, Aug., 1978, Pat. No. 4,192,331.
This application Sep. 17, 1979, Ser. No. 76,361
Int. Cl.³ B08B *3/04*
U.S. Cl. 134—60 **3 Claims**

1. An apparatus for concentrating contaminants contained in a rinse discharge, from a shower rinse with work support means, flowing through a discharge outlet conduit, which comprises:
(a) a plurality of tanks including a first and a last tank;
(b) first valve means in the discharge conduit for splitting the rinse discharge from a first rinsing operation into a plurality of separate time segmented rinse discharge portions
(c) first channeling means for channeling each of said separate rinse discharge portions from said first valve means to a different one of said tanks in a sequential manner from the first to the last tank;
(d) second channeling means for channeling said rinse discharge portions out of said tanks;
(e) second valve means having a plurality of inlets and an outlet, each of said inlets communicating with one of said second channeling means, and said outlet communicating with said shower rinse;
(f) means for pumping said rinse discharge portions through said second channeling means and said second valve means to said shower rinse; and



(g) control means for activating said pumping means and said second valve means in accordance with the operation of said first valve means such that said tanks are sequentially connected, from the first to the last tank, with said shower rinse in a feedback arrangement in subsequent rinsing operations so that said tanks have the concentration of contaminants in said rinse discharge therein increased in said subsequent rinsing operations.

4,269,209
SERIAL FLOW PHOTOGRAPHIC WASHER
Stephen C. Peterson, 3791 S. 1860 E., Salt Lake City, Utah 84106
Filed Jun. 30, 1980, Ser. No. 164,832
Int. Cl.³ B08B *3/04;* **G03D** *3/02*
U.S. Cl. 134—182 **10 Claims**



1. A unit for washing photographic prints comprising:
(a) a pair of interconnected vertical parallel sidewalls and endwalls surrounding and interconnecting a horizontal base defining an enclosed washing tank having an open top,
(b) an inlet manifold horizontally mounted along the upper portion of one sidewall containing water inlet means and situated to pass water over said sidewall into the washing tank,
(c) an efflux manifold horizontally mounted along the upper portion of the opposite sidewall containing water draining means and situated to receive water over said sidewall from said washing tank,
(d) a series of alternating parallel vertical equidistantly spaced underflow and overflow baffles attached to said washing tank between said endwalls and parallel to said sidewalls dividing said washing tank into multiple washing compartments, said baffles being arranged such that the baffles adjacent the sidewalls are underflow baffles said underflow baffles being attached to said endwalls

such that said baffles provide a flow space between the lower portion thereof and the horizontal base, said overflow baffles terminating at the upper portion thereof at a horizontal level below the level of the upper portion of the underflow baffles thereby providing for the serial flow of water from the intake manifold through each compartment and out the efflux manifold.

4,269,210

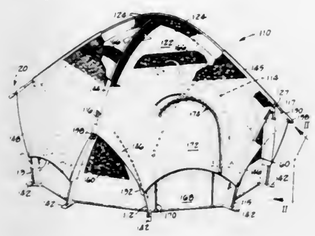
ARCH SUPPORTED TENT

George R. Marks, Richmond, Calif., assignor to Sierra Designs, Inc., Oakland, Calif.

Continuation-in-part of Ser. No. 872,630, Jan. 26, 1978, Pat. No. 4,165,757. This application Apr. 16, 1979, Ser. No. 30,357

Int. Cl.³ A45F *1/16;* **E04B** *1/347*

U.S. Cl. 135—1 R **3 Claims**



1. In combination with a tent having a flexible ridge member and a cover, the cover formed to receive said flexible ridge member in a fabric sleeve, extending from adjacent one edge to adjacent an opposite edge, said cover having grommeted holes formed at the one edge and the other opposite edge both in line with the fabric sleeve; a generally symmetric fitting having an enlarged center portion and formed to be received in said flexible ridge member and further adapted to partially pass into one of said grommeted holes, said generally symmetric fitting having a transverse bore through the enlarged center portion.

4,269,211

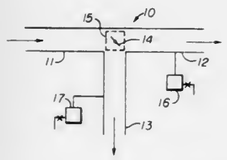
STEAM MANIFOLD DISTRIBUTION SYSTEM FOR PROVIDING EQUAL QUALITY OF STEAM IN TWO LINES

Curtis E. Howard, Porter, and Douglas G. Calvin, Missouri City, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Feb. 5, 1979, Ser. No. 9,196

Int. Cl.³ G05D *11/02, 11/08*

U.S. Cl. 137—2 **15 Claims**



1. A method for equalizing the steam quality in two branch lines of a high pressure steam pipe tee joint with a perforated baffle plate rotatably pivoted in said tee joint comprising the steps of;

(a) dividing the flow of the steam entering the tee joint into said two branch lines,

(b) determining the steam quality in each branch line, and,

(c) rotating said baffle plate in accordance with the determined steam quality in each branch line.

4,269,212

PROCEDURE AND APPARATUS FOR MANIPULATING BATCHES OF LIQUIDS

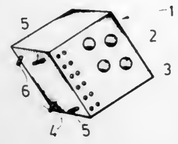
Niilo Kaartinen, Vuolahti, 21620 Kuusisto, Finland

Filed Apr. 9, 1979, Ser. No. 28,510

Claims priority, application Finland, Apr. 10, 1978, 781090; Sep. 14, 1978, 782829

Int. Cl.³ F17D *1/18*

U.S. Cl. 137—13 **12 Claims**



1. An apparatus for the treatment of batches of liquid comprising: a number of storage or treatment chambers, and a network of conduits associated therewith, wherein: said chambers are placed within said network enabling the conduits to provide connections between the chambers and each connection between two chambers comprises at least one valve point communicating with a refrigerator and being formed with a conduit subject to being frozen shut by means of liquid, and said apparatus being further provided with an electrically controllable heating element, whereby the valve is caused to open by raising its temperature to a level higher than the freezing point of the liquid.

9. A process for the treatment of batches of liquid by means of an apparatus constituted by a number of chambers and a network of conduits, the chambers being placed within said network whereby said conduits provide connections between the chambers and each respective connection between two chambers has at least one section connected with a refrigerator and provided with an electrically controllable heating element, each of said respective sections having the function of a regulatable valve, and said process comprises the steps of:

introducing a batch of liquid into a part of said apparatus;

transferring said batch into a selected chamber by regulating the temperature of the valves in the conduits along which the batch is to travel at a level above the freezing point of the liquid and by moving the batch through said conduits into said chamber by means of a pressure difference;

holding the batch in said chamber for storage or treatment by closing at least one of the valves in the conduits in communication with said chamber by means of liquid freezing after the heating element in the valve has been switched off; and

removing said batch from the chamber after the storage or treatment by regulating the temperature of the valves in the conduits along which the batch is to be removed, above the freezing point of the liquid and applying a pressure difference into said conduits.

4,269,213

SAFETY VALVE

Michiaki Sasaki, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 6, 1979, Ser. No. 46,096

Claims priority, application Japan, Aug. 8, 1978, 53-113051[U]

Int. Cl.³ F16K *17/36*

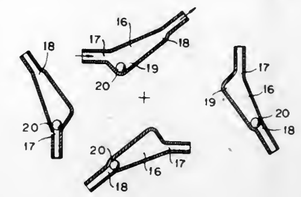
U.S. Cl. 137—38 **6 Claims**

1. An apparatus for interrupting fluid flow therethrough when tilted a predetermined amount from a normal position, said apparatus comprising:

(a) a housing having a valve chamber with a substantially triangular cross section, said housing having an inlet, an outlet and a recess positioned at the respective apexes of said chamber; and

(b) a ball positioned within said chamber and freely movable therein,

wherein said ball remains located essentially within said chamber recess when said apparatus is in its normal position, and wherein said ball relocates against said inlet to block further



fluid flow therethrough when said apparatus is tilted a predetermined amount in one direction from the normal position, and wherein said ball relocates against said outlet to block further fluid flow therethrough when said apparatus is tilted a predetermined amount in another direction from the normal position.

4,269,214

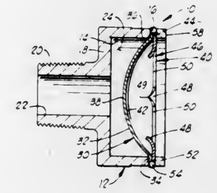
SAFETY PRESSURE RELIEF DEVICE

Calvin C. Forsythe, Tulsa; John L. Strelow, and Miner E. Clift, both of Broken Arrow, all of Okla., assignors to BS & B Safety Systems, Inc., Tulsa, Okla.

Filed Jan. 19, 1979, Ser. No. 4,809

Int. Cl.³ F16K *17/14, 17/40*

U.S. Cl. 137—68 R **10 Claims**



1. A safety pressure relief device for permitting excess pressure to escape from a pressure vessel, said device comprising:

a reverse buckling rupture disk having a concave-convex portion and a radially outer flange portion joined by a curved transition connection;

a casing including:

a first end portion;

a second end portion;

a wall disposed adjacent said second end portion so that an inner cavity is defined within said casing between said first and said second end portions, said radially outer flange of said rupture disk engaging said first end portion with a convex side of said rupture disk adjacent said casing so that said concave-convex portion projects into said inner cavity; and

connecting means projecting axially outward from said wall for engaging the pressure vessel, said connecting means having an axial bore disposed therethrough communicating with said inner cavity so that the pressure in the pressure vessel is communicated to said rupture disk; and

knife means positioned adjacent a concave side of said rupture disk, said knife means including:

a radially outer flange portion supporting said curved transition connection of said rupture disk;

a radially inner opening disposed in said knife means;

first cutting means projecting radially inward into said opening from said outer flange portion of said knife means, said first cutting means including a first substantially triangular shaped tooth;

second cutting means projecting radially inward into said opening from said outer flange portion of said knife means, said second cutting means including a second substantially triangular shaped tooth spaced from said first substantially triangular shaped tooth; and

first and second non-cutting portions, each of said non-cutting portions partially defining said inner opening, said first cutting means being located between said first and second non-cutting portions so that upon reversal of said rupture disk in response to excess pressure in the pressure vessel said first and second cutting means puncture said rupture disk thereby permitting excess pressure to escape from the vessel.

4,269,215

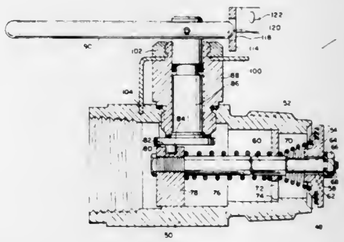
VAPOR FLOW CONTROL VALVE

Larry F. Odar, Northbrook, Ill., assignor to Rego Company, Chicago, Ill.

Filed Oct. 25, 1978, Ser. No. 954,525

Int. Cl.³ F10K *17/28*

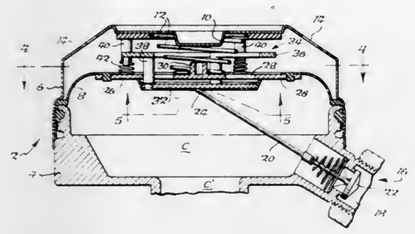
U.S. Cl. 137—75 **1 Claim**



1. In a liquified petroleum gas system, a fluid excess flow check valve comprising a valve body defining a flow compartment and an outwardly facing valve seat; a valve stem reciprocably supported in the valve body and having a first end thereof extending through said valve seat; a valve member slidably supported on the first end of the valve stem for cooperation with said valve seat; a terminal stop element on the first end of said valve stem positioned outwardly of said valve member to engage said valve member and limit movement thereof relative to said valve stem; first biasing means extending between said valve member and said valve body to bias said valve member outwardly from said valve seat against said terminal stop element; second biasing means extending between said valve member and a second end of said valve stem to bias the second end of said valve stem away from said valve seat; a handle external to said valve body which is movable between closed and excess flow responsive open positions, a shaft mounted for rotation on said valve body to rotate between a closed and an excess flow responsive open position for said valve member, the central axis of said shaft being substantially aligned with and perpendicular to the central longitudinal axis of the valve stem, a crank pin projecting from the shaft at the innermost end thereof, said crank pin being offset laterally from the central longitudinal axis of said shaft, and yoke means formed on the second end of said valve stem, said yoke means being provided with a slot which receives said crank pin; said crank pin being substantially aligned with the central longitudinal axis of said valve stem when said valve means is in the closed position and offset laterally from the central longitudinal axis when said shaft is rotated away from the closed position and toward the excess flow responsive open position; and a latch member releasably engaging said handle in the excess flow responsive open position, said latch member pivotally supported by an arm pivotally mounted on a bracket

secured to said valve body, said arm being joined to said latch member by heat responsive means operative to cause said latch member to release said handle when subjected to a temperature in excess of a predetermined temperature, said arm further including pivoted locking bar means to releasably engage said handle in the excess flow responsive open position and actuating means secured to said locking bar and operable to pivot said locking bar on said arm to release said handle.

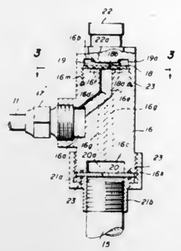
4,269,216
PRESSURE DEMAND VALVE SYSTEM
John L. Sullivan, Fort Erie, Canada; Eugene A. Georgini, Cheektowaga, and Milo R. Simmonds, Williamsville, both of N.Y., assignors to A-T-O Inc., Willoughby, Ohio
Filed Jul. 19, 1978, Ser. No. 926,005
Int. Cl.³ A62B 7/04
U.S. Cl. 137—102 **9 Claims**



1. A combination inhalation demand air regulator and exhalation valve for a respiration mask including:
(a) a body and a cover defining a cavity, said body being apertured to communicate with the mask interior and said cover being vented to atmosphere,
(b) a diaphragm disposed across said cavity defining with said body an air chamber and with said cover an atmosphere chamber, said diaphragm being movable inwardly relative to a neutral position during inhalation and outwardly relative to said neutral position during exhalation, said diaphragm having a portion including at least one aperture for effecting communication between said air chamber and said atmosphere chamber,
(c) means responsive to the position of said diaphragm inward of said neutral position to regulate air flow from a supply line into said air chamber, and
(d) means responsive to the position of said diaphragm outward of said neutral position to effect communication through said diaphragm aperture to said air chamber with said atmosphere chamber to exhaust said air chamber to atmosphere comprising a valve seat, means for holding said valve seat on said diaphragm in a manner permitting said valve seat to close said diaphragm aperture and permitting independent relative movement between said diaphragm and valve seat during exhalation and means for limiting movement of said valve seat relative to said diaphragm whereby during exhalation, said valve seat and diaphragm are moved together with said valve seat closing said diaphragm aperture to a point where further movement of said valve seat is prevented and said diaphragm is moved away from said valve seat to open said aperture to exhaust said air chamber to atmosphere.

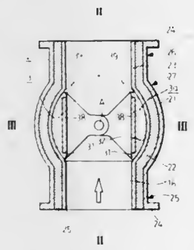
4,269,217
SEPARATOR VALVE
James P. Flanagan, P.O. Box 245, and Jack L. Carter, P.O. Box 464, both of Hooker, Okla. 73945
Filed Oct. 1, 1979, Ser. No. 80,223
Int. Cl.³ F16T 1/00
U.S. Cl. 137—183 **5 Claims**

1. In natural gas field operations, a valve for separating out liquid from the gas comprising in combination a body portion with inlet chamber, head chamber and outlet chamber, said valve including a passage of smaller dimension extending upwardly from said inlet chamber to said head chamber; a plurality of unobstructed downwardly-extending outlet passages from said head chamber to said outlet chamber; a circumferential groove about said inlet passage, communicating with said plurality of downwardly-extending outlet passages; a floating



disc positioned within said head chamber for sealing off communication between said upwardly-extending passage and said circumferential groove, said disc being smaller than chamber and having a radial groove and at least one circumferential groove on the underside of the same; a spring seated within said head chamber and acting downwardly and eccentrically on said disc; and an outlet fitting with restricted orifice therein communicating with said outlet chamber.

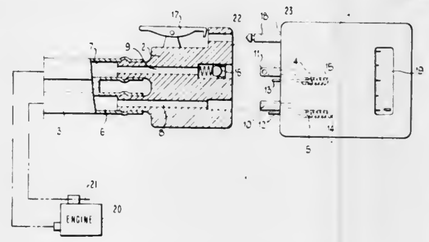
4,269,218
ROTARY VALVE
Hisashi Sudo, Neyagawa, Japan, assignor to Kubota Ltd., Osaka, Japan
Continuation of Ser. No. 848,769, Nov. 4, 1977. This application Jul. 30, 1979, Ser. No. 62,051
Int. Cl.³ F16K 5/04; F16L 58/08
U.S. Cl. 137—240 **2 Claims**



1. A rotary valve, including a valve case having a fluid passage and a valve element disposed in the fluid passage and operative to control the degree of opening of the passage, comprising:
side walls removably attached to the valve case, a pair of valve plates turnably disposed on the opposite sides of the fluid passage in opposed relation to each other and constituting the valve element, each of the valve plates being provided at its opposite ends with support arms extending toward the fluid passage, and drive means mounted on an outer side of the valve case and coupled to the valve plates for causing the valve plates to perform a symmetric circular motion, said drive means comprising a pair of rotary shafts, each of said rotary shafts being formed with a channel extending centrally therethrough and having one end open to a boss of a respective rotatably and slidably supported arm and the other end open to a peripheral surface of the shaft outside the wall, the outer opening

being covered with closing means communicating with one of a pressure air source or steam source, said shafts being rotatably supported on a valve case, side walls extending coaxially toward the fluid passage at right angles to the center axis of the fluid passage, one support arm of each valve plate being coupled to an outer portion of a respective one of the drive shafts and the other support arm of each valve plate being rotatably and slidably supported on an inner portion of the opposing rotary shaft of the other side respectively side-by-side with the coupled support arm of the opposing valve plate.

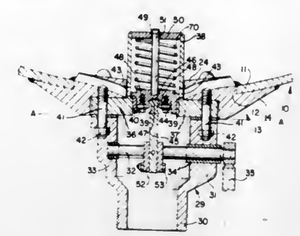
4,269,219
FITTINGS FOR RELEASABLY INTERCONNECTING A FUEL TANK WITH AN INTERNAL COMBUSTION ENGINE
Helge Dybvig, Strömsdalen 22, 4600 Kristiansand S, Norway
Filed Apr. 11, 1979, Ser. No. 28,992
Claims priority, application Norway, Apr. 17, 1978, 781326
Int. Cl.³ F16L 37/28
U.S. Cl. 137—322 **1 Claim**



1. In a coupling for releasably interconnecting a fuel tank with an internal combustion engine, comprising a hose fitting having a fuel passage opening into an end wall of said fitting, hose means on said fitting including a fuel conduit in communication with said fuel passage for connection with the engine, an air and fuel valve fitting having air vent and fuel passages respectively communicating with air and fuel within the tank, spring biased valves in said fuel passage and in said air vent passage of said air and fuel valve fitting, a depressible fuel valve stem and a depressible air vent valve stem respectively on said valves of said fuel and air valve fitting extending outwardly thereof, said valves being unseated respectively by said stems upon a coupling together of said fittings, the improvement wherein said hose fitting is provided with an air vent passage opening into said end wall, said hose means including an air vent conduit terminating at a location remote from said fittings, an air vent nipple extending from one of said fittings as an extension of said air passage thereof, said air vent nipple extending into the air vent passage of the other fitting upon a coupling together of said fittings, said air vent valve stem extending from said air and fuel valve fitting a greater distance than the extent of said fuel valve stem therefrom for opening said air vent passages earlier than said fuel passages upon the coupling together of said fittings, whereby any elevated pressure within the tank is vented prior to the opening of said fuel passages, such pressure being vented through both said fittings and through said air vent conduit to thereby avoid any escape of fuel gas from the tank into the immediate vicinity thereof.

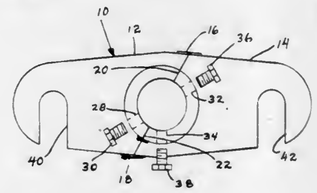
4,269,220
TANK VALVE MOUNTING ARRANGEMENT
Richard E. Rehbein, Valparaiso, Ind., assignor to Pullman Incorporated, Chicago, Ill.
Filed Sep. 12, 1979, Ser. No. 74,584
Int. Cl.³ F16K 27/03
U.S. Cl. 137—350 **11 Claims**

1. In a lading valve assembly for a tank car having a shell with a bottom cut-out opening, the improvement of a valve mounting arrangement comprising:
a valve mounting flange member having a one-piece body including vertical opening means,
said body including an outer portion disposed over and closing said cut-out opening,
means connecting said body to said tank shell to seal said cut-out opening,



said outer portion having an outer surface tapering downwardly from said shell and inwardly toward said vertical opening means, and
said body having a raised portion extending into said shell with radial tunnel means therein communicating with the tank and said vertical opening means.

4,269,221
VALVE STEM LOCK
Harold R. Adams, Rte. 1, St. Francisville, Ill. 62460
Filed Aug. 1, 1979, Ser. No. 62,710
Int. Cl.³ F16K 35/00
U.S. Cl. 137—383 **7 Claims**

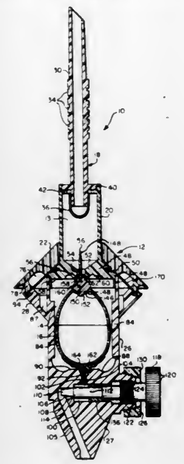


1. A valve stem lock for use with valves having an exposed valve stem situated between a pair of elongated yoke elements, said device comprising a member having a pair of rigid hinged sections having semi-circular valve stem engaging means, said sections being pivotally movable about a first axis from an open position to a closed position surrounding said valve stem, said valve stem engaging means having a second axis parallel to and spaced axially from said first axis, said member being provided with a plurality of radially moveable locking means mounted in semi-circular hub portions provided on each of said hinged sections coaxially with said second axis adapted to engage the valve stem in binding relation and means for engaging said member with the yoke elements, said sections being provided with arcuate slots receivable in said yoke elements and means provided for locking said sections together in the valve stem surrounding position.

4,269,222
CONSTANT FLOW DEVICE
Yoram Palti, 51 Ruth St., Haifa, Israel
Filed Mar. 27, 1979, Ser. No. 24,389
Int. Cl.³ F16K 21/18, 31/18
U.S. Cl. 137—391 **13 Claims**

1. In a device for regulating the flow of liquid through a liquid line communicating with a reservoir disposed thereabove, said device being of the type comprising: walls defining

a closed chamber having a top wall, a bottom wall spaced below said top wall, and a side wall extending between said top and bottom walls, said top wall defining an opening for introducing liquid from said reservoir to said chamber and said bottom wall defining an opening for discharging liquid therefrom; a float disposed in said chamber for vertical movement therein between an upper position and a lower position; said walls having an air vent in the upper portion thereof in spaced relation with said float in its range of movement between said upper and lower positions; upper valve means connected to said float for closing said top opening when said float is in said upper position and lower valve means connected to said float for closing said bottom opening when said float is in said lower



position; and means disposed beneath said bottom for regulating the flow of liquid through said bottom opening; wherein the improvement comprises:

said float being substantially egg-shaped and disposed in said chamber with its thickened end in confronting relation with said bottom wall to minimize the accumulation of air bubbles on the lower portion of said float and its narrowed end in confronting relation with said top wall to minimize the accumulation of liquid on the upper portion of said float; and

said upper valve means being configured to minimize the accumulation of liquid thereon and said lower valve means being configured to minimize the accumulation of air bubble thereon.

4,269,223

RESETTABLE PNEUMATIC OVERRUN CONTROL VALVE

Raymond D. Carter, Bryan, and Allen L. Clark, Pioneer, both of Ohio, assignors to The Aro Corporation, Bryan, Ohio

Filed Apr. 14, 1980, Ser. No. 139,852

Int. Cl.³ F16K *17/00*

U.S. Cl. 137—460 **10 Claims**

1. An improved resettable pneumatic overrun control valve comprising, in combination:

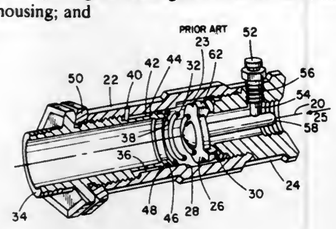
an air line housing having a throughbore with an inlet and an outlet;

a seat in the throughbore upstream from the outlet;

a valve member for closing the throughbore by cooperative engagement with the seat when translated toward the outlet, said valve member including a stem projecting in the throughbore;

biasing means intermediate the valve member and the housing for biasing the valve member toward the inlet;

means for adjusting the biasing force on the valve member in the housing; and



means projecting through the housing for engaging the stem to pivot the valve member from the seat and breaking the seal of the valve member on the seat.

4,269,224

COMBINED FLUID LOGIC CONTROL DEVICE

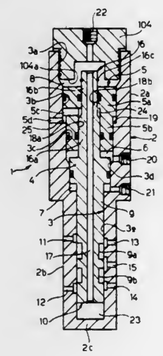
Giulio Dotti, Turin; Antonino Bertone, Sant'Antonino, and Bruno Roggero, Cinaglio, all of Italy, assignors to Centro Ricerche Fiat S.p.A., Orbassano, Italy

Filed Jul. 3, 1979, Ser. No. 54,512

Claims priority, application Italy, Jul. 12, 1978, 68646 A/78

Int. Cl.³ F15B *13/06*

U.S. Cl. 137—596.15 **10 Claims**



1. In a fluid control device for the selective control of at least one group of three movable members each displaceable between a first working position and a second working position, and each having a rest position intermediate between the first and second working positions, the improvement wherein:

(a) said fluid control device comprises, for each group of three movable members, a group of three control units, each control unit being intended to control a respective movable member,

(b) each control unit comprises a fixed body provided internally with a cylindrical cavity closed at its ends, a first piston element rigidly connected with the movable member controlled by the said control unit and a second piston element; the said two piston elements being slidably mounted within the cavity of the fixed body in such a way as to define three principal chambers within the said cavity;

a first principal chamber lying between the two piston elements,

a second principal chamber adjacent only the first piston element, and

a third principal chamber adjacent only the second piston element;

each control unit being moreover provided with a first, a second and a third feed inlet, respectively communicating with the first, the second and the third principal chamber to provide seven different feed conditions,

(c) the two piston elements of each control unit are formed in such a way that each control unit controls, in a first active operating condition. corresponding to one of said seven different feed conditions of fluid under pressure to one or more of the three feed inlets, a displacement of the respective movable member towards its first working position, and, in a second active operating condition, corresponding to another of said seven different feed conditions, a displacement of the respective movable member towards its second working position; each hydraulic control unit being operable to maintain the respective movable member in its rest position in the passive operating conditions corresponding to the other five different feed conditions of fluid under pressure to the three feed inlets,

(d) each group of three control units is provided with a first, a second and a third feed duct, each of which is connected both to the first feed inlet of one of the three units of the group of three and to the second feed inlet of another unit of the group of three and to the third feed inlet of the remaining unit of the group of three; each feed inlet of each control unit being connected only to one of the said three feed ducts,

(e) there are provided control means to control the feeding of a fluid under pressure coming from a feed source to each of the three feed ducts of each group of three control units the said control means being operable to allow the feeding of fluid under pressure to, or the discharge of fluid under pressure from, each of the three feed ducts of each group of three control units.

4,269,225

SAFETY VALVE ASSEMBLY

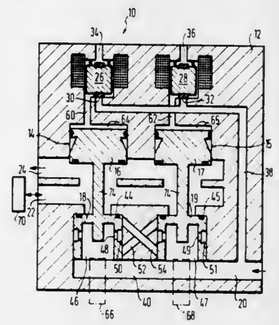
Erich Ruchser, Kernen, and Helmut Ott, Stuttgart, both of Fed. Rep. of Germany, assignors to Technomatic AG, Aesch/Luzern, Switzerland

Filed Dec. 14, 1978, Ser. No. 969,482

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1977, 2756240; Mar. 16, 1978, 2811374

Int. Cl.³ F15B *13/043, 20/00*

U.S. Cl. 137—596.16 **14 Claims**



1. A safety valve assembly for pressurized-medium operated devices, particularly for use in clutch and brake arrangements of presses, comprising a housing having a supply inlet, a consumer outlet and a return outlet, said housing being formed with two separate chambers defining two first valve seats and two crosswise positioned non-intersecting passages for connecting said chambers to each other, each of said chambers having a supply side and a discharge side, each of said intersecting passages extending from the supply side of one chamber to the discharge side of the other chamber to a point located upstream of a respective one of said first valve seats; two valves operating in parallel with one another and each having a working piston and a valve member connected thereto, said valve members being guided within said chambers up to said first valve seats and each formed with a central recess, each of said recesses being associated with said supply inlet and operatively connected with respective ones of said non-intersecting passages, each of said valve members further including an annular passage and a transverse bore connected to each other and arranged to operatively communicate each of said central recesses with respective ones of said non-intersecting passages; and means for controlling the operation of said valves to thereby establish or interrupt the communication between said inlet and said outlets selectively.

4,269,226

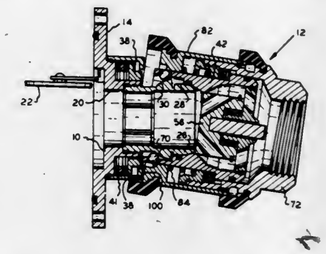
UNIVERSAL BREAKAWAY COUPLING

Alan R. Allread, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.

Filed Dec. 17, 1979, Ser. No. 104,659

Int. Cl.³ F16L *37/28, 37/18*

U.S. Cl. 137—614 **11 Claims**



1. A breakaway fluid coupling characterized by its ability to operate under angular misalignment conditions in all directions relative to an axis, comprising, in combination, male and female coupling parts each defining a fluid passage coincident with said axis when coupled and each including conduit system attachment means, an axially extending annular projection defined on said male coupling part defining a portion of said male part passage, an exterior spherical sealing surface concentrically defined on said projection, an inner spherical surface recess defined in said female coupling part sealingly receiving said projection spherical surface permitting pivoting of said coupling parts relative to each other, connectable first and second locking means defined upon one of said coupling parts, one of said locking means being shiftable upon said one of said parts between locking and release positions, the other of said locking means comprising a plurality of detents radially movable upon their associated part between locking and release positions as determined by the position of said the other locking means, and operating means defined upon one of said parts shifting said one locking means from its locking position to its release position upon the axial misalignment of said coupling parts due to relative pivoting exceeding a predetermined angular extent.

4,269,227

VALVE APPARATUS

Tatsuo Araki, Tokyo; Yasuo Okamoto; Fumio Ohtomo, both of Yokohama, and Hiroto Atsumi, Tokyo, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 14, 1978, Ser. No. 969,700

Claims priority, application Japan, Dec. 21, 1977, 52-152858

Int. Cl.³ F16K *1/12*

U.S. Cl. 137—630.14 **4 Claims**

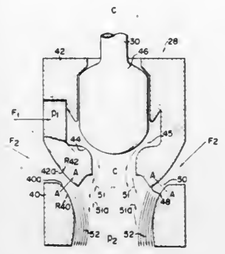
1. A valve apparatus comprising:

a valve housing having a fluid path therein;

a main valve seat provided at an intermediate position of said fluid path and having a circular through hole in which an inner curvilinear line obtained when the inner circumfer-

ential curved surface of the seat defining said through hole is cut at a longitudinal cross-section including the central axis of said through hole, is convex toward said central axis and has an arcuate curvilinear line portion with a radius;

a main valve body having a valve seat side adapted to be moved forwardly along said central axis relative to said main valve seat and into contact with the seat to close said fluid path and having a first portion formed at the forward end portion of the valve seat side of the valve body such that it is coaxial with said through hole, said first portion being entirely comprised by a convex, outer peripheral



curved surface for closing said fluid path, and a second portion having a conical surface at that forward portion of the valve seat side merging with said convex surface of said first portion, a sharp edge portion being formed between said convex surface of said first portion and said second portion, the apex of said conical surface being rearward of said sharp edge, in which an outer peripheral curvilinear line of said first portion obtained when said first portion is cut at said longitudinal cross-section has an arcuately curved line with a radius smaller than that of said valve seat; and

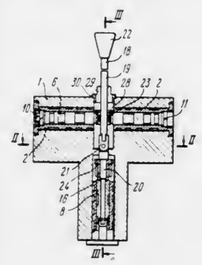
means for moving said main valve body into engagement, and out of engagement with said main valve seat.

4,269,228

DEVICE FOR CONTROLLING HYDRAULIC MOTORS

Viktor M. Salomatin, Kastanaevskaya ulitsa, 44, kv. 58, Moscow, U.S.S.R.

Filed Oct. 24, 1978, Ser. No. 954,211
Int. Cl.³ F16K *11/18*; G05G *9/00*
U.S. Cl. 137—636 **1 Claim**



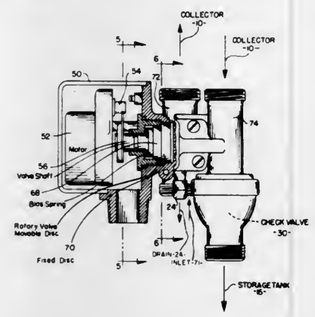
1. A device for controlling hydraulic motors, comprising: a housing; a plurality of distributors disposed in said housing, said distributors being substantially formed as spring-opposed hydraulic directional control spool valves; an actuating member means to shift said spool valves; said actuating member means being disposed in said housing and defined by two articulately interlinked levers pivotal with respect to each other, reciprocatingly mounted and rotatably disposed around their own longitudinal axis; said control spool valves including first and second spool valves, said first and second spool valves respectively provided with gear racks, one of said racks attached to said first spool valve and including a pinion disposed between said racks and one of said spool valves arranged coaxially while the other spool valve is substantially in parallelism with the longitudinal axis of said levers; reciprocation of said levers reciprocating said first and second spool valves relative to said housing at least two other spool valves referred to as the third and fourth spool valves, said third and fourth spool valves being disposed at an angle with the longitudinal axis of said levers; one of said levers being provided with a knob and a ring which is adapted to interact with said third spool valve to reciprocate said third spool valve when said levers are pivoted with respect to each other, whereas, the other lever is connected to said first spool valve and has a pinion associated therewith, said pinion including eccentrically mounted shaft means connected with said fourth spool valve such that rotation of said levers reciprocates said fourth spool valve.

4,269,229

SOLAR HEAT SYSTEM

Myrl J. Saarem; Donald E. Lovelace; Dale C. Firebaugh, and Dale F. Soukup, all of Carson City, Nev., assignors to Richdel, Inc., Carson City, Nev.

Division of Ser. No. 864,719, Dec. 27, 1977, Pat. No. 4,191,166.
This application Mar. 19, 1979, Ser. No. 22,226
Int. Cl.³ F16K *11/14*
U.S. Cl. 137—869 **2 Claims**



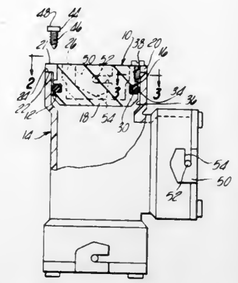
1. A valve module including: a housing; a valve shaft rotatably mounted in said housing; an electric motor coupled to said valve shaft to turn the valve shaft in one direction when the motor is energized; spring means coupled to said valve shaft to turn the valve shaft in the opposite direction when the motor is de-energized; limiting means mounted in said housing for limiting the angular movement of said shaft by said motor and said spring means to a predetermined arc; a first valve mounted in said module and controlled to close when fluid pressure is introduced thereto and to open when the fluid pressure is relieved; and a multiple-port disc valve coupled to said valve shaft to be opened and closed by rotation of said valve shaft through said arc, said disc valve comprising a fixed disc mounted in said housing having a plurality of ports therein, including a drain port, a pressure port, a pair of valve ports, and a further port coupled to said first valve, and a rotary disc mounted in said housing on said valve shaft in facing coaxial engagement with said fixed valve and having first and second passages formed on the surface thereof adjacent to said fixed disc for interconnecting the valve ports to the drain port and the pressure port to said further port when the rotary disc is in a first angular position, and for interconnecting said further port to said drain port and for closing said valve ports and said pressure port in the fixed disc when the rotary disc is turned through said arc to a second angular position.

4,269,230

CLOSURE MEMBER

Kenneth V. Pepper, Davison, Mich., assignor to Genova, Inc., Davison, Mich.

Filed Feb. 26, 1979, Ser. No. 15,332
Int. Cl.³ F16L *55/10*
U.S. Cl. 138—89 **8 Claims**



1. In combination with a tubular plastic pipe having an open axial end with a non-threaded, continuously smooth cylindrical, inner peripheral wall, a plastic closure member for closing the open end of the pipe, said closure member comprising:

a body, said body having a part insertable into the interior of the pipe, the outer periphery of the insertable part having a non-threaded surface area spaced inwardly from the interior of the pipe at least along a portion of the outer periphery of the body insertable part and axially for at least a predetermined distance, wherein said inwardly spaced area is an axially extending channel formed along said outer periphery; and

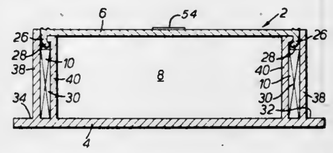
at least one externally threaded member, said threaded member being threadably received between said inwardly spaced surface area and the inner periphery of said pipe, said threaded member being dimensionsed so that its external threads at least partially embed in both said pipe and said body insertable part of said closure member to thereby secure said closure member to said pipe.

4,269,231

BELOW SURFACE DUCTING

George T. Happer, London, England, assignor to Happer Systems Limited, London, England

Filed Jul. 23, 1979, Ser. No. 59,612
Claims priority, application United Kingdom, Jul. 28, 1978, 31520/78
Int. Cl.³ F16L *55/10*
U.S. Cl. 138—92 **9 Claims**



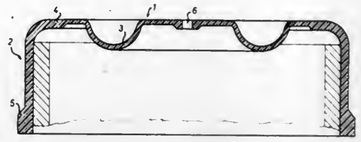
1. Ducting for installing below a surface, which ducting comprises a body portion and a lid, the body portion having a first longitudinal channel, a pair of second longitudinal channels arranged one on each side of the first channel, and at least two separate channel insert members which are a removable fit in the first channel and which are for receiving elongate members, the lid having retainer means for clipping in the second channels, each channel insert member having base and side walls, and the channel members occupying substantially the entire cross-sectional area of the first channel.

4,269,232

PROTECTIVE CAP FOR PIPES

Fritz Witschi, Biel, Switzerland, assignor to Von Roll AG, Switzerland

Filed Mar. 7, 1979, Ser. No. 18,426
Claims priority, application Switzerland, Apr. 10, 1978, 3837/78
Int. Cl.³ B65D *59/06*; F16L *55/10*
U.S. Cl. 138—96 R **5 Claims**



1. In a protective cap which fits over an end of a section of pipe having a generally cylindrical wall portion and a floor portion fixed at and closing one end of said wall portion to define a cup shape therewith, the improvement comprising

said wall portion having a greater thickness then said floor portion and a rim remote from said floor portion;

means for increasing the retaining force of said wall portion comprising an endless circumferential retaining bead at said rim; and

expansion means formed in said floor portion for permitting radial expansion of said floor portion, said expansion means comprising an annular depression of generally semi-circular cross section, said depression being centrally located in said floor portion and concentric with said wall portion and extending from said floor portion in the same direction as said wall portion.

4,269,233

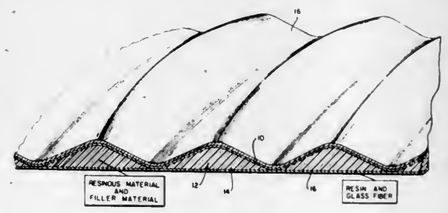
Patent Not Issued For This Number

4,269,234

HIGH STRENGTH PIPE

Doyle F. Johnson, Lawrenceville, and Nelson F. Goetz, Atlanta, both of Ga., assignors to Tri State Culvert Corporation, Clearwater, Fla.

Filed May 18, 1979, Ser. No. 40,116
Int. Cl.³ F16L *11/14*
U.S. Cl. 138—121 **6 Claims**



1. A high strength pipe comprising a corrugated tube of metal defining a series of annular troughs therewithin, a resin-

ous material forming an inner layer on the inner pipe surface and substantially filling said annular troughs, and a top layer of resinous material containing glass fiber and lining the interior of said pipe to form a substantially cylindrical inner surface.

4,269,235

METHOD AND APPARATUS FOR WINDING A PLURALITY OF WINDINGS THAT ARE TO BE COLLECTED IN A STATOR SHEET PACKET

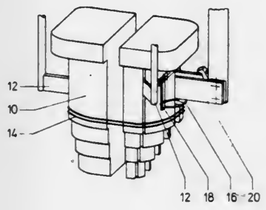
Willi Muskulus, Frankfurt, Fed. Rep. of Germany, assignor to Balzer & Dröll, Niederdorfelden, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,545

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2808050

Int. Cl.³ H02F *15/04*

U.S. Cl. 140—92.1 **15 Claims**



1. In a method of sequentially winding a plurality of windings on a winding form and for transferring the windings sequentially from the winding form to a collecting tool such that the plurality of windings are disposed on the collecting tool for subsequent collection axially through an aperture of a stator sheet packet positioned in adjacency with said collecting tool, the windings being disposed on the collecting tool such that portions thereof are positioned within a peripheral region which is drawn through the stator aperture during collection, the improvement wherein, during the transition from winding one winding on the form and winding the next winding on the form, the winding wire is held clamped, while said one winding is on said form, at a point within said peripheral region of the windings disposed on the collecting tool which is to be drawn through said aperture during subsequent collection.

4,269,236

CONTAINER FILLING DEVICE

Michael T. Fogg, Holland, Mich., assignor to Fogg Filler Company, Holland, Mich.

Filed May 17, 1979, Ser. No. 40,068

Int. Cl.³ B67C *3/26*

U.S. Cl. 141—293 **19 Claims**

1. In a container filling device which comprises

(a) a container closure member;

(b) a filling head projecting downwardly axially through said closure member and having a liquid discharge means for discharging liquid into said container and primary vent means for venting gas from the head space of said container as it is being filled;

(c) first closure means for closing said filling head and simultaneously closing both said liquid discharge means and said primary vent means;

(d) first resilient means for urging said first closure means to a closed position;

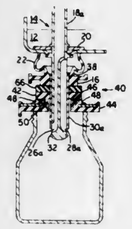
(e) first coupling means between said first closure means and said container closure member operative on upward movement of the latter to compress said first resilient means and to open said first closure means;

(f) secondary vent means for venting said head space when said first closure means is in closed position;

(g) second vent means for closing said secondary vent means;

(h) second resilient means for urging said second vent closure means to open position;

(i) second coupling means for coupling said container closure member and said second vent closure means operative on movement of said container closure member upward to compress said second resilient means and to close said secondary vent means;



(j) said container closure member being an annulus having a sealing surface on its under surface which is adapted to engage the mouth of the container during the filling operation, so that the only access to the interior of said container is through said liquid discharge means and said vent means; the combination in which,

(1) said secondary vent means comprises at least one aperture having its vent end opening in the portion of the upper surface of said container closure member which is exposed to the ambient atmosphere and lies between the central opening and the periphery of the annulus thereof and its inner end opening in a surface of said annular member which is exposed to the atmosphere confined in the head space of the container;

(2) said second vent closure means comprises a second annular member surrounding said filling head and spaced above said first annular member and held away therefrom by said second resilient means except when the latter is compressed;

(3) and said annular members have an island of surface-to-surface contact surrounding each said vent end opening.

4,269,237

SUMP OIL DRAINING AND COLLECTING DEVICE

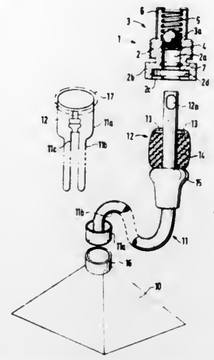
Jürgen Berger, Rheingaustr. 115, 6200 Wiesbaden, Fed. Rep. of Germany

Filed Dec. 7, 1978, Ser. No. 967,435

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1977, 2754348

Int. Cl.³ B65B *3/04*

U.S. Cl. 141—346 **17 Claims**



1. A device for draining and collecting oil from a motor vehicle oil sump, comprising:

a drain plug having a body provided with an oil outlet passage;

an oil collecting vessel,

a drain hose,

a drain spigot attached to one end of the hose and engageable in the oil outlet passage,

means for sealing the spigot to said body upon its insertion therein;

means for releasably locking the spigot to the body in a position in which the spigot is engaged in said passage, and

means closing said outlet passage, said closure means being engageable by the spigot to open said passage upon insertion of the spigot therein.

4,269,238

TOOTHPASTE EXTRUDER CAPABLE OF CONTROLLING THE SUPPLY AMOUNT

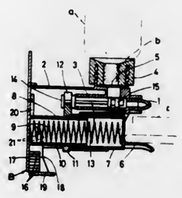
Masahiro Iwamoto, 358 Hiraoka-cho, Sakai-shi Osaka-fu, Japan

Filed Jul. 30, 1979, Ser. No. 61,756

Claims priority, application Japan, Apr. 24, 1979, 54-55539[U]

Int. Cl.³ B65B *3/12*

U.S. Cl. 141—362 **3 Claims**



1. A toothpaste extruder capable of controlling the amount of supply comprising:

(a) a bill-shaped extrusion port made of rubber which is provided on one end of the housing and normally sustained in a blocked state;

(b) a suction valve through which a cylinder integrally formed with the housing communicates with a tube receiver for supporting the neck of a toothpaste tube;

(c) an L-shaped toothbrush receiver abutting the forward end of a toothbrush and supporting the backside of the part of the toothbrush where bristles are planted, said toothbrush receiver having a slide tube formed on the backside thereof;

(d) a guide tube secured to the housing so as to slidably fit into the slide tube of the toothbrush receiver;

(e) an expansion spring provided in the slide tube and the guide tube;

(f) a projection provided in the lower part of the slide tube so as to control the restitution position thereof by engaging with a slide hole formed in the bottom of the housing;

(g) flanges of the slide tube secured to one end of the piston rod so that the slide tube and the piston in the cylinder cooperate with each other; and

(h) a slide controller for controlling the intrusion length of the toothbrush receiver.

4,269,239

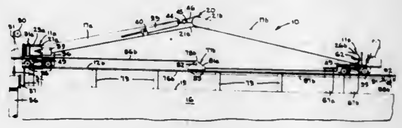
TRAVELING LOADING ARM FOR MARINE TANKERS

Frank P. Haley, Upland, Calif., assignor to FMC Corporation, San Jose, Calif.

Continuation of Ser. No. 950,190, Oct. 10, 1978, abandoned. This application Jun. 15, 1979, Ser. No. 48,915

Int. Cl.³ B65B *3/04*; F17D *1/00*

U.S. Cl. 141—387 **14 Claims**



1. A traveling loading arm for mounting on the deck of a marine tanker for connecting a petroleum transfer hose to manifold ports mounted on said tankr deck, said loading arm comprising:

a pair of lengths of pipe pivotally joined together to form an articulated pipe assembly;

a pair of movable supports for mounting said pipe assembly for movement across said deck of said tanker;

means for connecting each of said supports to a corresponding one of the end portions of said pipe assembly;

guide means mounted on said deck of said tanker for guiding said supports as said supports move across said deck;

means for selectively connecting each end of said pipe assembly to one of said manifold ports;

means for selectively coupling either end of said pipe assembly to said petroleum transfer hose; and

means for pivotally moving said lengths of pipe to position a first end of said pipe assembly relative to a second end of said pipe assembly.

4,269,240

UNIT ADAPTED TO BE COMPLETELY HIDDEN IN THE GROUND AND INTENDED TO BE USED IN AIRCRAFT REFUELLING OPERATIONS

Gaetano Cutore, Via Asmara 33, Rome, Italy

Filed Feb. 14, 1979, Ser. No. 12,123

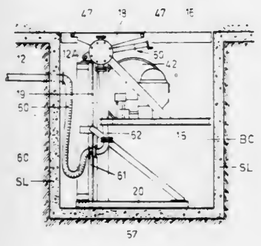
Claims priority, application Italy, Feb. 23, 1978, 48162 A/78

Int. Cl.³ B65B *3/04*; B64F *1/28*

U.S. Cl. 141—392 **3 Claims**

1. An improved unit adapted to be completely hidden in the ground and intended to be used to refuel aircraft with a fuel contained within a tank placed at a distance from said aircraft through an underground delivery pipe-line, said unit essentially comprising: a cavity or pit having the shape of a rectangular parallelepipedon and dug in the ground; a movable rectangular platform carrying all the apparatus, devices, fitters,

accessories, connecting and supplying tubes and control means required to refuel an aircraft; a frame anchored to said platform; a rectangular cover mounted to slide horizontally from a closed position to an open position, said cover being mounted on said frame above said platform and having the same size as the opening of said pit; means for supporting and lifting said platform, received within said pit; means for guiding the vertical movements of said platform, completely received within said pit; and connecting means for connecting an underground pipe-line ending at said pit to a connecting tube carried by said movable platform, the components of said unit being so arranged that said platform can move from an inoperative lowered portion wherein said cover in the closed portion is flush with edges of said pit thus closing completely and hiding said unit placed below the cover, to a completely raised delivery position wherein said platform is at essentially the same level as said edges of said pit once said cover has been moved to the open position thus leaving the unit completely exposed, said platform supporting and lifting means including means enabling the platform to stop in a plurality of partially raised positions even at the slightest elevation needed to extend a refuelling hose, said means enabling the platform to stop providing that said cover can be moved horizontally in coordination with the raising movement whereby the refuelling operation can be performed through the opening thus obtained without lifting said unit to the completely raised position; the means for guiding the vertical movement of the platform comprising: two pairs of vertically arranged hollow guide members identical with each other are arranged at the sides of said



hydraulic unit and aligned therewith and extending between said platform and the bottom of said pit, said hollow guide members being each made from a solid metal sheet and shaped as a prism of an irregular cross-section having a wall, called main wall, bearing a plate at one end and having a central longitudinal slot, extending throughout the remaining length of said main wall, a web integral with said plate, a support element of cylindrical shape mounted at the end of said web and three hermetically closed and self-lubricated ball bearings freely rotating between the branches of three corresponding forks, each radially spaced of 120° from the other and integral with said cylindrical support, said two hollow guide members being placed side by side and one being upside-down in respect to the other, the respective main walls thereof being adjacent and parallel to each other, the web of one of said hollow guide members being received within the slot of said other hollow guide member, so that said three bearings integral with the respective cylindrical support of each of said hollow guide members are received within the cavity of said other hollow guide member and in rolling engagement with three inner walls thereof not adjacent to each other, for relative axial movement of the guide members of each pair; the unit further comprising a safety device adapted to prevent said sliding cover from sliding back to its completely closed position during a refuelling operation, said safety device comprising: spring biassed hang means pivoted so as to rotate from an inoperative lowered position, against the action of said spring means, when the delivery head means is attached thereto, to an operative, safety raised position, where they are biassed by said spring means, whenever said delivery head means is detached from said hang means in order to perform said refuelling operation, and wherein said hang means are in the path of said cover preventing the same from sliding back to its completely closed position.

4,269,241

PROCESS AND APPARATUS FOR SEVERING LIMBS

Lewis Hickman, Montgomery, Ala., assignor to Products for Energy, Inc., Montgomery, Ala.

Filed Jan. 15, 1979, Ser. No. 3,229
Int. Cl.³ F16M *11/04*; B27L *1/00*
U.S. Cl. 144—2 Z **28 Claims**



1. A limb severing apparatus of the type having a vehicle provided with a telescoping boom pivotally mounted by its proximal end portion to the vehicle for rotation of the boom about an upright axis and for pivotal movement of the boom about a transverse axis adjacent to the vertical axis, the distal end of said boom being extendable and retractable, the combination therewith of a limb engaging and cutting assembly mounted on the distal end of said boom, said assembly including:

(a) support means mounted on said distal end of said boom;
(b) a rotatable member carried by said support means and rotatable with respect thereto;
(c) a pair of diverging guide bars extending from said rotatable member and rotatable therewith, portions of said guide bars inwardly of their outer ends defining a throat therebetween for receiving a limb of a tree, therein;
(d) movable means for releasably confining said limb between said portions of said guide bars;
(e) saw means movable from a position adjacent one side of the confined limb to the other side thereof, through said limb for severing the limb from its tree; and
(f) control means for selectively controlling the rotation of said rotatable means, and the movement of said movable means.

4,269,242

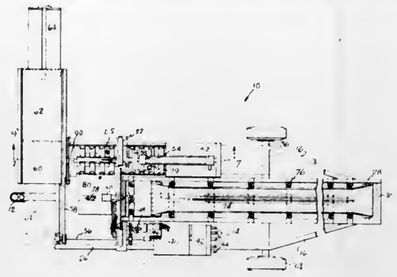
COMBINATION LOG CUTTER, SPLITTER AND BUNDLER

Clark K. Smith, 5406 Wedding Ct., Waldorf, Md. 20601, and Harry W. Staley, 4338 Harney Rd., Taneytown, Md. 21787

Filed Jan. 4, 1978, Ser. No. 866,846
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—192 **9 Claims**

1. A trailer for cutting, spliting and bundling logs of indeterminate length comprising a trailer hitch, a frame network attached to said trailer hitch, a pair of wheels carried on an axle supporting said frame network remote from said trailer hitch,

a first conveyor disposed on said frame network for conveying logs of indeterminate length to a cutting station also disposed on said frame network, a first limit switch disposed on said frame network to stop said log conveyor and actuate a saw defining said cutting station when the log enters said cutting station, a tray disposed on said frame network oriented to receive a log element that has been cut at said cutting station and inclined from a horizontal plane whereby the log element will roll down said tray onto, a second conveyor disposed on said frame network having a second limit switch which senses the presence of said cut log element when the log element rolls thereon, a ram means disposed on said frame network axially



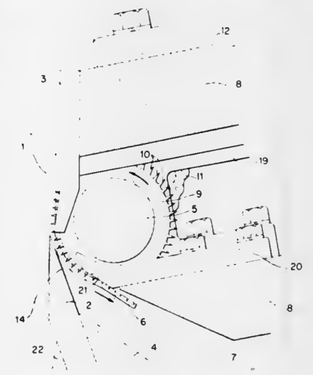
aligned with said second conveyor and said cut log element activated by said second limit switch, splitting means axially aligned with said cut log element opposite from said ram means, whereby said ram means forces said cut log element through said splitting means to provide a plurality of split wood elements, return means to return said ram to its initial position upon splitting said cut log element, and a third conveyor for removing said split, cut wood elements away from said splitting station to bundling means disposed at the terminal point of said conveying means to receive and bundle said split, cut wood elements said bundling means defined by a substantially U-shaped hopper so that the log elements tend to stack uniformly therein.

4,269,243

VENEER LATHE

Katsuji Hasegawa, Ohbu, Japan, assignor to Meinan Machinery Works, Inc., Ohbu, Japan

Filed Jul. 17, 1978, Ser. No. 924,891
Int. Cl.³ B27L *5/02*
U.S. Cl. 144—213 **17 Claims**



1. A veneer lathe comprising:

means for rotatably supporting a log by means of a spindle at its axial ends, and said means being connected to a first drive mechanism for rotating said log;

a knife, having a knife edge, adapted to be oriented in a tangential relation to said log, with said knife edge being substantially near a point of tangency, and extending along the log's axial length;

at least one drive roller provided slightly ahead of said knife edge in a facing relation to said log, and said drive roller being connected to a second drive mechanism;

a plurality of edge members mounted on said drive roller around the outer periphery thereof in a plurality of rows;

pressure means provided on at least one side of each said row for pressing said logs slightly ahead of said knife edge;

means for increasing the speed of revolution of said log supporting means in accordance with a decrease in a log's diameter; and

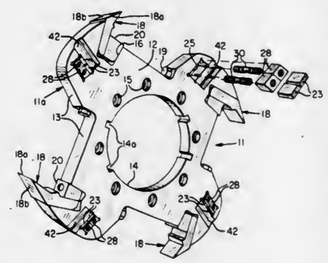
means for feeding the drive roller, the knife, and said pressure means toward said log such that said edge members on said drive roller come into piercing engagement with the log surface slightly ahead of said knife edge to turn said log, and said feeding means being adapted to continue the feed in accordance with the decrease in the log's diameter.

4,269,244

ROTARY CHIPPING HEAD

Phillip W. Kinsella, LaCenter, Wash., assignor to Schurman Machine Works, Inc., Woodland, Wash.

Filed Jul. 13, 1978, Ser. No. 923,929
Int. Cl.³ B27G *13/10*
U.S. Cl. 144—218 **9 Claims**



1. A rotary chipping head for a chipping edger machine for forming a smooth flat face on a wooden workpiece, the chipping head comprising:

a rotary head member having means for mounting said member for rotation about an axis, opposite end faces in planes normal to said axis including a flat workpiece-confronting face extending normal to said axis and a radially outer periphery defining the outer limits of said faces;

chipping means at said outer periphery and next adjacent to said workpiece-confronting face including a small number of chipping knives, each knife having a straight chisel-type chipping edge normal to said face at the radially outer limits of said outer periphery for progressively chipping a thickness of material from a wooden workpiece in a chisel-cutting action in the form of pulp chips as said workpiece moves linearly and non-rotationally relative to said workpiece-confronting face and in the plane of said face, thereby leaving a flattened face on the workpiece;

and planing means on said workpiece-confronting face radially inwardly of said chipping edge for smoothing in a planing action said flattened face formed by said chipping means as said head member rotates progressively removing material from the workpiece;

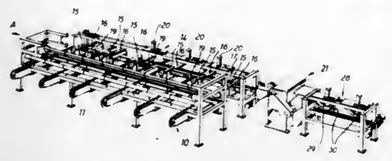
said planing means including one planing means for each chipping knife, each of said planing means having a planing edge substantially parallel to said workpiece-confronting face.

4,269,245

INFEED MECHANISM

Erik G. Fornell, and Hans G. U. Eklund, both of Söderhamn, Sweden, assignors to Kockums Industri Aktiebolag, Sweden

Filed Feb. 21, 1979, Ser. No. 13,631
Claims priority, application Sweden, Feb. 17, 1978, 7801850
Int. Cl.³ B27B *1/00, 31/06*
U.S. Cl. 144—245 A **3 Claims**



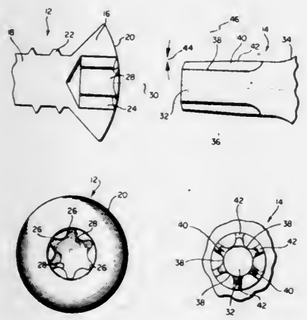
1. Apparatus for feeding waned boards to an edger, comprising:
(a) a cross-conveyor for moving the boards individually in a direction transverse to the length;
(b) automatic means for taking measurements of the boards one at a time while on said cross-conveyor;
(c) a computer connected to said means to store and process the measurements, and being adapted to be programmed to optimize yield;
(d) slide planes disposed adjacent to the discharge end of said cross-conveyor for receiving individual boards therefrom and for supporting each board;
(e) means for centering and side-adjusting each board on said slide planes, and being controlled by said computer in response to the measurements of that board;
(f) a longitudinal conveyor disposed to received boards from said slide planes and to transfer boards to the edger;
(g) means for lowering said slide planes to thereby transfer the board on said slide planes onto said longitudinal conveyor; and
(h) means for maintaining the adjusted orientation of each board as it enters the edger.

4,269,246

FASTENER AND DRIVER ASSEMBLY

Eugene R. Larson, and Walter Harms, both of Rockford, Ill., assignors to Textron Inc., Providence, R.I.

Filed May 10, 1979, Ser. No. 37,689
Int. Cl.³ B25B *15/00*
U.S. Cl. 81—460 **4 Claims**



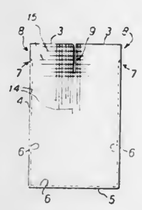
1. A fastener and driver combination comprising: a fastener having a recessed drive socket, said socket including a center axis and being multilobular in cross-section and having an inner surface formed by alternating and smoothly joined flutes and lobes which extend longitudinally, and essentially parallel to said socket center axis; and a driver for imparting rotational torque to said fastener and including a driving head portion having a tip end and a center axis, said driving head portion having an outer surface portion, including a plurality of axially extending flutes and lobes sized for mating engagement with the corresponding flutes and lobes of said drive socket, said driving head portion in cross-section being multi-lobular with the outer surface portion thereof comprising a first set of concaved, longitudinally extending curved surfaces and a second set of longitudinally extending convexed curved surfaces, said first and second sets of curved surfaces alternating and merging smoothly to define said plurality of axially extending flutes and lobes, with the apecies of said convexed curved surfaces defining longitudinally extending crests portions for said lobes, and the apecies of said concaved curved surfaces defining longitudinally extending trough portions for said lobes and only one of said first or second sets of curved surfaces and the crest or trough portions defined thereby being axially parallel to said center axis of said driving head portion, while the other said set of curved surfaces and the crest or trough portions defined thereby being tapered axially, such that said last mentioned tapered crest or trough portions converge in a direction toward said tip end to enable said driving head portion to enter said fastener drive socket to a predetermined depth with interferring engagement being attained only between said axially tapered crest or trough portions and the set of mating surfaces of said socket, thereby to control and insure the desired depth of engagement of said driver head portion in said drive socket while attaining a friction fit between said fastener and said driver which serves to maintain said fastener mounted on the end of said driver.

4,269,247

LARGE SIZE SACK AND METHODS FOR THE FORMATION THEREOF

Bjarne Omdal, Porsgrunn, Norway, assignor to Norsk Hydro a.s., Oslo, Norway

Continuation of Ser. No. 659,185, Feb. 18, 1976, abandoned.
This application Feb. 26, 1979, Ser. No. 15,181
Int. Cl.³ B65D *30/02, 33/06*
U.S. Cl. 150—12 **5 Claims**



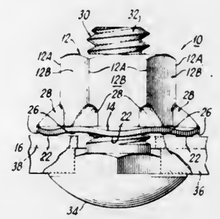
1. A large size sack for the transport, lifting and storage of large quantities of free-flowing bulk materials, said large size sack comprising:
a single piece of woven material formed of woven lengthwise strips and transverse strips;
said single piece of woven material being folded in half along a fold line extending transverse to said lengthwise strips, thus forming a sack top at said fold line and two overlapped sack panels having adjacent sack bottom edges extending parallel to said fold line and parallel adjacent sack side edges extending transverse to said fold line between opposite ends of said bottom edges and said fold line;
said adjacent sack bottom edges being closed to form a closed sack bottom;
said adjacent sack side edges being sewn together from said sack bottom to positions spaced from said fold line to form two sack side seams, said side seams being spaced from said fold line to define therebetween two side openings;
said sack panels having therein, at a location between said side edges thereof, a single longitudinal slit extending perpendicularly from said fold line and parallel to said side edges, said slit forming a sack filling opening;
portions of said sack panels between said slit and said two side openings forming two lifting loops for lifting the sack, said lifting loops comprising unbroken integral elongations of said woven material of said sack panels;
substantially all of said lengthwise strips of said woven material being continuous and unbroken by said slit, such that upon lifting the sack by said lifting loops, the critical stress along said lengthwise strips from said fold line to said sack bottom is evenly distributed among all of said lengthwise strips; and
said woven material having a sufficient size and strength such that the sack can be filled with a quantity of free-flowing bulk material of a weight of from several hundred kilograms to several tons without rupture of said material when the thus filled sack is lifted by said lifting loops.

4,269,248

FASTENER WITH FLEXIBLE FLANGE

Barry L. MacLean, Libertyville, and William L. Grube, Lake Bluff, both of Ill., assignors to MacLean-Fogg Company, Mundelein, Ill.

Filed Apr. 20, 1979, Ser. No. 31,760
Int. Cl.³ F16B *39/28*
U.S. Cl. 411—186 **9 Claims**



1. A threaded fastener for use in a threaded joint and comprising a solid body portion including a wrenching structure and having a workpiece engaging end, a thread structure including a plurality of thread convolutions, flange means at the workpiece engaging end of the body portion, said flange means including a plurality of resilient and flexible flange segments extending both radially and axially outward from the workpiece engaging end of said body portion, said flange being connected throughout its inner periphery to said body portion, and reinforcing means interspersed between said flange segments and cooperating with said body portion to render the radially inner boundary and the lateral boundaries of said flange segments substantially rigid.

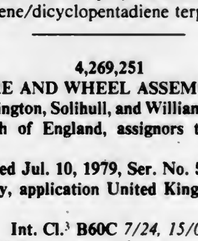
4,269,249

TIRE CHAINS AND A TOOL FOR APPLYING THEM TO A TIRE

William B. McLean, 1711 Hassam Rd., Coraopolis, Pa. 15108

Filed Feb. 27, 1979, Ser. No. 15,665
Int. Cl.³ B60C *27/06*
U.S. Cl. 152—213 A **14 Claims**

1. In a tire chain having an inner side longitudinal chain, an outer side longitudinal chain, a plurality of transverse chains connecting said inner side longitudinal chain and outer side longitudinal chain at intervals and disposing said longitudinal chains in spaced, parallel relation, means for connecting one end of the outer side longitudinal chain to its opposite end, and means for connecting one end of the inner side longitudinal chain to its opposite end, the improvement comprising the combination wherein the means for connecting said ends of the inner side longitudinal chain comprises:
(a) a connecting link attached to one end of the inner side longitudinal chain;
(b) a hook having an elongated shank section attached at one end by means of a ring section to the other end of the inner side longitudinal chain and at its other end to a bight section which first curves away from the shank section, then curves toward the ring section and terminates in a point such that the hook is formed with interior and exterior arcuate surfaces, and such that the point is spaced from the shank section, said hook being further characterized by at least one protuberance on the bight section of the hook adjacent the point; and



(c) means for engaging the hook in said connecting link when they are separated and require tension to bring them into engagement comprising a flexible cord and a terminal link consisting of two parallel, spaced longitudinal bars connected by front and rear transverse bars connected to one end of said flexible cord, said terminal link being passable with the cord through the connecting link and engagable with the bight section of the hook between the point and the protuberance such that as tension is applied to the other end of the cord in the direction of said hook, the connecting link is drawn toward the hook and passes over the terminal link and engages with the bight of the hook.

4,269,250

RUBBER COMPOSITION HAVING IMPROVED ADHESION TO METAL CORD

John G. Harrison, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 781,244, Mar. 25, 1977, abandoned.
This application Apr. 6, 1979, Ser. No. 27,570
Int. Cl.³ B60C *9/02*
U.S. Cl. 152—358 **15 Claims**

1. In a composite vulcanizate of rubber and wire reinforcement therefore, where said rubber contains carbon black and sulfur and where said wire is selected from at least one of brass and brass-plated steel and is optionally woven, the improvements in which (A) said rubber composition comprises about 0.1 to about 10 volume percent polysulfide polymer, based upon the total polymeric content of the rubber composition, and (B) in the preparation of the rubber composition, a portion of the rubber is optionally premixed with said polysulfide polymer prior to mixing with the carbon black; where said rubber is selected from at least one of the group consisting of natural rubber, SBR rubber, polybutadiene, polyisoprene and ethylene/propylene/dicyclopentadiene terpolymer.

4,269,251

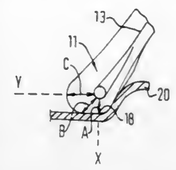
TIRE AND WHEEL ASSEMBLIES

Wilfred H. Harrington, Solihull, and William L. Jackson, Sutton Coldfield, both of England, assignors to Dunlop Limited, England

Filed Jul. 10, 1979, Ser. No. 56,263
Claims priority, application United Kingdom, Jul. 29, 1978, 31657/78
Int. Cl.³ B60C *7/24, 15/00*
U.S. Cl. 152—362 R **19 Claims**

1. A tire and wheel rim assembly, the wheel rim comprising

a pair of bead seats, one at either side of the rim and the tire comprising a pair of beads each containing a substantially inextensible, circumferentially extending bead reinforcement and at least one of the beads having a sector of elastomeric material extending for at least 60° around the reinforcement in a direction axially inwards of the bead from the radial plane containing the axis of the reinforcement, the sector having a construction which, when part of the bead is subjected to a



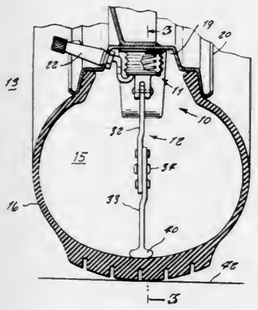
turning moment inward of the rim, generates a substantial radial force between the rim and the bead reinforcement acting outwards on the bead reinforcement and inwards on the rim, but which, when the bead is subjected only to an axial bead displacement force, generates no substantial radial force, said substantial radial force increasing with increasing turning moment of said bead part and serving to retain said at least one bead in place on said rim.

4,269,252

TIRE PRESSURE MAINTENANCE DEVICE

David Shapiro, 555 Greenplace, Woodmere, N.Y. 11598

Filed Jul. 16, 1979, Ser. No. 57,893
Int. Cl.³ B60C *23/12*
U.S. Cl. 152—426 **4 Claims**



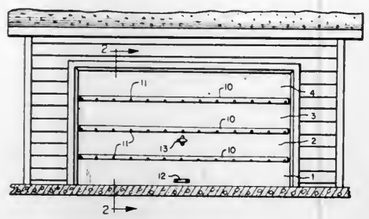
1. A tire pressure maintaining device, comprising in combination an air bellows for positioning within the tire, an air inlet coupled to said air bellows for entry of atmosphere air into said air bellows, an air outlet on said air bellows for exit of air from said bellows into the tire, lever arm means having one end thereof coupled to said air bellows for operation thereof and the other end thereof freely extending to the inner wall of the tire, and biasing means coupled along the mid-section of the lever arm means for bearing said other end of the lever arm means against the inner wall of the tire, said lever arm means comprising a first section comprising said one end thereof and a second end, a second section comprising said other end thereof and a fourth end, and pivot means interconnecting said second and fourth ends of said first and second sections, respectively, said biasing means comprising a spring coupling across said interconnecting ends for urging the sections into substantially colinear position, said spring expanding when the tire goes flat to permit bending of the two sections toward each other, whereby the cyclical deformation of the tire as it rolls causes a reciprocating movement of the air bellows, and wherein said biasing means also facilitates collapsing of said lever arm means in the event of a flat tire to thereby protect the tire and the air bellows.

4,269,253

GARAGE DOOR AND SAFETY GUARD THEREFOR

Robert J. Ziegler, 0058 Maroon Dr., Aspen, Colo. 81611

Filed Jun. 13, 1979, Ser. No. 48,229
Int. Cl.³ E06B *7/16, 7/23*
U.S. Cl. 160—201 **1 Claim**



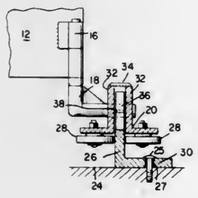
1. A roll-type door such as a garage door having a plurality of horizontally disposed panels hingedly connected together at their adjacent inside edges and being adapted to cooperate with tracks, one on each side, and to slide from verticle closed position to horizontal overhead open position and vice versa, a flexible guard strip attached to the outer face of the lowermost of two hingedly connected panels and extending upwardly to provide an upper edge located above the gap created between the adjacent edges of the hingedly connected panels when the door is moving in a closing direction around curved positions of said tracks, said upper edge being adapted to be grasped by the operator and pulled downwardly to apply a closing force to said door, said guard strip having sufficient strength in the direction of its vertical plane to transmit such applied closing force to said door and a height sufficient to locate its upper edge above the upper edge of its associated panel to provide an effective shield for the gap when formed between the edges of said hingedly connected panels and said guard strip having sufficient transverse flexibility to bend outwardly throughout the portion above its line of attachment to its associated panel to avoid the application of hurtful pressure being exerted on the finger or fingers of the operator when the finger or fingers of the operator are inserted between the upper inside surface of said guard strip and the outside surface of the next above panel during closing movement of said door.

4,269,254

TROLLEY AND TRACK

Francis B. Horton, 7 Pinecrest Dr., Wellington, Kans. 67152

Filed Mar. 5, 1979, Ser. No. 17,117
Int. Cl.³ E05D *15/26*
U.S. Cl. 160—206 **4 Claims**



1. In a closure device of the type comprising a plurality of pairs of hinged panels operative to fold and stack when moved relative to a floor or the like from a closed position to an opened position, an improved bottom trolley and fixed track structure comprising:

(a) a plurality of trolleys, each trolley being individual to a pair of hinged panels;

(b) a track cooperating with all trolleys, said trolleys being operative to align said track automatically prior to fixing said track to said floor; and

(c) means for fixing the track to the floor after said automatic alignment;

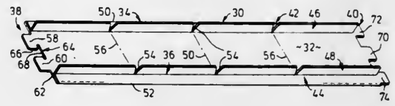
said tracks being formed with a vertical web and the trolley includes a plurality of guide means operative to straddle said vertical web; said trolley being formed with a plurality of bearing roller members in rolling contact with the vertical web operative to support hinged pairs of panels; said trolley comprising a pair of L-shaped members defining a pair of spaced vertical webs and a pair of horizontal webs, said vertical webs being joined by a bridge member.

4,269,255

FIRE DAMPER FRAMES

Michael T. Nailor, 189 Old Yonge St., Willowdale, Ontario, Canada (M2P 1R2), and Andrew J. Hart, 15-33 Four Winds Dr., Downsview, Ontario, Canada (M3J 1K7)

Filed Oct. 23, 1979, Ser. No. 87,611
Int. Cl.³ F23L *13/10*
U.S. Cl. 160—381 **8 Claims**



1. A one piece frame for fire dampers and the like, the frame being of centrally open, generally rectangular shape formed from a folded elongated sheet metal blank which, in its unfolded form, comprises:

(a) a longitudinally extending central web portion of planar form

(b) side edge portions which are longitudinally bent so as to define:

(i) a pair of longitudinally extending marginal regions of double blank thickness for permitting mounting of the frame in an air duct or the like and;

(ii) a pair of longitudinally extending parallel flanges disposed inwardly of said marginal regions and extending perpendicular to and disposed at the same side of the planar web portion, said flanges being divided into sections by V-shaped notches which extend over the entire height of the flange and which are intended to define corners of the completed frame, each section being aligned with sections of the other flange transversely of the blank and extending along a side of the completed frame;

(c) a first end portion including two tabs which extend beyond an outer edge of said web portion and which are shaped to define therebetween an open T-shaped slot having a stem portion and a transverse portion, said transverse portion defining part of said outer edge;

(d) a second end portion including a central tab shaped to fit through and fold over the transverse portion of the T-shaped slot when the frame is in its folded form and adapted to be folded over to retain the frame in said form, and outer tabs adapted to be folded over said outer edge of the web when the frame is in its folded form;

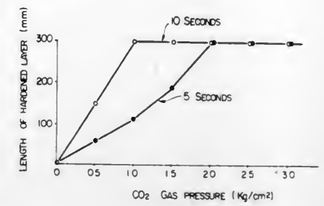
said blank being folded transversely at the positions of said notches with the flanges extending inwardly in forming the frame.

4,269,256

PROCESS FOR PREPARING MOLD

Tetsuo Nakazawa, Shimoinayoshi; Junji Sakai, Minorimachi, and Syogo Morimoto, Matsudo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 893,013, Apr. 3, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 76,229
Claims priority, application Japan, Apr. 4, 1977, 52-37621; Apr. 4, 1977, 52-37622
Int. Cl.³ B22C *1/22, 9/12*
U.S. Cl. 164—16 **8 Claims**



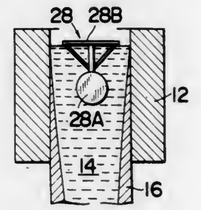
1. A process for perparing a mold by hardening molding materials by CO_2 gas which comprises mixing refractory particles with a binder material comprising a caustic alkali-neutralized product of at least one copolymer selected from the group consisting of α-olefin-maleic anhydride copolymer, styrene-maleic anhydride copolymer, and methylvinyl ether-maleic anhydride copolymer, and calcium hydroxide, thereby preparing molding materials, filling the molding materials around a pattern, and blowing CO_2 gas into the molding materials, thereby hardening the molding materials.

4,269,257

METHOD OF SEQUENTIAL CONTINUOUS-CASTING OF DIFFERENT GRADES OF STEEL

Hideshi Ohzu; Hisashi Ohmori; Mizuo Maeda, and Hiromi Ohtani, all of Okayama, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

Filed Jun. 19, 1979, Ser. No. 49,885
Claims priority, application Japan, Jul. 5, 1978, 53-82246
Int. Cl.³ B22D *11/06*
U.S. Cl. 164—86 **2 Claims**



1. A method of sequential continuous casting wherein continuous casting of a first grade of molten steel is changed over to continuous casting of a second grade of molten steel different in constituent from the first grade of molten steel, comprising the steps of:

stopping the pouring of the first grade of molten steel into a mold;

immersing a cooling material formed of a columnar steel stock with its longitudinal axis parallel to one of the transverse axis of the mold and being circular or polygonal in cross section and equipped with guiding jigs transverse to its longitudinal axis into the substantially center portion of the first grade of molten steel in said mold, the length l and the largest transvere dimension d of said cooling material satisfying the following two formulas for said mold hav-

ing the width of about 1500 mm and the thickness of about 220 mm

Mold width—200 mm<l<Mold width—100 mm

Mold thickness—100 mm<d<Mold thickness—20 mm;

forming around said cooling material a solified layer merging in a solidified shell developed from the wall of said mold; and

pouring the second grade of molten steel into said mold before the surface of the first grade of molten steel above said cooling materials is solidified.

4,269,258

CORE FOR MOLDS FOR ELECTRICALLY MELTING METALS FOR CASTING HOLLOW INGOTS

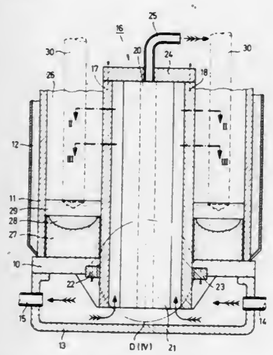
Heinrich Sonntag, Justus-Liebig-Str. 19, 6454 Bruchköbel, and Helmut Wallasch, Sandeldamm 6, 6450 Hanau, both of Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 55,220

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1978, 2831842

Int. Cl.³ B22D *27/02*

U.S. Cl. 164—252 **3 Claims**



1. A mold core for the electrical melting of metals to form hollow ingots, comprising: means forming a longitudinally divided and disassemblable cylindrical wall having outer dimensions corresponding to that of the ingot cavity, the means including at least two partial cylindrical shells and at least two inwardly removable stave-like pressure members each having a radial portion extending between two shells, and abutting same along two contact surfaces, a crossbar bearing from within on the cylinder shells to define with the radial portion a generally T-shaped cross section for each pressure member and gasket means between the crossbar and the inner surface of the shells for providing a liquid-tight seal, thrust tightening means connected between the pressure members for radially moving same and draft tightening means connected between the shells for radially moving same.

4,269,259

PULL-BACK RAM CYLINDER APPARATUS

Toyoaki Ueno, Yamaguchi, and Masashi Uchida, Ube, both of Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

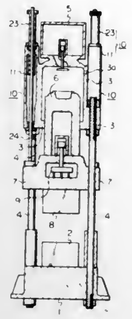
Filed Jun. 25, 1980, Ser. No. 162,772

Claims priority, application Japan, Jul. 26, 1979, 54-94238

Int. Cl.³ B22D *17/26*

U.S. Cl. 164—303 **5 Claims**

1. A pull-back ram cylinder apparatus in combination with a vertical mold clamping machine including a stationary hydraulic cylinder platen having a lower open end for actuating a first ram extending downwardly through the lower open end of said cylinder platen, said first ram being fixed at the lower end thereof to a movable platen for carrying a movable mold, said apparatus comprising: at least a hydraulic cylinder, mounted to said cylinder platen, having upper and lower open ends for actuating a second ram extending upwardly through the upper open end of said cylinder, and; a ram rod extending downwardly from the lower head end of said second ram through the lower open end of said cylinder, the lower portion of said cylinder being restricted to form a throttle portion having an inner diameter slightly larger than the outer diameter of said



second ram, which outer diameter is larger than that of said ram rod, said throttle portion having radial openings for discharging an operation oil, said openings being spaced apart from the neighbouring opening in an axial direction, said spaced openings being communicated with corresponding lines for the operation oil.

4,269,260

PROTECTION ARRANGEMENT FOR PREVENTING DAMAGE AT A CONTINUOUS CASTING PLANT FOR SLABS

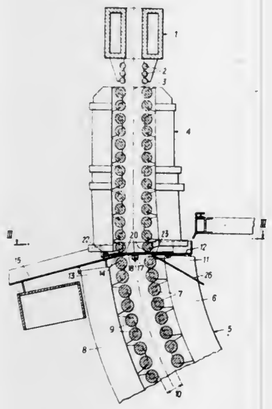
Kurt Engel, Leonding, and Werner Scheurecker, Linz, both of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Apr. 19, 1979, Ser. No. 31,538

Claims priority, application Austria, May 3, 1978, 3198/78

Int. Cl.³ B22D *11/128*

U.S. Cl. 164—442 **4 Claims**



1. In a protection arrangement for preventing damage at a plant for continuously casting a strand having the form of a slab with two broad sides and two narrow sides, in case of a breakthrough of molten metal through the solidified skin of the strand, of the type including a mould, a supporting stand for said strand, and a horizontally disposed collecting system for collecting the molten metal, said collecting system being provided below said mould at said supporting stand and enclosing said strand in the peripheral direction, said collecting system including collecting plate means adapted to be displaced and adjusted relative to the strand skin, the improvement which is characterized in that said collecting plate means include

two separate first collecting plate units allocated to the two broad sides of the strand,

two separate second collecting plate units separate from said first collecting plate units and allocated to the two narrow sides of the strand, said second collecting plate units positioned closely above and overlapping said first collecting plate units,

means for separately connecting each of the two first collecting plate units to said supporting stand, and

adjusting means for displacing said second collecting plate units relative to said strand.

4,269,261

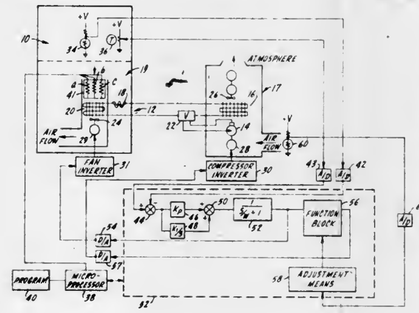
MICROCOMPUTER CONTROL FOR SUPPLEMENTAL HEATING IN A HEAT PUMP

Kenneth J. Kountz, Hoffman Estates, Ill.; Kenneth W. Cooper, York, Pa., and Frederic H. Abendschein, Columbia, Pa., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Sep. 28, 1979, Ser. No. 80,361

Int. Cl.³ F28B *29/00*

U.S. Cl. 165—2 **9 Claims**



9. A method for use in a heat pump and refrigeration system for conditioning a space having a closed refrigerant circuit including a compressor, a condenser, an expansion device, and an evaporator connected respectively in series, said method comprising the steps of:

sensing the actual temperature of a space to be conditioned to generate a signal representative of the measured temperature;

setting a reference temperature of the space to be conditioned to generate a second electrical signal representative of the reference temperature;

sensing the temperature of the outdoor atmosphere to generate a third electrical signal representative of the outdoor atmospheric temperature;

providing a condenser fan motor for driving a condenser fan at its full rated-speed to direct air into the conditoned space;

providing a compressor motor for driving the compressor;

connecting a motor speed control device to the compressor motor for controlling continuously and discretely the speed thereof between a predetermined minimum speed to a maximum predetermined value in excess of its full rated-speed or 100%;

generating a digital signal to drive the motor speed control device in response to the measured temperature, the reference temperature and the outdoor temperature;

allowing the digital signal when the outdoor temperature is below a predetermined set point to cause the motor speed control device to drive the compressor speed to a speed in excess of its rated-speed, up to the maximum predetermined value, to provide initial supplemental heating; and

controlling through a microprocessor having a program the step of generating the digital signal to affect the measured temperature of the conditioned space.

4,269,262

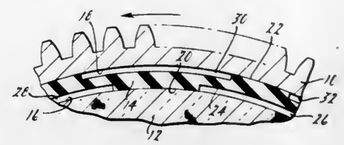
ELASTIC MOUNTING STRUCTURE FOR CERAMIC REGENERATOR CORE

Charles A. Knapp, Grosse Pointe Woods, and V. Durga N. Rao, Bloomfield Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 5, 1979, Ser. No. 17,293

Int. Cl.³ F28D *19/00*

U.S. Cl. 165—8 **4 Claims**



1. A rotary regenerator comprising a cylindrical, ceramic core having axial gas flow passages therein, a metallic ring gear surrounding said core, the inside diameter of said ring gear being greater than the outside diameter of said cylindrical core, said ring gear and said core defining therebetween a circular annular space, and an elastomer drive means between said ring gear and said core in said space and comprising first portions bonded to the inner peripheral surface of said ring gear intermediate but not extending to the axial extremities of the ring gear and second portions bonded to the outer peripheral surface of said core at axially opposite sides of said first portion, said first portions being spaced circumferentially with respect to the second portions, each of said second portions being offset with respect to the adjacent first portion, the surfaces of the elastomer opposite the bond between said gear and said first portions being radially spaced from said core and the surfaces of said elastomer opposite to the bond of said second portions to said core being radially spaced from said ring gear, the elastomer between said first portions and the adjacent second portions being radially spaced from both said ring gear and said core whereby a cushioned, compliant, torque transmitting means is provided between said ring gear and said core.

4,269,263

COOLING AND HEATING SYSTEM UTILIZING SOLAR HEAT

Katsurou Yukimachi, Sakai, and Kouichi Katayama, Minoo, both of Japan, assignors to Osaka Gas Kabushiki Kaisha, Hiranomachi, Japan

Filed Feb. 21, 1979, Ser. No. 13,313

Claims priority, application Japan, Mar. 2, 1978, 53/024751; Sep. 12, 1978, 53/112751

Int. Cl.³ F25B *29/00, 27/00*

U.S. Cl. 165—29 **6 Claims**

1. In a cooling and heating system utilizing solar heat comprising:

a solar heat collector (1),

a heat accumulator (2) for storing fluid heated by solar heat obtained by said solar heat collector (1),

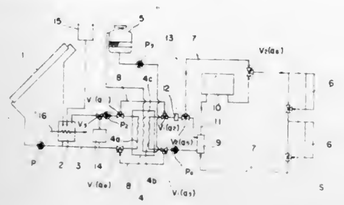
a single-effect absorption type refrigerator (4) connected to said heat accumulator (2) via heated fluid circulating lines (3), and actuated by said heated fluid supplied from said heat accumulator (2) to produce chilled fluid,

at least one air-conditioning unit (6) connected to said single-effect absorption type refrigerator (4) via air-conditioning fluid circulating lines (7), and adapted to cool or heat space (S) to be air-conditioned,

heated fluid bypass lines (**8**) provided between said heated fluid circulating lines (**3**) and said air-conditioning fluid circulating lines (**7**) to bypass said single-effect absorption type refrigerator (**4**), and

change-over valves (V_1) provided at junctions (a_1), (a_2), (a_3), (a_4) of said heated fluid bypass lines (**8**) to said heated fluid circulating lines (**7**), and adapted to selectively changeover between a heating state to supply said heated fluid from said heat accumulator (**2**) directly to said air-conditioning unit (**6**) and a cooling state to supply said heated fluid from said heat accumulator (**2**) to said single-effect absorption type refrigerator (**4**) and supply the chilled fluid generated by the single-effect absorption type refrigerator (**4**) to said air-conditioning unit (**6**),

the improvement comprising:



a further bypass line (**11**) connected in parallel to an intermediate portion of a forward passage of said air-conditioning fluid circulating lines (**7**),

change-over valves (V_2) provided at junctions (a_5), (a_6) of said further bypass line (**11**) to said forward passage of said air-conditioning fluid circulating lines (**7**) and adapted to selectively changeover between a state to bypass and a state not to bypass said heated or chilled fluid from said forward passage of said air-conditioning fluid (**7**) to said further bypass line (**11**), and

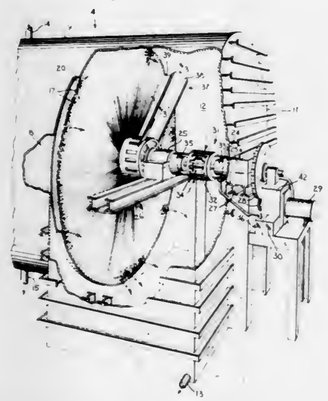
an auxiliary gas-burning double-effect absorption type refrigerator (**10**) provided on an intermediate portion of said further bypass line (**11**) to further heat or chill the heated or chilled fluid supplied from said forward passage of said air-conditioning circulating lines (**7**).

4,269,264

CLEANING OF HEAT EXCHANGER TUBING

Richard W. Goeldner, Neptune Beach, Fla., assignor to Water Services of America, Inc., Milwaukee, Wis.

Filed Jul. 3, 1978, Ser. No. 920,644
Int. Cl.³ F28G *1/02*
U.S. Cl. 165—95 **4 Claims**



1. In a device of the character described:

(a) a heat exchanger housing,

(b) main cooling fluid input and output lines connected to said housing,

(c) fluid supply means operable to provide main cooling fluid flow at a given pressure through said input line and said housing to said output line,

(d) a plurality of tubes disposed within said housing for carrying said main cooling fluid in a downstream direction from said input line to said output line, said tubes having upstream and downstream ends,

(e) cleaning assemblies mounted on the downstream ends of said tubes and with said assemblies including tube cleaning brushes,

(f) means disposed at only one end of said tubes for compartmentalizing said tubes into a plurality of bundles,

(g) a fluid counter-flow cover disposed in facing relationship with a portion of the compartmentalized tube ends,

(h) fluid flow reversal means connected to said cover for reversing the downstream direction of flow of only a part of said main cooling fluid at the downstream tube ends during operation of said fluid supply means and providing a fluid back-flow upstream through said tubes at a pressure greater than said given pressure and against the normal flow of said main cooling fluid to thereby carry said brushes upstream therewith,

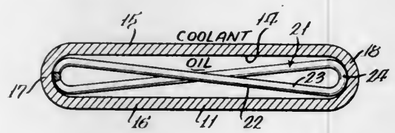
(i) and means to move said cover progressively across the said bundles of tube ends so that a portion of the said brushes is automatically directed upstream with said reverse flow and so that said last-named brushes automatically return downstream with said cooling fluid when said cover passes from over said bundles.

4,269,265

TUBULAR HEAT EXCHANGER WITH TURBULATOR

Robert A. Meyer, and Richard A. Bretl, both of Racine, Wis., assignors to Modine Manufacturing Company, Racine, Wis.

Filed Nov. 29, 1979, Ser. No. 98,707
Int. Cl.³ F28F *13/12*
U.S. Cl. 165—109 T **3 Claims**



1. A tubular heat exchanger for liquids with a turbulator in the tube offering low resistance to internal liquid flow, comprising: a liquid flow tube having an inside surface and transverse minor and major inner dimensions, said major inner dimension being greater than said minor inner dimension; and an elongated internal turbulator comprising a continuous length of heat conducting wire spanning the length of said tube, said wire having successive undulations in contact with said inner surface, said turbulator substantially spanning said tube in said transverse major dimension.

4,269,266

RECUPERATOR TUBE CONSTRUCTION

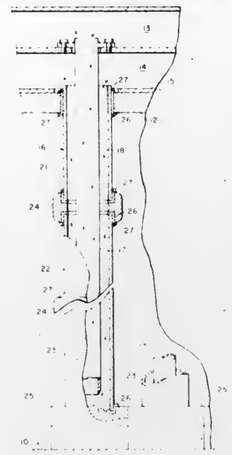
William R. Coates, Jr., Monroeville, and M. William Vance, Export, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Aug. 23, 1979, Ser. No. 69,002
Int. Cl.³ F28D *7/12*
U.S. Cl. 165—142 **4 Claims**

1. In a recuperator which includes a floor and a roof, cold air and hot air chambers above said roof, a plurality of vertically extending outer tubes and respective inner tubes within said outer tubes, said outer tubes being closed at their lower ends and communicating at their upper ends with one of said chambers, said inner tubes being open at both ends and communicating at their upper ends with the other of said chambers, the outside of said outer tubes being subject to exposure to hot waste gases to heat cold air passing through the tubes, the improvement in which:

said outer tubes comprise a plurality of relatively short length sections of ceramic joined end-to-end;

solid base blocks on said floor on which the lowermost of said sections rest to support the weight of the outer tubes;



the uppermost of said sections extending through said roof;

collars encircling the joints between sections; and

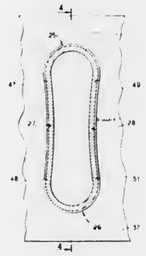
gaskets of ceramic fiber material providing seals where the uppermost section extends through said roof, within said collars, and where the lowermost section contacts said base block.

4,269,267

FIN AND TUBE ASSEMBLY AND A METHOD OF MAKING THE ASSEMBLY

Jean-Paul Labrande, Rambouillet, France, assignor to Societe Anonyme Francaise du Ferodo, France

Filed Aug. 25, 1978, Ser. No. 936,748
Claims priority, application France, Sep. 9, 1977, 77 27358
Int. Cl.³ F28F *1/32*
U.S. Cl. 165—181 **11 Claims**



1. A heat exchanger comprising a plurality of tubes mounted in apertures in a plurality of fins to extend transversely thereto, said apertures being oblong in cross section with relatively small ends and relatively long, convex sides extending into said apertures, said tubes being oblong with relatively small ends and relatively long flanks in cross section, said tube ends being plastically deformed to mate with said small ends of said apertures to cause said tube flanks to be elastically urged against said convex sides of said aperture.

11. A product of a process for forming a heat exchanger, the process comprising

locating a plurality of tubes in apertures in plurality of fins to extend transversely relative thereto, said apertures being oblong in cross section with relatively small ends and relatively long, convex sides extending into said apertures, said tubes being oblong in cross section with relatively small ends and relatively long, parallel flanks in cross section; and

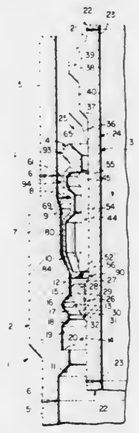
plastically deforming said tube ends to mate with said aperture ends to cause said tube flanks to be elastically urged against said convex sides of said aperture.

4,269,268

HANGER APPARATUS FOR SUSPENDING PIPES WITH POSITIVE RETRIEVAL CAPABILITY

William S. Cowan, West University Place, Tex., assignor to Armco Inc., Middletown, Ohio

Continuation-in-part of Ser. No. 915,829, Jun. 16, 1978, Pat. No. 4,167,970, and Ser. No. 915,830, Jun. 16, 1978, Pat. No. 4,167,971, and Ser. No. 915,902, Jun. 16, 1978, Pat. No. 4,181,331. This application Sep. 17, 1979, Ser. No. 76,185
Int. Cl.³ E21B *43/10, 23/00*
U.S. Cl. 166—208 **16 Claims**



1. In a pipe hanger apparatus of the type comprising an outer hanger body having a transverse annular inwardly opening locking groove; a hanger mandrel dimensioned to pass downwardly within the outer hanger body and having an axially elongated transverse annular recess opening outwardly into the annulus between the mandrel and outer hanger body, there being a transverse annular downwardly facing support surface at the upper end of the mandrel recess; and generally annular lock means disposed in the mandrel recess and comprising a heavier main body portion and a thinner, dependent flexible skirt portion, the main body portion having a transverse annular outer locking rib of a configuration to mate with the locking groove of the outer hanger body, the lock means being resiliently deformable radially, the lock means and the outer hanger body having tapered shoulders which coact as camming surfaces to deform the lock means inwardly as the mandrel and lock means is lifted from the outer hanger body, the improvement comprising

means on the main body portion of the lock means presenting a downwardly facing lifting surface located inwardly of the skirt portion; and

means on the mandrel presenting an upwardly facing lifting surface opposed to the downwardly facing lifting surface of the main body portion of the lock means,

movement of the mandrel upwardly relative to the lock means causing the lifting surface of the mandrel to

engage the lifting surface of the main body portion of the lock means, whereby after the hanger has landed, an upward strain applied to the pipe string being suspended applies a retrieving force directly to the main body portion of the lock means without applying a significant axially directed force to the dependent skirt.

4,269,269

LOCK TAB FOR CENTRALIZER END RING

Donald R. Wilson, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed May 14, 1979, Ser. No. 38,982
Int. Cl.³ E21B *17/10*
U.S. Cl. 166—241 **1 Claim**



1. In a knockdown centralizer of the type having at least two separate end collars with a plurality of openings therein for receiving a plurality of spring bands in non-welded interlocking fulcrumed engagement with said end collars, said spring bands having inwardly projecting lug means attached to opposite end poritions for providing arcuate inner longitudinal interlock surfaces, said end collars having arcuate inner longitudinal surfaces defining opening means for receiving and longitudinally restraining said lug means while allowing rotation between said lug means and said opening means and having an overlying means for partially radially overlying said opening means and radially inwardly restraining said lug means which said opening means, wherein the improvement comprises:

said spring bands having a recess formed in each end therein by inwardly displacing said lug means from a portion of said spring band to form an integrally attached lug means having an integrally attached end and an arcuate shaped free end thereby creating an abutment surface in said spring band and an abutment surface on the free end of said lug means whereby said arcuate shaped free end abuts an arcuate inner longitudinal surface of said opening means in said end collar when said spring band is assembled thereto; and

deformable tab means formed on each said overlying means for partially radially overlying said opening means, said deformable tab means formed having an end surface for abutting said abutment surface of said recess in said spring band when said spring band is assembled to said end collar and said deformable tab means is deformed into said recess in each end of said spring band

whereby longitudinal movement of said spring band with respect to said end collar in a first direction is prevented by said arcuate shaped free end of said lug means abutting a surface of said opening means in said end collar and longitudinal movement of said spring band with respect to said end collar in a second direction is prevented by said end surface of said deformable tab means abutting said abutment surface of said recess in said spring band thereby preventing longitudinal movement of said spring band with respect to said end collar.

4,269,270

SULFOMETHYLATED LIGNOSULFONATES AS ADDITIVES IN OIL RECOVERY PROCESSES INVOLVING CHEMICAL RECOVERY AGENTS

George Kalfoglou, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 901,365, Apr. 28, 1978, Pat. No. 4,172,498, and Ser. No. 745,494, Nov. 26, 1976, abandoned, which is a continuation-in-part of Ser. No. 715,957, Aug. 19, 1976, abandoned, and Ser. No. 591,573, Jun. 30, 1975, abandoned, and Ser. No. 591,574, Jun. 30, 1975, Pat. No. 4,006,779. This application Jul. 5, 1979, Ser. No. 54,773
The portion of the term of this patent subsequent to Oct. 30, 1996, has been disclaimed.
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—273 **4 Claims**

1. A method for recovering oil from a subterranean formation containing oil and having an injection well and a production well wherein aqueous solutions of surfactant and polymer are injected into the subterranean formation wherein the polymer increases the viscosity of the solution comprising:

(a) injecting through the injection well into the formation an aqueous solution of sulfomethylated lignosulfonates,

(b) then injecting into the formation via the injection well an aqueous surfactant solution also containing sulfomethylated lignosulfonates said sulfomethylated lignosulfonates of steps (a) and (b) being present in amounts effective for reducing the extent of adsorption of surfactant and polymer by the formation matrix,

(c) subsequently injecting into the formation via the injection well an aqueous solution of polymer wherein the polymer increases the viscosity of the solution and

(d) producing oil from the formation via the production well.

4,269,271

EMULSION OIL RECOVERY PROCESS USABLE IN HIGH TEMPERATURE, HIGH SALINITY FORMATIONS

Russell D. Shupe, Ponca City, Okla., and Jim Maddox, Jr., Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed May 1, 1978, Ser. No. 901,388
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—274 **14 Claims**

1. A method for recovering petroleum from a subterranean, permeable, petroleum-containing formation penetrated by at least one injection well and by at least one spaced-apart production well, both wells being in fluid communication with the formation, the temperature of the formation being from about 70° F. to about 300° F., said formation containing water having a salinity from 30,000 to 220,000 parts per million total dissolved solids, comprising:

(1) injecting into the formation via the injection well a phase-stable surfactant-containig emulsion comprising a continuous, saline, aqueous phase and a dispersed hydrocarbon phase, the surfactant comprising:

(a) from 0.05 to 10.0 percent by weight of a water soluble alkylpolyalkoxyalkylene sulfonate or alkylarylpolyalkoxyalkylene sulfonate having the following formula:

$$RO(R'O)_xR''SO_3^-M^+$$

wherein R is an alkyl or alkylaryl group, linear or branched having from 8 to 24 carbon atoms in the alkyl chain, R′ is ethylene or a mixture of ethylene and propylene having relatively more ethylene than propylene, x is a number from 1 to 20, R″ is ethylene, propylene, hydroxypropylene or butylene, and M^+ is a monovalent cation; and

(b) from 0.1 to 5.0 percent by weight of a low HLB, water insoluble nonionic surfactant having the following formula:

$$R'''O(CH_2CH_2O)_yH$$

wherein R‴ has the same meaning as R and y is a number from 1 to 10;

(c) said aqueous phase having a salinity from about 45 to 95percent of the formation water salinity;

(2) thereafter injecting brine into the formation to displace the emulsion through the formation, the salinity of the brine being initially as great as the salinity of the aqueous phase of the emulsion and is decreased to a salinity value less than the salinity of the aqueous phase of the emulsion during the time period during which the brine is injected, said emulsion and brine displacing petroleum through the formation to the production well; and

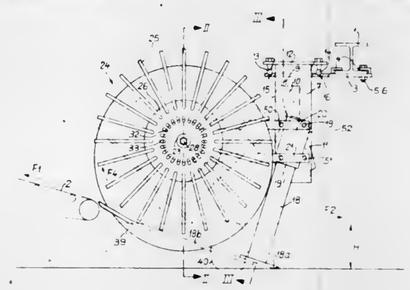
(3) recovering petroleum displaced by the emulsion and brine from the formation via the production well.

4,269,272

MACHINE FOR PULLING ENDIVES AND OTHER TAP ROOTS

Dominique Cornu, 1411 Chaneaz, Switzerland

PCT No. PCT/CH78/00028, § 371 Date Jun. 5, 1979, § 102(e) Date Jun. 5, 1979, PCT Pub. No. WO79/00191, PCT Pub. Date Apr. 19, 1979
This PCT application filed Jun. 5, 1979, Ser. No. 45,690
Claims priority, application Switzerland, Oct. 7, 1977, 12284/77
Int. Cl.³ A01D *19/10, 25/04*
U.S. Cl. 171—116 **16 Claims**



1. A mobile machine for uprooting endives and other tap roots, comprising a frame, an uprooting plowshare carried by said frame, a rotatable disc spaced transversely from said plowshare and located rearwardly of the plowshare in the direction of movement of the machine, a rotatable spoked wheel located along side said disc, motor means for driving said spoked wheel at a speed different from that of said disc and a tangential speed greater than the travelling speed of the machine, at least one of said discs and said spoked wheel being inclined in relation to the vertical to form a V, said disc and spoked wheel cooperating to lift and free from dirt said roots uprooted by said plowshare, and conveying means receiving said roots from said disc and spoked wheel.

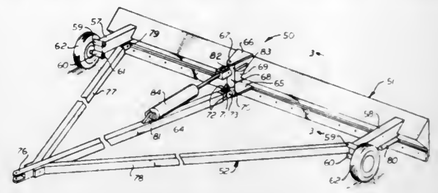
4,269,273

LAND SURFACING APPARATUS

Hume W. Colville, Murray St., Barham, New South Wales, Australia

Filed Jun. 26, 1979, Ser. No. 52,284
Int. Cl.³ A01B *63/16, 63/111*
U.S. Cl. 172—397 **7 Claims**

1. Land surfacing apparatus, comprising an elongate blade and a towing structure which includes a tow connection portion spaced laterally of the blade from a central part of the blade for connection to a tow vehicle and which is connected to the blade such that the blade can be towed with its longitudinal dimension transverse to the tow direction while biased by its own weight into engagement with the ground with a longitudinal edge thereof serving as a soil scraping edge and a leading face extending upwardly from the scraping edge; said towing structure being pivoted to said blade about a side to side axis of the apparatus generally parallel to said blade and positioned forwardly of said blade in said tow direction, an extensible link being provided between said tow structure and said blade and operable by variation of the effective length thereof to vary the angular relationship, about said axis, between the tow structure and blade thus in use to vary the angle of the blade to the ground; said blade being provided with ground wheels disposed at locations inboard of opposite ends of the blade, said ground wheels being arranged for rotation



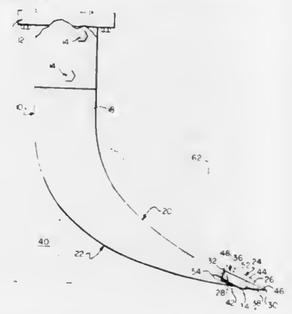
about a common axis forward, in said tow direction, of the blade, and positioned so as to be clear of the ground during normal land surfacing operation of the apparatus but such that by operation of said extensible link, the angular relationship between the tow structure and blade can be varied to a relationship at which said wheels are brought into contact with the ground to lift said blade from the ground.

4,269,274

STREAMLINED WEAR-RESISTANT DEEP TILLAGE TOOL

Forrest E. Robertson, and Donald E. Williams, both of Garden City, Kans., assignors to Acra Plant, Inc., Garden City, Kans.

Filed Jun. 11, 1979, Ser. No. 47,202
Int. Cl.³ A01B *13/08*
U.S. Cl. 172—699 **1 Claim**



1. In a farm implement:

a normally horizontal tool bar;

an elongated, solid, deep tillage shank attached to the bar and depending therefrom,

said shank having a pair of opposed, flat, horizontally spaced, upright walls, an upper, longitudinally concave, downwardly and forwardly sloping top, a lower, longitudinally convex, downwardly and forwardly sloping bottom, and a leading edge,

said top and bottom spanning the distance between said walls and converging as said edge is approached; and

a shoe releasably attached to said shank,

said shoe being provided with an elongated body having a pair of opposed, parallel, flat, horizontally spaced, upright sides provided with upper, straight, downwardly and forwardly sloping, longitudinal extremities, a forwardmost, elongated, straight, sharpened terminus, a flat rearmost end extending upwardly beyond said top, an elongated, downwardly and forwardly inclined, uppermost

surface, and an elongated, lowermost, transversely flat face,

the distance between said sides being greater than the distance between said walls,

said terminus and said end spanning the distance between said sides,

said surface extending between said terminus and said end,

said face having a first, elongated portion extending forwardly beyond said edge at an elevation lower than the latter and merging with said terminus and a second elongated, longitudinally flat portion between the first portion and said end,

the first portion being normally inclined downwardly and forwardly toward said terminus, the second portion being normally inclined upwardly and rearwardly toward said end,

said shoe having a flat, rear, triangular bevel merging with said end thereabove and a flat, front, triangular bevel merging with said terminus thereabove,

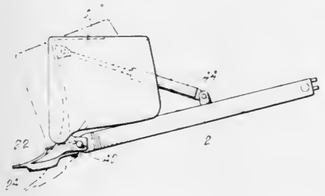
said surface having a pair of opposed, transversely inclined, essentially triangular sections merging into an uppermost ridge spanning the distance between said bevels.

4,269,275

REPLACEABLE EDGE BIT ASSEMBLY

Lucien Cousin, 749 Stirling St., Labrador City, Canada (A2V 1Y9)

Filed Jul. 24, 1979, Ser. No. 60,157
Claims priority, application Canada, Sep. 26, 1978, 312123
Int. Cl.³ E02F *3/76*
U.S. Cl. 172—719 **2 Claims**



1. The combination of a replaceable edge bit assembly with a mold board of an earth-working implement, comprising:

(a) a mold board having a lower leading edge, a front surface, a back surface, a plurality of mounting blocks secured to and protruding rearwardly from said back surface, said blocks spaced longitudinally of said mold board and located substantially parallel to and rearwardly of said leading edge, each mounting block having a top face and a bottom face, said mold board further having as many slots as there are mounting blocks, extending through the molding board, and each opening at said back surface adjacent the top face of the associated mounting block;

(b) a replaceable edge bit having a leading edge, a front portion adapted to engage and overlie the lower front edge portion of the mold board and a rear portion adapted to engage and overlie the lower rear edge portion of said mold board, front and rear brackets secured to and extending rearwardly from the front portion and rear portion, respectively, of said edge bit, there being as many front and rear brackets as there are mounting blocks, said front brackets removably extending through said slots and engageable with the top faces of said mounting blocks, said rear brackets removably engaging the bottom faces of said mounting blocks, means for removably locking said front and rear brackets to said mounting blocks, said locking means being entirely disposed rearwardly of said mold board and edge bit; and

(c) a skid shoe secured underneath the rear portion of said edge bit.

4,269,276

PLOW ATTACHMENT ASSEMBLY FOR A CRAWLER-TYPE TRACTOR

Lyle C. Cazes, 81 Hamm Rd., R.R. 1, Abbotsford, British Columbia, Canada (V2S 1M3)

Filed Jul. 25, 1979, Ser. No. 60,799
Int. Cl.³ E02F *3/76*
U.S. Cl. 172—832 **4 Claims**



1. A plow apparatus for attachment to crawler-type tractors having tracks and an elevatable "C" frame, comprising:

(a) a "V" shaped trailing plow adapted to be rididly secured to the forward end of the "C" frame for vertical movement therewith and having a lower portion with a width substantially equal to the distance between the tracks of the tractor,

(b) a fore and aft extending strut hingedly secured at an aft end to the trailing plow for vertical swinging movement,

(c) a "V" shaped lead plow rigidly secured at a forward end of the strut for swinging movement therewith,

(d) a roller mounted on the lead plow at an aft end of the latter for providing rolling support of the lead plow on the ground surface following the lead plow,

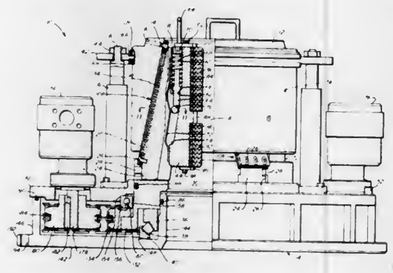
(e) a pair of forwardly converging telescopically extensible and retractable spreader arms for moving debris uprooted by the lead plow to opposite sides of the tractor, the spreader arms being hingedly secured at forward ends to the lead plow and hingedly securable at aft ends, for vertical swinging movement, to the "C" frame laterally outside the tracks of the tractor.

4,269,277

POWER SLIP ASSEMBLY

Benton F. Baugh, Houston, Tex., assignor to Brown Oil Tools, Inc., Houston, Tex.

Filed Jul. 2, 1979, Ser. No. 54,160
Int. Cl.³ B23Q *5/027, 5/033*
U.S. Cl. 173—149 **32 Claims**



1. Apparatus for manipulating tubular members comprising:

(a) slip carrier means mounted on carrier actuator means arranged generally about a passage and movable generally radially relative thereto;

(b) slip means, for gripping such tubular member, on said slip carrier means whereby movement by said slip carrier means generally radially inwardly relative to said passage may effect gripping engagement between said slip means and said tubular member within said passage;

(c) first surface means as part of said slip carrier means and second surface means as part of said carrier actuator means for cooperating with said first surface means for wedging said slip carrier means and said slip means against said tubular member so engaged by said slip means when longitudinal force is applied to said tubular member by said slip means; and

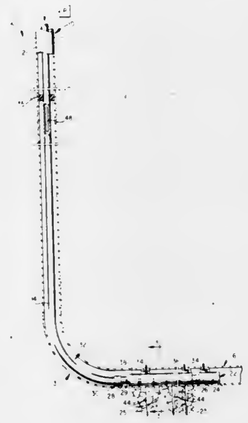
(d) drive means linked to said carrier actuator means whereby generally longitudinal movement of said drive means propels said carrier actuator means radially relative to said passage.

4,269,278

METHOD AND APPARATUS FOR COMPLETING A SLANTED WELLBORE

Roy R. Vann, Artesia, N. Mex., assignor to Peabody Vann, Houston, Tex.

Continuation of Ser. No. 842,565, Oct. 17, 1977, Pat. No. 4,194,577. This application Jan. 8, 1980, Ser. No. 110,507
Int. Cl.³ E21B *43/118*
U.S. Cl. 175—4.51 **9 Claims**



1. Apparatus for completing a lower marginal end of a cased slanted borehole comprising a perforating gun for perforating the borehole, said gun having a main housing within which there is formed a plurality of shaped charges for perforating a casing;

a casing engaging member attached to said main housing and extending radially away from said main housing in opposition to the direction in which said shaped charges are oriented to fire;

a swivel means, a tubing string, a firing head attached to the uphole end of said gun, means associated with said firing head for detonating each of said shaped charges, said shaped charges being oriented respective to one another and to said main housing to fire in a direction which forms an included angle of less than 180°, said gun is connected to said swivel means and said swivel means is connected to said tubing string; whereby, the gun can be run downhole and into the slanted portion of the borehole, and thereafter the firing head can be actuated to detonate the shaped charges to cause the casing in the slanted part of the borehole to be perforated in a downward direction.

4,269,279

SPHEROIDAL PLASTIC COATED MAGNETIZABLE PARTICLES AND THEIR USE IN DRILLING FLUIDS

Roy F. House, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed Jan. 14, 1980, Ser. No. 111,681
Int. Cl.³ E21B *3/00, 7/00*
U.S. Cl. 175—66 **12 Claims**

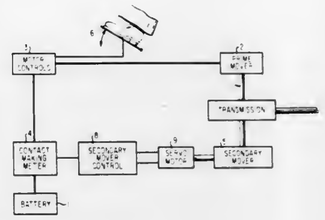
1. In a method of drilling a well wherein a drill string is rotated to drill a borehole into the earth and a drilling fluid is circulated down through the drill string and the sides of the borehole to remove the cuttings therefrom, said drilling fluid containing a solid bead lubricant to reduce the friction between the drill string and the sides of the borehole, the improvement which comprises utilizing as said solid bead lubricant smooth-surface plastic spheres having a core of a magnetizable material.

4,269,280

PROPULSION SYSTEM FOR AUTOMOTIVE VEHICLES

Charles L. Rosen, 277 Churchill Rd., Teaneck, N.J. 07666

Filed May 5, 1978, Ser. No. 903,104
Int. Cl.³ B60L *15/38;* **B60K** *9/00*
U.S. Cl. 180—54 C **2 Claims**



1. A vehicle propulsion apparatus comprising:

(a) a prime mover;

(b) a secondary mover including an output controller, for activating the secondary mover;

(c) a drive train;

(d) a transmission, which said transmission couples the output torque produced by the said primary and secondary movers, to the drive train;

(e) a sensor adapted for sensing the state of stress of the prime mover and producing a response related to the state of stress of the prime mover; and

(f) a control for accepting the response and activating the secondary mover, up to the full output capacity of the secondary mover, whenever the state of stress of the prime mover is above a preselected threshold value, in which the control also includes an electrical control motor and means adapted for causing the motor to progressively depress the output controller of the secondary mover when the state of stress of the prime mover is above the preselected threshold value.

4,269,281

AUTOMATIC TRANSMISSION DIGITAL CONTROL SYSTEM

Yves Schneider, Paris, and George Dubuisson, Poissy, both of France, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 30, 1978, Ser. No. 910,784
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1977, 2726115
Int. Cl.³ B60K *17/06*
U.S. Cl. 180—70 R **16 Claims**

1. In a motor vehicle having an engine, means for furnishing a present speed signal indicative of the then-present engine speed, means for furnishing a present load signal indicative of the then-present engine load, means for furnishing a present gear signal indicative of the presently engaged gear, and automatic transmission means having a plurality of selectable gears, the improvement comprising a digital control system for controlling said transmission means in accordance with characteristic curves of engine load vs. engine speed, said control system comprising

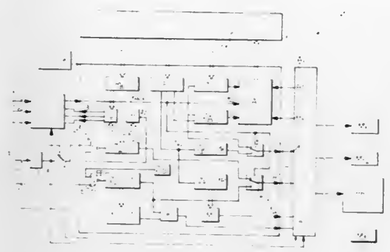
main storage means (St) having a plurality of sets of storage

locations each for storing a set of constants for approximating one of said characteristic curves;

present load number furnishing means (Z_L, T1) connected to said present load signal furnishing means for receiving said present load signal and furnishing a binary present load number corresponding thereto;

addressing means (A) connected to said main storage means for addressing a selected one of said sets of storage locations in response to address control signals (B1, B2) applied thereto, whereby said main storage means furnishes a read-out set of constants read out from the so-selected one of said sets of storage locations;

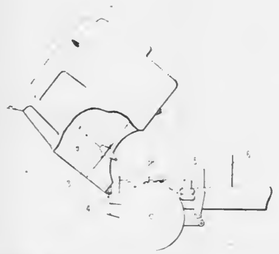
computing means (E, Z_K) connected to said main storage means for computing a limiting load number (Y_K) under control of said read-out set of constants;



comparator means (C) connected to said present load number furnishing means and said computing means for furnishing a first or second comparator output signal when said limiting load number is greater or less than said present load number, respectively;

and output logic means (AL) connected to said present gear signal furnishing means, said comparator means, and said addressing means for furnishing said address control signals in response to said present gear signal, and for furnishing an upshift or downshift gearshift control signal in response to a predetermined one of said present gear signals only in the presence of said first or second comparator output signal, respectively.

4,269,282
GEAR SHIFT CONTROL
Leslie A. Meacock, II, Emmaus, and Edward C. Merkel, Palmerton, both of Pa., assignors to Mack Trucks, Inc., Allentown, Pa.
Filed May 31, 1979, Ser. No. 44,165
Int. Cl.³ B62D *33/06*
U.S. Cl. 180—328 **31 Claims**



1. A tilt cab vehicle having a gear shift lever apparatus that moves with the cab when it is tilted for access to other parts of the vehicle, comprising

(a) a tiltable cab having a floor and being tiltable from a closed position where said cab covers certain parts of said vehicle and an open position where said certain parts of said vehicle are exposed for access;

(b) a shift lever;

(c) means for transferring shift lever motion to a gear train in said vehicle;

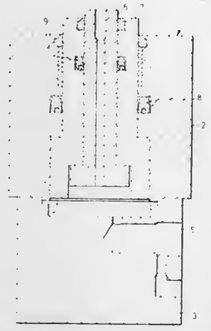
(d) said shift lever, extending through said cab floor, having an upper end exposed within the cab for shifting by an operator and a lower end in releasable engagement with said means for transferring the lever motion to the gear train;

(e) said shift lever being tiltable with said cab, said lower end being disengaged from said transfer means when said cab is in the open position and engaged with said transfer means when said cab is in said closed position;

(f) isolation means for substantially isolating said lever from cab movement when said cab is in the closed position; and

(g) fixed support means fixed to said vehicle substantially independently of movement of said tilt cab for supporting said shift lever when said cab is in said closed position, said isolation means including resilient means for biasing said lever into engagement with said fixed support means and maintaining engagement therewith while the cab is in the closed position such that movement of the cab in the closed position is substantially independent of said shift lever.

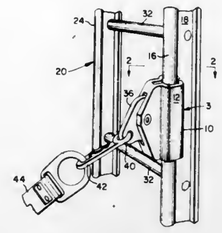
4,269,283
METHOD AND APPARATUS FOR ACOUSTICAL DAMPING OF PUNCHING MACHINES AND THE LIKE
Bo C. Bramberger, Lindome, and Kurt G. Stenudd, Gothenburg, both of Sweden, assignors to Hakan Sallander, Tranemo, Sweden
Filed Oct. 4, 1979, Ser. No. 81,786
Claims priority, application Sweden, Oct. 10, 1978, 7810567
Int. Cl.³ F16F *7/00;* **F01B** *11/02, 29/00*
U.S. Cl. 181—207 **4 Claims**



2. Apparatus for damping noise and vibrations in machines having transient force relieving of the type appearing in punching or cutting presses, comprising a housing defining a closed chamber, a first piston adapted to be exposed to the force for pre-compressing a hydraulic fluid in the chamber, a second piston exposed to the hydraulic fluid and adapted to be exposed to the force immediately before the force relief, and at least one valve in an exhaust line from the chamber, said valve being arranged to open at a predetermined pressure in the chamber.

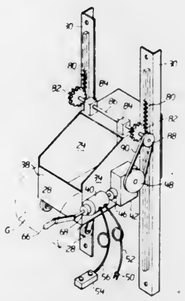
4,269,284
SLIDING CLAMP AND ADAPTOR
William E. Swager, P.O. Box 498, Fremont, Ind. 46737
Filed Sep. 25, 1978, Ser. No. 945,792
Int. Cl.³ E06C *7/18;* **A62B** *1/16*
U.S. Cl. 182—8 **14 Claims**

1. A clamp having a rail clamping means and a housing portion shaped for mounting about and sliding longitudinally upon the surface of a supporting rail, an elongated supporting rail surface portion for disposal within said housing surface portion of said clamp for sliding support thereof and for clamping engagement by said clamping means, and an adaptor element mounted replaceably fixed in said housing and against



lateral movement between said inner housing surface of said clamp and said rail surface sized for spacing and support of said clamp for easy sliding movement of said clamp on said rail support, said rail clamping means movable into engagement with said rail surface through an open portion of said adaptor and operative by a movement of an arm extending outward of said clamp for clampingly engaging said rail surface.

4,269,285
LIFTING APPARATUS FOR ELECTRICAL SWITCHBOARDS
Isao Obkoshi, Tama, and Hideki Ikeuchi, Fuchu, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Nov. 9, 1978, Ser. No. 959,060
Claims priority, application Japan, Nov. 9, 1977, 52-133568
Int. Cl.³ B66B *9/20*
U.S. Cl. 187—9 R **6 Claims**



1. A lifting apparatus for racking an electrical device into and out of a compartment in an electrical switchboard, wherein said lifting apparatus comprises in combination:

a carriage upon which said electrical device is mounted;

a plurality of rollers operatively associated with said carriage;

guide rails directly mounted on the electrical switchboard and supporting said carriage for movement relative to the electrical switchboard such that said rollers move along said guide rails:

means for pivotably mounting at least one pair of said plurality of rollers on each side of said carriage for cooperation with said guide rails so that the carriage may be readily removed from said guide rails to traverse across a floor surface;

means for moving said carriage connected to said carriage including chains mounted on said guide rails; and

pinion means connected to said carriage and engaged with said chains.

4,269,286
SPEED CONTROL APPARATUS FOR ELEVATOR SYSTEM
Toshiaki Ishii, and Eiki Watanabe, both of Inazawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 26, 1979, Ser. No. 15,239
Claims priority, application Japan, Feb. 24, 1978, 53-21321
Int. Cl.³ B66B *5/02*
U.S. Cl. 187—29 R **5 Claims**



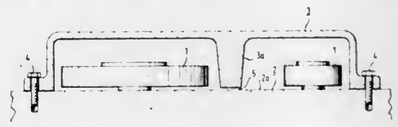
1. In a speed control apparatus for an elevator system in which an elevator cage is suspended from a main rope coupled to a motor, wherein a speed control system including an acceleration feedback circuit is employed to control cage speed, the improvement comprising:

said acceleration feedback circuit characterized by a transfer function having a gain factor and including a command circuit for increasing said gain factor; and

a detection circuit for detecting cage speed and for generating a gain control signal in the event that the detected cage speed is within a predetermined speed range identified as causing resonance of said rope;

wherein said gain control signal is coupled to said command circuit to increase the gain factor of said acceleration feedback circuit when said detection circuit detects that the cage speed is in said predetermined speed range.

4,269,287
MACHINE HOUSING WITH RELATIVELY THIN-WALLED STRUCTURAL MEMBER
Fritz Rösch, Schwabach, Fed. Rep. of Germany, assignor to Alcan Aluminiumwerk Nürnberg GmbH, Fed. Rep. of Germany
Filed Jun. 6, 1979, Ser. No. 46,011
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848503
Int. Cl.³ F16F *15/02*
U.S. Cl. 188—1 B **9 Claims**



1. In a machine housing with a structural member that at least partially encloses a space containing at least a small quantity of liquid, said housing and said member each having wall portions facing into said space, the wall portions of said member including at least one thin wall subject to noise-producing vibration, the improvement which comprises:

(a) means for providing, within said space, a slit-like opening of restricted width accessible to the liquid in said space such that some of said liquid is present in said opening,

(b) said opening being defined between first and second

surfaces of which the first surface is in motion-transmitting relationship with said one thin wall such that said first surface vibrates with said one thin wall and damping of vibration of said first surface attenuates vibration of said one thin wall, the liquid present in said opening acting to damp vibration of said first surface and thereby to attenuate vibration of said one thin wall, and

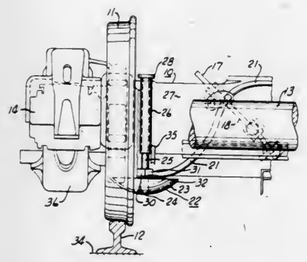
(c) said opening-providing means comprising at least one element, connected to one of said wall portions and extending toward but not connected to another of said wall portions and having a surface portion constituting one of said first and second opening-defining surfaces, one of the last-mentioned wall portions being said one thin wall.

4,269,288

TRAIN DERAIL EMERGENCY BRAKE SYSTEM

Joseph A. Collins, 502 Middle St., Pittsburgh, Pa. 15227

Filed May 11, 1979, Ser. No. 38,017
Int. Cl.³ B61H *13/00*
U.S. Cl. 188—33 **15 Claims**



1. In a railroad car having an undercarriage with a plurality of wheels for rolling on a track and brakes for said wheels which are activated when fluid pressure in a brake activating fluid supply conduit attached to said brakes is released; a derail emergency brake switch mechanism secured to said undercarriage inboard from said wheels and having a downwardly depending contact member positioned sufficiently higher than the level at which said wheels are in rolling contact with the track to avoid accidental actuation of said mechanism when all wheels are railed, a breakaway coupling mounted on said undercarriage and connected to said fluid supply conduit, said breakaway coupling being adapted to uncouple and to remain open when initially actuated to completely exhaust fluid pressure in said fluid supply conduit, said contact member adapted to slidably contact with a rail or ground debris upon derailment of the car when moving in either a forward or reverse direction to thereby upwardly displace said contact member to uncouple said breakaway coupling and thereby release all fluid pressure from said conduit to activate said brakes.

4,269,289

RETARDER

Peter S. Winkler, Birmingham, Mich., assignor to Eaton Corporation, Cleveland, Ohio

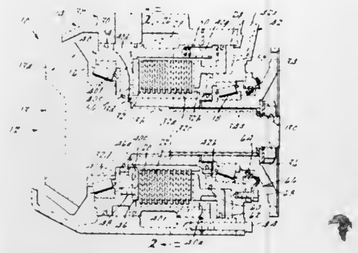
Continuation of Ser. No. 847,512, Nov. 1, 1977, abandoned. This application May 10, 1979, Ser. No. 38,026
Int. Cl.³ F16D *65/84*
U.S. Cl. 188—71.6 **3 Claims**

1. In a brake of the type including a non-rotating housing and drive shaft means rotatably disposed therein; an annular set of rotor discs secured for rotation with said shaft means, said rotor discs having oppositely facing friction sides; an annular set of stator discs secured against rotation relative to said housing and interleaved with said rotor discs, said stator discs having oppositely facing friction sides; means for selectively squeezing the friction sides of said disc sets together to inhibit rotation of said shaft relative to said non-rotating housing; the improvement comprising:

passage means defined by a portion of said non-rotating housing circumferentially disposed about the outer periphery of said rotor and stator discs for porting a pressurized cooling liquid to the outer periphery of said rotor and stator discs;

flow passages for directing said cooling liquid radially inward between said rotor and stator disc sets, said flow passages defined by smoothly forming said friction sides of said rotor discs and by grooving said friction sides of said stator discs;

a plurality of internal splines defined on the inside diameter of said rotor discs;



a pluratlity of external splines defined by said shaft means and slideably receiving said internal splines for rotatably securing said set of rotor discs to said shaft means, said external splines having a depth in excess to the radially inwardly projecting extent of said internal splines for forming axially extending flow passages directly substantially all of said cooling liquid from said disc sets to an outlet port; and

an annular ring disposed at an outlet end of said axially extending flow passages, said ring extending radially inward beyond the radially inward extent of said disc sets for forcing the outlet flow from said axially extending flow passages radially inward beyond the radially inward extent of said disc sets to improve the cooling liquid flow distribution from said disc sets into said axially extending flow passages.

4,269,290

GUIDING DEVICE FOR BRAKE PAD SUPPORTS OF A SPOT-TYPE DISC BRAKE

Rudolf Thiel, Frankfurt am Main, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

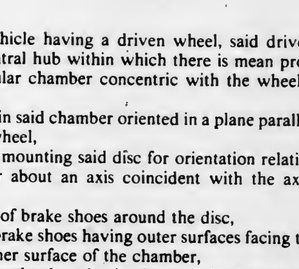
Filed Oct. 17, 1979, Ser. No. 86,190
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847655
Int. Cl.³ F16D *65/02*
U.S. Cl. 188—72.3 **8 Claims**

1. A guiding device for brake pad supports of a spot-type disc brake comprising:

a brake housing;

at least one pad positioning pin movable in a guide bore of said housing and frictionally engaging a brake pad support;

a bending spring positively connected to said pin and supported in a recess of said housing transverse to said pin, said spring being loaded by a brake actuating piston via said support and said pin; and



a stop for said pin disposed in said bore to limit the return movement of said support.

4,269,291

VEHICLE DRIVE WITH FREEWHEELING AND BRAKING

George Almond, Trumbull, Conn., assignor to Empire of Carolina, Inc., New York, N.Y.

Filed Jan. 9, 1979, Ser. No. 2,059
Int. Cl.³ F16D *67/02*
U.S. Cl. 192—6 R **7 Claims**

1. In a vehicle having a driven wheel, said driven wheel having a central hub within which there is mean providing a hollow circular chamber concentric with the wheel, a drive comprising:

(A) a disc in said chamber oriented in a plane parallel to that of the wheel,

(B) means mounting said disc for orientation relative to the chamber about an axis coincident with the axis of the wheel,

(C) a ring of brake shoes around the disc,

(i) said brake shoes having outer surfaces facing the circular inner surface of the chamber,

(ii) said brake shoes having inner surfaces facing the outer surface of the disc,

(iii) said brake shoes being shiftable toward and away from the center of the disc,

(D) spring means urging said brake shoes toward the center of the disc,

(E) the ends of the brake shoes approaching abutting end-to-end relationship as they move toward the center of the disc,

(i) the ends of the brake shoes moving apart as the brake shoes move toward the inner surface of the hollow chamber,

(F) cams on the disc,

(G) a cam follower on said brake shoe for cooperation with said cam,

(H) said ring of brake shoes and said disc being angularly movable relative to one another about the axis of the wheel between a first position in which the cam and cam follower are so relatively angularly oriented as to permit the brake shoes to be moved inwardly, thereby leaving clearance between the outer surface of the brake shoes and the cylindrical inner surface of the hollow chamber, and a second position in which the cam and cam follower are so relatively angularly oriented as to shift the brake shoes away from the center of the disc and against the cylindrical inner surface of the hollow chamber,

(J) means to drivingly rotate the disc,

(K) whereby said wheel is rotatably driven when said disc is rotated and said wheel is free of said brake shoe for freewheeling rotation when said disc is stationary,

the improvement comprising;

(I) friction drag members,

(II) means mounting said friction drag members on opposite sides of said brake shoes, said brake shoes being rotatable as a ring relative to said friction drag members, and

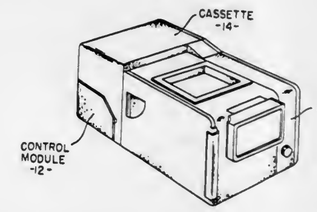
(III) spring means separately urging each of said drag members against opposite sides of said brake shoes.

4,269,292

DRIVE MECHANISM FOR A HIGH SPEED FILM TRANSPORT AND THE LIKE

Charles W. Wright, Los Angeles, Calif., assignor to Scentex Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 941,973, Sep. 13, 1978, abandoned. This application Jul. 27, 1979, Ser. No. 61,317
Int. Cl.³ F16D *11/06, 43/02*
U.S. Cl. 192—33 R **6 Claims**



1. A lost-motion drive mechanism for a high speed X-ray film transport, or the like, comprising: a drive motor; input shaft means rotatably mounted about a first axis; a clutch assembly selectively coupling the input shaft means to the drive motor; an output shaft rotatable about a second axis displaced radially from said first axis; a first actuator coupled to the input shaft means to be rotatably driven thereby about the first axis; a second actuator coupled to the output shaft to be rotatably driven thereby around the second axis; one of said actuators including a pin displaced radially from the axis of rotation thereof and extending axially with respect to such axis, and the other of said actuators including a member defining a radially-extending channel for slidably receiving said pin; a clutch-actuating member slidably mounted on said input shaft means and coupled to said clutch assembly; a frame; a cam member mounted on said frame for movement between a first and a second position; a cam follower mounted on said clutch actuating member and extending radially therefrom to engage said cam member when said cam member is in its first position and thereby move said clutch actuating member in a first direction to cause the clutch to disengage and uncouple the input shaft means from the drive motor; a latch mounted on said frame and coupled to said cam member for retaining the cam member in its first position; and solenoid means mounted on said frame and coupled to said latch for releasing the cam member when the solenoid means is energized to cause said cam follower to move the cam member to its second position and the clutch actuating member to move in a second direction to cause the

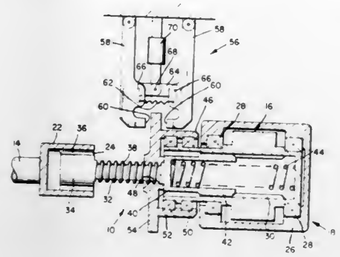
clutch assembly to engage and couple the input shaft means to the drive motor.

4,269,293

ENGINE ACCESSORY DISCONNECT

William B. Martin, Redondo Beach, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Mar. 5, 1979, Ser. No. 17,678
Int. Cl.³ F16D *1/00, 11/04*
U.S. Cl. 192—35 **33 Claims**



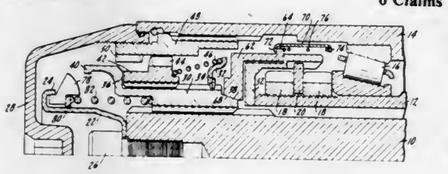
1. Disconnect apparatus comprising:
driving means having an end portion;
driven means having an end portion;
connecting screw means having a threaded portion, a first end portion releasably engaging said driving means end portion, and a second end portion slidably engaging said driven means end portion for transmitting energy from said driving means to said driven means;
nut means mounted on said connecting screw means and having a threaded portion engaging said connecting screw means threaded portion; and
brake means for engaging said nut means for producing relative motion between said nut means and said connecting screw to cause disconnection of said first connecting screw end portion from said driving means end portion and to further cause rapid deceleration of motion of said driven means.

4,269,294

AUTOMATIC CLUTCH

Donald W. Kelbel, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Aug. 15, 1979, Ser. No. 66,720
Int. Cl.³ F16D *11/00, 15/00*
U.S. Cl. 192—54 **6 Claims**



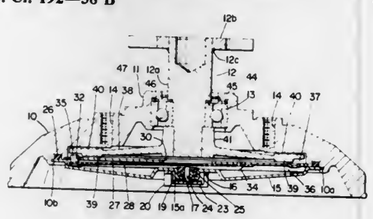
1. An automatic clutch for effecting engagement between rotatable driving and driven members in response to rotation of the driving member, the clutch comprising first and second clutching means respectively rotatable with the driving and driven members, said first clutching means being movable relative to the driving member to first and second positions respectively out of and in clutching engagement with said second clutching means, first biasing means yieldably biasing said first clutching means toward its first position, camming means for moving said said first clutching means to its second position, said camming means including a cam defining rise, dwell and stop surfaces, a cam follower rotatable relative to said cam, and second biasing means yieldably biasing said cam follower toward a first position riding on said rise surface, said cam follower being in frictional engagement with said first clutching means for rotation therewith such that said cam follower rides up said rise surface to a second position riding on said dwell surface, thereby moving said first clutching means to its second position, said cam follower being rotatable with said first clutching means such that said cam follower rides along said dwell surface into contact with said stop surface, said first clutching means being movable relative to the driving member to a third position in clutching engagement with said second clutching means and out of frictional engagement with said cam follower when said cam follower is in contact with said stop surface, and means for moving said first clutching means to its third position.

4,269,295

TORQUE TRANSMITTING FLUID COUPLINGS

Arthur S. Kish, Lyndhurst, Ohio, assignor to Murray Corporation, Cockeysville, Md.

Filed Aug. 1, 1979, Ser. No. 62,753
Int. Cl.³ F16D *35/00, 43/25*
U.S. Cl. 192—58 B **7 Claims**



1. In a torque transmitting fluid coupling of the character described, a drive shaft assembly, a housing rotatably mounted on said drive shaft assembly, a cover secured to said housing, a drive disc within said housing driven by said drive shaft assembly, said housing consisting of a die casting having an unmachined internal surface, said cover consisting of a metallic stamping, said drive shaft assembly consisting of a body and a coupling flange, said body being a screw machine part, said coupling flange being a metallic stamping, which is welded to one end of said body, a bracket spot-welded to the exterior face of said cover, a bimetal strip secured to said bracket, said cover provided at its center with an embossment, forming a recess, a steel bushing mounted in said recess, and riveted to the embossment, a piston pin slidably mounted in the bushing, a cup-shaped rubber-like piston seal mounted in said recess, and an adhesive sealer applied to the periphery of the seal to seal the space between the seal and the inner wall of the embossment.

4,269,296

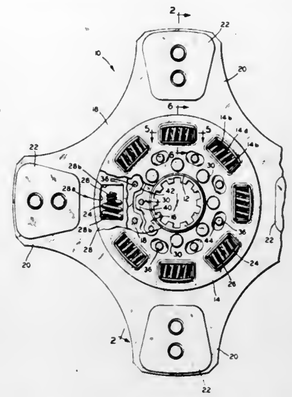
TWO-STAGE COAXIAL SPRING DAMPER

Richard A. Flotow, 904 Elmrow Dr., Fort Wayne, Ind. 46806, and William H. Sink, P.O. Box 465, Auburn, Ind. 46707

Filed Jun. 27, 1979, Ser. No. 52,898
Int. Cl.³ F16D *3/66*
U.S. Cl. 192—106.2 **7 Claims**

1. A torque transmitting device comprising,
a hub;
a cover secured to said hub, said cover defining at least one opening having spaced side walls;
a plate mounted on said hub for limited rotation relative to said hub and said cover, said plate defining at least one opening having spaced side walls, said plate opening adapted for alignment with said cover opening;
resilient means disposed in said aligned openings adapted to transmit a yieldable drive between said hub and said plate, said resilient means comprising a first resilient member

and a second resilient member disposed in said first resilient member, each of said resilient members having end portions;
means on at least one of said plate or cover opening side walls for engaging one of said resilient members,



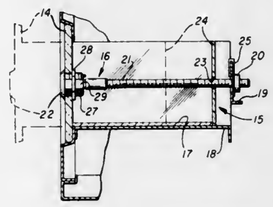
at least one end portion of one of said resilient members spaced from said plate or cover opening side wall and engageable therewith upon limited relative rotation between said plate and said cover, and
at least one end portion of the other of said resilient members engaging said plate or cover opening side wall engaging means.

4,269,297

VENDING MACHINE SEE-THRU COIN BOX

Joseph W. Aossey, Cedar Rapids, Iowa, assignor to Aosco & Associates, Ltd., Cedar Rapids, Iowa

Filed Nov. 13, 1979, Ser. No. 93,186
Int. Cl.³ G07F *9/06*
U.S. Cl. 194—1 B **6 Claims**



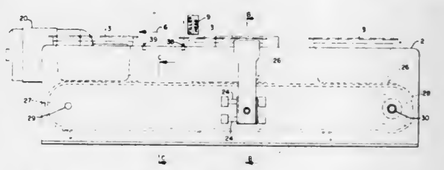
1. A coin box for vending machines including: a coin box shaped for insertion into and removal from an open-ended coin box receiving and supporting structure in a vending machine; a tough hard transparent material front on said coin box shaped to close a coin box opening in a vending machine when said coin box is fully inserted in place in a vending machine coin box receiving and supporting structure; and lock means for interconnecting said coin box and means of said open-ended coin box receiving and supporting structure in a locked state in place in a vending machine and unlock release from a vending machine; wherein said coin box has a rectangular box portion and said front is fastened to the front of said rectangular box portion as an integral part of said box and includes overhang flange means extending outward laterally beyond the walls of said rectangular box portion; said coin box is molded of tough hard transparent plastic material, including said front and said body portion; said coin box is formed with opposite sides and a bottom extending back from interconnection with said front to a rear wall; and with said opposite sides, said bottom, said rear and said front defining an open-topped container for receiving coins inserted into a coin-operated vending machine at a location above the box to fall into the box, where coins contained therein may be viewed through the transparent front of the box; said front is more than twice as thick as the walls of said opposite sides, bottom and rear wall; said lock means includes, a front portion with flange means engaging the outer face of said front, and a longitudinally extended portion extended through the length of said coin box from said front portion and through said rear wall for locking and unlocking engagement with rear lock element means of said coin box receiving and supporting structure to the rear of said coin box; said longitudinally extended portion of said lock means includes a threaded bolt; and with said rear lock element means including a nut mounted on coin box receiving and support structure in a vending machine.

4,269,298

TRAY INDEXING APPARATUS

Vernon F. Mergl, Timonium, Md., assignor to National Instrument Co., Baltimore, Md.

Filed Aug. 16, 1978, Ser. No. 933,983
Int. Cl.³ B65G *43/00*
U.S. Cl. 198—341 **6 Claims**



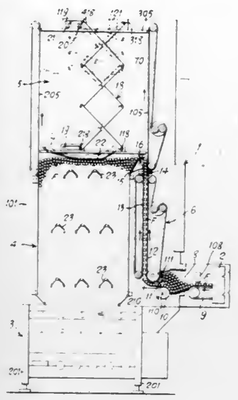
1. A tray indexing apparatus comprising:
means for supporting at least one tray for movement along a predetermined path;
means for moving a supported tray along said predetermined path;
means for stopping movement of said means for moving when said supported tray reaches a first position along said predetermined path;
means for indexing said supported tray along the predetermined path from said first position to a second position; and
means for stopping said indexing means and commencing movement of said means for moving when said supported tray reaches said second position whereby said supported tray is advanced along said predetermined path from said second position, wherein said means for indexing includes reciprocating pusher means for incrementally pushing a supported tray to index the same along the predetermined path from said first position to said second position, said pusher means being eccentrically connected to a rotatable driving means for effecting reciprocation of said pusher means, and wherein said reciprocating pusher means comprises a plurality of pivotably mounted pushing elements yieldably biased in a pushing position and arranged in a direction along said predetermined path so as to successively engage the trailing edge of a rim of a supported tray to push the tray and incrementally advance the same along the predetermined path with reciprocation of the pusher means, and wherein said reciprocating pusher means includes a cover member which extends over a portion of the rim of said tray to retain said tray in a position for engagement by said pushing elements.

4,269,299

RESERVOIR FOR ROD-LIKE ARTICLES

Hubert C. Goodman, Jr., Midlothian, Va., assignor to CIR-S.p.A.-Divisione SASIB, Bologna, Italy

Filed Apr. 16, 1979, Ser. No. 30,622
Int. Cl.³ B65G *47/26, 37/00*
U.S. Cl. 198—347 **1 Claim**



1. A reservoir for rod-like articles, more particularly a reservoir for filter plugs, said reservoir coupling a continuous filter making machine and a delivery apparatus which conveys said filter plugs to subsequent processing apparatus, comprising in combination:

a lower vertical hopper section having a discharge bottom end and an open top end, the bottom end of said lower hopper section being connected to said delivery apparatus;

an upper vertical buffer section directly connected to said lower hopper section and freely communicating therewith at an intermediate boundary region, said upper vertical buffer section being provided with two opposing sidewalls comprising a pair of vertically disposed endless belts driven so that the inner facing rims of said belts move upwardly, said belts being driven at different speeds;

feed means for feeding a single row of rod-like articles into said reservoir in the vicinity of said intermediate boundary region, said feed means including

a pick-up chamber to which said articles are fed and wherein they are accumulated;

a rotary suction drum for drawing said articles out of said pick-up chamber;

a selecting roller cooperating with said rotary suction drum to obtain a single row of said articles aligned side-by-side;

a pair of vertically disposed endless belts, each having a vertical run in spaced face-to-face relationship with a vertical run of the other belt, said pair of belts elevating said articles from a lower point adjacent the bottom of said buffer section to a higher point adjacent said intermediate boundary region between said buffer and hopper sections, said belts being driven at different speeds whereby the articles engaged between the facing runs of said belts are rolled around their longitudinal axes while being elevated; and

discharge means for delivering said single row of articles from said belts into the reservoir at said intermediate boundary region, said discharge means including;

a pair of parallel spaced-apart plates, said single row of articles being fed between said plates;

a pinch roller adjacent the exit side of one of said plates; and

a sidewall belt adjacent the exit side of the other of said plates and forming a sidewall of said upper buffer section, said pinch roller and said sidewall belt being driven so as to lead and discharge said articles into said reservoir;

level sensing means for sensing the level of said rod-like articles in said upper buffer section, said level sensing means comprising a substantially horizontal cover plate resting on the top level of the articles located within said upper buffer section and being vertically movable in response to variations in the maximum level of said articles;

control means actuated by said level sensing means in response to predetermined maximum and minimum levels of the articles in said buffer section, said control means controlling the operation of said feed means and said delivery apparatus; and

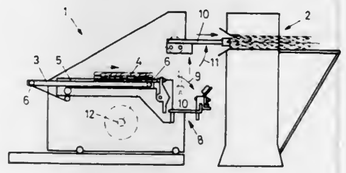
a pantograph linkage coupled to said control means movably suspending said cover plate within said upper buffer section.

4,269,300

METHOD AND APPARATUS FOR SEPARATING HELICAL SPRINGS CLOSED BY KNOTS AT THEIR WINDING ENDS

Walter Spuhl, St. Gallen, Switzerland, assignor to Spuhl AG, St. Gallen, Switzerland

Filed Jul. 24, 1979, Ser. No. 60,400
Claims priority, application Fed. Rep. of Germany, Aug. 18, 1978, 2836138
Int. Cl.³ B65G *47/14*
U.S. Cl. 198—379 **5 Claims**



1. A method for separating helical springs for spring frames with knots at the coil ends, said springs being moved in sliding guides by a conveyor belt against a stop while upright and entangled, the method comprising the steps of: grasping the lower coil end of a spring in contact with a stop by a gripping member; moving the stop to an inactive position; pulling the grasped coil end from the sliding guide with the gripping member by an amount substantially equal to the spring wire thickness; returning the stop to an active position; pivoting the spring by substantially 90° into a lying position by the gripping member; grasping a coil end remote from the gripping member by a spring turning member; releasing the spring from the gripping member and returning to the starting position; rotating the spring about its lengthwise axis by the spring turning member until the knot touches a stop; releasing the spring from the spring turning member; grasping the spring by a second gripping member and transporting the spring further.

4,269,301

CONVEYOR BELT SCRAPER SYSTEM

Alfred S. Gibbs, Box 719, R.D. 3, Coopersburg, Pa. 18036

Filed Oct. 22, 1979, Ser. No. 87,094
Int. Cl.³ B65G *45/00*
U.S. Cl. 198—499 **1 Claim**

1. Apparatus for scraping muck and very wet material from the surface of a moving conveyor belt, said apparatus comprising:

(a) three scraper assemblies arranged one behind the other in the direction of travel of the conveyor belt, each scraper assembly comprising:

(i) a resilient, normally flat, scraper blade of length sufficient to extend across the width of the conveyor belt and having a tapered side with a leading edge adapted to engage the said conveyor belt and scrape the said muck and very wet material therefrom,

(ii) resilient means to force the leading edge of the tapered side of the scraper blade into engagement with, and to flex the scraper blade against, the said moving conveyor belt, ,

(b) the leading edges of the tapered sides of the scraper blades being forced into engagement with, and the scraper blades being flexed against, the moving conveyor belt with forces decreasing in the direction of travel of the conveyor belt,

(c) said resilient means comprising:

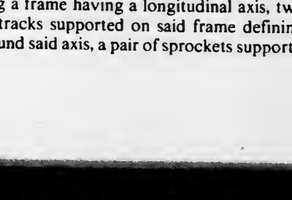
(i) first means to support that side of said scraper blade opposite the tapered side thereof,

(ii) operating lever means having a first end and a second end,

(iii) second means to rotatably support the first end of said operating lever means,

(iv) said first means being secured to said operating lever means adjacent the first end thereof,

(v) an air cylinder having a head end and a bottom end,



(vi) third means rotatably supporting the bottom end of said air cylinder,

(vii) a piston rod in said air cylinder extending through the head end thereof,

(viii) fourth means rotatably mounting the free end of said piston rod to the second end of said operating lever means,

(ix) fifth means to pressurize said air cylinder and extend the piston rod therefrom,

(x) whereby actuation of said fifth means to pressurize said air cylinder operates said operating lever means to force the leading edge of the tapered side of the scraper blade into engagement with, and to flex the scraper blade against, the moving conveyor belt,

(d) the bores of the air cylinders of the resilient means of the three scraper assemblies all being equal.

(e) the lengths of the operating lever means of the resilient means of the three scraper assemblies all being equal,

(f) the ratio of pressures in the air cylinders of the resilient means of the three scraper assemblies, in the direction of travel of the conveyor belt, being approximately 8:6:5.

4,269,302

MODULAR CONVEYOR UNITS AND SPIRAL CONVEYORS CONSTRUCTED THEREFROM

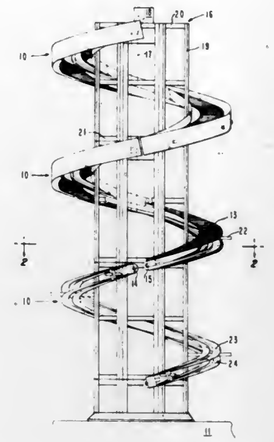
Francis J. Garvey, Newfield, N.J., assignor to Garvey Corporation, Blue Anchor, N.J.

Filed Mar. 23, 1979, Ser. No. 23,293
Int. Cl.³ B65G *15/24, 21/18*
U.S. Cl. 198—607 **4 Claims**

1. A spiral conveyor assembly comprising

a plurality of similar modular spiral conveyor units each including a frame having a longitudinal axis, two pairs of parallel tracks supported on said frame defining a spiral path around said axis, a pair of sprockets supported by said frame near the respective ends of the spiral path, and an endless conveyor constructed to follow said tracks and engaging said sprockets;

said modular units being positioned along a common longitudinal axis with one end of the endless conveyor of one module adjacent one end of the endless conveyor of an adjacent module so as to form a continuous conveying path;



a third sprocket supported on each modular unit, said third sprocket being adapted to drive one of said pair of sprockets;

a power means mounted on one of said modular units; and

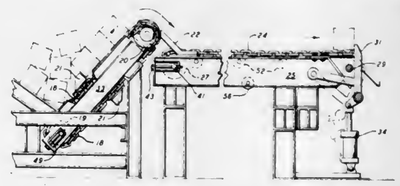
a power chain driven by said power means and engaging each of said third sprockets whereby power may be delivered from said power means to each of said endless conveyors.

4,269,303

WOOD CONVEYOR APPARATUS

Cyrus J. Cornell, P.O. Box 18, Laceyville, Pa. 18623

Continuation of Ser. No. 601,267, Aug. 4, 1975, abandoned. This application Nov. 29, 1976, Ser. No. 745,579
Int. Cl.³ B65G *15/12, 17/38*
U.S. Cl. 198—688 **16 Claims**



1. Lumber conveyor apparatus for conveying elongated wooden members such as logs, cants, slabs or flitches, comprising, in combination: a plurality of spaced-apart rail means extending parallel to each other; a respective idler roller journalled on each of said rail means adjacent one end of said rail means; a respective drive sprocket journalled on each of said rail means adjacent the other end of each of said rail means; a respective endless chain means trained around the idler roller and the drive sprocket of each of said rail means and including respective upper and lower chain courses, said upper chain courses extending in substantially the same plane in substantially straight lines between their respective idler rollers and drive sprockets; means for rotating said drive sprockets; and a

respective upper roller means journalled on each of said rail means between said upper and lower chain courses and between respective idler rollers and drive sprockets to support the upper course of a respective one of said chain means, the upper course of each of said chain means being supported solely by a respective idler roller, respective drive sprocket, and respective upper roller means, each of said chain means comprising a plurality of interlinked generally-oval links of circular cross-section having adjacent links lying in planes which are substantially perpendicular to each other.

12. The method of conveying elongate articles of lumber which comprises supporting said articles upon the upper courses of a plurality of parallel spaced-apart endless loops of link chain trained around respective drive sprockets and idler rollers to support said loops of link chain with the upper courses thereof lying substantially in a common plane, with at least one dog extending from each of said loops of link chain; applying tension to said chains so that said dogs normally extend in a reference direction from said chains to engage said elongate articles but may be deflected from said reference direction by the imposition of sidewise or torsional loads on said dogs, and driving said chains to advance said dogs repetitively along said upper courses.

4,269,304

SCRAPER CHAIN CONVEYOR ASSEMBLY

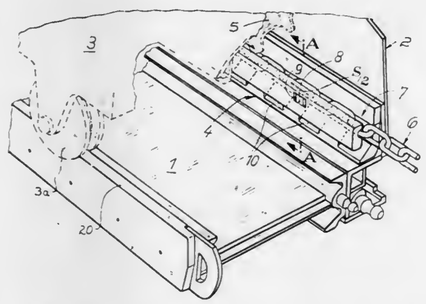
Ernst Braun, and Gert Braun, both of Essen-Heisingen, Fed. Rep. of Germany, assignors to Halbach & Braun, Fed. Rep. of Germany

Filed Jan. 8, 1979, Ser. No. 1,694

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 2829011

Int. Cl.³ G65G *19/18*

U.S. Cl. 198—735 **5 Claims**



1. A scraper chain conveyor assembly, comprising a plurality of trough sections arranged in end-to-end relationship, a bracket side section extending alongside each trough section and including a hollowed sectional part, a mining machine embracing said sectional part and having a sprocket wheel, a round link chain extending through the hollow sectional part and having respective crossing links held by said sectional part in a crossing orientation, said sectional part having an elongated slot overlying said links in said crossing orientation, said sprocket wheel being engaged with said links in said crossing orientation through said slot, said chain being subdivided without any separation of said chain links from each other into chain sections equal in length to the length of said trough section, said chain strand sections being associated with said trough sections in a manner such as to leave a predetermined clearance of motion for the chain strand in a longitudinal direction thereof, said hollowed sectional part including at least one transverse slot extending therethrough transverse to the hollowed portion and a crossbolt extending through said slot and through a chain link having a clearance of motion in the slot which equals the clearance of motion of said chain strand section.

4,269,305

POWERED CONVEYORS

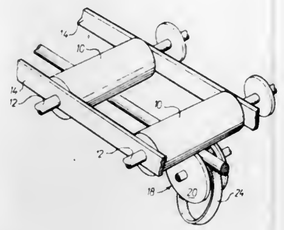
Leslie A. Fryatt, Accrington, England, assignor to J. H. Fenner & Co. Limited, Hull, England

Filed May 15, 1979, Ser. No. 39,375

Claims priority, application United Kingdom, May 31, 1978, 24837/78

Int. Cl.³ B65G *13/06*

U.S. Cl. 198—781 **9 Claims**



1. In a powered conveyor comprising a frame, a plurality of article-supporting rollers mounted in said frame and a drive belt assembly for supplying driving power to propel articles along a conveyor path defined by said rollers, the improvement wherein the drive belt assembly comprises a plurality of guide pulleys supporting the drive belt of said drive belt assembly, at least one of said guide pulleys constituting a unitary belt control pulley, and a hub on said belt control pulley, which hub is provided with means for effectively varying the diameter thereof for displacing said belt radially of said pulley thereby to occupy respective driving and non-driving positions, said means comprising a ring resting loosely on said hub and means to move said ring axially along the hub, said ring being interposable between said driving belt and said hub in order to effect radial displacement of said belt.

4,269,306

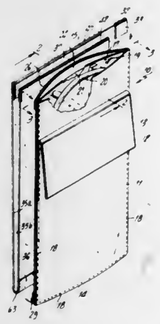
EYEGLASS CASE

Arnold R. Feniger, 80-62 249th St., Bellerose, N.Y. 11426

Filed Dec. 17, 1979, Ser. No. 104,149

Int. Cl.³ A45C *11/04, 15/00;* **G02C** *13/00*

U.S. Cl. 206—5 **10 Claims**



1. An eyeglass case comprising a case being formed with a first pocket for receiving a pair of folded eyeglasses, a flexible sheet attached to said case so as to form a second pocket for receiving the fingers of the user so that the fingers press against said flexible sheet, and cleansing means for receiving a lens of the unfolded glasses, said cleaning means being attached adjacent to said flexible sheet, whereby the lens of the unfolded glasses may be engaged by the cleaning means with the fingers pressing the flexible sheet so as to in turn press the cleaning means against the lens.

4,269,307

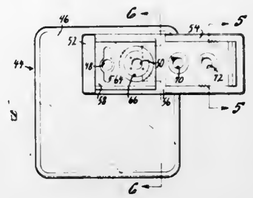
INTRAOCULAR LENS STORAGE ASSEMBLY

Peter G. LaHaye, Diamond Bar, Calif., assignor to Iolab Corporation, San Dimas, Calif.

Filed Aug. 9, 1979, Ser. No. 65,366

Int. Cl.³ B65D *81/18, 25/54;* **A61F** *1/16, 1/18*

U.S. Cl. 206—5.1 **4 Claims**



1. An intraocular lens storage container assembly for permitting the visual inspection of the lens portion of the intraocular lens without removal from the container, comprising:

a transparent outer housing having a pair of walls capable of transmitting light without any substantial distortion;

a support member configured to fit within the transparent outer housing having at least one transmitting area permitting the transmission of light without any substantial distortion and a recess portion of such a dimension and configuration adjacent the transmitting area to receive the haptic portions of an intraocular lens while positioning the lens portion over the area, and

means for securing an intraocular lens within the recess portion.

4,269,308

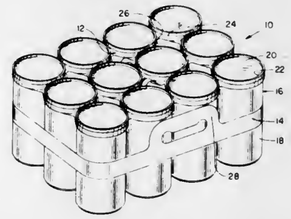
MULTI-UNIT CONTAINER PACKAGE

John R. Platt, Wheaton, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Feb. 14, 1980, Ser. No. 121,617

Int. Cl.³ B65D *71/00, 85/62*

U.S. Cl. 206—150 **7 Claims**



1. A package for a plurality of can-type containers including, in combination, a plurality of containers arranged in an array of rows and ranks, each container including generally cylindrical side walls interconnected to top regions which incorporate radially extending chime means with a predetermined perimeter dimension, a first discrete packaging means comprising a plurality, equal in number to the said plurality of containers, of interconnected, resilient, container encircling bands each of which being adapted to be positioned beneath the chime means of an associated container in resilient engagement therewith, a second packaging means, spaced downwardly from the first packaging means and unconnected thereto, comprising an endless resilient band encircling the array, the band having a predetermined width dimension substantially greater than the thickness of the band, the band configured so that the width dimension extends generally parallel to the axes of the containers, an integral handle means formed outwardly of one segment of an edge of said band, said handle adapted to lie flat against the array when not in use, the combination providing a unitized package with handling means disassociated from the top engaging packaging means.

4,269,309

BOTTLE PACKAGING

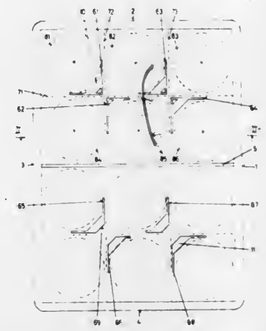
Ulrich H. Prodel, Grunstrasse 13, D-4902 Bad Salzuflen 1, Fed. Rep. of Germany

Filed Nov. 6, 1979, Ser. No. 91,787

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848374

Int. Cl.³ B65D *1/24, 25/10*

U.S. Cl. 206—203 **8 Claims**



1. A bottle packing comprising a plastic bottle case and bottle carriers received in said case,

said case having side walls, a bottom and a plurality of spacers projecting up from the bottom in position to provide a spacer in a space between four adjacent bottles, each of said spacers comprising a pair of angular profiles with two flanks disposed at an angle of 90° to one another and with apices of said angular profiles facing one another, the flanks of one angular profile of a pair being parallel to and offset from corresponding flanks of the other angular profile of said pair and offset from imaginary center lines passing between said angular profiles of a pair, and

said carrier having side walls and a bottom with holes in said bottom to receive said spacers when said carrier is in said case, said bottom of the carrier having bridge portions extending between the openings for the two angular profiles of a pair of profiles constituting each of said spacers, whereby portions of the bottom of said carrier supporting diagonally opposite bottles are connected by said bridge portions.

4,269,310

ASEPTIC CONTAINER AND MANIPULATOR FOR A URETHRAL CATHETER HAVING AN INTEGRAL ANTISEPTIC SOLUTION AND LUBRICANT

Aurelio C. Uson, Valle Del Moro No. 45, Las Lomos, Boadilla Del Monte, Madrid, Spain

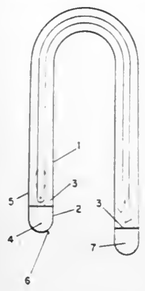
Filed May 14, 1979, Ser. No. 38,558

Int. Cl.³ A61B *19/02;* **A61M** *25/00;* **B65D** *85/00*

U.S. Cl. 206—210 **2 Claims**

1. Aseptic container and manipulator for urethral catheters providing lubricant and antiseptic, characterized by having at one end an enclosure which is separated from the main con-

tainer by a fragile wall element which is disposed transversely to the length of the container; a lubricant contained within said enclosure; a tear strip disposed in a longitudinal side of the



container for releasing the lubricant of the enclosure and opening the container; and including a second enclosure having an antiseptic solution therein, said second enclosure located in one end or the other of the container.

4,269,311

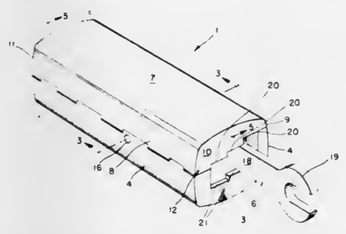
PORTABLE HAND CARRIED KIT FOR A SET OF WRENCHES AND THE LIKE

Jackson E. Rich, 405 S. Wyandotte, Bartlesville, Okla. 74003

Filed Oct. 30, 1979, Ser. No. 89,382

Int. Cl.[3] **B65D** *85/28*

U.S. Cl. 206—234 **3 Claims**



1. In a hand carried kit of the character described, a generally U-shaped elongated hollow body portion with end walls, a generally inverted U-shaped cover hingedly mounted on said body portion and having end walls, one end wall of each of said body portion and cover at the same end being provided with at least two matching openings arranged therein and extending transversely thereof in stepped arrangement, a pivot pin extending transversely of said body portion, a series of elongated generally flat shanks for wrenches and the like having varying sized and shaped heads on one end of each, said shanks being pivotally mounted and closely nsted on said pin so as to be contained and housed therewithin, said stepped openings being recessed in the respective upper and lower edges of said cover and body portion and successively being laterally offset with respect to each other and alignable to provide a series of generally uniform matched stepped openings, said shanks being alignable with said stepped openings through which a selected shank and head may be pivotally moved to project through its aligned stepped opening so as to be engageable therewith and clamped therein upon closing of said cover.

4,269,312

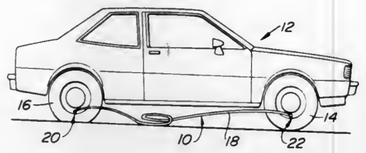
APPARATUS FOR INFLATING A DEFLATED TIRE

Peter W. Bressler, 114 Naudain St., Philadelphia, Pa. 19147

Filed Aug. 6, 1979, Ser. No. 64,221

Int. Cl.[3] **B65D** *85/04, 85/68;* **F16K** *16/20;* **B60C** *23/10*

U.S. Cl. 206—303 **6 Claims**



1. Apparatus for inflating a deflated device from a source of air comprising a length of flexible hose having a first hollow fitting on one end and a second hollow fitting on the other end, one of said fittings having means for attachment of the fitting to one of the device to be inflated and the source of pressurized air, said second fitting having an inlet and means adjacent to the inlet for opening a valve in a source of pressurized air, a spring biased check valve in said second fitting for cutting off flow from said inlet to said hose when the pressure entering said inlet is below a predetermined level.

4,269,313

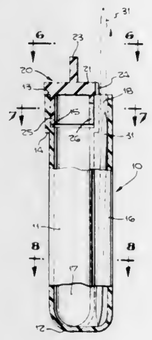
TOOTHPICK HOLDER AND DISPENSER

Forrest D. Smith, P.O. Box 3784, Eureka, Calif. 95556

Filed Sep. 24, 1979, Ser. No. 77,982

Int. Cl.[3] **B65D** *85/24*

U.S. Cl. 206—380 **5 Claims**



1. A pocket type toothpick holder and dispenser comprising:

a generally cylindrical container which is closed at one end and open at the other, said container being of sufficient size to longitudinally receive a quantity of toothpicks therein;

a cap member disposed on said open end of said container in free rotatable relation therewith and including a base part which fits over the end of said container and a depending circular portion which extends within the open end of said container;

said container being radially enlarged at one circumferential portion thereof to provide a discharge compartment running the full length of said container and which is of sufficient size to loosely receive a single toothpick, said discharge compartment being open at the open end of said container; and

the base part of said cap normally at least partially closing the open end of said discharge compartment, said base part at one circumferential portion having a recess in said base part for communicating with said discharge compartment, said base part of said cap including a radial protuberance thereon for covering the open end of said compartment in a particular rotational position of said cap member; the remaining circumference of said cap, except for said recess, being of about the same diameter as said container;

whereby upon rotating said cap to align said recess with said discharge compartment a single toothpick may be withdrawn from said container through the open end of said discharge compartment.

4,269,314

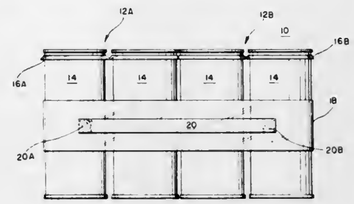
ELASTIC BAND AND HANDLE STRUCTURE FOR FORMING PACKAGES OF GROUPS OF CONTAINERS

Marshall J. Barrash, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Aug. 10, 1979, Ser. No. 65,421

Int. Cl.[3] **B65D** *71/08, 75/56;* **B65B** *61/14;* **B65D** *85/62*

U.S. Cl. 206—428 **10 Claims**



1. In combination with an endless band of elastic material for surrounding a package configuration in a stretched and tensioned condition;

an elongated handle strap of finite length extending over substantially a like finite adjacent surface length of said stretched endless band;

said handle strap having first and second ends secured to said endless band and having the surface area intermediate its ends substantially juxtaposed with the adjacent said surface of said endless band;

said handle strap being in substantially unstretched condition when said endless band is in said stretched and tensioned condition; and

said handle strap being in a relatively loose and non-juxtaposed condition with respect to said adjacent surface of said endless band when the latter is in an unstretched condition.

4,269,315

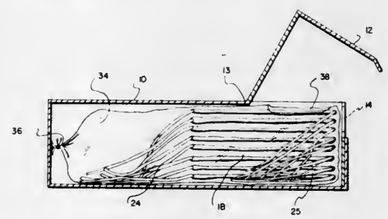
METHOD AND APPARATUS FOR PACKAGING STERILE SURGICAL MASKS

Elvin L. Boyce, 1058 Buccaneer Dr., Salt Lake City, Utah 84116

Filed Apr. 16, 1979, Ser. No. 30,481

Int. Cl.[3] **B65D** *85/24*

U.S. Cl. 206—438 **11 Claims**



1. A method of packaging surgical masks such that said masks can be dispensed one at a time without entangling the tie strings of the masks, the method comprising the steps of:

stacking said surgical masks one upon the other;

gathering said tie strings into columns at each corner of the stack of said masks;

providing a container having a length that is long enough to permit the tie strings at one end of said stack of masks to be extended toward one end of said container, and a width that is wide enough to permit the tie strings at the other end of said stack to be extended along the sides of said stack toward said end of the container; and

inserting said surgical masks into said container such that said tie strings will trail loosely behind and at the sides of said stack of masks so as to permit each mask to be freely withdrawn from said container without entangling other masks.

4,269,316

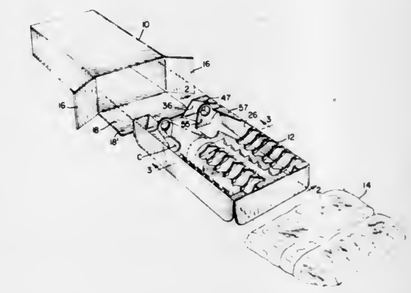
ICE CREAM CONE PACKAGE

Lawrence J. Growney, Pearl River, N.Y., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Nov. 9, 1979, Ser. No. 92,684

Int. Cl.[3] **B65D** *85/62, 5/48, 81/00*

U.S. Cl. 206—499 **10 Claims**

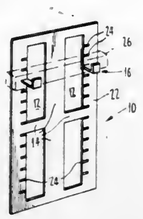


1. In a package assembly for a plurality of articles having a cone shape wherein the articles are arranged in telescoped, stacked relation and enclosed in a tubular outer carton, a cone holding tray formed from a single sheet of paperboard which is cut and scored to provide bottom, side and end wall panels with a top wall panel structure from which side and end wall panels depend, said bottom wall panel comprising a pair of laterally spaced relatively narrow strip portions hingedly connected at one end of the tray to the top edge of the one end wall by narrow hinge panels which extend downwardly of said end wall so as to lie along the inner face of said end wall, said strip portions extending in parallel relation to a wide panel portion at the other end of the tray which has its terminal edge hinged to an edge portion of a flap member which flap member has a hinged connection with the bottom edge of the end wall and is folded against the outer face of the bottom wall, said top wall panel structure comprising a longitudinally extending panel strip portion which is spaced midway between said bottom wall strip portions and which extends from a hinged connection with the top edge of said end wall panel to which said bottom wall strip portions being hingedly connected along their outside edges to a plurality of upstanding cross partition panels of narrow width which are hinged at the top to the associated sidewall, and said bottom wall strip portions being hingedly connected along their inside edges to upstanding cross partition panels which are hinged at the top to said top wall panel strip portion.

4,269,317
DISPENSER SUPPORT

Maurice D. Rubenstein, and Daniel Rubenstein, both of 15 York St., Richmond, Victoria, 3121, Australia

Filed Jul. 6, 1979, Ser. No. 55,753
Claims priority, application Australia, Aug. 16, 1978, PD5518
Int. Cl.[3] A47F 5/08
U.S. Cl. 211—72 3 Claims

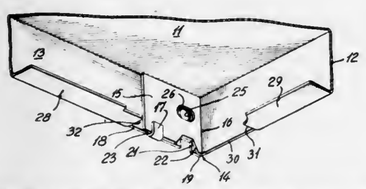


1. A support for retaining dispensers (26), said support comprising a substantially planar frame member (10) wherein:
said frame member (10) is provided with a plurality of substantially rectangular apertures (12) therein,
at least a first of said apertures being arranged adjacent to a respective side portion (22) of said frame member (10) and at least a second of said apertures being opposed to said first aperture and arranged adjacent the other side portion (22) of said frame member (10),
said first and second apertures (12) being separated by a portion (14) of said frame member (10),
a plurality of substantially horizontal slots (24) extending into each side portion (22) and communicating with the respective adjacent rectangular aperture (12),
said slots (24) in one of said side portions (22) being opposed to other slots in the other of the side portions (22), such that first bracket means (16) being engagable with a slot (24) in one of the side portions (22) by being insertable into the adjacent and sliding the bracket means (16) into engagement with the slot,
and a second bracket means (16) engagable with an opposed slot (24) in the other of the side portions (22) and being insertable into the adjacent aperture and sliding the second bracket means (16) into engagement with the slot (24),
whereby said dispenser may be supported on the first and second bracket means (16).

4,269,318
SHEET METAL SHELF

Ben Levitt, 65 Downshire Rd., Hampstead, Quebec, and Irving Levitt, 4900 Cote St. Luc Rd., Apt. 1008, Montreal, Quebec, both of Canada

Filed Sep. 7, 1979, Ser. No. 73,435
Int. Cl.[3] A47F 5/00
U.S. Cl. 211—153 5 Claims

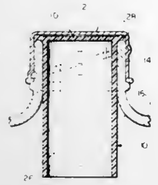


1. A one-piece metal shelf having a top panel, side walls and end walls extending down from the sides and ends respectively of the top panel, and cooperating means on the side and end walls for mechanically joining the side and end walls together at the corners of the shelf, said cooperating means comprising a first tab extending laterally from each end of each of one of the side or end walls, each first tab bent to lie against one of the other of the side or end walls; and a second tab extending from the free side edge, near each end edge, of each of the other of the side or end walls, each second tab bent to lie over a respective first tab to hold it against a respective side or end wall.

4,269,319
FLUID MEASURING CONTAINER CLOSURE CAP

George J. Rubens, 2117 Blackmore Ct., San Diego, Calif. 92109

Filed Jul. 11, 1977, Ser. No. 814,286
Int. Cl.[3] B65D 41/56
U.S. Cl. 215—228 1 Claim



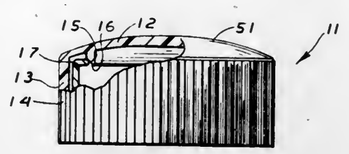
1. A cup-like measuring device for dispensing liquid from a container having a neck portion and a threaded closure cap, said device having a cylindrical plastic body portion provided with an unrestricted open end and a closed end;
said cylindrical portion in a stored condition capable of extending into the container neck with the open end directed downwardly so as to drain into the container any residual liquid remaining therein after use;
said closed end of the device having a flat peripheral shoulder extending outwardly normal from said body which in said stored position extends into the closure cap to form an annular seal when said cap is clamped to the container neck portion;
said plastic shoulder being sufficiently thin to be flexible for threading into and secured within the threaded cap;
at least a portion of said body portion being made of material capable of transmitting light so that in an inverted liquid-receiving position the level of the fluid substance contained therein can be observed through the device;
graduated indicia on said body for measuring the level of fluid in the device to be dispensed from the container; and
said peripheral shoulder has a concentric scribe mark to provide a cutting guide to enable the shoulder to be trimmed off to fit into various size container caps.

4,269,320
BLOW MOLDED PLASTIC BOTTLE AND ANTI-TAMPER CAP

John J. Virog, Jr., Massapequa Park, and Leo Von Hagel, North Massapequa, both of N.Y., assignors to Maxcap, Inc., New York, N.Y.

Continuation of Ser. No. 921,043, Jun. 30, 1978, Pat. No. 4,180,175, which is a continuation of Ser. No. 770,025, Feb. 18, 1977, Pat. No. 4,098,419. This application Dec. 21, 1979, Ser. No. 106,052
The portion of the term of this patent subsequent to Jul. 4, 1995, has been disclaimed.
Int. Cl.[3] B65D 55/02
U.S. Cl. 215—252 1 Claim

1. A combination of a blow molded plastic milk bottle and a plastic cap comprising:
(a) a neck at the mouth of said bottle, said neck having an upper, inwardly directed circumferential lip, and an exterior cap-holding projection
(b) said plastic cap adapted to be affixed on said neck to cover said mouth and having an exterior side wall and an interior downwardly directed circular plug for engaging said lip, when said cap is affixed on said neck, to form an anti-leak seal by pressing against said lip, said side wall having an interior projection for engaging said cap-holding projection of said neck, the construction and arrangement of said projections being such that their said engagement retains said cap symmetrically on said neck, said plug having a circular outer surface for engaging said lip, said outer surface being tapered to increase in diameter upwardly and to exert outward and downward force on said lip and a corresponding upward, inward force on said surface when cap is affixed on said neck, the construction and arrangement, including the wall thickness of said cap, being such that when said cap is affixed on said neck said

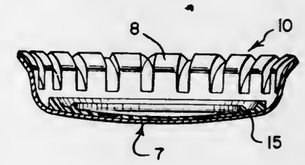


forces push the upper wall of said cap into a substantially symmetrically domed configuration with the center of said top wall being displaced upward at least about 0.02 inch from its original position with respect to the side wall of said cap, and
(c) cooperating antitamper means on said cap and bottle and including a permanently deformable element, said antitamper means permitting said cap to be moved in one direction to affix said cap on said neck to bring said plug into sealing relation to said lip and then preventing movement in the opposite, cap-removing, direction unless said element is visibly deformed.

4,269,321
PEELABLE BONDED STRUCTURES AND PROCESS FOR PREPARING SAME

Isao Ichinose, Hiratsuka; Fumio Mori, Yokohama, and Noboru Suzuki, Chigasaki, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Filed Nov. 28, 1978, Ser. No. 964,188
Claims priority, application Japan, Nov. 29, 1977, 52-142219
Int. Cl.[3] B65D 41/12; B32B 15/08
U.S. Cl. 215—343 13 Claims

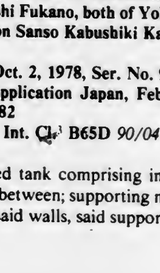


1. A peelable bonded structure comprising a plurality of articles including at least one metal article bonded together through a composite coating layer, said composite coating layer comprising adjacent first and second coating layers, at least the first coating layer comprising:
(a) an olefin resin (A) modified with a copolymerized carbonyl group-containing ethylenically unsaturated monomer whereby said modified olefin resin contains carbonyl groups at a concentration of between about 0.01 and 200 milliequivalents per 100 g of the modified olefin resin and having a degree of crystallization at least about 50%; and
(b) a coating film-forming base resin (B) at an (A)/(B) weight ratio of between about 0.2/99.8 and 40/60, and having a density greater by about 0.1 than the density of the modified olefin resin;
and said first coating layer having a multi-layer distribution structure with resin concentration gradients in the thickness direction such that the modified olefin resin is distributed predominantly in the portion contiguous to the interface between the first and second coating layers and the base resin is distributed predominantly in the opposite portion, and wherein said plurality of articles have a peel strength of between about 0.05 and 5/kg/cm between the first and second coating layers.
13. A bonded structure according to claim 1 wherein the metal substrate is a crown shell or cap shell, the polyolefin layer is a packing material and the entire structure is a vessel closure.

4,269,322
FLEXIBLE BAIL ASSEMBLY

Curtis L. Larson, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 3, 1979, Ser. No. 26,660
Int. Cl.[3] B65D 25/28, 63/18
U.S. Cl. 220—94 R 4 Claims



1. In combination:
a container having an end and opposite outer side surfaces adjacent said end;
an elongate bail having opposite ends and comprising a polyester web having a thickess in the range of 75 to 225 micrometers (3 to 9 mils), and being prestretched longitudinally at a ratio in the range of about 2:1 to 4.5:1 to uniaxially orient the web longitudinally of the bail;
adhesive coating on portions of said bail adjacent said ends adhering said end portions of said bail to the opposite side surfaces of said containers with a central portion of said bail extending transverse to the end of said container;
said uniaxially-oriented web having sufficient residual stretching ability to cushion shock applied centrally of the bail from the adhesive for attaching the end portions of the bail to a said container and restricting notch sensitivity of said web in a direction transverse to said bail; and
lengths of pressure-sensitive adhesive-coated tape adhered to said container and over the end portions of said bail to restrict contact of other objects with the adhesively-secured end portions of the bail and give the appearance of adding substantially to the structural strength of the combination.

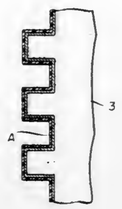
4,269,323
HEAT INSULATED TANK

Nobuyoshi Ito, Tokyo; Hiroshi Morishita, Kawasaki; Minoru Morita, and Takashi Fukano, both of Yokohama, all of Japan, assignors to Nippon Sanso Kabushiki Kaisha, Nishishinbashi, Japan

Filed Oct. 2, 1978, Ser. No. 947,696
Claims priority, application Japan, Feb. 3, 1978, 53-11281; Feb. 3, 1978, 53-11282
Int. Cl.[3] B65D 90/04
U.S. Cl. 220—423 1 Claim

1. A heat insulated tank comprising inner and outer walls having a space therebetween; supporting material interposed in said space between said walls, said supporting material being a

calcium silicate molding hving a xonotlite type crystal structure and a continuous open cell structure; amorphous type silicic acid, calcium compound and water being subjected to heating and pressing to form said calcium silicate molding; the interior facing surface and the exterior facing surface and said supporting material having criss-crossing grooves extending throughout the interior and exterior surfaces to provide a series of spaced apart projecting surfaces for limiting contact with



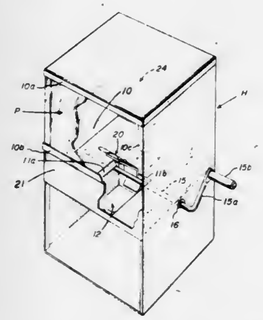
said inner and outer walls thereby decreasing heat transfer, the entire interior and exterior surfaces being impregnated with a solution selected from the group consisting of sodium silicate, potassium silicate, and ethyl silicate and subjected to baking; said supporting material being coated by metallic foil and plastic film and vacuum packed to make a heat insulating unit said metallic foil and plastic film conforming to the interior and exterior surfaces of said supporting material.

4,269,324

DISPENSER FOR PAPER-LIKE CONTAINERS

Leonard P. Hausam, 6801 50th Ave. North, Crystal, Minn. 55428

Filed Jun. 27, 1977, Ser. No. 810,529
Int. Cl.³ B65H *3/00*
U.S. Cl. 221—36 **6 Claims**



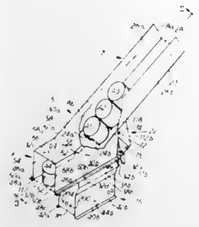
1. A dispenser for flexible paper-like containers comprising:
a storage compartment having means for supporting and positioning a stack of inverted cup-shaped flexible paper-like containers,
said means having a restricted delivery opening formed in the bottom thereof, and smaller than the containers,
a resilient dispensing member mounted for movement downwardly in an arcuate dispensing path extending through said restricted opening from initial gripping engagement position with the underside of the bottom container to a delivery position below said container supporting means, said movement being limited by at least one stop means, and
means for arcuately moving said member through said path from initial engagement position with the bottom container downwardly through said restricted delivery opening to invert the container and thus present the dispensed container in top side up delivery position.

4,269,325

CAN VENDING APPARATUS

Samuel Durham, Beebe, and Max M. Johnston, Russellville, both of Ark., assignors to Polyvend, Inc., Conway, Ark.

Filed May 23, 1979, Ser. No. 41,878
Int. Cl.³ G07F *11/00*
U.S. Cl. 221—194 **31 Claims**



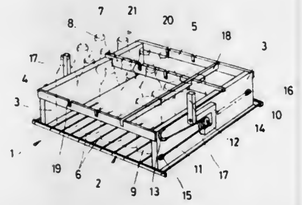
1. A product vending module comprising:
means for delivery of a supply of products to be vended;
queuing means cooperating with said delivery means to controllably permit products supplied by said delivery means to be delivered one at a time to a product vending means;
a product delivery region adjacent said product vending means, said product vending means includes,
slidable product release means adapted to receive the next product to be vended from said queuing means,
means for viewing each product received by said product release means, and
control means adapted to in sequence,
(1) slidably retract said product release means from an initial position dropping the product to be vended into said product delivery region,
(2) return said product release means to said initial position, and
(3) actuate said queuing means to release the next product to be vended to said slidable product release means.

4,269,326

DISPENSING COMPARTMENT, IN PARTICULAR FOR REFRIGERATING UNITS

Klaus Delbrouck, Peter von Flistedenstr. 5, 5000 Köln, Fed. Rep. of Germany

Filed Apr. 10, 1979, Ser. No. 28,802
Claims priority, application Fed. Rep. of Germany, Apr. 17, 1978, 2816547
Int. Cl.³ A47F *1/12, 3/04*
U.S. Cl. 221—227 **10 Claims**



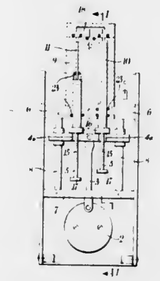
1. In a dispensing compartment for a table-high refrigerating unit accessible only from the removal side, said compartment including a substantial horizontal stand surface extending across the entire width of the compartment and provided for receiving a plurality of identical or similar formed articles, and having lateral guide walls projecting beyond the level of the stand surface as well as a front abutment wall confining the stand surface at the removal side, the improvement wherein
at least one shiftable rear abutment is provided, extending across the entire width of the stand surface and being shiftable in directions toward and away from the removal side, means for exerting a force on said shiftable rear abutment acting in the direction of the removal side comprising at least one spring engaged at one end thereof with one of the lateral guide walls and at its other end with a loose roll or reversing means, and a tension rope passed about said roll or reversing means in the manner of a tackle, said rope being secured at one end thereof to the respective guide wall with the other end of said rope being passed about a stationary roll or reversing means secured to the guide wall and connected to said shiftable rear abutment;
wherein the spring is a tension spring which is secured at the end of the guide wall remote from the removal side, while the stationary roll or reversing means and the attachment point of the tension rope are located at the end of the guide wall at the removal side;
wherein said loose roll or reversing means has a bearing block to which is secured a resetting cord, wherein the resetting cord is passed about a spool secured in the vicinity of the removal side and wherein the spool is rotatable via a drivable drive wheel coupled therewith and having a larger diameter than the spool.

4,269,327

DEVICE FOR CARRYING OUT HIGH PRECISION DILUTIONS AND DOSAGES OF LIQUIDS, PARTICULARLY BIOLOGICAL LIQUIDS

Henry H. Welch, No. 437, Via Nomentana, 00162 Rome, Italy

Filed May 24, 1978, Ser. No. 908,991
Int. Cl.³ G01F *11/06*
U.S. Cl. 222—135 **4 Claims**



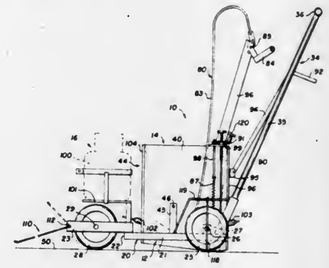
1. An apparatus for delivering precise dosages of biological liquids comprising an interchangeable block member, a support frame member releasably supporting said block member and interengaging track means and groove means on said members for slidably interconnecting said members along a given direction, said support frame member including: upper support means comprising one of said track means and groove means; two parallel uprights depending from said upper support means; a reciprocable cross bar guidably engaging said parallel uprights and movable in a direction generally perpendicular to said given direction, said cross bar having at least one laterally outwardly opening recess; and means for moving said cross bar toward and away from said block member, said interchangeable block member including: at least one chamber; a piston slidably diposed in said chamber and having a threaded bore therein; a threaded stem depending from the piston, said stem rotatably engaged in said bore and disposed to be received in the recess in said cross bar when the block member is connected with said support frame member; abutment means on said stem disposed to contact the cross bar during a portion of said movement away from the block member; an abutment member on said piston disposed to contact the cross bar during a portion of said movement toward the block member; and a set of ducts and valves in said block member for interconnecting a drawing reservoir and a delivery duct with said chamber, whereby, upon reciprocation of said cross bar, said piston is partially withdrawn from the chamber by said contact of the cross bar with said abutment means on the stem and said piston is partially driven into said chamber by said contact of the cross bar with said abutment member so that said liquid is displaced from the reservoir to the delivery duct, and whereby the quantity of liquid displaced is determined by the rotatably adjustable length of the stem between the abutment means and said abutment member.

4,269,328

LINE MARKING MACHINE WITH HEATERS

Derek A. Franklyn, 12943-54A Ave., Surrey, British Columbia, Canada

Filed Mar. 5, 1979, Ser. No. 17,265
Claims priority, application Canada, Mar. 13, 1978, 298807
Int. Cl.³ B67D *5/62*
U.S. Cl. 222—146 H **3 Claims**



1. A line marking machine for applying lines of demarkation to a road surface or the like comprising:
a carriage adapted to be moved along said road surface;
a hopper mounted on the carriage and adapted to contain a quantity of marking fluid, said hopper having a sloping bottom and adjoining walls, said adjoining walls including a rear wall spaced from said bottom to define a discharge opening through which the marking fluid can flow onto the road surface, said hopper further having parallel lower edge portions disposed to the rear of said discharge opening in a position to limit the width of a line formed as the marking fluid flows onto the road surface;
gate means mounted on the hopper for opening and closing said discharge opening;
operating means connected to said gate means for selectively positioning said gate means whereby to control the flow of marking fluid through said discharge opening;
a casing having walls spaced from said bottom and said rear wall of said hopper to form a first heating chamber adjacent said bottom, and a second heating chamber adjacent said rear wall and said gate means; and
heating means for heating the space within said heating chambers for maintaining the marking fluid located within said hopper and the marking fluid passing through said discharge opening within a predetermined temperature range.

4,269,329

PLANT-WATERING DEVICE

Terry M. Keller, 85 Estabrook #115, San Leandro, Calif. 94577

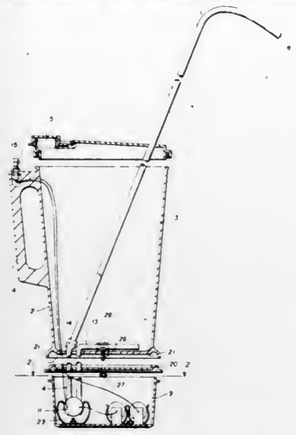
Continuation-in-part of Ser. No. 907,581, May 19, 1978, abandoned. This application Nov. 15, 1979, Ser. No. 94,578
Int. Cl.³ B67D *5/44*
U.S. Cl. 222—333 **3 Claims**

1. A plant watering device designed for watering overhead normally out-of-reach plants comprising:
a housing providing a water reservoir and having a handle

for manual portability and support in a normally upright position of use and having a liquid fill opening for said reservoir, said housing having a bottom wall;

a rigid self-supporting conduit carried by said housing and extending upwardly therefrom and having a distal, normally upper discharge end extending the vertical reach of the user;

a motor compartment positioned at the bottom of said housing, said compartment having a normally top wall secured to the bottom wall of said housing and shielding said



compartment from water escaping through said bottom wall, said compartment having a side wall demountably secured to said top wall;

an electric motor and pump connected thereto and driven thereby and a battery mounted in said compartment, said pump having an inlet connected to said reservoir and an outlet connected to said conduit; and

a manually actuatable electric switch mounted on said housing in position for conjoint manual engagement of said handle and actuation of said switch and being electrically connected to said battery and said motor.

4,269,330

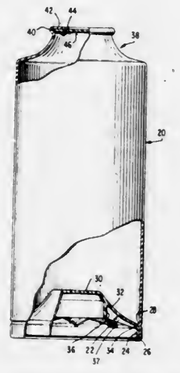
CARTRIDGE TYPE SAUCE EXTRUDER

Terry J. Johnson, One E. Schiller, Chicago, Ill. 60611

Filed Oct. 11, 1979, Ser. No. 83,620

Int. Cl.[3] B67D *5/42*

U.S. Cl. 222—386 **19 Claims**



1. In a dispensing cartridge assembly that includes a hollow, generally cylindrical cartridge body for holding the product to be discharged, and a plunger unit axially slidably received within the body, the improvement wherein said body includes a first axial length section of substantially uniform inside diameter terminating at one end of the body, and a second axial length section extending from the first length section to the other end of the body; said second axial length section including a generally cone-shaped neck portion having its minor inner diameter region adjacent said other end and having a central orifice opening in alignment with the axis of the body, said plunger unit comprising a body that includes a cylindrically shaped first portion of substantially axially uniform outside diameter that is substantially equal to said uniform inside diameter, said first portion terminating at one end of the unit, and a generally cone-shaped portion extending from said first portion and terminating at the other end of the unit, and wherein said first axial length section of the cartridge body includes axially spaced, inwardly projecting annular bulges adjacent said one end thereof to engage said first portion of the plunger unit therebetween in snap-fit relation.

4,269,331

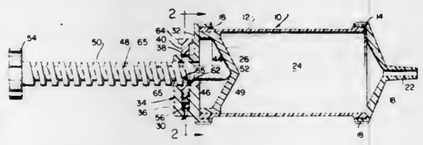
METERED DISPENSING DEVICE

John D. Watson, 906 E. Harmony La., Fullerton, Calif. 92631

Filed Feb. 15, 1980, Ser. No. 121,839

Int. Cl.[3] G01F *11/00*

U.S. Cl. 222—390 **2 Claims**



1. A metered dispensing device for thixotropic products, comprising:

a tubular housing defining a chamber having front and rear open ends;

a discharge nozzle removably secured to the rear open end;

a cap member removably secured to the front end;

a rotational release means mounted to said cap member;

said rotational release means comprising a guide member formed integrally with said cap member, and a control member slidably received in said guide member;

wherein said control member comprises a body member having a central opening therein and an inwardly projecting tooth member disposed in said opening;

said tooth also defining a latching pin;

a plurality of selectively spaced detents formed in said shaft to receive said latching pin, wherein the placement of said detents determines the amount of product to be discharged from said chamber; and

a biasing spring positioned between said guide member and said control member, to provide a controlled engagement between said control member and said shaft member;

a threaded shaft adapted to be removably mounted in said rotational release means for selective rotation thereof; and

a piston head disposed in said chamber for longitudinal movement therein, and positioned for engagement with said shaft.

4,269,332

CONTAINER WITH TUBE CLOSURE ASSEMBLY

John L. Conn, P.O. Box 4501-Station B, Spartanburg, S.C. 29303

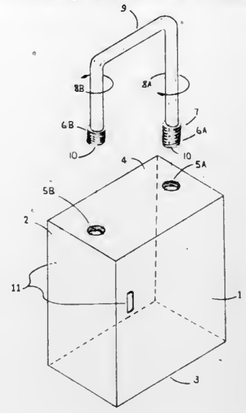
Filed Feb. 9, 1979, Ser. No. 11,152

Int. Cl.[3] B67D *5/06*

U.S. Cl. 222—475 **1 Claim**

1. A hollow container that is rectangular in shape and having two side walls, two smaller end walls, a bottom, a top, wherein said top surface of the container has two internally threaded

openings located near the smaller end walls, the one left opening having left-handed internal threads and the other opposite right opening having right-handed internal threads and two opposite indented finger gripping areas located on the larger exterior side walls near the smaller left end wall, in combination with a flexible hollow closure tube wherein said tube is of a greater length than the distance between said two top surface openings, the circumference of the tube's externally threaded ends are equal to that of the two top surface openings, the tube's left end is externally threaded with left-handed threads



and the other right tube end having externally threaded right-handed threads wherein the tube's left externally threaded end and the container's left internally threaded opening are of like threads and wherein the tube's right externally threaded end and the container's right internally threaded opening are of like threads, the tube's right externally threaded end area has a greater length-wise threaded area than that of the other left end, the central non-threaded area of the tube is of a smaller circumference than the two threaded end areas and wherein said tube and threaded end portions are of one integral piece.

4,269,333

PINCH VALVE FOR A CLOSED CONTAINER

Kiyoshi Nakai, Fujieda; Hidenobu Miyajima, Fukuroi, and Syuji Harada, Kakegawa, all of Japan, assignors to Asahi Malleablt Iron, Co., Ltd. and Nippon Light Metal Co., Ltd., both of Tokyo, Japan

Filed Jul. 31, 1978, Ser. No. 929,460

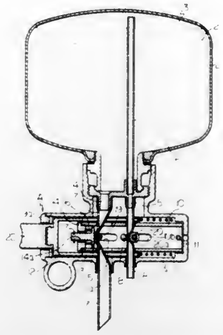
Claims priority, application Japan, Aug. 8, 1977, 52-105940[U]; Aug. 12, 1977, 52-96097; Aug. 12, 1977, 52-107120[U]; Aug. 12, 1977, 52-107121[U]

Int. Cl.[3] B67D *3/00*

U.S. Cl. 222—484 **5 Claims**

1. Device for use with a closed container for dispensing beer contained in said closed container, comprising a resilient discharge tube connected to the lower portion of said closed container for discharging beer contained therein outwardly therefrom, a resilient air inlet tube provided at the lower portion of said closed container adjacent to said resilient discharge tube, an air communicating tube in communication with said resilient inlet tube and also communicating said inlet tube with the space within said container above the level of the beer therein, and a pinch valve means arranged at the lower portion of said container for opening and closing both said resilient discharge and inlet tubes in coupled relationship with each other;

wherein the pinch valve comprises a casing, a stationary cylindrical member secured to the casing, a movable cylindrical member slidably fitted on the stationary cylindrical member, said resilient tubes passing transversely through said cylindrical members, supporting elements being mounted on the stationary member for supporting respectively one of the side surfaces of respective resilient tubes, and pressing elements being mounted on the movable member for pressing respectively the other of the side surfaces of respective tubes against said supporting ele-



ments respectively whereby the distances between supporting elements and pressing elements are changed to close or open the resilient tubes by actuating the movable member.

4,269,334

PRINTING AND PLEATING

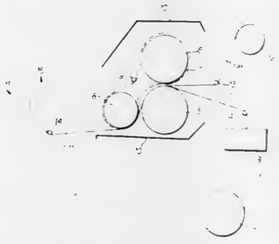
Edward Chodosh, London, England, assignor to Roldwest Limited, London, England

Filed Mar. 21, 1979, Ser. No. 22,508

Claims priority, application United Kingdom, Mar. 22, 1978, 11518/78; Dec. 12, 1978, 48152/78; Dec. 22, 1978, 49828/78

Int. Cl.[3] D06P *3/24*; A41H *33/00*

U.S. Cl. 223—28 **17 Claims**



1. A method of printing and pleating a fabric which comprises folding the fabric into a pleat pattern and then simultaneously forming the pleat and printing the fabric by passing the fabric together with a print paper in contact with at least a portion thereof through a zone heated to a temperature sufficient to cause the print colour and/or pattern to be transferred to the fabric while the folds in the fabric are simultaneously made into permanent pleats.

4,269,335

MOTORCYCLE LUGGAGE RACK

Claude LaRose, Duvernay Laval, and Jacques Gagnon, St-Lambert, both of Canada, assignors to Triangle Accessoires de Motocyclettes Ltee., St. Leonard, Canada

Filed Mar. 18, 1980, Ser. No. 131,541

Int. Cl.[3] B62J *7/04*

U.S. Cl. 224—31 **6 Claims**

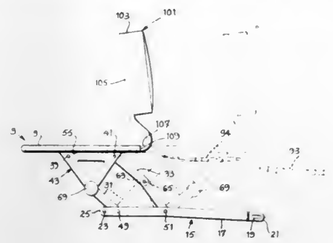
1. A luggage rack for a motorcycle, comprising:

platform means for carrying luggage;

support means spaced below the platform means for supporting the platform;

means on the support means for connecting the support means to a motorcycle;

means for movably connecting the platform means to the support means so that the platform means can move between a rear position and forward position relative to the support means, said connecting means including a pair of



spaced apart links extending down from each side of the platform means to the support means, each link being pivotably connected to the platform means and to the support means; and

means for locking the platform means in either position relative to the support means.

4,269,336

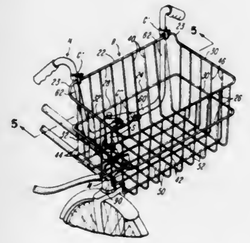
MOUNTING MEANS FOR BICYCLE BASKETS

Robert F. Humlong, Maysville, Ky., assignor to Wald Manufacturing Co., Inc., Maysville, Ky.

Filed Feb. 9, 1979, Ser. No. 10,673

Int. Cl.³ B62J *7/06*

U.S. Cl. 224—36 **1 Claim**



1. A wire basket structure for mounting on a bicycle handlebar having opposed horizontal branch portions and upwardly extending risers, said branch portions and risers being disposed substantially in a single plane, said basket including upper front, rear, and side edges defined by a circumferential top frame, an intermediate portion defined by a circumferential center frame, and two sets of U-shaped webs the upstanding legs of which are fixedly secured to said top and center frames for defining the upstanding front, rear, and side walls of the basket and wherein the lower legs of said webs define the bottom of the basket;

means anchoring the top frame of the basket to each of said handlebar risers in any one of a plurality of different vertical positions of said basket relative to the handlebar risers;

means anchoring portions of the upstanding rear leg of one of said sets of U-shaped webs to the horizontal branch portions of the handlebar in any one of plurality of different vertical positions of said basket relative to said horizontal branch portions of the handlebar;

said first mentioned anchoring means comprising a pair of upper clamps secured to and carried by the handlebar risers and including a projecting hook portion in which the top frame of the basket is received and anchored to and against relative movement with a riser;

said second mentioned anchoring means being substantially identical to said first mentioned anchoring means and comprising a pair of lower clamps secured to and carried by the horizontal branch portions of the handlebar and including a projecting hook portion in which the rear leg of said one of said sets of said upstanding U-shaped webs is received and anchored to and against relative movement with the horizontal branch portions of the handlebar,

said hook portion of each of said upper clamps projecting downwardly over, around, and under the top frame of the basket for suspending the basket from said risers of the handlebar, and said hook portion of each of the lower clamps projecting in a substantially horizontal direction over and around an upstanding rear leg of one of said U-shaped webs for anchoring the rear wall of the basket to said horizontal branch portions of said handlebar.

4,269,337

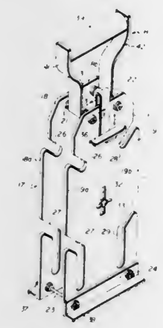
ROLLER SKATE CARRIER

Frank Sobotka, 974 Hadley Dr., Sharon, Pa. 16146

Filed Jun. 17, 1980, Ser. No. 160,321

Int. Cl.³ B65D *71/00*

U.S. Cl. 294—163 **10 Claims**



1. A carrier for a pair of roller skates of the type including a boot and a pair of wheel and axle assemblies mounted in spaced relationship on the sole of said boot comprising, in combination, a frame, said frame being provided with recess means on each side arranged in vertically spaced relationship corresponding to the spacing of said wheel and axle assemblies, said recess means on each frame side being adapted to supportingly engage the wheel and axle assembly on a respective one of said boots to support said skates in oppositely disposed relationship on the sides of said frame and releasable locking means on said frame engageable with one of said wheel and axle assemblies on each of said boots for retaining said wheel and axle assemblies in said recess means.

4,269,338

BALL HOLDER

Burton F. Sichel, 23 Evergreen Ave., Livingston, N.J. 07039

Continuation-in-part of Ser. No. 871,543, Jan. 23, 1978, abandoned. This application Nov. 16, 1979, Ser. No. 95,060

Int. Cl.³ A63B *47/00, 49/00*

U.S. Cl. 224—242 **28 Claims**

1. A ball holder carried on the person of a user and capable of retaining one or two balls comprising:

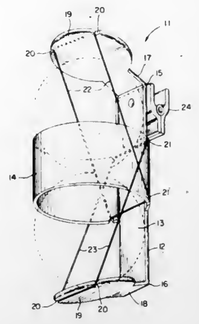
(a) a vertical strut member;

(b) an upper planar ball retaining member extending outwardly from the upper edge of said strut member;

(c) a lower planar ball retaining member extending outwardly from the lower edge of said strut member;

(d) a cylindrical ball retaining member joined to the central portion of said strut member and lying between said upper and lower planar ball retaining members;

(e) an upper pair of elastic ball retaining members extending from the outer region of said upper planar ball retaining member to said cylindrical ball retaining member;



(f) a lower pair of elastic ball retaining members extending from the outer region of said lower planar ball retaining member to said cylindrical ball retaining member; and

(g) means located on said strut member for fastening said holder to the clothing of said user.

4,269,339

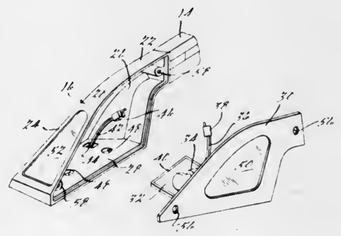
LUGGAGE CARRIER WITH ILLUMINATING MEANS

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

Filed Apr. 27, 1979, Ser. No. 33,897

Int. Cl.³ B60R *9/04*

U.S. Cl. 224—325 **7 Claims**



1. A luggage carrier mounted on a substantially horizontal surface of an automotive vehicle, said carrier including spaced side members and spaced cross members, stanchions located at at least two corners of the carrier securing the carrier to the vehicle surface, an interior area formed between said stanchions, and illuminating means provided in at least one of said stanchions to illuminate said interior area.

4,269,340

LOAD BEARING CROSS-SLAT

Ben C. Kowalski, Troy; Daniel J. Kowalski, Ortonville, and Douglas J. Ferguson, Davisburg, all of Mich., assignors to Four Star Corporation, Troy, Mich.

Filed Sep. 28, 1979, Ser. No. 79,943

Int. Cl.³ B60R *7/00*

U.S. Cl. 224—326 **4 Claims**

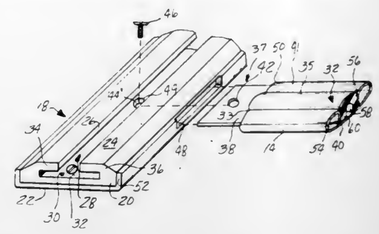
1. A load bearing assembly for an automotive vehicle mounted carrier of the type including a pair of spaced track members fixed to a vehicle surface and at least one cross-slat supported between said track members, the improvement wherein

(a) each track member includes

(1) a base portion adapted to be supported upon said vehicle surface,

(2) inner and outer end walls projecting upwardly from said base portion,

(3) upper wall portions projecting inwardly from said end walls and vertically spaced above said base portion, the inner ends of said upper wall portions being transversely spaced whereby the base portion, the end walls



and said upper walls define an inverted T-type slot extending longitudinally of each track member,

(4) a transverse opening formed through each inner end wall;

(b) said cross-slat including tongue-like elements formed at each end thereof, said tongue-like elements respectively projecting through said inner wall openings and extending transversely of said track slot; and

(c) common means for non-movably fastening said each tongue-like element and its associated track member to said vehicle surface.

4,269,341

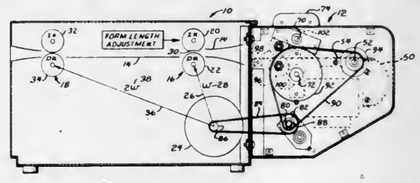
STATIONERY BURSTER

Peter R. Polko, Palatine, Ill., assignor to Uarco Incorporated, Barrington, Ill.

Filed Nov. 5, 1979, Ser. No. 91,336

Int. Cl.³ B26F *3/02*

U.S. Cl. 225—94 **4 Claims**

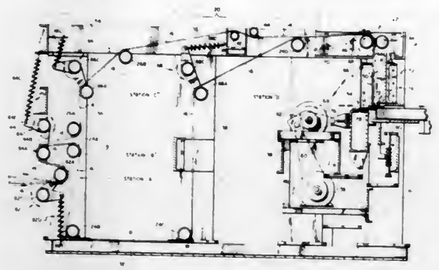


1. In a stationary burster having substantially abutting, rotatably mounted, first and second infeed rolls, substantially abutting, rotatably mounted, first and second outfeed rolls spaced from said infeed rolls along a path of stationery travel, a relief on the peripheral surface of said first infeed roll, a rotatable drive for the second infeed and second outfeed roll such that the peripheral speed of the second outfeed roll will be greater than that of the second infeed roll and said first rolls will be idler rolls with respect to their respective second rolls, and means for adjusting the spacing between said infeed rolls and said outfeed rolls to accommodate stationery of differing form lengths; the improvement comprising:

a pinfeed tractor device for positively engaging stationery and located ahead of said infeed rolls along said path of stationery travel, a drive for said tractor device such that said tractor device would drive stationery along said path at a speed in the range from just less to 10% less than the speed the stationery would travel along said path if posi-

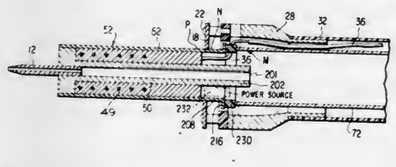
tively advanced solely by said second infeed roll; and clutch means interconnecting said tractor device and said tractor drive.

4,269,342
RESILIENTLY STABILIZED WEB MOVEMENT FOR HONEYCOMB MACHINE
Daniel H. Ellinor, 6820 Briar Cove, Dallas, Tex. 75240
Division of Ser. No. 20,759, Mar. 15, 1979, Pat. No. 4,229,243. This application Oct. 1, 1979, Ser. No. 80,445
Int. Cl.³ G03B *1/28;* B65H *17/94*
U.S. Cl. 226—60 **5 Claims**



1. Apparatus for intermittently advancing a length of web material from a supply roll to a processing station comprising:
a frame;
web drive apparatus mounted on the frame including a pair of index rollers for engaging the web, pulling it from the supply roll and feeding it to the processing station in response to rotation of the index rollers;
drive control means coupled to the web drive apparatus for alternately starting and stopping rotation of the index rollers during successive feeding and processing cycles, respectively; and,
resilient means mounted on the frame intermediate the supply roll and web drive apparatus for yieldably engaging the web and thrusting it out of its plane of advance to continuously maintain the web under tension loading as the web is alternately advanced and halted during the successive feeding and processing cycles, respectively.

4,269,343
DESOLDERER AND HEATER ASSEMBLY FOR USE THEREWITH
William J. Siegel, Silver Spring, Md.; Walter Lee, Springfield, Va., and Alexander J. Vella, Derwood, Md., assignors to Pace Incorporated, Laurel, Md.
Filed Aug. 18, 1978, Ser. No. 934,976
Int. Cl.³ B23K *3/04*
U.S. Cl. 228—20 **49 Claims**

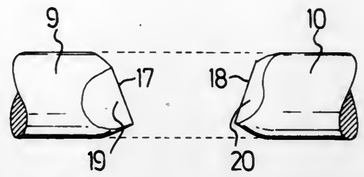


1. A desolderer comprising
a tubular tip adapted for contacting a termination to be desoldered;
a heating element for heating said tip to a solder melting temperature;
a solder collection chamber;
a tubular solder transfer means for transferring solder from said tip to said solder collection chamber, said heating element heating said solder transfer means to said solder melting temperature;
a tubular sleeve within which is disposed said heating element and said solder transfer means;
said solder collection chamber being adapted for connection to a vacuum source so that a vacuum is established in said tip, said solder transfer tube and said solder collection chamber;
sealing means for sealing the forward end of said solder collection chamber with respect to at least the rear portion of the tubular sleeve to ensure the application of said vacuum to said solder transfer means from said vacuum source through said solder collection chamber;
electrical wires adapted for connection to an electrical power source; and
means for hermetically passing the electrical wires from a point outside said vacuum to a point within said vacuum and hence to said heating element.

39. A heater assembly for a desolderer having a tubular tip adapted for contacting a termination to be desoldered, a tubular solder collection chamber, sealing means for vacuum sealing the forward end of said solder collection chamber, and a tubular handle within which is disposed said tubular solder collection chamber, said chamber being spaced from and substantially coaxial with the handle, said heater assembly comprising
a heating element for heating said tip to a solder melting temperature; and
a tubular core upon which said heating element is mounted, said tip being disposed at least within the forward portion of the tubular core;
a tubular solder transfer means connected to the rear portion of said tubular core and extending into the solder collection chamber;
a seal mounting means providing a sealing surface for said sealing means for the forward end of the solder collection chamber, said sealing surface being spaced and separate from said tubular handle and being removed from said solder transfer means and the thermal characteristics of said seal mounting means being such that the sealing means can be maintained at a temperature less than that of the solder transfer means to thereby promote seal longevity and yet maintain the solder in a molten state as it is ejected into the solder collection chamber; and
a tubular sleeve connected to the forward portion of the tubular core and within the tubular sleeve being disposed said heating element, said core and said solder transfer means, at least the rear portion of the sleeve comprising said seal mounting means wherein said sealing means is in direct contact therewith and where the axis of the tubular sleeve substantially coincides with (a) the axis of the passageway formed through said tip, said core and said solder transfer means and (b) the axes of the handle and the solder collection chamber, so that a vacuum is established in said tip, said core, said solder transfer means and said solder collection chamber in response to said solder collection chamber being connected to a vacuum source.

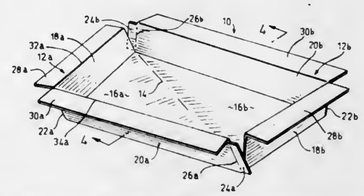
4,269,344
PRESSURE WELDING METAL BARS TOGETHER
Rene Vervliet, Hemiksem, Belgium, assignor to Societe Franco-Belge des Laminoirs et Trefileries d'Anvers "Lamitref", Hemiksem, Belgium
Continuation-in-part of Ser. No. 907,743, May 19, 1978, abandoned. This application Nov. 7, 1978, Ser. No. 958,577
Claims priority, application United Kingdom, May 24, 1977, 21907/77
Int. Cl.³ B23K *20/02;* B21C *1/18;* B21B *15/00*
U.S. Cl. 228—125 **12 Claims**

1. In a process for continuously producing copper wire rods in an on-line plant, which process comprises the steps of passing a number of wire bars at hot rolling temperature one by one through a rolling mill for delivering one after another a number of copper bars, butt welding under pressure the leading end of each copper bar leaving said rolling mill to the trailing end of a continuous string formed by the preceding bars which are already welded to each other, removing at the weld the material which projects beyond the contour of the string, and continuously rolling said continuous string through a continuous



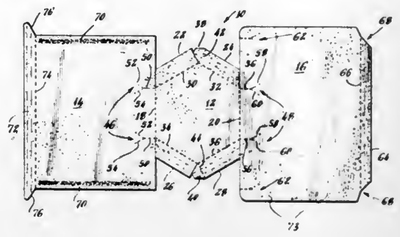
rolling mill into wire rods, the improvement which comprises using a welding step in which both ends to be welded have a wedge-shape and are pressed together with the edges of the wedges in crossing relationship, the interface being below melting temperature, and the pressing being conducted in one single pressing step.

4,269,345
NESTABLE MOULDED CONTAINER
Roy W. Emery, 1 Donino Ct., Toronto, Ontario, Canada (M4N 2H6)
Filed Aug. 10, 1979, Ser. No. 65,462
Int. Cl.³ B65D *1/18*
U.S. Cl. 229—2.5 R **1 Claim**



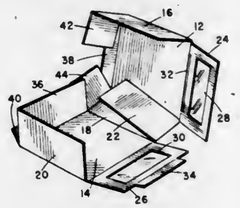
1. A rectangular integrally moulded container comprising, two container portions, each container portion consisting of a triangular bottom wall segment and two side walls formed in upstanding relationship with respect to the bottom wall segment and joined at an upstanding rigid corner, the bottom wall segments of the container portions being joined along a hinge line which extends diagonally between the two other corners of the container across the bottom thereof; a tab integrally connected to one of the side walls of the container at each of said other corners and bendable to overlie and join the side wall of the opposite container portion at that corner; and top wall members hingedly connected to side walls of both segments and hingeable to overlie the container, the container having a first configuration in which it is moulded and in which the bottom wall segments are mutually inclined to dispose the side walls of the two container portions in a divergent relationship to facilitate removal from the mould and subsequent nesting of containers, and having a second configuration for a set-up container in which the bottom wall segments are coplanar and the side walls of the two portions meet and are joined by the tabs at the ends of the hinge line to make said other corners rigid.

4,269,346
ROUND ICE CREAM CARTON
Daniel P. Dutcher, Woodbury, Minn., assignor to Champion International Corporation, Stamford, Conn.
Filed Oct. 26, 1979, Ser. No. 88,413
Int. Cl.³ B65D *3/00, 3/04*
U.S. Cl. 229—21 **15 Claims**



1. A blank comprising:
first and second generally rectangular spaced apart panels;
a polygonally shaped panel disposed between said first and second panels and hingedly connected to the first edge of each of said latter mentioned panels by a fold line;
first and second strips respectively hingedly connected by corresponding fold lines along a second edge of said first and second panels opposite said first edges and distal from said polygonally shaped panel,
said first strip including an extension flap on each of the opposite extremities thereof, each of said extension flaps extending outwardly away from said first panel and beyond corresponding third and fourth edges of said first panel,
said second strip including an edge on each of the opposite extremities thereof spaced inwardly away from the corresponding third and fourth edges of said second panel.

4,269,347
END TAB FILE FOLDER STORAGE FILE
Donald R. Cavan, Jr., 4910 Crestland, La Mesa, Calif. 92041
Continuation-in-part of Ser. No. 837,610, Sep. 28, 1977, abandoned. This application Jun. 14, 1978, Ser. No. 915,171
Int. Cl.³ B65D *5/22*
U.S. Cl. 229—33 **6 Claims**



1. A storage carton blank made from foldable sheet material, said blank adapted to be folded into a rigid sided container having a front opening, said blank comprising:
a sheet of substantially rigid foldable material cut and scored to define a plurality of interconnected panels including a top panel for defining a top, a bottom panel for defining a bottom, a plurality of side panels for defining reinforced sides, a back panel for defining a back and a plurality of front panels for defining an openable front,
said top and bottom panels are each generally square in configuration,
said side panels comprise a pair of generally rectangular

panels adapted to overlap for defining each reinforced side,

one of said pair of side panels is formed of an intermediate panel between the top and bottom panel and an extension of said intermediate panel that is foldable to overlap the intermediate panel, and

said front panels consist of first and second panels extending from said top and bottom panels at least one of said first and second panels having an opening that provides for viewing the contents of the container, the other of said pair of side panels is formed of first and second panels extending from the top and bottom panels,

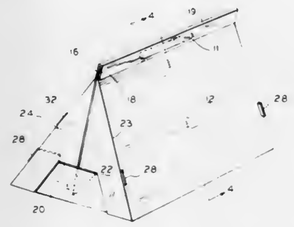
said back including panels extending from each of said top panel, said bottom panel, and said side panels, and are defined by one full size panel and a plurality of half panels.

4,269,348

TRIANGULAR CARRYING CONTAINER

Harry E. Young, Houston, Tex., assignor to Container Corporation of America, Chicago, Ill.

Filed Oct. 29, 1979, Ser. No. 89,046
Int. Cl.³ B65D *5/46, 25/22*
U.S. Cl. 229—52 B **2 Claims**



1. An integral handle, self-locking, carrying container requiring no additional fastening means and being formed from a unitary blank of foldable paperboard or the like, comprising:

(a) a bottom wall;

(b) a pair of upwardly converging first and second side walls having their lower edges foldably joined to opposed side edges of said bottom wall, and forming with said bottom wall a tubular construction which is generally triangular in cross-section;

(c) said side walls having foldably joined to their upper edges integral handle sections adapted to be folded together in interlocking relation;

(d) opposed pairs of center, first side, and second side end walls foldably joined at their side edges to adjacent end edges of related bottom and side walls;

(e) said center and side end walls being disposed in overlapping relation with each other and in interlocking relation with each other and with said side walls; and

(f) said side end walls having projections received within openings in said center end walls, and said side end walls having portions located outboardly of said center end walls and having other portions located inboardly of said center end walls.

4,269,349

SOLID FUEL FURNACE

Bunyan B. Cagle, 1700 Towson Ave., Fort Smith, Ark. 72901

Continuation-in-part of Ser. No. 813,962, Jul. 8, 1977, Pat. No. 4,149,671. This application Mar. 8, 1979, Ser. No. 18,669
Int. Cl.³ F23N *1/02*
U.S. Cl. 236—11 **2 Claims**

1. A solid fuel furnace comprising

a firebox for containing a fire therein,

a combustion air manifold for supplying air to the firebox,

a heating chamber surrounding the firebox,

a circulating fan to force air through the heating chamber and around the firebox to circulate heated air to a room,

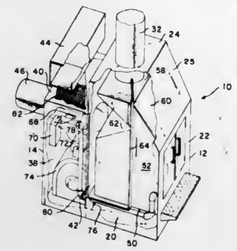
a normally open limit switch responsive to temperature within the heating chamber for controlling said circulating fan,

a thermostat responsive to temperature of the room,

a normally closed high thermal limit switch responsive to the temperature in the heating chamber,

a combustion air blower controlled by the thermostat and the high limit switch in series, said blower being connected to the combustion air manifold whereby air is injected into the firebox to increase the rate of combustion of fuel therein when there is a heating demand,

an auxiliary chamber joined to the heating chamber by a firewall, the circulating air fan and the combustion air blower being located in the auxiliary chamber,



wherein the firebox has a firebox base and the furnace has a furnace base with the firebox base being spaced above the furnace base, and wherein the circulating air fan output enters the heating chamber underneath the firebox base,

a smoke shelf formed as an indentation in the firebox,

a heated air duct extending through the auxiliary chamber and opening through the firewall into the heating chamber adjacent the smoke shelf in the firebox, and

a pair of baffles, one on each side of the firebox, each baffle being connected to both the respective side wall of the firebox and the outer side wall of the heating chamber, the baffles directing air from the circulating air fan from underneath the firebox upwardly along the sides of the firebox to the top of the firebox and then downwardly along the rear wall of the firebox to enter the heated air duct.

4,269,350

THERMOSTATIC FLUID VALVE WITH POWER ELEMENT EXTENSION AND METHOD OF CONSTRUCTING SAME

Mark E. Beck, Villa Park, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jul. 24, 1978, Ser. No. 927,254
Int. Cl.³ G05D *23/12*
U.S. Cl. 236—34.5 **5 Claims**

1. A temperature responsive fluid valve mountable in an engine cooling system, said valve comprising:

(a) upper housing means having a fluid passageway therethrough, said upper housing means defining an annular valve seat on the inner surface thereof;

(b) lower housing means connected to said upper housing means, said lower housing means having a centrally located opening therethrough, said lower housing means having a fluid passageway therethrough;

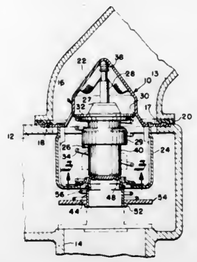
(c) temperature responsive means having its upper end abutting said upper housing means, and its lower end aligned with said opening;

(d) first valve means mounted on said temperature responsive means and movable therewith;

(e) first biasing means for urging said first valve member toward said first valve seat;

(f) extension means projecting from the lower end of said temperature responsive means and axially aligned therewith, said extension means including an elongated tubular member with the upper end thereof having an inwardly turned flanged portion;

(g) means for connecting said inwardly turned flange to the lower end of said temperature responsive means, said connecting means comprising a substantially solid boss located on the lower end of said temperature responsive means, said boss having deformed portions overlapping and axially compressing said inwardly flanged portion of



said tubular member against the lower end of said temperature responsive means;

(h) second valve means received on said tubular member and movable therewith; and

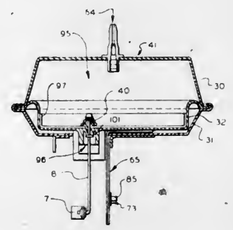
(i) said temperature responsive means movable in response to sensed fluid temperature above a predetermined minimum value between a first position in which said first valve member seals against said first valve seat for blocking fluid flow through said valve, and a second position in which said first valve member is spaced from said first valve seat for permitting fluid flow through said valve.

4,269,351

PROPORTIONAL STROKE AUTOMATIC TEMPERATURE CONTROL SYSTEM

John W. Orcutt, Norton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 830,530, Sep. 6, 1977, Pat. No. 4,206,645, which is a division of Ser. No. 501,711, Aug. 29, 1974, Pat. No. 4,063,682, which is a continuation of Ser. No. 422,954, Dec. 7, 1973, abandoned. This application Jul. 19, 1979, Ser. No. 58,884
Int. Cl.³ G05D *23/00*
U.S. Cl. 236—87 **9 Claims**



1. A device for sensing the characteristics of its surroundings at a given point and for providing increased output which is directly proportional thereto at a second point, comprising:

(a) sensing means having a movable output arm;

(b) feedback means attached mechanically to the output arm of the sensing means, the mechanical attachment being a force multiplying device whereby the force applied to the feedback means from the output of the sensing means is proportionally increased; and

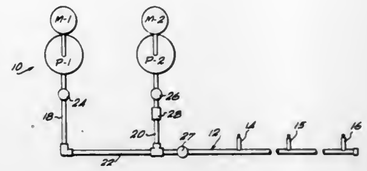
(c) a vacuum motor having an output, said vacuum motor having a feedback valve attached to said feedback means so that the feedback means interacts with the motor to vary the vacuum within the motor according to the movement of the output of the sensing means and thereby causes the output of the vacuum motor to be directly proportional to the output of the sensing means.

4,269,352

WATER PUMP ARRANGEMENT AND ELECTRIC CIRCUITRY FOR A FOUNTAIN DISPLAY

Gunter Przystawik, 5230 Tamiami Ct., Cape Coral, Fla. 33904

Filed Apr. 16, 1979, Ser. No. 30,518
Int. Cl.³ B05B *17/08*
U.S. Cl. 239—17 **2 Claims**



1. A fountain display comprising a supply of liquid,

a liquid discharge nozzle,

a main conduit connected to the nozzle,

first and second motor driven pumps each having an inlet port communicating with the supply of liquid and each having a discharge port,

separately operable means to operate the first and second pumps individually and to operate both pumps simultaneously,

separate branch conduits connecting the discharge ports of the first and second pumps with the main conduit,

an adjustable gate valve in each of the branch conduits to the first and second pumps to determine the desired maximum height of liquid discharge at the nozzle when both pumps are operated simultaneously,

the first and second pumps being so constructed and arranged that when the second pump is operated separately a portion of the liquid pumped thereby is permitted to escape and the liquid discharged at the nozzle is approximately one third of said maximum height, and

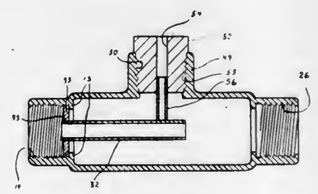
a check valve in the branch conduit interconnecting the second pump with the main conduit whereby when the first pump is operated separately the liquid discharged at the nozzle is approximately two thirds of said maximum.

4,269,353

EXHAUST OPERATED VAPORIZER

Tony J. Ivandick, 2593 Shorewood Dr., and Mark J. Ivandick, 2287 Bensonhurst Dr., both of Florissant, Mo. 63031

Filed Aug. 31, 1979, Ser. No. 71,099
Int. Cl.³ A01M *19/00*
U.S. Cl. 239—77 **12 Claims**



1. An exhaust operated vapor producing device comprising

a body portion having a chamber therein, said body portion having inlet and outlet ports formed therethrough which communicate with said chamber,

said inlet port having a tubular connecting member associated therewith for operatively attaching said device to exhaust producing means, said tubular connecting member having a passageway extending therethrough, said body portion having an opening therethrough intersecting said chamber at an intermediate location therealong, means associated with said opening for introducing the material to be vaporized into said chamber, said means having a passageway extending therethrough, a tubular guide positioned in said passageway extending through said means associated with said opening, said tubular guide extending into said chamber engaging said tubular connecting member at a location therealong, whereby the material to be vaporized is guided to said tubular connecting member and agitated by said tubular guide to insure a free flow of the material to be vaporized so that hot exhaust gases flow through said tubular connecting member into said chamber therein heating said chamber to a sufficient temperature so as to vaporize the material entering said chamber and mixing with the vapor so that a vapor-exhaust mixture is expelled through said outlet port.

4,269,354

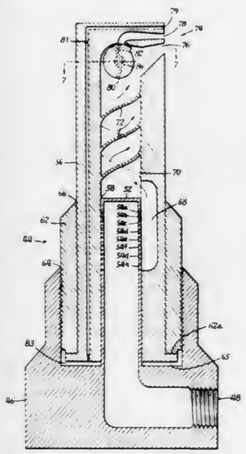
WATER SPRINKLER

Robert E. DeWitt, 49 Sherwick Rd., Oswego, Ill. 60543

Continuation-in-part of Ser. No. 893,268, Apr. 5, 1978, Pat. No. 4,180,210. This application Jun. 25, 1979, Ser. No. 51,861

Int. Cl.³ B05B *3/08*

U.S. Cl. 239—97 **17 Claims**



1. A water sprinkler for distributing water over a desired area of regular or irregular shape, the sprinkler comprising:

a sprinkler body adapted for fixed placement with respect to said area;

a spray head mounted rotatably upon said sprinkler body;

a water inlet port formed in said sprinkler body and communicating to a pressurized source of water;

a water outlet port in said sprinkler body communicating to said spray head;

primary pattern generation means for controlling the pattern of water distribution from said spray head, said primary pattern generation means comprising:

a first member defining a sampling aperture communicating to said inlet port, and

a second member defining at least two pattern-forming apertures one or more of which communicate to at least a portion of the sampling aperture, the area of each pattern-forming aperture which communicates to the sampling aperture being limited to regulate the volume of water flowing through said second member from the sampling aperture, and

a third member comprising a land area in facially-sealing relationship to said second member and which is movable selectively to close from none to all of said pattern-forming aperture(s), and wherein

one of the first and second members rotates with the spray head while the other is relatively fixed in the sprinkler body; and

secondary pattern generation means for adjusting the definition of the pattern of water distribution, the secondary pattern generation means comprising a variable flow port communicating between the water inlet and water outlet ports in parallel with the flow through the sampling and pattern-forming apertures,

whereby the shape and size of the distribution pattern may easily be regulated.

4,269,355

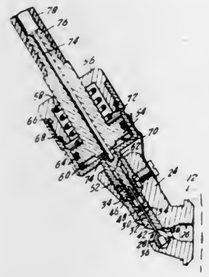
SELF-CLEANING SPRAY NOZZLE

John D. Geberth, Jr., Rifle Camp Rd., West Paterson, N.J. 07424

Filed Mar. 19, 1979, Ser. No. 21,499

Int. Cl.³ B05B *15/02, 1/32*

U.S. Cl. 239—107 **3 Claims**



1. A self-cleaning spray nozzle for use with a spray device adapted for hydraulically atomizing and spraying liquids, said spray device including conduit means communicating with a source of liquid under pressure, said spray nozzle including:

(a) a spray nozzle housing including means for securing said housing to said spray device;

(b) a fluid bore in said housing communicating with said conduit means and terminating in a spray opening in said housing;

(c) a valve bore in said housing intersecting said fluid bore adjacent said spray opening;

(d) a valve stem in said valve bore the end of which forms part of said spray opening;

(e) means for adjustably moving said valve stem in said valve bore to vary said spray opening to thereby vary the fan spray issuing therefrom; and

(f) means, in addition to the means for adjustably moving said valve stem, for abruptly retracting said valve stem in said valve bore to abruptly open said spray opening to its fullest extent to thereby permit the dislodgement of matter clogging the spray opening by means of the pressure of said liquid.

4,269,356

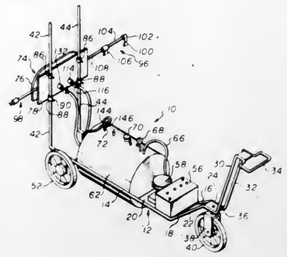
PORTABLE AGRICULTURAL SPRAYER

Donald D. Rose, 412 Breezy La., Wharton, Tex. 77488

Filed Dec. 21, 1978, Ser. No. 971,680

Int. Cl.³ B05B *1/20*

U.S. Cl. 239—167 **5 Claims**



1. A portable, wheeled, hand-moved agricultural sprayer capable of continuous operation comprising, in combination

an elongated tubular metal frame having a push handle at one end and a pair of vertically extending tubular metal supports at the other end,

a pair of wheels supported at one end portion of said frame,

spray boom support means adjustably supported on said vertically extending supports and adapted to be supported at any predetermined position thereon,

said boom support means comprising a pair of parallel, spaced support plates,

means supporting said plates in spaced relation,

means on one of said plates supporting said spray booms for pivotal movement thereon,

the other of said plates having a pair of slots therein,

said adjustable securing means being positioned in said slots and cooperating with said spray booms to support and secure the same in any predetermined pivotal position,

a pair of hollow tubing spray booms pivotally supported on said boom support means and extending from opposite sides thereof,

a plurality of spray nozzles supported on said hollow tubing spray booms,

adjustable securing means on said boom support means cooperable with said spray booms to adjust and secure said booms independently in any predetermined pivotal position,

a tank supported on said frame for carrying a liquid to be sprayed and operable under air pressure to produce a continuous spray of liquid,

conduit means connecting said tank to said spray booms to supply liquid for spraying,

an electrically driven compressor supported on said frame for supplying compressed air,

conduit means connecting said compressor to said tank to maintain the same under air pressure for spraying, and

an electric storage battery supported by said frame and connected to said electrically driven compressor.

4,269,357

CONTINUOUS DRIP IRRIGATION TUBE

S. W. O. Menzel, Adelaide, Australia; Donald E. Mock, Covina, Calif.; David E. Mominee, Alpine, Calif.; Gilbert W. Vance, Jamul, Calif., and Dale P. Zauner, LaJolla, Calif., assignors to RIS Irrigation Systems, El Cajon, Calif.

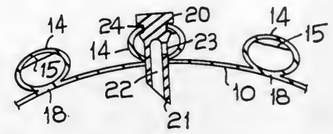
Filed Feb. 6, 1978, Ser. No. 875,518

Claims priority, application Australia, Feb. 8, 1977, PC8985

Int. Cl.³ A01G *25/02*

U.S. Cl. 239—272 **9 Claims**

1. A continuous drip irrigation tube comprising an extruded strip section having opposite longitudinal edge portions, at least one capillary tube extruded integrally with said strip section, and a common wall forming a portion of said capillary tube, said common wall of the strip having a plurality of inlet apertures leading to the interior of said capillary tube, means for joining said edge portions together to form said strip section into a tubular construction which defines a supply passage, said common wall forming a portion of the supply passage, said inlet apertures providing communication between the supply



passage and the interior of the capillary tube, said capillary tube having a plurality of outlet apertures in the wall thereof providing communication between the interior of the capillary tube and the exterior of the drip irrigation tube, and said inlet apertures existing in said common wall even in the absence of said joining means.

4,269,358

BINARY FLUID BURNER DEVICE WITH BURNER UNITS COMBINED WHICH FUNCTIONS AS IF IT WERE A SINGLE LARGE-CAPACITY BURNER

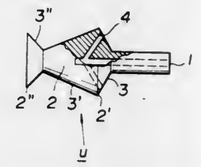
Shigemori Ohtani, and Shoji Tanno, both of Sendai, Japan, assignors to Kabushikikaisha Ohkawara Seisakusho, Yoshida, Japan

Filed Jul. 27, 1979, Ser. No. 61,381

Claims priority, application Japan, Aug. 22, 1978, 53-101443

Int. Cl.³ B05B *7/06*

U.S. Cl. 239—425 **6 Claims**

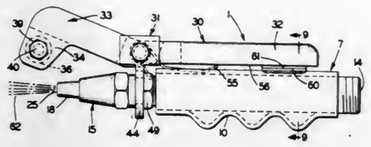


1. A binary fluid burner comprising a burner head defining a plurality of symmetrically arranged orifices and at least one orifice positioned between the symmetrically arranged orifices through which only air passes and a nozzle smaller than said orifices and around which air passes positioned in each of said symmetrically arranged orifices, each said nozzle defining an axial fuel passageway disposed interiorly of said nozzle, a tip portion, a first frustoconical portion diverging in the downstream direction, a first conical portion converging in the downstream direction extending from the widest portion of the first frustoconical portion, said first frustoconical portion and said first conical portion blocking said tip portion, said first frustoconical portion diverging from said tip portion toward the extreme end of said nozzle and defining a plurality of fuel outflow passageways connected to said axial fuel passageway, said fuel outflow passageways being positioned to flow fuel backwardly from the fuel's forwardmost position in the axial fuel passageway until met by air passing over the diverging first frustoconical portion and a second frustoconical portion diverging in the downstream direction extending from the narrowest portion of said first conical portion converging in the downstream direction.

4,269,359
VALVE CONSTRUCTION FOR PRESSURIZED FLOW OF ABRASIVE GRANULAR MATERIAL

Lynn R. Neiss, 4680 Alabama Ave., Navarre, Stark County, Ohio 44662

Filed Jun. 19, 1978, Ser. No. 916,716
Int. Cl.³ B24C 5/02
U.S. Cl. 239—530
4 Claims



1. A combination of a pressurized source of abrasive granular material and a valve construction for use in controlling the flow of granular material, said valve construction including:

(a) handle means having an outlet nozzle and a supply inlet opening communicating with said nozzle, the inlet opening being in communication with said pressurized source of abrasive granular material, said nozzle terminating in a discharge outlet for directing a spray of granular material against an object, said handle means including a section of rigid pipe having a first threaded end in which said outlet nozzle is threadedly engaged and a second end forming said supply inlet opening, said handle further including a flexible gripping sleeve telescopically mounted on the section of rigid pipe and containing a plurality of finger receiving depressions;

(b) lever means pivotally mounted on the handle means for movement between open and closed position, said lever means having a first gripping end portion and a second nozzle sealing end portion, said end portion forming an included obtuse angle therebetween;

(c) spring means biasing the lever means toward closed position;

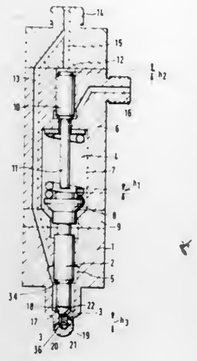
(d) sealing means mounted on said second nozzle sealing end portion for movement with said lever means, said sealing means externally blocking the outlet opening of the nozzle when the lever means is in closed position to prevent flow of said granular material from the nozzle, said second nozzle sealing end portion including a pair of spaced flanges, sealing means including a hollow resilient sealing member telescopically mounted on a removable pin extending between the spaced flanges; and

(e) a pivot means mounted on the handle means for pivotally mounting the lever means on the handle means for movement between the open and closed positions, said pivot means including a collar mounted around the handle means, said collar containing a central opening for receiving said handle means and further containing a pair of spaced projections formed thereon and extending therefrom, said pivot means further including a pivot pin extending transversely between said spaced projections for providing said movement, said spring means being a coil spring having a pair of outwardly extending ends, said spring being telescopically mounted on the pivot pin, one of the spring ends engaging the handle means and the other spring end engaging the lever means to bias the lever means toward closed position.

4,269,360
FUEL INJECTION NOZZLE

Odon Kopse, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 13, 1978, Ser. No. 886,319
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1977, 2711902
Int. Cl.³ F02M 47/02
U.S. Cl. 239—533.8
4 Claims



1. In a fuel injection nozzle through which pressurized fuel is delivered to an internal combustion engine, the nozzle including: a nozzle body in which a bore is defined leading to a plurality of injection openings through which the fuel is injected; a valve needle having at least one end thereof extending into said bore for controlling the opening extent of said injection openings; a closing spring mounted to engage the valve needle and exert a force against the valve needle to move said valve needle toward the injection openings; and an adjusting piston mounted in axial alignment with the valve needle, the adjusting piston being mounted to exert an additional force against the valve needle tending to move the valve needle toward the injection openings, the improvement wherein:

said nozzle body and said valve needle include complementally formed engaging surfaces capable of preventing fuel flow when said valve needle is depressurized;

said bore defined by said nozzle body includes a blind bore into which the injection openings open;

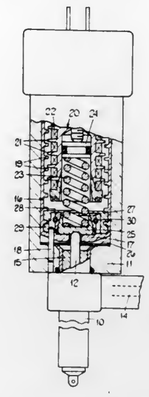
said valve needle includes a frontal portion that cooperates with said blind bore to define a first chamber, a cylindrical section at said at least one end thereof, radially sealable in said blind bore, channel means in said cylindrical section of said valve needle arranged to deliver fuel from a pressure chamber to said first chamber wherein said channel means are closed to fuel delivery when said complementally formed sealing surfaces are in engagement, and at least a pair of pressure receiving surfaces displaced axially relative to each other along the valve needle, such that the pressure exerted against the pressure receiving surfaces when said pressure receiving surfaces are exposed to the pressurized fuel results in a force on each surface tending to move the valve needle away from the injection openings against the spring force and said additional force;

said valve needle having a two-stage opening stroke, whereby a portion of the injection openings are opened by the radially sealed cylindrical section of said valve needle for fuel passage therethrough as a result of the fuel pressure acting against at least one of said pair of pressure receiving surfaces, and the remainder of the injection openings are opened by the radially sealed cylindrical section of said valve needle for fuel passage therethrough as a result of the force acting against all of the pressure receiving surfaces.

4,269,361
FUEL INJECTION NOZZLES

Alec H. Seilly, North Wembley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Nov. 1, 1979, Ser. No. 90,096
Claims priority, application United Kingdom, Dec. 9, 1978, 47872/78
Int. Cl.³ B05B 1/30
U.S. Cl. 239—585
11 Claims



1. A liquid fuel injection nozzle of the kind intended to be mounted on an internal combustion engine and through which liquid fuel can be supplied to an engine, the nozzle, comprising a body part, a seating defined in the body part, a valve member shaped for co-operation with said seating, resilient means biasing the valve member into contact with the seating to prevent the flow of liquid fuel through an outlet from an inlet, electromagnetic means which when energised, acts to reduce the force exerted by the resilient means on said valve member so that the valve member can move away from the seating under the action of fuel pressure to permit flow of fuel from the inlet to the outlet, an abutment member engaging the valve member and through which the force exerted by the resilient means acts on the said valve member, an armature forming part of said electromagnetic means, the armature including a portion engageable against said abutment member on the side thereof adjacent the valve member whereby when the electromagnetic means is energised said portion of the armature will engage said abutment member to reduce the force exerted by the resilient means on the valve member and when the electromagnetic means is de-energised the portion of the armature can separate from the abutment member, and friction means operable during separation of said portion of the armature from the abutment member to absorb the energy gained by the armature during its movement under the action of said resilient means.

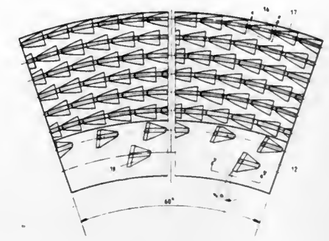
4,269,362
METHOD AND APPARATUS FOR BEATING FIBRE SLURRIES

Leif A. Berggren, Nässjö, Sweden, assignor to Torsten Lennart Berggren, Nässjö, Sweden

Filed Jul. 20, 1979, Ser. No. 59,164
Claims priority, application Sweden, Aug. 7, 1978, 7808423
Int. Cl.³ B02C 7/04
U.S. Cl. 241—28
9 Claims

1. A method of beating a fibre slurry, such as paper pulp, and lump-goods, such as wood-chips and shavings, comprising subjecting said fibre slurry to repeated, rapid pressure pulsations and working moments of short duration, by

(a) gradually compressing said fibre slurry down a compression stage by enclosing quantities of said fibre slurry in spaces of gradually decreasing volume to increase the hydraulic pressure on said fibre slurry during said compression stage and thereby increasing internal frictional co-action between individual fibres of said fibre slurry, but substantially without cutting or shearing said fibres; and thereafter



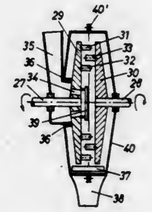
(b) reducing momentarily said hydraulic pressure on said fibre slurry during an expansion phase which follows said compression stage; and then

sequentially repeating steps (a) and (b) on said fibre slurry.

4,269,363
METHOD AND APPARATUS FOR REGENERATING AND REACTIVATING CEMENT

Karl Entzmann, St. Kathrein, Austria, assignor to Simmering-Graz-Pauker Aktiengesellschaft für Maschinen-, Kessel- und Waggonbau, Vienna, Austria

Filed Jun. 6, 1979, Ser. No. 46,184
Claims priority, application Austria, Jun. 26, 1978, 4632/78
Int. Cl.³ B02C 7/04
U.S. Cl. 241—30
8 Claims



1. A method of regenerating and reactivating inactive cement particles having a grain size of 7 to 10 mm and having hydrated surface layers, comprising:

feeding said cement particles to a disintegrator, which disintegrator includes a pin mill having beating pins arranged on two parallel counterrotating grinding disks in concentric alternating rings of increasing diameter, and

in the disintegrator, subjecting said cement particles to from 3 to 8 mechanical beats by said pins within a time period of 0.01 to 0.001 seconds, such that said cement particles are broken into separate particles of a grain size of 7 to 10 mm or finer, with said separate particles being released from said hydrated surface layers of said cement particles thereby liberating non-hydrated layers of said cement particles.

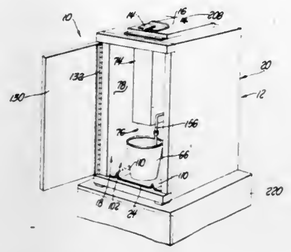
4,269,364
NEEDLE CHOPPER APPARATUS

Dario J. Moriconi, 6916 Old Kings Rd., Apt. 24, Jacksonville, Fla. 32217, and John G. Elder, 6602 Barkwood Dr., Jacksonville, Fla. 32211

Filed Jan. 12, 1979, Ser. No. 2,990
Int. Cl.³ B02C 13/31
U.S. Cl. 241—36
28 Claims

1. A needle chopper apparatus comprising; a vertical feed chute for receiving disposable items, chopper means for chop-

ping disposable items into particles, a tube member having a cylindrical configuration and terminating in a first end and a second end opposite therefrom, said chopper means being disposed in said tube member along the longitudinal axis of said tube member and rotatable therein, an inlet and an outlet defined by said tube member to allow disposable items to fall into and out of said tube member with said inlet having an edge, said feed chute extending to said inlet, reaction means on the edge of said inlet for reacting with said chopper means to chop and cut disposable items, and removable collecting means for collecting the falling particles from said outlet, said tube member including an inner smooth cylindrical surface which is



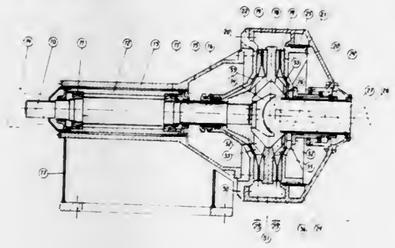
continuous and uninterrupted completely around the interior of said tube member with all of the peripheral edges of said inlet and outlet intersecting said inner cylindrical surface, said reaction means being at the intersection of said edge of said inlet and said inner cylindrical surface and said chopper means being in immediate proximity and close clearance to said cylindrical surface while rotating relative thereto for shearing disposable items between said reaction means and said said chopper means as said chopper means engages a disposable item in said inlet and forces the disposable item against said reaction means in said inlet so that the line of shearing is substantially parallel to said inner cylindrical surface.

4,269,365

BEATER MILL

Torsten L. Berggren, Rosenlidsgatan 13, S-571 00 Nässjö, Sweden

Filed Jul. 17, 1979, Ser. No. 58,279
Claims priority, application Sweden, Aug. 7, 1978, 7808424
Int. Cl.³ B02C *7/06*
U.S. Cl. 241—152 A **15 Claims**



1. A twin-flow, single side inlet type refining beater comprising:

a central body;

two outer parts surrounding said central body, said central body and said outer parts being relatively rotatable, and passages being defined between said central body and said two outer parts;

said central body including two ring-shaped beater means (**19**) on opposite sides of said central body;

each of said outer parts respectively including a ring-shaped beater means (**20**) on respective opposite sides of said central body to form two beater zones (**23**) between said beater means, one beater zone on each side of said central body, in which beater zones the goods to be refined are treated during passage thereof substantially radially outwardly and as a result of relative rotation between said central body and said outer parts;

said central body further including a cavity (**26**) with a single axial inlet thereto for the goods to be refined, and inclined radially converging substantially V-shaped walls surrounding the cavity and at least partially defining the cavity, the inclined cavity defining walls having a plurality of holes (**32**) therein through which said goods can be passed to the respective beater zones via said passages formed between the central body and said outer parts, said cavity (**26**) being substantially round in at least one plane and having a diameter in said plane which is substantially greater than the largest cross-sectional dimension of said axial inlet; and

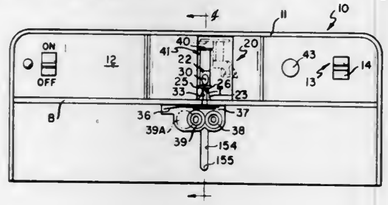
a rotatable propeller-like means (**34**) arranged in said cavity (**26**) to disintegrate said goods fed to said cavity and to spread said goods by centrifugal force to substantially uniformly fill the space between said propeller-like means and said inclined cavity defining walls and thereafter to divide said goods into two substantially equal flows which pass out through said holes (**32**) in respective cavity defining walls and into said passages connecting therewith.

4,269,366

SHUTTLELESS TOROID WINDER

Carl W. Lindenmeyer, Aurora, Ill., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 10, 1979, Ser. No. 28,742
Int. Cl.³ H01F *41/08*
U.S. Cl. 242—4 R **17 Claims**



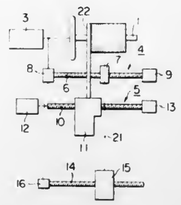
1. Apparatus for assisting a person in winding a wire about a body having a central opening and an axis passing through said opening, comprising: a support adapted to receive said body in supporting relation and defining a slot communicating with the axis of said body when said body is placed on said support; releasable clamping means including a member adapted to engage said body and cooperate with said support to selectively apply an axial retaining force on said body; gripper means for selectively applying a lateral gripping force on said body and mounted for rotation about said axis between a start position and an indexed position; draw means for engaging said wire beneath said body and drawing the same through said opening and in wrapping engagement with said body; indexing drive means for moving said gripper means between said start and indexed position; and actuator means for releasing said clamping means from exerting said axial force on said body and for actuating said gripper means to apply said lateral gripping force on said body as said drive means moves said gripper means toward said indexed position, and for actuating said clamping means and releasing said gripper means as said drive means moves said gripper means toward said start position.

4,269,367

COIL WINDING MACHINE

Takehiro Minami, and Hisashi Shigekusa, both of Yokkaichi, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 9, 1979, Ser. No. 28,346
Claims priority, application Japan, Apr. 14, 1978, 53/44088
Int. Cl.³ H01F *41/12;* **B65H** *57/28*
U.S. Cl. 242—7.08 **4 Claims**



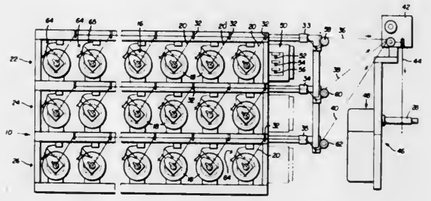
1. A coil winding machine for manufacturing a multilayer coil having a number of coil layers and interlayer insulator layers made of an insulating tape, which machine comprises a coil winding spindle detachably supporting an insulating bobbin, a driving device for driving said coil winding spindle, first and second feed screws extending in parallel with said bobbin, said first feed screw being driven by said driving device through a change gear containing a reversible clutch, said second feed screw being driven by a servomotor, a wire guide and tape guide mounted on said first and second feed screws respectively, first and second position detectors for detecting the positions of said wire guide and said tape guide along said first and second feed screws, and a control circuit for controlling operation of said servomotor based on the output of said first and second position detectors, said control circuit comprising a function generator connected to an output of said first position detector, a subtracting circuit connected to deliver a difference signal between outputs of said function generator and said second position detector, and means for supplying the difference signal to said servomotor.

4,269,368

MICROPROCESSOR CONTROLLED PRODUCT ROVING SYSTEM

Kenneth L. Rapp, Granville, and Walter Zolnerovich, Jr., Newark, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Nov. 7, 1978, Ser. No. 958,582
Int. Cl.³ B65H *54/02*
U.S. Cl. 242—42 **38 Claims**



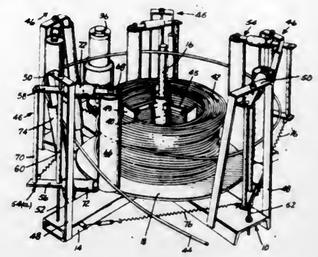
1. A method of controlling strand insertion in a high speed creel assembly used in a roving process, said method comprising the steps of: sensing the operating strands actually being wound in the roving process, comparing the sensed strands actually being wound with the desired strands required for forming a particular product package, indicating whether a prepared standby strand must be added to said operating strands actually being wound to provide said desired strands and inserting said standby strand as required.

4,269,369

POWER DRIVEN DEREELER WITH STRAND TENSION-SENSING DEVICE

Steven L. Stroup, Bluffton, Ind., assignor to Crown Unlimited Machines, Inc., Bluffton, Ind.

Filed Aug. 6, 1979, Ser. No. 63,679
Int. Cl.³ B65H *59/38*
U.S. Cl. 242—45 **4 Claims**



1. Power driven dereeling apparatus comprising a rigid, stationary supporting frame, a reel of coiled strand, driven means on said frame for mounting and rotating said reel, driving means for imparting rotation to said driven means, a plurality of strand-engaging devices disposed radially outwardly beyond said reel, said devices being spaced circumferentially with respect to said reel to define a circular coil path of larger diameter than said reel;

each device including a pivot frame having two spaced parallel arms and a roller extending therebetween, a pivot shaft connected at its opposite end portions to said arms, respectively, said pivot shaft being parallel to said roller and spaced therefrom to define a captive strand-receiving opening, the axes of said shaft and roller being parallel to the axis of said reel, a bracket mounted on said stationary frame and pivotally supporting said shaft, said bracket being generally U-shaped with the open ends thereof secured to said supporting frame, said pivot shaft being mounted at one end on said supporting frame and at the other end on said bracket to dispose said pivot frame inside said bracket, anti-chafing material on one leg of said bracket and on said arms between the respective roller and pivot shaft for minimizing chafing of the strand, each pivot frame having a spring operatively connected thereto for urging said pivot frame in a direction to swing said roller away from said reel, said spring being tensioned between the other end of said arms and said supporting frame,

an electrical switch operatively connected to one of said strand-engaging devices and being oppositely operated in response to pivotal movement of said pivot frame thereof between first and second positions, respectively; said driving means being an electric motor and brake operatively connected to said switch and controlled thereby, said motor being actuated and said brake deactuated when said switch is operated in one direction and said motor being deactuated and said brake actuated when said switch is operated oppositely.

4,269,370

APPARATUS FOR CONTINUOUS AUTOMATIC SPOOLING OF MOTION PICTURE FILM

William D. Carter, Rancho Palos Verdes, and Martin S. Mueller, Torrance, both of Calif., assignors to Carter Equipment Co., Inc., Lawndale, Calif.

Filed Oct. 19, 1979, Ser. No. 86,573
Int. Cl.³ B65H *19/20, 19/04*
U.S. Cl. 242—56 A **4 Claims**

1. Apparatus for winding or spooling a continuously moving length of motion picture film onto a series of separate spools or

their equivalent, each of which carries an approximately equal length of motion picture film, without the need for making substantial changes in the speed at which the motion picture film is supplied to the apparatus and without the use of intermediate storage means, comprising, in combination:

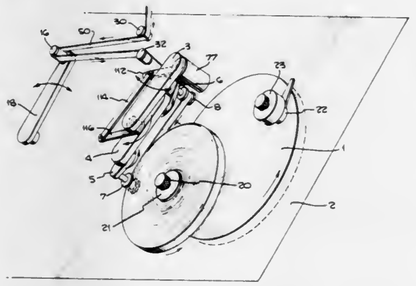
a base plate aligned in a predetermined plane;

means for feeding said length of motion picture film in a direction parallel to said predetermined plane and alongside said base plate, and with the transverse plane of said motion picture film itself being perpendicular to said predetermined plane;

a plurality of spindles extending perpendicular to said base plate and rotatably carried by said plate, each of said spindles, when appropriately positioned, being adapted to carry a spool upon which said motion picture film is wound;

a plurality of spindle drive means, each associated with a corresponding one of said spindles and selectively operable to rotatably drive the associated spindle so as to thereby draw said motion picture film into a roll upon a spool carried by the associated spindle;

a guide mechanism having a plurality of guide rollers



thereon, said guide mechanism being supported relative to said base plate so that all of said guide rollers are arranged parallel to all of said spindles;

means for rotating said base plate through a series of predetermined positions around a continuous loop path such that the actual position of the second one of said spindles when said base plate has rotated a predetermined amount corresponds to the actual position previously occupied by the first one of said spindles when the base plate was in its first position;

means for adjusting the positions of said guide rollers in response both to the rotational position of said base plate and the then existing diameter of a roll of motion picture film being formed on one of said spindles, said guide rollers being operable when one roll is nearly completed to guide the incoming length of motion picture film immediately adjacent the next succeeding spindle; and

means cooperatively associated with said next succeeding spindle and selectively operable when said one roll is completed to sever the incoming motion picture film and also to place its newly cut end into winding relationship with an empty spool carried by said next succeeding spindle.

4,269,371

COMPOSITE, HEAVY-DUTY SPOOL WITH PLASTIC END CONES

Joseph J. Kovaleski, Easton, Conn., assignor to Wyrepak Industries, Inc., Bridgeport, Conn.

Filed Feb. 29, 1980, Ser. No. 126,065

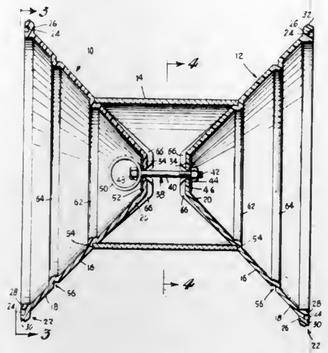
Int. Cl.³ B65H *75/14*

U.S. Cl. 242—118.6 **9 Claims**

1. A low-cost, plastic end cone for a heavy-duty dismantlable spool construction adapted to carry a substantial quantity and weight of metal wire, comprising:

(a) a truncated, conical body portion all parts of which are essentially of a uniform thickness of plastic to insure quick and uniform curing of the plastic material,

(b) said conical body portion having large and small base parts and having a strengthened peripheral rim encircling its large base part,



(c) said rim being of U-shaped cross section and defining an annular groove which faces axially away from the body portion,

(d) said body portion having a second annular groove in the exterior of its conical surface, disposed intermediate the large and small base parts thereof,

(e) said rim extending radially outward from the large base part of the body portion, and

(f) said body portion at its small base part having a transverse wall provided with an aperture to receive a draft bolt.

4,269,372

APPARATUS FOR CUTTING VEGETATION

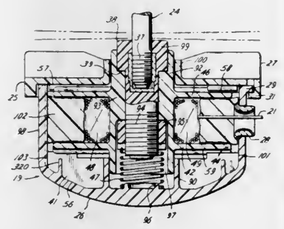
James L. Kwater, Birmingham, Ala., assignor to Emerson Electric Co., St. Louis, Mo.

Division of Ser. No. 934,226, Aug. 15, 1978, Pat. No. 4,189,833.

This application Aug. 17, 1979, Ser. No. 67,585

Int. Cl.³ B65H *59/00*

U.S. Cl. 242—129.8 **7 Claims**



1. As a subcombination,

a spool-like member having a core portion and at least two spaced apart flange portions extending radially outwardly of the periphery thereof,

a flexible non-metallic line member wound in coils about said core portion between said flange portions, and

an annular band of a synthetic plastic foam located between said flange portions and having the inner surface of said band in contacting relationship to said coils.

4,269,373

AUTOMATIC STOP MECHANISM FOR TAPE RECORDER

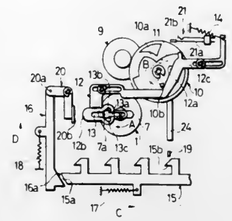
Tatsuhiko Tsuchiya, and Mikiwo Oka, both of Kakuda, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,603

Claims priority, application Japan, Sep. 29, 1978, 53/133669[U]

Int. Cl.³ B65H *59/38;* **G03B** *1/02;* **G11B** *15/13*

U.S. Cl. 242—191 **15 Claims**



1. An automatic stop mechanism for a tape recorder comprising, in combination:

(a) an operation member for switching the operation of said tape recorder between an operative mode and an inoperative mode;

(b) a first rotary member adapted to rotate in connection with the rotation of either one of the supply reel or the take-up reel of said tape recorder;

(c) a second rotary member adapted to rotate in connection with the rotation of a conventional drive means which is energized in said operative mode of said tape recorder;

(d) a slide member slidable between a first position and a second position;

(e) driving means adapted to cause the sliding movement of said slide member between said first and second positions making use of the torque of said second rotary member;

(f) control means adapted to prevent said slide member from sliding to said second position during rotation of said first rotary member and to allow said slide member to slide to said second position when said first rotary member is not rotating; and

(g) releasing means adapted to respond to said slide member when the latter is in said second position to actuate said operation member to switch said tape recorder to said inoperative mode.

4,269,374

COMBINED ROAD VEHICLE AND AIRCRAFT

Harvey R. Miller, 3655 E. Amazon, Eugene, Oreg. 97405

Filed Jan. 8, 1979, Ser. No. 1,876

Int. Cl.³ B64C *37/00, 3/56*

U.S. Cl. 244—2 **5 Claims**

1. A combined road vehicle and aircraft comprising

(a) a frame having front, rear and side portions,

(b) front wheel means on said frame,

(c) rear wheel means on said frame comprising a pair of laterally spaced wheels,

(d) a tail assembly on said frame,

(e) wing assemblies on opposite sides of said frame to support the vehicle in the air,

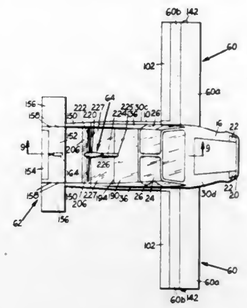
(f) side compartments in said vehicle,

(g) converting means associated with said wing assemblies for moving them outwardly into flying position or for moving them inwardly into stored position in said side compartments,

(h) propelling means on said frame for driving the vehicle in the air,

(i) power means on said frame for driving the propelling means and for driving some of said wheel means,

(j) and laterally expandable and retractible means on said frame attached to said rear wheels arranged to move said rear wheels outwardly into said side compartments during the air use of the vehicle and to move said rear wheels



inwardly relative to said compartments during the road use of the vehicle to provide storage room in said compartments for said wing assemblies.

4,269,375

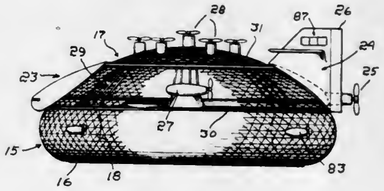
HYBRID ANNULAR AIRSHIP

John J. Hickey, 93 Revere St., Boston, Mass. 02114

Filed Oct. 31, 1979, Ser. No. 89,883

Int. Cl.³ B64B *1/58, 1/08, 1/34*

U.S. Cl. 244—26 **14 Claims**



1. An airship including a gas-containing annulus including at least one gas-containing portion, a framework providing an annular base portion containing said annulus and an upwardly projecting central portion, said framework open in said central portion, a cabin and flight effecting and guidance means, annular means connecting said cabin and said flight effecting and guidance means to the upper surface of said framework adjacent the outer portion thereof, the capacity of said gas-containing portion at least such as to render buoyant a weight equal at least to the major portion of the light ship weight of the aircraft, and means operable to effect vertical flight of said airship supported by said central portion inwardly of said cabin and flight effecting and guidance means.

4,269,376

APPARATUS FOR CONTROLLING EXPLOSIVE DECOMPRESSIONS IN AN AIRCRAFT OR SPACESHIP

Ulrich Haux, Baldham, and Werner Voigt, Weilheim, both of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,207

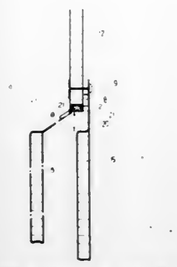
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1977, 2756726

Int. Cl.³ B64C *1/10*

U.S. Cl. 244—117 R **3 Claims**

1. A device for minimizing damages caused by an explosive decompression in any compartment of a group of contiguous

compartments, comprising wall means separating adjacent compartments from each other, holes in said wall means, panel means operatively arranged to cover said holes, first break means (**18**) operatively inserted between said panel means and said wall means, said first break means (**18**) being arranged to respond to a first pressure differential effective in one direction across said wall means, second break means (**21**) operatively connecting said panel means to said wall means, said second



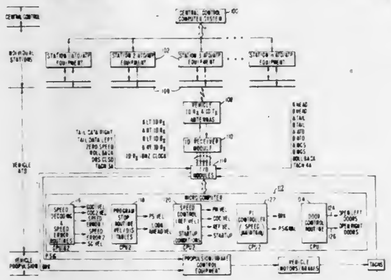
break means (**21**) being arranged to respond to a second pressure differential effective across said wall means in the direction opposite to said one direction, whereby a substantially continuous pressure equalization is possible in both directions and in response to different individual limit loads effective in said two directions, and wherein said first break means (**18**) comprise a strip of foam material surrounding said holes in said wall means, and wherein said second break means (**21**) comprise a rim (**21**) of preimpregnated material.

4,269,377

DOOR CONTROL FOR TRAIN VEHICLES

Donald L. Rush, Penn Hills, and Jayant K. Kapadia, Pleasant Hills, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 28, 1978, Ser. No. 920,104
Int. Cl.³ B61L *3/00*
U.S. Cl. 246—182 B **11 Claims**



1. In apparatus for controlling the doors of a train of passenger vehicles in response to open door signals, with said train having a head end and a tail end, the combination of:

first means for decoding an open door first signal received at the head end of the train and comparing the received first signal with a previous value of that first signal to establish a first good door code signal,

second means for decoding an open door second signal received at the tail end of the train and comparing the received second signal with a previous value of that second signal to establish a second good door code signal,

door control means operative with the first means and the second means for determining that each of the open door first signal and the open door second signal is requesting that the doors of the train be opened on the same side of the train,

means providing a door enable signal in response to said first and second good door code signals, and

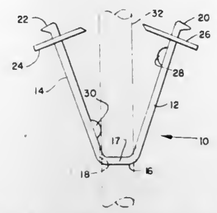
means responsive to the door enable signal for controlling the doors of the train.

4,269,378

CABLE CONNECTOR

Robert L. Barry, 416 Giovanni Dr., Nokomis, Fla. 33555

Filed Nov. 6, 1979, Ser. No. 91,711
Int. Cl.³ F16L *5/00*
U.S. Cl. 248—56 **8 Claims**



1. Apparatus for retaining securely an elongated member in position through an aperture in a panel, said apparatus comprising:

(a) a pair of arms, each arm having first and second ends;

(b) a bite portion interconnecting said arms together at their first ends;

(c) each of said arms having a foot disposed at its second end for engaging said aperture to releasably secure said retaining apparatus to said panel; and

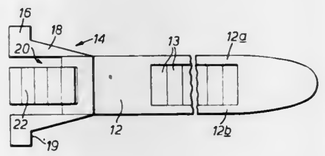
(d) detent means disposed upon at least one of said pair of arms between its first and second ends in a manner to transmit a force exerted upon its second end with increased effect by said one arm acting as a lever to said dent means, whereby said detent means more securely retains said elongated member to said retaining apparatus.

4,269,379

PANEL-FIXING CABLE TIE

Mathew McCormick, East Didsbury, England, assignor to Bowthorpe-Hellermann Limited, Crawley, England

Filed Jun. 6, 1979, Ser. No. 46,194
Claims priority, application United Kingdom, Jun. 30, 1978, 28494/78; Mar. 13, 1979, 8893/79
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—73 **8 Claims**



1. Tie means for connecting a bundle of cables to one side of a panel containing an opening, comprising a flexible elongated strap member (**12**) formed of synthetic plastic material, said strap member including

(a) a horizontal flat body portion one horizontal surface of which contains a plurality of longitudinally extending serrations (**13**); and

(b) an enlarged head portion (**14**) connected with one end of said body portion, said head portion including means defining a pawl portion (**22**) having upper and lower surfaces arranged above and below the horizontal axis of said body portion, that one of said pawl surfaces which is on the same side of the central axis of said body portion as said one serrated horizontal surface containing a plurality
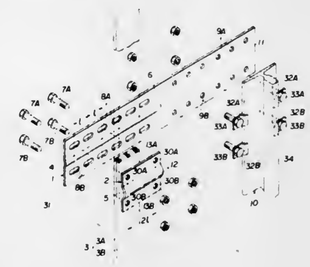
of longitudinally arranged pawl teeth (**24**) adapted for cooperation with said serrations, the other one of said pawl surfaces being inclined and converging toward said body portion, whereby when the other end of said body portion is introduced from the opposite side of the panel through the panel opening, circumferentially around the cable bundle, and back through the panel opening to cause the pawl teeth to be opposite said serrations, further tensioning of said other end of said strap portion causes said pawl portion to be drawn within said opening thereby to wedge said body portion between an edge of the panel opening and the pawl portion and to lock the serrations into engagement with the pawl teeth.

4,269,380

FLAT TYPE CABLE SUSPENSION STRUCTURE

Eiji Shima, Yokohama; Masao Shimizu, Funabashi, and Hiroshi Den, Yotsukaido, all of Japan, assignors to FEPS International, Ltd., Minato and The Fujijura Cable Works, Tokyo, both of, Japan

Filed Sep. 12, 1978, Ser. No. 941,473
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—74 R **8 Claims**



1. A flat type elevator cable suspension structure which comprises:

(a) a holder member rigidly fixedly secured with respect to the ground and having at its one side a first horizontally extending retaining means;

(b) a keeper member having at its one side a second horizontally extending retaining means; and

(c) a flat type elevator cable extending in substantially vertical direction and securely held between said holder member and said keeper member;

said holder and keeper members having their respective inner surfaces entirely contacted with the flat surfaces of said cable;

said first retaining means cooperating with said second retaining means to crook the flat type elevator cable in a thickness-wise direction, thereby engaging the flat type elevator cable therebetween.

4,269,381

PORTABLE COOK BOOK HOLDER

John F. Harms, 6418 Stony Brook Dr., Fort Wayne, Ind. 46815

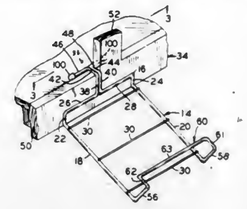
Filed Mar. 7, 1979, Ser. No. 18,301
Int. Cl.³ A47F *5/14*; A47B *5/00*
U.S. Cl. 248—222.2 **15 Claims**

1. A portable book holder comprising:

a back frame having an upper portion and a lower portion and a pair of spaced apart sides, said back frame being adapted to support an open book,

ledge means connected to the lower portion of said back frame and extending forwardly from said back frame, said ledge means being adapted to support the lower edge of an open book, and

hook means connected to the upper portion of said back frame intermediate said sides and adapted for removably hooking behind a vertical post or the like, said hook means comprising a first segment extending upwardly beyond said back frame, means connecting said first segment to said back frame, and a second segment connected to said first segment and extending transversely to said first segment in a generally sidewise lateral direction with respect to said back frame, said second segment terminating in a free end whereby said second segment can hook around a vertical post or the like.

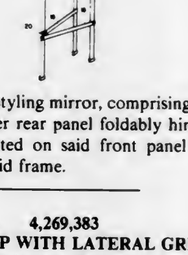


4,269,382

HEIGHT-ADJUSTABLE REAR VIEW HAIR STYLING MIRROR

Blanche E. Coulson, 3720 N. 34 Ave., Omaha, Nebr. 68111

Filed Dec. 19, 1979, Ser. No. 105,349
Int. Cl.³ A47G *1/16*
U.S. Cl. 248—472 **3 Claims**



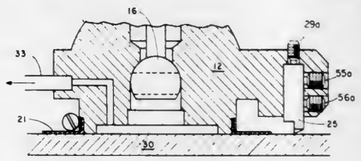
1. A rear view hair styling mirror, comprising, a front panel, a smaller and narrower rear panel foldably hinged thereto; a frame movably mounted on said front panel and a mirror slidably received in said frame.

4,269,383

SUCTION CUP WITH LATERAL GRIPPER

Donald J. Hackman, Columbus; Roger L. Brunel, Grove City, and Harry L. Williams, West Jefferson, all of Ohio, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

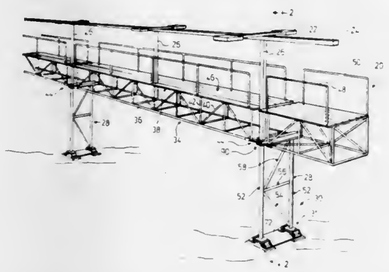
Filed Feb. 23, 1979, Ser. No. 21,288
Int. Cl.³ F16M *13/00*
U.S. Cl. 248—544 **14 Claims**



1. A device for precluding lateral movement of objects held by suction against a surface, comprising:

a suction cup attached to an object for holding the object to the surface,
the suction cup having a resilient sealing edge;
means for evacuating the suction cup; and
at least one surface gripper retentively held by and adjustably protruding from the object to the surface adjacent to the sealing edge,
the gripper penetrating the surface when the suction cup is evacuated thereby precluding lateral movement of the object along the surface.

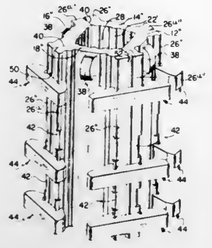
4,269,384
COLLAPSIBLE STRUCTURES EMPLOYING FRANGIBLE CONNECTIONS
Amin Saeed, Brampton, and James B. Hill, Oakville, both of Canada, assignors to DAF Indal Ltd., Mississauga, Canada
Filed May 7, 1979, Ser. No. 36,814
Int. Cl.[3] F16M *13/00*; E04B *1/00*
U.S. Cl. 248—548 **17 Claims**



1. A structure for the support of equipment which may be struck by a moving body, the structure comprising a plurality of relatively rigid members and a plurality of frangibly connected joints connecting the plurality of relatively rigid members, each frangibly connected joint including a frangible region oriented with its longitudinal axis in the horizontal direction, the frangible region comprising a relatively brittle material of high strength, wherein the yield point of the material and its ultimate tensile strength are relatively close, to primarily shear under extraordinary loads when applied close to the frangible region but to fail under the combined action of shear and normal stress when loads are applied to the rigid members remote the frangible region, whereby the frangible joints receiving forces transmitted thereto after impact by a moving body with the structure will fail partially or completely and in the event of partial failure, will transmit the remaining forces to at least a second frangible joint for the failure thereof and the collapse of the structure into smaller sections.

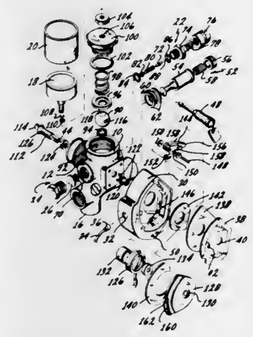
4,269,385
SECTIONAL INGOT MOLD
Harold M. Bowman, 18867 North Valley Dr., Fairview Park, Ohio 44126
Continuation-in-part of Ser. No. 699,650, Jun. 24, 1976, abandoned, which is a continuation-in-part of Ser. No. 600,060, Jul. 29, 1976, abandoned. This application Jan. 15, 1979, Ser. No. 3,093
Int. Cl.[3] B22D *7/08*
U.S. Cl. 249—82 **20 Claims**

1. A sectional ingot mold comprising a plurality of separable metal side wall sections which when assembled define at least in part a generally vertically oriented mold cavity, means coacting on each of said sections for coupling the mold sections together, said means comprising fastener means coacting between adjacent mold sections for detachably coupling the latter together along generally vertically extending juncture surfaces, said fastener means being capable of holding said mold sections together in relative position to each other and preventing leakage of molten metal from between the mold sections, said fastener means being comprised of a metallic material posessing memory and providing automatic compensation for expansion and retraction of said mold sections relative to one another upon pouring of molten metal into the mold and the resultant heating and subsequent cooling thereof, said



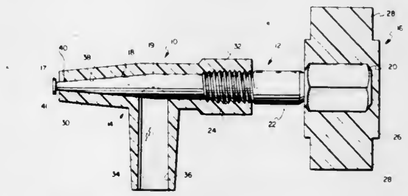
fastener means resisting but not preventing separation of said juncture surfaces of each mold section during said heating by initially expanding at a lesser rate as compared to the material of said mold sections and returning to substantially their original preheated size condition after the cooling thereof to cause said juncture surfaces to return to generally abutting relation.

4,269,386
VALVE ASSEMBLY
Donald R. Crowe, Mission Viejo, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.
Filed Nov. 5, 1979, Ser. No. 91,413
Int. Cl.[3] F16K *31/56*; B64D *25/14*
U.S. Cl. 251—74 **23 Claims**



1. A valve assembly including a trigger mechanism for use in controlling the supply of a compressed gas to a gas activated device, including
a valve body including an inlet port for connection to the supply of compressed gas and at least one outlet port for connection to the gas activated device and with an internal recess coupled to the inlet and outlet ports,
a valve member located within the recess in the valve body and intermediate the inlet and outlet ports and with the valve member having a closed position providing for no path between the inlet and outlet ports and having an open position providing for a path between the inlet and outlet ports,
a spring member coupled between the valve member and the valve body for providing a force for normally moving the valve member from the closed position to the open position,
a trigger mechanism mounted on the valve body and including an armed position with the trigger mechanism locked and a fired position, and with the trigger mechanism coupled to the valve member and spring member and in the armed position when the valve member is in the closed position and in the fired position when the valve member is in the open position,
the trigger mechanism including a rotatably mounted sector member intercoupling the spring member and the valve member,
the spring member formed as a helix having a first end coupled to the valve body and a second end coupled to the sector member and wherein one of the coupled ends of the helix is at an angular relationship and is loosely received in an opening for allowing the one end to disengage the opening when the turns of the helix do not freely move relative to each other, and
means coupled to the trigger mechanism for unlocking the trigger mechanism to have the trigger mechanism move from the armed position to the fired position to provide for the spring member moving the valve member from the closed position to the open position.

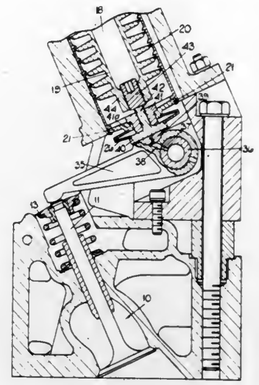
4,269,387
NEEDLE VALVE AND METHOD OF MANUFACTURING A NEEDLE VALVE
Gordon S. Reynolds, Bountiful, and Robert J. Todd, Salt Lake City, both of Utah, assignors to Sorenson Research Co., Inc., Salt Lake City, Utah
Filed Aug. 1, 1979, Ser. No. 62,872
Int. Cl.[3] F16K *41/00, 27/02*
U.S. Cl. 251—122 **38 Claims**



28. A needle valve comprising:
a needle member, said needle member having a first tapered end and a second end with a threaded portion intermediate said first and second ends;
a housing molded onto portions of said needle member, said housing comprising a first port sealed around at least a portion of said tapered end, a body molded around said threaded portion of said needle member, and a second port in fluid communication with said first port.

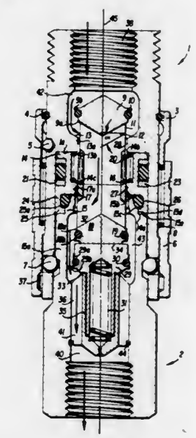
4,269,388
VALVE OPERATING MECHANISM
Alec H. Seilly, North Wembley, and Rasmus J. Sonderskov, Pinner, both of England, assignors to Lucas Industries Limited, Birmingham, England
Filed Jan. 11, 1978, Ser. No. 868,489
Claims priority, application United Kingdom, Jan. 12, 1977, 1085/77
Int. Cl.[3] F16K *31/10*
U.S. Cl. 251—138 **4 Claims**

1. An engine poppet valve operating mechanism comprising in combination, a pivotal link, said link being positioned in use, to engage a stem of the valve to be operated, an electromagnetic device having a winding to which electric current can be supplied when in use it is required to open the associated valve, an output member forming part of said device and which is moved to an extended position when said winding is energized, and energy storing means positioned between said output member and said link, said energy storing means comprising a pair of dished washers interposed between said output member and a further member cooperating with said output member and abutment means disposed between said link and said further member to permit pivotal movement therebetween, the arrangement being such that in use, when said winding is



energized said output member will move to said extended position, the movement of the link and valve being at least partly effected by energy stored in said means during movement of said output member to the extended position.

4,269,389
COUPLING DEVICE
Kjell R. Ekman, Zug, Switzerland, assignor to Ekman Engineering AG, Switzerland
Division of Ser. No. 884,668, Mar. 8, 1978, Pat. No. 4,219,048, which is a continuation-in-part of Ser. No. 691,105, May 28, 1976, abandoned. This application Jan. 16, 1980, Ser. No. 112,488
Int. Cl.[3] F16L *37/28*
U.S. Cl. 251—149.6 **5 Claims**



1. A coupling device for supplying fluid from a pressurized source to an output conduit without leakage, said coupling device comprising:
a first coupling part having an axial fluid flow passage extending therethrough;
a second coupling part having an axial fluid flow passage extending therethrough;
said first and second coupling parts each having on a respective first end thereof means to permit the detachable cou-

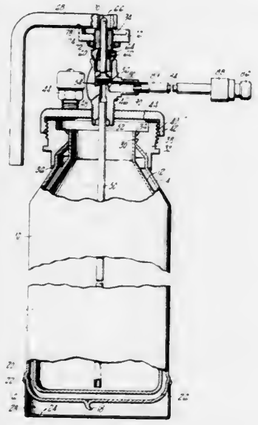
pling of said parts with their respective axial flow passages aligned to permit fluid flow therethrough;
a first means supported within said first end of said first coupling part and supporting thereon an elastic sealing ring;
a second means on said first end of said second coupling part which abuts said first means when said first and second coupling parts are brought into coupling relationship;
said first and second means acting to compress said elastic sealing ring at least radially as said first and second means are brought into said coupling relationship;
said coupling device further including a valve assembly axially slidably supported within a mating bore formed in at least one of said coupling parts;
said valve assembly including a substantially cylindrically-shaped hollow portion formed with a plurality of apertures extending through wall portions thereof, and said valve assembly further including a pair of enlarged end portions attached to opposite ends of said hollow portion, with each portion simultaneously engaging a separate valve seat formed at both ends of said bore to prevent fluid flow therethrough;
and control means for sequentially separating said enlarged end portions from their respective valve seats only after said first and second means form a fluid-tight seal between said coupling parts.

4,269,390

CRYOSURGICAL INSTRUMENT

Michael D. Bryne, Vernon, Conn., assignor to Brymill Corporation, Vernon, Conn.

Continuation of Ser. No. 928,351, Aug. 14, 1978, abandoned, which is a division of Ser. No. 747,904, Dec. 6, 1976, Pat. No. 4,116,199. This application Mar. 17, 1980, Ser. No. 130,845
Int. Cl.³ F16K *31/524, 31/44*
U.S. Cl. 251—254 **1 Claim**



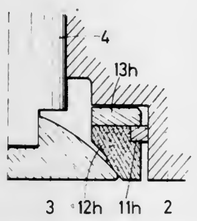
1. An improved cyrosurgical instrument including:
application means for cryosurgical extraction of heat from living tissue in the treatment thereof;
reservoir means for holding liquefied gas cryogen;
and operator-controlled means for conveying a cryogen from said reservoir means to said application means; in which the improvement is in said operator-controlled means and comprises:
a valve member having a central bore and an annular valve seat disposed along said bore, an upstream end of said bore on one side of said valve seat being in fluid communication with said reservoir, and a downstream end of said bore on the other side of said valve seat being in fluid communication with application means;
a valve stem having an axis, said valve stem being rotatably and slidably disposed within said bore;
a valve pad disposed on said valve stem, said valve stem being longitudinally slidable along said axis so as to render said valve member closable with said valve pad seated against said valve seat or openable with said valve pad disposed apart from said valve seat;
a pivot disposed at an end of said valve stem remote of said valve pad, said pivot being perpendicular to said axis of said valve stem;
a handle member rotatably disposed by said pivot;
an annular fulcrum means disposed coaxially on said valve member remotely of said valve seat and adjacent to said handle member in a position related to the position of said pivot so that angular rotation of said handle member about said pivot and said annular fulcrum means causes said valve stem to slide longitudinally away from said valve seat, regardless of the rotary orientation of said valve stem said annular fulcrum means having internal threads; and wherein said valve member has external threads coaxially disposed with respect to said bore and coacting with the threads of said annular fulcrum means, whereby the position of
said annular fulcrum means is adjustable relative to the position of said pivot along said external threads.

4,269,391

VALVE SEALING DEVICE AND A VALVE

Tutomu Saito; Hiroshi Yamazoe, and Hidenori Yamaoka, all of Yokohama, Japan, assignors to Nippon Petrochemicals Co., Ltd.; Nippon Carbon Co., Ltd. and Kitamura Valve Seizo Kabushiki Kaisha, all of Tokyo, Japan

Filed Apr. 24, 1978, Ser. No. 898,762
Claims priority, application Japan, Apr. 28, 1977, 52-48392; Oct. 28, 1977, 52-128593
Int. Cl.³ F16K *5/06*
U.S. Cl. 251—315 **18 Claims**



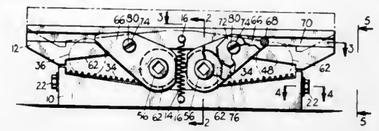
1. A sealing device for a valve comprising a valve body and a valve member, which is adapted to be situated between the valve body and the valve member, comprising:
a valve body contact member;
and a valve member contact member situated between said valve member and said valve body contact member, said valve body contact member including a surface facing and engaging said valve body, said surface in assembly being uniformly compressed against said valve body;
wherein the material from which the valve body contact member is fabricated consists of an expanded graphite compact having a bulk density no less than 1.1 gm/cm^3; and wherein the material from which the valve member contact member is fabricated consists of a carbonaceous material/metallic material composite in which said metallic material is represented in amounts equal to 10–40% by volume of the entire amount.

4,269,392

JACK MECHANISM

Henry L. Andersen, Rte. 1, Box 152, Goldendale, Wash. 98620

Filed Sep. 17, 1979, Ser. No. 76,327
Int. Cl.³ B66F *3/02*
U.S. Cl. 254—95 **3 Claims**



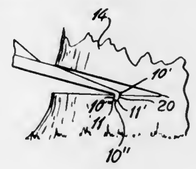
1. A jack mechanism comprising
(a) a pair of members movable toward and away from each other and having opposed faces,
(b) one of said members having a longitudinally extending ramp on its face which is inclined relative to said other member,
(c) rotatable drive means disposed between said members engageable with said ramp,
(d) said drive means and the surface of said ramp having a gripping engagement with each other so that said drive means will be driven along said ramp when rotated,
(e) a track surface on each of said opposed faces extending parallel with the direction of travel of said drive means,
(f) said track surfaces being offset from each other,
(g) spreading means including a shaft extending between said members and a pair of rollers on said shaft one of which engages one of said track surfaces and is disengaged from the opposite face and the other of which engages the other of said track surfaces and is disengaged from the opposite face,
(h) and means operatively connecting said spreading means with said drive means whereby said spreading means forces said members apart as said drive means moves along said ramps.

4,269,393

TREE-FELLING LEVER

Honore Michaud, Lamy, Co. Riviere-du-Loup, Prov. of Quebec, Canada (G0L 1R0)

Filed Nov. 27, 1979, Ser. No. 97,840
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—104 **3 Claims**



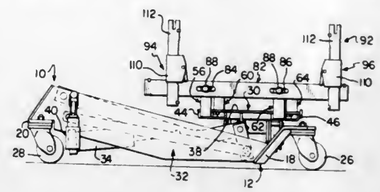
1. A tree-felling lever, especially for frozen trees, comprising a flat plate having top and bottom surfaces and a front transverse straight edge, a lever arm rigidly secured to the top face of said flat plate and extending upwardly at an acute angle and rearwardly from said flat plate, and a bite member downwardly projecting from said bottom surface along said front transverse edge and having parallel front and rear flat faces substantially perpendicular to said bottom surface, and a free edge flat face substantially parallel to said bottom surface, said plate and bite member being thin enough to be inserted into a saw kerf made in the trunk of a frozen tree, whereby said tree may be felled by exerting upward force on the outer end of said lever arm, thus causing pivoting of said plate in said kerf about said bite member and insertion of said bite member into the lower kerf surface practically without cracking the ice in said lower kerf surface, the uncracked ice at the back of the inserted bite member providing an effective abutment means for said bite member, in order for the latter to prevent the flat plate from slipping out of the kerf.

4,269,394

JACK ASSEMBLY FOR TRUCK TRANSMISSIONS, DIFFERENTIALS AND POWER DIVIDERS

Joseph L. Gray, St. Joseph, Mo., assignor to Gray Manufacturing Company, Inc., St. Joseph, Mo.

Filed Jul. 25, 1979, Ser. No. 60,749
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—134 **15 Claims**



1. In a jack having a load-carrying head that is raised and lowered during operation of the jack, means adapting said head for the reception and support of irregularly-shaped, relatively heavy objects, said adapting means comprising:
a pair of elongated rails;
structure attaching said rails to said head in laterally spaced relationship along opposite sides of the head; and
a pair of carriage assemblies adapted for load-supporting engagement with an object to be handled by the jack and mounted on opposite ones of said rails for selective, independent adjustment along the latter and relative to said head into any one of a number of selectable positions according to the characteristics of the particular object to be handled by the jack,
said attaching structure including means operable to permit selective, independent lateral shifting of said rails whereby the position of said carriages relative to said head may be selectively adjusted in at least three independent directions.

4,269,395

PORTABLE HYDRAULIC RIG FOR PERFORMING WORKOVER, DRILLING AND OTHER OPERATIONS ON A WELL

James L. Newman, 970 Stacewood Dr., Beaumont, Tex. 77707, and Harold D. Lee, 2710 Lakeview Cir., Beaumont, Tex. 77703

Filed Jul. 23, 1978, Ser. No. 923,101
Int. Cl.³ B66C *23/60*
U.S. Cl. 254—386 **19 Claims**

1. A portable hydraulic rig, comprising:
a rig mast having an upper mast section and a lower mast section which are adapted to telescope from an extended use length to a telescoped transport length and to also extend from the telescoped transport length to the extended use length relative to each other;
a hydraulic system including a hydraulic ram mounted with said mast and having an operating deadline connected with the hydraulic ram and with a travelling block;
said hydraulic ram having a ram part which is longitudinally movable relative to said mast for raising and lowering the travelling block relative to the mast when said ram is moved longitudinally downwardly and upwardly, respectively, to perform various operations on or in conjunction with a well; and
means including a means for releasably connecting said

longitudinally movable ram part of the hydraulic ram to the mast for controllably telescoping or extending the



mast sections with the hydraulic system when said ram part is connected to one of the mast sections.

4,269,396

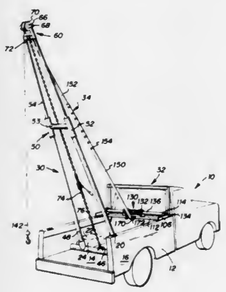
WRECKER-HOIST ATTACHMENT FOR TRUCK BED

John R. Easterwood, 713 Belt Dr., Grand Prairie, Tex. 75052

Filed Jun. 5, 1978, Ser. No. 912,490

Int. Cl.³ B66C *23/60*

U.S. Cl. 254—325 **10 Claims**



4. A wrecker-hoist combination attachment for mounting on a bed of a truck, comprising:

a base including a bar having spaced receiving tubular feet extending upwardly therefrom, said bar being nonattachably engaged on the bed of the truck,

a pair of lower legs extending upwardly from and removably engaged within the tubular feet extending from the bar of said base,

a midbrace having tubular sleeves joined in a spaced relationship by a connecting bar and receivable on the upper ends of said lower legs,

a pair of upper legs engageable in the sleeves of the midbrace for extending upwardly therefrom,

a pulley assembly including a pulley with a pair of tubular receiving members extending therefrom, said tubular members being spaced more closely than the sleeves of said midbrace, and said midbrace sleeves being spaced more closely than the tubular feet of said base, said pulley assembly being removably engageable in a first position on the upper end of said upper legs and alternatively removably engageable in a second position on the upper ends of the lower legs with the upper legs and midbrace removed, the inside diameter of the tubular feet of said base permitting the angular movement of said lower legs from a first position where the upper ends of said lower legs are inserted into said pulley assembly to a second position wherein the upper ends of said lower legs are inserted into the sleeves of said midbrace, and

a support member pivotally connected at one end to the pulley assembly and at the second end to the truck to support said pulley assembly relative to the truck.

4,269,397

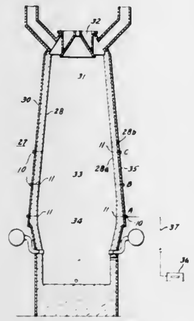
METHOD FOR MEASURING THE THICKNESS OF A REFRACTORY IN A METALLURGICAL APPARATUS

Robert A. Strimple, Coopersburg, Pa.; Joseph E. Snyder, Forest, Va., and Bruce F. Shoemaker, Bethlehem, Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Continuation-in-part of Ser. No. 69,438, Aug. 24, 1979, abandoned. This application Jul. 7, 1980, Ser. No. 166,274

Int. Cl.³ C21B *5/00*

U.S. Cl. 266—44 **26 Claims**



1. In an improved method for measuring the thickness of a refractory laid-up against the interior surface of the steel shell of a metallurgical apparatus comprising:

(a) placing at least one monitoring device of predetermined length comprised of a central metallic conductor coaxial with a metallic sheath and spaced therefrom by a closely packed pulverulent refractory, the device having a free end and a confined end, both being substantially flat surfaces, the confined end being connected to an electrical connector means, such that the free end is at a known predetermined distance from the hot face of the refractory and the confined end extends a known distance beyond the steel shell,

(b) connecting the confined end by means of the connector means to an electronic instrument capable of generating and impressing fast-rise timed pulses in the device and receiving and displaying pulses reflected by physical features of the device,

(c) adjusting the length of the device on the display using reflected pulses appearing as an inflection from the confined end as a reference point, the reflected pulses along the length of the device appearing as a substantially straight line and the reflected pulses from the free end appearing as an inflection and showing the termination of the device,

(d) sending timed pulses through the device and displaying the reflected pulses, and

(e) determining the thickness of the refractory from the length of the straight line displayed on the instrument.

4,269,398

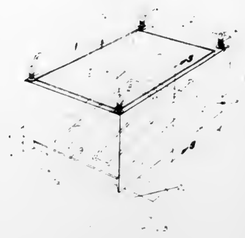
MEANS FOR RECLAIMING GALVANIZING QUALITY ZINC ALLOY FROM CONTINUOUS GALVANIZING LINE TOP DROSS

John C. Hogan, Greenhills, and Alan F. Gibson, Middletown, both of Ohio, assignors to Armco Inc., Middletown, Ohio

Division of Ser. No. 14,127, Feb. 22, 1979. This application Nov. 5, 1979, Ser. No. 91,551

Int. Cl.³ F27B *3/08, 3/18*

U.S. Cl. 266—230 **6 Claims**



1. A dross furnace for use in the reclaiming of galvanizing quality zinc alloy from the top dross of a continuous galvanizing line, said dross furnace comprising a substantially rectangular structure having front, rear and side walls, a hearth sloping downwardly from said rear wall toward said front wall, and an open top, said front wall at the juncture thereof with said hearth having at least one opening therethrough, said at least one opening being so sized as to permit the flow of molten zinc alloy therethrough from said dross furnace while retaining within said dross furnace the spongy slag formed therein, and means to heat said furnace in a controlled fashion to a temperature of from about 460° C. to about 850° C.

4,269,399

METALLURGICAL FURNACE

Bernhard Tinnes, Zollikerberg; Rainer Baumann, Egg, and Bernhard Dür, Oetwil am See, all of Switzerland, assignors to Metacon AG, Zurich, Switzerland

Filed May 1, 1980, Ser. No. 145,876

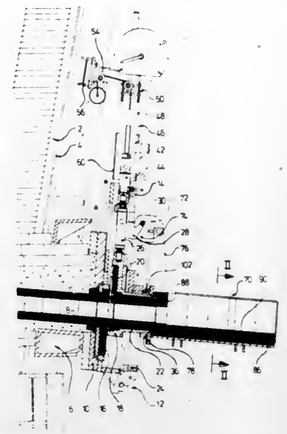
Claims priority, application Fed. Rep. of Germany, May 7, 1979, 2918333

Int. Cl.³ C21C *5/42*

U.S. Cl. 266—236 **7 Claims**

1. In a metallurgical furnace having a side tapping outlet, the combination comprising:

a slide closure for the outlet including a discharge sleeve; and



a chute for bridging the gap between the furnace and a ladle and positioned to receive molten metal from said sleeve.

4,269,400

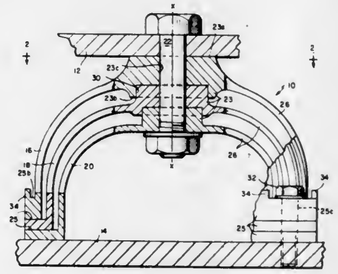
STACKED, RESILIENT ISOLATOR COMPONENTS

William S. Jensen, Canoga Park, Calif., assignor to Barry Wright Corporation, Watertown, Mass.

Filed May 4, 1979, Ser. No. 36,248

Int. Cl.³ F16F *3/08, 1/34, 1/52*

U.S. Cl. 267—153 **9 Claims**



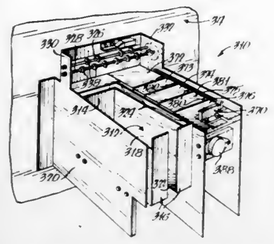
1. An isolator comprising a plurality of concentrically-arranged, nested, bell-shaped components stacked in parallel about a common axis, each component comprising spaced, parallel end parts centered on said common axis, and a plurality of arcuate ribs spaced at equal distances peripherally about said common axis, said ribs being connected at their opposite ends to the respective end parts at different radial distances from said common axis, said ribs defining slots between adjacent ribs including portions at least as wide as the ribs, the ends of the ribs and slots in the respective components at one end of circular shape being spaced axially along said common axis and at the other ends terminating in a common plane perpendicular to said axis which is axially spaced from the circular end parts, said ribs being unconstrained relative to each other in each component and in adjacent components and means securing the end members at opposite ends in engagement against displacement relative to each other.

4,269,401

METHOD AND APPARATUS FOR COLLATING AND STACKING DOCUMENTS AND FOR EFFECTING A HIGH DENSITY STACK IN A DOCUMENT RECEIVING BIN

John R. Sargis, Chicago, Ill., and AES Technology Systems, Inc., 02, Elk Grove Village, Ill.

Filed Dec. 4, 1978, Ser. No. 965,884
Int. Cl.³ B65H *39/06, 31/02*
U.S. Cl. 270—58 **2 Claims**



1. An apparatus for receiving documents from first and second adjacent, parallel transport paths in which the documents are aligned in rows of two documents transverse to the paths, said apparatus adapted to arrange the documents into a single stack of documents wherein the two documents of each row in the transport paths are stacked one on top of another such that the document from the first path in a selected row is below the adjacent document from the second path of said selected row, said apparatus comprising:

a stationary, final document receiving means adapted to be aligned at the end of and below said first transport path for receiving documents as the documents are discharged from said first transport path;

a single document holding platform adjacent said receiving means and adapted to be positioned at the end of and in alignment with said second transport path, said platform adapted to receive a document discharged from second transport path, said platform defining a plurality of channels within said platform, said platform comprising a plurality of support elements placed in an end-to-end array, each said support element having a substantially horizontal support surface and being spaced apart from adjacent support elements at each end to define one of said channels at each end, said support elements being successively staggered in elevation with the elevation of successive support elements decreasing with increasing distance from the end of said second transport path; and

means for engaging and moving said documents transversely of said second transport path comprising a plurality of finger elements, each finger element being partially disposed within and partially projecting from one of said channels, each finger element being adapted to move across the width of said platform transversely of said second transport path to engage one edge of a document lying on said platform and to move said document off of said platform and into said receiving means.

4,269,402

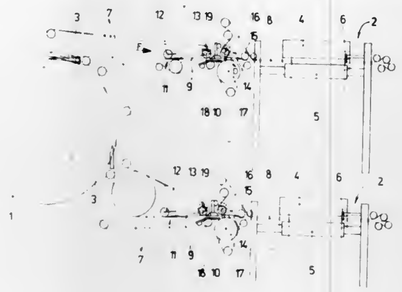
FOLDING APPARATUS

Rudolf Fischer, Lu-Oggersheim, and Karl-Heinz Hartmann, Lambsheim, both of Fed. Rep. of Germany, assignors to Firma Albert-Frankenthal AG, Frankenthal, Fed. Rep. of Germany

Filed Oct. 24, 1978, Ser. No. 954,148
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1977, 2750792
Int. Cl.³ B65H *45/18;* **B41F** *13/24*
U.S. Cl. 493—437 **10 Claims**

1. In a folding apparatus for rotary roller printing presses which includes at least one collecting folder, at least one sword folder positioned behind said collecting folder which includes a folding sword interacting with a pair of folding cylinders, a belt guide having upper and lower belts for conveying folded material from said collecting folder to said at least one sword folder, and a fixed limit stop positioned adjacent to said folding sword which said belt guide passes, the improvement comprising:

said belt guide having at least two successively arranged belt strands successively driven at different stepped speeds, said belt strands comprising a faster-running first strand and a slower-running second strand, said first strand having a discharge end which defines a run-out groove opening wedge-shapedly from a groove tip, and said second strand having a feeding-in region disposed proximate to said discharge end of said first strand, said first and second strands each having an upper belt and a lower belt and



two belt rollers over which said upper belt of each strand passes disposed in the region of the respective run-out and lead-in grooves of said strands, said two belt rollers associated with each of said strands including a first belt roller mounted in fixed position adjacent to said groove tip of its associated opening and a second roller supported for pivotable movement about the axis of said first roller disposed adjacent to the end of said associated opening remote from said groove tip thereof; and

at least one locating stop positioned between said discharge end of said first strand and said feeding-in region of said second strand, said stop moving at a speed equal to that of said second strand and having a path of movement which at least partly overlaps said feeding-in region of said second strand.

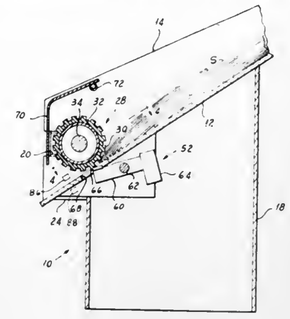
4,269,403

WORKSHEET PRESENTING APPARATUS

Frederick N. Stephens, and Joseph L. Stephens, both of Paola, Kans., assignors to Stephens Systems, Inc., Lenexa, Kans.

Filed Nov. 6, 1978, Ser. No. 957,996
Int. Cl.³ B65H *3/52*
U.S. Cl. 271—3 **5 Claims**

5. Sheet feeding apparatus including in combination a friction roller, a plurality of frictional retarding elements, means for biasing said retarding elements for individual movement in the direction of said friction roller at axially spaced locations across said roller, said biasing means comprising respective lever arms carrying said retarding elements and respective weights carried by said lever arms, means for supporting a stack of sheets to be fed with a sheet thereof adjacent said roller and said retarding elements, and means for driving said roller in such a direction as to separate said sheet from said



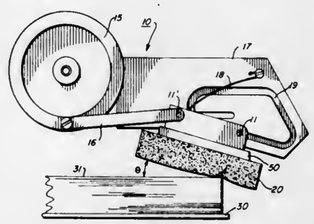
stack and advance it between said roller and said retarding elements.

4,269,404

SINGLE SHEET FRICTION FEEDER

John L. Webb, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 4, 1979, Ser. No. 27,173
Int. Cl.³ B65H *3/02*
U.S. Cl. 271—42 **10 Claims**



1. In a sheet feeding device (10) having a stack of sheets (31) and a sheet separator means (20) that includes a frictional surface adjacent the stack of sheets (31) and is capable of being deformed as sheets are fed from the stack (31), the improvement characterized by the feeding device including:

(a) means (18, 18'), for applying a normal force to said separator means (20); and

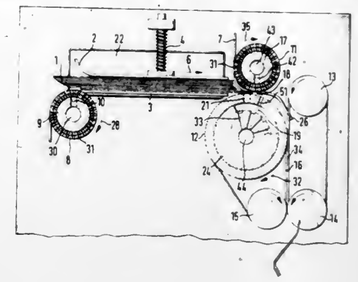
(b) means (11, 16, 19, 40) adapted to move said separator means (20) across the leading edge of stack (31) at an acute angle in relation to the stack (31) in the process of feeding a sheet from the stack (31), said separator means (20) striking the leading edge of the stack (31) at the acute angle and continuing contact with the leading edge of the stack (31) at said acute angle over a major portion of its frictional surface during the feeding process whereby the top sheet of the stack (31) is forwarded for further processing while sheets immediately below the top sheet are simultaneously inhibited from movement by said acute angle movement of the separator.

4,269,405

SEPARATING UNIT FOR FLAT SHEET MATERIAL

Wilhelm Mitzel, Neukeferloh, Fed. Rep. of Germany, assignor to GAO Gesellschaft fur Automation und Organisation mbH, Munich, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 50,977
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1979, 2902068
Int. Cl.³ B65H *3/12*
U.S. Cl. 271—94 **9 Claims**



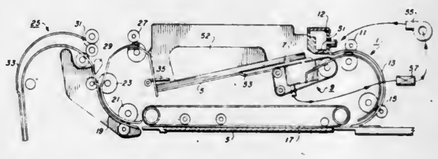
1. A high speed separating unit for separating and advancing sheets of flat material tangentially applied from a stack thereof, said unit having a rotatable separating drum (12) with suction openings (21) on the exterior thereof exerting a predetermined amount of suction for adhering said sheets to the exterior of said drum for separation and advancement, said separating drum having suction holes (51) preceding said suction openings in the direction of turning, said suction holes exerting a lesser amount of suction than said suction openings insufficient by itself to advance the sheets.

4,269,406

DOCUMENT HANDLER

Thomas J. Hamlin, Macedon, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 3, 1979, Ser. No. 81,499
Int. Cl.³ B65H *3/12, 3/18*
U.S. Cl. 271—108 **3 Claims**



1. A bottom sheet separator-feeder for separating and forwarding sheets seriatim comprising;

a stack tray adapted for supporting a stack of sheets,

vacuum sheet feed means associated with said tray located in a position spaced from the bottom sheet in the stack,

air injection means adapted to provide a layer of air between said tray and the bottom sheet in the stack and between the bottom sheet and the remainder of the sheets in the stack,

single blower means associated with said vacuum feed means and said air injection means, the inlet to said blower means being connected to said vacuum feed means and the outlet from said blower means being connected to said air injection means; and,

valve means associated with the inlet to said blower means, opening of said valve means at the beginning of a sheet feed cycle causing a "spike" in the pressure of the air supplied to said air injection means for initial lifting of the sheet stack from said tray, acquisition of the bottom sheet in the stack by said vacuum feed means resulting in re-

duced air flow to said air injection means sufficient to maintain the floating position of the stack initiated by the pressure "spike".

4,269,407

SHEET HOLDING CASSETTE

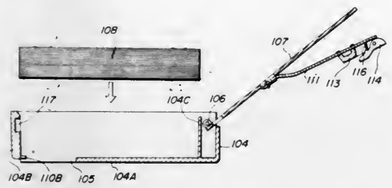
Hiroshi Tsuda, Mitaka; Kiyoshi Miyashita, and Takashi Matsuyama, both of Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 55,297

Claims priority, application Japan, Jul. 19, 1978, 53-87045; Jan. 26, 1979, 54-7804

Int. Cl.³ B65H *1/24*

U.S. Cl. 271—127 **6 Claims**



1. An improved sheet holding cassette containing a number of superimposed sheets being detachably mounted on a main body of an electrographic apparatus, the improvement comprising: a box-shaped cassette main body (**104**) whose base surface is substantially fully open, a window (**105**) provided in the upper front portion of said cassette main body and through which a sheet feed roller (**102**) is urged against the uppermost sheet of the superimposed sheets, a sheet receiving plate (**107**) substantially closing the open base surface of the cassette main body, being rotatably pivoted at the lower rear portion of said cassette main body so as to be moved inwardly and outwardly with respect to the cassette main body, a leaf spring (**111**) integral with said sheet receiving plate being operative to urge said sheets against said sheet feed roller, a hook member (**114**), (**120**), (**130**), (**142**), (**161**) provided at the free end of the leaf spring and of the sheet receiving plate, operative to prevent the sheet receiving plate from rotating outwardly by the leaf spring when said sheets are inserted into the cassette, and separating claws (**110A**), (**110B**) arranged near said window, operative to separate the sheets one-by-one from the superimposed sheets, whereby said cassette main body is upside down and then the sheet receiving plate is made open outwardly, subsequently the superimposed sheets are inserted into the cassette main body and the sheet receiving plate is closed and locked to the cassette main body through the hook member, whereby the uppermost layer of the superimposed sheets is always kept at a given position when urged against the separating claws and the uppermost layer of the superimposed sheets is ready to be fed when the cassette main body is inserted into the electrographic apparatus.

4,269,408

METHOD AND MEANS FOR STACKING FLAT FLEXIBLE SHEETS

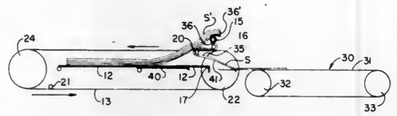
Charles P. Heater, P.O. Box 68, Lake Lure, N.C. 28746

Filed Jul. 12, 1979, Ser. No. 56,872

Int. Cl.³ B65H *31/08*

U.S. Cl. 271—212 **7 Claims**

1. A method of bottom stacking flat flexible sheets which comprises the steps of providing a stacking plate, providing a clamping mechanism in advance of the stacking plate, feeding successive sheets to the clamping mechanism, actuating the clamping mechanism to grip the leading edge of each successive sheet, engaging a first surface of each successive sheet after the leading edge of that sheet is clamped, moving each successive sheet across the stacking plate while reversing the sheet upon itself to lay said first surface of the sheet on the



stacking plate and the opposite or second surface of each sheet against a previously stacked sheet.

4,269,409

ORIGINAL DOCUMENT TRANSPORT MECHANISM FOR ELECTROPHOTOGRAPHIC COPYING MACHINES

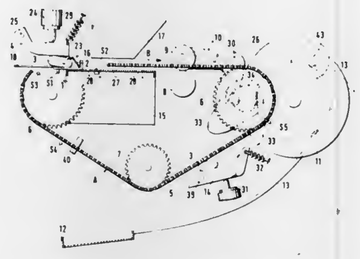
Rüdiger Simonek, Frankfurt; Peter Gumm, Glashütten; Hermann Idstein, Oestrich-Winkel, and Horst Witte, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 15, 1977, Ser. No. 860,902

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1976, 2657198

Int. Cl.³ B65H *5/12, 5/14, 5/02*

U.S. Cl. 271—277 **44 Claims**



1. A transport mechanism for cyclically conveying an original document past an optical scanning device in an electrophotographic copying machine, comprising:

(a) a gripping unit which engages a leading edge of said original and transports this edge over a closed path during the entire cycling operation, said path of travel of said gripping unit forming a planar section in the region of said optical scanning device such that the original is presented as a planar surface for optical scanning;

(b) means connected to said gripping unit for driving said unit over said closed path, said means for driving said gripping unit comprising a transport chain connected to each side of said gripping unit, a front pair of chain sprocket wheels, a back pair of chain sprocket wheels, and a pair of chain tension adjusting wheels, the arrangement of said wheels defining the path of travel of said gripping unit, and each of said pairs of wheels being mounted on a common shaft, the front sprocket wheels, the back sprocket wheels, and the chain tension adjusting wheels arranged in pairs and forming a triangle relative to one another;

(c) a pair of transport rollers disposed above and below the path of the original which engage said original downstream of said optical scanning device and function to further convey said original; and

(d) a suction table disposed below said optical scanning device, said suction table comprising a perforated plate with at least two parallel rows of staggered holes.

4,269,410

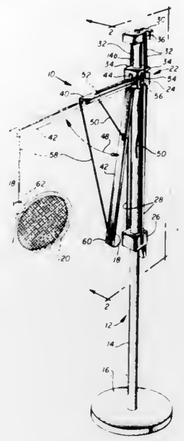
TENNIS TRAINING DEVICE

James H. Martin, 2120 S. Glenbrook, #16P, Garland, Tex. 75041

Filed Aug. 24, 1979, Ser. No. 69,178

Int. Cl.³ A63B *61/00*

U.S. Cl. 273—29 A **4 Claims**



1. A tennis training apparatus, which comprises:

frame means;

a first arm fixedly secured to said frame means and extending outwardly therefrom;

a second arm pivotally secured to said frame means beneath said first arm;

said frame means comprising:

a pair of blocks located in spaced apart relationship;

said first and second arms being secured to one of said blocks; and

a pair of side members rigidly interconnecting said blocks in spaced relationship;

means for selectively effecting manual pivotal movement of said second arm relative to said first arm;

a flexible line of predetermined length extending downwardly from said second arm; and

means located at an end of said first line for releasably connecting a tennis ball thereto.

4,269,411

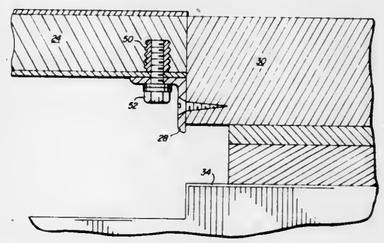
MODULAR BOWLING LANE SYSTEM

Will Heddon, P.O. Box 3416, Lake Wales, Fla. 33853

Filed Jun. 11, 1979, Ser. No. 47,357

Int. Cl.³ A63D *1/00*

U.S. Cl. 273—51 **18 Claims**



15. In a bowling alley having an existing lane section, leveling strips and lane support structure, a modular lane system comprising:

a. a rectangular lane module having upper and lower surfaces, and first and second ends;

b. means coupled to the lower surface of said module and to said leveling strips for supporting said modular at a predetermined distance above said lane support structure; and

c. a coupler bar for coupling said lane module to said existing lane section such that the upper surface of said lane section and the upper surface of said lane module are in vertical alignment, said coupler bar comprising:

i. a vertical face including a plurality of passageways positioned at spaced apart intervals along said vertical face for receiving first securing means to attach the vertical face of said coupler bar to an end of said existing lane section; and

ii. a horizontal face including a plurality of passageways positioned at spaced apart intervals along said horizontal face for receiving second securing means to attach said coupler bar to the lower surface of the first end of said lane module.

4,269,412

GOLF CLUB GRIP

J. Walter Hughes, Houston, Tex., assignor to Contour-Concept, Inc., Texarkana, Tex.

Filed Oct. 10, 1978, Ser. No. 949,943

Int. Cl.³ A63B *53/14*

U.S. Cl. 273—81.3 **18 Claims**



1. A grip for a golf club for fitting over the shaft of a golf club and for reducing hooks and slices in hitting a ball toward an intended target comprising:

a lower hand grip portion having a longitudinal axis diverging outwardly at an acute angle away from the main line of the longitudinal axis of the club shaft as defined between the grip and the club head;

a higher hand grip portion having one end integrally abutting one end of said lower hand grip portion and having an axis diverging outwardly at an acute angle away from said line,

a hollow longitudinal tube formed within the lower and upper hand grip portions for accepting the distal end of the shaft of the golf club,

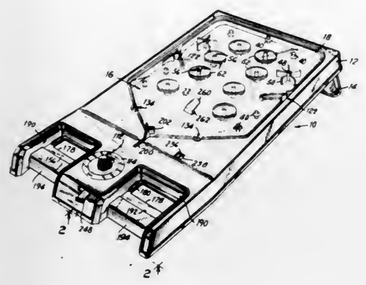
said axis of said lower hand grip portion diverging opposite the target side of a vertical reference plane passing through said main line and perpendicular to a lateral reference plane defined by said main line and an imaginary line between the club head end of the shaft axis and the intended target, and

said axis of said higher hand grip portion diverging on the target side of said vertical reference plane and on the side of said lateral reference plane opposite the club head.

4,269,413
PINBALL GAME

Michael Langieri, Butler, N.J., assignor to Empire of Carolina, Inc., New York, N.Y.

Division of Ser. No. 767,430, Feb. 10, 1977, Pat. No. 4,189,150.
This application Apr. 19, 1979, Ser. No. 31,688
Int. Cl.[3] A63D 3/02
U.S. Cl. 273—121 R 7 Claims

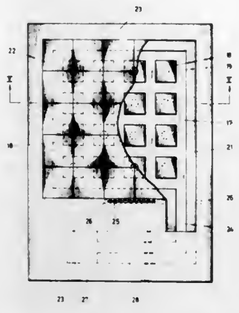


1. A pinball game comprising:
(A) a housing
i. having a front edge, and
ii. an upper wall;
(B) said housing including
i. an inclined plane game field
ii. spaced from said front edge and at a level lower than the level of said upper wall of said housing;
iii. said game field having a front edge and a rear edge;
(C) a ball; and
(D) a ball projecting means adjacent and forward of said front edge of said game field;
(A) said ball projecting means including:
i. a slide with pocket means at its rear end for receiving said ball;
ii. means for guiding said slide for reciprocating rectilinear movement in a front to rear direction at a level below the level of said upper wall of the housing and substantially coincident with the level of said game field so that said slide is concealed below said upper wall of the housing, the rear end of the said guide means providing access for a ball to said game field;
iii. means for biasing said slide and pocket means to a rearward rest position;
iv. manually-manipulatable means for said upper wall;
v. said manually-manipulatable means being kinematically unitary with said slide and being mounted for rectilinear rear to front displacement from a rest position corresponding to said rearward rest slide position to a forward cocked position corresponding to a forwardly cocked slide position;
vi. transversely reciprocal detent means biased to a position in which it retains said slide and pocket means at said cocked position; and
vii. manually-manipulatable ball release means for selectively manually releasing said detent means, whereby said ball is hurled from a concealed cocked position across said playing field by the displacement of said slide and pocket means from the cocked position to the rest position by the biasing means.

4,269,414
SLIDE-PUZZLE

Marc F. DeVos, Binnenhof 3, Knokke-Heist, Belgium, and Hoan G. Gouw, Porto Buenolaan 16, Ouderkerk a/d Amstel, Netherlands

Continuation of Ser. No. 895,779, Apr. 12, 1979, abandoned, which is a division of Ser. No. 716,878, Aug. 23, 1976, Pat. No. 4,097,049. This application Oct. 5, 1979, Ser. No. 82,141
Int. Cl.[3] A63F 9/08
U.S. Cl. 273—153 S 1 Claim



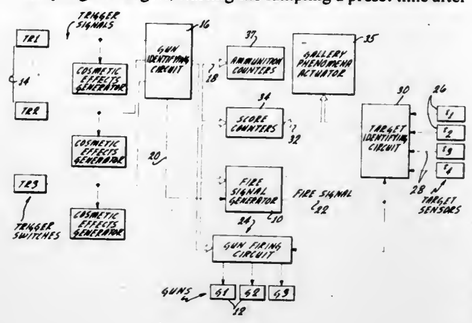
1. A slide-puzzle comprising, in combination, a plate having a substantially rectangular space therein and a rectangular take-up portion in communication with said space, and a plurality of slide-pieces having circumferential grooves therein, the number of slide-pieces being such as to occupy the entire space when the puzzle is solved, said plate forming inwardly directed flanges extending along the inner surface of the part of the plate which forms the perimeter of said space and said take-up portion, said take-up portion being in communication with a channel formed in said plate and provided with inwardly directed flanges, said channel terminating in an opening formed in said plate and dimensioned to receive said slide-pieces therein, said space having a plurality of guide plates arranged in vertical and horizontal rows in order to guide the slide-pieces as they are rearranged to solve the puzzle, said slide-pieces being slidably retained in said space by means of said circumferential grooves interengaging said flanges and guide plates, a frame mounted on the top surface of said plate outboard of said flanges which extend along the perimeter of said space and said take-up portion, said slide-pieces being dimensioned so that the surface thereof lies in the same plane as the surface of the frame, and said frame covering said channel and said opening and blocking the end of said take-up portion so that only one of said slide-pieces may be accommodated in said take-up portion while solving the puzzle and preventing withdrawal of the slide-pieces.

4,269,415
SCORING SYSTEM FOR SHOOTING GALLERY

George M. Thorne-Booth, 4614 Sendero Pl., Tarzana, Calif. 91356

Filed Apr. 13, 1979, Ser. No. 29,641
Int. Cl.[3] F41J 5/02
U.S. Cl. 273—310 21 Claims

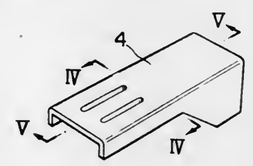
1. A scoring method for determining which one of several guns has been fired, and for determining which one, if any, of several targets has been struck by the fired gun, comprising the steps of:
sensing in chronological order the identities of successively triggered guns;
generating each time a gun is triggered a FIRE signal associated with the gun triggered, the FIRE signal having a preset duration and being initiated when the gun is triggered, unless the immediately preceeding FIRE signal is still present, in which case initiation of the later FIRE signal is delayed until termination of the earlier FIRE signal, the triggered gun being fired upon initiation of the later FIRE signal;
sampling the targets, starting the sampling a preset time after initiation of each FIRE signal and continuing until a struck target has been found or until all of the targets have been sampled;
sensing the identity of the struck target; and,
associating the identity of the struck target with the identity of the gun associated with the current FIRE signal.



4,269,416
HEAD SHELL FOR RECORD PLAYER TONEARMS

Toshikazu Yoshino; Yasuyuki Arai; Tsunehiro Tsukagoshi, and Shinichi Yokozeki, all of Ohmorinishi, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Aug. 3, 1979, Ser. No. 63,532
Claims priority, application Japan, Aug. 4, 1978, 53-94654; Aug. 18, 1978, 53-99955; Dec. 28, 1978, 53-161227
Int. Cl.[3] G11B 3/10; B29D 3/02; B32B 9/04
U.S. Cl. 369—256 8 Claims



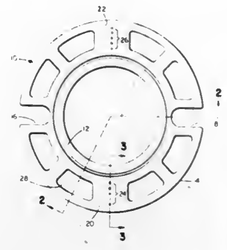
1. A head shell for a record player tonearm comprising a composite material essentially consisting of 10-90 parts by weight of a thermoplastic resin and 90-10 parts by weight of flaky graphite wherein the composite material is prepared by kneading the components and the graphite flakes are oriented substantially in parallel with the surface of the shell.

4,269,417
SEAL GLAND

Walter L. Dutton, Andover, Mass., assignor to A. W. Chesterton Company, Stoneham, Mass.

Filed Jun. 13, 1979, Ser. No. 48,030
Int. Cl.[3] F16J 15/00
U.S. Cl. 277—11 5 Claims

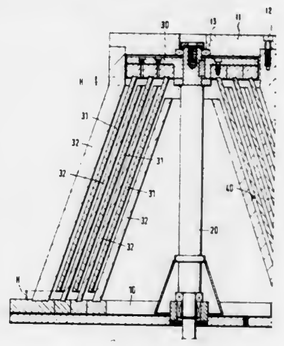
1. A seal gland comprising an annular seal engaging surface and a mounting portion, radially spaced from said surface, comprising one set of bolt positions radially spaced from and circumferentially spaced about said surface, said bolt positions of said one set each comprising a radially elongated slot, characterized in that said mounting portion further comprises a second set of bolt positions radially spaced from and circumferentially spaced about said surface, said bolt positions of said second set positioned between pairs of said positions of said first set and said bolt positions of said second set each comprising a plurality of detents radially spaced from each other at predetermined radial positions.



4,269,418
HYDRAULIC SEAL FOR FLUID MACHINES

Silvio Valentini, and Mario Serafica, both of Genoa, Italy, assignors to Nira Nucleare Italiana Reattori Avanzati, Genoa, Italy

Filed Feb. 1, 1980, Ser. No. 117,630
Claims priority, application Italy, Feb. 7, 1979, 12454 A/79
Int. Cl.[3] F16J 15/40
U.S. Cl. 277—14 V 7 Claims

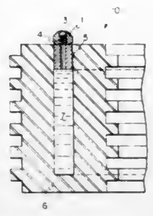


1. A hydraulic seal for a fluid machine having a horizontal cover and a vertical rotating shaft extending up through a central opening in said cover, said seal comprising:
disc means fixed on and rotating with said shaft, said disc means being spaced upwardly from said cover,
a plurality of rotating frusto-conical sheaths having smaller ends fixed to the lower side of said disc means and extending down almost to said cover, said rotating sheaths being coaxial with said shaft and being spaced apart one inside another,
a plurality of stationary frusto-conical sheaths having larger ends fixed to the upper side of said cover and extending up almost to said disc means, said stationary sheaths comprising a sheath interposed between said rotary sheaths, an inner sheath inside the innermost rotating sheath and an outer sheath outside the outermost rotating sheath, and
liquid filling spaces between said sheaths.

4,269,419
FLUID PRESSURE SLEEVE AND RUBBER GASKET PIPE JOINT

Robert J. Brant, 29 College Park, Davis, Calif. 95616

Filed Jul. 9, 1979, Ser. No. 56,131
Int. Cl.³ F16J *15/46*
U.S. Cl. 277—34.3 **6 Claims**



1. A sleeve for frictional disposition between a pipe and a surrounding area having an opening through which the pipe passes, said sleeve formed from a roll of heavy rubber having double walled construction and is preferably of cylindrical cross sectional shape wherein said sleeve is cut from the roll to appropriate band width and the cut lines are sealed to provide a hollow central portion between the double walls, said sleeve further including:

ribs on inner and outer annular surfaces of said sleeve for improved retention between the pipe and the surrounding area,

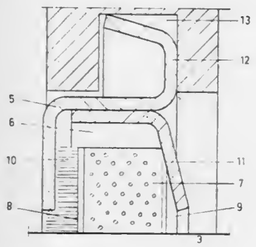
first and second valves inserted into said sleeve communicating with said hollow central portion,

and a non-hardening fluid material disposed within said central portion through said valves, whereby when said sleeve has been expanded between said pipe and surrounding area, shifting of the pipe relative to the area, vibrations in the pipe and the like are dampened.

4,269,420
SEAL

Stig Persson, Katrineholm, Sweden, assignor to Aktiebolaget SKF, Goteborg, Sweden

Filed Feb. 7, 1980, Ser. No. 119,509
Claims priority, application Sweden, Mar. 30, 1979, 7902838
Int. Cl.³ F16J *15/48*
U.S. Cl. 277—53 **6 Claims**

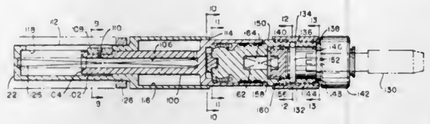


1. A seal for a gap between a rotatable shaft (3) or the like and an element (1) surrounding the shaft, the seal comprising an annular first member (5) mounted on said element, and surrounding the shaft, said first member having an opening of greater diameter than the shaft to allow for skewing of the shaft, said first member having two spaced side walls forming an annular groove (6) open towards the envelope surface of the shaft; and a second member (7) rotatable with the shaft and enclosed by said annular groove and radially spaced from the surface comprising the closed end of said annular groove, said second member being constituted by a resilient ring with opposite axial end surfaces (8, 9) one of which being provided with a plurality of discrete fibers uniformly arranged mainly perpendicular to one of said axial surfaces, the free ends of the fibers sealingly contacting and flexing against one of the side walls in said annular groove, the other one of said axial end surfaces directly and sealingly contacting the other one of the side walls of said annular groove thus providing tight contact even when the shaft is skewed.

4,269,421
FLOATING TOOL HOLDER

Walter W. Wawrzyniak, 39230 Gary, Mt. Clemens, Mich. 48043

Division of Ser. No. 706,933, Jul. 19, 1976, Pat. No. 4,111,442.
This application Sep. 5, 1978, Ser. No. 939,872
Int. Cl.³ B23B *31/08*
U.S. Cl. 279—16 **12 Claims**

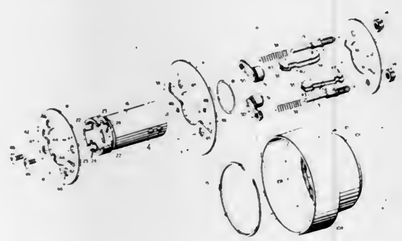


1. A floating tool holder comprising a shank having a longitudinal axis adapted to be secured in a spindle or the like at one end and having a recess with an axially extending wall in the other end, floating structure positioned within the recess in the other end of the floating tool holder shank including a tool receiver having a ball on one end thereof and a tool adapter and resilient means for permitting translation of the floating structure relative to the longitudinal axis of the shank and pivoting of the floating structure about the axis of the shank operable between the shank and floating structure, means for positively driving the tool receiver and tool adapter in rotation in response to rotation of the shank of the floating tool holder, including a slot in the bottom of the recess in the other end of the shank, a slot in the ball on the one end of the tool receiver perpendicular to the slot in the recess in the shank and a T-shaped drive member having one portion positioned within the slot in the shank and one portion positioned within the slot in the tool receiver, and means for releasably securing a tool to the floating structure.

4,269,422
QUICK RELEASE LOCKING CHUCK MECHANISM

Eugene S. Biggs, 172 E. 3000 South, Bountiful, Utah 84010

Filed Nov. 5, 1979, Ser. No. 91,048
Int. Cl.³ B23B *31/18, 31/14*
U.S. Cl. 279—38 **5 Claims**



1. A chuck assembly adapted for quick and easy engagement and disengagement with work arbors having various working tools mounted thereon, said chuck assembly comprising:

a housing having a substantially circular open end and an opening in the other end which is substantially coaxial with said open end;

an anchor assembly including a substantially circular anchor plate mounted on the inside of said housing, said anchor plate having a central opening therethrough which is coaxial with the axis through the open end of the housing;

an elongate chuck member having a longitudinal bore extending from one end to the other end thereof, said chuck member also having a substantially circular face plate mounted near one end thereof, said chuck member being mounted longitudinally through the opening in said anchor plate with the face plate at one end thereof positioned coaxially adjacent to the open end of said housing, and with the other end of said chuck member extending coaxially outwardly from the opening in said other end of said housing, whereby said housing is adapted for reciprocating movement longitudinally along said chuck member;

at least one pair of diametrically opposed slots in the cylindrical wall of said chuck member extending from said one end of said chuck member to the face plate mounted near said one end of said chuck member, with said one end of said chuck member otherwise being adapted to receive a work arbor in concentric engagement therewith, and said other end of said chuck member being adapted to be attached to the shaft of a drive motor;

a pair of locking fingers having hooks at mutually corresponding ends thereof, said hooks being adapted to fit into and extend through the pair of slots in said chuck member, said locking fingers extending longitudinally along the outer sidewall of said chuck member, with the other mutually corresponding ends of said locking fingers being pivotally attached to the anchor plate so that the locking fingers are adapted for longitudinal movement along said chuck member with said housing as well as for pivotal movement of the hook ends thereof outwardly away from said chuck member;

spring means mounted between said anchor plate and said face plate biasing said housing to a rest position away from said one end of said chuck member;

means for pivoting said hook ends of said finger members inwardly through said slots in said chuck member when said housing is in its biased, rest position;

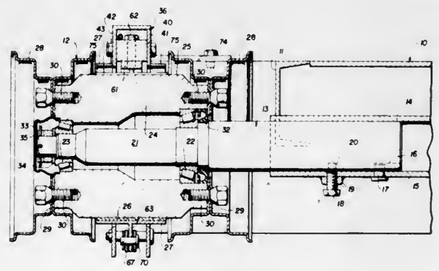
means for pivoting said hook ends of said finger members outwardly from said slots in said chuck member so that the hook ends pivot back at least to the inner surface of the bore in said chuck member when said housing is pushed toward said one end of said chuck member against the biasing force of said spring means; and

means for locking the housing in its biased, rest position when the chuck assembly is being rotated about the longitudinal axis of said chuck member.

4,269,423
BRAKE AND WHEEL ASSEMBLY

Hector R. Perez, HN-22EL, Comandante Ave., Country Club, Rio Piedras, P.R. 00924

Filed Aug. 2, 1979, Ser. No. 63,135
Int. Cl.³ B62D *61/00*
U.S. Cl. 280—80 R **6 Claims**

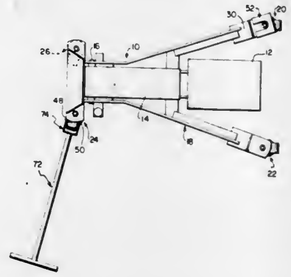


1. A brake and wheel assembly adapted for mounting to a vehicle frame comprising a brake rotor also serving as a dual wheel hub, dual wheels detachably secured to opposite end faces of said rotor and forming a rotational unit therewith, an axle extension shaft including rotor support bearings carrying said rotational unit, means for detachably connecting said axle extension shaft to a vehicle frame part, said axle extension shaft extending from the outer wheel of said dual wheel inwardly through said rotor and the inner wheel of said dual wheels to said vehicle frame part, a brake shoe mechanism mounting unit arranged in cross axis relationship to said rotor and axle extension shaft and adapted for connection to a vehicle frame in cantilevered relationship thereto, said mounting unit including rear and interior side plates and a top backbone bar in unitized relationship and also including a detachable outer side cover plate, brake shoes within said mounting unit in opposing relationship and in surrounding relationship to said rotor, brake shoe hydraulic actuator means in said mounting unit including bodies located and seated on said backbone bar in a manner to transmit stresses developed by brake application through said bodies directly to the backbone bar, and brake shoe adjusting and release biasing means within said mounting unit.

4,269,424
SWIVEL LOCK AND TOW BAR ASSEMBLY FOR FOUR-WHEEL CASTER JACK ASSEMBLY

Joseph L. Gray, St. Joseph, Mo., assignor to Gray Manufacturing Company, Inc., St. Joseph, Mo.

Filed Jul. 25, 1979, Ser. No. 60,748
Int. Cl.³ B60P *1/44*
U.S. Cl. 280—92 **10 Claims**



1. A jack assembly for use in connection with the installation, removal and service of heavy transmissions, differentials and related components from the underside of heavy-duty service trucks and the like comprising:

a generally horizontal platform operable to support said heavy truck components or the like during said installation, removal or service;

four rotatable support caster wheels for said platform;

means mounting the caster wheels on the underside of the platform in essentially a common horizontal plane and in disposition for independent normally free swiveling movement of each about a corresponding upright axis spaced from the axes of swiveling of the remaining caster wheels;

loading means releasably engageable with the mounting means for one of the caster wheels and operably to fixedly couple such mounting means to the platform to lock said one wheel against swiveling without in any way interfering with its ability to roll freely along a supporting surface; and

a steering handle releasably attached to the mounting means for an oppositely trailing or leading wheel with respect to the path of travel of the jack assembly and operable when manipulated to turn the mounting means to which it is connected, about the upright axis of swivelling thereof without interfering with the free ability of the wheel

supported thereon to roll freely along a supporting surface,

said jack assembly being maneuverable by pushing or pulling on the steering handle while turning such handle as may be necessary to cause the platform to properly receive and support a heavy truck component such as a transmission, differential or the like as it is released from a vehicle and in like manner, allow precise and extremely accurate repositioning when the component is reattached because mounting belts and their receiving holes require exact alignment before replacement is possible.

4,269,425

SAFETY COVERING FOR ROTARY GATING IN ARTICULATED BUSES

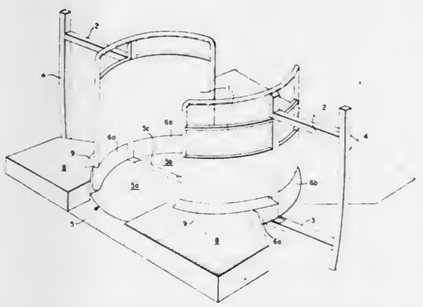
Karl König, Böblingen, and Emil Heldmaier, Altdorf, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Dec. 26, 1978, Ser. No. 972,686

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2758056

Int. Cl.³ B60D *5/00*

U.S. Cl. 280—403 **8 Claims**



1. Safety cover arrangement for a turntable articulation coupling of an articulated vehicle comprising a vertically oriented ring mount barrier and a safety cover means carried by said turntable coupling for supporting said ring mount barrier, wherein said safety cover means has a U-shaped transverse cross-section defining a receiving space for receiving a lower end of said ring mount barrier with upper free ends of legs of said U-shaped cross-section in engagement therewith, and wherein said safety cover means is formed of an elastic material for enabling the upper ends of said legs to remain in engagement with said ring mount barrier despite changes in pitch and bending angles between portions of said vehicle articulated by said turntable coupling.

4,269,426

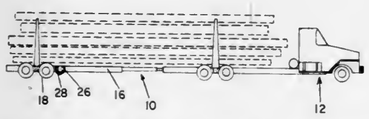
TRACTOR/TRAILER SAFETY DEVICE

Bharat Bhushan, 1014 Longspur Rd., Audubon, Pa. 19403

Filed Feb. 21, 1979, Ser. No. 13,299

Int. Cl.³ B62D *53/06*

U.S. Cl. 280—432 **8 Claims**



1. In a tractor/trailer disconnect system having a pneumatically operated, spring biased piston, to which is connected a bearing pin for mechanically connecting the trailer to the tractor, said bearing pin being secured in a connecting position by a shear pin; a skid plate suspended in front of the wheels of the trailer; a control for venting the trailer air brakes and for connecting a source of gas pressure to the cylinder for moving the piston to shear said shear pin and lift the bearing pin and mechanically disconnect the trailer from the tractor, and for operating a device for releasing the skid plates to drop in front of the trailer wheels; wherein the improvement comprises:

an emergency flasher (F)and power pack (P), including a relay (R) for energizing a solenoid (S), and a switch (L) operated by said solenoid and having a lock on position to keep the emergency flasher unit energized even after the tractor power supply has been disconnected;

a switch (70,72) in said control for connecting said relay (R) to a source (B) of electrical power for energizing said solenoid when said control is operated;

guide means for guiding said skid plates to drop in front of said trailer wheels irrespective of the motion of said trailer;

sequencing means to ensure that said piston is operated to lift said pin first, and then the brakes are applied gradually while the wheels continue to roll onto the skid plate when it drops in front of the trailer wheels, and then the emergency flashers are operated to warn traffic as the trailer comes to a halt.

4,269,427

LIFTING DEVICE AND ASSOCIATED STRUCTURE

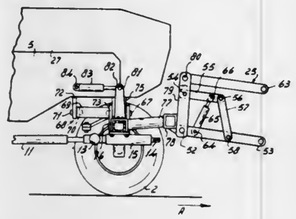
Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Division of Ser. No. 788,915, Apr. 19, 1977, Pat. No. 4,194,756. This application Mar. 27, 1979, Ser. No. 24,189

Claims priority, application Netherlands, Apr. 23, 1976, 7604307

Int. Cl.³ A01B *59/043, 59/048*

U.S. Cl. 280—446 A **10 Claims**



4. The combination of a vehicle having a frame and axle means, said axle means adapted to pivot relative to said frame about a horizontal axis parallel to the longitudinal axis of the vehicle, with a lifting device, supporting means for said lifting device rigidly connected to said axle means and extending normally therefrom whereby said lifting device pivots with said axle means, support members included in said supporting means, a first hydraulic cylinder and piston means interconnecting said lifting device through said supporting means and said support member with said frame, a second hydraulic cylinder and piston means in said lifting device for actuating said lifting device for lifting a load, the pistons of said first and second hydraulic cylinder and piston means having working areas which are substantially inversely proportional to their respective effective working distances from said axle means so as to provide substantially equal compensating moments relative to said axle means, conduit means between said first and second hydraulic cylinder and piston means for equalizing the fluid pressure in said first and second hydraulic cylinder and piston means and substantially effectively eliminating torque from said axle means exerted from said supporting means because of the lifting of said load by said lifting device.

4,269,428

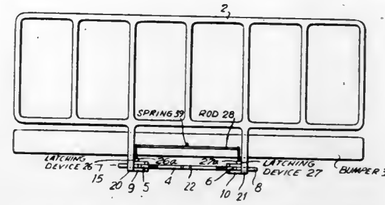
HIDEAWAY TOW HITCH

Carl A. Rexine, General Delivery, Bowden, N. Dak. 58418

Filed Oct. 15, 1979, Ser. No. 84,864

Int. Cl.³ B60D *1/14*

U.S. Cl. 280—491 R **6 Claims**



1. A hideaway tow hitch for a principal vehicle having a length, a chassis, a grill and a grill guard mounted on the vehicle and extending substantially adjacent the grill, said hideaway tow hitch comprising

a towing device for releasably coupling a towing vehicle to said principal vehicle; and

mounting means including a pair of spaced parallel guide bars affixed in substantially horizontal position to said chassis for movably mounting said towing device on the chassis beneath the grill guard of said principal vehicle in a manner whereby in a tow position said towing device extends beyond said grill guard and said principal vehicle and in a retracted position said towing device is behind said grill guard and is substantially unnoticeable, said towing device being freely movable in directions of length of said vehicle and in a range of angles relative to said guide bars.

4,269,429

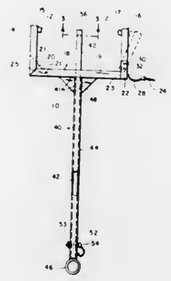
TOW BAR FOR AIRCRAFT

Arvin B. Eichstadt, R.R. No. 1, Box 24, Crescent, Iowa 51526

Filed Feb. 12, 1980, Ser. No. 120,934

Int. Cl.³ B60D *1/14;* **B64C** *3/00*

U.S. Cl. 280—503 **10 Claims**



1. A tow bar for aircraft comprising: right and left aircraft-engaging units spaced horizontally from each other for engaging opposite sides of an aircraft steerable nose wheel assembly, right and left arms extending forwardly from and attached to said units, a shoulder extending from right to left and connecting forward ends of said arms, forward and rearward elongated tongue sections extending forwardly from said shoulder, said tongue sections being collapsably connected together and being positionable in storage positions in which the forward end of said forward section is much closer to said shoulder than when said tongue sections are in towing positions, said left arm being pivotally attached to said shoulder for pivoting about a substantially vertical axis, said shoulder and said left arm lapping each other in a position offset from said axis, a releasable holding assembly operably correlated with said lapping portions of said arm and shoulder for holding said arm and shoulder sufficiently rigid as to substantially maintain said units at a desired spacing for aircraft wheel carriage gripping, said rearward tongue section being attached to said shoulder, towing hitch means attached to the forward end of said forward tongue section, keeper means operably correlated with said tongue sections and releasably keeping said tongue sections in said towing positions.

4,269,430

SKI BOOT HEEL ATTACHMENT

Nils Eie, Bamseveien 20, Oslo 3, Norway

Filed Jan. 23, 1979, Ser. No. 5,858

Claims priority, application Norway, Jan. 25, 1978, 780281

Int. Cl.³ A63C *9/10*

U.S. Cl. 280—614 **18 Claims**



1. In combination with a ski boot of the type having a heel formed with at least one forwardly downwardly sloping recess which commences at the rear surface of the heel and terminates at an intermediate point between the rear surface and front surface of said heel:

a member attached to and projecting rearwardly from the rear surface of the boot heel, and

locking means for attachment to the ski, said locking means including a forwardly downwardly sloping protrusion for matingly fitting into the recess of the ski boot heel and engaging the heel to provide lateral stability, and also including means for engaging the top of said rearwardly projecting member and locking therewith to prevent movement of the heel upwardly from the face of the ski.

4,269,431

SAFETY SKI BINDING

Erwin Weigl, Brunn am Gebirge, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Feb. 21, 1979, Ser. No. 13,475

Claims priority, application Austria, Feb. 23, 1978, 1300/78

Int. Cl.³ A63C *9/08*

U.S. Cl. 280—618 **9 Claims**



1. In a safety ski binding for use on a ski comprising a sole plate having first means thereon for fastening a ski boot thereto and second means operatively releasably coupled to the longitudinal ends of said sole plate for releasably securing said sole plate against rotation and against a lifting off from said ski, a pin means secured to said ski and extending perpendicularly with respect to the upper surface of said ski, and a recess in said sole plate receiving said pin means therein, the improvement comprising wherein said pin means includes a pin secured to said ski and a hollow sleeve movable telescopically along the length of said pin and along the length of said recess and stop means for limiting the maximum path of movement of the sleeve relative to said pin and said recess and to limit the

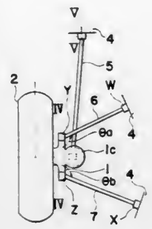
amount of separation between said sole plate and said ski adjacent said recess and said pin when said ski is flexed into an arc.

4,269,432

INDEPENDENT WHEEL SUSPENSION FOR MOTOR VEHICLES

Hitoshi Inoue; Kenichi Watanabe, and Takashi Sumimoto, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed May 17, 1979, Ser. No. 40,084
Claims priority, application Japan, May 24, 1978, 53-62424; Sep. 14, 1978, 53-126795[U]
Int. Cl.³ B60G *3/00*
U.S. Cl. 280—690 **8 Claims**



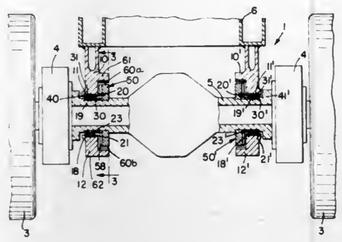
1. A rear wheel suspension for a vehicle having a vehicle chassis, said suspension comprising: a rear wheel support including a wheel carrier for supporting a rear wheel for rotation independently of the wheel carrier; front and rear arm members for supporting the wheel carrier on the vehicle chassis, each of said front and rear arm members having one end hingedly and yieldingly connected to the wheel carrier and the other end hingedly and yieldingly connected to the vehicle chassis, said front and rear arm members extending laterally in spaced relation to each other between the vehicle chassis and the wheel carrier; said front and rear arm members extending outwardly from the wheel carrier towards the vehicle chassis and diverging from each other with the space therebetween gradually increasing towards the vehicle chassis, the longitudinal straight distance as measured in a direction longitudinally of the vehicle chassis between the first vertical plane generally perpendicular to the longitudinal axis of the vehicle chassis and containing therein the joint between said one end of the front arm member and a front portion of the wheel carrier and a second vertical plane parallel to the first vertical plane and containing the joint between said one end of the rear arm member and a rear portion of the wheel carrier being smaller than the longitudinal straight distance as measured in a direction longitudinally of the vehicle chassis between a third vertical plane generally perpendicular to the longitudinal axis of the vehicle chassis and containing the joint between said other end of the front arm member and a front lateral portion of the vehicle chassis and a fourth vertical plane parallel to the first, second and third vertical planes and containing the joint between said other end of the rear arm member and a rear lateral portion of the vehicle chassis; a connecting member for elastically connecting the wheel support of the vehicle chassis for displacement in a direction generally horizontal and perpendicular to the widthwise direction of the vehicle chassis, said connecting member having one end connected to the vehicle chassis and the other end connected to the wheel carrier; and a shock absorber means for absorbing vibrations of the wheel carrier which may take place in a direction generally at right angles to the road surface during the running of the vehicle; whereby when a load acting in a direction rearwardly of the vehicle is imposed on the area of contact of the rear wheel with a road surface and the wheel carrier is consequently forcibly displaced rearwardly of the vehicle chassis, the wheel carrier is moved such that the toe-in of the wheel support is thereby increased.

4,269,433

RESILIENT REAR SUSPENSION FOR GRADERS

W. Allan Shears, Divernon, Ill., assignor to Fiat-Allis Construction Machinery, Inc., Deerfield, Ill.

Filed Dec. 10, 1979, Ser. No. 101,822
Int. Cl.³ B60G *11/22*
U.S. Cl. 280—716 **17 Claims**



1. A resilient suspension for mounting an axle housing to the frame of a vehicle comprising

trunnion means adapted to be affixed to said vehicle frame,

said trunnion means having a surface to surround at least a portion of the axle housing of the vehicle in spaced relationship thereto,

elastomeric means positioned between said surface of said trunnion means and the portion of the axle housing,

said elastomeric means including an elastomeric section to provide an impedance mismatch between the axle housing and the frame of the vehicle and attenuate the transmission of noise therebetween, and

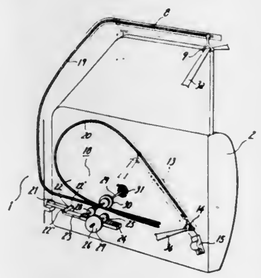
stability means mounted in concentric coupled relationship to the axle housing and in spaced relationship to said trunnion means to stabilize the mounting of the axle housing to the vehicle frame.

4,269,434

PASSIVE VEHICLE OCCUPANT RESTRAINT LAP AND SHOULDER BELT SYSTEM

Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Tokyo, Japan

Filed Feb. 8, 1979, Ser. No. 10,212
Claims priority, application Japan, May 15, 1978, 53-63961[U]
Int. Cl.³ B60R *21/10*
U.S. Cl. 280—803 **4 Claims**



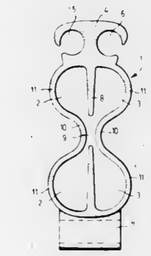
1. In a passive occupant restraint belt system for vehicles which includes a lap belt and shoulder belt, apparatus for moving the lap belt and shoulder belt between occupant-restraining and occupant-releasing positions in response to opening of a door of the vehicle comprising lap belt transfer means engaging the lap belt for moving it from the restraining to the releasing position and including a first racked wire, shoulder belt transfer means engaging said shoulder belt for moving it from the restraining to the releasing position and including a second racked wire, rotary drive means having a single output shaft, a first output drive gear element on the output shaft coupled to the first racked wire of said lap belt transfer means and a second output drive gear element on the output shaft coupled to the second racked wire of said shoulder belt transfer means for actuating said first and said second shoulder belt transfer means simultaneously, the first and second output drive gear elements being of different diameters to accommodate different lengths of movement of the respective belt transfer means, and means for operating the rotary drive means responsive to opening of the vehicle door for moving said first and said second belt transfer means from the occupant-restraining to the occupant-releasing position.

4,269,435

FASTENING MEANS FOR SKIS

Juhani Järvenkylää °övinginkatu 4,, 04100 Lohja 10, and Tapio Yli-Kovero, Metsolankatu 14 D 31, 08150 Lohja 15, both of Finland

Filed Aug. 21, 1979, Ser. No. 68,405
Claims priority, application Finland, Aug. 29, 1978, 782642
Int. Cl.³ A63C *11/02*
U.S. Cl. 280—814 **1 Claim**



1. A clamp for use in holding a pair of skis, comprising a substantially rectangular closed body formed integrally of a resillient material and including two partition tongues extending towards each other from the middle of the short sides of said body, the partition tongues serving as a partition between each ski of the pair of skis, and both of the long sides of said body having an inherent tendency to assume a configuration of at least two outward bows and, between these, at least one inward bow extending to the vicinity of the plane of the tongues for pressing skis inserted in the openings formed on both sides of said tongues against said tongues, the resilient bows and partition tongues providing for variation of opening length and width according to the dimensions of the skis being clamped.

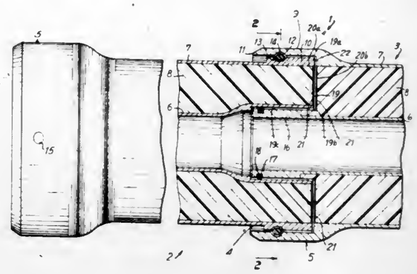
4,269,436

PRE-INSULATED PIPE SYSTEM

Jonas Medney, 3504 Woodward St., Oceanside, N.Y. 11572

Filed Apr. 14, 1980, Ser. No. 139,802
Int. Cl.³ F16L *11/12*
U.S. Cl. 285—47 **16 Claims**

1. A piping system comprising first and second pipes, each pipe including spaced inner and outer pipe members and a foam material filling the space between the inner and outer pipe members, the inner pipe members of the two pipes being adapted for conveying a fluid medium, the inner pipe member of the first pipe having a flared female end, the inner pipe member of the second pipe having a male end inserted in the female end, said foam material in said second pipe being provided with a recess in which said first pipe extends so that the foam material in said first pipe confronts the foam material in said second pipe, the outer pipe member of the first pipe having an annular groove therein which faces outwardly, coupling means surrounding said outer pipe member of said first pipe and having an annular groove therein which faces inwardly and is in registry with said annular groove in said outer pipe member, key means extending in part in each of said grooves for locking said coupling means and said first pipe in axially



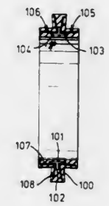
secured relation while permitting relative rotation therebetween, and means securing said coupling means to the outer pipe member of said second pipe such that said second pipe is axially secured to said first pipe.

4,269,437

JOINTING OF PIPES

Douglas W. Shaw, and Richard Gamwell, both of Macclesfield, England, assignors to E. T. Oakes Limited, Macclesfield, England

Filed Oct. 1, 1979, Ser. No. 80,297
Claims priority, application United Kingdom, Oct. 4, 1978, 39270/78
Int. Cl.³ F16L *19/00*
U.S. Cl. 285—109 **6 Claims**



1. A joint for jointing two pipe ends, said joint comprising a resilient T-shaped annular member including a radial portion adapted to extend between the ends of the pipes, two oppositely extending axial portions at the radially inner part of the radial portion, the axial portions each being engageable within the interior of one of the two pipe ends, a metal reinforcement within said resilient annular member, said reinforcement comprising two axially spaced parts each having an axially extending inner arm and a body portion extending radially outwardly therefrom, the two body portions diverging with respect to one another, said body portions including a plurality of radial slits circumferentially spaced from one another and dividing the body portion into circumferentially spaced segments, whereby the axially extending portions of the T-shaped annular member are urged radially outwardly against the inner surface of the two pipe ends, as the two pipe ends are drawn axially towards one another.

4,269,438

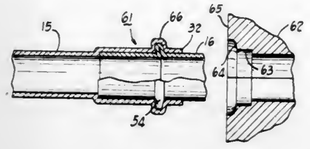
TUBE-TO-TUBE JOINT

Ralph G. Ridenour, 626 Lexington-Ontario Rd., Mansfield, Ohio 44903

Continuation-in-part of Ser. No. 527,683, Nov. 27, 1974, Pat. No. 4,200,314, which is a division of Ser. No. 425,561, Nov. 17, 1973, abandoned. This application Oct. 16, 1978, Ser. No. 951,579

Int. Cl.³ F16L *13/14*

U.S. Cl. 285—382.2 **15 Claims**



1. A tube-to-tube joint comprising, in combination,

a first tube and a second tube each having an outer wall and an inner wall,

said second tube having a main body and having an end portion,

said first tube having a main body and having a first portion near one end thereof telescoped over said end portion of said second tube,

means establishing a first shoulder fixed relative to said first tube and having an outer surface radius substantially equal to the outer surface radius of the end of said second tube,

means establishing a second shoulder on said first portion of said first tube closer to said one end of said first tube than said first shoulder,

each of said shoulders being transverse to the axis of said first tube,

the inner wall of said first tube first portion being substantially cylindrical and having a diameter slightly larger than the nominal diameter of the outer wall of said second tube end portion,

said end portion of said second tube abutting said first shoulder,

at least a first annular area on said second tube inner wall being bulged outwardly and forming a radially enlarged annular bead on the outer wall of said second tube, said annular bead including first and second portions of the second tube inner wall axially contracted and folded into mutual engagement,

non-welded fluid seal means acting between said annular bead and one of said shoulders to seal a substantial fluid pressure of at least several atmospheres,

said first tube having a second portion enlarged relative to said first tube first portion,

said radially enlarged bead being formed within and being radially inwardly constrained by said first tube second portion to form a part of said fluid seal means,

and said first portion of said first tube having a wall thickness substantially equal to the wall thickness of the main body of said first tube.

4,269,439

DOOR HOLDBACK DEVICE

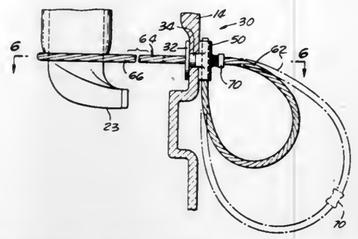
James M. Warwick, Whittier, and David C. Liu, Walnut, both of Calif., assignors to Utility Trailer Manufacturing Company, Industry, Calif.

Filed Jul. 30, 1979, Ser. No. 61,921

Int. Cl.³ E05C *19/10*

U.S. Cl. 292—246 **11 Claims**

1. In a holdback device for holding a door or panel in open position with respect to a wall of a highway vehicle or the like, the improvement comprising, in combination: a bracket for attachment to the wall, a flexible loop, means for attaching said flexible loop to said bracket to create an internal flexing stress in said loop, whereby in a first position said loop extends from said wall to engage an element on said door or panel, and in a



second position said loop retracts into closer proximity with the wall solely caused by internal flexing stress existent within said loop.

4,269,440

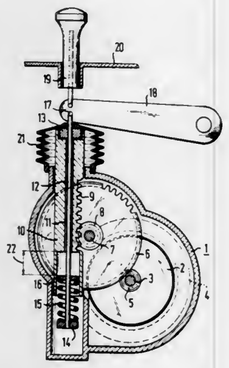
ELECTRICALLY ENERGIZED OPERATING MECHANISM FOR THE DOOR OF A VEHICLE AND THE LIKE, AND DRIVE ARRANGEMENT FOR THE MECHANISM

Egon Gelhard, Cologne, Fed. Rep. of Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Continuation of Ser. No. 865,939, Dec. 30, 1977, abandoned, which is a continuation-in-part of Ser. No. 739,818, Nov. 8, 1975, abandoned. This application Jul. 11, 1979, Ser. No. 56,519

Int. Cl.³ E05C *13/04*

U.S. Cl. 292—336.3 **32 Claims**



1. A drive mechanism for driving an operating member comprising: drive means; energy storage means connected to receive energy from said drive means; an output member for transmitting energy from said drive mechanism to an operating member to be driven thereby; and transmission means for transmitting driving energy to said output member from both said drive means and said energy storage means; said transmission means being arranged to delay transmission of energy to said output member until said drive means has undergone a number of revolutions and to effect commencement of transmission of driving energy to said output member independently of the angular velocity of said drive means when said drive means has undergone said number of revolutions.

4,269,441

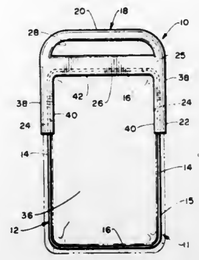
TRASH BAG HOLDER

Henry M. Hirsch, 104 Wilderness Rd., Rancho Cordova, Calif. 95670

Filed Dec. 26, 1979, Ser. No. 107,188

Int. Cl.³ A47F *13/06*

U.S. Cl. 294—1 R **7 Claims**



1. A novel trash bag holder adapted to retain a trash bag in open position for the collection of debris without the necessity of bending or lifting, which comprises in combination:

a frame formed of relatively slender pieces joined to surround an empty space, and adapted to house a trash bag inserted through said space and spread over said frame for mounting,

a handle means engageable with said frame to retain said mounted bag on said frame,

said handle means comprising a handle portion having two frame receiving sections descending downwardly therefrom, said frame receiving section adapted to engage said frame,

wherein each frame receiving section has a groove therein slidingly engageable with a piece of said frame.

4,269,442

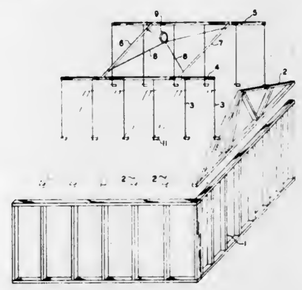
ROOF TRUSS SUSPENSION

William R. Craig, 1717 Golden Mile Hwy., Monroeville, Pa. 15146

Filed Feb. 4, 1980, Ser. No. 118,574

Int. Cl.³ B66C *1/14*

U.S. Cl. 294—81 R **1 Claim**



1. A rig for simultaneously setting a plurality of roof trusses on a building framing, comprising a pair of horizontally extending, spaced parallel beams adapted to extend over the respective central portions of the sloping sides of said trusses, a pair of cross beams at right angles to said beams and having ends connected to intermediate portions of said beams so as to provide overhanging extensions of said first mentioned pair of beams, a plurality of spaced vertical flexible linkage means suspended from each of the four overhanging extensions, and a plurality of spaced vertical flexible linkage means suspended from the intermediate remaining portions of said first mentioned pair of beams, and suspending means for support by the hook of a crane, said suspending means comprising four flexible linkage means extending from said hook and connected to end portions of each of said cross beams, a substantially U-shaped rod with parallel sides, which rod is attached to the lower extremity of each of said vertical flexible linkage means to enable the lower end portions of the vertical flexible linkage means to wrap around the central portion of the sloping side of the respective truss and to be secured by inverting said U-shaped rod and snugly encircling it over the top of the central sloping side of the respective truss so that said parallel sides closely fit the sides of said truss whereby the entire plurality of roof trusses may be easily and quickly lifted, lowered and moved horizontally to adjustably set them in place simultaneously on said building framing.

4,269,443

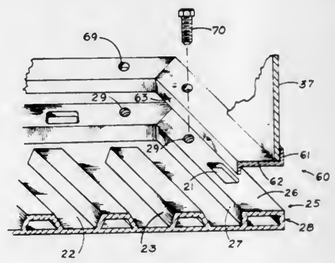
MOTOR VEHICLE WITH CONVERTIBLE BODIES

Gary W. Farmer, P.O. Box 4907, Boise, Id. 83704

Filed Jan. 2, 1979, Ser. No. 209

Int. Cl.³ B62D *35/00*

U.S. Cl. 296—1 S **4 Claims**



1. In combination with a cargo vehicle:

a substantially rectangular flat bed adapted to securely engage the chassis of the vehicle, said bed including a raised peripheral sill having a plurality of horizontally spaced, vertically disposed, threaded apertures;

a rigid cargo container unit having vertical walls engaging a horizontally extending peripheral shoulder adapted to mate with the sill, the shoulder including a plurality of horizontally spaced, vertically disposed, apertures adapted to vertically align with the apertures of the sill of said bed when the container shoulder and bed sill are in mating position; and

a plurality of threaded bolts receivable in the threaded apertures of said sill and operable to secure said cargo container to said bed, wherein the sill of said bed includes a substantially planar top surface and a substantially vertical interior edge and wherein the shoulder of said cargo container contains a substantially planar bottom surface and a downwardly depending interior flange operable to abut the vertical edge of the sill and an oppositely disposed, upwardly extending exterior flange operable to abut the exterior surface walls of said cargo container.

4,269,444

APPARATUS FOR REDUCING AERODYNAMIC DRAG

Jack L. Emory, P.O. Box 2916, Taos, N. Mex. 87571

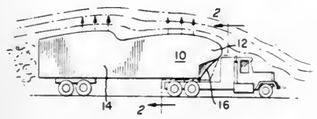
Continuation of Ser. No. 906,704, May 17, 1978, abandoned. This application Nov. 29, 1979, Ser. No. 98,426

Int. Cl.³ B60J *1/04*

U.S. Cl. 296—1 S **6 Claims**

1. A cargo carrying vehicle body such as a trailer of a tractor trailer rig comprising, a wheel-mounted floor portion, two side wall portions, an upper wall, and a forward portion, wherein at least a first portion of said upper wall and said forward portion together form in side elevational view a curved contour ex-

tending for the entire width of said trailer from one of said two side wall portions to the other of said two side wall portions to define an airplane wing section having a "square" appearance



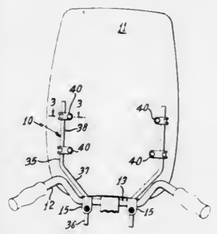
in plan view which provides a high-lift surface with low drag effect, and said forward portion also has a lower surface of such height as to clear a cab for towing the tractor during turns or maneuvers.

4,269,445

WINDSHIELD MOUNTING ASSEMBLY

Lawrence J. Gager, Jr., P.O. Box 16212, Jacksonville, Fla. 32216

Filed Dec. 13, 1978, Ser. No. 969,084
Int. Cl.³ B62J 17/04
U.S. Cl. 296—78.1 **13 Claims**



1. In a windshield mounting assembly, a U-shaped clamp comprising spaced end portions and an intermediate portion including a passage extending therethrough for receiving an elongated support rod therethrough, said passage including a longitudinal axis spaced from said clamp end portions, each of said end portions including a passageway extending therethrough for receiving a windshield connecting and supporting means therethrough, said passageways having aligned longitudinal axes substantially perpendicular to said longitudinal passage axis, each said end portion including inner and outer surfaces, one of said end portions including a recessed pocket provided in said outer surface and communicating with said one end portion passageway, said inner surfaces of said end portions define a closeable slot therebetween and said longitudinal axes of said end portions being substantially coincident, and a windshield connecting and supporting means passing through said passageways and attachable to and through an aligned opening in a windshield positionable closely adjacent to one said end portions.

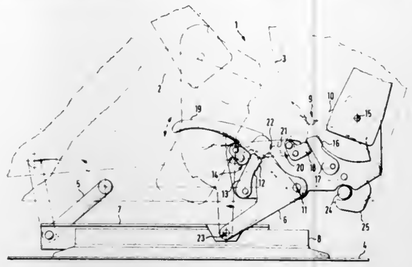
4,269,446

DISPLACEABLE SEAT FOR AUTOMOTIVE VEHICLES

Klaus Gersmann, Wulfertshausen, and Oskar Gruber, Garching, both of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 21, 1979, Ser. No. 22,488
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1978, 2813534
Int. Cl.³ A47C 1/032
U.S. Cl. 297—341 **9 Claims**

1. A seat for an automotive vehicle, such as a passenger car, comprising a seat part and a seatback, means connecting the seat part with the floor of the vehicle to permit vertical adjustment of the position of the seat and forward displacement of the seat part when the seatback is tilted forward toward the seat part, said connecting means including spaced apart first and second guide means which are essentially parallel and which extend between and are pivotably connected to said seat part and respective pivot means adjacent the vehicle floor, said first guide means being connected to said seat part at its rear in the area of the lower end of the seatback and said second guide means being positioned forwardly of said first guide means, means for adjusting the tilt of the seatback relative to the seat



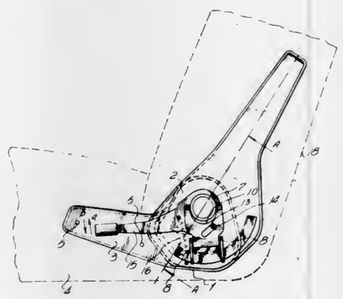
part, said means for adjusting the tilt of the seatback relative to the seat part including a seatback fitting which extends between and is pivotably connected to said seatback and said seat part, locking means coupling said first guide means and said seatback fitting for rotation so that with forward tilting motion of the seatback and the seatback fitting the seat part is displaced forwardly, said locking means being adjustable in its position for vertically adjusting the position of the seat, and releasable tilt blocking means for preventing rotation of the coupled first guide means and seatback fitting.

4,269,447

DEVICE FOR THE REGULATION OF THE POSITION ON THE BACK OF RECLINING SEATS

Roberto B. Dottori, Buenos Aires, Argentina, assignor to Grinfa Sociedad de Responsabilidad Limitada, Capital Federal, Argentina

Filed Nov. 12, 1976, Ser. No. 741,581
Claims priority, application Argentina, Nov. 13, 1976, 261174
Int. Cl.³ A47C 3/22
U.S. Cl. 297—365 **6 Claims**



1. Apparatus for adjusting the back of a reclining seat, comprising:

(a) a fixed member attached to said seat;

(b) a movable member mounted on the reclining back of said seat;

(c) a cylindrical bushing integral with and projecting concentrically from an orifice in the central portion of said fixed member;

(d) an axle mounted in said cylindrical bushing for rotatably connecting said movable member to said fixed member;

(e) a pair of substantially parallel projections on the lower portion of said fixed member;

(f) a restraining member slidably arranged on said fixed member between said projections and having a notch in its upper portion for receiving said cylindrical bushing;

(g) the lower portion of said restraining member being formed as a ridge with a toothed outer edge;

(h) a circular sector fixedly attached adjacent the lower edge of said movable member, said circular sector having a toothed interior edge facing said toothed outer edge of said restraining member for selective engagement therewith;

(i) an actuating lever rotatably mounted coaxially with said movable member on the end of said cylindrical bushing for upward and downward movement into unlocked and locked positions, respectively;

(j) a diagonal slot in the central portion of said restraining member; and

(k) a pin integral with said actuating lever and slidably received in said diagonal slot;

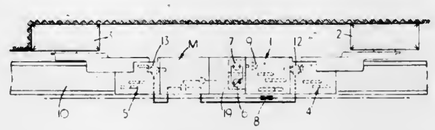
(l) whereby movement of said actuating lever causes longitudinal displacement of said restraining member to effect disengagement of said toothed portions.

4,269,448

MINERAL MINING MACHINE CUTTER DRIVING MECHANISM HAVING A LOAD SENSING DEVICE TO REGULATE THE HAULAGE SPEED OF THE MACHINE WHEN THE CUTTER DRIVING MECHANISM IS OVERLOADED

Samuel L. Wilson, Wishaw, Scotland, assignor to Anderson Strathclyde Limited, Glasgow, Scotland

Continuation of Ser. No. 850,305, Nov. 10, 1977, abandoned.
This application Jun. 12, 1979, Ser. No. 47,915
Claims priority, application United Kingdom, Nov. 11, 1976, 47099/76
Int. Cl.³ E21C 29/02
U.S. Cl. 299—1 **7 Claims**



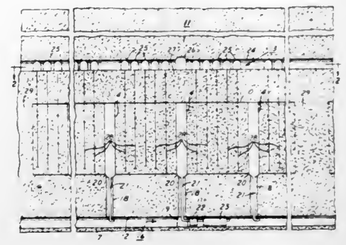
1. A mineral mining machine having an electric motor, at least one cutter unit and haulage drive mechanism for moving the machine along a mineral face, said cutter unit including a cutter element and a variable speed gear-train interposed between said electric motor and said cutter element to drive said cutter element, torque sensing means associated with part of said cutter gear-train to sense the torque transmitted by said gear-train and to provide a signal when the torque transmitted by said gear-train exceeds a predetermined level, load sensing means associated with said electric motor responsive to current flow through said electric motor to provide a signal, said haulage mechanism having an hydraulic motor, a source of hydraulic fluid, a variable output pump for feeding said hydraulic fluid to said motor, and control means in an hydraulic circuit responsive to said signals from the torque and load sensing means to control the hydraulic pump output and thereby effect reduction of the haulage speed.

4,269,449

METHOD FOR PREPARING AN OIL SHALE DEPOSIT FOR IN SITU RETORTING

Salvador M. del Rio, Golden, Colo., assignor to Mineral Industries Engineers, Inc., Golden, Colo.

Filed Oct. 12, 1978, Ser. No. 950,801
Int. Cl.³ E21C 41/10
U.S. Cl. 299—2 **25 Claims**



1. The method for preparing an underground oil shale deposit for in situ retorting of fragmented shale which comprises:

excavating shale from the deposit to form at least one void within the deposit having an aggregate volume sufficient to form a retort to contain and be substantially filled with the shale adjacent such void after its fragmentation,

excavating a drilling and process control level underground above the retort and separated from the roof of the retort by a substantial depth of overburden, constituting a horizontal pillar to protect personnel and equipment during fragmentation and retorting of the shale,

drilling holes from said level through the overburden into the deposit adjacent said void,

placing explosive charges in said holes within the deposit,

casing and valving selected ones of said holes within the horizontal pillar and plugging the remaining holes therein,

setting off said charges for fragmenting the shale adjacent such void and filling the retort with fragmented shale,

extending selected ones of said cased holes into the fragmented shale to selected depths,

heating the shale in the retort to a temperature sufficient to release shale oil therefrom,

utilizing said ones of said cased holes for facilitating the monitoring and control of the retorting of the fragmented shale in the retort,

retorting above ground shale removed from the voids during excavation thereof,

grinding the spent retorted shale,

forming a water slurry with the ground retorted shale and pumping the slurry through said extended selected ones of said cased holes into the body of spent fragmented shale at the selected depths in the retort to fill the voids therein and thereby reduce the likelihood of eventual surface subsidence over the retort.

4,269,450

ASPHALT SHINGLE REMOVER AND DEROOFER APPARATUS

Woodrow W. Welborn, Rte. 9, Box 375, Laurel, Miss. 39440

Filed May 30, 1979, Ser. No. 43,668
Int. Cl.³ E04D 15/00; A47L 11/14
U.S. Cl. 299—39 **5 Claims**

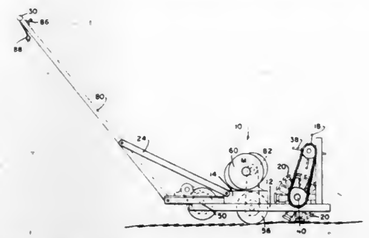
1. An improved asphalt shingle remover and deroofer apparatus comprising

a horizontally disposed U-shaped main frame drive means mounted on opposite sides of the frame and being driven by said drive menas mechanically coupled thereto,

an arrangement of a plurality of cutter heads mounted affixedly onto a rotating shaft driven by said drive means,

a driven flapper reel means rotatably mounted parallel to the

rotating shaft for knocking out of the way the shingles that collect and become attached to the flapper reel means, and



side cutter means being additionally end mounted on the rotatably mounted cutter heads.

4,269,451

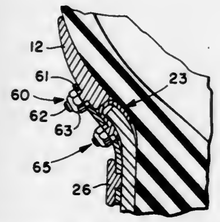
WHEEL AND TIRE BALANCING SYSTEM

Rajendra K. Narang, 1525 Bonnie Rd., Macedonia, Ohio 44056

Continuation-in-part of Ser. No. 807,371, Jun. 17, 1977, abandoned. This application Aug. 4, 1978, Ser. No. 931,205

Int. Cl.[3] B60B *13/00*

U.S. Cl. 301—5 B **15 Claims**



1. In combination with a wheel having a rim upon which a tire is mounted, means to balance such wheel comprising at least one weight having a main body portion that is elongated, clip means cooperating with said main body portion to mount the weight to the rim so that the elongated main body portion extends predominantly radially of the wheel and tire, a mounting strap having the main body portion connected to the radially outer end thereof and the clip means to an intermediate portion thereof, and a counterbalancing body on the radially inner end of the mounting strap to increase the effective radial length of the weight.

4,269,452

SPOKE WHEEL ASSEMBLY

Donald R. Frush, 1704 E. Sheridan, Warsaw, Ind. 46580

Filed Oct. 17, 1979, Ser. No. 85,698

Int. Cl.[3] B60B *1/06*

U.S. Cl. 301—6 R **12 Claims**



1. A spoked wheel comprising an annular rim having first and second ends held in opposed relationship and having a bottom panel and side flanges extending outwardly therefrom to form a channel in which a tire can be mounted, a hub centrally located within said annular rim for receiving a shaft on which the wheel is mounted, and a plurality of spokes attached to said hub and said annular rim, each spoke having a first crimp type attachment means for securing said spoke to said rim, a second crimp type attachment means for securing said spoke to said hub, a central panel between said first and second crimp type attachment means, and flanges on said central panel extending laterally from the edges thereof.

4,269,453

BRAKE PRESSURE CONTROL VALVES

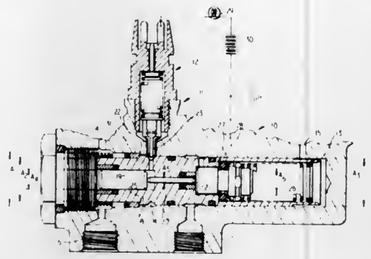
Patrick F. Sawyer, Prestons, Australia, assignor to Girlock Limited, New South Wales, Australia

Filed May 30, 1979, Ser. No. 43,629

Claims priority, application Australia, Jun. 8, 1978, PD4649

Int. Cl.[3] B60T *8/26*

U.S. Cl. 303—6 C **4 Claims**



1. A combined pressure differential warning actuator and pressure conscious reducing valve for a fluid pressure operated dual braking system comprising a housing, a bore in said housing, first piston means axially movable in the bore, a first fluid pressure inlet to said bore, a second fluid pressure inlet to said bore, a first fluid outlet from said bore for connection to an actuator for a first set of brakes, a second fluid outlet from said bore for connection to an actuator for a second set of brakes, electric switch means actuable by movement of said first piston means caused by a fluid pressure differential between said inlets, valve means arranged within said first piston means for controlling flow between said second fluid inlet and said second fluid outlet to reduce pressure to said second outlet, said second fluid outlet being the only fluid outlet from said housing in fluid communication with said second fluid inlet, second piston means subject to pressure of said first and second inlets and including a spring, said second piston means contained within said first piston means and axially movable in relation thereto for opening and closing said valve means in response to fluid pressure induced force differentials there across, whereby fluid pressure at said second fluid outlet is controlled.

4,269,454

ANTI-SKID BRAKE CONTROL SYSTEM

Alfred K. White, Birmingham, and Malcolm Brearley, Solihull, both of England, assignors to Girling Limited, Birmingham, England

Filed Aug. 9, 1978, Ser. No. 932,306

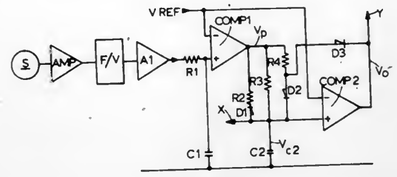
Claims priority, application United Kingdom, Aug. 10, 1977, 33456/77

Int. Cl.[3] B60T *8/08*

U.S. Cl. 303—97 **11 Claims**

1. An anti-skid brake control system including sensor means that produces a first signal which is proportional to the acceleration of a braked wheel, switch means that produces a second signal and which responds to said first signal by causing a step change in said second signal at set acceleration levels so as to divide successive skid cycles into successive acceleration periods separated by intermediate periods, means for integrating said second signal so as to produce an output signal which changes in a progressive manner in one sense during each acceleration period and in the opposite sense during each

intermediate period so as to vary in accordance with surface friction conditions, and output connection means whereby said



output signal is used to vary a control function within the system so that the said control function is set in accordance with said surface friction conditions.

4,269,455

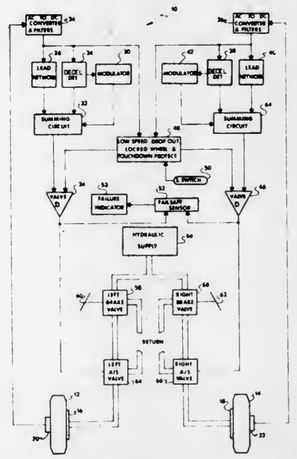
ANTISKID BRAKE CONTROL SYSTEM

Arnold A. Beck, Clinton, and Edgar J. Ruof, Akron, both of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Aug. 14, 1978, Ser. No. 933,349

Int. Cl.[3] B60T *8/08*

U.S. Cl. 303—106 **22 Claims**



1. An antiskid system for assisting in controlling the application and release of brake pressure applied to the wheel of a vehicle, comprising:

first means operatively connected to the wheel for producing an output signal indicative of the instantaneous rotational speed of the wheel;

second means connected to and receiving said output signal from said first means for producing a deceleration signal corresponding to the instantaneous rate of deceleration of the wheel; and

a modulator interconnected between said second means and a summing circuit, said summing circuit summing signals from said modulator and second means, and producing an aggregate signal, said summing circuit including an amplifier receiving said aggregate signal, said amplifier having connected thereto means for reducing the gain of the antiskid system when said aggregate signal exceeds a predetermined threshold level.

4,269,456

ANTI-SKID BRAKE PRESSURE CONTROL SYSTEM WITH COMMON SOLENOID VALVE

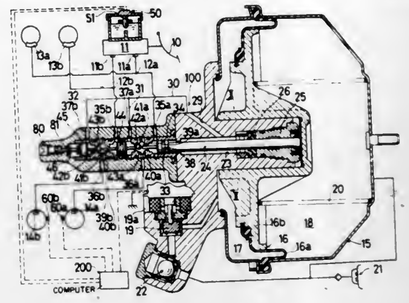
Toshiyuki Kondo, Anjo, and Masamoto Ando, Toyota, both of Japan, assignors to Aisin Seiki Company, Limited, Kariya, Japan

Filed Oct. 5, 1978, Ser. No. 948,915

Claims priority, application Japan, Oct. 5, 1977, 52-120268; Oct. 20, 1977, 52-126280; Dec. 22, 1977, 52-154957

Int. Cl.[3] B60T *8/02*

U.S. Cl. 303—115 **13 Claims**



1. An anti-skid brake pressure control system which comprises:

a first brake pressure supply line communicating a first source of a tandem master cylinder with a first wheel cylinder,

a second brake pressure supply line communicating a second source of the tandem master cylinder with a second wheel cylinder,

first cut-off valve means arranged within said first supply line and normally maintained in its open position,

second cut-off valve means arranged within said second supply line and normally maintained in its open position,

servo means having a power piston to thereby define first and second chambers,

a single solenoid valve actuated in response to a wheel locking condition to thereby create a pressure differential between said first and second chambers and to thereby actuate said power piston,

brake pressure reducing means comprising a housing including a variable volume bore provided therein and a pressure reducing piston mounted in said housing movable in response to movement of said servo means to increase an effective volume of said variable volume bore, and

pressure reducing valve means mounted in said housing operated in response to movement of said pressure reducing piston to bring both of said wheel cylinders into communication with said variable volume bore, and

means for operating said first and second cut-off valve means in response to operation of said brake pressure reducing means to thereby interrupt hydraulic communication between first and second sources and said first and second wheel cylinders, respectively.

4,269,457

ENDLESS TRACTION BAND SUPPORT APPARATUS

James S. Farrior, Huntsville, Ala., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

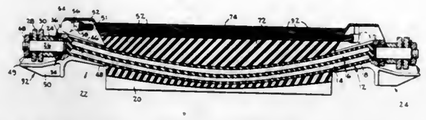
Filed Oct. 4, 1979, Ser. No. 81,927

Int. Cl.[3] B62D *55/20, 55/24*

U.S. Cl. 305—11 **5 Claims**

1. Traction apparatus for a vehicle comprising first and second roller chains, means for supporting said roller chains on said vehicle for movement on parallelly spaced apart congruent paths which paths include a linear portion beneath the

vehicle, a resilient endless band having a length corresponding to that of said roller chains and a width such as to span the space between said roller chains, said band having a convex outer surface and a concave inner surface and being resiliently deformable in response to loads imposed thereon, and means for attaching respective side edges of said band to respective said roller chains so that in response to movement of said roller chains along said paths said band will correspondingly move,



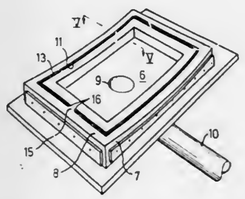
said attaching means including means for engaging the side margins of said band, said engaging means including a body portion outward of said band, said body portion having at least a first spherical hole therein, said roller chain including at least a first stud, a spherical enlargement fixed to said first stud, said spherical enlargement engaging said first spherical hole to afford pivotal movement between said engaging means and said roller chain.

4,269,458

HYDROSTATIC BEARING, ESPECIALLY FOR A ROTATING DRUM

Curt S. Olsson, Vallentuna; Olle Widerström, and Lars E. Kilian, both of Nälden, all of Sweden, assignors to Waplans Mekaniska Verkstads AB, Nalden, Sweden

Filed Jun. 5, 1979, Ser. No. 45,767
Claims priority, application Sweden, Jun. 19, 1978, 7806993
Int. Cl.³ F16C *32/06, 39/04*
U.S. Cl. 308—9 **12 Claims**



1. Hydrostatic bearing, especially for rotatable bearing of a drum, comprising at least one bearing box limited by outer edges, with an arcuate bearing surface to fit a circular bearing surface on the drum, the bearing box having a fluid inlet opening inside the edges, characterized in that the bearing surface of the bearing box is made with at least one groove, in which at least one sealing strip is movably laid, means being provided to establish fluid communication between the space surrounded by said edges and said groove in order to create a fluid pressure in the groove, which presses the sealing strip against the bearing surface of the drum.

4,269,459

WHEEL BEARING SLINGER RING

Clifton S. Peck, Trenton, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

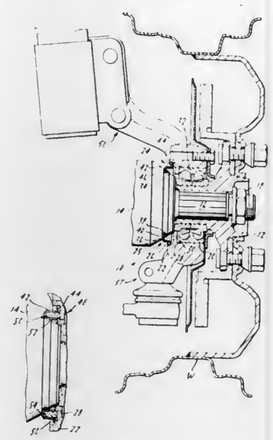
Division of Ser. No. 973,059, Nov. 26, 1978. This application Mar. 10, 1980, Ser. No. 129,131
Int. Cl.³ F16C *33/78*
U.S. Cl. 308—36.4 **11 Claims**

1. In a wheel bearing assembly for a vehicle having an inner axle member, an outer journal member supported by the body of the vehicle, a bore formed through the journal member, a bearing carried in the through bore for rotatively supporting the axle member, and annular slinger ring means operatively carried intermediate said axle member and said journal member for preventing the ingestion of contaminating fluid from outside the assembly into the bearing, an improvement wherein said slinger means comprises:

A. means integrally formed with said journal member for defining an annular shoulder proximate the inner terminus of said through bore for preventing certain inward movement of said bearing;

B. means defining a counterbore in said journal member extending inwardly from said shoulder and substantially concentric with said through bore;

C. means defining an outer diameter surface on said axle



member at an axial position proximately inboard said journal member counterbore;

D. a generally cup-shaped annular slinger member carried for rotation with said axle member and including

1. an axially extending support portion received in interference fit relationship on said axle member diametral surface; and

2. an annular radially extending tip portion received in closely fitting clearance relationship within said journal member counterbore; and

E. secondary seal means carried by said slinger member and operatively engaging said journal member to substantially prevent passage of fluid past said slinger member to said bearing.

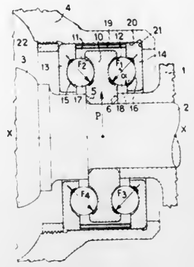
4,269,460

BALL BEARING AND APPLICATIONS THEREOF

Michel A. Orain, Conflans Ste Honorine, France, assignor to Glaenzer Spicer, Poissy, France

Filed Nov. 13, 1978, Ser. No. 959,779
Claims priority, application France, Nov. 14, 1977, 77 34166
Int. Cl.³ F16C *19/18*
U.S. Cl. 308—233 **18 Claims**

1. In a structure comprising a first element having an axis, a second element rotatable relative to said first element about said axis, and a radial rolling bearing assembling said first element with said second element, said bearing being capable of withstanding loads of variable direction and comprising an inner ring and two axially spaced outer rings defining with the inner ring at least two pairs of raceways, means fixing a first radial end of said inner ring to one of said elements, spacer means maintaining a predetermined axial spacing between a radial end of the outer rings opposed to said first radial end of said inner ring, clamping means urging said end of both said outer rings toward each other, retaining means axially retaining said outer rings and said spacer means relative to the other of said elements, two rows of spherical balls interposed between and rollingly engaging respective pairs of said raceways, the two raceways associated with each row of balls comprising two annular concave bearing surfaces which are substantially symmetrical with respect to a plane perpendicular to the axis of the bearing, the cross-sectional shape of each of said bearing surfaces in any diametral plane containing said axis being a single arc having a radius which is at least substantially constant and which is slightly larger than the radius of the balls and subtends a central angle of at least substantially 120°, said arc being substantially symmetrical relative to a line which



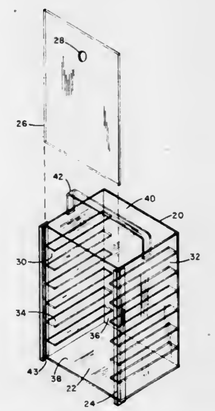
intersects the centre of said radius of the arc and is normally parallel to said axis, and said cross-sectional shape resulting in a sole point of tangency between each ball and each bearing surface, and wherein substantially said entire outer rings are capable of resilient axial flexure in operation of the hearing sufficient to allow said inner ring to move radially relative to said outer rings and to allow said point to change its location without clearance on substantially the whole of the arc as the ball rolls around the bearing surface in accordance with the conditions of operation of the bearing.

4,269,461

CHRISTMAS TREE TRIM CABINET

Bobbie R. Roach, Jr., 621 Dunwich Way, Baltimore, Md. 21221

Filed Aug. 2, 1979, Ser. No. 63,077
Int. Cl.³ A47F *3/00*
U.S. Cl. 312—244 **3 Claims**



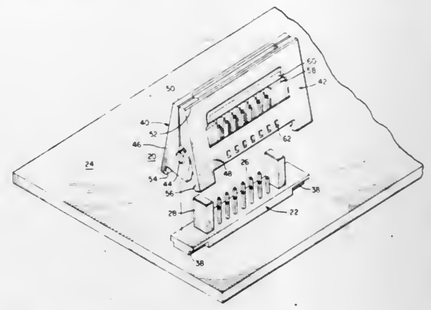
1. A cabinet for display, storage and shipment of Christmas tree balls comprising, in combination: an open-front box structure, a door, vertical flange structure slidably holding the door in position for closing the open front, a plurality of shelves fixed within the open-front box structure, a plurality of drawers held by the shelves, each drawer having a grid of recesses proportioned for holding and cushioning Christmas tree balls in the top surface of the drawer, the open front box structure having transparent left and right sides, back and top, the door being transparent, each said drawer being a styrofoam slab, and the shelves being ledge-like and including a respective plurality thereof running from front to back of the cabinet on each of said transparent left and right sides.

4,269,462

ZERO INSERTION FORCE CONNECTOR

Gary C. Bethurum, El Segundo, Calif., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Sep. 21, 1979, Ser. No. 77,645
Int. Cl.³ H01R *13/62*
U.S. Cl. 339—74 R **12 Claims**



1. A zero insertion force connector, comprising:

a center member supporting a plurality of deflectable electrical contacts and having at least one opening therein in communication with said contacts for receiving therein a plurality of conductive members;

a first side member coupled to end portions of a first plurality of said electrical contacts;

a second side member coupled to end portions of a second plurality of said electrical contacts;

at least one of said side members having therethrough an aperture for passage of a cable, said aperture communicating with an uncoupled end of each of said first and second pluralities of electrical contacts;

said side members each having corresponding first and second distal ends, said side members being pivotally coupled to said center member at a location between said first and second distal ends to allow movement of a first end toward and away from the corresponding other first end when a second end is moved respectively away from and toward the other corresponding second end, said first and second pluralities of electrical contacts being movable relative to said opening with the movement of said side members.

4,269,463

CONNECTOR

Charles M. Beatenbough, Westfield, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 13, 1979, Ser. No. 57,334
Int. Cl.³ H01R *13/62;* **H02B** *1/10*
U.S. Cl. 339—91 R **18 Claims**

1. A connector (**10**) comprising:

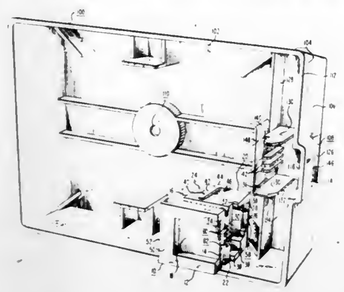
a dielectric enclosure (**12**) having a front (**14**) and a rear (**16**), the enclosure comprising:

a plug receiving cavity (**30**) having an entrance open to the front of the enclosure;

forward extending flanges (**32**) having front facing flange surfaces (**38**); and

rear surface means (**42**) having rear facing surfaces, the front facing surfaces and the rear facing surfaces respectively engaging and separating corresponding surface means (**106, 130**) in a housing (**100**) during insertion of the enclosure into the housing so as to permit the enclo-

sure to move into a predetermined position in the housing behind a housing wall (**106**) having an aperture (**108**) where the entrance of the cavity is aligned with the aperture, the flanges are situated within the perimeter of



the aperture, and the enclosure is maintained in the predetermined position by interior surface means (**132**) displaced rearwardly from the wall; and

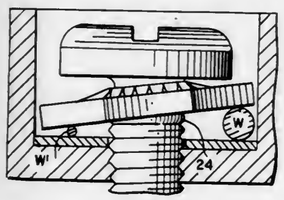
a plurality of contact structures (**64**) carried by the enclosure.

4,269,464

TILTING TERMINAL CLAMP

Donald R. Veldman, Oak Lawn, Ill., assignor to Howard S. Langdon, River Forest, Ill.

Filed Jul. 30, 1979, Ser. No. 61,656
Int. Cl.³ H01R *4/44*
U.S. Cl. 339—95 R **3 Claims**



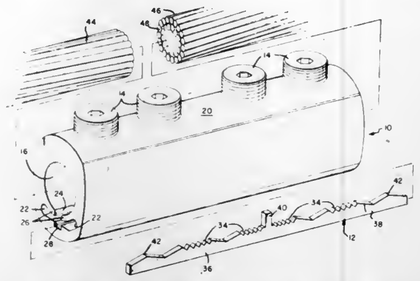
1. A tilting terminal clamp comprising an elongated shank having a slotted head at one end and a lead point at the other end, said shank being equipped with threads extending from said lead point toward said head but terminating in an annular ring a spaced distance from said head, a clamping plate substantially centrally apertured to loosely and tiltably receive said shank and mounted on said shank between said head and said annular ring, said plate being equipped with an integral frusto-conical annulus about said aperture projecting toward said head and presenting a concave surface confronting said annular ring, said annulus being sized and shaped to substantially receive said ring, said plate having a lower serrated surface, the serrations being generally radial and including flats therebetween, said serrations flaring in width as they proceed outwardly from the central aperture of said plate and said serrations terminating short of the periphery of said clamping plate to provide a flat border.

4,269,465

SPLICE CONNECTOR FOR ALUMINUM WIRE

Arthur L. Mueller, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 26, 1979, Ser. No. 108,731
Int. Cl.³ H01R *4/36*
U.S. Cl. 339—95 R **3 Claims**



1. A connector for splicing two electrical wires together, comprising:

a. an elongated tube having a first, wire-receiving passage extending longitudinally therethrough and a second, parallel passage positioned immediately below the first passage, futhermore, a slot cutting longitudinally through the wall between the two passages thereby forming the wall remnants into two cantilever beams running the length of the passages, said tube further having a plurality of threaded openings which intersect the first passage at a location opposite the slot, said threaded openings adapted to receive set screws;

b. a plurality of set screws threadedly positioned in the threaded openings in the tube;

c. an elongated sliding bar of conducting material having a plurality of teeth along one surface positioned within said second passage with the teeth projecting upwardly between the cantilever beams, so that as wires, which may be positioned in the tube, are pushed down by the set screws, the cantilever beams resiliently bend downwardly into the second passage and thereby exert upward pressure on the wires, and the teeth on the sliding bar grip the wires to establish electrical contact and mechanical retention between the wires, the tube and the bar.

4,269,466

CONNECTOR AND STRAIN RELIEF FOR FLAT TRANSMISSION CABLE

John H. Huber, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 23, 1979, Ser. No. 97,072
Int. Cl.³ H01R *13/58*
U.S. Cl. 339—107 **12 Claims**

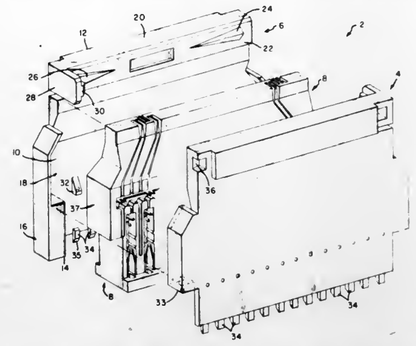
1. An electrical connector for terminating a plurality of conductors in a transmission cable, comprising:

a connector body having a conductor receiving end, a profiled mating end opposite said conductor receiving end, and oppositely directed surfaces extending from said conductor receiving end to a position adjacent said mating end;

said connector body having terminal means proximate said profiled mating end and each said surface of said body having conductor channeling means extending from said conductor receiving end for directing selected ones of said conductors therealong into terminated engagement with said terminal means;

a pair of profiled connector covers each mounted in apposition to a respective one of said connector body surfaces, and each said cover having profiled latching means engaging said body, and profiled strain relief means at a rearward end projecting beyond said conductor receiving end of said body;

said strain relief means comprising an integrally formed transverse ridge extending partially across an inwardly directed surface of said each cover, and an integral transverse recess within said cover surface extending partially



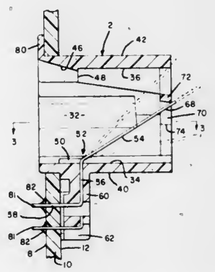
thereacross generally in colinear alignment with said transverse ridge, said ridge of one said cover opposing said recess of the opposite said cover and being spaced apart therefrom so that a cable portion constrained therebetween adopts the ridged and recessed profile of each said connector cover in a clamped engagement with said covers.

4,269,467

ELECTRICAL CONNECTOR RECEPTACLE HAVING MOLDED CONDUCTORS

Donald W. K. Hughes, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 23, 1979, Ser. No. 87,379
Int. Cl.³ H01R *13/405*
U.S. Cl. 339—126 R **10 Claims**



1. An electrical connector receptacle of the type comprising an insulating housing having a plug-receiving end and a rearward end, a plug-receiving opening extending through said housing from said plug-receiving end to said rearward end, said opening having opposed internal sidewalls and opposed internal endwalls, said housing having oppositely directed external sidewalls and oppositely directed external endwalls, a group of electrical connectors in side-by-side spaced-apart relationship, each of said conductors comprising a first end portion which serves as a contact spring extending from one of said internal sidewalls diagonally into said opening and towards said rearward end, an intermediate portion extending through said housing, and a second end portion which extends externally of said housing, said plug-receiving opening being dimensioned to receive a connector plug having spaced-apart contact members therein which engage said contact springs, said connector receptacle being characterized in that:

said conductors comprise single-piece stamped and formed members, said intermediate portions of said conductors being insert molded in, and being tightly and immovably embedded in, said housing,

a barrier bar extending across said opening at said rearward end of said housing, said barrier bar being integral at its ends with said opposed internal endwalls and being located substantially midway between said opposed internal sidewalls, said barrier bar having a plurality of slots therein which extend inwardly from the side edge of said barrier bar which is proximate to said one internal sidewall,

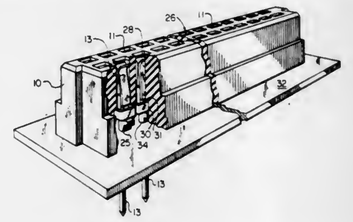
said contact springs having free ends which are adjacent to said rearward end of said housing, each of said free ends being received in, and captured by, one of said slots.

4,269,468

ELECTRICAL CONNECTOR INSULATOR

J. Preston Ammon; Harry R. Weaver, both of Dallas, and Claude Rodriquez, Carrollton, all of Tex., assignors to Elfab Corporation, Dallas, Tex.

Continuation of Ser. No. 835,051, Sep. 21, 1977, abandoned, which is a division of Ser. No. 770,578, Feb. 22, 1977, which is a continuation of Ser. No. 597,751, Jul. 21, 1975, abandoned. This application Sep. 11, 1979, Ser. No. 74,436
Int. Cl.³ H01R *13/50*
U.S. Cl. 339—176 M **8 Claims**



1. A removable insulator for an electrical connector having an upper and a lower surface, said insulator being adapted for housing a plurality of contacts having upper mating portions, applying an insertion force to said contacts to rigidly mount them into contact receiving apertures in a mounting substrate, and subsequent removal from the press fitted contacts, said insulator comprising:

a block of dielectric material having a plurality of sleeves formed therethrough extending between the upper and lower surfaces, each of said sleeves having a lower portion including an enlarged bottom opening for receiving a contact shoulder, frictionally retaining said contact shoulder lightly in engagement with the sidewalls of the lower portion of said sleeve, and permitting said contact to be withdrawn from said frictional retention force, each of said sleeves including a lower portion undercutting an upper portion, the upper portion of said sleeve being adapted for receiving the upper mating portion of the contact, and said undercut lower portion of said sleeve forming a transversely extending shoulder between the upper and lower portions of said sleeve for abuttingly engaging an intermediate upper shoulder portion of said contact for imparting thereto insertion forces for rigidly press fitting said contacts into the contact receiving apertures in the mounting substrate when a downward force is applied to the insulator, said insulator being removable from around said contacts when an upward force sufficient to overcome the collective contact shoulder/insulator frictional retention force is applied to the insulator.

4,269,469

CONTACT TERMINAL CONNECTOR

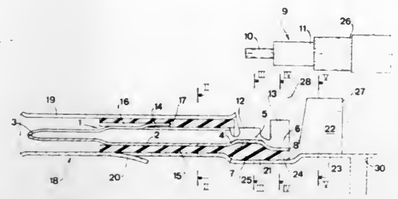
Bernard Audic, Clamart, France, assignor to Souriau & Cie, Boulogne-Billancourt, France

Filed Apr. 13, 1979, Ser. No. 29,647

Claims priority, application France, Apr. 21, 1978, 78 11820; Mar. 12, 1979, 79 06274

Int. Cl.³ H01R *17/06*

U.S. Cl. 339—177 R **13 Claims**



1. A contact terminal to form an electrical conection with a coaxial cable, said coaxial cable including a conducting core, a core insulating layer surrounding said conducting core, and a conducting shield surrounding said core insulating layer, said contact terminal comprising:

a first internal contact member including a first open U-shaped portion having a first part with a base shaped as an internal radial swelling and a second part with a base having a dimension different from the dimension of the base of said first part;

a second external contact member having a second open U-shaped portion;

said second U-shaped portion being disposed behind said first U-shaped portion with said open U-shaped portions being toward the same side; and,

insulating sleeve means disposed between said first and said second members for securing thereof together and preventing any relative displacement thereof, said insulating sleeve means comprising three coaxial portions, one of said coaxial portions being an extra-thickness portion between said said two other coaxial portions and thicker than said two other coaxial portions and assuming substantially the exact shape of said internal radial swelling of said first internal contact member, said one of said coaxial portions coinciding with the base of said first part and one of the other of said two coaxial portions coinciding with the base of said second part.

4,269,470

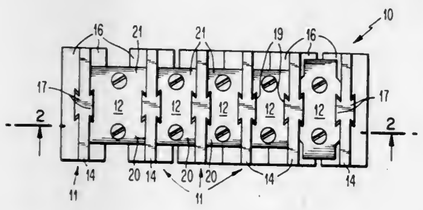
MODULAR ELECTRICAL TERMINAL BOARD

Martin D. Ustin, 382 Central Park West, New York, N.Y. 10025

Filed Aug. 17, 1979, Ser. No. 67,296

Int. Cl.³ H01R *9/16*

U.S. Cl. 339—198 H **7 Claims**



1. An electrical terminal board comprising:

a plurality of modules made of an insulating material, each module comprising a base portion, a wall extending upwardly from one side of the base at substantially the mid-point thereof, said wall including dovetail protrusions extending outwardly on each side thereof, and,

a contact between each module having a dovetail slot on each side thereof to engage the dovetail protrusions on the opposite walls of adjacent modules thereby clamping and positioning said modules together.

4,269,471

ELECTRICAL TERMINAL FOR ATTACHMENT TO A CONTACT BAR

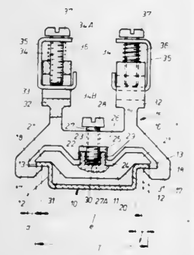
Hans Woertz, Basel, Switzerland, assignor to Oskar Woertz, Switzerland

Filed Aug. 24, 1979, Ser. No. 69,544

Claims priority, application Switzerland, Aug. 29, 1978, 9109/78

Int. Cl.³ H01R *9/24*

U.S. Cl. 339—198 GA **8 Claims**



1. An electric terminal for attachment to a contact bar of U-shaped cross-section having a web, a pair of spaced apart limbs and coplanar, spaced-apart, outwardly directed flanges at the ends of the limbs of the U-shaped bar, the said terminal comprising a retaining foot, claws on said retaining foot extending towards each other for gripping the two flanges of the contact bar, a respective recess defined between each claw and the retaining foot for accommodating one of the flanges of the contact bar, a terminal clamping body with two opposed end portions each of which engages in one of said recesses, the end portions bearing in use against the surfaces of the contact bar flanges remote from the web of the U-shaped contact bar; the said terminal clamping body being connected with the retaining foot by a locking screw to enable the terminal clamping body to be forced away from the retaining foot in order rigidly to clamp each of the two flanges of the contact bar between one of the claws and one of the end portions of the terminal clamping body, respectively; the clear spacing between the mutually facing ends of the claws and the depth of each said recess measured in the same direction being so selected in relation to the total width of the contact bar that when the locking screw is slackened the said terminal can be displaced in a direction transverse to the longitudinal direction of the contact bar until one of the claws is disengaged from the adjacent flange of the contact bar, whereby to enable the terminal to be mounted or demounted from the contact bar at any desired position along the contact bar, and the said terminal having two mutually opposed inclined surfaces adapted to co-operate with the contact bar to centre the said terminal relative to the cross-section of the contact bar.

4,269,472

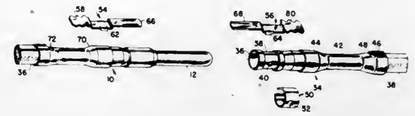
ELECTRICAL TERMINAL

Howard R. Shaffer, and Thomas H. Wycheck, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 26, 1979, Ser. No. 88,700

Int. Cl.³ H01R *4/20*

U.S. Cl. 339—223 R **10 Claims**



1. An improved stamped and formed electrical connector comprising:

a barrel shaped contact portion;

a crimp barrel portion; and

a conically tapered continuous intermediary portion providing a smooth unbroken surface of transition between said crimp barrel portion and said contact barrel portion in a crimped condition.

4,269,473

IDENTIFICATION CARD WITH A HOLOGRAM AND A PROCESS FOR THE PRODUCTION THEREOF

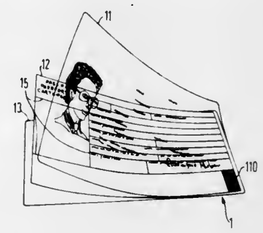
Detlev Flothmann, Munich; Hartwig Ruell, Fuerstenfeldbruck, and Angelika Staimer, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 5, 1979, Ser. No. 17,238

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1978, 2812841

Int. Cl.³ G03H *1/02, 1/04*

U.S. Cl. 350—3.61 **29 Claims**



1. An identification card provided with means for safeguarding against counterfeiting, said identification card including a substrate having a single layer of recording material uniformly provided thereon, visible information recorded on said single layer and a hologram recorded in a portion of the single layer, said hologram including information forming the means for safeguarding.

4,269,474

WIDE-ANGLE OPTICAL DOOR VIEWER

Yasushi Kamimura, 3-3, Chuou 2-chome, Outa-ku, Tokyo, Japan

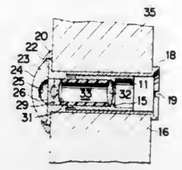
Filed Aug. 28, 1979, Ser. No. 70,489

Claims priority, application Japan, Jan. 31, 1979, 54-9080

Int. Cl.³ G02B *7/02*

U.S. Cl. 350—69 **1 Claim**

1. A wide angle lens assembly having an object side and a viewing side consisting of a first lens member having a convex surface on the object side thereof and a concave surface on the viewing side thereof; a second lens member having a planar surface on the object side thereof and a concave surface on the viewing side thereof arranged adjacent said first lens member on the viewing side thereof; a third lens member having a concave surface on both the object side and the viewing side thereof, with the concave surface on said viewing side having a diameter which is larger than the diameter of the concave surface on its object side, said third lens member being arranged adjacent said second lens member on the viewing side thereof; an eyepiece having a convex surface on both sides thereof spaced a predetermined distance from said third lens member on the viewing side thereof; a sleeve member arranged



to maintain said eyepiece and said third lens member operatively mounted within said assembly and spaced apart said predetermined distance; and means maintaining said lens assembly operatively joined together to enable a viewer on said viewing side thereof to see an object on said object side thereof, with the diameter of said concave surface on said viewing side of said third lens member being dimensioned to provide for said lens assembly a viewing angle of at least 190 degrees.

4,269,475

HEAD-UP DISPLAYS

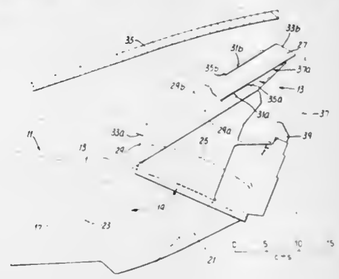
Stafford M. Ellis, East Preston, England, assignor to Elliott Brothers (London) Limited, Chelmsford, England

Filed Oct. 3, 1979, Ser. No. 81,455

Claims priority, application United Kingdom, Oct. 5, 1978, 39472/78

Int. Cl.³ G02B *27/14*

U.S. Cl. 350—174 **4 Claims**



1. A display head for an aircraft head-up display system comprising an optical projector and an image combiner through which an observer can view a distant scene and from which a collimated optical image developed by and projected from the optical projector is reflected to the observer wherein the combiner comprises a single body of light transmissive material inclined towards the observer's viewing position whose major external surface nearer said viewing position has a coating which covers an area extending from the transverse edge of said body further from said viewing position to a transverse boundary intermediate the transverse edges of said body nearer and further from said viewing position, and whose major external surface further from said viewing position has a coating covering an area extending from said transverse edge of said body nearer said viewing position to a transverse boundary intermediate said transverse edges; each of said coatings being effective to reflect light incident thereon from

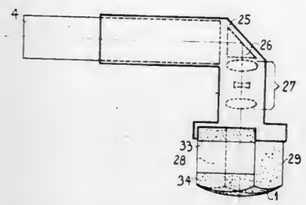
the optical projector and to transmit light incident thereon from the distant scene towards said viewing position; and said boundaries of the coatings being so disposed with respect to one another and with respect to the projector that the observer has an uninterrupted field of view of the image developed by said projector, the contribution to the field of view of each coating being contiguous with the contribution of the field of view of the other coating.

4,269,476

HELMET-MOUNTED DISPLAY SYSTEM

Francois H. Gauthier, and Jean-Paul Lepeytre, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 5, 1979, Ser. No. 90,921
Claims priority, application France, Nov. 7, 1978, 78 31439
Int. Cl.³ G02B *27/14*
U.S. Cl. 350—174 **6 Claims**



1. A helmet-mounted display system comprising a structure rigidly fixed to the helmet and the following components mounted on said structure:
- a unit for generating a luminous object to be displayed;
- an image transfer device comprising lenses for forming an intermediate image of spherical shape;
- a spherical mirror for projecting to infinity the intermediate image formed by said lenses on its focal surface;
- a semi-transparent plane mirror having a negligible thickness and placed between the image transfer device and the spherical mirror in order to reflect said projected image to a viewer's eye positioned at the center of curvature of said spherical mirror while at the same time making it possible to view normal surroundings through the plane mirror, the said spherical and semi-transparent plane mirrors being constituted by juxtaposed optical elements comprising at least two prisms in order to form a one-piece collimating unit, the lateral faces of the said one-piece collimating unit as well as zones forming part of the face opposite to the viewer's eye and located outside the field being rendered opaque in order to eliminate parasitic radiations.

4,269,477

SYMMETRICAL OBJECTIVE

Masamichi Kitagawa, Tokyo, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Dec. 14, 1977, Ser. No. 860,441
Claims priority, application Japan, Dec. 22, 1976, 51-153342
Int. Cl.³ G02B *9/62*
U.S. Cl. 350—464 **4 Claims**

1. A symmetrical objective comprising:

a front group consisting of a first positive meniscus lens, a second negative meniscus lens, a third positive meniscus singlet lens, each of said meniscus lenses being convex to the object and a back group of a fourth, fifth, and sixth lenses arranged in complete symmetrical form with respect to a diaphragm arranged behind the third lens characterized in that the following conditions of

$$0.31f \geqq l \geqq 0.20f \quad \text{I.}$$
$$0.20f > r_1 = -r_{12} > 0.12f \quad \text{II.}$$
$$0.17f > r_4 = -r_9 > 0.11f$$

-continued

$$-0.6f < \frac{n_2 - 1}{r_3} + \frac{1 - n_1}{r_2} + \frac{n_5 - 1}{-r_{10}} + \frac{1 - n_6}{-r_{11}} < -0.06f \quad \text{III.}$$

are fulfilled, where,

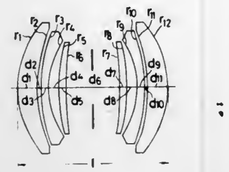
f: a composite focal length of whole objective

l: whole length of objective

r_1, r_2 . . . r_{12}: radius of curvature of the lens counted in sequence from the object

d_1, d_2 . . . d_{11}: axial space and axial thickness of the lens

n_1, n_2 . . . n_6: a refractive index of the component lens with respect to line d.

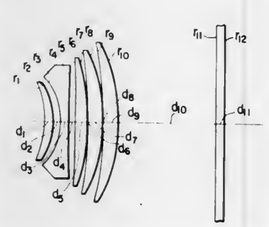


4,269,478

CONSTANT-SPEED SCANNING LENS SYSTEM

Haruo Maeda, Hino, and Yuko Kobayashi, Hachiouji, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1979, Ser. No. 83,656
Claims priority, application Japan, Oct. 16, 1978, 53-127185
Int. Cl.³ G02B *9/60*
U.S. Cl. 350—465 **10 Claims**



1. A constant-speed scanning lens system comprising a first, second, third, fourth and fifth lens components, said first lens component being a positive meniscus lens arranged concave toward the incident side, said second lens component being a negative lens, said third lens component being a positive meniscus lens arranged concave toward the incident side, said fourth lens component being a positive meniscus lens arranged concave toward the incident side, said fifth lens component being a positive meniscus lens arranged concave toward the incident side, said constant-speed scanning lens system satisfying the following conditions:

(1) $1.02 < |r_2/r_3| < 1.12$

(2) $0.013f < d_4 < 0.016f$

(3) $-0.245f < r_1 < -0.185f$

(4) $-6.8f < r_5 < -1.7f$

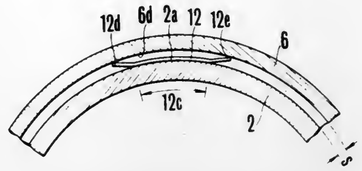
wherein reference symbols r_1, r_2, r_3 and r_5 respectively represent radii of curvature of respective surfaces of the first lens component, surface on the incident side of the second lens component and surface on the incident side of the third lens component, reference symbol d_4 represents the airspace between the second and third lens components, and reference symbol f represents the focal length of the lens systems as a whole.

4,269,479

MOUNTING SYSTEM FOR OPTICAL LENS ASSEMBLY

Masahide Hamatani, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 22, 1979, Ser. No. 5,465
Claims priority, application Japan, Feb. 2, 1978, 53-11728[U]
Int. Cl.³ G02B *7/04*
U.S. Cl. 350—255 **6 Claims**



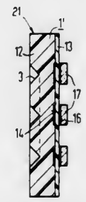
1. In a mounting mechanism for an optical system of lenses including inner lens barrel means and outer lens barrel means coupled together for relative movement therebetween in longitudinal directions thereof, the improvement comprising lubricating means interposed between said inner and outer lens barrel means, said lubricating means being fixed to either the external surface of said inner barrel means or the internal surface of said outer barrel means and being mounted to prevent at least axial movement thereof relative to the barrel means upon which it is mounted, said lubricating means being constructed in the form of at least one longitudinal strip inserted between said inner lens barrel means and said outer lens barrel means, said strip having a slide contact portion to effect sliding contact with said external surface of said inner lens barrel means or said internal surface of said outer lens barrel means, said strip having side edges thereof which are deformed to extend from said slide contact portion to produce a bias force between said inner lens barrel means and said outer lens barrel means, said lubricating means thereby operating to provide suitable lubrication for said mounting mechanism.

4,269,480

PROCESS AND APPARATUS FOR DISPLAYING AN IMAGE IN FRONT OF AN OPTICAL CONTRASTING BACKGROUND

Hans Krueger, Munich; Alois Schauer, Gruenwald, and Karl-Heinz Walter, Grafing, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 17, 1978, Ser. No. 961,730
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1977, 2753203
Int. Cl.³ G02F *1/01*
U.S. Cl. 350—355 **9 Claims**



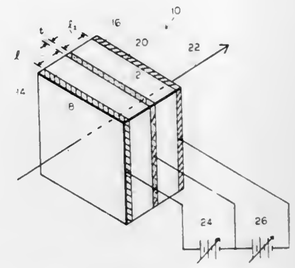
1. A display installation for displaying an image in front of an optical contrasting background comprising plate means for fluorescently absorbing ambient light and emitting fluorescent light in a selected location through exit windows disposed in the plate means, said plate means including means for emitting fluorescent light from the exit windows at an emission frequency range; light valves associated with each of the exit windows for blocking passage of light therefrom, said light valves including filter means for absorbing light in a constant absorption frequency range; said plate means having its frequency range being adjusted in response to an application of electrical field thereto; and means for applying an electrical field to selected areas of said plate means so the selected area is selectively switched between a light transmitting and a light blocking state.

4,269,481

MULTIPLE-CAVITY ELECTRO-OPTIC TUNABLE FILTER

Pochi A. Yeh, and John M. Tracy, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 6, 1979, Ser. No. 55,248
Int. Cl.³ G02F *1/03*
U.S. Cl. 350—356 **19 Claims**



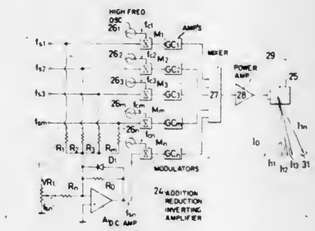
1. A multiple cavity electro-optic tunable filter, comprising:
- an ordered row of n electro-optically tunable plates (n = 2, 3, 4, . . .), each plate including an incident surface and an emergent surface;
- an incident reflective coating on the incident surface of the first tunable plate in said row;
- an emergent reflective coating on the emergent surface of the nth tunable plate in said row; and
- a series of (n − 1) absorbent metallic films, one of said films being disposed between each pair of adjacent plates in said row in mating contact with the adjacent surfaces of said adjacent plates.

4,269,482

SIMULTANEOUS MULTI-BEAM OPTICAL MODULATION SYSTEM

Masaaki Mori, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Japan

Filed Oct. 25, 1978, Ser. No. 954,533
Claims priority, application Japan, Oct. 25, 1977, 52-127857
Int. Cl.³ H04B *9/00*
U.S. Cl. 350—358 **1 Claim**



1. In a simultaneous multi-beam optical modulation process comprising the steps of obtaining a plurality of modulated signals with the amplitude of carriers having different frequencies modulated by a plurality of signals, and driving an acoustic

optical element by said modulated signals, whereby a light modulation is performed by said acoustic optical element, the improvement comprising the steps of producing a dummy signal by adding and then inverting a plurality of said signals and a setting voltage for setting an overall deflection efficiency of said acoustic optical element, the polarity of said setting voltage being opposite to that of said signals, modulating the amplitude of an assigned carrier by said dummy signal and obtaining a modulated output, summing up said modulated output and said modulated signals into a summed up signal through a gain control means, and applying said summed up signal to said acoustic optical element.

4,269,483

ELECTRO-OPTICAL VOLTAGE MEASUREMENT DEVICE

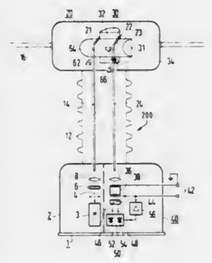
Ernst Feldtkeller, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,695

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1978, 2845625

Int. Cl.³ G01R *31/00*

U.S. Cl. 350—390 **19 Claims**



1. In a device for electro-optically measuring a voltage in a high voltage conductor, which voltage produces an electrical field that will elliptically polarize both a linearly polarized light beam and a circularly polarized light beam, said device having a transmitter providing a source of a light as a light beam, means polarizing the light beam, a head section at the high voltage conductor, and a receiver on a base which is spaced from the head section, said receiver having a means for measuring the voltage due to a phase difference between the components of the light beams passing with different transit speeds the improvements comprising the transmitter being on the base, a supply line extending from the source to the head and a return line for conducting the light beam having a desired polarization, which is either linear or circular, between the head section and the base, said supply line and said return lines each being formed by a separate crystal fiber having a longitudinal, linear electro-optical effect and becoming birefringent in an electrical field, and the crystal orientation of the return line being rotated through 90 degrees relative to the crystal orientation of the supply line.

4,269,484

VARIFOCAL OPTICAL SYSTEM

Francois Laurent, Yverdon, Switzerland, assignor to Bolex International SA, Ste-Croix, Switzerland

Filed Jan. 23, 1979, Ser. No. 5,737

Claims priority, application Switzerland, Jan. 27, 1978, 922786/78

Int. Cl.³ G02B *15/16*

U.S. Cl. 350—427 **8 Claims**

1. An optical system for extremely high focal length variation, comprising an attachment of variable magnification and a base objective of fixed focal length, whereby the attachment has at least four lens members which are displaceable along the optical axis with the focal length change, comprising (viewed in the incoming direction of the light)

first and fourth displaceable lens members,

second and third lens members,

means for displacing said first and fourth displaceable lens members according to the same movement law,

means for displacing said second and third lens members according to movement laws which are different from each other,

the attachment comprises a first and a second partial system, each said partial system has two displaceable said lens members,

at least said first partial system is afocal,



a base objective,

said first partial system in the attachment comprises,

a stationary first member, a means comprising a second member displaceable for the focal length variation,

means constituting a third member for bringing about an image position compensation,

said second partial system comprises a fourth member following said third member,

a moveable fifth lens member, said fourth member constitutes means for compensating wandering of the image which is produced by movement of said fifth lens member,

said second partial system includes an additional stationary member adjacent said base objective.

4,269,485

METHOD FOR FOCUSING AN OBJECTIVE LENS OF ENDOSCOPE

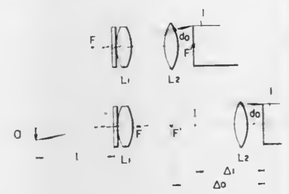
Nobuo Yamashita, Tama, and Miwako Maeda, Hino, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 29, 1978, Ser. No. 974,501

Claims priority, application Japan, Jan. 9, 1978, 53-536

Int. Cl.³ A61B *1/00*; G02B *3/00, 5/17, 9/34*

U.S. Cl. 350—469 **2 Claims**



1. An objective optical system for endoscopes comprising an objective lens system consisting of a front lens group and a rear lens group, and an optical fiber bundle, said front lens group being fixed to the body of the endoscope, whereas said rear lens group and said optical fiber bundle being movable along the optical axis while keeping the relative interval therebetween at a constant distance, said objective optical system satisfying the following conditions:

$$f < f_1 < \sqrt{2}\, f$$

wherein the reference symbol f_1 represents focal length of said front lens group and the reference symbol f designates focal length of said objective lens system as a whole.

4,269,486

MULTI-AXIS MOVABLE MIRROR DEVICE

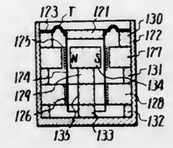
Kenji Shintani, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 2, 1980, Ser. No. 109,072

Claims priority, application Japan, Jan. 9, 1979, 54-1962

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—486 **5 Claims**



1. A mirror device movable about multiaxes comprising

a housing,

a mirror member,

flexible connection means for flexibly supporting said mirror within said housing with its reflective side facing outwardly of said housing and wherein said mirror is universally pivotable about a plurality of axes,

said flexible connection means comprising an annular sheet of flexible material bonded to the outer periphery of said mirror and to an interior surface section of said housing,

said flexible connection means further including an annular corrugated segment therein disposed between said mirror and said housing to provide a platform for said mirror allowing for universal tilting movement of said mirror with a high degree of sensitivity and frequency response,

a bobbin operatively associated with said mirror and disposed within said housing,

a first coil member wound on said bobbin within said housing adapted to be supplied with a first control current,

a second coil member wound on said bobbin within said housing spaced from said first coil member and wound separately from said first coil member adapted to be supplied with a second control current,

first and second magnetic circuit means fixed in said housing adjacent said first and second coil members, respectively, whereby current flow in either of said first or second coil members reacts with said respective magnetic circuit means to induce a force tending to pivot said bobbin and mirror member.

4,269,487

SPECTACLE LENS INSERT FOR APHAKIC REFRACTION

John M. Young, Southbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Apr. 11, 1980, Ser. No. 139,369

Int. Cl.³ G02C *11/02*

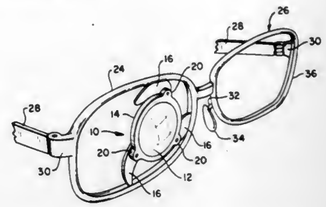
U.S. Cl. 351—58 **4 Claims**

1. A lens insert for patient over-refraction with spectacles frames having internally grooved lens receiving rims comprising:

an ophthalmic lens of smaller diametral dimension than a rim of a spectacles frame to be used for over-refraction;

a ring within which said lens is fitted;

a plurality of supporting legs each having one end pivotally connected to said ring and extending away therefrom in a plane generally parallel to the plane of said ring, an edge of each of said legs being beveled for engagement in a selected one of said internal grooves of said rims of said spectacles frame; and



means for resiliently biasing each of said legs away from said ring for seating said beveled edges in said groove of said selected rim while permitting lateral adjustment of said lens insert as needed for centering with one of a patient's visual axes.

4,269,488

FLEXIBLE HINGE FOR RESILIENTLY CONNECTING THE ARMS TO THE FRONT PORTION OF SPECTACLES

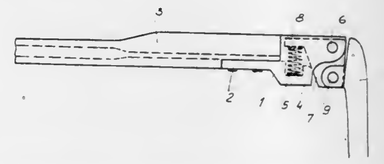
Alberto Zancaner, Segusino, Italy, assignor to Filos S.a.s. Di Zancaner Alberto & Sorella, Segusino, Italy

Filed Jan. 10, 1980, Ser. No. 110,807

Claims priority, application Italy, Jan. 17, 1979, 20519/79[U]

Int. Cl.³ G02C *5/16*

U.S. Cl. 351—113 **1 Claim**



1. A flexible hinge for resiliently mounting each of the arms to the front portion of a spectacle frame, which consists of a shaped wing, means for connecting said wing to said arms, said wing having a housing, a pressure cylindrical spring being located in said housing, a lever arm pivotally connected to the end of said wing by first pivot means, said lever arm being provided with a lug engageable with said spring, second pivot means for pivotally connecting said lever arm to the front portion of said spectacle frame, the side end of said front portion being capable of pressing against the arm edge, said arms spreading apart upon application of a slight outwardly directed pressure.

4,269,489

CAMERA AND ERROR PREVENTING CIRCUIT THEREFOR

Hiroyuki Takimoto, Urawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1979, Ser. No. 72,665

Claims priority, application Japan, Sep. 8, 1978, 53-111061

Int. Cl.³ G03B *1/00, 17/38*

U.S. Cl. 352—174 **5 Claims**

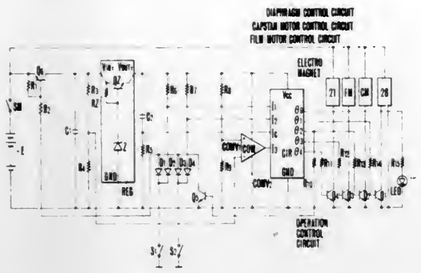
1. A camera, comprising:

(a) release actuating means,

(b) a plurality of camera elements,

(c) a sequencing circuit connected to said camera elements for performing a photo-taking start sequence to actuate said camera elements with a prescribed timing to initiate a photo-taking operation, and a photo-taking stop sequence

to place the camera elements in an inactive state with a prescribed timing to terminate a photo-taking operation, said sequencing circuit being arranged to carry out the start sequence in response to operation of said release actuating means and the stop sequence in response to discontinuing of the operation of said release actuating means,



(d) a detecting circuit for detecting a battery voltage and for producing a detection signal when said voltage drops below a prescribed level, and

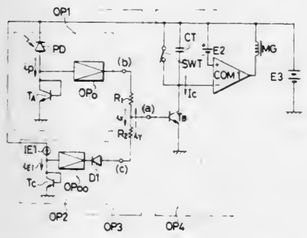
(e) a distinguishing and control circuit for causing said sequencing circuit to carry out said stop sequence when the detection signal is produced while the release actuating means are operated, and for prohibiting the actuation of said start sequence when the detection signal is produced before the release actuating means is operated.

4,269,490

PROGRAMMED SHUTTER GAMMA SWITCHING CIRCUIT

Satoshi Takami, Eiza, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 16, 1979, Ser. No. 12,693
Claims priority, application Japan, Mar. 16, 1978, 53-30186
Int. Cl.³ G03B *7/083*
U.S. Cl. 354—24 **10 Claims**



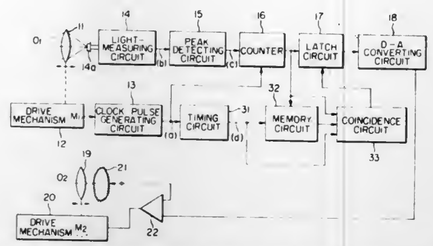
1. A gamma switching circuit of a programmed shutter comprising: means for generating an optical current varying with respect to brightness of light; a voltage conversion circuit for logarithmic compression of said optical current; a constant voltage circuit in which only inflow current is available and no outflow current is available at the output terminal thereof; and a time setting circuit including a switching circuit and a shutter controlling magnet driving circuit, the output terminal of said voltage conversion circuit being connected at a connection point to the output terminal of said constant voltage circuit, and the connection point being connected to the input terminal of said time setting circuit.

4,269,491

DISTANCE INFORMATION JUDGING CIRCUIT FOR FOCUS DETECTING APPARATUS

Nobuyoshi Hagyuda, Kawasaki, and Hiroaki Tanaka, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,551
Int. Cl.³ G03B *3/10*
U.S. Cl. 354—25 **8 Claims**



1. A distance information judging circuit responsive to the distance information signals produced by a focus detecting apparatus in an optical system for providing a distance information signal corresponding to the focused position of the optical system, comprising:

means for scanning the optical system between an infinite focal position and a minimum focal position;

memory means for storing a first distance information signal obtained from said focus detecting apparatus during a first scan of said optical system; and

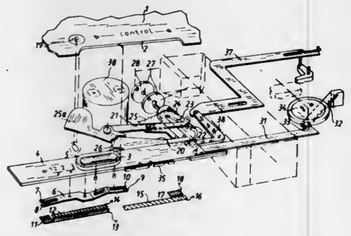
coincidence signal generating means for comparing a second distance information signal obtained from said focus detecting apparatus during a succeeding scan of said optical system with the first distance information signal stored in said memory means and for generating a coincidence signal when said distance information signals coincide with each other.

4,269,492

PHOTOGRAPHIC CAMERA WITH SINGLE SELECTOR STRUCTURE PERFORMING EXPOSURE-PARAMETER ADJUSTMENT AND ALSO SWITCHING OF CONTROL AND MONITORING CIRCUITS

Dieter Engelsmann, Unterhaching, and Rolf Schröder, Baldham, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Mar. 14, 1979, Ser. No. 20,329
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1978, 2841648
Int. Cl.³ G03B *1/18, 17/38*
U.S. Cl. 354—42 **12 Claims**



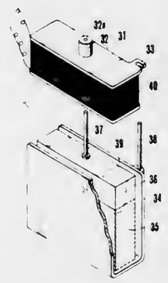
1. In a photographic camera of the type provided with a film-transport system including an electric film-transport motor, in combination, means for adjusting an exposure parameter of the camera, including a manually displaced multi-setting exposure-parameter selector member manually displaced by the user for adjusting the value of at least one camera exposure parameter and having an inoperative setting and a series of operative settings, and motor-control circuit means including at least a first and a second electrical switch connected in the circuit path of the film-transport motor such that both must be closed to effect motor energization, and means responding to displacement of the selector member from its inoperative to any of its operative positions by closing the first electrical switch without closing the second electrical switch.

4,269,493

ELECTROMAGNETIC CAMERA SHUTTER CONTROL DEVICE

Ryoichi Suzuki, Kawasaki; Takao Kinoshita, Tokyo; Yukio Ogawa, Kawasaki, and Takashi Uchiyama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 22, 1979, Ser. No. 14,621
Claims priority, application Japan, Feb. 23, 1978, 53/20117
Int. Cl.³ G03B *9/00;* H02K *33/02, 41/02;* H01F *7/16*
U.S. Cl. 354—51 **9 Claims**



1. An electromagnetic control device including:

a hollow yoke having a rectangular configuration defining an internal space;

a permanent magnet fixedly mounted in said internal space of said yoke;

a pole piece fixedly mounted on said permanent magnet;

an air gap defined between an internal surface of said yoke and said pole piece within which a magnetic flux is produced by said permanent magnet;

a first guide member mounted on said pole piece;

a second guide member mounted on said yoke;

a hollow bobbin having a rectangular configuration and having first and second guide receivers thereon, said first and second guide receivers operating to receive in engagement therewith said first and said second guide members, respectively, to effect guided movement of said bobbin within said air gap; and

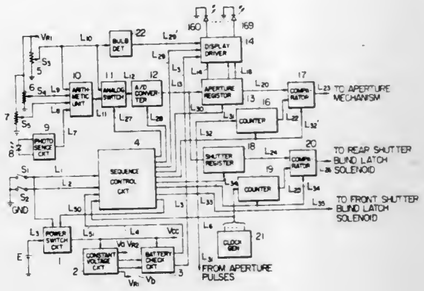
a coil surrounding said bobbin, energization of said coil operating through interaction with said magnetic flux in said air gap to effect guided movement of said bobbin by interengagement between said first and said second guide members with said first and said second guide receivers, respectively.

4,269,494

BATTERY LEVEL WARNING DEVICE

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Filed Jul. 12, 1978, Ser. No. 924,010
Claims priority, application Japan, Jul. 18, 1977, 52/85038
Int. Cl.³ G03B *7/26, 17/18, 17/38*
U.S. Cl. 354—60 L **12 Claims**



1. An electronic system for driving display means and a load means comprising:

a battery;

a battery check circuit for detecting the drop of the power-supply voltage from said battery to a comparatively low value above the lower limit of the operation voltage of said electronic system and for detecting the drop of said power-supply voltage from said battery to said lower limit;

a sequence control circuit coupled to the electronic system and controlled by a first and a second switch and by the output of said battery check circuit; and

a power switching means connected between said battery and said battery check circuit,

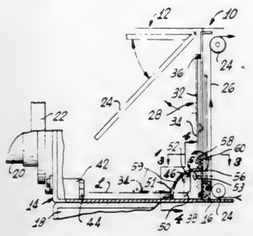
wherein said first switch is set to the ON condition so as to start a first operation of said electronic system, wherein said second switch is thereafter set to the ON condition so as to start a second operation of said electronic system, wherein said power switching means is set to the ON condition by the ON condition of said first switch so that said battery check circuit is supplied with said power-supply voltage from said battery and said battery check circuit starts to detect said power-supply voltage, wherein said display means is controlled by said battery check circuit and said sequence control circuit to indicate internal information of said electronic system and battery-level warning information during said first operation of said electronic system based on the ON condition of said first switch when said power-supply voltage through said power switching means is lower than said comparatively low value, wherein said internal information is inherently derived by the function of said electronic system when the power supply voltage is higher than said lower limit, wherein said load means is driven by said electronic system in said second operation of said electronic system based upon the ON condition of said second switch when said power-supply voltage is higher than said lower limit, and wherein said battery check circuit prohibits said sequence control circuit from starting the second operation of said electronic system when said power-supply voltage from said power switching means is lower than said lower limit.

4,269,495

CAMERA WITH BACK-UP SHUTTER AND PROVISIONS FOR RECORDING DATA IN CONJUNCTION WITH A PRIMARY IMAGE

Le Roy M. Dearing, Studio City, Calif., assignor to L. M. Dearing Associates, Studio City, Calif.

Filed Oct. 31, 1979, Ser. No. 90,041
Int. Cl.[3] G03B *17/24*
U.S. Cl. 354—106 12 Claims



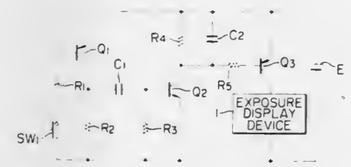
1. In a single lens reflex camera having a body, a main lens mounted on said body, means for positioning a film in a film plane within said body to be exposed through said main lens so that a primary image is formed on said film an exposure-timing shutter disposed in front of said film plane, and at least one back-up shutter panel movable about a pivot axis beteen a closed position covering said film plane and an open postion exposing said film plane, the improvement comprising: data image recording means mounted within said body between said lens and said film plane for providing an illuminated data image to be recorded on said film in conjunction with said primary image, a light-blocking frame extending around an area of said film plane on which said data image is to be recorded, said shutter panel defining a cutaway area shaped and dimensioned to permit at least a portion of said data image recording means to pass therethrough as said shutter panel moves between said open and closed positions, said shutter panel also having an edge portion extending along said cutaway area and arranged to engage said frame in a light-tight manner when said shutter panel is in said closed position.

4,269,496

POWER SUPPLY CIRCUIT FOR CAMERA

Ryuzo Motoori, Kawaskai; Sakuji Watanabe, Warabi, and Yoshiaki Ohtsubo, Kawasaki, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed May 30, 1979, Ser. No. 43,647
Claims priority, application Japan, May 31, 1978, 53-64372
Int. Cl.[3] G03B *17/40*
U.S. Cl. 354—267 5 Claims



1. In a power supply circuit for use in a photographic camera and provided with a power switch for connecting a load such as an exposure display device to a power source, the improvement comprising:

a differentiating circuit for differentiating a switch closing signal generated when said power switch is closed;

a timer circuit responsive to the output of said differentiating circuit for initiating a timing operation upon the closing of said power switch, said timing operation terminating after the lapse of a predetermined period which is independent of the length of time said power switch is closed; and

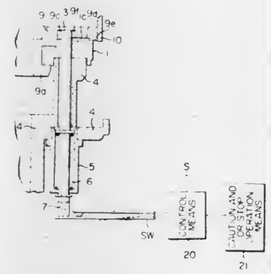
means responsive to the output of said timer circuit for connecting said load to the power source only during said timing operation.

4,269,497

LENS BARREL FOR BOTH PRIORITIES OR SHUTTER SPEED PRIORITY MODE AUTOMATIC EXPOSURE SYSTEM

Sunao Ishizaka; Yoshitaka Araki, both of Tokyo, and Takeshi Muryoi, Chigasaki, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Sep. 7, 1979, Ser. No. 73,423
Claims priority, application Japan, Sep. 13, 1978, 53-124799
Int. Cl.[3] G03B *17/00*
U.S. Cl. 354—286 6 Claims



1. A device for connecting a phototaking lens with a camera, the camera having a device for generating an output by which a diaphragm aperture of the lens is adjusted to a value obtained from a preset shutter speed and an object brightness, and the lens having a device for driving the diaphragm aperture in coordination with said output generating device in the camera, wherein the camera and the lens are, respectively, formed with surfaces engaging each other and wherein the lens is completely connected to the camera at a defined final position upon relative rotation of the lens with respect to the camera with said engaging surfaces opposed to each other, the device comprising:

(a) a discriminating pin having an end retractably projected from the engaging surface of the camera;

(b) means for biasing the pin so that the pin may be projected;

(c) switching means for generating in response to the retraction of the pin a signal which indicates that no incoordination between the camera and the lens is possible; and

(d) a recess means for impeding the retraction of the pin, the recess means being formed to be opposed to said pin at least at said defined final position of the engaging surface of the phototaking lens, the recess means being of a size into which said end can be inserted.

4,269,498

ACCESSORY DEVICE FOR PHOTOGRAPHIC CAMERA

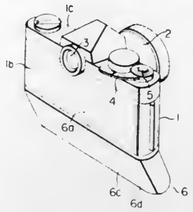
Yoshiki Suzuki, Tokyo, and Seijiro Noda, Yokohama, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Apr. 12, 1979, Ser. No. 29,463
Claims priority, application Japan, Apr. 14, 1978, 53-49210[U]
Int. Cl.[3] G03B *17/02*
U.S. Cl. 354—288 3 Claims

1. An accessory device for use with a photographic camera, said camera comprising:

(a) a photo-taking lens;

(b) a camera body having a portion for mounting said photo-taking lens, a front surface formed substantially perpendicular to the optical axis of said photo-taking lens and a rear surface formed substantially parallel to said front surface, the distance between the front surface and the rear surface being less than the height of the camera body; said front and rear surfaces extending laterally from said lens mounting portion to constitute gripper portions for holding the camera at the time of the photographic operation, said camera body further having an operating portion provided at the upper portion of at least one of said gripping portions and a viewfinder eyepiece provided in said rear wall surface;



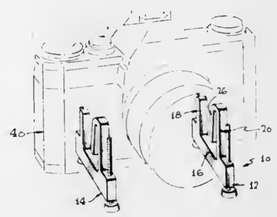
said accessory device having a rear wall surface contiguous to and substantially the same lateral length as that of said rear surface, and a front wall surface substantially parallel to said rear wall surface, said rear wall surface being inclined forwardly and downwardly of said camera body with respect to said rear surface, said accessory device further having a bottom wall surface formed substantially parallel to said optical axis.

4,269,499

TWO-PIECE QUADRIPOD FOR CAMERAS

Robert S. Frankel, 11905 Woodbridge St., #10, Studio City, Calif. 91604

Filed Dec. 26, 1979, Ser. No. 106,405
The portion of the term of this patent subsequent to Mar. 11, 1997, has been disclaimed.
Int. Cl.[3] G03B *17/00*
U.S. Cl. 354—293 5 Claims



1. A camera quadripod comprising:

a pair of substantially identical bipods, each of said bipods having first and second spaced arms one of said arms being resilient and longer than the other of said arms;

a crossbar interconnecting said arms so that a camera body can be engaged on said crossbar and resiliently detachably embraced within said arms for support of the camera body;

said resilient arm including an upwardly directed portion extending upwardly from said crossbar and having an upper end, a connecting bar portion extending from said upper end toward said other arm, and a slanted portion extending downwardly from said connecting bar portion toward said other arm; and

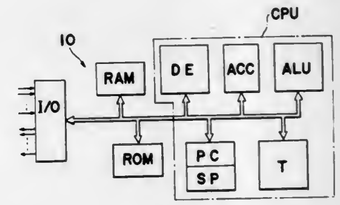
each of said bipods having first and second spaced support legs, at least one of said legs on each of said bipods being adjustable for supporting said quadripod in a selected position and for supporting a camera engaged within the arms of and supported by said quadripod in a selected position.

4,269,500

TROUBLE DETECTING SYSTEM FOR ELECTROPHOTOGRAPHIC COPYING MACHINE

Masazumi Ito, Toyokawa; Kenji Shibazaki, Aichi, and Tsuneo Kitagawa, Toyohashi, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Dec. 7, 1979, Ser. No. 101,250
Claims priority, application Japan, Dec. 29, 1978, 53-164356
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 C 5 Claims



1. In an electrophotographic copying apparatus having a support for placing an original, illumination means for projecting light beam onto the original, optical transmitting means for transmitting an image of the original onto a photoreceptor surface, scanning means for scanning the original by the illumination means, and means for driving the scanning means, a trouble detecting system comprising:

pulse generating means for generating pulse signal in response to the actuation of the driving means;

means for generating a starting signal for starting actuation of the scanning means;

first detecting means for detecting the action of the scanning means and for producing a first detect signal when said scanning means is actuated a predetermined degree from its initial condition;

second detecting means for detecting the generation of the pulse signal from the pulse generating means and for producing a second detect signal in response to a level change in the pulse signal;

first timer means for counting a first predetermined period of time in response to the starting signal, said first predetermined period of time being longer than a period of time necessary for the scanning means to act from its initial condition to said predetermined degree;

second timer means for counting a second predetermined period of time in response to said starting signal, said second predetermined period of time being longer than a pulse duration of said pulse signal; and

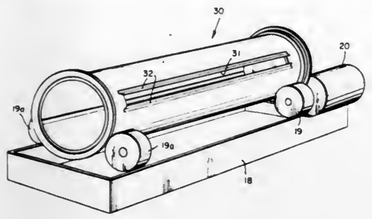
means responsive to the breakdown of the scanning means for generating a first warning signal when the first detecting means produces no first detect signal within said first predetermined period of time and a second warning signal when said second detecting means produces no second detect signal within said second predetermined period of time.

4,269,501

DRUM FOR AN AUTOMATIC PHOTOGRAPHIC PROCESSING SYSTEM

Glen A. Griffith, 1809 Armour La., Apt. No. 2, Redondo Beach, Calif. 90278, and Leroy V. Sutter, Jr., 6301 Summertime La., Culver City, Calif. 90230

Filed Sep. 12, 1979, Ser. No. 74,863
Int. Cl.³ G03D *3/04*
U.S. Cl. 354—323 **2 Claims**



1. An improved drum mechanism for use in combination with an automatic photographic processing system which includes:

a. a housing;

b. a bi-directional motor which has a shaft and which is mounted on the housing;

c. a control unit for controlling the bi-directional motor which is electrically coupled to the bi-directional motor;

d. a drain tray which is mounted on the housing; and

e. a fluid injector unit for injecting fluids into said improved drum mechanism which is electrically coupled to the control unit and which is mounted on the housing, said improved drum mechanism comprising:

a. an elongated, cylinder-shaped member which is adapted to receive photographic print materials and which is fluidly coupled to the fluid injector unit, said elongated, cylinder-shaped member having a a slot which travels longitudinally along its sidewall so that it forms a drain for draining the fluid from said elongated, cylinder-shaped member;

b. a pair of lips which are disposed parallel and adjacent to said slot so that the fluid will not splash out of said elongated, cylinder-shaped member thereby contaminating the fluids;

c. a drum mounting including a set of four rollers, one of which is mechanically coupled to the shaft of the bi-directional motor, which is mechanically coupled to the housing adjacent to the drain tray so that when said elongated, cylinder-shaped member is placed on said set of four rollers it can be bi-directionally rotated by the bi-directional motor.

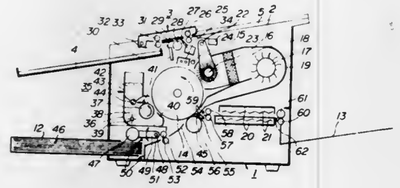
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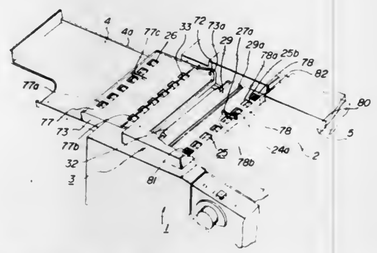
ELECTROPHOTOGRAPHIC COPYING APPARATUS FOR COPYING MANUSCRIPTS WITHOUT INTERRUPTIONS

Hiroshi Tsuda, Mitaka; Kiyoshi Miyashita; Masaji Nishikawa, both of Hachioji; Akira Shimizu, Fuchu, and Muneo Kasuga, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 3, 1979, Ser. No. 26,760
Claims priority, application Japan, Apr. 18, 1978, 53-46183
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—35 H **7 Claims**

1. An improved electrophotographic copying apparatus comprising a substantially rectilinear manuscript feed path including a slit light exposure portion, a manuscript feed path defined by upper and lower side manuscript guide members arranged above and below said manuscript feed path at said slit light exposure portion with said manuscript feed path interposed therebetween, said upper side guide member being arranged movably with respect to said slit light exposure portion, and a photosensitive body for memorizing said manuscript image projected through said slit light exposure portion thereon as an electrostatic latent image, said sheet manuscript is fed along said manuscript feed path interposed between said upper and lower side manuscript guide members and scanned by exposed light for producing copies of said sheet manuscript, and when obtaining copies of a thick manuscript said thick manuscript is fed along said lower side manuscript guide member and said upper side manuscript guide member, said guide members being arranged in alignment as said manuscript is scanned by exposed light, thereby producing on said photosensitive body, an electrostatic latent image corresponding to said manuscript image and obtaining a plurality of copies on the basis of said electrostatic latent image, the improvement comprising: manuscript feed means including a manuscript feed driving roller (**25**) and a manuscript driven roller (**26**) engage-





able with the driving roller (**25**), a manuscript discharge driving roller (**32**) and a manuscript discharge driven roller (**33**) engagable with the driving roller (**32**), and actuators (**24***a*), (**27***a*) of first and second microswitches (**24**), (**27**) arranged in the front and rear of said manuscript feed driving and driven rollers (**25**), (**26**), respectively, said actuator (**24***a*) of said first microswitch (**24**) being operated by the front end of said manuscript so as to start rotation of said manuscript feed driving and driven rollers (**25**), (**26**), to feed the manuscript seized therebetween; said actuator (**27***a*) of said second microswitch (**27**) being operated by the front end of said manuscript so as to stop said manuscript feed driving and driven rollers (**25**), (**26**) and stop the feed of the manuscript until a plurality of copies of a manuscript immediately before the stopped manuscript, have been obtained by means of the electrostatic latent image of the manuscript image projected on the photosensitive body and then said manuscript driving and driven rollers (**25**), (**26**) being rotated again so as to feed the manuscript.

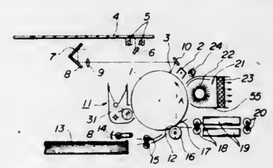
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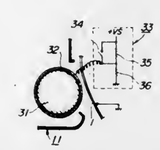
TONER CLEANING APPARATUS

Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 55,292
Claims priority, application Japan, Jul. 12, 1978, 53/84058
Int. Cl.³ G03G *21/00*
U.S. Cl. 355—15 **11 Claims**

1. A toner cleaning apparatus for use in an electrophotographic apparatus which comprises an electrostatic charge retentive drum rotatably arranged in a given direction, means for forming an electrostatic latent image corresponding to an image of a document to be duplicated, means for treating dry toners to develop the latent image with the dry toners to form a toner image on the drum, and means for transferring the toner image onto a record paper which is fed with being in contact with the drum, said latent image forming means, toner treating means and transferring means being arranged in this order viewed in the rotating direction of the drum, comprising a first exclusive cleaning device arranged between the transferring means and the latent image forming means viewed in said rotating direction of the drum and being driven into an operative position in which the first exclusive cleaning device is made in contact with the drum and into an inoperative position in which the first exclusive cleaning device is made apart from the drum; first control means for selectively driving said first exclusive cleaning device into either the operative position or the inoperative position; second control means for selectively operating said toner treating means as a developing device or a second cleaning device; and third control means for control-





ling said first and second control means in such a manner that when a power supply is applied to the electrophotographic apparatus, said toner treating means is made operative as the second cleaning device for at least one revolution of the drum to remove possible residual toners on the drum; that as long as the latent image has to be developed during a duplicating operation, said toner treating means is made operative as the developing device; when a print start signal for initiating the duplicating operation for a next document is not given within a time interval from a time when a front edge of the latent image on the drum passes through a position of the transferring means to a time when the front edge of the latent image arrives at a position of the first exclusive cleaning device, the toner treating means is made operative as the second cleaning device to remove residual toners on the drum during at least one additional revolution of the drum, while the first exclusive cleaning device is driven into said inoperative position; and when said print start signal is given within said time interval, said first exclusive cleaning device is driven into said operative position so as to initiate immediately a formation of a latent image of the next document.

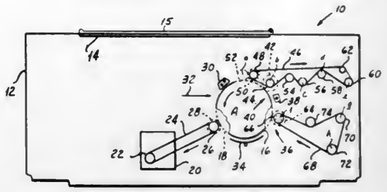
4,269,504

PICKOFF DEVICE FOR COPYING MACHINE

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Continuation of Ser. No. 850,216, Nov. 9, 1977, abandoned. This application Jul. 25, 1979, Ser. No. 60,357
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 SH **23 Claims**

1. In a copying machine of the image transfer type in which an image developed on a surface is transferred to a sheet of copy material which moves with the surface through a transfer station to a pickoff station, pickoff apparatus including a first clutch element, means for driving said first clutch element, a second clutch element, means mounting said second clutch element for movement relative to said first clutch element with a narrow space between said elements, an opening leading into said narrow space, means positioning said clutch elements with



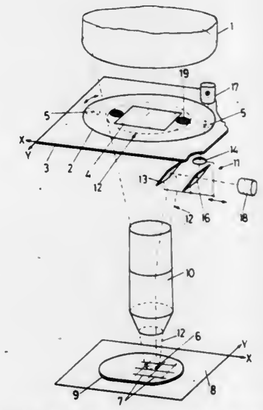
said opening at a location adjacent to said surface, means for directing a portion of a copy sheet from said moving surface into the space between said elements, the relationship between the thickness of said sheet and the space between said elements being such that entry of said sheet into said space clutches said elements to each other for movement as a unit, and means responsive to a predetermined movement of said elements as a unit for releasing said portion of a copy sheet.

4,269,505

DEVICE FOR THE PROJECTION PRINTING OF THE MASKS OF A MASK SET ONTO A SEMICONDUCTOR SUBSTRATE

Herbert E. Mayer, Eschen, Austria, assignor to Censor Patent- und Versuchs-Anstalt, Vaduz, Liechtenstein

Filed Oct. 10, 1979, Ser. No. 83,532
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1978, 2845603
Int. Cl.³ G03B *27/52*
U.S. Cl. 355—62 **14 Claims**



1. A device for the projection printing of the masks of a mask set onto a workpiece, particularly onto a semiconductor substrate for the manufacture of integrated circuits, said device comprising a projection lens for the imaging of the patterns of said masks on photosensitive layers of said workpiece in successive processing cycles, alignment patterns being disposed on said masks and alignment targets being disposed on said work piece, said alignment patterns of said masks being aligned with said alignment targets of said workpiece before imaging the respective mask pattern on said workpiece, wherein said alignment patterns of at least one of said masks and said align-

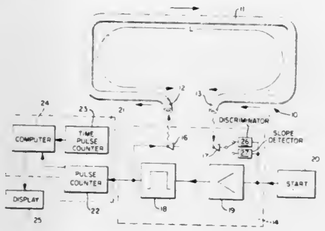
ment targets of said work piece are positioned in non-conjugated areas in respect of the projection lens, i.e. in areas which cannot be imaged into one another by means of said projection lens, and wherein auxiliary optical means are provided for the alignment process, said alignment targets of said workpiece and said alignment patterns of said mask being imaged into one another by means of said auxiliary optical means.

4,269,506

APPARATUS FOR MEASURING THE INFLUENCE OF PHYSICAL PARAMETERS ON THE LENGTH OF A PATH

Mark Johnson, Chappaqua, N.Y., and Reinhard Ulrich, Leonberg, Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Göttingen, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,945
Int. Cl.³ G01C *3/08*
U.S. Cl. 356—5 **40 Claims**



1. An apparatus for measuring the influence of physical parameters upon the length of a path, comprising: an optical length-measuring device responding to a change in the path length including an elastically stretchable optical fiber mounted in a pretensioned manner at intervals along the path at supporting points which are subjected to a change in position with a change in the length of the path to thereby change the length of the optical fiber in an amount corresponding to the change in path length;

a transit-time measuring device including a lightpulse repeater optically coupled to the optical fiber to form a closed signal path together with the optical fiber, wherein said repeater generates short signal pulses which circulate repeatedly in said path, and means for measuring the total transit time T equal to the transit time t_{opt} of the pulse through the optical fiber and the transit time t_{el} of the pulse through the pulse repeater; and

means for determining a change in the path length by monitoring changes in transit time of the pulse through the optical fiber caused by changes in the length of the optical fiber brought about by changes in the path length to which the optical fiber is coupled.

4,269,507

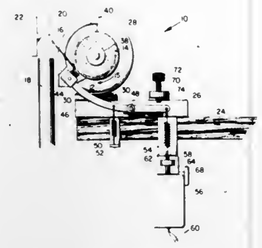
METHOD AND APPARATUS FOR PULVERIZING SOLID MATERIALS WITH A GRINDSTONE AND INJECTING PARTICLES THEREOF INTO A FLAME FOR ANALYSIS

Jonathan Allen, Hopewell, and Robert K. Gould, East Windsor Township, Mercer County, both of N.J., assignors to Aerochem Research Laboratories, Inc., Princeton, N.J.

Filed Oct. 4, 1979, Ser. No. 81,938
Int. Cl.³ G01N *1/22, 21/72*
U.S. Cl. 356—36 **14 Claims**

1. In a test apparatus for analyzing solid materials including a flame analyzing instrument and a flow of combustible gas culminating in a flame, the improvement comprising:

rotating grinding means for pulverizing a solid sample of material and propelling ground particles thereof into said combustible gas; and,



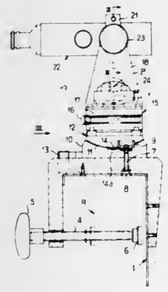
pressure means for pressing said solid sample against said grinding means.

4,269,508

DEVICE FOR ADJUSTING THE AZIMUTHAL AND INCLINATION DIRECTIONS OF A WAVE REFLECTOR

Yves F. Le Nevez, Cachan, France, assignor to Societe Anonyme de Telecommunications, Paris, France

Filed Jul. 19, 1979, Ser. No. 58,780
Claims priority, application France, Jul. 19, 1978, 78 21452
Int. Cl.³ G01C *1/02*
U.S. Cl. 356—249 **2 Claims**



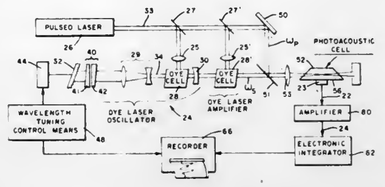
1. A device for adjusting the azimuthal and inclination directions of a wave reflector, notably for Hertzian bonds, which comprises a base plate adapted to be fastened to a reference surface of the reflector, a cradle rigid with said base plate and supporting a pivoting element movable in the plane of the adjustment inclination through an angle readable in relation to said cradle, said inclination movable element supporting an element rotatably mounted about an axis perpendicular to the inclination pivot axis, and constituting a movable azimuthal element movable through an angle readable in relation to said inclination movable element, said azimuthal movable element supporting a sighting telescope movable for inclination, the inclination and azimuth movable assembly carrying an air-level whereby the reflector can be brought to the displayed inclination value by locking the air bubble, and also such that the verticality of the azimuthal pivot axis can be obtained by adjusting the base plate fastening to the reflector in order to bring the reflector to the desired azimuth by causing the telescope sighting, under a predetermined azimuthal angle, to coincide with the direction of the wave transmitter or with the direction of the receiver of reflected waves.

4,269,509

PHOTOACOUSTIC RAMAN SPECTROSCOPY

Michael J. Berry, Chatham, and Joseph J. Barrett, Morris Plains, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 909,859, May 26, 1978, Pat. No. 4,197,009. This application May 2, 1979, Ser. No. 34,512
The portion of the term of this patent subsequent to Apr. 8, 1997, has been disclaimed.
Int. Cl.³ G01J *3/44*
U.S. Cl. 356—301 **11 Claims**



1. Apparatus for analyzing material, comprising:

a. radiation source means for generating two coherent beams or monochromatic light;

b. tuning means for adjusting the frequency difference between said beams of radiation to equal substantially the vibrational frequency of a preselected constituent of said material;

c. projecting means for directing said beams of light through said material to increase molecular energy of a preselected species of said material and thereby produce a detectable signal in the form of a pressure wave;

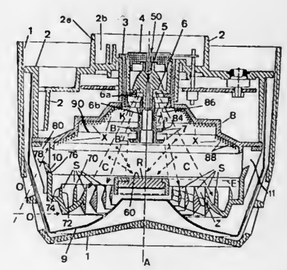
d. detecting means for indicating the magnitude of said signal, said detecting means including a variable frequency bandwidth amplifier adjusted to transmit preselected acoustic frequencies of said pressure wave.

4,269,510

SMOKE DETECTOR

Zoltan Horvath, Jürg Muggli, both of Männedorf; Hans Ackermann, Stäfa, and Erwin Tresch, Männedorf, all of Switzerland, assignors to Cerberus Ag, Männedorf, Switzerland

Filed Oct. 9, 1979, Ser. No. 82,613
Claims priority, application Switzerland, Dec. 21, 1978, 13000/78; Dec. 21, 1978, 13001/78
Int. Cl.³ G01N *21/53*; G08B *17/10*
U.S. Cl. 356—338 **9 Claims**



1. A smoke detector comprising:

a radiation source for transmitting radiation into a substantially conical ring-shaped direct radiation region and having a cone axis;

a radiation receiver arranged externally of the direct radiation region in the cone axis;

said radiation receiver receiving radiation scattered by particles located within the direct radiation region;

means bounding the conical ring-shaped direct radiation region;

said bounding means being arranged externally of a direct receiving region of the radiation receiver;

said bounding means including web means surrounding the radiation receiver at all sides and limiting the radiation region in the radiation direction of the radiation source;

said web means being arranged in a substantially ring-shaped configuration and rotationally symmetrical with respect to the cone axis;

said web means comprising a plurality of adjacently situated spaced webs defining between adjacent webs intermediate spaces;

each of said webs having an inner surface arranged approximately parallel to the cone axis;

each of said webs further having an outer surface which encloses an acute angle with the cone axis; and

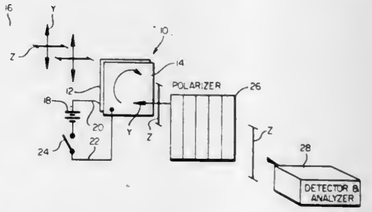
the angle which the outer surface of each web encloses with the cone axis is smaller than the angle between the direct radiation impinging onto the webs and the cone axis, in order to thereby exclude direct radiation from impinging upon said outer surfaces.

4,269,511

APPARATUS AND METHOD FOR MEASURING THE MAGNITUDE OF POLARIZATION OF LIGHT

Phillip Erwin, Libertyville, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Feb. 15, 1979, Ser. No. 12,252
Int. Cl.³ G02F *1/13*; G01J *4/00*
U.S. Cl. 356—368 **2 Claims**



1. Apparatus for accurately determining the polarization magnitude of light emitted from a source in accordance with the expression $(I_z-I_y)/(I_z+I_y)$, I_z being the intensity of one polarization component of said light at a first polarization angle, and I_y being the intensity of a second polarization component of said light at a second polarization angle of 90° with respect to said first polarization angle, said apparatus comprising:

a polarizer having a fixed plane of polarization;

a liquid crystal intermediate said light source and said polarizer, said liquid crystal rotating the polarization of said light about 90° to enable said one light component to align with said polarizer plane of polarization and thereby pass through said polarizer;

said liquid crystal having an inherent polarization rotational error value;

means for applying an electric field to said liquid crystal to prevent said polarization rotation by said liquid crystal to enable said second light component to align with said polarizer plane of polarization and thereby pass through said polarizer;

detection means for detecting the value of I_z of said one light component passing through said polarizer during rotation of said one light component by said liquid crystal, and for detecting the value of I_y of said second light component passing through said polarizer during the application of said electric field to said liquid crystal; and

measuring means coupled to said detection means for determining the corresponding magnitude of polarization of said light using said detected values of I_z and I_y;

said measuring means including means for deriving the value of $R=I_z/I_y$, and means for determining the corresponding magnitude of polarization of said light from said expression $(R-1)/(R+1)$;

compensating means for correcting the derived values of $R=I_z/I_y$ to compensate for said polarization rotational errors inherent in said liquid crystal;

said compensating means including memory means for storing a respective correction factor, C, determined for a range of said derived R values as a function of R values for known magnitudes of polarization during an initial calibration operation;

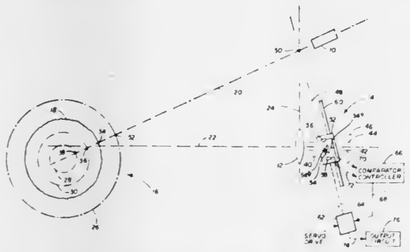
said compensating means further including comparator means responsive to a respective derived R value for selecting a respective correction factor C, from said memory means during determination of said magnitude of polarization; and

said measuring means includes for applying said selected respective correction factor, C, to a respective derived value of R during determination of said magnitude of polarization.

4,269,512
ELECTRO-OPTICAL POSITION-MONITORING APPARATUS WITH TRACKING DETECTOR

John C. Nosler, 2587 Floral Hill Dr., Eugene, Oreg. 97403

Filed Feb. 21, 1979, Ser. No. 13,740
Int. Cl.[3] G01B *11/14*; G01N *21/86*
U.S. Cl. 356—375 **4 Claims**



1. In an electro-optical object-position-monitoring system including a beam-projecting non-traveling light source, and imaging means for collecting and transmitting light from said source which is reflected by a monitored object, receptor means positioned to receive reflected light transmitted by said imaging means, operable to produce an output response interpretable to indicate monitored object position, said receptor means comprising

a carriage mounted adjacent said imaging means for reversible movement along a path generally transverse to the transmission axis of said imaging means,

a receiver mounted on said carriage disposed to receive light transmitted by said imaging means, and operable to divide such light for transmission along two different optical paths, with the amount of light transmitted along each path dependent on the position of said receiver relative to light transmitted by said imaging means,

photodetector means for each path, each responsive to light transmitted therealong to produce a signal reflective of the intensity of light received by the photodetector means, and

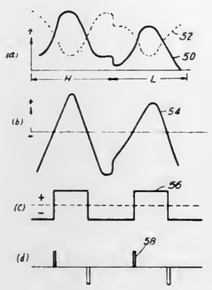
means operatively interposed between said photodetector means and said carriage, operable in response to signals produced by the former to effect movement of the latter so as to equalize such signals,

said path being oriented whereby, at all positions of said carriage therealong, and under circumstances wherein an image of reflected light causes said two photodetectors to produce equal signals, such image is in focus on said receiver.

4,269,513
ARRANGEMENT FOR SENSING THE SURFACE OF AN OBJECT INDEPENDENT OF THE REFLECTANCE CHARACTERISTICS OF THE SURFACE

Paul L. DiMatteo, Huntington; Joseph A. Ross, Fort Salonga, and Howard K. Stern, Greenlawn, all of N.Y., assignors to Solid Photography Inc., Melville, N.Y.

Continuation-in-part of Ser. No. 608,265, Aug. 27, 1975, Pat. No. 4,175,862. This application Jan. 18, 1979, Ser. No. 4,301
Int. Cl.[3] G01B *11/00, 11/24*
U.S. Cl. 356—376 **9 Claims**

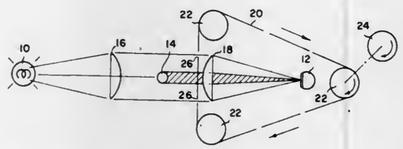


1. A method for defining the intersection of a projection field with the surface of an object independent of reflectance characteristics of the object surface, comprising the steps of: irradiating said surface with a first irradiating pattern; irradiating said surface with a second irradiating pattern related inversely to said first pattern; recording said first pattern after reflection from the object surface; recording said second pattern after reflection from the object surface; comparing the two recorded patterns; and determining from the comparing step the points at which the two recorded patterns have substantially equal values, said points defining the intersection of said projection field with said surface independent of reflectance characteristics of the surface.

4,269,514
NON-CONTACT SCANNING GAGE

Carl A. Vossberg, Umatilla, Fla., assignor to Electron Machine Corporation, Umatilla, Fla.

Filed Sep. 25, 1978, Ser. No. 945,350
Int. Cl.[3] G01B *11/10*
U.S. Cl. 356—386 **4 Claims**



1. A non-contact gage for measuring a dimensional characteristic of a specimen comprising in combination:

a source of radiation on one side of the specimen;

a radiation detector facing and aligned with said source on the opposite side of the specimen;

linear scanning means including a constant speed belt, opaque to said radiation and having a plurality of equal parallel non-opaque areas extending transversely across said belt and spaced equally from each other a distance at least as large as the dimensional characteristic to be measured, located and movable between said source and the specimen for periodically sweeping a beam of radiation across the specimen causing said detector to generate a composite signal including a frame signal and an intelligence signal, the ratio of the duration of said intelligence to said frame signal being proportional to the desired dimensional characteristic of the specimen;

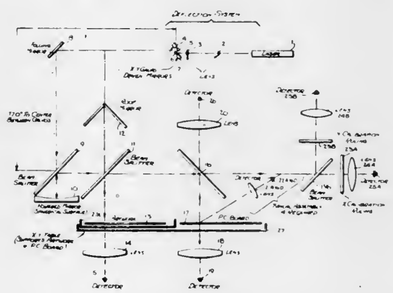
means for separating said intelligence signal from said frame signal including a peak to peak signal detector connected to be driven by the output of said radiation detector and a pair of comparators, each having a signal input and bias input said signal inputs being connected to the output of said peak to peak detector for reference biasing said comparators at different levels so that the on time of one comparator is a dimensional proportional signal and the output of the other comparator is a frame signal proportional to the time of one scan cycle; and

indicating means coupled to said separating means for displaying said dimensional characteristic.

4,269,515
ELECTRO-OPTICAL SYSTEM FOR INSPECTING PRINTED CIRCUIT BOARDS

Norman G. Altman, Stamford, Conn., assignor to Altman Associates, Inc., Stamford, Conn.

Filed Aug. 7, 1979, Ser. No. 64,519
Int. Cl.[3] G01B *11/00*
U.S. Cl. 356—394 **7 Claims**



1. A system for inspecting a printed circuit board constituted by an insulating board having a conductive pattern thereon which creates interconnections between circuit elements mounted on the board, the board often having holes therein for effecting electrical connections to these elements, said conductive board pattern being derived from an original transparent artwork, said system comprising:

A. means to deflect a laser beam in the X and Y directions to generate a raster scan;

B. means to optically split the raster scan to simultaneously examine corresponding sections on the conductive pattern on the board and that appearing on the original transparent artwork from which the board pattern is derived, the artwork possessing the same scale and orientation as the desired conductive pattern and therefore representing the nominal pattern required for the board;

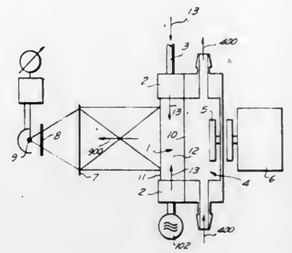
C. means to detect the light transmitted through the artwork and the light reflected by the board during the simultaneous scan thereof; and

D. means including a computer responsive to signals generated by said detection means to make a comparison between the dimensions of the conductors in the pattern and the spacings therebetween on the board and on the artwork to determine the extent of disparities therebetween.

4,269,516
OPTODE

Dietrich W. Lübbers, Dortmund, and Norbert Optiz, Bochum, both of Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Göttingen, Fed. Rep. of Germany

Filed Jul. 19, 1977, Ser. No. 817,108
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1976, 2632710
The portion of the term of this patent subsequent to Jan. 18, 1994, has been disclaimed.
Int. Cl.[3] G01N *21/84*
U.S. Cl. 356—427 **14 Claims**

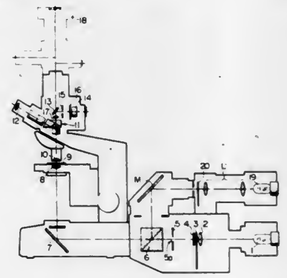


1. An apparatus for the optical measurement of the concentration of a component of a substance to be analyzed, of the type comprising a source of monochromatic excitation radiation, means defining an indicator space containing an indicator excited by the excitation radiation, the side of the means defining the indicator space to be brought into contact with the substance to be analyzed comprising a membrane permeable for the component whose concentration is to be determined, the side of the means defining the indicator space facing the monochromatic excitation radiation being transmissive for the radiation, the improvement wherein the apparatus includes means setting the indicator in the indicator space into motion within and relative to the indicator space during the measurement operation performed by the apparatus.

4,269,517
MICROSCOPE FOR QUANTITATIVE DETERMINATION OF SUBSTANCE IN SPECIMEN

Ichiro Sawamura, Hachioji; Kensaku Miyazaki, Machida, and Ken Yonekubo, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Sep. 20, 1977, Ser. No. 834,896
Claims priority, application Japan, Sep. 25, 1976, 51/114398
Int. Cl.[3] G01J *3/42*
U.S. Cl. 356—432 **8 Claims**



1. A microscope for use in the quantitative determination of the substance in a specimen comprising:

a full field illumination unit;

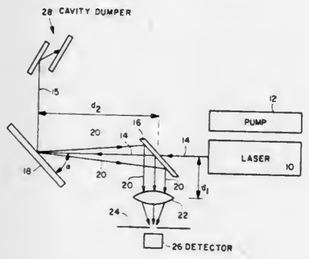
a spot illumination unit using monochromatic light;
a photoelectric transducer for receiving light which is transmitted through said specimen;
an arithmetic unit connected to said photoelectric transducer for photometry;
means for activating both the full field and spot illuminations to facilitate movement of the specimen into alignment with a spot illuminated region while observing the specimen; and
adjustable aperture means for adjusting the amount of illumination so that the spot illuminated region is substantially in conformity with the outline of the specimen;
said arithmetic unit including a first conversion circuit including means for converting a DC signal corresponding to the amount of the light transmitted through the specimen into a corresponding transmittance rate per unit area, said first conversion circuit including first means responsive to the adjustment of said adjustable aperture means for varying the amplification factor of said first conversion circuit in inverse proportion to the variation of the area of said spot illuminated region, and a second conversion circuit including means responsive to the adjustment of said adjustable aperture means for varying the amplification factor of said second conversion circuit for converting an absorbance signal into an output signal which is proportional to the total quantitity of the substance contained in the specimen when the field illumination unit is turned off, said output signal being a function of the product of an output from said photoelectric transducer and the area of the spot illuminated region, said second conversion circuit including second means for varying the amplification factor of said second conversion circuit in direct proportion to the variation of the area of said aperture.

4,269,518

STRAY LIGHT ELIMINATOR IN A SCATTEROMETER

John P. Rahn, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 18, 1979, Ser. No. 49,693
Int. Cl.³ G01N *21/01*; G02B *27/14*
U.S. Cl. 356—445 **15 Claims**



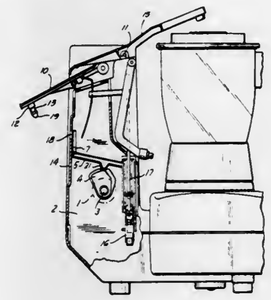
1. A stray light eliminator in a scatterometer comprising:
a light source for emitting a light beam;
a beamsplitter of predetermined reflectivity placed in the path of said emitted light beam for scattering a predetermined amount of light in a direction different from said emitted light path;
a mirror placed in the path of said emitted light that has passed through said beamsplitter without being scattered for reflecting said light in a predetermined direction other than back along said emitted light path, said mirror having an inherent tendency to retroscatter some light back along said emitted path and into said light source after passing back through said beamsplitter where part of said retroscattered light is reflected in a direction unique to said retroscattered light;
a lens placed in the path of said retroscattered light which has been reflected by the beamsplitter for converging said retroscattered light to a predetermined spot, the distance from the beamsplitter to the lens being much smaller than the distance from said mirror to the beamsplitter to increase the detected signal retroscattered from said mirror as compared with the detected noise caused by light scattered from said beamsplitter;
an apertured screen placed in the path of said converged light for limiting light behind said screen to only said converged light which passes through said aperture;
a detector placed behind said screen for measuring the level of light passing through said aperture; and
a beam dumper placed in the path of reflected light from said mirror for absorbing unwanted light.

4,269,519

SAFETY ARRANGEMENT FOR A MIXER CATCH

Hans J. Birr, Wuppertal, Fed. Rep. of Germany, assignor to Vorwerk & Co. Interholding GmbH, Wuppertal, Fed. Rep. of Germany

Filed Jan. 7, 1980, Ser. No. 110,388
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2900987
Int. Cl.³ B01F *13/04*; A47J *27/09*
U.S. Cl. 366—206 **4 Claims**



1. A safety arrangement for a mixer latch to prevent a mixer container from being disconnected from the mixer when the mixer motor is running, comprising a locking arm adapted to close the mixer container, said locking arm being provided with a catch; a base on the container an opening in a side wall thereof to receive said catch; a motor contactor electrically connected to a mixer motor and having an axis; a cam mounted on said axis of said motor contactor, and being formed with a curved surface on an outer side thereof; a link mounted on said base and adapted to engage said curved surface for a swingable movement of said link in a vertical plane; and a lever pivotally mounted in said base and having an end operatively connected to said link, said lever being adapted to engage said catch while the latter projects into said opening of the base in the locking position of the latch.

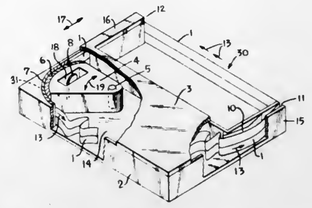
4,269,520

CARTRIDGE FOR DYE-IMPREGNATED ENDLESS RIBBON

Gerhard Gabler, Zurich, Switzerland, assignor to Precisa AG Rechenmaschinenfabrik, Zurich, Switzerland

Filed Dec. 26, 1978, Ser. No. 973,094
Int. Cl.³ B41J *32/00*
U.S. Cl. 400—196 **17 Claims**

1. A cartridge including a housing for storing an endless dye-carrying ribbon in several locations in said housing, and for operatively withdrawing successive portions therefrom, said portions being arranged to be advanced in a predetermined direction from a first location to a fourth location downstream of said first location, comprising in combination:
ribbon conduit means located at a second location downstream of said first location for returning and guiding the successive ribbon portions into said housing,
a single unitary resilient stationary member, secured inside said housing,
a single substantially rigid driven member arranged in said housing, operable to be advanced in said predetermined direction, and including two outer parts, at least one of said outer parts having a set of teeth along the periphery of said driven member, said teeth in cooperation with said stationary member engaging successive portions of said ribbon, a groove being defined between said outer parts, said members being located at a third location downstream of said second location and disposed between said second and fourth locations, said stationary member resiliently pressing said ribbon into engagement with said teeth, and
an arm reaching into said groove to make contact therewith.

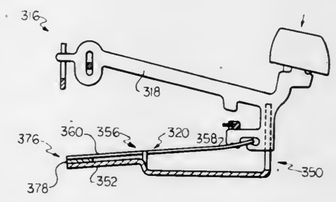


4,269,521

KEY MECHANISM HAVING A SNAP ACTION

Scott J. Longrod, Danbury, Conn., assignor to SCM Corporation, New York, N.Y.

Filed Oct. 11, 1978, Ser. No. 950,482
Int. Cl.³ B41J *5/08*
U.S. Cl. 400—472 **53 Claims**



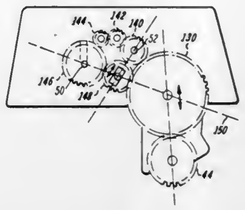
1. A striker assembly for striking a selected member disposed proximate thereto, which assembly comprises:
a resilient elongated striker member having a free end and an actuation end;
means supporting said striker member intermediate said free end and said actuation end;
means for displacing said actuation end of said striker member for flexure about said supporting means; and
an element independent of said striker member for restraining movement of said free end of said striker member during a partial displacement of said actuation end, said element releasing said free end during a final displacement of said actuation end causing said free end to strike said selected member.

4,269,522

BI-DIRECTIONAL RECORD MATERIAL FEED APPARATUS

Leo Levinson, Berkley, and William D. Rempel, San Mateo, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 20, 1978, Ser. No. 917,233
Int. Cl.³ B41J *15/00*
U.S. Cl. 400—616.1 **7 Claims**



1. A record material feed apparatus for use with a printing machine of the type including a platen and drive means for rotating said platen about its longitudinal axis, said apparatus comprising:
a frame capable of being attached to said printing machine adjacent the platen thereof;
first and second drive shafts each rotatably mounted on said frame;
first and second drive assemblies respectively mounted on said first and second drive shafts, each drive assembly including means for engaging a marginally punched record material loaded thereon and means for feeding said record material in response to the rotation of the respective drive shaft, said first drive assembly comprising at least one pin wheel feeding assembly and said second drive assembly comprising at least one tractor feed assembly; and
a third drive assembly mounted to said frame and including means for engaging the platen drive means of said printing machine and means responsive to such engagement and the operation of said drive means for selectively rotating said first and second drive shafts in predetermined rotational directions, whereby said first and second drive assemblies are capable of respectively advancing said marginally punched record material in opposite directions, said third drive assembly comprising a gear train including a plurality of gears arranged in a closed loop, said plurality of gears including a first gear engageable with the drive means of said printing machine, a second gear mounted on said first drive shaft for driving said first drive shaft, a third gear mounted on said second drive shaft for driving said second drive shaft, and a fourth idler gear engaged between said first and second gears such that said first, second and fourth gears are aligned along their line of centers, said first and fourth gears being adjustable relative to said line of centers.

4,269,523

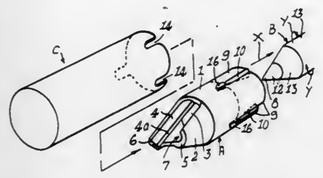
PENCILS AND PENCIL CAPS

Joel B. Kay, 103 La Fayette, Corlett Dr., Illovo, Johannesburg, Transvaal, South Africa (2196)

Filed Apr. 4, 1979, Ser. No. 26,987
Claims priority, application South Africa, Apr. 10, 1978, 78/2018
Int. Cl.³ B43K *9/00, 29/06*
U.S. Cl. 401—51 **9 Claims**

1. A cosmetic pencil kit including:
a cosmetic pencil comprising a core of waxy coloring medium in substantially rod form and a sheath containing the core;
and a cap comprising:

a tubular body adapted to removably fit directly over an extremity of the pencil;
a hollow tip on the body extending longitudinally from one end thereof;
a longitudinally extending sharpening blade on the tip, the blade lying obliquely to the longitudinal axis of the hollow body and being supported along its entire length;
said tip being provided with an outlet, said outlet having a first portion (3) extending longitudinally along the blade, and having a second portion (7) in a plane perpendicular to said longitudinal axis and located short of the outer end of the blade and extending around only part of the periphery of the tip,
the tip presenting a protruding portion which extends longitudinally beyond the second portion of said outlet



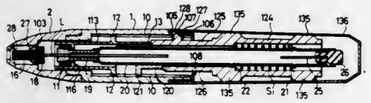
around only part of the periphery of the tip and which supports the blade up to its outer end,
the blade being operative to pare away the pencil sheath to expose and sharpen an end of the core on relative rotation of the pencil and the cap when the tubular body is fitted over an extremity of the pencil,
the second portion of said outlet having a size relative to the cross-sectional dimensions of the pencil and being located relative to the blade such that substantially the entire length of the sharpened end of the pencil core can project through the second portion of said outlet in the tip, and be located adjacent to, and supported along its length by the said protruding portion of the tip, but such that the sharpened end of the core cannot extend beyond the outer end of the blade or said protruding portion of the tip when the pencil is pushed home in the cap.

4,269,524

MECHANICAL PENCIL

Yasuyuki Hashimoto, Nishinomiya, and Osamu Torii, Kyoto, both of Japan, assignors to Ancos Co., Ltd., Osaka, Japan

Filed Apr. 17, 1979, Ser. No. 30,803
Claims priority, application Japan, Apr. 19, 1978, 53-45330
Int. Cl.³ B43K *21/16*
U.S. Cl. 401—65 **12 Claims**



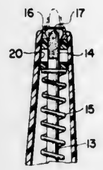
1. A mechanical pencil comprising:
a main hollow body including a first body member and a second body member, said hollow body having a mouth opening at an end thereof, said first body member being rotatable with respect to said second body member and said first and second body members engaging each other,
a slider retractable in said opening of the main hollow body, said slider having a lead retainer for frictionally gripping lead and an opening at one end thereof,
a lead case within said main hollow body, containing extra leads therein,
first biasing means for biasing said lead case in a direction away from said mouth opening,
a lead gripping chuck connected at the front end of said lead case,
a chuck tightening mechanism for receiving and tightening said chuck and for advancing the chuck, said chuck tightening mechanism positioned around said lead gripping chuck and advancing with said chuck to supply a new lead having a predetermined length from the opening in one end of the slider,
first transferring means for transferring the rotational movement of said first body member to reciprocating movement of said chuck tightening mechanism only when said first body member is rotated in one direction, and
second transferring means for transferring the rotational movement of said first body member to reciprocating movement of said lead case,
whereby a new lead is supplied from the opening of the main hollow body by advancement of said chuck as a result of the rotation of the first body member.

4,269,525

WRITING INSTRUMENT WITH RETRACTABLE TIP

Robert B. Melikian, 235 E. 51st St., New York, N.Y. 10022

Continuation of Ser. No. 869,723, Jan. 16, 1978, abandoned. This application Jun. 25, 1979, Ser. No. 51,565
Int. Cl.³ B43K *24/00*
U.S. Cl. 401—108 **5 Claims**



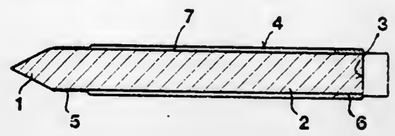
1. A writing instrument comprising
a barrel having a writing end opening,
a cylinder movably disposed completely longitudinally within the barrel and having a corresponding writing end portion,
a writing tip having a fluid dispensing element carried on said end portion of the cylinder,
means for projecting and retracting said writing tip through the writing end opening of the barrel,
said writing tip having a predetermined perimetric size for projection through the writing end opening of said barrel, said writing end opening having a fixed size relative to the size of the writing tip sufficient for permitting passage of said tip therethrough with clearance between said tip and said writing end opening during such projection, and a cup-shaped flexible unitary shield having an open base portion stationarily disposed within and rigidly secured to said barrel in proximity to said writing end opening and having a protruding apertured portion extending externally from the base portion and extending outwardly across the writing end opening thereof to thereby close said opening, said apertured portion having an aperture defined therein, said flexible shield being movable at said apertured portion by contact with said tip upon the projection of said tip from said barrel to expand said apertured portion and remain in contact with said fluid dispensing element and forming, when closed, a barrier against the passage of air.

4,269,526

PEN AND INTEGRAL CAPILLARY STORE

Georges Dupre, Crissier, Switzerland, assignor to Baumgartner Papier S.A., Switzerland

Filed Apr. 30, 1979, Ser. No. 34,587
Claims priority, application Switzerland, May 2, 1978, 4752/78
Int. Cl.³ B43K *5/00*
U.S. Cl. 401—198 **1 Claim**



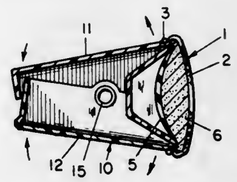
1. A writing pen comprising a capillary store for storing and delivering a writing liquid and a writing point connected to the store, the writing point and the store consisting of the same material and forming a single unit, the material forming the writing point and the store comprises cellulose acetate reinforced by at least 20% triacetine, said store being in the form of a rod with the writing point being formed at one end of said rod, the density of the triacetine reinforced material forming the writing point and the store being from 0.14 to 0.48 g/cm³, and in which the material of the writing point and the store further comprises polyester filaments fused together to reinforce the material.

4,269,527

APPLICATOR FOR PULVERIZED SUBSTANCES

Donald E. Lipfert, Woolwich, Me., and Willfred Goldschmidt, Weston, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Oct. 17, 1979, Ser. No. 85,560
Int. Cl.³ A45D *33/02*
U.S. Cl. 401—200 **3 Claims**



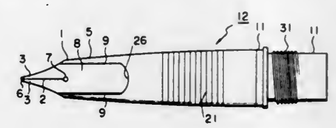
1. An applicator for pulverizable substances comprising in cooperation:
(a) a resilient container adapted to contain a pulverized substance, said resilient container having a transverse wall and a longitudinal wall extending from said transverse wall to an open end of said resilient container;
(b) a permeable membrane fixed over the open end of the resilient container through which may pass a pulverized substance;
(c) an elastomeric diaphragm under tension for releasing the pulverized substance held within said resilient container, said diaphragm being interposed between the permeable membrane and the transverse wall of said resilient container such as to exert the pulverized substance against said permeable membrane; and
(d) a housing device which is attached to said diaphragm and said membrane, the housing device comprising two sections attached at an axial point located approximately midpoint along each section's vertical such that the compression of the housing sections below the axial point causes the portion of the housing sections located above the axial point to move apart in a clothespin-like movement which motion is translated to the diaphragm attached to the housing sections at a point located above the axial point, said movement causing the diaphragm tension to increase thereby dispensing the pulverized substance.

4,269,528

FOUNTAIN PEN WITH SPECIFIC TUBULAR NIB

Takeo Oki, Hatano, and Shunichi Hirosawa, Hiratsuka, both of Japan, assignors to Pilot Man-Nen Hitsu Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 907,336, May 18, 1978, abandoned. This application Apr. 8, 1980, Ser. No. 138,428
Claims priority, application Japan, May 19, 1977, 52/63295; May 19, 1977, 52/63296; May 19, 1977, 52/63297
Int. Cl.³ B43K *1/06, 9/00*
U.S. Cl. 401—231 **14 Claims**



1. A tubular nib for a fountain pen, said nib having a tubular part and a single beak-shaped part projecting from one end of the tubular part and provided with a longitudinal slit extending generally parallel to the axis of said tubular part to form a writing section having a pointed end with two resilient tip portions on opposite sides of said slit which spread apart when a reaction force to a writing force exerted on said nib acts on said tip portions from a direction radially outwardly from said axis of said tubular part, said slit extending from said beak-shaped part into said tubular part, said tubular part having a grip spaced along the nib from the beak-shaped part toward the end remote from the beak-shaped part, said nib having a slit-widening inhibiting section for inhibiting said tip portions from spreading apart excessively even when a large writing force is exerted on said tubular nib, said slit-widening inhibiting section extending from the pointed end of the writing section toward the end of the nib remote from the beak-shaped part, and beyond the innermost end of the slit, said section having a radius of curvature, in cross-section, larger than that of said tubular part, and said nib having shoulders between the larger radius of curvature of the slit-widening inhibiting section and the remainder of the tubular part extending generally in the axial direction of the nib and a transverse shoulder between the slit-widening inhibiting section and the remainder of the tubular part, the slit-widening inhibiting section having a surface recessed relative to the surface of the tubular part.

4,269,529

PEN WITH ARTICULATE HANDLE

John D. McCollough, 10715 Rochester Ave., Los Angeles, Calif. 90024

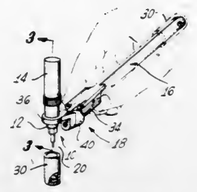
Filed Nov. 13, 1978, Ser. No. 959,762
Int. Cl.³ B43K *1/10*
U.S. Cl. 401—258 **1 Claim**

1. In a pen of the technical type for free-hand writing having a point, a collar in which said point is mounted, an ink passage extending to said point, a weight and wire assembly reciprocably disposed within said passage, and an ink reservoir disposed above said collar and extending upwardly therefrom in communication with said passage, wherein the improvement comprises:
a bracket attached to said collar and having a normally vertical bracket face thereon and a normally horizontal bracket bore opening into said bracket face;
a connection block having first and second perpendicular

connection faces and having first and second perpendicular connection block bores opening into said first and second connection faces, respectively, said first connection face opposing said bracket face to permit sliding, rotational, relative movement;

first adjustment screw means received by said bracket bore and said first connection block bore for holding said connection block in a fixed position relative to said bracket;

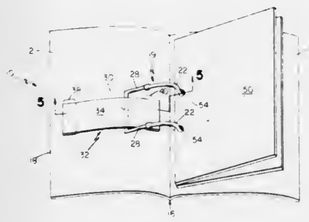
an elongated handle having three concave finger grip surfaces and thereby adapted to be held in a selected orientation by the hand of a user, a handle face opposing said



second connection face to permit sliding, rotational, relative movement between said handle and said connection block, and a handle bore opening into said handle face; and

a second adjustment screw means received by said handle bore and said second connection block bore for holding said handle in a fixed position relative to said connection block, whereby said point can be maintained in a predetermined orientation with respect to a writing surface independently of the orientation of said handle and finger grips.

4,269,530
DOCUMENT RETAINING SYSTEM
Joseph Weber, 1105 Massachusetts Ave., Cambridge, Mass. 02138
Filed Oct. 22, 1979, Ser. No. 86,940
Int. Cl.³ B42F *13/10*
U.S. Cl. 402—15 **9 Claims**



1. A document retaining system for securing perforated sheets of paper comprising

a folder having upper and lower flaps hingedly joined along one edge of each said flap, each said flap having a free edge opposing said joined edge,

a fastener comprising

an elongated flexible member having opposite end portions arranged to extend through spaced apart perforations in said sheets and an intermediate base portion for attachment to said lower flap inner surface parallel with and adjacent to said joined edge, and

a stiff bridge member providing a generally U-shaped portion having two ends joined by a transverse element, said bridge member ends being arranged to engage releasably with opposite ends of said flexible member, said transverse element maintaining said flexible member end portions spaced apart, and

a fastener travel limiter of flexible tear-resistant sheet material, having upper and lower surfaces, and comprising

at least two attachment portions providing adhesive on said lower surface thereof, and

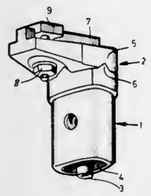
a bridge member engaging portion extending lengthwise of said travel limiter,

said travel limiter being sized and adapted for being secured at its said attachment portions with its said lower surface adjacent said inner surface of said folder upper flap, with said bridge member engaged between said folder upper flap and said bridge engaging portion,

the overall length of said travel limiter being adapted to permit said travel limiter to be secured between said upper flap joined edge and said upper flap free edge,

said bridge engaging portion being adapted to cooperate with said upper flap inner surface to define a bridge travel space adjacent said upper flap inner surface, extending from adjacent said upper flap joined edge to adjacent said upper flap free edge, the length of said bridge engaging portion being adapted to define a said bridge travel space permitting free travel of said bridge parallel with said upper flap inner surface during rotation of said upper flap with respect to said lower flap through an angle of about 180 degrees.

4,269,531
ATTACHMENT DEVICE
Hans R. Brolin, Parkvägen 24, S-560 41 Mullsjö, Sweden
Filed Oct. 3, 1979, Ser. No. 81,532
Claims priority, application Sweden, Nov. 22, 1978, 7812045
Int. Cl.³ F16C *11/00*
U.S. Cl. 403—97 **5 Claims**



1. An attachment device for attachment of a forward profile bar of an awning to a hinge arm comprising a profile portion comprising a first surface for attachment to said forward profile bar and an opposing elongated second surface,

a shaft portion comprising a first surface for attachment to said hinge arm and an opposing elongated second surface,

a coupling member for resiliently connecting said portions to each other such that said second surfaces face each other, and

first returning means positioned on said opposing surface of said profile portion, and second returning means positioned at said opposing surface of said shaft portion and removeably engaging said first returning means, for maintaining said portions in a predetermined position during normal conditions of said awning and returning said portions to said predetermined position when said portions are caused to move relative to each other during operation of said awning.

4,269,532
COUPLING FOR FURNITURE AND THE LIKE
Vincent P. Sorrentino, Parkland, Fla., assignor to Bright Industries Inc., Ft. Lauderdale, Fla.
Filed Jul. 10, 1979, Ser. No. 56,352
Int. Cl.³ F16B *7/08*
U.S. Cl. 403—191 **3 Claims**

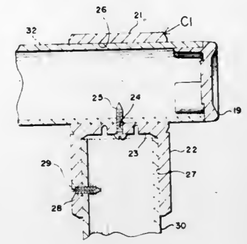
1. A coupling for an article of furniture having interconnected vertically and horizontally disposed lengths of tubing comprising

(a) a plurality of T shaped couplings each having

(b) a tubular sleeve including a through bore for the reception of a length of the tubing and

(c) an integral substantially right angularly disposed sleeve portion for the reception in endwise engagement of a length of said tubing, and having

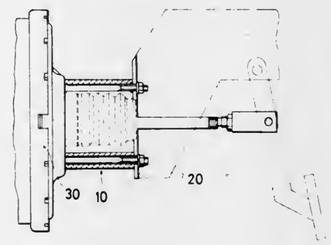
(d) an end wall within the right angularly disposed sleeve portion closing off the inner end thereof,



(e) a screw projecting through said end wall and the tubing extending through the tubular sleeve to secure the coupling to the tubing, and

(f) a screw extending through the right angularly disposed sleeve portion of the coupling to engage the tubing therein to secure to the coupling the length of tubing extending thereinto in endwise engagement, and said screw having a head counter-sunk within the surface of said sleeve.

4,269,533
SPACER
Nobuo Mashiki, Tokyo, and Koichi Chigusa, Imizu, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Sep. 27, 1978, Ser. No. 946,427
Claims priority, application Japan, Sep. 30, 1977, 52-132553
Int. Cl.³ F04B *39/00*; F16D *1/06*
U.S. Cl. 403—410 **1 Claim**

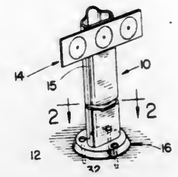


1. A spacer for securely separating members mutually attached by means passing through the spacer, comprising:

(a) a one-piece, hollow body having four integrally formed walls open at two opposed ends and having a substantially rectangular cross section; and

(b) a pair of substantially parallel inward projections formed in the interior of said walls at each corner of said body forming a channel partially opened to the interior of said hollow body at each corner of said body, the interior of said body being free of any further structure, and said body being capable of manufacture by extrusion.

4,269,534
REPLACEABLE GUIDE POST
John E. Ryan, 18113 Mt. Washington, Fountain Valley, Calif. 92708
Filed Aug. 20, 1979, Ser. No. 68,225
Int. Cl.³ E01F *9/01*
U.S. Cl. 404—10 **6 Claims**



1. A guide post defining a road marker and the like, in combination, comprising:

an elongated, pliable, tubular body member defining a post member having a peripheral, outwardly disposed, flange member integrally formed at the bottom thereof;

a base structure adapted to be secured to a ground surface and arranged to receive therein the bottom-flanged portion of said post member;

said base structure comprising a support-base-plate member having an inner annular wall member adapted to be received within the bottom central portion of said post member, and an outer wall member threaded on one side thereof;

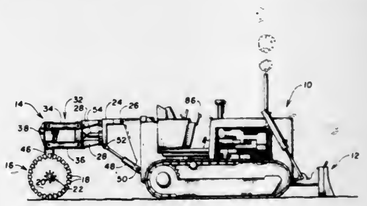
said inner and outer wall members defining an annular channel to receive said flange of said guide post therein;

a retainer collar having a central opening therein adapted to receive said post member therethrough, and including an annular threaded groove to receive said outer threaded wall of said base-plate member;

a clamping-ring member positioned to be received in said annular channel so as to be in locking engagement with said flange member of said post, and wherein the lower flange end of said post is interposed between said clamping ring and said inner wall member of said base structure; and

a plurality of protruberances formed on the bottom surface of said clamping ring for locking engagement with said flange member of said post member.

4,269,535
EARTH WORKING IMPLEMENT CONTROL SYSTEM
Gene Schultz, Fargo, N. Dak., assignor to Earl W. Sornsin, Fargo, N. Dak., a part interest
Filed Apr. 27, 1979, Ser. No. 33,960
Int. Cl.³ E01C *19/38*
U.S. Cl. 404—117 **26 Claims**



1. A vehicle-mounted earth working implement having means connecting the implement to the vehicle for positioning the implement in various positions relative to the ground including a ground working position, the connecting means including:

(a) hydraulic cylinder means connected between the vehicle

and the implement whereby the implement may be raised from and lowered to the ground working position;

(b) a first hydraulic conduit means connected to the hydraulic cylinder means for supplying hydraulic fluid pressure thereto to raise the implement and second hydraulic conduit means connected to the hydraulic cylinder means for supplying hydraulic fluid pressure thereto to lower the implement;

(c) first valve means connected to the first and second hydraulic conduit means for controlling the supply of hydraulic fluid thereto and to the hydraulic cylinder means, the valve means being operable to selectively supply hydraulic pressure to either the first or the second hydraulic conduit means, to prevent the supply of hydraulic pressure to both of the hydraulic conduit means simultaneously or to supply hydraulic pressure to both of the hydraulic conduit means simultaneously;

(d) means connected to the first valve means for delivering hydraulic fluid under pressure thereto;

(e) second valve means, operable between open and closed positions, connected to the second hydraulic conduit means between the hydraulic cylinder means and the first valve means; and

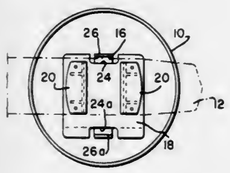
(f) hydraulic pressure accumulator means connected to the second hydraulic conduit line means between the hydraulic cylinder means and the second valve means for receiving hydraulic fluid pressure therefrom, the accumulator means including a pressure container, means dividing the container into a hydraulic fluid pressure chamber for receiving hydraulic fluid pressure from the second hydraulic conduit means and a bias pressure chamber, and means for providing a bias pressure to the bias pressure chamber, the container dividing means being positionally responsive to the hydraulic fluid pressure and the bias pressure to continuously seek a position in the container dependent on the bias pressure and the relative volumes of the two chambers are modified accordingly.

4,269,536

SHOCK ISOLATION MEANS FOR AN EARTH COMPACTOR DRUM

Robert F. Goehler, Greencastle, Pa., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Nov. 19, 1979, Ser. No. 95,638
Int. Cl.³ E01C *19/38*
U.S. Cl. 404—117 **11 Claims**



1. An improved shock isolation means, for an earth compactor drum having an axis, comprising:

a first shock-plate, for mounting thereof to an earth compactor drum frame;

a second shock-plate, for mounting thereof to an earth compactor drum; and

elastomeric means coupling said shock-plates together for relative, resilient, shock-isolating movement therebetween; wherein the improvement comprises:

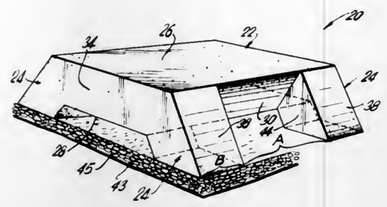
limit stop means carried by at least one of said shock-plates, spaced apart from an adjacent surface of the other of said shock-plates, for contacting engagement of said limit stop means with said surface to limit shock-isolating movement, in vertical, horizontal, and rotary planes normal to the drum axis, between said plates.

4,269,537

REVETMENT UNIT

Raymond J. O'Neill, 11 Chippewa Rd., Yonkers, N.Y. 10710

Filed Jan. 26, 1979, Ser. No. 6,911
Int. Cl.³ E02B *3/06*
U.S. Cl. 405—29 **12 Claims**



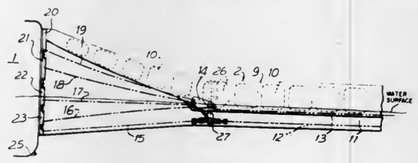
1. A revetment unit for interengagement with other similar revetment units comprising a base, said base being trapezoidal in section and the sides of said trapezoid forming the outer surface of said base, leg means extending from said base to support said base, said leg means extending beyond the periphery of said base and extending below the underside of said base to space the underside of said base above the surface upon which said unit rests, said outer surface of said base being inclined at an angle α with respect to the surface upon which said unit rests, said leg means extending from said base at an angle β with respect to the surface upon which said unit rests, said angles α and β being generally supplementary to permit interlocking engagement of said leg means and said outer surface of said similar unit to prevent relative movement between said unit and said another similar unit.

4,269,538

BARRIER ATTACHED TO THE SIDE OF A SHIP

Nils F. Hauan, Lillestrom, Norway, assignor to Skuteng A/S, Oslo, Norway

Filed Oct. 2, 1978, Ser. No. 947,815
Claims priority, application Norway, Oct. 10, 1977, 773453
Int. Cl.³ E02B *15/04*
U.S. Cl. 405—63 **6 Claims**



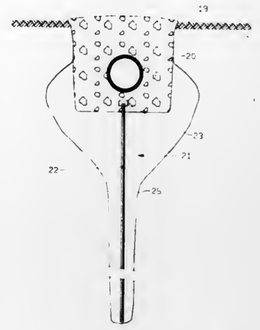
1. A barrier attached to a side of a ship and extending outwardly therefrom, comprising a floatable section and a skirt section depending therefrom, the floatable section being in contact with a surface of the water along a first portion of the barrier, said first portion extending from a free end of the barrier to a first location on the barrier, a second portion of the barrier, near the side of the ship, increasing in height from the first location on the barrier toward the side of the ship, thus forming a barrier sail which extends continuously from a first predetermined location on the side of the ship above the surface of the water down to a second predetermined location on the side of the ship beneath the surface of the water, the floatable section of the barrier extending along an upper edge region of the barrier sail and gradually decreasing in diameter toward the side of the ship, and said barrier sail being inserted into a vertical slot affixed to the side of the ship.

4,269,539

METHOD FOR PREVENTING DAMAGE TO A REFRIGERATED GAS PIPELINE DUE TO EXCESSIVE FROST HEAVING

Scott W. Hopke, Stafford, Tex., assignor to Exxon Production Research Company, Houston, Tex.

Filed Dec. 7, 1978, Ser. No. 967,556
Int. Cl.³ E02D *19/14*; F16L *1/02*
U.S. Cl. 405—130 **19 Claims**



1. A method of preventing the deformation of a refrigerated gas pipeline buried in frost-susceptible soil due to frost-heaving from ice lenses beneath said pipeline which comprises:

(a) installing heat pipes in the soil beneath said pipeline such that a temperature differential will exist between said pipeline and the soil surrounding a lower portion of said heat pipes during pipeline operation; and

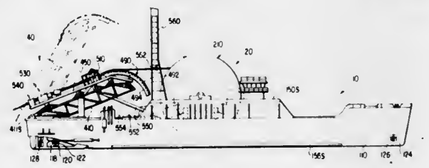
(b) flowing a refrigerated gas through said pipeline such that said heat pipes operate in conjunction with operation of said refrigerated gas pipeline due to said temperature differential to freeze the soil without forming ice lenses capable of heaving said pipeline.

4,269,540

SELF PROPELLED DYNAMICALLY POSITIONED REEL PIPE LAYING SHIP

Stanley T. Uyeda, Orange; E. John Radu, Fountain Valley; William J. Talbot, Jr., Corona Del Mar, and Norman Feldman, Huntington Beach, all of Calif., assignors to Santa Fe International Corporation, Orange, Calif.

Continuation-in-part of Ser. No. 903,181, May 5, 1978. This application May 2, 1979, Ser. No. 35,216
Int. Cl.³ F16L *1/00*; B63B *35/04*
U.S. Cl. 405—168 **56 Claims**



1. A self propelled reel pipe laying ship having forward, midship and stern sections, comprising: a reel support structure extending from and above the main deck level of the ship in the midship section thereof, to a height sufficient to accommodate the largest permitted reel diameter, based on maximum pipe diameter and length to be carried by the ship; a pipe carrying reel rotably mounted to the reel support structure about a substantially horizontal rotational axis extending transversely across the ship; and pipe handling and conditioning means pivotably mounted to the stern section of the ship for conditioning pipe as it is unspooled from the reel and for guiding the conditioned pipe into the water during a pipe laying operation, said pipe conditioning means including:

(a) radius control means for imparting a substantially uniform radius of curvature to substantially the entire length of pipe being unspooled,

(b) straightener means located downstream of the radius control means in the direction of unspooling for exerting a reverse bending force on the pipe from the bending force exerted by the radius controller,

(c) tensioner means located downstream of the straightener means in the direction of unspooling to exert a desired tension on the pipe during a lay operation, and

(d) level wind means for moving said radius controller, straightener and tensioning means transversely across the ship in a direction substantially parallel to the rotational axis of the reel; and

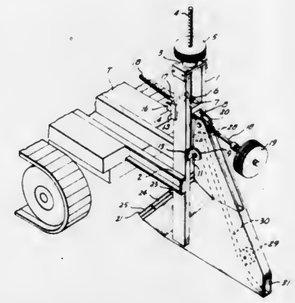
means for pivoting said pipe conditioning means about a pivot axis extending substantially transverse of the ship and substantially parallel to the rotational axis of the reel to permit adjustment of the pipe entry angle into the water.

4,269,541

IMPLEMENT FOR THE LAYING OF CABLES AND THE LIKE

Marcel Altmann, Rte. de 10. Septembre, 22, Luxembourg, Luxembourg

Continuation-in-part of Ser. No. 827,676, Aug. 25, 1977, abandoned. This application Oct. 26, 1978, Ser. No. 955,144
Claims priority, application Fed. Rep. of Germany, Aug. 30, 1976, 2639014
Int. Cl.³ F16L *1/02*
U.S. Cl. 405—181 **7 Claims**



1. Line-laying apparatus for a tractor comprising:

a frame rigidly connectible to the tractor, said frame including horizontally spaced upright ways and a crossbar bridging between said ways;

a trench cutter including a generally upright leading cutting edge and a passage for supplying line generally to the bottom of said trench cutter;

a slide fitted between said ways below said crossbar and carrying said trench cutter;

means guiding said slide for elevational movement along said ways for elevational adjustment of said trench cutter relative to said frame;

a rod extending through said crossbar and carrying said slide;

means for moving said rod generally axially, elevationally relative to said crossbar, for adjusting the elevation of said trench cutter relative to said frame while maintaining said trench cutter leading cutting edge at a substantially constant angle of inclination;

means pivotally connecting said trench cutter to said slide; and

means for swinging said trench cutter relative to said slide about a generally horizontal axis extending laterally of

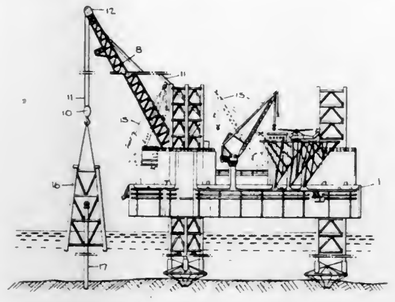
said trench cutter while maintaining said frame stationary relative to the tractor to adjust the angle of inclination of the trench cutter leading cutting edge.

4,269,542

JACK-UP RIG FOR MARINE DRILLING

Sergio R. C. Mueller, Rio de Janeiro, Brazil, assignor to Petroleo Brasileiro S.A. - Petrobras, Rio de Janeiro, Brazil

Filed Jun. 18, 1979, Ser. No. 49,297
Claims priority, application Brazil, Jul. 19, 1978, 7804645
Int. Cl.³ E02B *17/00*; B63B *35/00*
U.S. Cl. 405—196 **3 Claims**



1. A mobile jack-up rig, for marine drilling, of the self-elevating type having a floatable hull, legs which can be propelled from transport positions projecting above the hull downwardly to engage the bottom of the sea to serve as bases for use in jacking-up the hull to a stable drilling position substantially above the water surface, said rig being fitted with conventional devices and equipment for marine drilling of oil wells characterized by comprising a special system which allows the conversion of a drilling derrick into a high capacity crane and vice-versa, said special system comprising the following members:

(a) a drilling derrick attached to a movable structure on a drilling deck by means of pivots which permit it to be tilted in order to be changed into a crane boom;

(b) a drilling winch provided with two drums which act separately including a main drum which actuates the wire lines that move the travelling block and a secondary drum which actuates the wire lines that move the parts which perform swabbing operations, directional logging, movement of parts along the well, etc.;

(c) a drilling deck mounted on a swivelling base capable of rotating 360° in any direction, said swivelling base also forming the rotating crane table when the assembly formed by the drilling derrick and the drilling deck is acting as a crane; and

(d) a movable substructure over which said swivelling base rests, said movable substructure being provided with a motor which transmits rotating motion to the swivelling base, this motor also being designed to drive the substructure on rails along the deck whenever it is necessary for the operation of the rig in the crane mode.

4,269,543

MOBILE, OFFSHORE, SELF-ELEVATING (JACK-UP) UNIT LEG/HULL RIGIDIFICATION SYSTEM

Jerome L. Goldman; John O. 'R. Breeden, and Walter H. Michel, all of New Orleans, La., assignors to Freiede & Goldman, Ltd., New Orleans, La.

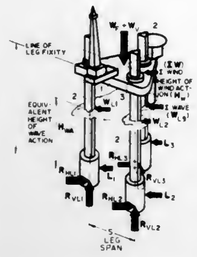
Filed Aug. 29, 1979, Ser. No. 70,672
Int. Cl.³ E21B *7/12*
U.S. Cl. 405—198 **15 Claims**

1. A jack-up rig unit for offshore use, comprising:

at least one leg with a set of rack teeth fixedly connected thereto and disposed at least generally in a vertical direction along at least a substantial portion of the leg length;

a floatable hull supportable above the water line on said leg(s);

rack chock mans carried by said hull for each of said leg(s) for rigidly locking the leg(s) to said hull for rigidification of the hull and leg(s) together without introducing any



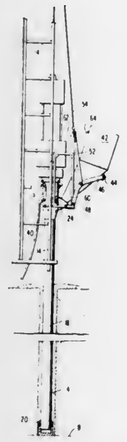
substantial bending moments in the leg(s), said rack chock means including as a part thereof laterally movable teeth engaging means for rigidly interdigitating with in locking, mating engagement the rack teeth of its respective leg in it rigidification disposition but laterally movable with respect to said rack teeth out of any engagement with said rack teeth when it is desired to jack said leg(s) up and down.

4,269,544

IN SITU PILE FORMING APPARATUS

Fredric Rusche, 30303 Beck Rd., Wixom, Mich. 48096

Continuation of Ser. No. 915,456, Jun. 14, 1978, abandoned, which is a division of Ser. No. 832,947, Sep. 13, 1977, Pat. No. 4,158,518. This application Jan. 30, 1980, Ser. No. 116,995
Int. Cl.³ E02D *5/34*
U.S. Cl. 405—239 **2 Claims**



1. Apparatus for in situ formation of a pile in a hole comprising

a pile-driving rig having leads,

a hollow mandrel having a hopper on the upper end thereof, said hopper having an upwardly open mouth on one side thereof,

means for driving said mandrel into the ground,

a skip assembly for pouring material into the open mouth, said assembly comprising

a frame vertically movable on said leads,

a bucket having a pouring spout on one side thereof,

means pivotally mounting said bucket on said frame for swinging movement between a loading position in which the bucket is disposed generally outward away from the frame, and the chute is generally upwardly directed and a pouring position in which the bucket is disposed relatively inward toward the frame and the chute is directed generally downwardly,

a hoist attached to the skip assembly for applying an upward lifting force thereto characterized in that during the free upward movement of said frame on the leads in response to said lifting force, said bucket maintains its loading position,

a downwardly facing hook on the underside of the hopper mouth and bar means on the frame for engaging in said hook whereby to block the free upward movement of said frame on said leads when said frame reaches a predetermined elevation with respect to the mouth on the hopper, whereby further lifting force applied to the skip assembly tips the bucket upwardly to its pouring position,

means for inserting reinforcing steel into the hole via the mandrel, comprising an access opening in the upper end of said hopper,

a door for closing said access opening,

a door for closing the upwardly open mouth, and

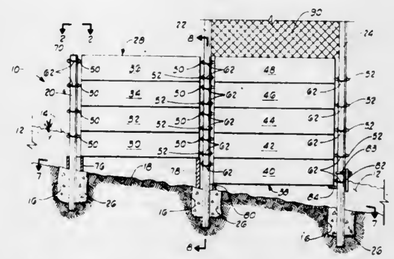
power means for closing said doors.

4,269,545

RETAINING WALL STRUCTURE AND METHOD OF CONSTRUCTING SAME

William C. Finney, 1616 Walnut Cove Rd., Edmond, Okla. 73034

Filed Jul. 18, 1979, Ser. No. 58,517
Int. Cl.³ E02D *5/06*
U.S. Cl. 405—285 **15 Claims**



1. A wall structure comprising:

first and second spaced post members;

a plurality of beams stacked one upon the other to form a wall, a first one of said plurality of beams being further characterized as a first preformed concrete beam having reinforcing means disposed therein with first and second reinforcing means portions extending from first and second ends of said first beam, said first beam being located between said first and second post members with said first and second exposed reinforcing means portions engaging said first and second post members, respectively; and

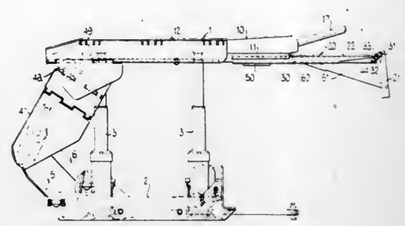
a first guide means for restricting lateral movement of said first beam relative to said first post member when said guide means is placed over an upper end of said first post member and for thereby guiding said first end of said first beam into place as said first beam is lowered relative to said first post member.

4,269,546

MINE WORKING APPARATUS

Graham J. Saunders, Newcastle on Tyne, Great Britain, assignor to Huwood Limited, Tyne and Wear, England

Filed Jun. 4, 1979, Ser. No. 31,226
Claims priority, application United Kingdom, Apr. 20, 1978, 15637/78
Int. Cl.³ E21D *17/05*
U.S. Cl. 405—294 **8 Claims**



1. Mine working apparatus provided with a sprag plate by which an upright wall adjacent, and forwardly of, the apparatus can be supported, in which the sprag plate is pivotally mounted on the forward end of a support, the support is carried by a part of the apparatus relatively to which it is reciprocable in the fore-and-aft direction, actuating means is provided to effect reciprocation of the support and is such that forward movement of the actuating means effects, except for a range of such movement when the actuating means moves relatively to the support, forward movement of the support and rearward movement of the actuating means effects, except for a range of such movement when the actuating means moves relatively to the support, rearward movement of the support, and a link is pivotally connected at spaced locations to the actuating means and to the sprag plate and is such that when the actuating means is at the forward end of the range in which it can move forwards relatively to the support, the link holds the sprag plate in an upright, wall-supporting position and when the actuating means is at the rearward end of the range in which it can move rearwardly relatively to the support, the link holds the sprag plate in a retracted position.

4,269,547

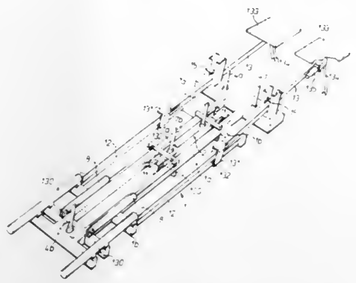
TUNNEL ROOF SUPPORTING APPARATUS

John D. Harding, 8 Field Close, Gedling, England

Filed May 21, 1979, Ser. No. 41,401
Claims priority, application United Kingdom, May 25, 1978, 22588/78
Int. Cl.³ E21D *15/582, 15/58*
U.S. Cl. 405—303 **18 Claims**

1. Self-advancing roof-supporting apparatus for providing temporary support of a portion of the roof of a tunnel having spaced roof-support members therein, comprising a main frame; and means engageable with the roof-support members for suspending the apparatus therefrom, said means comprising at least one fixed gripping device and at least one movable gripping device slidable longitudinally of said frame, said grip-

ping devices being arranged to selectively grip the roof-support members and at least one vertical hydraulic ram on which



one of said gripping devices is mounted so as to be urged upwardly into engagement with the roof-support members.

4,269,548

APPARATUS FOR MEASURING AND CONTROLLING FLOW OF PULVERULENT MATERIAL

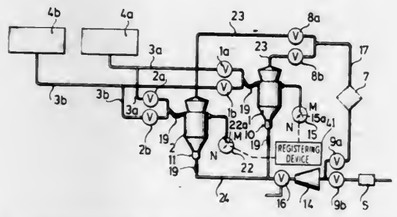
Andreas von Bennigsen-Mackiewicz, and Christoph von Bennigsen-Mackiewicz, both of 3211 Banteln, Hannover, Fed. Rep. of Germany

Filed Jan. 25, 1979, Ser. No. 6,346

Claims priority, application Fed. Rep. of Germany, May 16, 1978, 2821372

Int. Cl.³ B65G *53/66*

U.S. Cl. 406—25 **10 Claims**



1. A transportable device for delivering measured amounts of finegrained bulk material comprising: at least one portable silo container, a plurality of measuring containers, pneumatic charge and discharge means connected to each said measuring container, a supply line pneumatically connecting said silo container to each of said measuring containers, first valve means in said supply line for selectively communicating said measuring containers with said silo container for charging said measuring containers with bulk material, a blower having a suction side connected to each measuring container for pneumatically drawing said bulk material thereto through said supply line, each discharge means including an extraction nozzle having an extraction line connected to the pressure side of said blower and a bypass line with a control valve leading from the pressure side of the blower into the interior of the measuring container for creating interior pressure in said measuring container after filling thereof, second valve means interconnected between said blower suction side and said measuring containers for regulating the suction in each measuring container, said blower further having a pressure side connected to said discharge means of each measuring container, an air-permeable membrane disposed in said extraction nozzle downstream of the connection with said pressure side of said blower, third valve means interconnected between said pressure side and said blower and each said discharge means for regulating the discharge of said measuring containers, a scale connected to each measuring container for measuring the weight of the material therein, a control means connected to each scale for monitoring the measurements thereof, said control means having an adjustable zero weight threshhold and an adjustable maximum weight threshhold, said adjustable zero threshhold triggering charging of a respective measuring container when attained and said adjustable maximum threshhold triggering discharge of a respective measuring container when attained, said control means connected to each of said first, second and third valve means for cooperatively coordinating operation thereof whereby charging of one of said measuring containers takes place only simultaneously with discharge of another of said measuring containers.

4,269,549

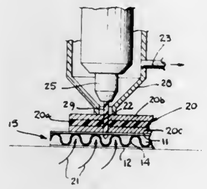
METHOD FOR DRILLING CIRCUIT BOARDS

James P. Block, Long Beach, Calif., assignor to LCOA Laminating Company of America, Garden Grove, Calif.

Filed Jul. 30, 1979, Ser. No. 61,592

Int. Cl.³ B23B *35/00*

U.S. Cl. 408—1 R **7 Claims**



1. A method for drilling a printed circuit board comprising placing beneath the circuit board, backup material comprising an open core member having at least one sheet attached to one side of said core member, the core member forming elongated channels running between opposite edges of said sheet, and

drilling through the printed circuit board and said one sheet of said backup board,

after drilling through said one sheet of said backup board ending the travel of the drill in the area of the core member.

4,269,550

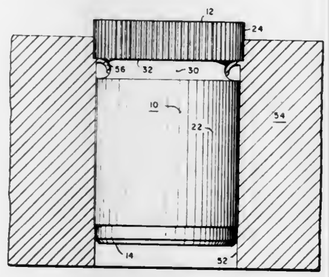
DRILL BUSHING FOR USE IN A METAL TOOLING PLATE

Mario DiGiulio, c/o Spectra Industries Corp., 405 Baily Rd., Yeadon, Pa. 19050

Filed Mar. 14, 1980, Ser. No. 130,519

Int. Cl.³ B23B *49/02*

U.S. Cl. 408—241 B **8 Claims**



1. A drill bushing for use in a metal tooling plate comprising a unitary body of hardened metal having an external shape generally in the form of a cylinder with opposite end faces and

a circular cylindrical internal drill guiding passage open at both ends and extending substantially from one end face to the other, said bushing having: a circular cylindrical external surface coaxial with the guiding passage and extending from a first location adjacent one end face to a second location between the mid-point of the bushing and the other end face; a knurled cylindrical external surface coaxial with the guiding passage and extending from a third location adjacent said other end face to a fourth location between said second and third locations, the knurled surface having teeth extending parallel to the axis of said circular cylindrical external surface and said teeth having roots substantially aligned with said circular cylindrical external surface and tips extending outwardly beyond said circular cylindrical external surface; an annular groove in the external surface of the bushing, said groove being located between said second and fourth locations and immediately adjacent said fourth location; the teeth of the knurled section having radially extending end faces at said fourth location forming an angle between about zero degrees and five degrees positive with respect to a plane perpendicular to said cylindrical external surface whereby said teeth are able to cut into the internal surface of a cylindrical hole in the tooling plate, forming chips which are received in said groove when the bushing is pressed into the tooling plate.

4,269,552

APPARATUS FOR REMOVING A WELDING BULGE FROM RESISTANCE WELDED PIPES

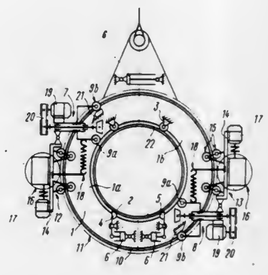
Mikhail R. Unigovsky, ulitsa Pushkinskaya, 21, kv. 31; Evgeny V. Rulevsky, ulitsa Vyshgorodskaya, 30, kv. 64, both of Kiev; Georgy A. Arendt, 9 Parkovaya ulitsa, 6, korpus 1, kv. 36, Moscow; Vladimir G. Chirskov, ulitsa Saltykova-Schedrina, 34, kv. 5, Tjumen; Julian K. Konovalov, ulitsa Sholom-Aleikhema, 1, kv. 5, Kiev; Vasily T. Ivanov, ulitsa Shevchenko, 5, kv. 4, Borispol Kievskoi oblasti; Isaak Y. Nemirovsky, ulitsa Kopylovskaya, 21, kv. 67, Kiev; Sergei I. Kuchuk-Yatsenko, ulitsa Filatova 1/22, kv. 47, Kiev; Vasily A. Sakharnov, ulitsa Solomenskaya, 41, kv. 93, Kiev, and Alexandr B. Kheinis, ulitsa Frunz, 131, kv. 82, Kiev, all of U.S.S.R.

Filed May 10, 1979, Ser. No. 37,495

Claims priority, application U.S.S.R., May 22, 1978, 2621708

Int. Cl.³ B23C *3/12*

U.S. Cl. 409—140 **1 Claim**



4,269,551

METHOD OF MACHINING CRANKSHAFTS

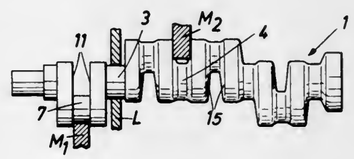
Bruno Kralowetz, St. Ulrich 142, A-4400 Steyr, Austria

Filed Apr. 6, 1979, Ser. No. 27,856

Claims priority, application Austria, Apr. 18, 1978, 2712/78

Int. Cl.³ B23C *3/06*

U.S. Cl. 409—132 **2 Claims**



1. A method of machining a crankshaft having two ends at cylindrical portions consisting of mainshaft portions and crankpins and at crankweb side faces adjoining the cylindrical portions in a sequence of steps proceeding from one end of the crankshaft to the other end thereof, each of said steps comprising

(a) supporting the crankshaft at a mainshaft portion,

(b) engaging a first cutter for completely machining a crankpin and the crankweb side faces adjoining the crankpin lying on one side of and adjacent said support while simultaneously engaging a second cutter for machining crankweb side faces adjoining a mainshaft portion on the other side of and closest to said support,

(c) withdrawing the first cutter, and

(d) continuing the engagement of the second cutter for completely machining the crankweb side faces adjoining the mainshaft portion on the other side of said support.

1. An apparatus for removing a welding bulge from resistance or the like welded pipes, which comprises:

a split ring-shaped carrier having two articulated half sections, adapted to be placed about the bulge zone in spaced circumferential relationship to said resistance welded pipes and having a circumferential guideway and gear rim adjacent the outer periphery of said carrier and extending the length thereof, at least two cams disposed on said carrier in diametrically opposing relationship, and centering rollers disposed on said carrier and in contact with said pipes for supporting said carrier;

clamping means mounted on said carrier for fixing the carrier on said resistance welded pipes;

at least two motor-operated carriages, each including support rollers to carry a said carriage and a driving gear wheel brought respectively into engagement with the gear rim of said carrier for moving said carriages along said circumferential guideway;

a milling cutter unit, comprising a milling head and a cutter, on each of said carriages adapted to be moved to and from the welding bulge; and

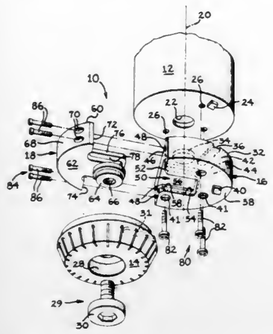
former rollers located in diametrically opposite positions and being rigidly connected to a milling head with a cutter to lead the cutter in paths following the profile of the resistance welded pipes, and at the beginning and the end of motion cams attached to said carrier are used to shift said former rollers farther from the center of rotation about said pipes and thus drive said milling cutters from the pipe's surface, thereby terminating the removal of the welding bulge.

4,269,553

ARBOR ASSEMBLY

James W. Drazy, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 11, 1980, Ser. No. 138,021
Int. Cl.³ B23C 5/26
U.S. Cl. 409—232 **2 Claims**



1. An arbor assembly (**10**) for mounting a cutting tool (**14**) to a spindle (**12**), comprising:

a spindle adapter (**16**) having an upper surface (**32**), a lower surface (**38**), a planar sidewall (**46**) disposed between said upper and lower surfaces (**32,38**), and a stepped wall portion (**50**) defining a first opening (**52**) adjacent said planar sidewall (**46**), a second opening (**54**) adjacent said lower surface (**38**), and a centrally disposed cavity (**56**) extending inwardly of said sidewall (**46**) and said lower surface (**38**);

a cutting tool adapter (**18**) having an upper surface (**60**), a lower surface (**62**), a pair of planar sidewalls (**72,74**) disposed between the upper and lower surfaces (**60,62**), and a stepped wall portion (**76**) extending outwardly of said pair of sidewalls (**72,74**) and of said lower surface (**62**), and being of a construction sufficient for alignably mating with the cavity (**56**) defined by the stepped wall portion (**50**) of the spindle adapter (**16**);

means (**80**) for mounting the spindle adapter (**16**) to the spindle (**12**);

means (**84**) for mounting said cutting tool adapter (**18**) to said spindle (**16**) and maintaining the planar sidewall (**46**) of the spindle adapter (**16**) in an abutting relationship with the pair of planar sidewalls (**72,74**) of the cutting tool adapter (**18**), and

means (**29**) for mounting the cutting tool (**14**) to said arbor assembly (**10**).

4,269,554

WELL PIPE HANDLING EQUIPMENT

Lewis B. Jackson, 45 Scenic Cir., Croton-On-Hudson, N.Y. 10520

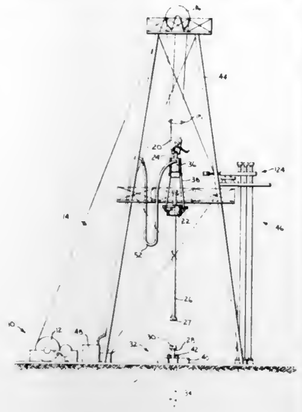
Filed Aug. 14, 1979, Ser. No. 66,413
Int. Cl.³ G01L 1/02
U.S. Cl. 414—22 **16 Claims**

1. A well pipe elevator for raising and lowering pipe sections, comprising:

(a) a plurality of pipe encompassing body sections pivotally joined to swing between opened and closed positions;

(b) power actuated means carried by said body sections for swinging said body sections between open and closed positions; and

(c) automatic means associated with said body sections and responsive to a pipe section being in a selected position adjacent said body sections for automatically operating said power actuated means to close said body sections so



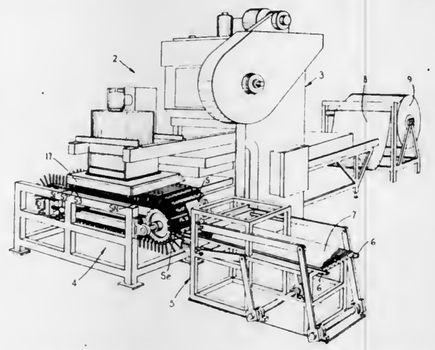
as to encompass and hold said pipe section within said body sections.

4,269,555

DEVICE FOR DISCHARGING STACKED FINS FROM A TRANSPORTER

Lawrence A. Franks, Sturgis, Mich., assignor to Burr Oak Tool & Gauge Company, Sturgis, Mich.

Division of Ser. No. 905,022, May 11, 1978, Pat. No. 4,195,540.
This application Sep. 24, 1979, Ser. No. 78,523
Int. Cl.³ B65H 31/06, 31/30
U.S. Cl. 414—27 **9 Claims**



1. In an apparatus for handling stacks of platelike fins, said apparatus including fin transporting means movable in a selected direction and having a plurality of fin supporting means mounted thereon and projecting outwardly therefrom for supporting stacks of platelike fins, said plurality of fin supporting means being spaced a predetermined distance apart along the direction of movement of said transporting means, chute means positioned adjacent said transporting means at a selected location and projecting outwardly away from said transporting means substantially perpendicular to the direction of movement thereof at said location, said chute means being adapted to have stacks of said fins positioned thereon and slidably moved therealong, an intermittently-actuated drive for causing said transporting means to be intermittently advanced in a steplike manner so that the adjacent fin supporting means are intermittently and sequentially advanced into said selected location, and a discharge device positioned at said selected location and cooperating between said transporting means and said chute means for sequentially and intermittently moving the stacks of fins from said transporting means onto said chute means, said discharge device comprising:

stationary frame means;

first rake means supported on said frame means for movement between first and second positions, said first rake means being slidably supported on said frame means for linear reciprocating movement between said first and second positions in a direction substantially parallel with the lengthwise direction of said chute means, said first rake means when in said first position projecting between adjacent supporting means and being disposed to engage the bottom of the stack of fins which is mounted on said transporting means and disposed at said selected location, said first rake means being movable from said first position outwardly away from said transporting means into said second position for causing the stack of fins to be removed from said transporting means and deposited on said chute means;

second rake means movably supported on said frame means for slidably advancing the stack of fins along said chute means from said second position into a third position;

motion control means coacting with said second rake means for causing same to be cyclically moved along an elongated loop-like path, a part of said path as it extends from said second position to said third position being straight and extending substantially parallel with the lengthwise direction of said chute means, said path also including a transversely projecting portion whereby said second rake means is displaced transversely when it is returned from said third position toward said second position so as to pass around the stack of fins being moved into said second position by said first rake means; and

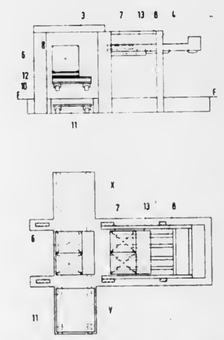
drive means drivingly interconnected to said first and second rake means for causing synchronous cyclic movement thereof so that said first rake means is moved from said first position into said second position simultaneous with the return movement of said second rake means from said third position into said second position.

4,269,556

STACK CHANGING APPARATUS

Norbert Martini, Erkrath, Fed. Rep. of Germany, assignor to Jagenberg Werke Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Dec. 22, 1978, Ser. No. 972,304
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1977, 2758291
Int. Cl.³ B65H 31/32, 31/10
U.S. Cl. 414—50 **1 Claim**



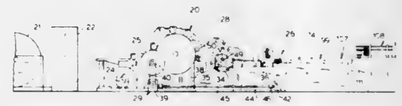
1. In a stack changing apparatus for sheet ejecting machines having a drop table vertically movable within a first frame structure defining a stacking position, the drop table having a pallet to be placed thereon for receiving stacks, and a second vertical frame structure provided behind the first vertical frame structure in the direction of flow of the sheets and having a carriage which is movable vertically and parallel to the drop table and provided with pallet transport elements, is also horizontally movable between the second and the first frame structure, the improvement wherein one of two stacking platforms is alternatively used as the drop table, the first frame structure has means disposed on the sides of the stacking position perpendicular to the direction of sheet flow for movably receiving the stacking platforms, the platforms being selectively movable transversely to one of the two sides of the first vertical frame structure and their stacking surface being below the level of the floor, the apparatus being further provided with an auxiliary skid for each stacking platform, in claim **1**, line **20** the auxiliary skid resting on top of the platform and the pallet resting on top of the auxiliary skid, the height of the stacking platform being such that when an auxiliary skid is placed on top of the stacking platform the top of the skid is substantially level with the floor, each auxiliary skid having take-up elements for engagement by the pallet transport elements and wherein the pallet transport elements are mounted to be lowered down to below the level of the floor to engage an auxiliary skid for lifting the auxiliary skid and the pallet resting thereon from atop the platform for movement of the skid and the pallet to the stacking position to effect stack changing.

4,269,557

AUTOMATIC BAG COLLATING AND STACKING APPARATUS

Arthur H. Kidd, Menomonee Falls, Wis., assignor to H. G. Weber & Co., Inc., Kiel, Wis.

Filed Jun. 28, 1979, Ser. No. 53,027
Int. Cl.³ B65G 57/28; B65H 31/06
U.S. Cl. 414—105 **21 Claims**



1. An automatic bag stacking and collating apparatus for use with a high capacity bag manufacturing machine, which is powered by a suitable drive means and which bag machine produces bags with closed bottom ends said apparatus comprising:

a frame having a receiving end portion, a transfer surface, and an unloading end portion,

a plurality of bag handling functional devices including:

a receiving means positioned adjacent to said bag machine and arranged to receive flattened bags from said bag machine,

a collection means carried on said frame at said receiving end portion and arranged to separate predetermined quantities of bags received from said receiving means into groups and to periodically deposit

a collected group on said transfer surface in a flat orientation with side edges of said bags aligned to form a vertically aligned stack,

a pair of laterally spaced turnover devices positioned downstream and laterally outward of said collection means for overturning said vertically aligned stacks of bags, a transfer swing means movable along said transfer surface to load said flat oriented and vertically aligned stacks of bags deposited on said transfer surface into the pair of turnover devices in an alternating sequence with said bag closed bottom ends positioned in opposing orientation relative to one another,

a conveyor means positioned between said pair of turnover devices and arranged to advance said overturned

stacks of bags to said unloading end portion in spaced aligned orientation,

means to transfer said overturned stacks of bags alternately from said pair of turnover devices and onto said conveyor means,

means for transferring said stacks of bags from said conveyor means and into a wrapping machine,

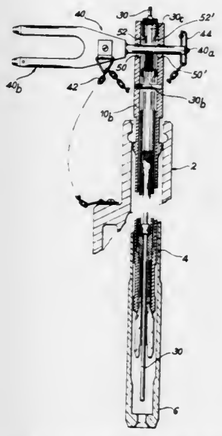
a drive arrangement for said bag stacking and collating apparatus arranged to synchronously drive each of the plurality of bag handling functional devices whereby individual bags are received from the bag machine and are automatically collected in stacks of a given quantity, said stacks are repositioned to place their closed bottom ends in opposing orientation relative to one another and are overturned and arranged in an aligned and spaced orientation for conveying down stream for assembling a plurality of stacks into bundles of a generally uniform thickness to facilitate wrapping and storage.

4,269,558

APPARATUS FOR INTRODUCING A FUEL ELEMENT INTO A FUEL ASSEMBLY OF A NUCLEAR REACTOR

Louis Coppa, Boulogne, and Jacques Levy, Paris, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 30, 1979, Ser. No. 62,011
Claims priority, application France, Aug. 8, 1978, 78 23375
Int. Cl.³ G21C *19/00*
U.S. Cl. 414—146 **5 Claims**



1. An apparatus for introducing a fuel element into a fuel assembly constituted by a plurality of vertical fuel elements and a structure for fixing said fuel elements, whereby the fuel elements have a positioning given by the fuel assembly, wherein it comprises:

an introduction plate which can be fixed to the upper face of the said fuel assembly and provided with a plurality of orifices able to permit the passage of a fuel element, said orifices producing the positioning of the fuel elements in the fuel assembly;

a tool for gripping a fuel element and for the introduction thereof into a fuel assembly;

lifting means able to give the tool horizontal displacements between a storage rack for the fuel elements and one of the positions vertical with respect to the orifices of the introduction plate;

the said tool comprising;

an outer tubular casing having at its lower end a bearing surface which can bear on the introduction plate, the bearing surface being provided with an axial bore and an abutment provided at the upper end thereof;

a system of jaws forming a clamp fixed to the lower end of a first control tube and able to slide in the casing;

means for controlling the opening and closing of said jaws;

a weight fixed to the first tube and able to slide in the casing and whose upper end constitutes an abutment able to cooperate with the upper abutment of the casing;

a supporting member fixed to the end of the first tube and which can be fixed to the lifting means;

a bar which can freely slide within the first tube between a first upper position and a second lower position, the upper end of said bar projecting beyond the supporting member to constitute a position indicator of the fuel element during the different operations, the lower end of the bar being able to pass through the orifice of the lower bearing surface of the casing;

first detachable means for linking in vertical translation the said bar and the said control means of the first tube; and

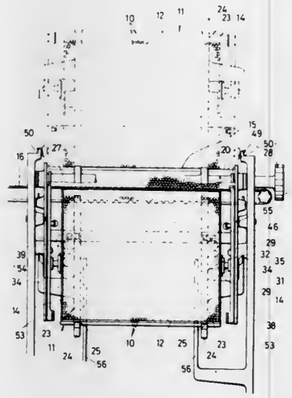
second detachable means for linking in vertical translation said control means and the said casing.

4,269,559

APPARATUS FOR DISCHARGING CONTAINERS (TRAYS) FILLED WITH CIGARETTES AND THE LIKE

Heinz H. Focke, Verden, Fed. Rep. of Germany, assignor to Focke & Co., Verden, Fed. Rep. of Germany

Filed May 31, 1979, Ser. No. 44,131
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1978, 2824149
Int. Cl.³ B65G *59/08*
U.S. Cl. 414—414 **15 Claims**



1. In a device for transporting and emptying a container containing rod-shaped articles, particularly cigarettes, by rotating the container through an angle approximating 180° such that an opening disposed at the top of the container is turned downwardly, the improvement comprising;

(a) carrier means (**23**) for receiving said containers from a delivery station and for transporting them to an emptying station, said delivery station being located in a transport plane (**22**) vertically below said emptying station (**16**),

(b) said carrier means including angled arms (**24**) for receiving the bottom of a container thereon,

(c) said carrier means being pivotable about an angle approximating 180° with said container,

(d) said carrier means being operable to return said container, after emptying, to the position in which it was received,

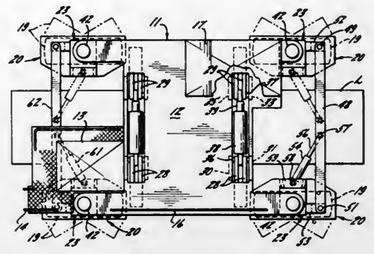
(e) said carrier means being retractable, in a direction opposite from the delivery direction, after returning said container to said received position, whereby the container is removed from said carrier means.

4,269,560

STEERING ASSEMBLY

Dennis R. Thomas, Brimfield, Ill., assignor to Kress Corporation, Brimfield, Ill.

Filed Oct. 1, 1979, Ser. No. 80,537
Int. Cl.³ B62D *5/06*
U.S. Cl. 414—459 **11 Claims**



1. A steering assembly for a wheeled vehicle having a frame and comprising:

two wheel carrying members, each having a wheel mounted thereon for rotation about a first axis and each being received by the vehicle frame for limited rotation relative thereto about a second axis;

a steering cross bar pivotally attached to each of the wheel carrying members, each attachment point being spaced apart from the second axis of rotation; and

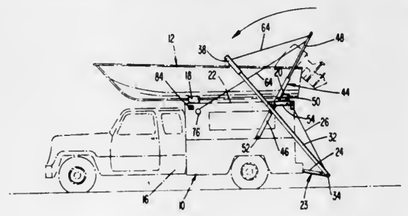
means, pivotally attached to the steering cross bar at a first point and to one of the wheel carrying members at a second point, for increasing and decreasing the distance between said first and second points, whereby the wheel carrying members are rotated and the wheels turned for steering.

4,269,561

APPARATUS FOR LOADING AND UNLOADING OBJECTS RELATIVE TO A CARRIER VEHICLE

Paul J. Rutten, 1818 13th St., South, Great Falls, Mont. 59405

Filed Apr. 5, 1979, Ser. No. 27,399
Int. Cl.³ B60R *9/00*
U.S. Cl. 414—462 **12 Claims**



1. Apparatus for loading an object onto a carrier vehicle having support means for receiving the object, said apparatus comprising:

lift means connectible to the carrier vehicle and including a pair of lift arms mounted at inner ends for vertical swinging movement about a horizontal rotary axis,

connector means connectible to outer ends of said lift arms for connecting said lift arms to the object,

a power winch assembly mounted on the carrier vehicle remotely of said lift arms in the direction toward which the object is to be loaded and including cable means connected to said lift arms for swinging the latter about said rotary axis,

cable fulcrum means mounted on the carrier vehicle,

said cable means engaging said fulcrum means,

said fulcrum means being movable between a first position located to one side of said rotary axis toward the vehicle, and a second position located to the other side of said rotary axis away from the vehicle,

said power winch assembly being actuable during a loading mode:

in a first direction for winding-in said cable means to raise said lift arms and object and shift the center of gravity of the object toward the vehicle and past said rotary axis, with said fulcrum means located in said first position, whereupon further loading movement of said lift arm is prevented by said cable means, and thereafter

in a second direction for paying-out said cable means to allow the object to gravitate downwardly onto the support means of the carrier vehicle,

said power winch assembly being actuable during an unloading mode:

in said first direction for winding-in said cable means to raise the object from the support means and shift the center of gravity of the object away from the vehicle and past said rotary axis, with said fulcrum

means located in said second position, whereupon further unloading movement of said lift arms is prevented by said cable means, and thereafter

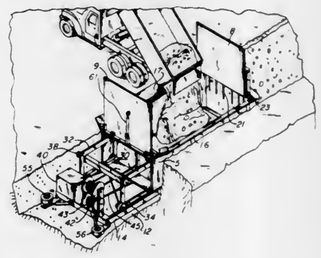
in said second direction for paying-out said cable means to allow the object to gravitate downwardly to an unloaded position.

4,269,562

TRENCH TRASH COMPACTOR

James B. Burgess, Drawer E, Divide, Colo. 80814

Filed Aug. 7, 1978, Ser. No. 931,473
Int. Cl.³ B60P *1/00*; B65B *63/00*
U.S. Cl. 414—515 **1 Claim**



1. A refuse compactor for operation along the length of an earthen trench comprising:

a refuse receiving chamber having spaced apart parallel side walls, a floor and an openable top;

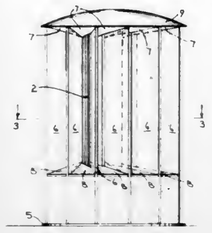
ram means slidably disposed in the receiving chamber longitudinally thereof and defining a movable end wall for the chamber and adapted to push refuse out of the receiving chamber;

drive means carried by the receiving chamber and operably connected to the ram means for providing relative movement between the ram means and the chamber;

a vertically disposed grate comprising a frame of parallel bars forming one end wall of the receiving chamber for movement between a raised open position and a lowered closed position and adapted to remain in the raised open position during operation of the ram means to push refuse out of the chamber and further adapted to remain in the closed position during withdrawal of the ram means into the receiving chamber; and

a plurality of guide wheels carried by the chamber and disposed exteriorly thereof for rotation so that their axes of rotation are substantially vertically perpendicular to the longitudinal axis of the chamber.

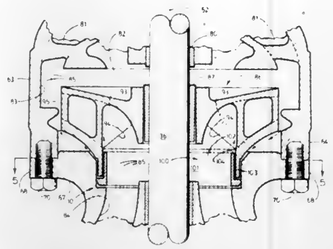
4,269,563
WIND TURBINE
Errol W. Sharak, 18775 W. Observatory Rd., New Berlin, Wis. 53151, and George E. Sharak, Sr., Milwaukee, Wis., assignors to Errol W. Sharak, New Berlin, Wis.
Filed Aug. 9, 1979, Ser. No. 65,343
Int. Cl.³ F03D *3/04*
U.S. Cl. 415—2 R **3 Claims**



1. A wind turbine comprising a centrally located rotor having a plurality of circumferentially spaced collectors facing in the same direction, means securing their ends together to prevent air from flowing to the area inside the assembled collectors, closure plates disposed at opposite ends of the rotor preventing entry of air to the inside of the rotor through the respective ends of the rotor to prevent internal turbulence in the rotor, a centrally located shaft extending through the rotor, hub members receiving the shaft at opposite ends of the rotor for rotation therein by the rotor, and take off means disposed at one end of the shaft to take off the power developed by the rotation of the rotor and shaft and a plurality of circumferentially spaced longitudinally extending air guide panels disposed around the rotor but free thereof, the said air guide panels each extending outwardly from the rotor in a generally straight line and spaced from each other a greater distance at the outer ends compared to the inner ends to provide funnel-like passages to the rotor to better direct air flow thereto, and the upper air space between the straightly extending air guides being closed by upper panels and the lower air space between the straightly extending air guides being closed by lower extending panels, the upper panels being tilted downwardly in their extent from the outer end of the turbine to the rotor and the upper air space between the air guides being closed by lower panels tilted upwardly in their extent from the outer end of the turbine to the rotor generally complementary to the upper panels and each lower and upper panel being canted toward each other in a complementary manner and away from an air guide toward an adjacent air guide to complete the funnel-like passages between the air guides for flow of air from outside the turbine to the rotor for rotation of the latter.

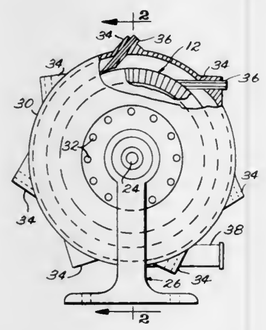
4,269,564
FLOW CONTROL DEVICE
Larry C. Naffziger, Fresno, Calif., assignor to Bank of America N.T. & S.A., Fresno, Calif.
Continuation-in-part of Ser. No. 947,610, Oct. 2, 1978, abandoned. This application May 16, 1979, Ser. No. 39,315
Int. Cl.³ F04D *5/00*
U.S. Cl. 415—53 R **6 Claims**

1. A flow control device for a fluid pump having a throat and housing an impeller rotational about an axis of rotation to draw fluid through the throat and into the impeller and the impeller having a substantially cylindrical portion of predetermined length extending toward the throat substantially concentric to the axis of rotation, the flow control device comprising a substantially cylindrical wall borne by the pump extending inwardly of and substantially concentric to the cylindrical portion of the impeller at least one half the length of said cylindrical portion and spaced inwardly therefrom to form a path, for fluid recirculating about the cylindrical portion of the impeller, extending between the cylindrical wall of the flow control device and the cylindrical portion of the impeller to an annular discharge within the impeller disposed to release said



recirculating fluid along a path not converging on said axis of rotation.

4,269,565
TURBINE WHEEL
Roger D. Charles, 322 Olive Ave., Pt. St. Lucie, Fla. 33452; Earl Charles, Jr., 6311 Oleander Ave., Ft. Pierce, Fla. 33450, and Robert C. Stedman, 1756 Captains Pl., Sea Gate Harbor, Stuart, Fla. 33494
Filed Jul. 25, 1979, Ser. No. 60,684
Int. Cl.³ F01D *1/34;* **F03B** *5/00*
U.S. Cl. 415—76 **10 Claims**

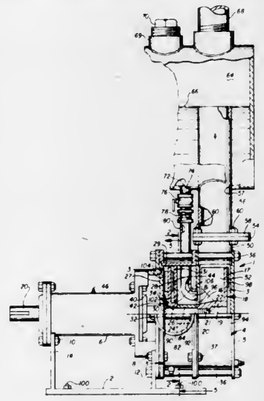


1. A turbine wheel comprising a rotary hub and a plurality of blades projecting outwardly from the periphery of the hub, each of said blades lying generally in a radial plane which is transverse to the axis of rotation of the hub, each of said blades having a height, a width and a length extending generally in the circumferential direction of the wheel whereby each blade has a leading edge and a trailing edge, the height being less than the length and the width varying along the length of the blade so as to form relatively sharp leading and trailing edges and an intermediate portion of greater thickness, the leading and trailing edges merging smoothly with said intermediate portion, said blades being arranged in a spaced-apart parallel relationship in a plurality of rows which extend parallel to the axis of the hub.

4,269,566
CENTRIFUGAL PUMP FOR ABRASIVE LIQUIDS
Walter L. Spruiell, P.O. Box 547, Iowa Park, Tex. 76367
Filed Sep. 13, 1978, Ser. No. 942,117
Int. Cl.³ F04D *29/08*
U.S. Cl. 415—112 **2 Claims**

1. A liquid-sealed, tangentially-fed centrifugal pump comprising:

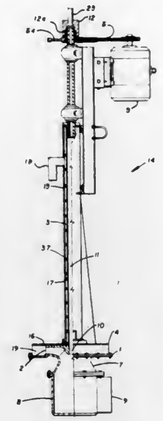
a rigid, generally cylindrical pump housing adapted to be coupled to a supporting structure;
an internally-disposed generally coaxially aligned drive shaft adapted to be rotated by an external motor;
primary impeller means rotatably disposed within an internal primary impeller chamber within said housing and coupled to said drive shaft for rotation thereby for generating vacuum whereby to operate said pump;
sealing impeller means having a diameter substantially equal to the diameter of said primary impeller means and disposed within a separate spaced apart sealing chamber within said housing and driven by said shaft, said sealing impeller means spaced apart from said primary impeller means;
intermediate suction chamber means disposed within said housing between said sealing chamber and said primary impeller chamber;
divider means disposed within said housing between said suction chamber means and said primary impeller means, said divider means including first passageway means defined between it and said shaft to facilitate fluid flow communication between said suction and said primary impeller chambers;



partition disk means rigidly secured within said pump housing between said intermediate chamber and said sealing chamber;
inlet pathway means coupled to said pump housing substantially tangentially with respect to said primary impeller for delivering liquid to be pumped interiorly of said suction chamber at a point substantially between said primary impeller means and said sealing impeller means;
second passageway means defined between said shaft and said disk for facilitating passage of liquid between said intermediate chamber and said sealing chamber;
a plurality of vanes disposed at radially spaced-apart locations on the periphery of said sealing impeller for drawing liquid upwardly into the peripheral confines of said sealing chamber to create a seal; and,
output passageway means in fluid flow communication with said primary impeller chamber for outputting materials from said pump.

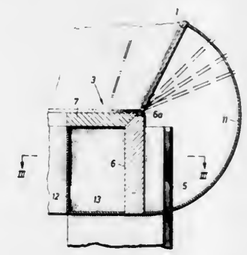
4,269,567
MUD DEGASSER PUMP
Victor Q. Phillips; Phil H. Griffin, and Martin J. Sharki, all of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed Dec. 27, 1976, Ser. No. 754,857
Int. Cl.³ F04D *29/00;* **F01D** *53/04*
U.S. Cl. 415—168 **8 Claims**

3. An enclosed pumping system for use in degasifying drilling fluids from a drilled borehole, said fluids having gases entrained therein, comprising:
an impeller having a central axial opening therethrough;
an impeller housing enclosing said impeller and having discharge outlet means;
inlet port means secured to said housing and communicating with said central axial opening of said impeller;
an elongated drive shaft attached to said impeller and having a longitudinal bore passage therethrough communicating wth said central axial opening of said impeller;



power means driveably connected to said drive shaft for applying rotational force to said shaft;
gas exhaust means on said drive shaft communicating with said longitudinal bore passage; and
vacuum source means connected to said gas exhaust means for withdrawing some of said entrained gases through said central axial opening of said impeller, said longitudinal bore passage of said elongated drive shaft and said gas exhuast means.

4,269,568
STAY RING FOR THE SPIRAL CASING OF A ROTARY HYDRAULIC MACHINE
Erik O. Jansson; Bengt O. Naucler, and Thomas Asberg, all of Kristinehamn, Sweden, assignors to Aktiebolaget Karlstads Mekaniska Werkstad, Kristinehamn, Sweden
Continuation of Ser. No. 835,719, Sep. 22, 1977, abandoned. This application Oct. 22, 1979, Ser. No. 86,998
Claims priority, application Sweden, Sep. 28, 1976, 7610761
Int. Cl.³ F01D *25/24*
U.S. Cl. 415—204 **7 Claims**



1. A stay ring for a hydraulic machine having a spiral casing formed of metal plates, said stay ring comprising two cylindrical ring members disposed coaxially about the machine axis

and spaced apart along said axis to define a fluid flow path therebetween and a plurality of axially extending stay vanes made of metal plate, wherein each of the stay vanes intersects with each said ring member to lie radially on both sides of the ring member and extends axially at least substantially to the circular edge of the ring member axially remote from the other ring member, wherein axially extending welded cross-joints are formed where said stay vanes intersect with said ring members, and wherein the ends of the metal plates forming the spiral casing are welded to said cylindrical ring members along the axially remote circular edges such that stresses imparted to said casing are transmitted to said ring members and are not directly imparted to said stay vanes.

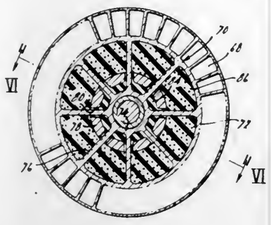
4,269,569
AUTOMATIC PUMP SEQUENCING AND FLOW RATE MODULATING CONTROL SYSTEM
Francis W. Hoover, 6105 Desert Hills, Bakersfield, Calif. 93309
Filed Jun. 18, 1979, Ser. No. 49,180
Int. Cl.³ F04B *41/06*
U.S. Cl. 417—5 **9 Claims**



1. A control system for automatically and continuously sequencing and modulating the output of pumping apparatus, for moving fluid under pressure at a predetermined flow rate, which apparatus includes a plurality of reciprocating pumps, fluid powered drivers connected to said pumps to drive said pumps, each said pump including valving devices for controlling the introduction of fluid to be moved to, and the ejection of fluid from said pumps, said power drivers each connected to an adjustable power source for delivering fluid to said power drivers for driving said power drivers at a predetermined rate, said control system comprising sensing means for sensing the flow rate of fluid discharged from said power drivers, movable switching means interposed between said power source and said power drivers for selectively directing fluid to each of said power drivers, means interconnecting said sensing means and each said switching means for sequentially operating said switching means in timed relation in response to fluid flow from said power source, thereby continuously and automatically sequencing each said pump in response to changes in said power source.

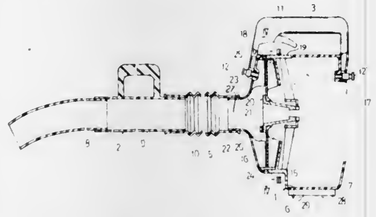
4,269,570
ELASTOMERIC MOUNTING FOR WAVE COMPRESSOR SUPERCHARGER
V. Durga N. Rao, Bloomfield Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Apr. 23, 1979, Ser. No. 32,198
Int. Cl.³ F04F *11/00*
U.S. Cl. 417—64 **4 Claims**

1. A rotor for a wave compressor for use in transferring energy from relatively high pressure, high temperature exhaust gases to low pressure, cool inlet air for an air-fuel mixture engine comprising a rotor adapted to be rotabaly mounted between an exhaust gas manifold having high pressure exhaust gas and low pressure exhaust gas outlet ports and an air intake manifold having a high pressure air outlet passage and a low pressure air inlet passage, said rotor comprising a hub and gas and air cells located radially outwardly with respect to the hub and defining axial gas and air flow passages, said hub having a cylindrical inner portion that forms a part of and is integral with the cell portion of the rotor, said rotor being formed of a ceramic material of relatively low thermal expansion, a metallic shaft extending through the hub inner portion sized to



produce a space located between said shaft and the inner portion of said hub and an elastomer of silicon base disposed in said space, said elastomer being bonded to said shaft and to said ceramic whereby a driving connection is established between said shaft and said ceramic, said rotor being formed of a ceramic material having a low thermal expansion coefficient relative to said shaft and said elastomer.

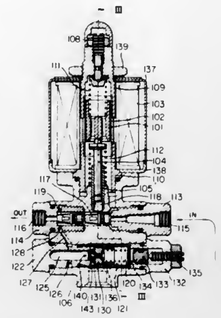
4,269,571
BLOWING APPARATUS
Michio Shikutani, and Satoshi Akiyama, both of Odawara, Japan, assignors to Kabushiki Kaisha Shikutani, Japan
Filed Aug. 14, 1979, Ser. No. 66,778
Int. Cl.³ F04B *39/12;* **F04D** *29/44*
U.S. Cl. 417—234 **7 Claims**



1. A blowing apparatus comprising a prime mover, a centrifugal fan having the rotor thereof coupled with a rotating shaft of the prime mover, a housing composed of front, mid and rear coverings, a blowing nozzle axially connected to the center of the front covering, a shoulder belt attached to the housing, the mid covering consisting of an outer cylindrical wall, an inner conical wall peripherally joined to the cylindrical wall, a plurality of radial stays inwardly extending from the cylindrical wall behind the conical wall, and a central ring peripherally joined to the inner ends of the radial stays, the prime mover having the casing thereof removably secured to the central ring, the rotor having a plurality of curved vanes provided thereon, the front covering being interiorly formed with a plurality of fixed vanes similar in number and shape to the vanes on the rotor, the rear covering being connected to the mid covering to surround the prime mover except the back side thereof, the front covering being air-tightly connected to the mid covering to define an annular space together with the conical and cylindrical walls, the space having an axial entrance defined by the inner periphery of the conical wall and an axial exit formed in the front covering, the rotor being so disposed in the space as to have a predetermined clearance

among the fixed vanes, the conical wall and the cylindrical wall.

4,269,572
ELECTROMAGNETIC PLUNGER PUMP
Katsumi Nozawa, and Hideo Nomura, both of Yokohama, Japan, assignors to Taisan Industrial Co., Ltd., Tokyo, Japan
Filed Apr. 16, 1979, Ser. No. 30,301
Int. Cl.³ F04B *49/00, 17/04*
U.S. Cl. 417—299 **4 Claims**



1. An electromagnetic plunger pump for delinering liquid comprising: a pump body, an electromagnetic coil, a plunger case arranged on the longitudinal axis of the electromagnetic coil, and electromagnetic plunger fitted in the plunger case for reciprocating motion by the alternating action of the magnetic attractive force produced by intermittent current flowing through the electromagnetic coil and the biasing force of springs, and a pressure adjusting mechanism comprising a pressure adjusting cylinder provided in the pump body, a pressure adjusting plunger fitted in the pressure adjusting cylinder for reciprocating motion and normally shutting off a passage leading to the delivery side of the pump from a pressure adjusting chamber which leads to a return opening of the pump body, wherein said pressure adjusting plunger is provided with a vent valve means which comprises a vent valve rod inserted in a through-hole of the pressure adjusting plunger so as to form an annular passage about the vent valve rod, a vent valve seat formed at the forward end of the pressure adjusting plunger, and a vent valve body integrally connected with said vent valve rod and concentrical therewith, said vent valve body being biased by a spring in the direction away from the vent valve seat so as to provide a clearance between the vent valve seat and the vent valve body, which allows air bubbles to pass therethrough and which substantially does not allow the liquid under pressure to pass therethrough.

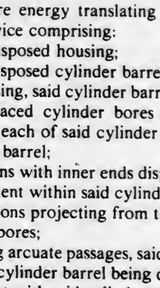
4,269,573
PUMP DRIVE MECHANISM FOR AN EVAPORATIVE COOLER
Chester L. Goode, Coalinga, Calif., assignor to Milton Roy Company, St. Petersburg, Fla.
Filed Jul. 30, 1979, Ser. No. 61,993
Int. Cl.³ F04B *13/10, 35/00*
U.S. Cl. 417—362 **11 Claims**

1. In combination with an evaporative cooler having a blower, a pulley rotationally driving the blower, and a rotationally driven water pump, a drive mechanism for the pump comprising:

a drive shaft connected in rotational driving relation to the pump and extending therefrom adjacent to the pulley;

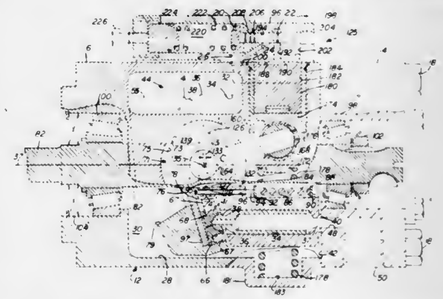
a wheel mounted on the shaft in rotational driving relation thereto and peripherally engaged in rotationally driven relation by the pulley; and

means for adjustment of the position of said pump and said wheel with respect to said pulley, comprising means for fixing said adjustment at a selected position, said means for



adjustment permitting adjustment of the wheel with respect to the pulley in two substantially orthogonal directions.

4,269,574
FLUID DEVICE
Wilfred S. Bobier, 4518 Brightmore, Bloomfield Hills, Mich. 48013
Filed Apr. 3, 1978, Ser. No. 892,735
Int. Cl.³ F01B *13/04*
U.S. Cl. 417—506 **15 Claims**



1. A fluid pressure energy translating device of the axial piston type, said device comprising:

a longitudinally disposed housing;

a longitudinally disposed cylinder barrel rotatably mounted within said housing, said cylinder barrel having a plurality of arcuately spaced cylinder bores and cylinder ports communicating each of said cylinder bores with one end of said cylinder barrel;

a plurality of pistons with inner ends disposed for reciprocal stroking movement within said cylinder bores, one end of each of said pistons projecting from the other end of said cylinder barrel bores;

a valve face having arcuate passages, said valve face and said one end of said cylinder barrel being disposed for relative rotary movement with said cylinder ports communicating successively with said arcuate passages in said valve face;

thrust plate means disposed adjacent said other end of said cylinder barrel and mounted in said housing for inclination about an axis at right angles to the longitudinal axis of said cylinder barrel;

spherical ball and socket joints between the projecting ends of said pistons and said thrust plate means to provide for reciprocation of said pistons in said cylinder bores relative to said cylinder barrel in response to the rotation of said cylinder barrel relative to said thrust plate;

means providing lateral support for said cylinder barrel, said lateral support means having a shaft which supports said barrel;

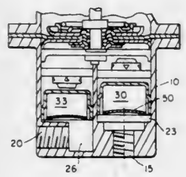
axially spaced bearing means carried by said housing, said bearing means supporting said shaft, said shaft having a coaxial, annular land intermediate said axially spaced bearing means, said land being slidingly engaged with said other end of said cylinder barrel to laterally support the barrel coaxially on the shaft and align said one end to float on a film of oil between said one end and said valve face having sufficient clearance with said barrel other end to provide a slidable and tiltable engagement therebetween said cylinder barrel having a splined section located axially inwardly of said cylinder barrel end; and said shaft having a mating splined section located axially inwardly of said land and engaging said cylinder barrel spline so as to transmit torque thereto and drive said cylinder barrel about said shaft axis and allow the barrel to move laterally when radial and tiltable motion occurs between the land and barrel.

4,269,575

AIR DOME WITH BAFFLE FOR FUEL PUMPS

Russell Parrent, Fairfield, Ill., assignor to United Industrial Syndicate, Inc., New York, N.Y.

Filed Apr. 17, 1979, Ser. No. 30,780
Int. Cl.[3] F04B *11/00*
U.S. Cl. 417—542 **3 Claims**



1. A fuel pump comprising a housing having an inlet chamber and an outlet chamber with an air dome in each chamber; each air dome being provided with circumferentially spaced hollow flutes to effect flow passages between said air dome and the walls of the respective chamber, the improvement which comprises a non-perforated baffle disk across the entrance opening of the air dome in the inlet chamber whereby said air dome has fuel flow thereinto only through said flutes at the edge of said disk to trap air in said air dome and whereby washing out of air from said air dome is substantially prevented by said disk; wherein said fuel pump has a fuel inlet port effecting fuel flow directly towards the air dome opening in said inlet chamber.

4,269,576

VANE COMPRESSOR WITH RETICULATE OR POROUS SEPARATOR ELEMENT AND FLUID GUIDE MEANS THEREIN

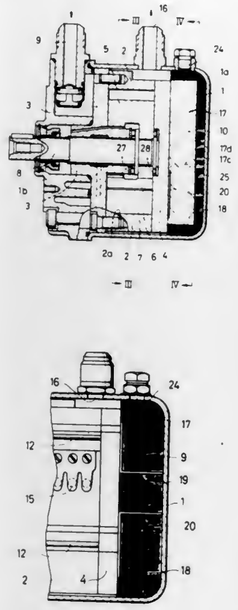
Tsunenori Shibuya, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Saitama, Japan

Filed Jun. 27, 1979, Ser. No. 52,344
Claims priority, application Japan, Jul. 29, 1978, 53-104580
Int. Cl.[3] F04C *29/02*; B01D *39/04, 50/00*
U.S. Cl. 418—97 **5 Claims**

1. In a compressor for compressing a fluid comprising a refrigerant and an oil mixed therein, of the type including a horizontally disposed casing; a pump housing enclosed in said casing, the pump housing inlcuding first and second side walls and having an interior thereof formed as a peripheral cam surface; a rotor journalled in said pump housing and carrying a plurality of vanes radially movably inserted in a periphery thereof; drive shaft means secured to one end of said rotor; a discharge pressure chamber defined between said second side wall and an associated portion of said casing; pump outlet means formed in said pump housing in communication with said discharge pressure chamber; compressor outlet means formed in an upper portion of said casing in communcation with said discharge pressure chamber; oil charge and discharge port means formed in an upper portion of said casing facing said discharge pressure chamber; and oil separator means disposed within said discharge pressure chamber for separating oil from pressurized fluid delivered through said pump outlet means,

the improvement wherein said oil separator means comprises:

an element having a reticulate or spongy porous structure having pores communicating with each other and having



a shape substantially similar to that of said discharge pressure chamber, the element having a continuous channel extending from a top peripheral surface thereof through an end surface thereof facing said casing to a bottom peripheral surface thereof for cooperating with an associated inner surface of said casing to provide an oil passage, the element being disposed within the discharge pressure chamber element with substantially the entire surfaces thereof in contact with the surfaces of said chamber; and means in the discharge chamber for guiding fluid delivered to said element toward said compressor outlet means.

4,269,577

PRODUCTION LINE FOR THE MANUFACTURE OF CONCRETE ELEMENTS

Mircea Borcoman, 8, rue des Dardanelles, 75017 Paris, France

Filed Jul. 11, 1979, Ser. No. 56,624
Claims priority, application France, Jul. 17, 1978, 78 21167
Int. Cl.[3] B29C *25/00*
U.S. Cl. 425—62 **22 Claims**

1. A manufacturing line for the manufacture of non-reinforced, reinforced, or pre-stressed concrete such as piles, posts, slabs, beams, panels, curbs and the like, conprising:

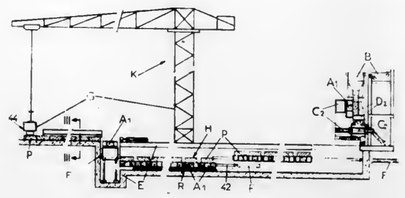
casting means for casting and compacting concrete in the moulds,

a hardening circuit for hardening the concrete elements which have been cast by the casting means,

a removal means for removing the hardened concrete elements from the hardening circuit,

a moat adapted to be filled with a liquid,

a chain of floats movable along said moat, means for placing on the floats the concrete elements which have just been cast by the casting means, said moat being positioned to convey the said moulded concrete elements from said casting means, through said hardening circuit and to said removal means,



returning means for conveying the floats from said removal means back to said casting means,

and means for varying the equilibrium of each float in the liquid by introducing liquid into the float or removing liquid therefrom.

4,269,578

APPARATUS FOR FORMING A WEB OF MATERIAL

Lennart Gustavsson, Växjö, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

Division of Ser. No. 884,850, Mar. 9, 1978, Pat. No. 4,197,267, which is a continuation-in-part of Ser. No. 725,726, Sep. 21, 1976, Pat. No. 4,099,296. This application Oct. 12, 1979, Ser. No. 84,109
Claims priority, application Sweden, Sep. 26, 1975, 7510795
Int. Cl.[3] B28B *5/00*
U.S. Cl. 425—83.1 **4 Claims**



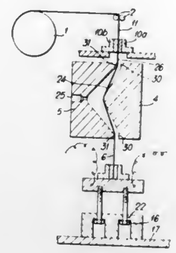
1. In an apparatus for forming a web of particulate material comprising a distribution chamber, a carrier surface provided therein, a nozzle opening within the distribution chamber for supplying a composite stream of particulate material distributed in a carrier gaseous medium, and blow box means for supplying control jets of air to opposite sides of said composite stream to impart a variable impulse to cause said composite stream to be distributed across the full width of the distribution chamber and the carrier surface therein, the improvement comprising a transition zone provided in advance of said nozzle opening through which said composite stream must pass, said transition zone comprising a zigzag passageway which diverges in cross section toward the distribution chamber in the direction of movement of the carrier surface to assure uniform dispersion of the particulate material throughout the carrier gaseous medium.

4,269,579

APPARATUS FOR INJECTION MOLDING AGAINST A PREFORMED WEB

Berwyn C. Thomas, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 830,768, Sep. 6, 1977, Pat. No. 4,216,184. This application Jan. 22, 1980, Ser. No. 114,351
Claims priority, application United Kingdom, Sep. 13, 1976, 37831/76
Int. Cl.[3] B29C *1/00, 3/04*
U.S. Cl. 425—111 **8 Claims**



1. Apparatus for injection moulding thermoplastics material onto a preformed web paid out so as to pass between closable core and cavity components of an injection mould and so as to have a free distal end protruding below the mould components, and a proximal portion above the mould components, said apparatus comprising: an injection mould having closable core and cavity components; engaging means for engaging a load on the free distal end of the preformed web protruding below the mould components; a load engageable on a said distal end by the engaging means, the load being free to move with a distal end on which it is engaged; and holding means located above and fixed relative to the mould components for holding a proximal portion of a web against a load engaged on a distal end of the web below the mould components, whereby when the mould components are closed onto a preformed web located between the components they cause a free distal end of a web protruding below the components to move in response to the closing of the mould whereupon the load attached to such a distal end moves with the distal end and controls the tension in the web during the closing of the mould.

4,269,580

COMPRESSION MOLDING PRESS WITH HYDRAULIC CONTROLS

Dolph D. Wright, Union Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 11, 1980, Ser. No. 158,476
Int. Cl.[3] B30B *15/16*
U.S. Cl. 425—150 **4 Claims**

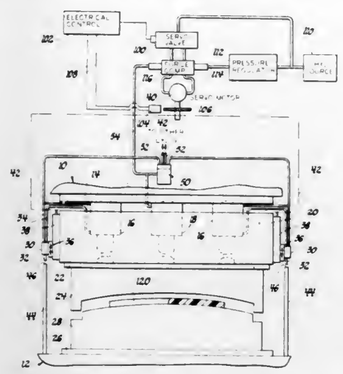
1. A hydraulic control for a compression molding press, the press having a bed, a ram, and a plurality of hydraulic cylinders positioned on the ram to provide the main press force for urging the ram toward the bed, including

A plurality of position transducers each having a pair of separate parts mounted on supports respectively comprising the ram and the bed, the parts of each pair being aligned to contact each other upon press closing, means for movably mounting one part of each pair on its support for adjustment of its position relative to its complementing part, the parts of each pair consisting of a hydromechanical servo valve including a cam follower and a stop member including a cam surface for contacting the cam follower,

the hydromechanical servo valves each hydraulically coupled with an adjacent one of said cylinders to control the cylinder pressure, the cam follower of each servo valve having a neutral position where the servo valve effects no

change in cylinder pressure wherein any movement of the cam follower from the neutral position effects corresponding changes in cylinder pressure to return the cam follower toward neutral position,

the stop members being arranged to uniformly contact all the cam followers when the ram is near its press closed position and is parallel to the bed, and to preferentially contact the servo valve cam followers when the ram is not parallel to the bed to change the pressure in at least one cylinder to return the ram to parallel attitude,



drive means connected to the movable part of each pair for synchronously changing the relative positions of the servo valves and the stop members whereby the servo valves control the cylinders to move the ram sufficiently to restore the relative position of the servo valves and the stop members, and

control means for energizing the drive means for controlling the velocity and position of the ram according to a preset scheme.

4,269,581

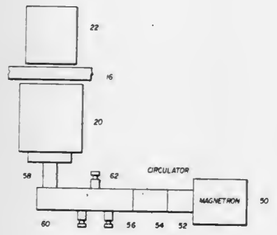
APPARATUS FOR MOLDING THERMOSETTING MATERIAL

Michael G. Ury, Bethesda, and Patrick J. Ryan, Laurel, both of Md., assignors to Fusion Systems Corporation, Rockville, Md.

Filed Sep. 14, 1979, Ser. No. 75,599

Int. Cl.[3] **H05B** *9/00*

U.S. Cl. 425—174.4 **20 Claims**



1. An apparatus for molding articles of thermosetting material rapidly, uniformly, and without the occurence of hot spots or other defects comprising,

a mold including a mold cavity which conforms to the desired shape of said articles for receiving said thermosetting material,

means for mounting said mold in said molding apparatus,

means for generating electromagnetic energy of microwave frequency,

transmission line coupling means located on one side of said mold cavity for coupling the electric field component of said generated electromagnetic energy to said cavity in a manner such that said field penetrates through said cavity uniformly or essentially uniformly throughout the cavity volume, said transmission line coupling means comprising means for transmitting an electric field which is circumferentially uniform with respect to the transmission element or elements of said line when excited with said electromagnetic energy and having a longitudinal transmission axis and a shape in cross-sectional planes perpendicular to said axis which is similar to the shape of a cross-sectional plane of said article being molded, and

discrete field shaping means disposed on the other side of said mold cavity from said transmission line coupling means for providing a termination for said electric field lines penetrating through said mold cavity, thereby tending to maximize the electric field which is directed through said cavity.

4,269,582

PASTA-MAKING MACHINE

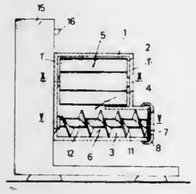
Mario Mella, Via Curtatone 11, Desenzano (Brescia), Italy

Filed Nov. 20, 1979, Ser. No. 96,176

Claims priority, application Italy, Nov. 21, 1978, 7122/78[U]; Dec. 29, 1978, 7152/78[U]

Int. Cl.[3] **A21C** *3/04*

U.S. Cl. 425—190 **15 Claims**



1. A machine for kneading and extruding pasta said machine comprising a base, a body supported on said base and adapted to rotate about a horizontal axis, said body having two chambers each having a horizontal axis, an intermediate passage providing communication between said chambers, a first one of said chambers having an opening for the introduction of the ingredients to be kneaded into dough, said other chamber including an extruding die at one end thereof, kneading means mounted on the axis of said first chamber and a conveyor member mounted on the axis of said second chamber whereby said conveyor member is located above said kneading means during the kneading phase and said conveyor member is located below said kneading means during the phase of shaping the pasta by extrusion.

4,269,583

PILOTS FOR FLARE STACKS

John F. Straitz, III, Meadowbrook, Pa., assignor to Combustion Unlimited Incorporated, Philadelphia, Pa.

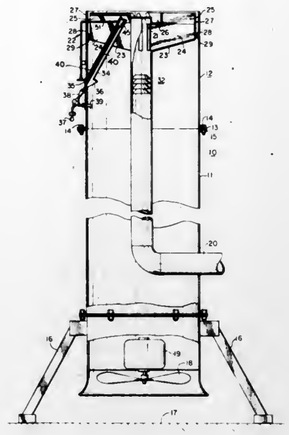
Filed May 22, 1978, Ser. No. 908,582

Int. Cl.[3] **F23D** *13/20*

U.S. Cl. 431—202 **12 Claims**

1. A flare stack including a pilot burner, means for delivering air through said stack to the terminal end of said stack, said stack having means for delivering waste combustible gas through nozzle means at said terminal end of said stack for combustion at said terminal end in the atmosphere,

a pilot burner head interiorly disposed in said stack at said terminal end of the stack and adjacent to said nozzle means,



means for supplying a combination of combustible gas and air to said pilot burner head for combustion, and

means for providing additional air to said burner head comprising an air tube within said stack in which said burner head is positioned for aiding combustion and stabilizing the pilot burner flame.

4,269,584

HOT PELLETIZER FOR EXTRUDERS

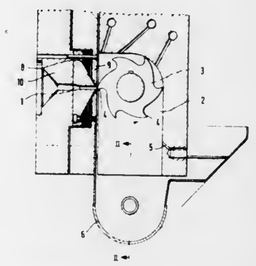
Walter Kroll, Roethenbach-St. Wolfgang, and Günther Stefan, Erlangen-Bruck, both of Fed. Rep. of Germany, assignors to Leistritz Maschinenfabrik Paul Leistritz GmbH, Nuremberg, Fed. Rep. of Germany

Filed Feb. 28, 1979, Ser. No. 16,458

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1978, 2809680; Dec. 14, 1978, 2854024

Int. Cl.[3] **B29C** *17/14*

U.S. Cl. 425—313 **16 Claims**



1. A pelletizing device for use with an extruder comprising a die plate through which a plastic ribbon is extruded, said die plate having means defining a plurality of extrusion openings through which the plastic ribbon is extruded, said plurality of openings having their axes disposed in aligned parallel array and in a common, generally horizontal plane such that said openings are disposed at generally the same elevation, a rotatable spiral cutter having spiral cutting edges, said spiral cutter having an axis of rotation disposed generally horizontally and generally perpendicular to the longitudinal axes of said extrusion openings, said openings having their axes intersecting said axis of rotation of said spiral cutter, said spiral cutting edges being spirally disposed about the axis of rotation of said spiral cutter, said spiral cutter being disposed and arranged relative to the openings of said die plate to cut pellets from the ribbons emerging from adjacent die openings in a successive and non-simultaneous manner to thereby reduce the opportunity for just-cut pellets to adhere to one another, and means defining a channel containing a cooling liquid, said channel being disposed to underlie said spiral cutter so that the pellets upon being cut by said spiral cutter fall freely by gravity into said cooling liquid in said channel to be rapidly cooled by thermal shock so as to preclude adhesion between the pellets.

4,269,585

APPARATUS, INCLUDING AN ENDLESS BELT, FOR CONTINUOUSLY HOT PRESSING A WEB OF MATERIAL

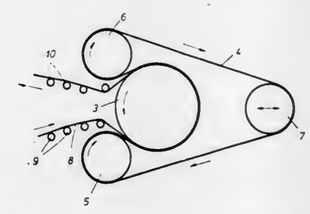
Rolf Gersbeck, Ronnenberg, and Manfred Krohn, Hanover, both of Fed. Rep. of Germany, assignors to Hermann Berstorff Maschinenbau GmbH, An der Breiten Wiese, Fed. Rep. of Germany

Filed Dec. 27, 1979, Ser. No. 107,567

Claims priority, application Fed. Rep. of Germany, Dec. 29, 1978, 2856646

Int. Cl.[3] **B29C** *3/00;* **B29D** *77/00;* **B29H** *7/22*

U.S. Cl. 425—373 **2 Claims**



1. Apparatus for continuously hot pressing a web of material comprising a heated rotatable drum, an endless pressure belt and means to pull said endless pressure belt against a part of the periphery of said drum with the web interposed between said drum and said belt, wherein said endless pressure belt is formed of a fabric of steel wires faced, at the side towards the web, with a resilient covering layer comprising a layer of butyl rubber bonded to said fabric of steel wires, a textile layer secured to said layer of butyl rubber and a layer of an elastomer resistant to high temperature secured to said textile layer to form the outer layer of said resilient covering layer.

4,269,586

HEATED PLATEN

James F. Ronayne, Fishkill, N.Y., assignor to Norfield Corporation, Danbury, Conn.

Filed Jan. 25, 1980, Ser. No. 115,337

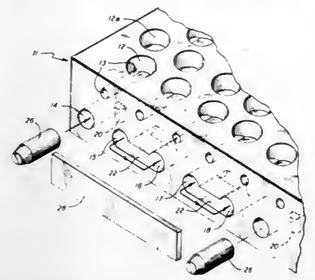
Int. Cl.[3] **B29C** *5/00*

U.S. Cl. 425—407 **17 Claims**

1. A platen comprising:

a plate member having a plurality of fluid flow zones defined by a plurality of heat exchange channels extending across the width of the plate member, each of said fluid flow zones having an inflow pipe in communication with a first heat exchange channel in said fluid flow zone and an outflow pipe in communication with a last heat exchange channel in said fluid flow zone, and a plurality of connecting channels alternately disposed on each side of said plate

member and in communication with adjacent heat exchange channels within each fluid flow zone; and



a pair of separate sealing means for sealing each of said plurality of fluid flow zones, so that each pair of said separate sealing means seals only one fluid flow zone.

4,269,587

COMPRESSION MOULDING PRESSES

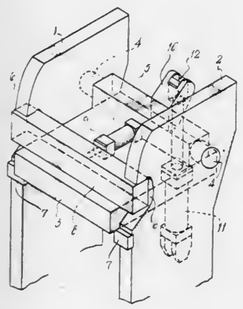
Harold W. Tranter, Aldridge, England, assignor to British Industrial Plastics Limited, Great Britain

Filed Jan. 7, 1980, Ser. No. 110,037

Claims priority, application United Kingdom, Jan. 12, 1979, 1318/79

Int. Cl.[3] **B29C** *1/00*

U.S. Cl. 425—451.9 **9 Claims**



1. An upstroking compression moulding press including a pair of side frame members to support an upper, fixed platen which is pivotably supported between said members, said platen having locking means thereon comprising a locking bar extending over at least the thickness of both of said sideframe members and the distance between them, together with means for displacing said bar from a first position in which it is spaced from said members and a second position in which end portions of the bar are received in notches in said members.

4,269,588

INJECTION MOLDING MACHINE

Akira Nogai, Kurobe, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,104

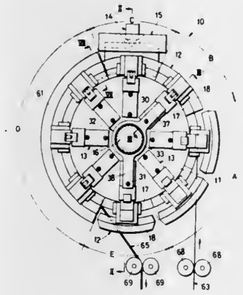
Claims priority, application Japan, Aug. 12, 1978, 53-98295; Aug. 18, 1978, 53-101336

Int. Cl.[3] **B29F** *1/06;* **B29D** *5/00*

U.S. Cl. 425—545 **10 Claims**

1. An injection molding machine, comprising:
(a) a base;
(b) a rotatable support member supported on said base;
(c) a plurality of molds supported on said support member and arranged along its periphery, said molds extending circumferentially of said support member so as to fit next to each other to provide an endless mold assembly, each of said molds including a pair of first and second mold members jointly providing a mold cavity therebetween, said first mold member being fixed to said support member, and said second mold member being pivotally mounted on said first mold member;
(d) a plurality of power actuators carried on said support member and each operable on said second mold member of one of said molds for opening and closing said one of said molds and for maintaining the same in its open and closed positions; each of said power actuators comprising a fluid-pressurizable cylinder fixed to said support and a piston in a bore of said cylinder and having a piston rod extending from said cylinder, and a plurality of toggle joints respectively connecting said piston rod of each of said power actuators to said second mold member of the last-named one of said molds;
(e) an injection unit having a discharge nozzle from which molding material is to be discharged, said discharge nozzle being movable with respect to the path of travel of said molds; and
(f) a sprue member disposed between said discharge nozzle of said injection unit and said mold assembly for conducting the molding material from said discharge nozzle into said molds one after another.

5. An injection molding machine, comprising:
(a) a base;



(b) a rotatably support member supported on said base;
(c) a plurality of molds supported on said support member and arranged along its periphery, said molds extending circumferentially of said support member so as to fit next to each other to provide an endless mold assembly, each of said molds including a pair of first and second mold members jointly providing a mold cavity therebetween, said first mold member being fixed to said support member, and said second mold member being pivotally mounted on said first mold member;
(d) a plurality of power actuators carried on said support member and each operable on said second mold member of one of said molds for opening and closing said one of said molds and for maintaining the same in its open and closed positions;
(e) an injection unit having a discharge nozzle from which molding material is to be discharged, said discharge nozzle being movable with respect to the path of travel of said molds; and
(f) a sprue member disposed between said discharge nozzle of said injection unit and said mold assembly for conducting the molding material from said discharge nozzle into said molds one after another; said sprue member having a sprue communicating at one end with an orifice of said discharge nozzle, and a first seal means for temporarily sealing a mouth of the mold cavity of one of said molds immediately after the last-named mold cavity is filled with the molding material, said sprue member being movable between a first position where said sprue is communicatable at the other end with the last-named mold cavity and a second position where the mouth of the last-named mold cavity can be covered with said first seal means.

4,269,589

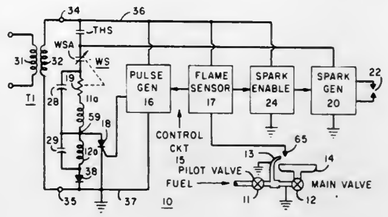
SOLID STATE IGNITION CONTROL

Russell B. Matthews, Goshen, Ind., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Dec. 4, 1978, Ser. No. 966,009

Int. Cl.[3] **F23Q** *9/14*

U.S. Cl. 431—46 **40 Claims**



1. In a fuel ignition system including a pilot valve operable to supply fuel to a pilot outlet, spark generating means for generating ignition sparks in the proximity of the pilot outlet for igniting the pilot fuel, and a main valve operable to supply fuel to a main burner for ignition by the pilot flame, a control arrangement comprising: circuit means connecting an operate winding of said pilot valve and an operate winding of said main valve in a series circuit path, activate means operable to connect power to said series circuit path; switching means for controlling the energization of said valve windings; and control means operable in the absence of a flame at said pilot outlet to enable said switching means to provide a shunt circuit path around said main valve operate winding to permit current to flow through said pilot valve operate winding at a level which is sufficient to actuate said pilot valve; said control means responding to a flame at said pilot outlet to disable said switching means whereby said shunt circuit path is interrupted and said main valve operate winding is energized to actuate said main valve, said pilot valve operate winding being maintained energized over said series circuit path including said main valve solenoid when said switching means is disabled, and current limiting means including said main valve operate winding for limiting the current flow through said series circuit path to a level which is insufficient to actuate the pilot valve when said switching means is disabled, whereby actuation of said pilot valve is conditioned upon the enabling of said switching means.

4,269,590

RADIANT BURNER

Herbert Baumanns, Beller Strasse 187, 4070 Rheydt, Fed. Rep. of Germany

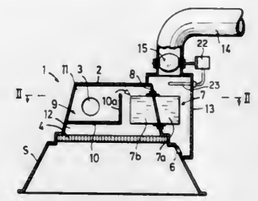
Continuation of Ser. No. 877,431, Feb. 13, 1978, abandoned. This application Jan. 9, 1979, Ser. No. 2,166

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1977, 2706043

Int. Cl.[3] **F23D** *13/12*

U.S. Cl. 431—210 **23 Claims**

1. A radiant burner comprising:
(a) a burner housing having an opening therein;
(b) a burner plate extending across said opening in said housing;
(c) a shield extending from said burner housing about said burner plate;
(d) at least one outlet in said shield for conducting combustion product gases therethrough;
(e) inlet means for feeding combustible gas and air or a combustible air-gas mixture into said burner housing;
(f) a plurality of heat transfer elements spaced from said inlet means in said burner housing;
(g) means in said burner housing for directing the flow of said combustible gas-air mixture from said feeding means into contact with said heat transfer elements before passing through said burner plate;
(i) said combustible gas-air mixture directing means comprising means defining a chamber in said burner housing spaced from said burner plate and from said heat transfer means for receiving the combustible gas-air mixture from said inlet means, said chamber-defining means including outlet means arranged to direct the flow of the combustible gas-air mixture from said chamber into contact with said heat transfer elements before said mixture reaches



said burner plate to preheat said combustible gas-air mixture;
(j) said means defining said chamber comprising a first guide plate in said burner housing between said inlet means and said burner plate and a further guide plate extending from said first guide plate between said inlet means and said heat transfer elements to a position spaced from a wall of said burner housing such that said combustible air-gas mixture is directed from said inlet means through the space between said further guide plate and said wall of said burner housing into contact with said heat transfer elements; and
(k) means for transmitting heat from said combustion product gases passing through said outlet to said heat transfer elements;
(h) whereby the heat from said combustion product gases is transmitted through said heat transfer elements to preheat said combustible gas-air mixture in said burner housing.

4,269,591

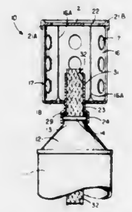
HEATER UNIT AND CONTAINER

William P. Knoll, 1326 N. Elm St., Fargo, N. Dak. 58102

Continuation of Ser. No. 794,083, May 5, 1977, abandoned. This application Sep. 21, 1978, Ser. No. 944,357

Int. Cl.[3] **F23D** *3/04, 31/18*

U.S. Cl. 431—312 **13 Claims**



1. An apparatus for controlling combustion of an inflammable liquid fuel comprising: a container having a side wall, bottom, and a top defining a first chamber for storing an in-

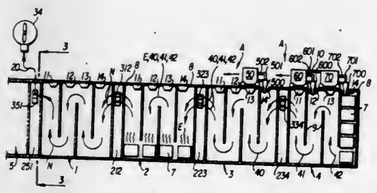
flammable liquid fuel, said top having an annular outwardly directed continuous ring located around an opening in communication with the first chamber, said ring having an upper edge and a lower edge adapted to accommodate a cap for closing said opening, a heater unit releasably mounted on said ring to connect the heater unit to the container, said heater unit having a cup-shaped housing defining a second chamber, said housing having a bottom wall and a cylindrical side wall, said bottom wall having a center hole and at least one aperture, said side wall having a plurality of upright arcuate segments having substantially parallel edges defining elongated narrow slots extending the length of the housing side wall and separating adjacent segments, each segment having a lower portion joined to the bottom wall, at least one segment having at least one aperture, a tubular member extended through the hole in the bottom wall and secured to the bottom wall, said tubular member having a first portion extended into the second chamber surrounded by the housing side wall and a second portion extended below said bottom wall, a collar secured to the lower end of the second portion, said collar being spaced from the bottom wall, said collar having mount means for releasably connecting the collar to the ring, said mount means including an annular ramp forming a mouth, said ramp having an outer end, an inner end, and an annular surface inclined inwardly from the outer end to the inner end, said outer end of the ramp being larger than said ring, an annular rib joined to the inner end of the ramp, said annular rib being smaller than said ring and located in engagement with the lower edge of the ring, and an annular pocket above the rib, an annular seal located in the pocket and engageable with the upper edge of the ring to seal the collar on the ring, and an elongated wick located in the tubular member, said wick being extended through the tubular member and downwardly into the first chamber, said wick located in tight compressive engagement with the tubular member.

4,269,592

CONTROL OF COMBUSTIBILITY OF VOLATILE HYDROCARBONS AND PARTICULATE MATTER IN AN EXHAUST GAS STREAM BY USE OF A HIGH VELOCITY BURNER IN A CARBON BAKE RING FURNACE

Charles M. Benton, 4320 Landsdowne St.; Franklin D. Arnold, 2200 Venetian Way; Helge O. Forberg, 215 Wildwood Dr., all of Owensboro, Ky. 42301; Roger L. Tuscher, Rte. 1, Box 343, and Gerald D. Evrad, Rte. 1, Box 171, both of Cannelton, Ind. 47520

Filed Feb. 8, 1980, Ser. No. 119,920
Int. Cl.³ F27D *7/00*; F27B *9/00*
U.S. Cl. 432—19 **37 Claims**



1. A method of controlling the combustibility of volatile hydrocarbons and particulate matter in an exhaust gas stream driven off from a carbon product being baked in a furnace, comprising the steps of:

a. heating the exhaust gas stream containing the volatile hydrocarbons and particulate matter to a temperature of at least 900° C.;

b. force-drafting and mixing at least one heat transfer medium into the exhaust gas stream so that the exhaust gas stream contains at least approximately 6% oxygen; while forming the at least one heat transfer medium by a series of substeps including:

(i) supplying air to at least one high velocity burner means for combusting the volatile hydrocarbons and particulate matter;

(ii) supplying fuel to said at least one high velocity burner means;

(iii) maintaining the air and fuel in said at least one high velocity burner means at a constant preset volume ratio via a regulator connected to a line means for supplying said fuel;

(iv) activating the regulator via an impulse line connected to a line means for supplying said air;

(v) combusting the air/fuel mixture in said at least one high velocity burner means in order to form the at least one heat transfer medium;

c. combusting the volatile hydrocarbons and particulate matter into non-polluting compounds; and

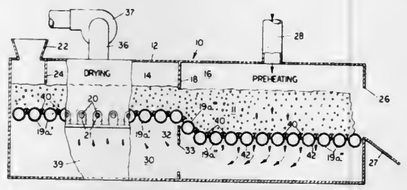
d. exhausting the non-polluting compounds from the furnance into the outside atmosphere.

4,269,593

ROLLER GRATE MATERIAL BED CONVEYING AND HEAT EXCHANGE APPARATUS PROVIDING PLURAL BED DEPTHS

Bobby P. Faulkner, New Berlin; Wayne D. Heyer, Greendale, and Michael H. Weinecke, Greenfield, all of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 21, 1979, Ser. No. 105,981
Int. Cl.³ F27B *15/00*
U.S. Cl. 432—58 **15 Claims**



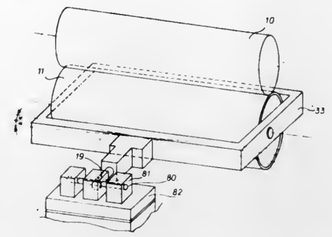
1. Roller grate apparatus for simultaneously transporting, agitating, and transferring heat to or from a bed of discrete solid mineral particles comprising, in combination, a plurality of parallel elongated cylindrical rollers mounted for rotation about their longitudinal axes certain of which are first rollers and others of which are second rollers, means for rotating said plurality of rollers in the same direction, elongated filler members in the gap between adjacent rollers, said rollers having gas passage apertures therein which permit a heating gas to pass in a generally vertical direction through said rollers, said first rollers being positioned at the inlet to said apparatus in a first generally horizontal plane to receive said mineral particles fed to the apparatus, said second rollers being positioned downstream from said first rollers at elevations lower than said first generally horizontal plane, said first rollers and said second rollers together with said filler members defining a generally horizontal surface having progressively lower levels in the direction of bed transport and having continually moving portions which are adapted to agitate particles and transport said bed across said surface in a direction perpendicular to the longitudinal axes of said rollers at a velocity which is only a minor fraction of the circumferential velocity of said rollers, and means for passing a stream of heat transfer gas in a generally vertical direction through said gas passage apertures and said bed of mineral particles being conveyed on said rollers.

4,269,594

CONTACT HEAT FUSING APPARATUS

Frans M. Umans, Mortsel; Willy G. Ceuppens, Borgerhout; Willy J. Palmans, Kessel, and Robert T. Overmeer, Mortsel, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Dec. 5, 1978, Ser. No. 966,595
Claims priority, application United Kingdom, Dec. 7, 1977, 50952/77
Int. Cl.³ G03G *13/20*; H05B *3/10*
U.S. Cl. 432—59 **11 Claims**



1. A contact fusing apparatus for fusing a toner image carried on a support, comprising a fuser roller having an elastically deformable surface and having associated heating means for heating such roller to a temperature sufficient to cause fusion of toner, an opposed pressure roller forming with said fuser roller a bite through which a support carrying a toner image can pass, means for transmitting a driving torque to at least one of such rollers, clamping means operative to apply a clamping force to at least one of such rollers to maintain the two rollers in an operative position with a clamping pressure in the bite thereof sufficient to cause elastic deformation of said roller surface, separate frame means each having two opposite sides for supporting the opposite ends of said fuser and pressure rollers respectively and means mounting one of said frame means for differential relative limited free bodily movement of its opposite sides, and of the roller ends supported thereby, away from and towards the corresponding sides of the other frame while the rollers are maintained in said operative position, the axis of the roller supported by said movably mounted frame means remaining during its movement generally within a plane perpendicular to a tangent through said bite, whereby the separation between said roller axes while the rollers are in said operative position can vary nonuniformly along the length of said bite in response to instantaneous variations in the thickness of the toner image across the support.

4,269,595

PREFABRICATED NON-PRECIOUS PONTIC

Mike Z. Nemethy, Treasure Island, Fla., assignor to Ormond H. Ware, St. Petersburg, Fla., a part interest

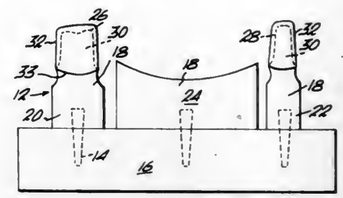
Filed May 25, 1979, Ser. No. 42,708
Int. Cl.³ A61C *13/22*
U.S. Cl. 433—191 **7 Claims**

1. A prefabricated pontic framework for dental bridges, comprising:

a plurality of pontic supports, each said pontic support defining an enlarged mold for being completely surrounded by a coating of porcelain to form an artificial tooth;

each said pontic support having a pair of connecting bars extending therefrom;

each of said pontic supports being rigidly connected to at least one of the other of said pontic supports by one of its said pair of connecting bars and spaced from each other on the framework to accomodate the porcelain coating thereon so that said connecting bars are arranged and constructed to be cut to give said prefabricated pontic framework the desired length and number of said pontic supports for a given said bridge,



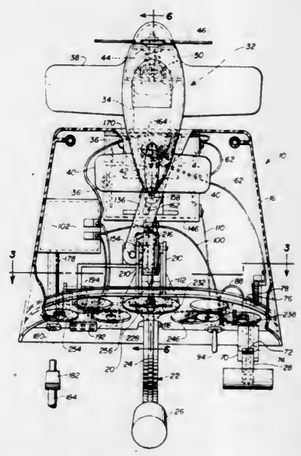
said pontic support and said connecting bars being formed of a structurally rigid, non-precious material.

4,269,596

TOY AEROPLANE FLIGHT SIMULATING CONSOLE

Bruce M. D'Andrade, Whitehouse Station, N.J., assignor to Arco Industries Ltd., Kowloon, Hong Kong

Filed Apr. 25, 1980, Ser. No. 143,848
Int. Cl.³ G09B *9/08*; A63H *27/04*
U.S. Cl. 434—32 **10 Claims**



1. A toy aeroplane flight simulator console comprising in combination:

(a) A console housing adapted to be supported upon a table or the like and having a front face,

(b) A substantially vertical single staff projecting upward from a rearward portion of said housing,

(c) An instrument panel on said front face of said housing,

(d) A model toy aeroplane having a propeller on the nose of the fuselage thereof and an electric motor in said fuselage connected to said propeller to drive it,

(e) Socket means in the lower portion of said fuselage of said aeroplane adapted to be disengageably received upon the upper end of said single staff to attachably connect the aeroplane thereto for support and manipulation of said aeroplane for flight simulating maneuvers about multiple horizontal axes perpendicular to each other,

(f) D.C. battery means in said console,

(g) A motor throttle lever pivotally supported by said console and positioned forwardly of said instrument panel for manual manipulation,

(h) An electric circuit connecting said battery to said motor in said plane and a rheostat engaged by said throttle lever to vary the speed of the aeroplane propeller,

(i) Co-engageable contacts in said socket in the fuselage of said aeroplane and on the upper end of said staff and included in said circuit to complete said circuit when said aeroplane is mounted operatively upon said staff for support,

(j) A simulated joystick supported within said console housing for substantially universal pivotal movement and having a manually manipulatable handle projecting outwardly and upwardly from and forwardly beyond said instrument panel,

(k) Mechanical elements enclosed and concealed entirely within said housing interconnected between said joystick and said staff to tilt said aeroplane upward and downward about a transverse horizontal axis and also sideways in opposite directions about a longitudinal horizontal axis perpendicular to said transverse horizontal axis when said joystick respectively is pivoted about a horizontal transverse axis and about a longitudinal horizontal axis,

(l) Motor speed-indicating dial means on said instrument panel connected to and operated by movement of said motor throttle lever,

(m) Flight direction-indicating dial means on said instrument panel connected to and operated by movement of said joystick, and

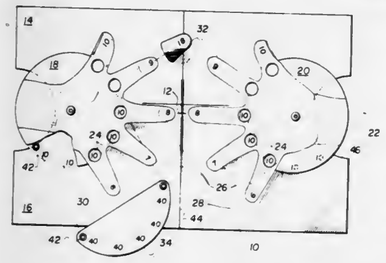
(n) A horizontal wing attitude-indicator operable relative to a fixed line on said instrument panel and connected to and operated by said joystick to indicate the level of the wings of the aeroplane relative to the horizon.

4,269,597

FINGER ARITHMETIC DEVICE

Martin Green, 243 Franklin Turnpike, Mahwah, N.J. 07430

Filed Aug. 27, 1979, Ser. No. 69,816
Int. Cl.³ G09B *19/02*
U.S. Cl. 434—198 **5 Claims**



1. An educational device for training in arithmatic comprising, a base member, a pair of spaced hand like members rotatably mounted on said base member each having a wheel portion and five finger portions extending outwardly therefrom, each of said wheel portions including five circumferencially spaced apertures with each aperture aligned with one of said finger portions, said base member including a reference line dividing the surface thereof into an upper multiplication area and a lower addition area, an arcuate area below said reference line and beneath each of said wheel portions each having a row of numbers 10 aligned with the circumference of said wheel portions containing said apertures, each of said finger portions having a numeral thereon and alignable with said reference line whereby the product of the numerals of the finger portions aligned with said reference line can be obtained by multiplying the number of finger portions in said multiplication area of one hand member by the number of finger portions in said multiplication area of the other of said hand members and adding to this the sum of the numbers 10 appearing through the apertures in said addition area, a finger adapter for each of said finger portions slidable onto each of said finger portions respectively, each finger adapter having a number thereon which is a multiple of the numeral of that finger portion, and an addition area adapter fastenable over each of said arcuate areas having a row of numbers thereon corresponding to twice the multiple times 10 with the numbers of said arcuate area adapters aligned over said rows of ten's whereby the product of the numbers now appearing on the finger portions aligned with said reference line can now be obtained by multiplying the number of finger portions times the multiple of one hand member above the reference line times the number of finger portions times the multiple of the other hand member above the reference line and adding to this the summation the numbers appearing through the apertures in said addition area.

4,269,598

VEHICLE TRANSPORTER

Eugene C. Labelle, 19, 10eme rue, Ferme Neuve, Quebec, Canada (J0W I0C)

Filed Jan. 4, 1979, Ser. No. 979
Int. Cl.³ B63H *16/12*
U.S. Cl. 440—11 **18 Claims**



1. A vehicle transporter having: flotation means for supporting a vehicle; the flotation means comprising at least a pair of elongated, non-rotating spaced-apart, parallel floats, and means for joining the floats together; at least one drive means on one of said floats for use in propelling the transporter on land and water using power from the drive means of the supported vehicle; said drive means on said float having an impeller rotatably mounted on the float and projecting below the float, and a drive roller mounted on the float above the impeller and in friction contact with the impeller, the drive roller adapted to be contacted by the vehicle drive means.

13. A vehicle transporter having: flotation means for supporting a vehicle; loading means at the rear of the flotation means for use in loading a vehicle on the flotation means; means for pivotably mounting the loading means to the flotation means for pivoting movement about an upright axis and means for pivoting the loading means about the upright axis to steer the transporter when in water.

4,269,599

COOLING SYSTEM OF SELF-PROPELLED FLOATING CRANE ENGINES

Vladimir M. Zhestkov, prospekt Generala Ostryakova, 106, kv. 49; Vladimir M. Tsypin, ulitsa Volodarskogo, 5, kv. 5; Mikhail Z. Grzhebin, ulitsa Drozdova, 3, kv. 35; Vadim A. Kaminsky, ulitsa Istomina, 14-b, kv. 48, and Vitaly G. Mazepov, ulitsa Jumasheva, 8, kv. 18, all of Sevastopol, U.S.S.R.

Filed Aug. 27, 1979, Ser. No. 70,038
Claims priority, application U.S.S.R., Aug. 30, 1978, 2662126
Int. Cl.³ B63H *23/32;* **B63B** *39/03*
U.S. Cl. 440—88 **2 Claims**

1. A cooling system of self-propelled floating crane engines, comprising:

internal hydraulic circuits of said engines;

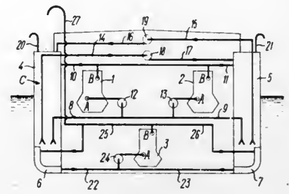
external hydraulic circuit cooling said internal hydraulic circuits, incorporating:

tanks filled with liquid and compulsorily connected to each other;

said tanks arranged on the pontoon of said floating crane so that an underwater outer skin of the pontoon of said floating crane forms a portion of their surface;

skin heat exchangers made in the form of surface heat exchanging apparatus and disposed in said tanks;

pipelines provided with built-in pumps and connecting said heat exchangers with at least one of said internal hydraulic circuits;



said skin heat exchangers, pipelines with a built-in pump forming a self-contained hydraulic circuit for cooling at least one internal hydraulic circuit;

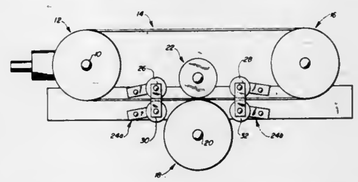
other pipelines with the built-in pumps connecting said tanks with said internal hydraulic circuits of the rest of said engines.

4,269,600

DRAW TRANSMISSION

Thomas F. Curran, 460 N. Main St., Wauconda, Ill. 60084

Filed May 7, 1979, Ser. No. 36,409
Int. Cl.³ F16H *9/00, 11/00*
U.S. Cl. 474—69 **14 Claims**



1. A transmission system for differential speed control, which comprises:

input means connected to a driven input pulley;

an endless resilient member coupled to said driven input pulley and driven by said input pulley;

tensioning means spaced from said input pulley for providing tension for said endless resilient member;

output means connected to an input pulley, said output pulley being an idler pulley located intermediate said driven pulley and said tensioning means and with its periphery in contact with said resilient member;

said output pulley being spaced along the length of the resilient member from said input pulley; and

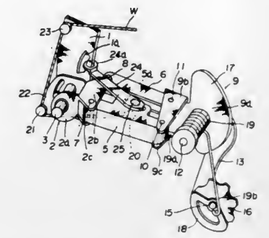
means for controlling the speed of said output pulley, said controlling means being coupled to said resilient member and being operative to vary the curvature of said resilient member with respect to the periphery of said output pulley while not substantially varying the curvature of said resilient member with respect to the periphery of said input pulley, whereby the neutral axis of said resilient member will be varied to control the speed of the surface of the resilient member that is contacting the periphery of said output pulley while the neutral axis of the resilient member around said input pulley remains substantially constant.

4,269,601

REAR DERAILLEUR FOR A BICYCLE

Masashi Nagano, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

Filed Jan. 28, 1980, Ser. No. 116,210
Claims priority, application Japan, Feb. 15, 1979, 54/18629[U]
Int. Cl.³ F16H *11/04*
U.S. Cl. 474—82 **4 Claims**



1. A rear derailleur for a bicycle, which switches a driving chain to a selected one of multi-stage sprockets of the bicycle for changing speed, said derailleur comprising:

(a) a base member supported to a frame at the bicycle,

(b) a pair of linkage members pivoted swingably to said base member,

(c) a movable member supported to said pair of linkage members and moving with respect to said base member through a swinging motion of each of said linkage members,

(d) a pulley plate supported swingably to said movable member through a pivot shaft, said pulley plate being elongated and being supported at its one lengthwise end side with respect to said movable member and spaced therefrom at a given interval,

(e) a guide pulley and a tension pulley which are supported rotatably to said pulley plate through pulley shafts respectively, said guide pulley being supported at one lengthwise end side of said pulley plate, said tension pulley being supported at the other lengthwise end side of said pulley plate,

(f) a first guard plate being mounted to said guide pulley at its one axial side thereof and at the opposite side to said pulley plate and being disposed opposite thereto,

(g) a second guard plate being mounted to said tension pulley at one axial side thereof and at the opposite side to said pulley plate and being disposed opposite thereto, said second guard plate being separate from said first guard plate, so that both said first and second guard plates have therebetween a gap through which said driving chain is allowed to pass, and

(h) a tension spring supported to said pivot shaft, said tension spring having first and second ends, said first end being retained by said movable member, said second end extending along the outer surfaces of said first and second guard plates to the pulley shaft of said tension pulley and being retained by said pulley shaft near an axial end thereof in engageable and disengageable relationship with said pulley shaft, thereby closing said gap.

4,269,602

BUFFERED NON-FORMALDEHYDE DURABLE PRESS TEXTILE TREATMENT

Daniel L. Worth, Greenwood, and Ernest A. Freeman, Jr., Ware Shoals, both of S.C., assignors to Riegel Textile Corporation, New York, N.Y.

Filed May 7, 1979, Ser. No. 36,641
Int. Cl.³ D06M *13/2, 15/30*
U.S. Cl. 8—116.4 **19 Claims**

1. A process for imparting durable press properties to a textile fabric formed at least partially of cellulosic fibers and characterized by avoiding the use of formaldehyde and problems associated therewith, said method comprising impregnating the textile fabric with a formaldehyde-free finishing agent containing glyoxal, reactive silicone, a catalyst, and a buffering agent for reducing acidity in the treated fabric, and thereafter drying the fabric and curing the finishing agent to impart durable press properties to the fabric.

4,269,603

NON-FORMALDEHYDE DURABLE PRESS TEXTILE TREATMENT

Daniel L. Worth, Greenwood, S.C., assignor to Riegel Textile Corporation, New York, N.Y.

Filed May 4, 1979, Ser. No. 36,035
Int. Cl.³ D06M *13/2, 15/30*
U.S. Cl. 8—116.4 **19 Claims**

1. A process for imparting durable press properties to a textile fabric formed at least partially of cellulosic fibers and characterized by avoiding the use of formaldehyde and problems associated therewith, said method comprising impregnating the textile fabric with a formaldehyde-free finishing agent comprising glyoxal, reactive silicone and a catalyst, and thereafter drying the fabric and curing the finishing agent to impart durable press properties to the fabric.

4,269,604

METHOD FOR THE ON-SITE DETERMINATION OF THE PRESENCE OF CORROSIVE MATERIAL IN LUBRICATING OIL

James E. Snowden, Jr., 1000 Country Place Dr., #277, Houston, Tex. 77079

Continuation of Ser. No. 719,591, Sep. 1, 1976, abandoned. This application Mar. 27, 1978, Ser. No. 890,055
Int. Cl.³ G01N *33/30*
U.S. Cl. 23—230 HC **8 Claims**

1. An on-site method for determining the need for replacement of lubricating oil in an engine or machine due to the buildup of acidic corrosive material and decrease of anti-corrosive additive therein, which comprises the steps of:

(a) removing a sample of oil from an engine or machine, the oil being suspected of having a buildup of acidic corrosive material therein, to provide a sample of freshly removed oil;

(b) dissolving said sample of freshly removed oil in a known volume of solvent therefor to form a solvent solution of freshly removed oil;

(c) titrating said solvent solution with a basic titrant to a preselected basic pH;

(d) titrating a blank solution of the same volume as said solvent but containing no freshly removed oil with the same titrant as used in step (c) to at least substantially the same preselected basic pH;

(e) measuring the volume of basic titrant used in each of steps (c) and (d);

(f) generating from the measurements of step (e) a signal indicative of the corrosive acidic material in the freshly removed oil;

(g) comparing the signal obtained in step (f) with a signal obtained by carrying out steps (a) through (f) on a sample of the same lubricating oil prior to its introduction into the engine or machine to obtain a comparison value indicative of acidic corrosive material buildup;

(h) removing a sample of oil from an engine or machine, the oil being suspected of having a buildup of basic corrosive material therein, to provide a sample of freshly removed oil;

(i) dissolving said sample of freshly removed oil in a known volume of solvent therefor to form a solvent solution of said freshly removed oil;

(j) titrating said solvent solution with an acidic titrant to a preselected acidic pH;

(k) titrating a blank solution of the same volume of said solvent but containing no freshly removed oil with the same titrant as used in step (j) to at least substantially the same preselected acidic pH;

(l) measuring the volume of acidic titrant used in each of steps (j) and (k);

(m) generating from the measurements of step (l) a signal indicative of the active anti-corrosive additive in the freshly removed oil;

(n) comparing the signal obtained in step (m) with a signal obtained by carrying out steps (h) through (m) on a sample of the same lubricating oil prior to its introduction into the engine or machine to obtain a comparison value indicative of the decrease of the active anti-corrosive additive in the lubricating oil; and

(o) determining the time at which said comparison value of step (g) achieves a value of equal to or greater than 2.5 to 3.0 concurrent to the time which said comparison value of step (n) achieves a value of equal to or less than 0.5.

4,269,605

METHOD AND KIT FOR SEPARATION OF GLYCOPROTEINS

Peter D. G. Dean, Formby; Peter J. Brown, and Vasilis Bouriotis, both of Liverpool, all of England, assignors to Amicon Corporation, Lexington, Mass.

Filed Jun. 27, 1979, Ser. No. 52,474
Claims priority, application United Kingdom, Jun. 28, 1978, 28195/78
Int. Cl.³ G01N *33/66, 33/72*
U.S. Cl. 23—230 B **8 Claims**

1. The method of separating glycoproteins from non-glycosylated proteins in a mixture which comprises bringing said mixture into contact with reactive agent comprising a dihydroxyboryl group bonded to a support to form a glycoprotein-dihydroxyboryl complex, and separating said complex from said mixture.

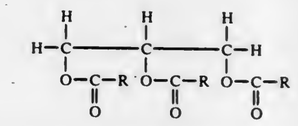
4,269,606

FUEL AND LUBRICANT ADDITIVES FROM ACID TREATED MIXTURES OF VEGETABLE OIL DERIVED AMIDES AND ESTERS

Benedict R. Bonazza, and Albert N. DeVault, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 714,159, Aug. 13, 1976, abandoned. This application Aug. 23, 1978, Ser. No. 936,308
Int. Cl.³ C10L *1/22*
U.S. Cl. 44—63 **6 Claims**

1. A composition useful as a detergent additive package for lubricants and fuels prepared by reacting multiamine with vegetable oil to obtain a product mixture, said vegetable oil selected from among triglycerides of long chain monocarboxylic acids of the formula



wherein R is an aliphatic radical of about 10 to about 25 carbon

atoms said product mixture dissolved in an amount of hydrocarbon solvent sufficient to maintain said product mixture in solution.

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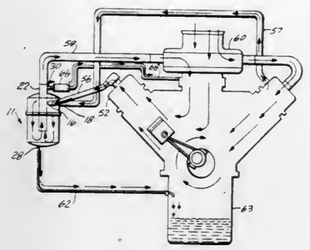
AIR-OIL SEPARATOR AND METHOD OF SEPARATION

Robert A. Walker, 2240 Sawtelle, Los Angeles, Calif. 90064

Continuation of Ser. No. 848,903, Nov. 7, 1977, abandoned. This application Apr. 23, 1979, Ser. No. 32,389

Int. Cl.³ B01D *45/12, 45/06, 50/00;* **F01M** *13/04*

U.S. Cl. 55—1 **10 Claims**



1. An apparatus for separating oil and contaminants from air-oil contaminant mixtures from the crankcase of an internal combustion engine comprising:

a housing;

an intake inlet conduit of a first cross-sectional area communicating with the interior of the housing at a first end thereof;

an exhaust outlet conduit of a second cross-sectional area greater than said first cross-sectional area communicating with the interior of the housing, said outlet conduit being located at said first end of the housing whereby the gas pressure of said mixtures admitted into the unit is reduced in the flow from said inlet conduit to said outlet conduit;

said outlet conduit extending from the exterior into the interior of the housing a substantial distance from said first end toward an end of the housing opposite said first end;

a baffle located between said opposite end of the housing and the inlet conduit in the interior of the housing in the flow path of said mixtures from said inlet conduit to said outlet conduit for deflecting the mixtures flowing from said inlet conduit through the housing to alter the direction of flow whereby the mixtures pass into and through said outlet conduit to the exterior of the housing;

a mandrel having a mesh configuration extending between the interior open end of said outlet conduit and said baffle;

filtration material coaxially disposed about said mandrel and said outlet conduit and interposed in the flow path from said inlet conduit to said outlet conduit; and

drain means located at said opposite end for removing oil and contaminants deposited in said opposite end whereby crankcase emissions from the internal combustion engine directed through the apparatus have oil, sludge and particulate matter removed therefrom prior to reintroduction into the engine through a positive crankcase ventilation system.

8. A method of removing contaminants from an emission stream from the crankcase of an internal combustion engine comprising the steps of:

(1) transmitting the emission stream from an internal combustion engine to the inlet to an air-oil separator having an inlet conduit of a first cross-sectional area and an outlet conduit of a second cross-sectional area greater than said first cross-sectional area, said conduits being located at the same end of the housing;

(2) reducing the ambient pressure of the emission stream in the course of flow through the separator by flowing the emission stream from the smaller inlet conduit to the larger outlet conduit;

(3) reversing the direction of flow of said emission stream through the separator only once in the course of flow from inlet conduit to outlet conduit to exhaust the stream from the separator at the same end thereof at which the emission stream was introduced; and

(4) directing the flow of the emission stream through the separator from inlet conduit to outlet conduit so as to cause the emission stream to contact interior surfaces within the housing whereby pollutants and particulate matter in the emission stream are entrained and deposited in the separator.

4,269,608

METHOD AND DEVICE FOR SAMPLE INJECTION UNDER CONTROLLED CONDITIONS OF TEMPERATURE PROFILE INTO GAS CHROMATOGRAPHIC COLUMNS

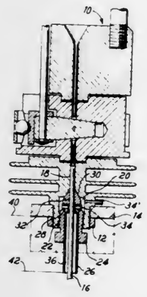
Giorgio Sisti, Melzo, Italy; Sorin Trestianu, Iselles, Belgium, and Mario Galli, Legnano, Italy, assignors to Carlo Erba Strumentazione S.p.A., Italy

Filed Aug. 2, 1979, Ser. No. 62,927

Claims priority, application Italy, Sep. 26, 1978, 28092 A/78; Nov. 7, 1978, 29498 A/78

Int. Cl.³ B01A *15/08*

U.S. Cl. 55—67 **24 Claims**



1. A method for on-column injection of a liquid sample into a gas chromatographic capillary column, which column is at a gas chromatographic temperature such that vaporization of and separation of said liquid sample would normally occur, comprising

(1) injecting said sample in the initial portion of said gas chromatographic column by means of an injection device inserted into an injector duct of an on-column injector;

(2) cooling said sample in the injector duct and in a predetermined length of the gas chromatographic column to maintain a temperature profile of the sample so as to avoid vaporization of the sample in the injector duct, to ensure a desired rate of vaporization of the sample in said gas chromatographic column, and to trap inside said gas chromatographic column any back expulsion occurring during said injection step, said cooling being performed by at least one cooling fluid in thermal communication with said injector duct and/or said predetermined length of said gas chromatographic column; and

(3) maintaining such cooling at least until completion of said injecting step.

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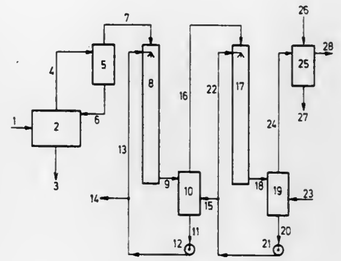
ISOLATING FLUORINE COMPOUNDS FROM THE VAPORS OBTAINED WHEN EVAPORATIVELY CONCENTRATING PHOSPHORIC ACID

Andreas Brunold, Bobenheim-Roxheim; Peter Kroetzsch, Ketsch, and Lothar Diehl, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 31, 1980, Ser. No. 117,129

Int. Cl.³ B01D *47/00*

U.S. Cl. 55—71 **4 Claims**



1. A process for removing fluorine compounds from the vapors that are obtained when phosphoric acid is evaporatively concentrated which comprises:

injecting an aqueous solution of about 20–28% by weight of fluosilicic acid into the upper part of a first scrubbing zone at a speed of from 15 m/s to 40 m/s under a reduced pressure of from 60–100 mbar and at a temperature at which condensation of steam is substantially avoided, said injected aqueous solution being finely divided over the entire cross section of the zone;

passing said vapors from which fluorine compounds are to be removed through said first scrubbing zone at a speed of from 5 m/s to 30 m/s in co-current with the aqueous fluosilicic acid solution, the residence time of said vapors being from 0.4 to 1.5 seconds;

passing the mixture of liquid and vapors from the first scrubbing zone to a first demisting zone where the liquid and vapors are separated, an aqueous solution of fluosilicic acid having a concentration of from 20 to 28% by weight being recovered from said demisting zone;

recycling a portion of said recovered aqueous solution of fluosilicic acid to the frst scrubbing zone;

injecting an aqueous solution of fluosilicic acid into the upper part of a second scrubbing zone at a speed of from 15 m/s to 40 m/s under a reduced pressure of from 60–100 mbar and at a temperature at which condensation of steam is substantially avoided, said aqueous solution being finely divided over the entire cross-section of the zone;

passing the vapors from the first demisting zone through said second scrubbing zone at a speed of from 5 m/s to 30 m/s in co-current with the aqueous fluosilicic acid solution, the residence time of said vapors being 0.4 to 1.5 seconds;

passing the mixture of liquid and vapors from the second scrubbing zone to a second demisting zone where the liquid and vapors are separated, an aqueous solution of fluosilicic acid being recovered from said demisting zone; and

recycling a portion of said recovered aqueous solution of fluosilicic acid to the second scrubbing zone.

4,269,610

ELECTROSTATIC PRECIPITATOR WITH SUPPLEMENTAL MEANS FOR CATCHING DUST RELEASED FROM THE MAIN COLLECTOR PLATES

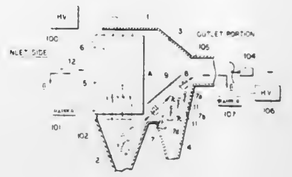
Yoichi Matsumoto, Takasago, Japan, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 851,355, Nov. 14, 1977, abandoned. This application Sep. 12, 1979, Ser. No. 74,774

Claims priority, application Japan, Nov. 12, 1976, 51-135438

Int. Cl.³ B03C *3/47, 3/76*

U.S. Cl. 55—112 **5 Claims**



1. An electrostatic precipitator comprising:

a housing having an inlet side and an outlet portion horizontally spaced from said inlet side and traversed by a horizontal stream of gas entraining particles into said inlet side;

an array of main collector electrodes between said inlet side and said outlet portion in said housing and a plurality of arrays of main corona discharge electrodes in said housing for charging said particles, said main collector electrodes being vertical plates interleaved with said arrays of main corona discharge electrodes and being provided with rappers whereby said particles are deposited upon said main collector electrodes and are intermittently dislodged downwardly therefrom;

a main hopper formed on said housing directly below said main collector electrodes and arrays of main corona electrodes and opening upwardly toward said arrays of main electrodes in said housing for receiving particles dislodged from said main collector electrodes, said main hopper being upstream of said outlet portion, said outlet portion having a progressively decreasing flow cross section away from said main collector electrodes, said outlet portion having a floor inclined upwardly in the direction of flow of said stream;

an auxiliary hopper formed on said housing below said outlet portion and downstream of said main hopper, said auxiliary hopper communicating with the interior of said outlet portion through said upwardly inclined floor;

an auxiliary charged collector disposed above said auxiliary hopper along the bottom of said outlet portion and forming said upwardly inclined floor over said auxiliary hopper for collecting particles re-entrained by said gas and depositing same in said auxiliary hopper, said collector thereby being inclined upwardly in the direction of flow of the gas, said auxiliary collector being formed by a plurality of swingable flaps;

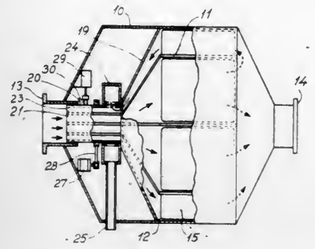
means for dislodging particles from said auxiliary collector and causing them to fall into said auxiliary hopper; and

auxiliary corona discharge electrode means spaced above said auxiliary collector in said outlet portion for charging re-entrained particles and enabling their attraction to said auxiliary collector, the auxiliary electrode means being spaced from the arrays of main corona electrodes and being disposed so that particles entrained by gas out of said main hopper pass between said auxiliary electrode means and said auxiliary collector.

4,269,611
APPARATUS FOR DRYING OR DEHUMIDIFYING GASES

Erling L. Anderberg, Sverigesvej 2, DK-4200, Slagelse, Denmark

Continuation-in-part of Ser. No. 8,841, Feb. 2, 1979, abandoned, which is a continuation of Ser. No. 867,981, Jan. 9, 1978, abandoned. This application May 16, 1979, Ser. No. 39,604
Claims priority, application Denmark, Jan. 10, 1977, 85/77
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—179 **36 Claims**



1. An apparatus for drying or dehumidifying gases and comprising a plurality of chambers each having a gas inlet end and a gas outlet end communicating with a common gas inlet for gas to be dehumidified, and with a common gas outlet for dehumidified gas, respectively,

a plurality of spaced layers of a regenerable, moisture adsorbing medium arranged in each of said chambers,

selectively energizeable electrical heating means arranged within each of said chambers and extending between adjacent layers of adsorbing medium therein and in heat conducting contact with said layers,

unitary rotary valve means rotatable between a number of angular positions corresponding to the number of said plurality of chambers, said valve means being adapted to obstruct the communication between the inlet end of each of a minority of said plurality of chambers and said common gas inlet and to simultaneously communicate each inlet end of said minority of chambers with a gas discharge in each of said angular positions and each outlet end of said minority of chambers with said common gas outlet, whereby gas which has been dehumidified in the remaining chambers may flow through said minority of chambers from said common gas outlet to said gas discharge, and

means for energizing said heating means in each of said minority of chambers while such chamber is communicated with said gas discharge.

31. An apparatus for drying or dehumidifying gases and comprising

a housing defining a plurality of separate chambers therein and having an inlet end defining an inlet for gas to be dehumidified, and an outlet end defining an outlet for dehumidified gas, each of said chambers or passages communicating at its opposite ends with said gas inlet and said gas outlet ends, respectively,

a regenerable moisture adsorbing medium arranged within each of said chambers or passages, said adsorbing medium being divided into a plurality of adjacent spaced layers,

selectively energizeable electrical heating means arranged within each of said chambers or passages and extending between adjacent layers of adsorbing medium therein and in contact with each such layer,

means for directing gas to be dehumidified from said inlet end through a first group of said plurality of chambers or passages, said plurality of chambers comprising a first group and a second group,

means for simultaneously redirecting a flow of dehumidified gas from said outlet end through said second group of chambers or passages,

means for energizing said heating means in each of the chambers or passages in said second group for a period of time sufficient to regenerate adsorbing medium therein while dehumidified gas is being directed therethrough,

cooling means arranged at said inlet end of the housing for cooling said gas to be dehumidified in order to condense moisture therein,

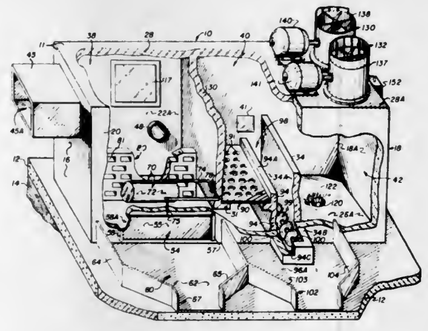
heating means arranged at said outlet end of the housing for heating said dehumidified gas, and

said cooling means and said heating means comprising an evaporator and a condenser, respectively, of a heat pump system.

4,269,612
EXHAUST GAS CLEANING SYSTEM

Joseph E. Little, Rte. 1, Hwy. 62, Pollard, Ark. 72456

Filed Jan. 10, 1980, Ser. No. 110,808
Int. Cl.³ B01D *47/02*
U.S. Cl. 55—227 **4 Claims**



1. A compartmentalized exhaust gas cleaning system adapted to be disposed upon a supporting surface, said system comprising:

a generally cubicle, rigid enclosure comprising a top wall, a bottom wall, a rear wall, a front wall and first and second spaced-apart end walls;

a first divider wall disposed within said enclosure in spaced-apart, generally parallel relation with respect to said end walls and extending downwardly from said top wall and terminating short of said bottom wall;

a second divider wall disposed within said enclosure between said first divider wall and said second end wall, said second divider wall extending vertically upwardly from said bottom wall and terminating short of said top wall;

an input compartment defined interiorly of said enclosure between said first end wall and said first divider wall, said imput compartment comprising:

liquid inlet means adapted to be connected to an external source of washing solution for admitting solution into said input compartment;

output door means for draining washing solution from said input compartment whereby to control liquid level;

float means coupled to said door means and disposed within said input compartment for operating said door means in response to the liquid level in said input compartment;

apertured, vertically upright barrier means disposed within said input compartment between said liquid inlet means and said float means for reducing liquid turbulence; and,

gas inlet means for admitting dirty gases to be cleaned into said input compartment;

an intermediate gas separation compartment defined interiorly of said enclosure adjacent said input compartment and between said first and second divider walls, said intermediate compartment including perforated plate means disposed substantially horizontally within said intermediate compartment for facilitating separation of particulate pollution and gases from liquid contacting said plate;

a liquid pathway between said first divider wall and said bottom for establishing fluid flow between said input compartment and said intermediate compartment;

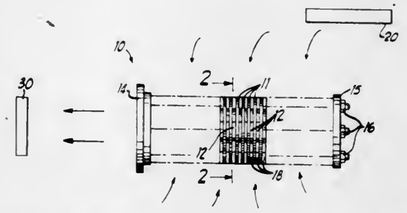
a cleansed gas recovery compartment in fluid flow communication with said intermediate compartment and defined interiorly of said enclosure between said second divider wall and said second end wall, said recovery compartment including drain means provided in the floor of said enclosure for outputting wastes separated from escaping gases exteriorly of said enclosure; and

exhaust fan means connected to said cleansed gas compartment for drawing gases to be cleansed into and through said enclosure and through said washing solution to effectuate cleaning and for exhausting cleansed gases exteriorly of said system enclosure.

4,269,613
REUSABLE DISC FILTER WITH FOIL SPACERS FOR HIGH TEMPERATURE GASES

Richard J. Miko, Paramus, N.J., and Daniel H. Shapiro, Roslyn Heights, N.Y., assignors to Edo Corporation, College Point, N.Y.

Filed Mar. 14, 1979, Ser. No. 20,486
Int. Cl.³ B01D *46/40*
U.S. Cl. 55—278 **9 Claims**

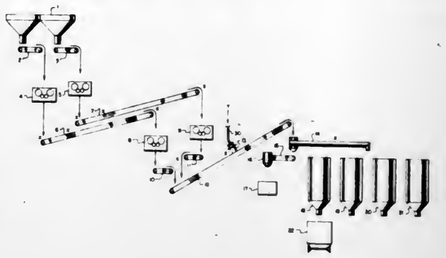


1. A hot gas filter to remove contaminants from a gas stream generated by a burning propellant and having a gas temperature in excess of 4500° F., the filter to be capable of surviving numerous exposures to the hot gas without damage and to be used in a system between the burning propellant and a movable member downstream of the filter to reliably prevent fouling of the downstream member after numerous exposures to the hot gas, said filter comprising: a plurality of axially-aligned flat discs; a plurality of axially aligned flat foil spacers; each disc being spaced from an adjacent disc by a foil spacer to establish filter gaps between the edges of the discs; a cap at one end of the aligned discs and spacers; a flange with an opening at the other end of the aligned discs and spacers; a plurality of studs attached to the cap and flange to hold the filter together, the studs passing through the respective discs and foil spacers to maintain their position in the filter; each disc having a plurality of flow openings in communication with the said filter gaps and aligned and in communication with the respective flow openings in the other discs; the flange opening overlapping at least a portion of each of the aligned flow openings in the discs; and the flat discs and spacers both being comprised of a metal capable of withstanding the high temperature gas without melting.

4,269,614
APPARATUS FOR CONTROLLING THE DISPERSION OF COAL FINES INTO THE ATMOSPHERE

Keith L. Shelstad, Gillette, Wyo., assignor to Sunoco Energy Development Co., Dallas, Tex.

Filed Jan. 25, 1980, Ser. No. 115,573
Int. Cl.³ B01D *46/42*
U.S. Cl. 55—385 R **2 Claims**



1. In a system for handling particulate matter which includes fines subject to undesirable airborne dispersion, which system includes a conveyor belt for transporting the particulate matter, apparatus for containing the fines, and hence limiting the airborne dispersion thereof, which includes:

(A) means for collecting the fines;

(B) a hollow plow-like member vertically suspended above the conveyor belt with its lower terminus being open and disposed proximate the conveyor belt surface, said plow-like member having a generally narrow V-shaped cross section and being oriented with its leading edge directed to intercept particulate matter carried by the conveyor belt, said plow-like member including outwardly flared side edges extending from said leading edge to effect a slight lifting of the particulate matter in the region of said flared edges; and

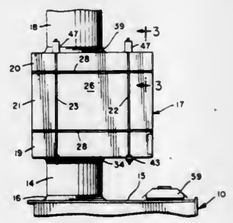
(C) means for introducing collected fines into the hollow interior of said plow-like member;

whereby the plow-like member temporarily folds back the particulate matter to permit insertion of the collected fines thereunder to effect containment thereof.

4,269,615
FILTER ASSEMBLY

Jon A. Zboralski; Richard C. Tringali, both of Manitowoc, and Harry N. Grow, Two Rivers, all of Wis., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Mar. 10, 1977, Ser. No. 776,135
Int. Cl.³ B01D *46/00*
U.S. Cl. 55—480 **4 Claims**



1. A filter assembly for filtering air comprising:

first and second spaced-apart filter housings, each of the filter housings having a side wall,

a filter removably positioned between the first and second filter housings, the filter including a side wall having first

and second peripheries, the first periphery of the side wall of the filter being sealingly engaged with the side wall of the first filter housing and the second periphery of the side wall of the filter being sealingly engaged with the side wall of the second filter housing,

a plurality of brackets mounted on said second filter housing,

a plurality of rigid rods extending between said first and second filter housings, each of said rods having a first end secured to said first filter housing and a second threaded end extending through one of said brackets on the second filter housing,

a nut threadedly engaged with the threaded end of each rod, movement of the nuts along the rods toward said first filter housing causing said brackets and said second filter housing to be urged toward said first filter housing to clamp the filter between the first and second filter housings, and

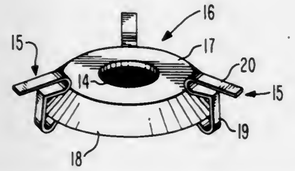
means for moving said brackets along the rods away from the first filter housing to separate the second filter housing from the first filter housing whereby the filter can be removed from between the filter housings, the second filter housing being connected to the first filter housing by the rigid rods and being supported by the rigid rods when the filter is removed, the rigid rods providing the sole connection between the filter housings when the filter is removed.

4,269,616

TEMPERATURE INSENSITIVE FILTER FOR KINESCOPE ENVELOPES

Emil V. Fitzke, Trenton; Donald B. Wenner, Hopewell, and Michael J. Polak, Trenton, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 13, 1980, Ser. No. 177,576
Int. Cl.³ B01D *46/10*; H01J *9/38*
U.S. Cl. 55—493 **9 Claims**



1. A filter for preventing the infiltration of airborne contaminants into a kinescope envelope, and envelope including a neck having a conical input section, said filter comprising:

an annular ring dimensioned and configured to sealably rest in said conical section, said ring having a sealing portion integral with a support portion, said sealing and support portions being angularly disposed so that said support portion lies substantially perpendicular to the longitudinal axis of said neck and said sealing portion rests against the inside surface of said conical section when said filter is disposed in said input section;

a fluid permeative filter member affixed to said support portion so that fluid ingressing and egressing said envelope passes through and is filtered by said member;

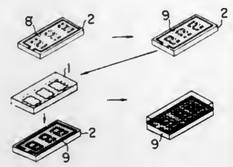
a plurality of resilient clips affixed to said ring, said clips being of a material which remains resilient through an approximate temperature range of 20° C. to 500° C., said clips being configured with a first folded portion and a second folded portion and being attached to said ring so that one side of said first folded portion extends in substantially the same direction as said sealing portion and the bight of said second folded portion presses against the outside of said conical section to resiliently retain said filter in said conical section when said filter is disposed in said input section.

4,269,617

PROCESS FOR THE MANUFACTURE OF LIQUID CRYSTAL DISPLAY ELEMENT

Yoshimichi Shibuya; Hiromitsu Kawamura; Yasuhiko Kando, and Masaharu Koyama, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 3, 1979, Ser. No. 35,529
Claims priority, application Japan, May 17, 1978, 53/57652
Int. Cl.³ C23C *27/00*
U.S. Cl. 65—43 **10 Claims**



1. A process for the manufacture of a liquid crystal container for a liquid crystal display element in which a pair of substrates, each provided with transparent electrode means and liquid crystal orientation control means on its inner face, are sealed at their peripheral areas while defining a predetermined gap therebetween, said process comprising the steps of:

applying a sealant to a predetermined zone of at least one of said substrates;

subjecting said at least one of said substrates having said sealant thereon to primary firing in an open condition, thereby fusing and fixedly depositing said sealant on said at least one of said substrates having said sealant thereon;

applying a relative-position holding material to at least a portion of at least one of said substrates such that, when said pair of substrates is properly positioned for sealing, said holding material is at a position external relative to said fused and fixedly deposited sealant; and

superposing the mating substrate on said at least one of said substrates having said sealant thereon to bring the pair of said substrates into their accurate relative positions and subjecting the stack to secondary firing while holding said substrates in that relation, thereby integrally assembling and sealing said substrates at their peripheral areas with said sealant.

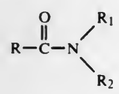
4,269,618

HERBICIDE COMPOSITIONS

Ferenc M. Pallos, Walnut Creek; Mervin E. Brokke, Moraga, and Duane R. Arneklev, Sunnyvale, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 208,041, Dec. 9, 1971, Pat. No. 4,137,070, which is a continuation-in-part of Ser. No. 134,868, Apr. 16, 1971, abandoned. This application Aug. 4, 1978, Ser. No. 930,967
Int. Cl.³ A01N *43/46, 37/02, 37/18*
U.S. Cl. 71—88 **50 Claims**

1. A herbicidal composition comprising an active thiolcarbamate herbicidal compound and an antidote therefor corresponding to the formula



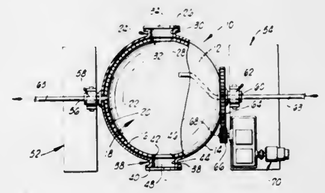
wherein R is haloalkyl having from 1 to 6 carbon atoms, inclusive; R_1 and R_2 can be the same or different and can be selected from the group consisting of alkyl having 1 to 20 carbon atoms, inclusive; haloalkyl-N-alkylamido having 3 to 20 carbon atoms, inclusive; haloalkylamido having 2 to 20 carbon atoms, inclusive; haloalkylamidoalkyl having 4 to 20 carbon atoms, inclusive; haloalkyl-N-alkylamidoalkyl having 3 to 20 carbon atoms, inclusive; and haloalkylamidoalkenyl having 4 to 20 carbon atoms, inclusive; substituted phenylalkyl wherein said substituents can be selected from halophenoxyalkylamidoalkyl having 9 to 20 carbon atoms, inclusive; α-haloalkylamidophenylalkyl having 9 to 20 carbon atoms, inclusive; α-haloalkylamidonitrophenylalkyl having 9 to 20 carbon atoms, inclusive; α-haloalkylamidohalophenylalkyl having 9 to 20 carbon atoms, inclusive; provided only one of R_1 or R_2 is alkyl and; said compound being antidotally active with said thiolcarbamate herbicide compound and wherein said compound is present in an amount varying between about 0.0001 to 30 parts by weight for each part by weight of the active herbicidal compound.

4,269,619

ILMENITE BENEFICIATION PROCESS AND A DIGESTER METHOD

Howard R. Keil, and Oscar L. Daigle, both of Oklahoma City, Okla., assignors to Kerr-McGee Chemical Corporation, Oklahoma City, Okla.

Filed May 14, 1976, Ser. No. 686,267
Int. Cl.³ C22B *3/00, 3/02*
U.S. Cl. 75—1 T **13 Claims**



1. A method for operating a digester movably mounted on mounting structures in a process for the beneficiation of titaniferous iron ores wherein the digester includes a nozzle having an opening covered via a removable cover, the opening being in fluidic communication with the interior of the digester, the method comprising the steps of:

moving the digester on the mounting structures to a material receiving position in which the nozzel is disposed in a position for receiving the ores to be digested;

removing the cover from the nozzle;

charging the ores into the interior of the digester via the opening in the nozzle;

connecting the cover to the nozzle;

introducing leach liquor into the interior of the digester;

digesting the ores in the digester;

removing the spent leach liquor from the digester after digesting of the ores;

introducing a wash fluid into the interior of the digester to wash the digested ores;

moving the digester on the mounting structures to a material discharge position without first discharging the wash fluid for discharging the digested ores and the wash fluid from the digester;

connecting a pump to the nozzle on the digester;

establishing fluidic communication between the interior of the digester and the pump; and

pumping the digested ores and the wash fluid from the digester via the pump.

6. A method for operating more than one movable digester in a process for the beneficiation of titaniferous iron ores wherein each digester is movably supported on mounting structures and wherein each digester includes a first nozzle having an opening in fluidic communication with the interior of the digester and a removable first cover for closing the opening in the first nozzle, and a second nozzle having an opening in fluidic communication with the interior of the digester and a discharge valve interposed in a discharge nozzle connected to the second nozzle, the method comprising the steps of:

charging each digester with ores, the charging of each digester including the steps of:

moving the digester on the mounting structures to a material receiving position in which the first nozzle is disposed in a position for receiving the ores to be digested;

charging the ores into the interior of the digester via the opening in the first nozzle; and

securing the first cover over the opening in the first nozzle;

introducing leach liquor into the interior of the digesters;

digesting the ores in the digesters;

removing the spent leach liquor from the digester after digesting the ores;

introducing a wash fluid into the interior of the digesters to wash the digested ores;

moving the digesters on the mounting structures to a material discharge position without first discharging the wash fluid in which the second nozzle is in position for discharging the digested ores and the wash fluid from the digesters after the completion of the digestion;

removing the digested ores and the wash fluid from the digesters via a digester discharge assembly, the removing of the ores and the wash fluid including the steps of:

connecting the digester discharge assembly to the discharge valve of one of the digesters after moving the digester to the material discharge position;

opening the discharge valve to establish fluidic communication between the interior of the digester and the digester discharge assembly;

discharging the digested ores and the wash fluid from the digester via the digester discharge assembly;

closing the discharge valve interrupting the fluidic communication between the digester and the digester discharge assembly;

disconnecting the digester discharge assembly from the discharge valve of the digester after the discharge of the ores and the wash fluid and after the closing of the discharge valve; and

moving the digester discharge assembly to each of the digesters and repeating the step of removing the digested ores and the wash fluid from each of the digesters as the digestion of ores is completed and the subsequent moving of the digesters on the mounting structures to the material discharge position.

4,269,620

PROCESS FOR THE PREPARATION OF SILICON OR FERROSILICON

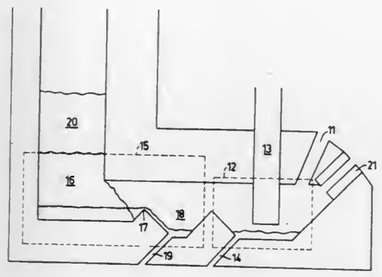
Thomas Johansson, Ljungaverk, Sweden, assignor to Kemanord AB, Stockholm, Sweden

Filed May 24, 1979, Ser. No. 41,910
Claims priority, application Sweden, Jun. 2, 1978, 7806524
Int. Cl.³ C21C *5/52*
U.S. Cl. 75—11 **8 Claims**

1. A process for the preparation of silicon or ferrosilicon by reduction of silicon oxide in the form of silicas or cation containing silicates and oxides, optionally in the presence of iron or iron oxide, by means of a carbonaceous reducing agent in a reaction zone, which reaction zone comprises a zone of energy supply and a zone of subsequent reaction, whereby at least energy and condensed phases from the zone of subsequent reaction are brought to the zone of energy supply while silicon product and a gas phase are leaving the zone of energy supply and whereby at least carbonaceous reducing agent and the gas

phase from the zone of energy supply are brought to the zone of subsequent reaction while a gas phase product and condensed phase are leaving the zone of subsequent reaction so that the gas phase product leaves the reaction zone and the condensed phases enter the zone of energy supply and whereby the silicon oxide is supplied in condensed form somewhere in the reaction zone or in gas phase to the zone of energy supply, comprising the steps of:

(a) supplying at least 33 percent of the silicon oxide directly into the zone of energy supply through a channel through the furnace wall, or a channel through the charge or a channel through the electrodes,



(b) controlling the supply rate of the silicon oxide to the zone of energy supply essentially continuously and in an adjustable way to make the consumption of the silicon oxide in the zone of energy supply independent of the charging of energy to the zone of energy supply so that the temperature in the zone of energy supply can be influenced, and

(c) regulating the supply rate of silicon oxide and the supply rate of energy to the zone of energy supply to give a high enough temperature in the zone of energy supply to give a content of silicon monoxide below 5 mole percent in the gas leaving the zone of subsequent reaction.

4,269,621

USE OF HEAVY METAL CHELATES OF 2-MERCAPTOPYRIDINE-N-OXIDE TO SEPARATE SELECTED PRECIOUS METALS FROM ACIDIC SOLUTIONS

Joseph R. Reiner, Northford, and Sigmund Breister, Hamden, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Jan. 24, 1980, Ser. No. 115,163
Int. Cl.³ C22B *11/04*
U.S. Cl. 75—101 BE **17 Claims**

1. A process for separating precious metals selected from the group consisting of gold, platinum, palladium, rhodium, iridium, osmium, and ruthenium from acidic solutions having a pH below about 3, which comprises the steps of:

(a) adding a sufficient amount of at least one heavy metal chelate of 2-mercaptopyridine-N-oxide, wherein said heavy metal chelates are selected from the group consisting of zinc, iron, copper, aluminum, mercury, lead, tin, and nickel, to said acidic solution to cause at least a portion of said precious metals in said acidic solution to transchelate with the heavy metal chelate of 2-mercaptopyridine-N-oxide and to form precipitates in said acidic solution; and

(b) separating said precipitated precious metal chelates of 2-mercaptopyridine-N-oxide from said acidic solution.

4,269,622

RECOVERY OF PRECIOUS METALS FROM DIFFICULT ORES

Bernard J. Kerley, Jr., Santo Tomas Rt. Box 73, Sahuarita, Ariz. 85629

Filed Dec. 28, 1979, Ser. No. 108,168
Int. Cl.³ C22B *11/04*
U.S. Cl. 75—103 **6 Claims**

1. In a method for the recovery of precious metals including gold and silver from an ore containing same, comprising lixiviating said precious metals from said ore using an ammonium thiosulfate liquor as the lixiviating agent in the presence of copper, followed by recovering said precious metals from said ammonium thiosulfate liquor, the improvement comprising:

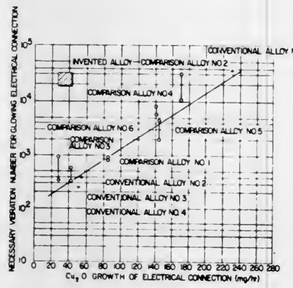
maintaining the pH of said liquor during lixiviation at a value of at least 7.5 with ammonia, and simultaneously maintaining a sulfite ion concentration of at least 0.05%.

4,269,623

COPPER ALLOY FOR RELIABLE ELECTRICAL CONNECTION

Sadao Inoue, Nikko; Tetsuya Umemura, Ichihara; Hiroshi Suzuki, and Takashi Kuroyanagi, both of Yokohama, all of Japan, assignors to Furukawa Metals Company, Ltd., Tokyo, Japan

Filed Sep. 19, 1979, Ser. No. 77,123
Claims priority, application Japan, Sep. 19, 1978, 53-114884
Int. Cl.³ C22C *9/00, 9/04*
U.S. Cl. 75—157.5 **2 Claims**



1. A copper alloy for giving a reliable connection in mechanical contact with an electric wire, which consists essentially of 0.5–3.0 wt.% of Fe, 0.3–0.8 wt.% of Zn, the balance consisting of Cu and impurities thereof.

4,269,624

METHOD FOR THE PRODUCTION OF NON-EVAPORABLE TERNARY GETTERING ALLOYS

Alessandro Figini, Milan, Italy, assignor to SAES Getters S.p.A., Milan, Italy

Filed Jan. 24, 1980, Ser. No. 115,050
Claims priority, application Italy, Feb. 5, 1979, 19902 A/79
Int. Cl.³ C22C *13/00;* F17C *11/00*
U.S. Cl. 75—177 **8 Claims**

1. A method for the production of non-evaporable ternary gettering alloys of the type Zr-M_1-M_2 in which M_1 is a metal chosen from the group comprising vanadium and niobium and in which M_2 is a metal chosen from the group comprising iron and nickel; said method comprising in sequence the steps of:

I. mixing zirconium and an alloy M_1-M_2 in air at atmospheric pressure and at room temperature to form a mixture; and then

II. melting the mixture under vacuum at a pressure of less than 10^{-2} torr or in an inert atmosphere at less than atmospheric pressure to form a ternary alloy; and then

III. cooling the ternary alloy to room temperature; and then

IV. grinding the ternary alloy to obtain a powder having a particle size less than 500μ.

4,269,625

BATH FOR ELECTROLESS DEPOSITING TIN ON SUBSTRATES

Arian Molenaar, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,484
Claims priority, application Netherlands, Dec. 4, 1978, 7811816
Int. Cl.³ C23C *3/02*
U.S. Cl. 106—1.22 **6 Claims**

1. A electroless tinplating bath for the electroless deposition of tin on a catalytic surface, said bath comprising an aqueous alkaline solution of at least 0.20 moles per liter of stannous ions, 0.005 to 0.03 mols per liter of stannic ions and at least 0.1 mols per liter of a reducing agent selected from the group consisting of hypophosphites and borazanes.

4,269,626

AQUEOUS ACID/AMINO 1,3-BUTADIENE POLYMER REACTION PRODUCT AGENT FOR TREATING WOOD AND WOODEN MATERIALS

Klaus Gorke, Haltern-Lavesum, and Wilfried Bartz, Marl, both of Fed. Rep. of Germany, assignors to Chemische Werke Heuls, A.G., Marl, Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,396
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 2838930
Int. Cl.³ C08D *5/14, 5/18*
U.S. Cl. 106—18.32 **4 Claims**

1. An aqueous agent for treating wood and wooden materials, comprising an organic binder dryable by oxidation and consisting essentially of the reaction product of an acid and an amino group carrying 1,3-butadiene substrate polymer, wherein

(1) the amino group carrying 1,3-butadiene polymer has a double bond content corresponding to an iodine number of at least 200 g iodine/100 g, of which a double bond content of at least 100, measured as iodine number, is derived from cis-1,4-structural elements of the 1,3-butadiene substrate polymer per se;

(2) the amino group content of the amino group carrying 1,3-butadiene polymer is at least 50 mg-atoms of nitrogen/100 g of polymer; and

(3) the 1,3-butadiene substrate polymer per se has at least 70 molar percent butadiene units and a number average molecular weight of 500–6,000,

said reaction product being a water soluble or water dispersible salt.

4,269,627

WATERPROOF INFRARED ABSORPTIVE JET PRINTING INK

Ki-Sup Hwang, Xenia, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Jun. 29, 1979, Ser. No. 53,618
Int. Cl.³ C09D *11/00*
U.S. Cl. 106—22 **8 Claims**

1. A jet printing ink which has high light absorptivity at infrared wavelengths and smear resistance after printing, is fast drying on paper and waterproof when dry comprising:

(a) as the dye component, a first water soluble dyestuff selected from the group consisting of Direct Black 19, Direct Black 22, and mixtures thereof; and a second water soluble dyestuff which is the thiosulfonic acid of 2,4-dinitrophenol;

(b) an alkaline agent which solubilizes the dye component and aids in its penetration of and fixation to paper comprising a compound having the formula R_3N, wherein R is a lower alkyl group, an aryl group, or hydrogen, with the proviso that not more than one R group can be hdyrogen;

(c) a humectant selected from the group consisting of water soluble lower alkylene glycols; and

(d) the balance water,

said formulation also having a resistivity below about 1000 ohm cm and a viscosity of 1–10 centipoise at 25° C.

4,269,628

COMPOSITIONS OF VERMICULITE LAMELLAE AND SOLID PARTICULATE MATERIALS

Denis G. H. Ballard, Littleton; William N. E. Meredith, Hoole, and Graham R. Rideal, Handbridge, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Aug. 13, 1979, Ser. No. 66,467
Claims priority, application United Kingdom, Aug. 17, 1978, 33723/78
Int. Cl.³ C04B *41/28*
U.S. Cl. 106—86 **15 Claims**

1. A strong, dry, rigid foam article having a density of less than 500 kg/m³ and stable in water against disintegration when placed in water, said article consisting essentially of vermiculite lamellae and a compressive strength and water stability additive selected from the group consisting of magnesium oxide, magnesium hydroxide, calcium oxide and calcium hydroxide, said vermiculite lamellae being obtained from vermiculite which has been swollen by the action of aqueous salts and delaminated by mechanical shearing of the swollen granules to yield platelets having a thickness of less than one tenth of a micrometer.

9. A strong, dry article which is stable in water against disintegration when placed in water, said article consisting essentially of vermiculite lamellae and a strength and water stability additive selected from the group consisting of magnesium oxide, magnesium hydroxide, calcium oxide and calcium hydroxide said vermiculite lamellae being obtained from vermiculite which has been swollen by the action of aqueous salts and delaminated by mechanical shearing of the swollen granules to yield platelets having a thickness of less than one tenth of a micrometer.

4,269,629

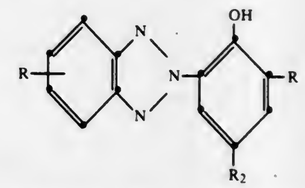
STABILIZED CELLULOSE ESTER COMPOSITIONS

Joseph S. Zannucci, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 902,607, May 3, 1978, abandoned. This application Sep. 21, 1979, Ser. No. 77,875
Int. Cl.³ C08L *1/10*
U.S. Cl. 106—176 **13 Claims**

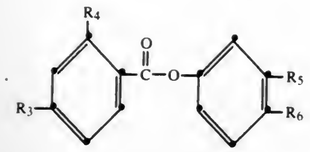
1. A cellulose ester plastic composition containing a stabilizing amount of the combination of

(A) at least one hydroxybenzotriazole compound having the formula



wherein R is selected from the group consisting of a halogen, hydrogen, a hydroxy group, an alkyl radical or an acyl radical, and R_1 and R_2 are selected from the group consisting of hydrogen or a branched or unbranched alkyl radical containing 1 to 12 carbon atoms, an acyl radical and hydrogen;

(B) at least one phenylbenzoate having the formula:



wherein R_3 and R_6 are hydrogen, alkoxy group containing 1 to 12 carbon atoms, or branched or unbranched alkyl group containing 1 to 12 carbon atoms; and at least one of R_5 and R_4 is hydroxyl and the other is hydrogen; and

(C) at least one conventional hindered phenolic antioxidant.

4,269,630

TWO-STEP PROCESS AND COMPOSITION FOR CLEANING POLISHED SURFACES

George M. Stephenson, 190 Chestnut Ridge, Bethel, Conn. 06801, and William Colucci, Danbury, Conn., assignors to George M. Stephenson, Bethel, Conn.

Filed Oct. 1, 1979, Ser. No. 80,588
Int. Cl.³ B08B *3/08*
U.S. Cl. 134—26 **8 Claims**

3. A process for cleaning highly-polished surfaces with a cleaner composition comprised of two different portions, which comprises:

(a) applying to the surface to be cleaned a first portion of the cleaner comprising, on a weight basis, from about 50 to 65% 1,1,2-trichloro-1,2,2-trifluoroethane, from about 25 to 35% isopropyl alcohol, from about 1 to 5% dimethylformamide, and from about 5 to 15% 2-ethoxyethanol; then,

(b) while the surface is still wet with said first portion, rinsing the surface with a second portion of the cleaner composition which comprises, on a weight basis, at least about 85% 1,1,2-trichloro-1,2,2-trifluoroethane which contains less than 10 ppm of non-volatile residues; and then

(c) permitting the surface to dry.

4,269,631

SELECTIVE EPITAXY METHOD USING LASER ANNEALING FOR MAKING FILAMENTARY TRANSISTORS

Narasipur G. Anantha, Hopewell Junction, and Gurumakonda R. Srinivasan, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 14, 1980, Ser. No. 111,570
Int. Cl.³ H01L *21/263, 7/36*
U.S. Cl. 148—1.5 **11 Claims**

1. The method comprising

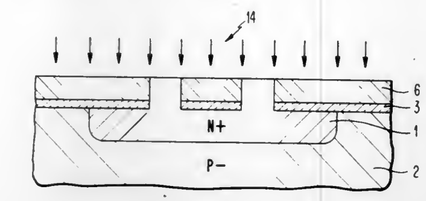
providing a semiconductor substrate of a relatively low impurity concentration,

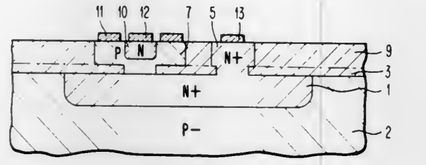
forming a region of relatively high impurity concentrantion in said substrate,

forming a masking layer on said substrate, said layer being apertured over a portion of said region

depositing polycrystalline silicon of a relatively low impurity concentration on said layer and said substrate, and

subjecting said polycrystalline silicon to laser radiation, the radiation from said laser interacting with said relatively high impurity concentration region in said substrate to melt and regrow said polycrystalline silicon selectively and thereby to convert said polycrystalline silicon substantially only over said portion of said region into epitaxial monocrystalline silicon.



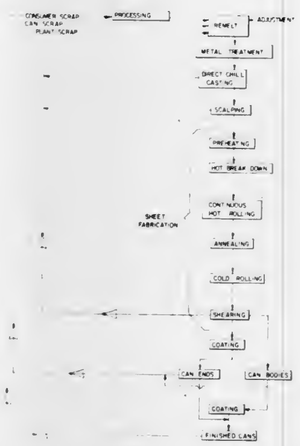


4,269,632

FABRICATION OF ALUMINUM ALLOY SHEET FROM SCRAP ALUMINUM FOR CONTAINER COMPONENTS

King G. Robertson, and Donald C. McAuliffe, both of Golden, Colo., assignors to Coors Container Company, Golden, Colo.

Filed Aug. 4, 1978, Ser. No. 931,040
Int. Cl.³ C22F *1/04*
U.S. Cl. 148—2 **14 Claims**



1. A process of fabricating aluminum sheet for aluminum containers comprising:

(a) providing an aluminum alloy consisting esentially of magnesium 0.4–1.0%; magnesium 1.3–2.5%, said manganese and magnesium being present in a total concentration of 2.0–3.3% and in a ratio of magnesium to manganese of between 1.4:1 and 4.4:1; silicon 0.15–1.0%; iron 0.1–0.9%; and copper 0.05–0.4%;

(b) casting said alloy at 700°–750° C. into an ingot;

(c) preheating said ingot to 550°–600° C.;

(d) hot rolling, between 450° C. and 510° C., said ingot to a slab;

(e) immediately continuously hot rolling said slab to a strip of cold rolling gauge; and

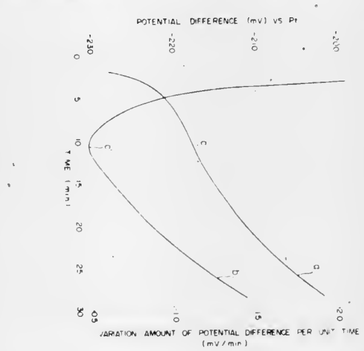
(f) cold rolling said strip of cold rolling gauge to at least 40% reduction to form cold rolled sheet which then has properties required for manufacturing the cold rolled sheet into a container component.

4,269,633

METHOD FOR COLORING STAINLESS STEEL

Takeshi Takeuchi; Hisao Takamura; Kiyoshi Takatsu, and Hidehiro Shibata, all of Ichikawa, Japan, assignors to Nisshin Steel Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1980, Ser. No. 127,978
Claims priority, application Japan, Mar. 20, 1979, 54-31786
Int. Cl.³ C23F *5/02, 7/00*
U.S. Cl. 148—6.21 **3 Claims**



1. A method for coloring stainless steel by controlling the potential difference between the surface of the stainless steel being colored and a reference electrode in a coloring liquor, characterized by differentiating a potential-time curve showing the variation with time of the potential difference between the surface of the stainless steel and the reference electrode by time to prepare the differentiation curve thereof and removing the stainless steel from the coloring liquor when the potential difference has changed from the coloring starting point that is the inflexion point on this differentiation curve, at which the variation amount of the potential per unit time changes from a falling tendency to a rising tendency, by a predetermined amount associated with the desired color.

4,269,634

LOSS REDUCTION IN ORIENTED IRON-BASE ALLOYS CONTAINING SULFUR

Karl Foster, Forest Hills Boro, and Jack W. Shilling, Murrysville Boro, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 4, 1979, Ser. No. 100,089
Int. Cl.³ H01F *1/00*
U.S. Cl. 148—120 **5 Claims**

1. In a process for producing primary recrystallized iron having a cube-on-edge orientation of the type of which utilizes preparing an ingot alloy, hot working said alloy, working said alloy to final thickness, and final annealing at a temperature between about 800° and 950° C., the improvement which comprises:

(a) preparing an ingot alloy consisting essentially of 0.01–0.15% manganese, more than 50 ppm but less than about 250 ppm sulfur, 0.1–2.0% silicon, up to 2% chromium, up to 6% cobalt, up to 0.03% carbon, with the remainder being iron and incidental impurities;

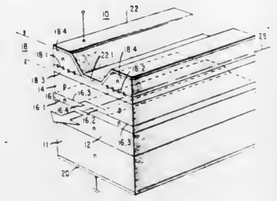
(b) fusing on the surface of the final annealed alloy a coating of glass having a coefficient of thermal expansion of less than about 8.5×10^{-6} inches per inch per degree centigrade to affect a tensile stress on the material at least 200 psi by heating to a temperature of at least 700° C., but less than the temperature at which said alloy was final annealed.

4,269,635

STRIP BURIED HETEROSTRUCTURE LASER

Ralph A. Logan, Morristown, and Won-Tien Tsang, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 865,237, Dec. 28, 1977, Pat. No. 4,190,813.
This application Sep. 5, 1979, Ser. No. 72,591
Int. Cl.³ H01L *21/208*
U.S. Cl. 148—171 **9 Claims**



2. A method of fabricating a semiconductor device having an active region therein comprising the steps of:

epitaxially growing on a semiconductor body a first layer from which said active region of a predetermined geometry is to be formed,

protecting the top surface of said first layer from the introduction of defects therein during subsequent processing by epitaxially growing a thin second layer thereon which can be selectively etched in the presence of said first layer,

masking said second layer to define said geometry,

selectively etching away said second layer in the mask openings to expose the underlying first layer, and

removing at least a portion of said first layer to effect said geometry.

4,269,636

METHOD OF FABRICATING SELF-ALIGNED BIPOLAR TRANSISTOR PROCESS AND DEVICE UTILIZING ETCHING AND SELF-ALIGNED MASKING

Anthony L. Rivoli, Palm Bay; William R. Morcom, Melbourne Beach; Hugh C. Nicolay, Melbourne Village, and Eugene R. Cox, Palm Bay, all of Fla., assignors to Harris Corporation, Melbourne, Fla.A

Filed Dec. 29, 1978, Ser. No. 974,478
Int. Cl.³ H01L *21/20, 21/306*
U.S. Cl. 148—175 **10 Claims**

1. A method for forming circuit devices in a semiconductor body having a planar surface, which comprises:

forming first and second grooves through said planar surface of the semiconductor body to a depth below the region in said semiconductor body wherein a circuit device is to be formed without severing the semiconductor body, the device region being situated between said pair of grooves;

forming a third groove through said planar surface of the semiconductor body within the device region to a depth such that the bottom of said second grooves remain within said device region;

filling said grooves with dielectric material to form lateral dielectric isolation regions;

forming an oxidation inhibiting layer on said planar surface over said device region and overlapping at least a portion of each of said first and second grooves;

removing portions of said oxidation inhibiting layer to expose selected areas of said device region which areas do

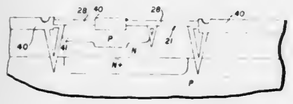
not include contact regions of active regions of the device being formed;

selectively providing a first dopant through said oxidation inhibiting layer to form a first active region self-aligned between said first groove and said third groove;

thermally oxidizing said semiconductor body to diffuse said first dopant into said first active region while forming a thick oxide layer on said planar surface in areas not protected by said oxidation inhibiting layer with openings for contact regions of the device being formed;







selectively providing a second dopant through said oxidation inhibiting layer to form a first contact region self-aligned between said second groove and said third groove and a second active region between said third groove and a portion of said thick oxide layer over a portion of said first active region;

diffusing said second dopant to form said first contact region and said second active region self-aligned to said second and third grooves; and

removing said oxidation inhibiting layer to expose contact areas to said first and second active regions and said first contact region.

4,269,637

HIGH-PERFORMANCE MHD SOLID GAS GENERATOR

Joseph E. Flanagan, Woodland Hills, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 19, 1979, Ser. No. 58,643

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.1 **6 Claims**

1. A solid propellant electron-producing gas generator, which comprises:

a dialkali tetranitroethane salt selected from the group consisting of potassium tetranitroethane, cesium tetranitroethane, and mixtures thereof;

a halogen free energetic binder system; and

a metallic fuel selected from the group consisting of aluminum, zirconium, boron, and mixtures thereof.

4,269,638

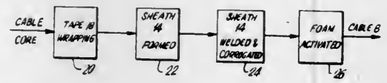
METHOD OF MANUFACTURING A SEALED CABLE EMPLOYING A WRAPPED FOAM BARRIER

John G. Faranetta, Rocky Hill, and Robert G. Feller, West Milford, both of N.J., assignors to The Okonite Company, Ramsey, N.J.

Filed Oct. 10, 1979, Ser. No. 83,538

Int. Cl.³ H01B *13/08, 13/18, 13/22*

U.S. Cl. 156—53 **4 Claims**



1. A method for producing sheathed, non-vapor propagating cable comprising the steps of wrapping a strip of a foamable material around an insulated conductor, said foamable material being of the closed cell type after activation by the application of heat; forming an outer metal sheath about said insulated conductor and said foam; corrugating said outer metal sheath and applying heat to activate said foam able material and seal the space between said insulated conductor and said outer metal sheath.

4,269,639

MANUFACTURE OF MINERAL INSULATED CABLES

Robert J. Lewis, Manchester, England

Filed Jan. 30, 1980, Ser. No. 117,010

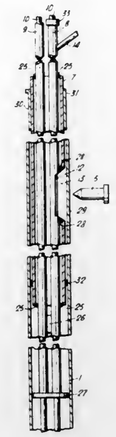
Claims priority, application United Kingdom, Feb. 8, 1979, 7904410

Int. Cl.³ H01B *13/06, 13/22*

U.S. Cl. 156—54 **10 Claims**

1. A process for the manufacture of mineral insulated electric cable which comprises continuously forming a sheath from travelling metal strip, by bending the strip into tubular form and seam welding the abutting edges of the bent strip together, while the said edges and travelling along a predetermined path, and simultaneously introducing powdered insulating material and at least one conductor wire into the sheath so formed, and then passing the resulting assembly through a series of reduction means to compact the insulant powder and to reduce the diameter of the sheath, each reduction step being followed by annealing and quenching, wherein a said conductor wire is introduced into the sheath by being passed through a guide tube extending into the sheath to a point beyond the region in which said welding is effected, which guide tube has an aperture in its wall located adjacent to the path of travel of the said edges in the said region, and wherein the assembly of said conductor wire and guide tube and the insulant powder is so arranged within the bent sheath-forming metal strip that the powder is excluded from the said welding region and that the said conductor wire is directly exposed, through said aperture, to heat generated by the welding operation.

4. A process according to claim 1, wherein a continuous stream of rare gas is delivered to the interior surface of the sheath-forming metal strip in the vicinity of the said welding region, and is released through a gap between the edges of the



strip adjacent to the said region, so that air is excluded from the surfaces of the metal strip in the said region.

4,269,640

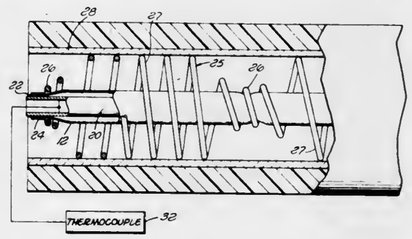
PRECISION HEAT FORMING OF TETRAFLUOROETHYLENE TUBING

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; W. V. Ruiz, Yorba Linda, and C. S. Thatcher, Fullerton, both of Calif.

Filed Jan. 18, 1980, Ser. No. 113,015

Int. Cl.³ B29C *27/12*

U.S. Cl. 156—84 **4 Claims**



1. A method for altering the size of tetrafluoroethylene tubing without splitting comprises the steps of:

(a) sliding tetrafluoroethylene tubing onto an aluminum mandrel and clamping the ends of the tubing to the mandrel;

(b) inserting said tetrafluoroethylene tubing on said aluminum mandrel into a supporting coil;

(c) inserting said coil with said tetrafluoroethylene tubing on said aluminum mandrel into an insulated steel pipe forming an assembly;

(d) heating said assembly in an oven to a temperature in the range of approximately 330 to 354 degrees celsius for approximately 15 to 30 minutes to shrink said tetrafluoroethylene tubing to the size of said aluminum mandrels;

(e) removing said tetrafluoroethylene tubing and aluminum mandrel and said coil from said pipe and allowing the tetrafluoroethylene tubing to cool slowly; and

(f) removing said tetrafluoroethylene tubing from said mandrel.

4,269,641

METHOD FOR ADHESION OF CERAMICS

Yoshihiro Ebata, Kawanishi; Yasuo Toibana, Ikeda; Tsuneo Uetsuki, Kawanishi; Saburo Kose, and Makoto Kinoshita, both of Ikeda, all of Japan, assignors to Agency of Industrial Science and Technology and Ministry of International Trade and Industry, both of Tokyo, Japan

Filed Oct. 11, 1979, Ser. No. 87,064

Claims priority, application Japan, Nov. 10, 1978, 53-138991; Dec. 1, 1978, 53-149421

Int. Cl.³ C04B *39/12*

U.S. Cl. 156—89 **3 Claims**

1. A method for the adhesion of a ceramic article to an article of metallic copper, which comprises adding a binder to a powder mixture of CuS—$LaCrO_3$—SiO_2, wherein the proportion of CuS to $LaCrO_3$—SiO_2 is in the range of from 80:20 to 90:10 by weight and the proportion of $LaCrO_3$ to SiO_2 is in the range of from 25:75 to 50:50 by weight, to convert the powder mixture to a paste, coating a surface of the ceramic article with the paste, placing the article of metallic copper in contact with the coated surface of the ceramic article, and heating the pair of articles in the resultant state of fast contact in an oxidizing atmosphere at a temperature in the range of from 1000° to 1200° C. for a period of from 10 to 20 minutes.

4,269,642

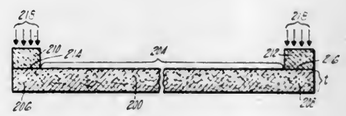
METHOD OF FORMING DENSIFIED EDGE SEALS FOR FUEL CELL COMPONENTS

Anthony J. DeCasperis, South Windsor; Richard J. Roethlein, Stafford Springs, and Richard D. Breault, Coventry, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Oct. 29, 1979, Ser. No. 88,993

Int. Cl.³ H01M *2/00, 4/88;* B29C *25/00;* C01B *31/00*

U.S. Cl. 156—89 **13 Claims**



1. In a process for fabricating a fuel cell component comprising a fully graphitized gas porous, resin bonded carbon fiber sheet having first and second oppositely facing surfaces and a pair of parallel edge portions separated by a central portion, wherein said edge portions are more dense than said central portion, the steps of:

forming an intermediate product comprising a homogeneous layer of carbon fibers and thermosetting resin, wherein the resin in said intermediate product has not been thermoset, said intermediate product including a pair of parallel edge portions separated by a central portion, said step of forming including building up the thickness of said edge portions such that they are thicker than said central portion with a material having substantially the same composition as said central portion;

densifying at least said edge portions by compressing said edge portions to a thickness which is substantially the same as the desired final thickness of said central portion, said step of densifying including applying heat to cure said resin; and

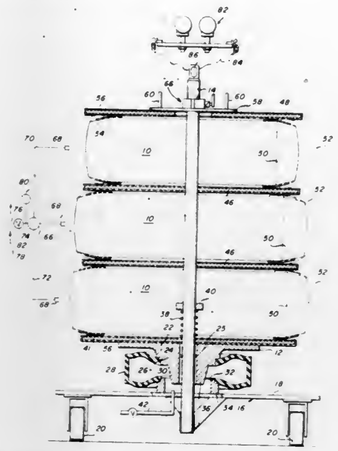
heating said edge portions and said central portion to carbonize said resin and fully graphitize said resin and carbon fibers.

4,269,643

RETREADING STACKED TIRES USING INFLATABLE PRESSURE MEMBER

Donaldee Brewer, and Michael J. Dundon, both of Muscatine, Iowa, assignors to Bandag Incorporated, Muscatine, Iowa

Filed Jan. 29, 1979, Ser. No. 7,564
Int. Cl.³ B29H *17/36*
U.S. Cl. 156—96 **21 Claims**



1. A method of preparing tires for retreading by applying to the periphery of each tire a precured tread strip with a vulcanizable bonding medium disposed between the tire periphery and the tread strip; applying an annular U-shaped envelope to the periphery of each tire so that the edge portions of the envelope overlie the rim or shoulder portion of the tire; stacking the tires vertically on a support with a plate disposed between each two adjacent tires, the plates engaging the edge portion of the envelopes; placing a top plate on the upper surface of the uppermost tire, the improvement comprising: providing a connection between the top plate and the support which restrains upward movement of the top plate connecting a pneumatically powered device between the support and the top plate and supplying pneumatic pressure thereto to compress the stack thereby sealing each tire to the edge portions of its respective envelope; while the stack is compressed, exhausting air from the space between each tire and the inner surface of its respective envelope; and placing the assembly of stacked tires and plates in an autoclave and supplying heat to the autoclave while maintining pressure in the pneumatically powered tension means.

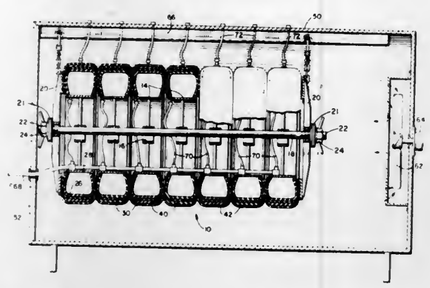
4,269,644

COLD RECAPPING METHOD FOR TIRES

Leon C. Goldstein, Atlanta, Ga., assignor to Prior Tire Enterprises Inc., Atlanta, Ga.

Continuation-in-part of Ser. No. 859,239, Dec. 9, 1977, abandoned. This application Dec. 12, 1979, Ser. No. 102,960
Int. Cl.³ B29H *17/36*
U.S. Cl. 156—96 **4 Claims**

1. A cold tire recapping method utilizing a precured tread strip and a rubber bonding composition between the strip and the prepared tire carcass comprising the steps of:
enclosing a flexible envelope around each of a group of tires which have bonding composition and a precured tread strip thereon;
inflating each tire of said group to a low pressure to assume the tire's normal shape within the envelope;
assembling said group of tires with their axes of rotation substantially aligned so that sidewalls of adjacent tires within said group sealingly press contiguous walls of envelopes thereon toward each other;
applying a controlled axial pressure against the ends of the assembled group to establish a sealed relationship between adjacent tire sidewalls and envelopes within said group;
holding the assembled group so the tires will not move to break this sealed relationship of adjacent tire sidewalls and envelopes within said group;
placing the tires while held in said group within a heating chamber;
venting the space between the envelope and tire of each tire in said group to atmospheric pressure;



inflating each tire to a relatively high pressure while continuing to hold the tires and envelopes in sealed relation in said group and while maintaining a substantially constant axial pressure on the tires to avoid excess outward expansion at the center of the tread of each tire;
pressurizing the chamber to a pressure somewhat lower than the pressure within each tire; and
heating the interior of the chamber to a temperature not exceeding 212° F. to cure the rubber bonding composition between the precured tread strip and the tire carcass.

4,269,645

AROMATIC TRIAZOLES AND ALKYLAMINE BORATES FOR INCREASED SURFACE PROTECTION AND IMPROVED ADHESION OF BRASS-COATED STEEL TO RUBBER

Robert M. Shemenski, Sr., North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 14, 1975, Ser. No. 567,586
Int. Cl.³ B29H *17/08, 17/10, 17/18, 17/20*
U.S. Cl. 156—124 **6 Claims**

1. A method of improving the vulcanized adhesion between a brass coated steel tire cord and rubber in a composite thereof, the rubber containing an amine resin capable of releasing ammonia comprising (A) treating the steel tire cord with benzotriazole and cyclohexylamine borate, and (B) preparing a composite of the treated steel tire cord with the rubber.

4,269,646

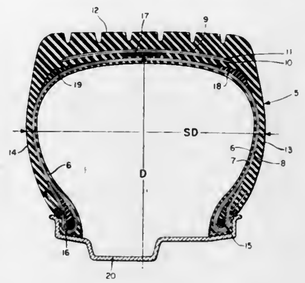
METHOD OF MAKING A BELTED TIRE

Rickie L. Miller, Houston, Tex., and Noel E. Walters, Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 782,214, Mar. 28, 1977, abandoned. This application Jan. 11, 1979, Ser. No. 2,521
Int. Cl.³ B29H *17/14, 17/26*
U.S. Cl. 156—128 N **8 Claims**

1. A method of making an annular belted tire with a tire casing having a first predetermined diameter at the centerplane and a second predetermined diameter at the shoulders, said tire being rotatable about an axis of the tire and comprising:
(a) building a beltless tire casing including
(I) at least one carcass ply reinforced with cords, and
(II) at least one pair of axially spaced substantially inextensible beads;

(b) molding and vulcanizing said tire casing with a peripheral surface having a transverse contour with said first predetermined diameter at the centerplane and said second predetermined diameter at the shoulders;
(c) mounting said beads on ring members movable axially to increase or decrease the distance between said rings;
(d) shaping said casing by inflation of said casing and by axial movement of said ring members to provide said first predetermined diameter at the centerplane of said casing;
(e) wrapping circumferentially around said outer peripheral surface a narrow, substantially inextensible restrictor band after said first predetermined diameter is obtained;
(f) supporting said casing at least at said centerplane by applying a radially outward circumferentially distributed force through inflation of said casing sufficient for stitching said restrictor band on said casing;



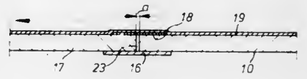
(g) further shaping said tire casing by continued inflation of said tire casing and axial movement of said ring members together to reduce the distance between said rings and radially expand the shoulders of said tire casing to said second predetermined diameter;
(h) wrapping plies of an unvulcanized belt structure around said outer peripheral surface after said shoulders of said tire casing have been expanded to said second predetermined diameter of said shoulders;
(i) wrapping an open-ended tread member around said belt structure; and
(j) vulcanizing said belt structure and any other unvulcanized components of the assembly of said tire casing, belt structure and tread with said tire casing having said transverse contour.

4,269,647

METHOD FOR THE CONTINUOUS COATING OF WEBS HAVING SPLICED JOINTS

Paul A. Verkinderen, Edegem; Ludovicus H. Verhoeven, Zoersel; Lucien A. Christiaen, Wilrijk; Camille F. Pira, Edegem, and Michel L. Marckx, Mortsel, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Oct. 10, 1978, Ser. No. 949,434
Claims priority, application United Kingdom, Oct. 12, 1977, 42509/77
Int. Cl.³ B31F *5/00;* **B65H** *19/00, 69/02*
U.S. Cl. 156—157 **6 Claims**



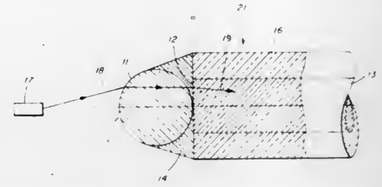
1. Method for the continuous coating of a moving web with a layer of an aqueous solution of hydrophilic colloid, wherein disturbances in the layer of said aqueous solution downstream of a spliced joint in the web are reduced which comprises the steps of butt-joining the web ends to each other by means of a splicing tape over the back sides of the web edges proximate the splice and applying to the butt-joint area at the front sides of the webs a hydrophobic coating prior to applying the layer of aqueous colloid solution.

4,269,648

METHOD FOR MOUNTING MICROSPHERE COUPLING LENSES ON OPTICAL FIBERS

Mark L. Dakss, Sudbury; Bumman Kim, Burlington, and John Schlafer, Wayland, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 10, 1980, Ser. No. 128,777
Int. Cl.³ G02B *5/14*
U.S. Cl. 156—293 **11 Claims**



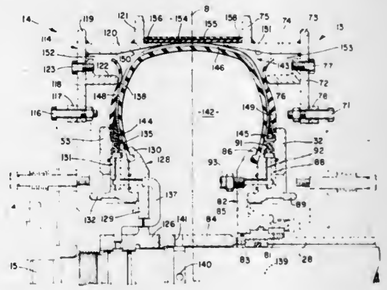
1. A method for mounting a microsphere bead coupling lens on an end of an optical fiber comprising
applying an adhesive to said end;
approximately centering the applied adhesive end of said optical fiber over the bead to be mounted;
lowering said fiber until the adhesive on said end contacts said bead; and
raising said fiber, whereby
the adhesive on said end holds onto said bead by surface tension so that said bead gets picked up as said fiber is raised, and
due to the combination of surface tension and gravity, said bead lens is moved by said adhesive until said lens is aligned with, or very close to, the central axis of said fiber.

4,269,649

SECOND STAGE TIRE BUILDING DRUM AND METHOD FOR THE OPERATION THEREOF

Robert S. Vanderzee, Akron, Ohio, assignor to The Steelastic Company, Akron, Ohio

Filed Dec. 18, 1978, Ser. No. 970,665
Int. Cl.³ B29H *17/26*
U.S. Cl. 156—416 **7 Claims**



1. A second stage building drum assembly mounted for the application of belts and the like to a tire carcass, comprising:
a drive shaft;
a first ring support member secured to said drive shaft;

a second ring support member carried on said shaft and movable longitudinally thereon;

a drum spacer interposed between said first and second ring support members;

a drum supported between said first and second ring support members;

means to move said second ring support member longitudinally away from said first ring support member to dispose said drum in cylindroidal configuration for mounting and removing a tire carcass;

means to move said second ring support member longitudinally toward said first ring support member, as limited by the interposition of said drum spacer, toroidally to shape a tire carcass mounted thereon.

4,269,650

TRANSFER PRINTING APPARATUS

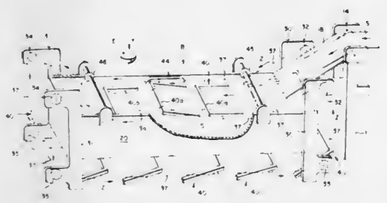
Eisuke Arai, Koganei; Kuniaki Kamei, Kodaira; Akio Kawasaki, Urawa; Fumio Takagi; Koichi Shirai, both of Tokyo, and Yasuharu Orihara, Urawa, all of Japan, assignors to Dai Nippon Insatsu K.K., Tokyo, Japan

Division of Ser. No. 924,853, Jul. 17, 1978, Pat. No. 4,229,239. This application Apr. 23, 1980, Ser. No. 143,037

Claims priority, application Japan, Jul. 27, 1977, 52-90049; Aug. 17, 1977, 52-98482; Jan. 24, 1978, 53-6317

Int. Cl.[1] **B32B** *31/12;* **B44C** *1/16*

U.S. Cl. 156—540 **21 Claims**



1. A transfer printing apparatus comprising: means forming a free surface of a liquid; means for placing on said free surface a printing pattern support sheet made up of a film soluble in said liquid and a pre-printed pattern supported on one surface of said film in a manner such that the sheet floats on the free liquid surface with the film directly contacting the surface; solvent applying means associated with said means for placing the sheet to apply a solvent to said pattern, before the sheet is placed on said free surface, to activate the pattern into an adherent condition ready for transfer printing, whereby as the sheet is floating on the free liquid surface, the film dissolves in the liquid to leave on the liquid surface the activated pattern against which an article can be forced to be printed with the pattern thereon; sheet raising means movable above and below said free surface of liquid; and means for lifting said raising means; said raising means being located between a first part, against which the article is forced, of the sheet floating on the free liquid surface and the remaining second part of the same whereby when the raising means is moved above the surface of liquid, the second part of the sheet is isolated from the first part of the sheet to prevent influence of disturbance of the pattern, in the first part, due to the transfer printing on the second part of the sheet.

4,269,651

PROCESS FOR PREPARING TEMPERATURE-STABILIZED LOW-LOSS FERRITE FILMS

Howard L. Glass, Orange, and Rodney D. Henry, Saratoga, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Division of Ser. No. 918,298, Jun. 22, 1978. This application Feb. 4, 1980, Ser. No. 118,269

Int. Cl.[1] **C30B** *19/02*

U.S. Cl. 156—601 **6 Claims**

1. A method of forming a composite structure exhibiting loss loss microwave or millimeter-wave ferromagnetic resonance, said method comprising the steps of:

(a) providing a single-crystal substrate, wherein said substrate is of a material selected from the group consisting of the rare-earth gallium garnets, the mixed rare-earth gallium garnets, the rare-earth aluminum garnets, the mixed rare-earth aluminum garnets, magnesium oxide, the gallate spinels, the indium-gallate spinels, the aluminate spinels, and sapphire;

(b) forming a monocrystalline film of a ferrimagnetic material on said substrate by a controlled deposition process wherein said ferrimagnetic material is selected from the group consisting of garnet-structured ferrites, spinel-structured ferrites, hexagonal ferrites, and orthoferrites;

(c) measuring the variation of ferromagnetic resonance frequency of said film with variations in temperature;

(d) determining from the measurements a temperature at which the variation of ferromagnetic resonance frequency exhibits an ordinary extremum;

(e) varying parameters of said controlled deposition process and repeating steps (a) through (d) until said temperature at which the variation of ferromagnetic resonance frequency exhibits an ordinary extremum is substantially the same as a preselected temperature.

4,269,652

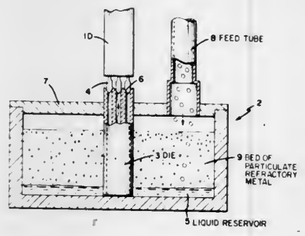
METHOD FOR GROWING CRYSTALLINE MATERIALS

Paul J. Yancey, Matthews, N.C., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Nov. 6, 1978, Ser. No. 958,089

Int. Cl.[1] **C30B** *15/14*

U.S. Cl. 156—607 **11 Claims**



1. In the method of growing crystalline material from a melt comprising providing and maintaining a liquid reservoir supply of said material by feeding a supply of said material in solid form to said reservoir while melting the contents of the reservoir to form a liquid material, contacting a seed with said liquid material and causing said liquid material to solidify on said seed; the improvement which comprises feeding the supply of solid material onto a stationary bed of particulate refractory metal which is in communication with said reservoir whereby said solid material melts in contact with said bed to provide and maintain said liquid reservoir supply.

4,269,653

APERTURE STOP

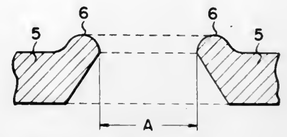
Hirotsugu Wada, Machida, and Toshiaki Shinozaki, Yokohama, both of Japan, assignors to VLSI Technology Research Association, Japan

Filed Nov. 5, 1979, Ser. No. 91,037

Claims priority, application Japan, Nov. 6, 1978, 53-136483

Int. Cl.[3] **B23P** *15/16*

U.S. Cl. 156—644 **4 Claims**



1. A method of manufacturing an aperture stop with a rectangular aperture for an electron beam exposure device, comprising the steps of:

(a) preparing a single-crystal silicon substrate with one side having a **(100)** face;

(b) providing a mask on said side of the substrate;

(c) selectively etching the substrate through the mask from said side to form a projecting portion of rectangular cross section by anisotropic etching;

(d) forming an aperture layer on said one side of the etched substrate surrounding said projecting portion, said layer being comprised of a high-melting-point metal having good electric conductivity; and

(e) forming in said aperture layer a rectangular aperture with a cross section corresponding to the cross section of said projecting portion by removing said substrate from the aperture layer.

4,269,654

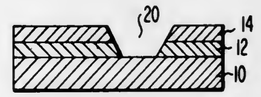
SILICON NITRIDE AND SILICON OXIDE ETCHANT

Cheryl A. Deckert, Lawrenceville, N.J., and George L. Schnable, Lansdale, Pa., assignors to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 852,932, Nov. 18, 1977, abandoned. This application May 9, 1979, Ser. No. 37,378

Int. Cl.[3] **H01L** *21/312;* **B44C** *1/22;* **C03C** *15/00, 25/06*

U.S. Cl. 156—657 **7 Claims**



1. An etchant solution for the concurrent etching of both silicon oxide and silicon nitride layers that etches silicon nitride at a rate faster than silicon oxide to produce openings in said layers having a tapered wall configuration which comprises concentrated aqueous hydrogen fluoride in a high boiling organic solvent, that is miscible with water and compatible with hydrogen fluoride, and which is maintained at a temperature of between about 80° C. and about 120° C.

5. A method of etching composite structures of silicon nitride on silicon oxide on a silicon substrate that etches the silicon nitride at a rate faster than the silicon oxide to produce openings having a tapered wall configuration which comprises immersing the structure in an etchant solution of concentrated aqueous hydrogen fluoride in a high boiling organic solvent that is miscible with water and compatible with hydrogen fluoride at a temperature of at least about 80° C. for a time sufficient to etch through to the silicon substrate.

4,269,655

DEVICE FOR CONCENTRATION OF MINERAL ACIDS, PARTICULARLY SULPHURIC ACID

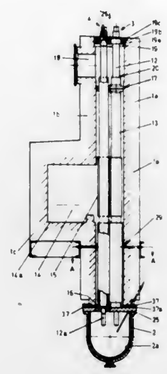
Hans-Broberg; Lars Douren, both of Karlskoga, and John Troeng, Lund, all of Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed May 21, 1979, Ser. No. 41,220

Claims priority, application Sweden, Jun. 21, 1978, 780706

Int. Cl.[3] **B01D** *1/22*

U.S. Cl. 159—13 A **22 Claims**



1. An apparatus for concentrating and purifying corrosive liquids such as sulphuric acid and the like, comprising:

at least one elongated tube having first and second open end portions interconnected by an intermediate portion;

means for supporting said tube such that said open first end portion is in fluid communication with a concentrated source of said corrosive liquid sulphuric acid or the like, said open second end portion is in fluid communication with a collecting vessel or the like capable of receiving said corrosive liquid, with said first end portion being positioned substantially vertically above said second end portion;

channel means arranged for conveying hot gases in a counter-current manner adjacent a portion of said intermediate tube portion to provide for heat transfer therebetween, said channel means comprising inner and outer flow channels each surrounding a portion of said intermediate tube portion, with a vertically lowermost portion of said outer channel being in direct fluid communication with a vertically lowermost portion of said inner channel and said inner channel surrounding and directly confronting said intermediate tube portion to provide for convective heat transfer between hot gases flowing through said inner channel and corrosive liquids flowing through said confronting intermediate tube portion;

turbulation means mounted within at least one of said inner and outer flow channels for causing vigorous turbulation of hot gases flowing through said channel means, thereby providing substantially uniform transfer of heat between said turbulent hot gases and said intermediate tube portion; and

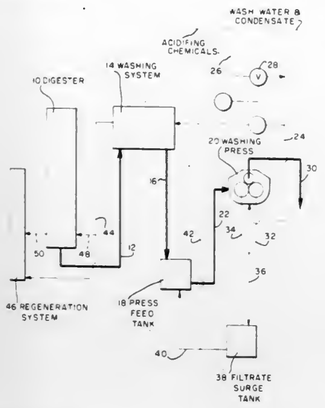
means for drawing hot gases into a vertically upper portion of said outer channel causing said hot gases to flow in a generally vertical downward direction through said outer channel and subsequently flow in a generally vertical upward direction through said inner channel conveying heat by radiation and convection to said intermediate tube portion and any corrosive liquids and the like flowing therethrough.

4,269,656

WOOD PULP FORMING SYSTEM AND METHOD OF RECOVERING SPENT CHEMICALS

Joseph K. Perkins, Nashua, N.H., assignor to Ingersoll-Rand Company, Princeton, N.J.

Filed Apr. 2, 1980, Ser. No. 136,538
Int. Cl.³ D21C *9/02*
U.S. Cl. 162—30 R **2 Claims**



1. A method of recovering spent chemicals used in cooking wood in a digester comprising the steps of: feeding the pulp suspension through a brown stock washing system, and then to a washing press; acidifying the wash liquid before the wash liquid enters the washing press to provide a pulp suspension pH from the washing press compatible with desorbtion of metallic ions; recycling one portion of the acid containing filtrate back to the pulp suspension being fed to the washing press and recycling the remaining portion of said acid containing filtrate countercurrently through the brown stock washing system; and recovering the chemicals contained in the brown stock washing system filtrate.

4,269,657

FIBROUS PRODUCT CONTAINING CELLULOSIC FIBERS, ITS METHOD OF PREPARATION AND ITS USE, IN PARTICULAR IN THE FIELD OF COVERING PANELS, IN LIEU OF ASBESTOS

Daniel Gomez, and Giampaolo Bartoli, both of Charavines, France, assignors to Arjomari-Prioux, Paris, France

Filed Nov. 22, 1978, Ser. No. 963,015
Claims priority, application France, Nov. 23, 1977, 77 35245
Int. Cl.³ D21H *1/10*
U.S. Cl. 162—135 **23 Claims**

1. A method of preparation of a fibrous cellulosic fibers-containing product having good dimensional and thermal stability, elasticity and resistance to traction and tearing which comprises the steps of

(a) producing a flow of an aqueous suspension through a machine of the paper-making type, the aqueous suspension comprising:

100 parts by weight of fibers selected from the group consisting of (i) slightly refined cellulosic fibers having a Schopper-Reigler degree comprised between 15 and 35, and (ii) mixtures of said slightly refined cellulosic fibers with non-cellulosic fibers in which the weight ratio of non-cellulosic fibers to cellulosic fibers is lower than or equal to 0.1,

1 to 5 parts by weight of a cationic polymeric flocculating agent, 5 to 30 parts by weight of an organic polymeric binder, and 30 to 60 parts by weight of an inorganic filler, to form a wet sheet,

(b) draining the wet sheet under a linear load of 5 to 35 kg/cm, and

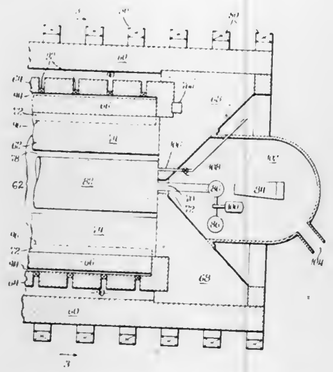
(c) drying the drained sheet.

4,269,658

MECHANICAL COMPRESSION PLASMA DEVICE

Tihiro Ohkawa, LaJolla, Calif., assignor to General Atomic Company, San Diego, Calif.

Continuation-in-part of Ser. No. 622,089, Oct. 14, 1975, abandoned, and a continuation-in-part of Ser. No. 375,341, Jul. 2, 1973, abandoned. This application Feb. 14, 1977, Ser. No. 768,263
Int. Cl.² G21B *1/00*
U.S. Cl. 176—3 **17 Claims**



1. Apparatus for providing a pinched, high temperature plasma comprising, in combination:

containment means having an elongated bore therein for defining a reservoir;

an electrically conductive liquid located within and partially filling said reservoir;

means for inductively rotating said liquid to generate sufficient centrifugal force to form said liquid into a thick, rotating liquid liner and to create a cylindrical space extending along the axis of said bore;

means for creating a plasma along the axis of said bore within said space;

means surrounding said bore for applying a magnetic field the length of said bore; and

means comprising a plurality of inwardly movable wall members for mechanically reducing the effective diameter of said bore to apply a substantially axially symmetrical mechanical force impulse to said rotating liquid liner and thereby reducing the diameter of said space within said rotating liquid to compress said magnetic field so as to provide a magnetic pinch effect on said plasma and thereby cause said plasma to be compressed and increase in temperature.

4,269,659

NEUTRON GENERATOR

Leon Goldberg, 9921 Bedfordshire Ct., Potomac, Md. 20854

Continuation-in-part of Ser. No. 396,537, Sep. 12, 1973, abandoned, which is a continuation of Ser. No. 24,151, Mar. 23, 1970, abandoned. This application Mar. 29, 1978, Ser. No. 891,338
Int. Cl.³ G21C *1/00*
U.S. Cl. 176—9 **5 Claims**

1. A method of generating neutrons comprising the steps of:

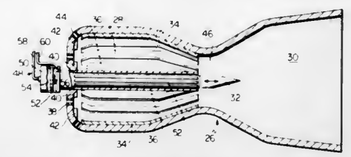
(A) cyclically admitting quantities of thermonuclear fuel into a plenum chamber;

(B) ionizing each quantity of fuel to form a pulse of relatively dense plasma immediately after it is admitted into the chamber;

(C) confining each plasma pulse within an electromagnetic field in such chamber;

(D) continually admitting a separate working gas at a predetermined velocity at a position apart from, but in proximity to, where said thermonuclear fuel is admitted to thereby surround each plasma pulse with said working gas within said electromagnetic field to stabilize and isolate said plasma pulse from the walls of said plenum chamber;

(E) essentially adiabatically comprising said plasma pulse with said electromagnetic field to initiate a reaction in said plasma pulse with said working gas surrounding it;



(F) moving said working gas and reacting plasma pulse through and out of said plenum chamber into a nozzle means and releasing said reacting plasma pulse from said electromagnetic field by removig said electromagnetic field when the plasma pulse passes into the nozzle means thereby mixing said pulse with said working gas and releasing its remaining energy thereto substantially isothermally in said nozzle means;

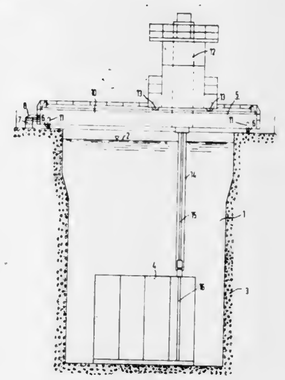
(G) adjusting the area of the throat of said nozzle means by adjusting the position of a reciprocable center body which extends through said chamber into said nozzle means.

4,269,660

DEVICE FOR TRANSPORTING RADIOACTIVE MATERIAL

Walter Neuenfeldt, Schmitten; Heiner Siegert, Wiesbaden, and Günter Zeitzschel, Frankfurt, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Jul. 5, 1978, Ser. No. 921,993
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1977, 2730569
Int. Cl.³ G21C *19/20*
U.S. Cl. 176—30 **6 Claims**



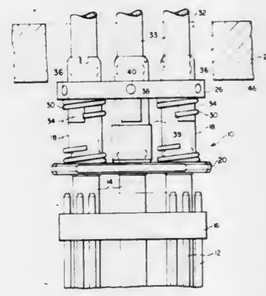
1. Device for transporting radioactive material having a lifting mechanism displaceable along a travel path, comprising an operator's cab for accommodating operating personnel therein shielded against radiation and displaceable with the lifting mechanism along the travel path, a control console for actuating the lifting mechanism, said control console being disposed in and displaceable with said cab, filter means through which said cab is ventilated with filtered air, and means for testing the ventilating air for freedom thereof from radiation.

4,269,661

TOP NOZZLE FOR A NUCLEAR REACTOR FUEL ASSEMBLY

Stanley Kmonk; Dennis J. Cadwell, both of Plum Borough, and Stephen J. Ferlan, Wilkins Township, Allegheny County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 15, 1978, Ser. No. 915,650
Int. Cl.² G21C *1/06, 3/32*
U.S. Cl. 176—50 **1 Claim**



1. In a nuclear reactor fuel assembly including an array of fuel rods and control rod guide tubes held in spaced relationship with each other by means positioned at intervals along their length, upper and lower nozzles connected to opposite ends of said guide tubes, and an upper core plate above the fuel assembly which absorbs lifting forces acting on the assembly, the upper nozzle including:

control rod guide tube extensions including a center guide tube extension and selected guide tube extensions, said extensions being attached to an orifice plate located immediately above said fuel rods;

means respectively connecting the control rod guide tubes to said tube extensions;

a hold-down plate vertically movable on said tube extensions, said plate having openings of a size sufficient to accept the guide tube extensions;

springs on said selected tube extensions between the orifice and hold-down plate and biased in a direction to urge the hold-down plate vertically against said upper core plate;

at least one vertically extending slot in each guide tube extension outer surface; and

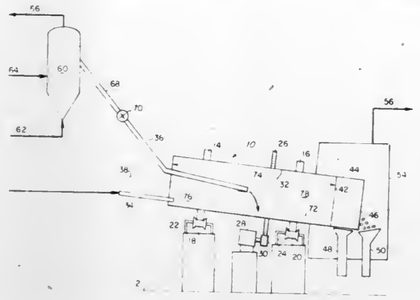
a pin for each of said slots, each of said pins being mounted in the hold-down plate and in a position to have its end project into a corresponding slot formed in the tube extension, the arrangement being such that as upwardly acting forces lift the fuel assembly, the springs on said extensions are unformly compressed until the pins are engaged by the bottom of said slots, thus permitting the assembly to be lifted to its upper limit without compressing the springs to a solid condition; and a shoulder on said center tube extension arranged to contact the hold-down plate when said forces lift the fuel assembly to thereby supplement the action of the pin and slot arrangement in limiting upward movement of the fuel assembly.

4,269,662

APPARATUS FOR COMPACTING, DEGASSING AND CARBONIZING CARBONACEOUS AGGLOMERATES

Frank W. Theodore, Pittsburgh, Pa., assignor to Conoco, Inc., Stamford, Conn.

Division of Ser. No. 11,724, Feb. 12, 1979, Pat. No. 4,218,288.
This application Dec. 3, 1979, Ser. No. 99,773
Int. Cl.[1] C10B *1/10, 49/20*
U.S. Cl. 202—100 **3 Claims**



1. An apparatus for compacting, degassing and carbonizing carbonaceous agglomerates, said apparatus comprising:
(a) a rotary kiln, said kiln having an inlet end, an outlet end and a longitudinal axis, said axis being oriented to facilitate the movement of said agglomerates through said kiln;
(b) means for rotatably supporting said kiln;
(c) means for rotating said kiln;
(d) an agglomerate inlet means for introducing said agglomerates into said kiln near said inlet end of said kiln;
(e) a heating medium inlet means for introducing a heating medium into said kiln at a selected location between said inlet end of said kiln and said outlet end of said kiln, said heating medium being introduced at said location to provide a compacting and degassing time in the section of said kiln between said inlet end and said location from about 1 to about 15 minutes and a carbonizing time between said location and said outlet end from about 1 to about 15 minutes;
(f) control means positioned at said outlet end of said kiln to control the residence time of material in said kiln; and
(g) sieve means positioned to receive the products from said kiln and separate said heating medium and compacted, degassed, carbonized agglomerate product.

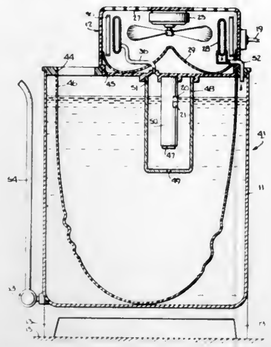
4,269,663

WATER DISTILLER

Richard McFee, 852 Ostrom Ave., Syracuse, N.Y. 13210

Division of Ser. No. 593,379, Jul. 7, 1975, Pat. No. 4,052,267.
This application Aug. 19, 1977, Ser. No. 826,236
Int. Cl.[1] B01D *3/02;* **C02F** *1/04*
U.S. Cl. 202—185 B **13 Claims**

1. A portable water distiller comprising
a self-supporting housing;
a flexible impermeable partition mounted within said housing to define a raw water space and a distilled water space therein;
a cap mounted on said housing, said cap including an opening for passage of raw water into said raw water space within said housing;
a heater disposed in said housing for vaporizing the raw water in said raw water space; and



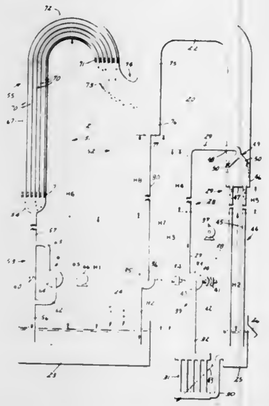
means for condensing the vaporized raw water and for delivering the condensed water into said distilled water space.

4,269,664

LIQUID TREATING AND DISTILLATION APPARATUS

Philip G. Younger, 919 19th St., SE., St. Cloud, Minn. 56301

Filed Dec. 1, 1978, Ser. No. 965,593
Int. Cl.[1] C02F *1/06;* **B01D** *3/10*
U.S. Cl. 202—185 A **8 Claims**



1. A liquid treating system which, after an initial start-up period, is maintained operable solely by the temperature difference between cooler, treated liquid and warmer, untreated liquid comprising, in combination:
a condensation chamber closed to the atmosphere and having first and second portions in communication with each other to provide a path between said portions for vapor but not for liquid, said condensation chamber having its second portion disposed at a given height;
closed output means connected to said first portion of said chamber and including an apogee and pumping means actuable to cause flow of treated liquid at a first temperature to said apogee and into said first portion, so as to cool said first portion, and from said first portion, so as to lower the pressure therein by entrainment of gas therefrom to the vapor pressure of the liquid at said first temperature;
a source of untreated liquid under atmospheric pressure and at a second, higher temperature, said source disposed at a height lower than said height at which said second portion of said condensation chamber is disposed;
closed input means connected to said source and to said second portion of said chamber, for enabling flow of untreated liquid and vapor thereof, at a second, higher temperature, to a height above said apogee of said output means and into said second portion, and for enabling gravity drain of unvaporized, untreated liquid from said second portion to the level of said source, to maintain the pressure in said second portion at the vapor pressure of said liquid corresponding to said second temperature,
whereby migration of vapor from said second portion to said first portion lowers the pressure in said second portion to the vapor pressure of said liquid at said second temperature, at which pressure said flow in said input means is caused by said atmospheric pressure on said source;
and means driven by said gravity drain for actuating said pumping means.

4,269,665

DRYING QUATERNARY AMMONIUM COMPOUNDS

Carl E. Barnes, 482 Trinity Pass Rd., New Canaan, Conn. 06840, and Arthur C. Barnes, 320 Stamford Ave., Stamford, Conn. 06902

Division of Ser. No. 39,773, May 17, 1979, Pat. No. 4,217,442, which is a continuation-in-part of Ser. No. 899,066, Apr. 24, 1978, abandoned. This application Oct. 15, 1979, Ser. No. 84,813
Int. Cl.[1] B01D *3/36*
U.S. Cl. 203—14 **2 Claims**

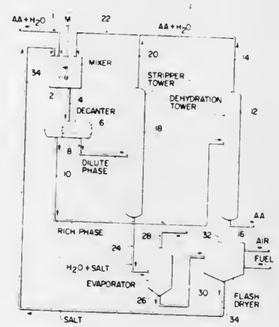
1. The method of drying water wet quaternary ammonium compounds comprising adding the wet quaternary ammonium compound to an amount of 2-pyrrolidone greater than that required to azeotrope all of said water and distilling off under vacuum from 5 to 50 percent of the 2-pyrrolidone whereby a substantially anhydrous liquid solution of the quaternary ammonium compound in 2-pyrrolidone is formed.

4,269,666

RECOVERY OF ACRYLIC ACID BY REVERSAL OF ACRYLIC ACID/WATER RELATIVE VOLATILITY

Carl G. Wysocki, North Royalton, Ohio, assignor to Standard Oil Company, Cleveland, Ohio

Filed Jan. 24, 1979, Ser. No. 6,056
Int. Cl.[3] C07C *51/44*
U.S. Cl. 203—15 **9 Claims**



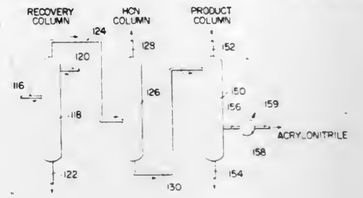
6. A method for separating acrylic acid from an organic solvent free mixture of acrylic acid and water comprising the steps of:
(a) performing a first step consisting of dissolving in said mixture a salt in an amount sufficient to salt out the mixture to form a concentrated acrylic acid phase, and a dilute acrylic acid phase containing 20 wt.% or less acrylic acid, said salt characterized in that upon boiling a salt saturated 10 wt.% acrylic acid aqueous solution to obtain a vapor and a liquid component at equilibrium, the wt.% acrylic acid in the vapor is greater than the wt.% acrylic acid in the liquid;
(b) separating the concentrated phase from the dilute phase; and
(c) distilling said dilute phase to obtain a vapor stream containing acrylic acid and a liquid stream free from acrylic acid.

4,269,667

ACRYLONITRILE PURIFICATION BY EXTRACTIVE DISTILLATION

Norris J. Landis, Cleveland Hts., Ohio, assignor to Standard Oil Company, Cleveland, Ohio

Filed Aug. 2, 1979, Ser. No. 63,216
Int. Cl.[1] B01D *3/40*
U.S. Cl. 203—76 **8 Claims**



1. A process for the recovery and purification of acrylonitrile produced by the ammoxidation reaction of propylene, molecular oxygen and ammonia which consists of the steps of:
(a) contacting the gaseous ammoxidation reactor effluent with water to absorb the acrylonitrile, acetonitrile, HCN and some impurities, and to obtain a first liquid stream containing acrylonitrile;
(b) extractively distilling with water in a distillation column said first liquid stream to separate the acrylonitrile from the acetonitrile and to obtain a overhead stream of acrylonitrile, water, HCN and impurities;
(c) distilling in a distillation column said overhead stream of (b) to separate the acrylonitrile from the HCN to obtain a bottoms solution of acrylonitrile, water and some impurities, the improvement comprising;
(d) distilling said solution in a distillation column under vacuum, and removing a vaporous sidestream of purified acrylonitrile.

7. The process of claim **1** wherein said solution of step (c) is passed to a decanter to separate an aqueous phase and an organic phase, and feeding said organic phase to said distillation column of step (d).

4,269,668

EXTRACTIVE DISTILLATION OF C-4 HYDROCARBONS USING MODIFIED ALKOXYNITRILE SOLVENT

Pradeep V. Patel, Parma, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed May 19, 1980, Ser. No. 151,011
Int. Cl.[1] B01D *3/40;* **C07C** *7/08*
U.S. Cl. 203—9 **14 Claims**

1. In an extractive-distillation process for separating butadiene-1,3 from a C-4 hydrocarbon stream containing C-4 hydrocarbons more saturated than butadiene-1,3 which process includes the steps of (a) introducing a selective solvent to an extractive distillation column (b) introducing said C-4 hydrocarbon stream to said column at a point below the point of introduction of said selective solvent (c) selectively extracting butadiene-1,3 from said C-4 hydrocarbon stream to form a liquid solvent fraction richer in butadiene-1,3 (d) withdrawing overhead from said column a vaporous C-4 hydrocarbon fraction richer in hydrocarbons less saturated than butadiene-1,3 (e) withdrawing said liquid solvent fraction richer in butadiene-1,3 from the bottom of said column (f) introducing said

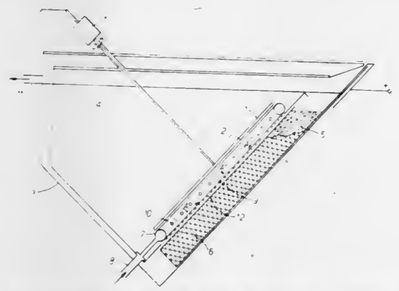
withdrawn liquid solvent fraction to a stripping column to remove said butadiene-1,3 and (g) recycling the lean solvent to said extractive distillation column, and in which process the selective solvent contains an alkoxynitrile of the structure $R_1—O—R_2—CN$ wherein R_1 is an alkyl group and R_2 is an alkylene group each containing from 1 to 3 carbon atoms, the improvement which consists of adding to the selective solvent an organic cosolvent selected from the class consisting of dimethyl sulfoxide, sulfolane, butyrolactone, N-methyl pyrrolidone, morpholine and trimethyl phosphate in an amount from 5 to 30 percent by weight of the total solvent and/or an inhibitor selected from the class consisting of 2,4-dinitrophenol and 2,4 dinitro-ortho-cresol in an amount from 0.05 to 0.6 percent by weight of the total solvent.

4,269,669

HIGH SPEED ELECTROPLATING

William Soby, Gerrards Cross, and Samuel J. B. Johnston, Ashford, both of England, assignors to EMI Limited, Hayes, England

Filed Apr. 23, 1980, Ser. No. 143,118
Claims priority, application United Kingdom, Jun. 1, 1979, 19209/79
Int. Cl.³ C25D *1/10, 21/12*
U.S. Cl. 204—5 **5 Claims**



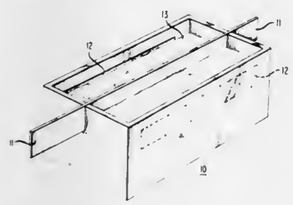
1. An electroplating arrangement including a container for an electrolyte, an anode, a cathode having a plating surface and means for generating a flow of electrolyte away from the surface of the cathode, said flow generating means comprising a tube which, at least adjacent to the plane of the cathode surface, encloses a region between the cathode and anode and has a plurality of inwardly facing holes, thereby inhibiting flow of electrolyte from the region of the anode towards the cathode.

4,269,670

ELECTRODE FOR ELECTROCHEMICAL PROCESSES

Craig G. Smith, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 3, 1980, Ser. No. 126,840
Int. Cl.³ C25D *5/02, 3/48, 17/10*
U.S. Cl. 204—15 **25 Claims**



1. A process for electroplating a metal on a surface comprising the step of passing current through electrode and electrolyte characterized in that the surface of at least one electrode is at least partially covered with an active oxide coating, said active oxide coating consisting essentially of oxide of at least 10 mole percent group VIII metal, at least 10 mole percent valve metal and at least 5 mole percent binder metal, said group VIII metal consisting of at least one element selected from the group consisting of cobalt, nickel, ruthenium, rhodium, palladium, iridium, and platinum, said valve metal consisting of at least one metal selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, and tantalum, and said binder metal consisting of at least one metal selected from the group consisting of beryllium, calcium, strontium, barium, scandium, yttrium, lanthanum, and the rare earth elements with atomic numbers 58 through 71 and at least 5 mole percent of the said active oxide is in the form of mixed oxide with nominal formula ABO_3 with A representing binder metal and B representing group VIII metal.

4,269,671

ELECTROPLATING OF SILVER-PALLADIUM ALLOYS AND RESULTING PRODUCT

Uri Cohen, Haifa, Israel, and Richard Sard, Birmingham, Mich., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 5, 1979, Ser. No. 90,938
Int. Cl.³ C25D *3/50, 3/56, 5/10, 5/34*
U.S. Cl. 204—23 **13 Claims**



1. Procedure for fabrication of an article, said procedure including electroplating at least a region of the said article with an alloy at least 90 percent by weight of which contains at least 30 weight percent silver, remainder palladium in accordance with which the region of the article to be plated is biased cathodically relative to an anode, with both the said region and the anode wetted by liquid electroplating bath to form a continuous path for ionic transfer between the said article and the said anode, characterized in that the said bath may be considered as consisting primarily of an aqueous solution of at least one alkali metal or alkaline earth metal halide together with palladium halide, any other platinum group halide/s and silver halide and in which the article to be plated is protected from chemical attack by the said bath by a noble metal surface.

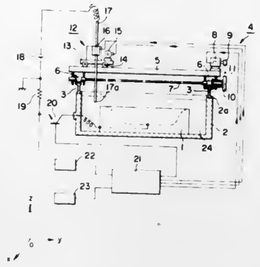
4,269,672

GAP DISTANCE CONTROL ELECTROPLATING

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Tokyo, Japan

Filed May 30, 1980, Ser. No. 154,953
Claims priority, application Japan, Jun. 1, 1979, 54-67483
Int. Cl.³ C25D *5/04, 7/04*
U.S. Cl. 204—23 **7 Claims**

1. A method of electroplating a metal upon a substrate wherein a rod electrode is axially and spacedly justaposed with the substrate across an electrolyte flooded plating gap; an electric current is passed between the rod electrode and the substrate across said gap to electrodeposit the metal from the electrolyte at least preferentially in the region of the substrate proximal to an end portion of said electrode justaposed therewith; and said rod electrode is displaced relative to said substrate while maintaining the orientation of its axis to be substantially perpendicular to a fixed plane to successively electrodeposit the metal over the entire area of said substrate to be electroplated, the method comprising the step of controlling the position of said rod electrode relative to the surface con-



tour of said substrate in such a manner that the following relationship is maintained substantially over said area:

$$G = Gs/\sin\alpha$$

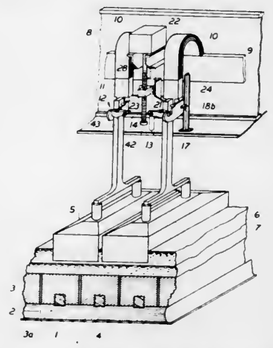
where G is a distance defined between the end of said rod electrode proximal to said substrate and the point of intersection of the extension of the axis of said electrode and said surface contour, α is an angle defined by said extension with a tangent of the surface contour at said point of intersection and Gs is a constant representing a reference gap spacing between said electrode and said workpiece.

4,269,673

ANODE MOUNT

John F. Clark, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 28, 1980, Ser. No. 115,621
Int. Cl.³ C25C *3/06, 3/16*
U.S. Cl. 204—67 **4 Claims**



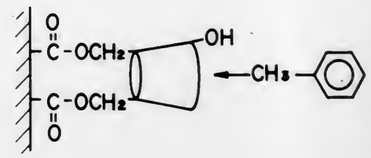
4. In an operating method for a cell which may be used for producing molten aluminum by electrolysis of aluminum oxide in a molten bath, which cell includes a cathode and an anode, a bar and a hanger, the bar being connected at an upper end to the hanger and at a lower end to the anode, flexible means for supplying electrical current through the bar to the anode, and jack means for raising and lowering the hanger and thus the anode, the improvement comprising guiding the raise and lower movement of the hanger by mounting the hanger at at least two separated points, one higher than the other, in encompassing, sliding relationship, on a single, upright, circular cross-sectioned post passing through the hanger, whereby the hanger is constrained to move up and down without rotation about horizontal axes.

4,269,674

METHOD OF PREPARING PARA-CHLOROTOLUENE

Tetsuo Osa, Sendai; Masamichi Fujihira, Sendai; Tomokazu Matsue, Sendai, and Takashi Yamauchi, Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 10, 1979, Ser. No. 101,917
Claims priority, application Japan, Dec. 22, 1978, 53-160611
Int. Cl.³ C25B *3/06*
U.S. Cl. 204—81 **5 Claims**



1. A process for electrolytically chlorinating toluene to produce p-chlorotoluene in an aqueous solution of hydrogen chloride or an inorganic chloride as an electrolyte by passing electric current from a cathode to an anode immersed in said solution of electrolyte whereby an active chlorine species is formed and reacts with toluene to produce the desired p-chlorotoluene, said anode being of a carbonaceous material having cyclodextrin or a derivative thereof bonded onto the surface thereof,

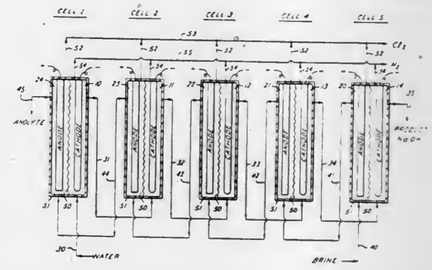
wherein toluene is introduced into said aqueous solution of electrolyte so that said toluene is included as a clathrate compound within said cyclodextrin or derivative thereof, and said electric current is passed at a potential higher than the oxidation potential of hydrogen chloride in said aqueous solution but lower than the oxidation potential of toluene.

4,269,675

ELECTROLYTE SERIES FLOW IN ELECTROLYTIC CHLOR-ALKALI CELLS

Bobby R. Ezzell, and Marius W. Sorenson, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 924,268, Jul. 13, 1978, Pat. No. 4,197,179. This application Nov. 19, 1979, Ser. No. 95,694
Int. Cl.³ C25B *1/34, 9/00*
U.S. Cl. 204—98 **10 Claims**



1. In the process of producing aqueous alkali metal hydrox-

ide and chlorine gas by the electrolysis of aqueous alkali metal chloride solution in a bank of a plurality of membrane cells, said alkali metal hydroxide being produced at cathodes in catholyte portions, said chloride being produced at anodes in anolyte portions, said membrane providing a substantially hydraulically-impermeable divider between catholyte portions and anolyte portions, wherein said cathodes are oxygen-depolarized cathodes which are operable in substantially avoiding production of hydrogen, the improvement which comprises

flowing an aqueous alkali metal chloride as anolyte for the anolyte portions, said flowing being done in sequence from anolyte portion to anolyte portion, removing spent anolyte from the last anolyte portion of the sequence, while simultaneously and countercurrently

flowing an aqueous catholyte from catholyte portion to catholyte portion in sequence, removing caustic-enriched catholyte from the last catholyte portion of the sequence.

4,269,676

METHOD OF WINNING COPPER AND ACCOMPANYING METALS FROM SULFIDIC ORES, POST-FLOTATION DEPOSITS AND WASTE PRODUCTS IN THE PYROMETALLURGICAL PROCESSING OF COPPER ORES

Wlodzimierz Libus, Gdansk; Marek Kluczkowski, Gdansk-Oliwa; Michal Pilarczyk; Henryk Strzelecki, both of Gdansk; Roman Pastewski, and Waclaw Grzybkowski, both of Gdansk-Oliwa, all of Poland, assignors to Politechnika Gdanska, Gdansk-Wrzeszcz, Poland

Filed Jul. 3, 1979, Ser. No. 54,368

Claims priority, application Poland, Jul. 26, 1978, 208670

Int. Cl.³ C25C *1/12;* **C22B** *3/00, 15/00;* **C01G** *3/04*

U.S. Cl. 204—107 **8 Claims**

1. A method of winning copper and accompanying metals from a copper-containing material selected from the group consisting of sulfidic ores or their concentrates, post-flotation deposits and waste products from pyrometallurgical processing of copper ores, which comprises grinding the material to a particle size below 0.1 mm., leaching the resulting comminuted material with a solvent system comprising a mixture of a heterocyclic aromatic amine selected from the group consisting of pyridine, α-picoline, β-picoline, γ-picoline and 2,6-lutidine, with a chlorinated methane derivative selected from the group consisting of methyl chloride, methylene dichloride, chloroform and carbon tetrachloride, whereby insoluble values of the metals are dissolved in the resulting solution due to the formation of a soluble metal-chloro- amine complex, filtering the solid residue from the resulting solution and separating the metal compounds from the organic phase, and recovering the metals by electrowinning.

4,269,677

ANODIC DEBURRING OR BRIGHTENING OF STEEL ARTICLES

Karl-Ingemar Blomsterberg, Högstensgatan 60, S-423 00 Torslanda, Sweden

Filed Feb. 15, 1980, Ser. No. 121,680

Claims priority, application Sweden, Feb. 19, 1979, 7901437

Int. Cl.³ C25F *3/06, 3/24*

U.S. Cl. 204—129.4 **10 Claims**

1. A method of electrolytically deburring or polishing a steel article which comprises subjecting said article as the anode to the action of a direct current in an electrolyte at an anode-cathode voltage between 4 and 25 volts and a current density between 2 and 50 amperes per square decimeter, said electrolyte consisting of an alkaline watery solution composed essentially of at least one polyhydric alcohol, alkali sulphamate and water in the following proportions:

	Grams per liter of the solution:
Polyhydric alcohol	At least 300
Alkali sulphamate	At least 200
Water	At least 200.

4,269,678

METHOD FOR REGENERATING A CUPRIC CHLORIDE AND/OR FERRIC CHLORIDE CONTAINING ETCHING SOLUTION IN AN ELECTROLYSIS CELL

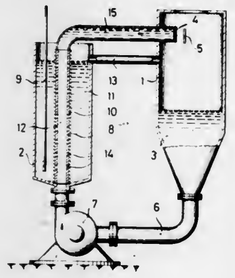
Wolfgang Faul, Jülich; Bertel Kastening, Hamburg, and Harald Luft, Niederzier-Hambach, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschrankter Haftung, Jülich, Fed. Rep. of Germany

Filed Nov. 20, 1979, Ser. No. 96,136

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850564

Int. Cl.³ C25F *3/14, 7/02*

U.S. Cl. 204—129.6 **8 Claims**



1. A method of regenerating a chloride-containing etching solution for electrochemically processing surfaces of workpieces without development of chlorine gas at anode locations, comprising in combination the steps of:

providing an electrolysis cell having an anode compartment with a pertaining anode, a cathode compartment with a pertaining cathode, and a partition between said anode compartment and said cathode compartment;

providing in said anode compartment a solution containing at least one of the group consisting of cupric chloride and ferric chloride;

processing a workpiece surface with said solution, resulting in a used solution containing ions selected from the group consisting of Cu^+ and Fe^{++};

suspending an effective amount of activated pulverous carbon particles that specifically preclude chlorine gas development even after complete oxidation of metallic ions or cations at least in said anode compartment of the electrolysis cell; and

regenerating said used solution by passing it through said electrolysis cell again and anodically completely oxidizing cations to provide a regenerated solution.

4,269,679

PROCESS FOR ENGRAVING METAL PLATES TO BE USED AS PATTERNS FOR TEXTURIZED PRODUCTS

Joao B. Moura, Jundiai, Brazil, assignor to Duratex S.A., Sao Paulo, Brazil

Filed Jul. 27, 1979, Ser. No. 61,242

Claims priority, application Brazil, Jan. 31, 1979, PI 7900616

Int. Cl.³ C25F *3/06, 3/14*

U.S. Cl. 204—129.65 **2 Claims**

1. Method for engraving metal plates to be used for producing texturized articles with a pattern comprising the steps of:

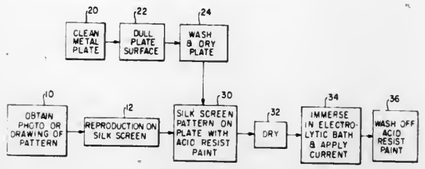
making a silk screen of the pattern to be engraved on a said metal plate,

dulling the surface of said plate by applying a solution thereto,

laying down on the plate by screening from the silk screen an acid-resist material reproduction of the pattern,

providing a bath of inorganic acid selected from the group consisting of sulfuric acid and hydrochloric acid,

providing an electrode in said bath,



immersing the area of the plate to be engraved in said bath, and

applying an electric current, in the range of from about one to about twenty-five amperes per square decimeter of area which is not covered by the acid-resist material, said current having a voltage in the range of from about one to about ten volts, between said plate and said electrode to erode the plate by electrochemical action in the immersed areas not covered by the acid-resist material.

4,269,680

CURABLE POLYMERIC COMPOSITION COMPRISING NATURAL OR SYNTHETIC RUBBERS

William Rowe, Westfield, N.J., assignor to Polychrome Corporation, Yonkers, N.Y.

Continuation-in-part of Ser. No. 2,647, Jan. 11, 1979, Pat. No. 4,214,965, which is a continuation of Ser. No. 600,653, Jul. 21, 1975, abandoned, which is a continuation of Ser. No. 328,678, Feb. 1, 1973, abandoned. This application Feb. 19, 1980, Ser. No. 122,347

Int. Cl.³ C08F *8/00*

U.S. Cl. 204—159.17 **9 Claims**

1. A composition which is comprised of an admixture of:

I. a polymer which is substantially comprised of the reaction product of:

A. an organic, active hydrogen containing compound, which compound has an average active hydrogen functionality in the range of from 2.0 to about 2.2 with,

B. an excess of an organic polyisocyanate so as to form an isocyanate terminated prepolymer, said prepolymer having been subsequently reacted with,

C. an organic, active hydrogen containing compound, which compound has exactly one active hydrogen; said polymer having a molecular weight of from 5,000 to 50,000 with 0% free isocyanate groups; and,

II. an addition polymerization initiator activatable by actinic light; and,

III. an addition polymerizable ethylenically unsaturated component capable of forming a polymer by photoinitiated polymerization in the presence of said initiator; and,

IV. a natural or synthetic rubber in an amount ratio of rubber to polymer of 90:10 to 10:90 parts by weight.

4,269,681

RADIAL FLOW ELECTROFILTER

Frederick D. Watson; Weldon D. Mayse, and Albert D. Franse, all of Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Oct. 16, 1979, Ser. No. 85,448

Int. Cl.³ B03C *5/00*

U.S. Cl. 204—188 **13 Claims**

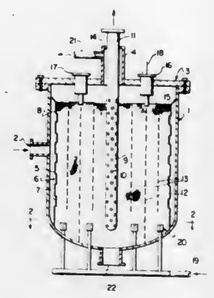
1. A radial flow electrofilter for removal of finely divided solid particles from liquids of low electrical conductivity comprising:

(a) a vertical cylindrical metallic vessel;

(b) metallic cylindrical fluid distributor means within said vessel, concentric with and spaced a small distance apart from the vessel wall, thereby providing an annular space between said distributor means and said vessel wall; said distributor means being adapted to serve as an electrode at ground potential;

(c) fluid inlet means in the side of said vessel, fluidly communicating with said annular space;

(d) a porous bed of a dielectric filtering medium disposed interiorly of said cylindrical distributor means;



(e) a metallic permeable central tubular outlet collector extending vertically through at least a portion of said porous bed; said outlet collector being adapted to serve as an electrode;

(f) fluid outlet means fluidly connected to said central tubular outlet collector and extending outside of said vessel;

(g) at least one permeable cylindrical electrode extending vertically through at least a portion of said porous bed and concentrically positioned intermediate said cylindrical distributor means and said outlet collector; and

(h) conductor means for supplying potential to at least alternately spaced said electrodes to provide electric fields between adjacent electrodes.

4,269,682

REFERENCE ELECTRODE OF INSULATED GATE FIELD EFFECT TRANSISTOR

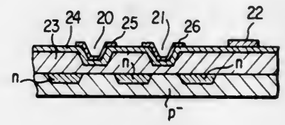
Makoto Yano; Kiyoo Shimada; Kyoichiro Shibatani, and Tsutomu Makimoto, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd. and Tadayuki Matsuo, both of Sendai, Japan

Filed Dec. 11, 1978, Ser. No. 968,418

Claims priority, application Japan, Dec. 12, 1977, 52/150093

Int. Cl.³ G01N *27/46*

U.S. Cl. 204—195 M **18 Claims**



1. A system for measuring chemical properties of substances in an electrolyte solution, comprising:

a measuring unit comprising an insulated gate FET which selectively detects specific chemical substances;

a reference electrode comprising an insulated gate FET whose gate region is overlayed with a membrane, said membrane consisting of a hydrophobic organic polymeric membrane material that is impermeable to the electrolyte

solution, free of an ionic dissociate group and insensitive to chemical properties of the solution;

a pseudo reference electrode formed of a good electrical conductor which applies bias to each FET transducer and fixes the electric potential of the electrolyte solution.

4,269,683

ELECTROCHEMICAL MEASURING SYSTEM

John V. Dobson, Hartlepool, England, assignor to National Research Development Corporation, London, England

Filed Jun. 5, 1979, Ser. No. 45,650

Claims priority, application United Kingdom, Jun. 19, 1978, 27235/78

Int. Cl.[3] **G01N** *27/46*

U.S. Cl. 204—195 W **7 Claims**

1. An electrochemical measuring apparatus, comprising: a lead electrode in contact with its oxide containing sulfate and a second electrode being of a metal selected from the group consisting of platinum, nickel, rhodium, iridium and zirconium in contact with its oxide, both electrodes being connected to opposite sides of a voltmeter.

4,269,684

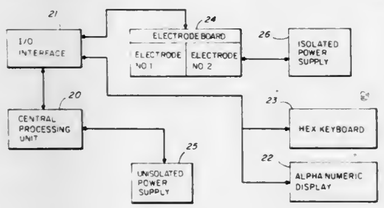
APPARATUS FOR OXYGEN PARTIAL PRESSURE MEASUREMENT

Gregory L. Zick, Kirkland, Wash., assignor to Cordis Corporation, Miami, Fla.

Filed Oct. 1, 1979, Ser. No. 80,257

Int. Cl.[3] **G01N** *27/46*

U.S. Cl. 204—195 R **4 Claims**



1. Apparatus for the measurement of the partial pressure oxygen level comprising:

(1) an electrochemical cell having an anode and a cathode immersed in a electrolyte, said cell disposed for contact with oxygen;

(2) means for applying successive voltage pulses across said cell;

(3) means for determining for each of said pulses the difference between the amount of charge delivered to said cell during one of said pulses and the amount of charge returned from said cell after said one of said pulses, said difference indicating an uncorrected value of said oxygen partial pressure; and

(4) means for multiplying said difference by a function of a correction factor derived from variation between a first transient waveform representing the charge returned from said cell as a function of time after a first of said pulses and a second transient waveform representing the charge returned from said cell as a function of time after a succeeding one of said pulses.

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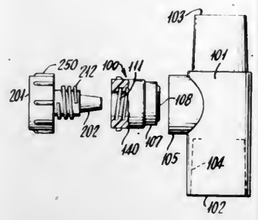
DISPOSABLE POLAROGRAPHIC GAS SENSOR SYSTEM

Dawood Parker, London, United Kingdom, assignor to McNeilabs, Inc., Fort Washington, Pa.

Filed Oct. 16, 1979, Ser. No. 85,186

Int. Cl.[3] **G01N** *27/54*

U.S. Cl. 204—195 P **2 Claims**



1. A partially reusable, partially disposable blood gas sensor comprising:

(a) a reusable portion including an anode-cathode polarographic assembly, and electrical connectors for establishing a circuit from said polarographic electrodes to an external utilization device;

(b) a disposable portion including

(i) a housing defining a blood input port, a blood output port, a flow chamber therebetween, and a gas sensing region contacting at least a portion of said chamber;

(ii) a gas permeable membrane sealably overlying said gas sensing region for contact with blood in said chamber;

(iii) a gelatinous electrolyte, responsive to said gas, coating the side of said membrane opposite said chamber; and

(iv) means, integral with said housing, for removably coupling said reusable portion to said disposable portion, said means for coupling imbedding said polarographic assembly into said gelatinous electrolyte, wherein said means for removably coupling comprises a protuberance from said housing, surrounding said membrane and enclosing said gelatinous matter, said protuberance defining a threaded portion and said reusable portion defining a matably corresponding portion for screwed attachment of said reusable portion with said protuberance, simultaneously imbedding said assembly into electrolyte;

(c) wherein said polarographic assembly comprises a frustoconical, hollow anode, carrying a cathode generally axially therein; and

(d) disposable plug means, duplicating the shape of said reusable portion, and insertible into said protuberance of said disposable portion for storage and shipment prior to use.

4,269,686

APPARATUS FOR PLATING JOURNALS OF CRANKSHAFTS

Aubrey W. Newman, 416 E. 45th St.; J. E. Coffey, 4018 Lakeside Dr., and Arthur D. Whitney, 807 New Castle Ct., all of Odessa, Tex. 79762

Filed Jan. 8, 1980, Ser. No. 110,506

Int. Cl.[3] **C25D** *17/00, 7/00*

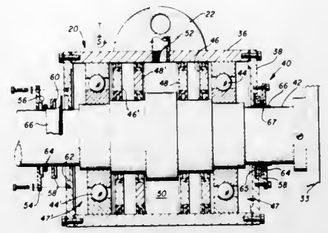
U.S. Cl. 204—212 **14 Claims**

1. A chrome plating apparatus for simultaneously plating selected areas of a plurality of crankshafts, wherein the crankshafts are rotatably supported within a plating bath with the longitudinal axis thereof being disposed horizontally while current flows between an anode and the selected area of the crankshaft to be plated; the improvement comprising:

a rotating conductor having a main fixed housing, a rotatable spindle journaled within said housing and arranged with

the longitudinal axial centerline thereof coinciding with the axial bore of the housing so that opposed ends of the spindle extend from either opposed end of the housing;

spaced internal seal means located within said housing and forming a centrally located mercury chamber which is defined by the inner wall surface of the chamber, the outer wall surface of the spindle, and the inner surface of the seal means;



spaced external seal means located at each opposed end of the housing and defining opposed grease chambers, a bearing means within each grease chamber which rotatably supports the spindle from said housing;

means on opposed ends of the spindle for supportingly engaging one end of a crankshaft;

whereby one end of a crankshaft can be affixed to each end of the spindle, thereby enabling a plurality of crankshafts to be simultaneously rotatably supported within a plating bath.

4,269,687

ELECTRODE SUSPENSION BARS

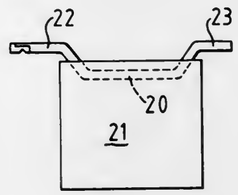
John R. B. Gilbert, Sutton Coldfield, and Peter H. Baldwin, Aldridge, both of England, assignors to IMI Kynoch Limited, Birmingham, England

Filed Jan. 23, 1980, Ser. No. 114,597

Claims priority, application United Kingdom, Jan. 23, 1979, 02422/79

Int. Cl.[3] **C25C** *7/02*

U.S. Cl. 204—242 **13 Claims**



1. A suspension bar for an electrode sheet including a steel core with a surrounding layer of copper, the bar including, at the point adapted for contact with an electric current supply, a block of copper or of a copper alloy, said block being metallurgically bonded to the layer of copper, the block having on one side a notch transverse to the longitudinal axis of the bar, the steel core extending in a longitudinal direction beyond a part at least of the block on the side of the block opposite the notch.

4,269,688

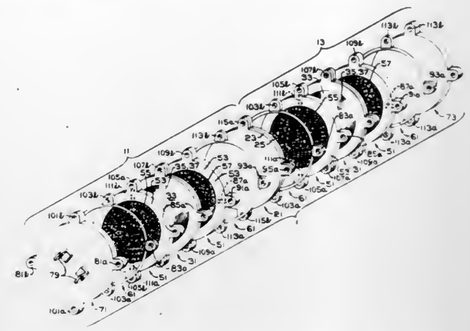
SOLID POLYMER ELECTROLYTE BIPOLAR ELECTROLYZER

Donald D. DuBois, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 15,525, Feb. 23, 1979, abandoned. This application Nov. 1, 1979, Ser. No. 90,214

Int. Cl.[3] **C25B** *9/04, 13/08, 11/10*

U.S. Cl. 204—254 **1 Claim**



1. In a solid polymer electrolyte bipolar electrolyzer having a plurality of individual solid polymer electrolyte electrolytic cells electrically and mechanically in series with bipolar units therebetween, the anodic surface of the bipolar units consisting essentially of titanium oxide, wherein each of said solid polymer electrolyte electrolytic cells has a solid polymer electrolyte comprising a permionic membrane having an anodic surface and a cathodic surface with anodic electrocatalyst as the anode on the anodic surface and cathodic electrocatalyst as the cathode on the cathodic surface, the improvement wherein the surface of the bipolar unit is spaced from, and faces the anodic surface of the permionic membrane and the anodic electrocatalyst, and is an alloy of titanium and from 0.01 to 1.0 weight percent yttrium, the yttrium being present at a high enough level to diminish hydrogen uptake by the titanium but at a low enough level to avoid substantial formation of a two-phase system.

4,269,689

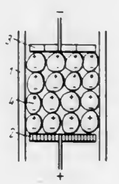
ELECTROLYZER FOR CONDUCTING ELECTROLYSIS THEREIN

Rafael I. Agladze, prospekt Plekhanova, 86/90, kv. 1; Erik A. Manukov, Digomsky massiv, 4 kvartal, 22 korpus, kv. 39, and Georgy R. Agladze, prospekt Plekhanova, 86/90, kv. 1, all of Tbilisi, U.S.S.R.

Continuation of Ser. No. 748,388, Dec. 7, 1976, abandoned. This application Sep. 11, 1979, Ser. No. 74,302

Int. Cl.[3] **C25B** *1/28*

U.S. Cl. 204—268 **7 Claims**



1. An electrolyzer for obtaining chemical products, consisting essentially of: a cell, the inner surface of said cell being made from a dielectric material; current leads which are nonsoluble and arranged within said cell; a bulk electrode consist-

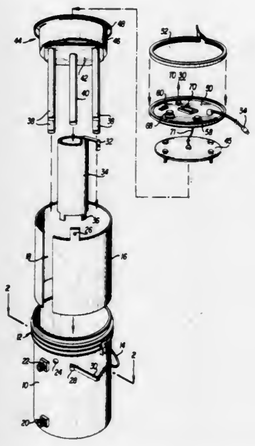
ing of a bed of pieces of conducting material, said pieces filling the space between said current leads and the walls of the cell; a coat of film on said pieces, said film obtained by chemical reaction with said pieces of conducting material and having reduced conductivity as compared to said conducting material and promoting the bipolar action of said pieces when said current leads are energized; and a means for discharging slime and products of electrolysis communicating with said cell.

4,269,690

ELECTROLYTIC APPARATUS FOR RECLAIMING DISSOLVED METAL FROM LIQUID

James M. Graham, III, Westminster, Md., assignor to Nancy Swartz Hammond, Baltimore, Md.

Filed Jan. 28, 1980, Ser. No. 116,191
Int. Cl.[3] C25C *7/00, 7/02*
U.S. Cl. 204—272 **19 Claims**



1. An improved electrolytic apparatuss for reclaiming trace metals from liquids, comprising:
a container having an opening at its upper end;
a first substantially imperforate stationary cylindrical cathode located within said container in proximity to the side wall thereof;
a second substantially imperforate stationary cylindrical cathode located concentrically within said first cathode;
a plurality of stationary anode rods;
means for suspending said anode rods at least between said first and second cathodes; and
means for applying a voltage between said first and second cathodes, and said plurality of anode rods.

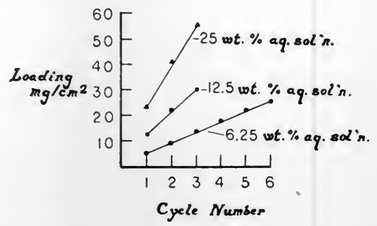
4,269,691

OXYGEN ELECTRODE PREPARATION

Gary A. Deborski, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 5, 1978, Ser. No. 939,600
Int. Cl.[3] C25B *11/16;* **B05D** *5/12;* **H01M** *4/50*
U.S. Cl. 204—290 R **13 Claims**

1. Method of providing an electrocatalytically-active manganese oxide deposit on the interior pore wall surfaces of a porous electrode body comprising:
applying to the interior walls of the electrode body a liquid, anionic-manganese pyrolytic salt reagent selected from the group consisting of manganese nitrate, manganese carbonate, carboxylic acid salts of manganese containing up to about 20 carbon atoms in the organic acid radical portion of the salt, and mixtures thereof; then
heating the reagent-bearing electrode at a body temperature between one that is at least at about the decomposition temperature of the reagent and about 700° C. until the reagent decomposes to manganese oxide(s) layer deposit formations on said pore walls; and



washing and refining the deposit laden body with an aqueous hydrogen peroxide solution.
13. The product produced by the method of claims 1 or 2.

4,269,692

COAL REFINING

Suresh P. Babu, Darien, and Richard A. Knight, Brookfield, both of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Filed Sep. 13, 1979, Ser. No. 75,279
Int. Cl.[3] C10G *1/00*
U.S. Cl. 208—8 LE **12 Claims**

1. A process for fossil fuel refining by solvent extraction comprising:
contacting for about ½ to about 3 hours ground solid fossil fuel with solvent consisting essentially of phenol at a temperature of about 600° to about 690° F. and a corresponding saturation pressure of about 250 to about 430 psig, said phenol being present in greater amounts than said fossil fuel on a weight basis, said phenol dissolving refined product from said fossil fuel leaving a solid fuel residue;
removing said phenol containing refined product from said fuel residue while heated;
cooling and separating refined product from phenol; and
recycling phenol.

4,269,693

PROCESS FOR RECOVERING BITUMEN FROM WASTE BITUMINOUS PRODUCTS

Anthony M. B. Hastie, Rose Cottage, Hoveringham, Nottinghamshire, United Kingdom

Filed May 23, 1979, Ser. No. 41,815
Claims priority, application United Kingdom, May 30, 1978, 24168/78
Int. Cl.[3] C10C *1/00;* **B01D** *12/00*
U.S. Cl. 208—39 **11 Claims**

1. A process for recovering bitumen from weathered bituminous roofing felt products, said roofing felt products having embrittled and flexible layers with particulate on fibrous impurities therein, which comprises cooling said products to a temperature below the softening point of the bitumen therein, comminuting the cooled products, adding the comminuted products to water and collecting the material which floats on the water, melting the collected material and filtering the melted material to remove particulate or fibrous impurities therefrom and thereby recovering said bitumen.

4,269,694

METHOD OF REMOVING CONTAMINANT FROM A FEEDSTOCK STREAM

Eric O. Holland, Borger, Tex., and Marvin M. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 1, 1979, Ser. No. 80,600
Int. Cl.[3] C10G *45/06, 65/02*
U.S. Cl. 208—48 R **17 Claims**

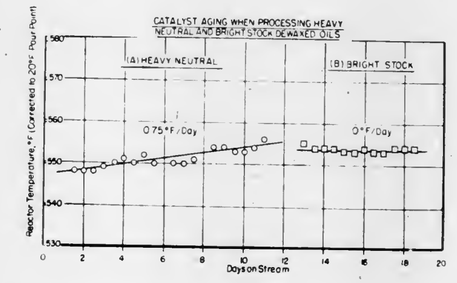
1. A method of hydrodesulfurizing a petroleum feedstock stream comprising:
contacting a contaminated petroleum feedstock stream containing feedstock contaminants with an adsorbent comprising activated bauxite effective to adsorb said feedstock contaminants to remove at least a portion of said contaminants therefrom to produce a purified petroleum feedstock stream; and
subsequently contacting said purified petroleum feedstock stream with a hydrodesulfurization catalyst under conditions effective for hydrodesulfurization to produce a purified hydrodesulfurized feedstock stream.

4,269,695

RECLAIMING WAX CONTAMINATED LUBRICATING OILS

Murray R. Silk, Cherry Hill, and Richard T. Cleveland, Turnersville, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 1, 1979, Ser. No. 63,025
Int. Cl.[3] C10G *45/00, 45/62, 45/64*
U.S. Cl. 208—111 **16 Claims**



1. A method for reclaiming a contaminated dewaxed lube base stock oil with an excessive tendency to form particulate wax when kept at a predetermined storage temperature, which method consists of: contacting said dewaxed oil and hydrogen in a single reaction zone at a temperature of 500° to 675° F., a hydrogen partial pressure of about 100 to 1500 psia, and at a space velocity higher than 2 up to about 10 LHSV with a catalyst comprising a crystalline aluminosilicate zeolite having a silica/alumina ratio of at least 12 and a Constraint Index of about 1 to about 12; and recovering at least 95 wt.% of a reclaimed lube base stock oil having a pour point not more than 20° F. lower than said contaminated oil, and which forms substantially no particulate wax at said storage temperature.

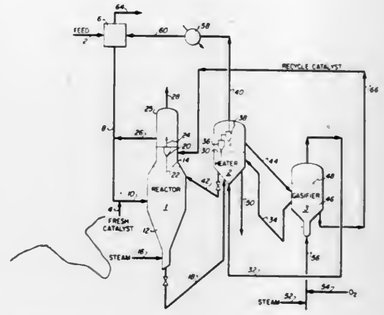
4,269,696

FLUID COKING AND GASIFICATION PROCESS WITH THE ADDITION OF CRACKING CATALYSTS

William J. Metrailer, Baton Rouge, La., assignor to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Nov. 8, 1979, Ser. No. 92,471
Int. Cl.[3] C10G *11/18, 9/32, 51/04*
U.S. Cl. 208—120 **15 Claims**

1. In an integrated coking and gasification process comprising the steps of:
(a) reacting a carbonaceous chargestock in a coking zone containing a bed of fluidized solids maintained at fluid coking conditions, including a total pressure of about 0 to 150 psig, in the absence of added hydrogen, to produce a vapor phase product including normally liquid hydrocarbons, and coke, said coke depositing on said fluidized solids;
(b) introducing a portion of said solids with the coke deposit thereon into a heating zone operated at a temperature greater than said coking zone temperature to heat said portion of said solids;
(c) recycling a first portion of heated solids from said heating zone to said coking zone;
(d) introducing a second portion of said heated solids to a fluid bed gasification zone maintained at a temperature greater than said heating zone, and



(e) reacting said second portion of heated solids in said gasification zone with steam and an oxygen-containing gas to produce a partially gasified coke and a gaseous stream comprising hydrogen,
the improvement which comprises adding to said carbonaceous chargestock solid cracking catalyst particles having a particle size of less than about 44 microns in diameter and recycling at least a portion of said partially gasified coke of step (e) to contact the vapor phase product above said bed of fluidized solids of said coking zone, said partially gasified coke comprising said cracking catalyst, said partially gasified coke serving as matrix wherein said cracking catalyst particles are dispersed.

4,269,697

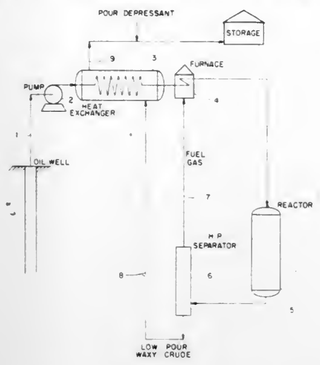
LOW POUR POINT HEAVY OILS

Nai Y. Chen, Titusville, and David S. Shihabi, Pennington, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Feb. 27, 1980, Ser. No. 125,006
Int. Cl.[3] C10G *11/05, 25/03, 73/38*
U.S. Cl. 208—120 **8 Claims**

1. A process for treating a waxy crude petroleum which comprises contacting said crude petroleum with a crystalline zeolite characterized by a silica/alumina ratio greater than 12, and an acid activity measured by the alpha scale less than 10,

said contacting being conducted at 650° to 800° F., space velocity of 0.1 to 5.0 LHSV and a pressure not greater than



about 750 psig and adding a pour point depressant to the product of said contacting.

4,269,698

OIL TREATMENT PROCESSES, AND PRODUCTS OBTAINED THEREBY

James G. Kreger, Westland, Mich., assignor to Edwards Oil Service, Inc., Detroit, Mich.

Filed Nov. 28, 1979, Ser. No. 98,230
Int. Cl.³ C10M *11/00*
U.S. Cl. 208—180 **61 Claims**

1. A process for purifying waste oil, comprising the steps of:
admixing with the waste oil an aqueous solution of an alkali metal silicate;
maintaining the waste oil-silicate solution mixture at a temperature of from about 140 to about 200 degrees Fahrenheit;
wherein from about 0.001 to about 0.8 pounds of a silicate selected from the group consisting of

M_4SiO_4, $M_{2n}(SiO_3)_n$, and M_2SiO_5

where n is an integer of from about 1 to about 2, and M is an alkali metal, are mixed with each gallon of said waste oil;
wherein said aqueous solution of the alkali metal silicate contains from about 1.0 to about 10.0 percent, by weight of said solution, of said silicate;
wherein from about 1.0 to about 10.0 percent, by volume of said waste oil, of said aqueous solution of said silicate is added to said waste oil;
said waste oil and said solution of said alkali metal silicate are admixed until a lump structure appears in the oil; and
thereafter the admixture is allowed to settle for from about 6 to about 30 hours while being maintained at a temperature of from about 140 to about 200 degrees Fahrenheit, whereby an alkaline clear oil top fraction as well as an alkaline bottom fraction are produced.

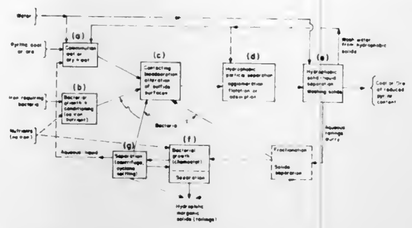
4,269,699

BIOADSORPTION ALTERATION OF IRON SULFIDE SURFACES

Ronald G. L. McCready, Lethbridge; Richard D. Coleman, Orleans; Charles E. Capes, Ottawa; Alan G. Kempton, and Nayera A. M. Moneib, both of Waterloo, all of Canada, assignors to Canadian Patents & Dev. Ltd., Ottawa, Canada

Filed Oct. 23, 1979, Ser. No. 87,698
Int. Cl.³ B03B *1/00*
U.S. Cl. 75—101 R **17 Claims**

1. A process for reducing the sulfur content of impure iron sulfide-containing minerals which include hydrophobic components comprising:
(a) subdividing the impure minerals until iron sulfide-containing surfaces are released from non-sulfide hydrophobic solids;
(b) conditioning or maintaining bacteria requiring iron for growth and being selected from the Thiobacillus and Ferrobacillus groups, and from recycled said bacteria, in an aqueous medium deficient in iron nutrient, to deplete bacterial iron reserves, thereby causing the bacteria to be



in condition to be rapidly adsorbed on fresh iron sulfide surfaces in order to restore depleted nutrient iron;
(c) contacting the subdivided mineral solids from (a) with the bacteria from (b) in an aqueous medium for a short time sufficient for adsorption of said bacteria on iron sulfide-containing surfaces but insufficient for significant enzymatic oxidation of said surfaces;
(d) separating the hydrophobic non-sulfide particles from the sulfide-containing particles rendered hydrophilic by adsorption of said bacteria; and
(e) recovering at least the hydrophobic solids.

4,269,700

FLOTATION OF INORGANIC MATERIALS FROM GLASS USING HYDROCARBON SULFONATES

William R. White, Pomona, Calif., assignor to Occidental Research Corporation, La Verne, Calif.

Continuation of Ser. No. 888,541, Mar. 21, 1978, abandoned.
This application Mar. 4, 1980, Ser. No. 127,192
Int. Cl.³ B03B *7/00*
U.S. Cl. 209—12 **29 Claims**

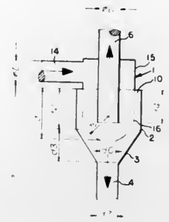
27. A process for recovery of glass from a particulate mixture of substantially inorganic materials including glass which comprises subjecting a particulate mixture of substantially inorganic materials including glass obtained from municipal solid waste, the inorganic materials other than glass constituting gangue and having a particle size less than about 10 mesh:
(i) to the action of an aqueous medium having a pH of from about 2 to about 4 and containing at least one glass suppressant material selected from the group consisting of mineral acids, and fluoride ion for a time sufficient to render the glass nonresponsive to the beneficiating action of at least one water compatible sulfonated hydrocarbon containing at least 5 carbon atoms; and
(ii) to the action of a beneficiating amount of said water compatible sulfonated hydrocarbon, the gangue being responsive to the beneficiating action of said water compatible sulfonated hydrocarbon;
and forming a float predominantly containing the gangue and a tailing predominantly containing glass.

4,269,701

CYCLONE SEPARATOR FOR THE REMOVAL OF HEAVY PARTICLES AND DUST PARTICLES FROM FIBRE MATERIAL

Franz Höck, Overath; Franz-Herbert Döpper, Bergisch Gladbach, and Gert Stock, Cologne, all of Fed. Rep. of Germany, assignors to Temafa Textilemaschinenfabrik GmbH, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 69,637
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838173
Int. Cl.³ B04C *5/103*; B07B *7/06*
U.S. Cl. 209—23 **4 Claims**



1. A cyclone separator for separating heavy particles and dust particles from fibre material, said separator comprising:
a cyclone housing;
a sieve sleeve or sieve member arranged inside the cyclone housing, said sieve member being substantially coaxial with the cyclone housing axis and having downwardly-extending flat bars the upper portions of which are arranged vertically, and the lower ends of which are bent or curved inwardly to form a substantially balloon-shaped sieve region that bounds a co-axial lower sieve opening;
an inlet tube that opens substantially tangentially into the cyclone housing and into the sieve member for the pneumatic feeding-in of the material to be cleaned;
an overflow immersion or dip pipe for the removal of cleaned light-weight fibre material; and
an underflow or apical nozzle or outlet for discharging heavy particles and dust particles.

4,269,702

ORE TREATMENT PROCESS

John A. Milner, and Roger M. Turner, both of Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Nov. 29, 1978, Ser. No. 964,727
Claims priority, application United Kingdom, Dec. 8, 1977, 51132/77
Int. Cl.³ B03D *1/06*
U.S. Cl. 209—166 **4 Claims**

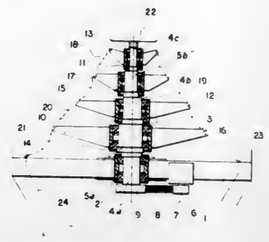
1. A process for the recovery of metal concentrates from mineral ores containing a metal or metals in the form of their sulphides and/or oxides, in which the crushed ore is subjected to a froth flotation process in aqueous medium using, as collector, an ortho hydroxy phenyl oxime selected from the group consisting of 2-hydroxy, 3,5-ditertiary-butyl benzaldoxime, 2-hydroxy, 3-methyl, 5-tertiary-butyl benzaldoxime and 2-hydroxy, 5-methyl, 3-tertiary-butyl benzaldoxime.

4,269,703

SCREENING MACHINE

Johannes Brüderlein, Duisburg, Fed. Rep. of Germany, assignor to Siebtechnik GmbH, Fed. Rep. of Germany

Filed Mar. 12, 1979, Ser. No. 19,988
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1978, 2810587
Int. Cl.³ B07B *1/06, 1/28*
U.S. Cl. 209—243 **7 Claims**



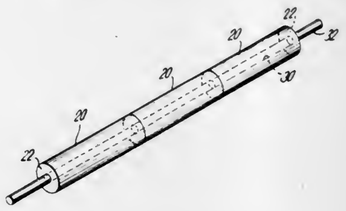
1. A screening machine comprising:
a. a vertically disposed crank shaft and means for rotating said shaft;
b. a plurality of spaced apart holders, alternative holders being eccentrically, but nonrotatably, mounted to said crank shaft, and said other holders being nonrotatably mounted to said crank shaft; and
c. a plurality of frustro-conical screens mounted to said holders and disposed between said holders such that rotation of said crank shaft imparts a substantially circular motion to the circular edges of the screens mounted to the eccentrically mounted holders.

4,269,704

SCREEN FOR PARTICLE SEPARATION

Arnold B. Bower, Jr., Bristol, Va., assignor to General Electric Company, Detroit, Mich.

Filed Nov. 13, 1979, Ser. No. 93,237
Int. Cl.³ B07B *1/46*
U.S. Cl. 209—393 **16 Claims**



1. A screen for separating particles comprising:
a plurality of rows of elongated members disposed in fixed, spaced parallel array, said elongated members being formed from segmented sections of a cemented carbide material, each said segmented section having an axial bore therein;
means for connecting said segmented sections to form said rows of elongated members, said means for connecting said segmented sections to form said rows includes a wire extending through the axial bores of said segmented sections to thereby align and fixedly hold said sections in a straight row; and
means for supporting said members in said array.

4,269,705
METHOD FOR REMOVING CHROMIUM IONS FROM AQUEOUS SOLUTIONS OF ORGANIC ACIDS

Teruhiko Yoshioka; Hideo Matsuzawa; Kazuya Okada, all of Otake, and Minoru Ikeda, Saiki, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

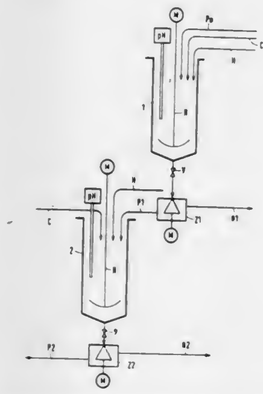
Filed Apr. 18, 1979, Ser. No. 31,157
Int. Cl.³ B01D *15/04*
U.S. Cl. 562—600 7 Claims

1. A method of removing chromium ions from an aqueous solution of an organic acid having an acid concentration of up to 95%, which comprises treating said solution with a cation exchange resin at a temperature higher than 55° C.

4,269,706
METHOD OF DECONTAMINATING RADIOACTIVE PROCESS WASTE WATERS

Thomas Sondermann, Kahl/Main, Fed. Rep. of Germany, assignor to Reaktor-Brennelment Union GmbH, Hanau, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 908,952, May 24, 1978, abandoned. This application Sep. 7, 1979, Ser. No. 73,521
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1977, 2724954
Int. Cl.³ C02F *1/52*; G21F *9/10*
U.S. Cl. 210—682 5 Claims



1. A method for decontaminating process waste water having a pH of about 7, which is an ammonium nitrate solution, from the manufacture of nuclear fuel, containing radioactive isotopes selected from the group consisting of uranium isotopes, thorium isotopes and plutonium isotopes as contaminants, which comprises

(a) adding HNO_3 to the contaminated process water to reduce its pH to a value of about 5.8,

(b) adding a reagent selected from the group consisting of CaO and Ca $(OH)_2$ to the contaminated process water of about 5.8 pH in an amount sufficient to raise the pH of the water in the range of about 8.5 to about 10,

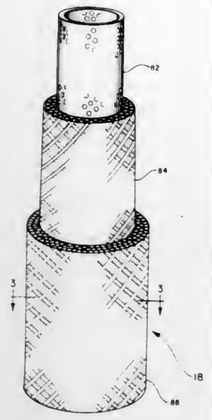
(c) agitating the mixture of the process water and the reagent for at least 5 minutes to effect intimate contact therebetween and produce a suspension in the water of solids containing radioactive contaminants, and

(d) centrifuging the water containing the suspended solids to separate the solids containing radioactive contaminants from the water from which radioactive contaminants have been removed in the solids.

4,269,707
APPARATUS AND METHOD

Donald J. Butterworth, Stirling; Christopher Halbfoster, Clark, and Robert Loudon, Howell, all of N.J., assignors to Ecodyne Corp., Chicago, Ill.

Continuation of Ser. No. 884,707, Mar. 8, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,245
Int. Cl.³ B01D *37/02*
U.S. Cl. 210—777 5 Claims



1. A filter element, precoated with particles in the size range of 60 to 400 mesh, consisting essentially of:

a perforated tubular core;

an inner layer of strand material wound about said core, said inner layer having a nominal particle retention number between twenty-five and one hundred microns;

an outer layer of strand material, wound about said inner layer, said outer layer having a nominal particle retention number between one and twenty-five microns; and

a precoat of particles in the size range of 60 to 400 mesh supported on said outer layer.

3. A method for purifying liquids comprising:

precoating a filter having layers of strand material with particles in the size range of about 60 to 400 mesh, said filter having an outermost layer with a nominal particle retention number less than the nominal particle retention number of the innermost layer of said filter with the nominal particle retention numbers gradually decreasing from the innermost layer to the outermost layer; delivering liquid to be filtered through said precoated particles and said filter; periodically backwashing said filter and removing said precoated particles; and precoating said filter with a fresh coating of particles in the size range of about 60 to 400 mesh.

4,269,708
HEMODIALYSIS AND/OR ULTRAFILTRATION APPARATUS

Vittorio Bonomini, Via Siepelunga 30, and Giovanni Ruggeri, Via Boves 4, both of Bologna, Italy

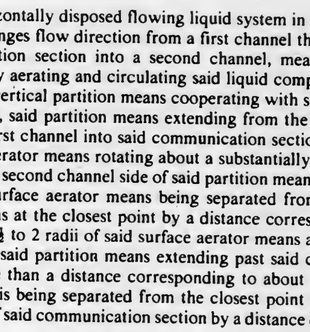
Filed May 3, 1979, Ser. No. 35,744
Claims priority, application Italy, May 3, 1978, 3415 A/78
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—90 8 Claims

1. In a portable dialysis apparatus, of the type comprising a first circuit for blood and a second circuit for ultrafiltration and dialysis liquid, the exchange between the blood and the dialysis liquid taking place through a semipermeable membrane, the improvement comprising

(a) a pump means in each of said first and second circuits, each said pump means having a head and being of the type in which a flexible tube is intermittently throttled by at least one element of said pump head, said pump head being maintained in throttling engagement with said tube for at least a length thereof;

(b) means for selectively connecting the output side of the pump means for said dialysis liquid either with the inlet of said dialyzer or with an ultrafiltrate collection station;

(c) means for selectively connecting the input side of pump means for said dialysis liquid with the outlet of the dialyzer either through a supply tank of dialysis liquid or directly via a shunt line;



(d) whereby ultrafiltration and dialysis are performable as first and second steps in sequence;

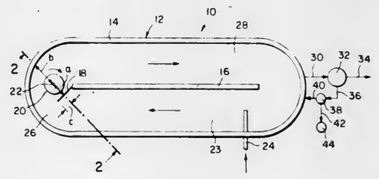
(e) a pressure meter being arranged in said shunt line upstream of the pump means for said dialysis liquid; and

(f) said supply tank for said dialysis liquid being provided with temperature control and adjustment means, and a filter for the absorption of toxic substances from the dialysis liquid being mounted between said outlet of said dialyzer and said supply tank.

4,269,709
WASTE WATER TREATMENT SYSTEM WITH AERATION AND CIRCULATION MEANS

Paul I. Rongved, Notch Rd., Oak Ridge, N.J. 07438

Continuation of Ser. No. 884,746, Mar. 9, 1978, abandoned. This application Aug. 6, 1979, Ser. No. 64,033
Int. Cl.³ C02F *3/18, 1/74*
U.S. Cl. 210—195.3 13 Claims

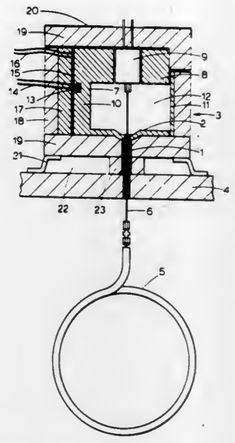


1. In a horizontally disposed flowing liquid system in which the liquid changes flow direction from a first channel through a communication section into a second channel, means for simultaneously aerating and circulating said liquid comprising substantially vertical partition means cooperating with surface aerator means, said partition means extending from the inside wall of said first channel into said communication section and said surface aerator means rotating about a substantially vertical axis on the second channel side of said partition means, said axis of said surface aerator means being separated from said partition means at the closest point by a distance corresponding to about 1½ to 2 radii of said surface aerator means and an outer edge of said partition means extending past said closest point no more than a distance corresponding to about 1 said radius, said axis being separated from the closest point of the outside wall of said communication section by a distance corresponding to more than 2 said radii, whereby said aerator means is closer to said partition means than to said outside wall.

4,269,710
CHROMATOGRAPHIC APPARATUS

Richard J. Hunt, Cambridge, England, assignor to Pye Limited, Cambridge, England

Continuation of Ser. No. 653,919, Jan. 30, 1976, abandoned, which is a continuation of Ser. No. 397,660, Sep. 17, 1973, Pat. No. 3,954,616. This application Jul. 15, 1977, Ser. No. 815,939
The portion of the term of this patent subsequent to May 4, 1993, has been disclaimed.
Int. Cl.³ B01D *15/08*
U.S. Cl. 210—198.2 5 Claims



1. Chromatographic apparatus comprising:

a chromatographic separation column;

means for maintaining the temperature of said column at a first predetermined temperature;

a detector responsive to components eluted from said column;

conduit means which function to convey components from said column to said detector; and

means for heating said conduit means which function to conduct and retain heat from said detector along said conduit and prevent the formation of negative temperature gradients along said conduit means.

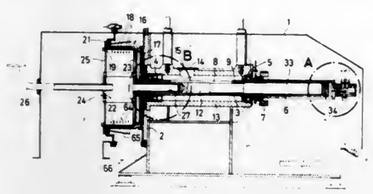
4,269,711
FILTER CENTRIFUGE

Hans Gerteis, Bietigheim-Bissingen, Fed. Rep. of Germany, assignor to Firma Heinkel Industriezentrifugen GmbH & Co., Fed. Rep. of Germany

Filed Mar. 6, 1978, Ser. No. 883,750
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1977, 2709894
Int. Cl.³ B01D *33/10*
U.S. Cl. 210—232 9 Claims

1. Filter centrifuge for the separation of solid and liquid components found in a suspension, with a centrifugal drum having radial discharge openings, which is positioned rotatably in a centrifuge housing, and is open at one front side, and with a filter cloth which can be installed in the drum, which is fastened removably on the one side to the opening edge of the drum which can be tightly sealed by a centrigue bowl cover, and on the other side with the base plate rigidly connected with the cover so as to leave a space between, wherein the centrifugal drum and the base plate are coaxial with one another, can be displaced in rotation together, and are movable

axially with respect to one another, and with a filling pipe extending centrally into the centrifuge bowl for introduction of the suspension, characterized in that the centrifugal drum (**16**) is fastened to a hollow shaft (**3**) positioned rotatably in a centrifuge housing (**2**) and which is not displaceable axially,



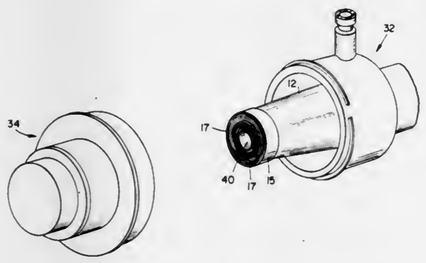
and the interior (**11**) of the hollow shaft (**3**) serves as a receiver for a shaft (**12**) having a free end remote from said base plate (**23**) forming a piston rod (**33**) disposed for axial movement in a pressure medium cylinder (**6**), whereby axial movement of said base plate (**23**) causes inversion of said filter cloth (**22**) to discharge said solids.

4,269,712

HOLLOW FIBER SEPARATORY ELEMENT AND METHOD OF MAKING SAME

Roger B. Hornby; Bennie J. Lipps, both of Walnut Creek, and Charles E. Savage, Clayton, all of Calif., assignors to Cordis Dow Corp., Miami, Fla.

Filed May 14, 1979, Ser. No. 39,066
Int. Cl.³ B01D *13/00*
U.S. Cl. 210—321.3 **13 Claims**



1. A separatory element comprising a bundle of continuously hollow semipermeable fibers, said bundle comprising a plurality of elongated fibers having a central portion and two opposite terminal portions, a solidified castable resin tubesheet on each said terminal portion joining the exteriors of said fibers to each other,

each said tubesheet having an axially extending disc portion integral with an outer frusto-tapered portion tapering axially outwardly and radially inwardly from the axial outer surface of said disc portion and terminating in an outer end planar surface, said fibers extending through said disc portion and said frusto-tapered portion of said tubesheet and terminating in open ends lying in the outer end planar surface of said frusto-tapered portion, at least a portion of said disc adjacent its axial inner end having a peripheral surface tapering radially and axially outwardly from said inner end.

4,269,713

ETHYLENE-VINYL ALCOHOL COPOLYMER MEMBRANE AND A METHOD FOR PRODUCING THE SAME

Shuzo Yamashita; Syuji Kawai; Hirokuni Tanii, all of Kurashiki, and Koichi Takakura, Okayama, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Aug. 31, 1979, Ser. No. 71,671
Claims priority, application Japan, Sep. 7, 1978, 53-110259; Apr. 30, 1979, 54-53730
Int. Cl.³ B01D *39/18, 31/00, 13/00*
U.S. Cl. 210—500.2 **6 Claims**



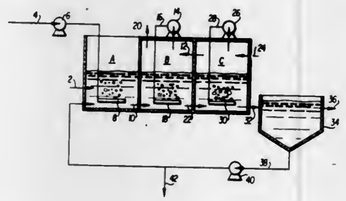
1. An ethylene-vinyl alcohol copolymer membrane comprising at least a skin layer on the surface thereof and a porous layer supporting said skin layer, wherein said porous layer, when said membrane is observed in the dry state with an electron microscope, comprises a plurality of vacuoles or voids, which present a mono- or multi-layer structure, with an average straight-line length corresponding to 20–99% of the whole thickness of the membrane, and the polymer portion of said porous layer comprises micropores with an average diameter of 0.1–5 microns, and said membrane has a porosity of 60–90%.

4,269,714

ACTIVATED SLUDGE TREATMENT METHOD OF WASTE WATER

Muneharu Ishikawa, and Kazuo Kimoto, both of Hiranomachi, Japan, assignors to Osaka Gas Company, Limited, Osaka, Japan

Continuation-in-part of Ser. No. 905,942, May 15, 1978, abandoned. This application Jan. 4, 1980, Ser. No. 109,626
Claims priority, application Japan, Apr. 15, 1978, 53-44708
Int. Cl.³ C02F *3/26*
U.S. Cl. 210—627 **1 Claim**



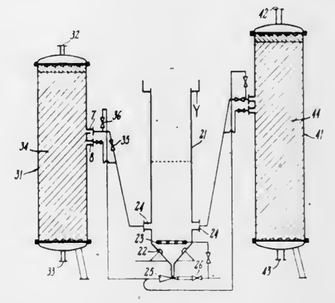
1. A method for treatment of waste water containing a BOD component with activated sludge which comprises introducing said waste water and an effective amount of said activated sludge to adsorb said BOD component into a first open treatment zone, micronizing said activated sludge in the waste water in said first open treatment zone to an average floc size of about 160 microns or less but not to such a degree as to have the cells of microorganisms therein broken or destroyed and adsorbing the BOD component on the micronized sludge; transferring the thus treated sludge-containing water to a second substantially closed treatment zone and bringing it into contact with an oxygen-containing circulating gas having an oxygen concentration of not less than 30% by volume to oxidize the BOD component adsorbed on the sludge with flocculation of the sludge under the condition of the dissolved oxygen concentration being not less than 2 mg/liter, during which the sludge-containing water is slowly agitated by the oxygen-containing circulating gas to permit flocculation of the sludge and to maintain the flocculated sludge in an evenly dispersed state; transferring the thus treated sludge-containing water to a third substantially closed treatment zone and bringing it into contact with an oxygen containing circulating gas having an oxygen concentration of not less than 35% by volume to oxidize the BOD component adsorbed on the sludge, accelerate the flocculation of the sludge and auto-oxidize the flocculated sludge under the condition of the dissolved oxygen concentration being not less than 5 mg/liter, during which the sludge-containing water is slowly agitated by the oxygen-containing circulating gas to accelerate the flocculation of the sludge and maintain the flocculated sludge in an evenly dispersed state; and then introducing the thus treated sludge-containing water into a settling tank to settle the sludge and discharging the resulting supernatant liquid from the settling tank while recycling at least a portion of the settled sludge to the first open treatment zone.

4,269,715

PROCESS AND APPARATUS FOR TREATING BY ION EXCHANGE OR ADSORPTION FLUIDS HAVING SOLID PARTICLES SUSPENDED THEREIN

Christian Barraque, Sannois; Jean Burriat, Clamart, and Jean-Marie Rovel, Carrieres sur Seine, all of France, assignors to Degremont, Rueil-Malmaison, France

Filed Dec. 3, 1979, Ser. No. 99,719
Claims priority, application France, Dec. 8, 1978, 78 34555
Int. Cl.³ B01J *49/00*
U.S. Cl. 210—675 **18 Claims**



1. A process for treating fluids having solid particles suspended therein, said process comprising:

providing a treatment column having an interior including a treatment zone completely filled with a bed of granular treatment material;

conducting a treatment operation by passing a fluid to be treated in a downward direction through said bed of treatment material, thereby treating said fluid with said treatment material, and causing solid particles suspended in said fluid to be removed therefrom by an upper portion of said bed of treatment material and retained therein;

periodically conducting a regeneration operation and regenerating said bed of treatment material by passing a regenerating agent in an upward direction through said bed of treatment material in said treatment zone within said treatment column; and

periodically, upon a predetermined clogging of said bed of treatment material due to accumulated retention in said upper portion thereof of said solid particles, interrupting said treatment operation in said treatment column and conducting a washing operation comprising:

removing said upper portion only of said bed of treatment material from said treatment column by flowing said upper portion in a downward direction from said treatment column;

introducing the thus removed upper portion of said bed of treatment material into a washing column separate from said treatment column;

within said washing column, washing said portion of said treatment material and removing therefrom said solid particles, to thereby form washed treatment material; and

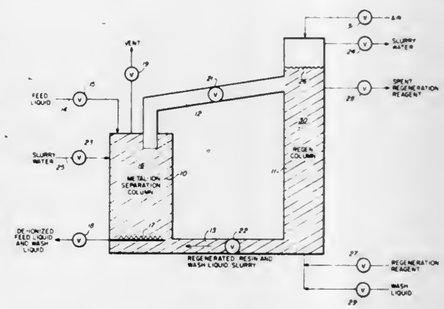
returning said washed treatment material from said washing column to said treatment zone to thereby replace said upper portion of said bed of treatment material.

4,269,716

ION EXCHANGE SEPARATION METHOD

Marshall I. Gurian, Tempe, Ariz., assignor to Advanced Systems, Inc., Phoenix, Ariz.

Filed Jan. 28, 1980, Ser. No. 115,939
Int. Cl.³ B01J *47/10*
U.S. Cl. 210—675 **1 Claim**



1. In a moving-bed ion exchange separation method for selectively separating metal ions from a feed liquid, including the steps of

contacting said feed liquid in a separating zone with granular ion exchange resin to sorb said metal ions onto said resin,

withdrawing said feed liquid substantially free of said ions from said separation zone,

withdrawing ion exchange resin loaded with said metal ions from said separation zone,

treating said loaded resin in a regeneration zone with a regeneration reagent liquid to desorb said ions from said resin,

withdrawing spent regeneration reagent liquid from said regeneration zone,

washing the regenerated ion exchange resin in said regeneration zone with a wash liquid, and

recycling said regenerated resin to said separation zone for contact with additional feed liquid,

the improvement in said method whereby the volume of spent wash liquid and treated feed liquid is reduced, said method comprising the steps of:

(a) introducing said feed liquid into the top portion of said separating zone for downflow therewithin and contact with said ion exchange resin;

(b) introducing said regeneration reagent liquid into the lower portion of said regeneration zone for flow upwardly therethrough and regenerating contact with a quantity of said loaded granular ion exchange resin therewithin;

(c) interrupting the flow of said regeneration reagent liquid through said regeneration zone;

(d) introducing said wash liquid into the lower portion of said regeneration zone to wash regenerated resin and to displace said regeneration reagent liquid upwardly therewithin;

(e) withdrawing at least a portion of said regenerated resin

and wash liquid from the lower portion of said regeneration zone;

(f) introducing said withdrawn regenerated resin and wash liquid into the lower portion of said separation zone;

(g) withdrawing loaded ion exchange resin from the top of said separation zone and introducing said withdrawn loaded resin into the top of said regeneration zone; and

(h) withdrawing de-ionized feed liquid and wash liquid from the lower portion of said separation zone.

4,269,717

BOILER ADDITIVES FOR OXYGEN SCAVENGING

Manuel Slovinsky, Woodridge, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Continuation-in-part of Ser. No. 140,965, Apr. 17, 1980, abandoned, which is a continuation-in-part of Ser. No. 46,121, Jun. 6, 1979, abandoned. This application Oct. 6, 1980, Ser. No. 194,349

Int. Cl.³ C02F *1/20, 1/70*

U.S. Cl. 210—750 **6 Claims**

1. A method of removing dissolved oxygen from boiler water having an alkaline pH which comprises adding to said boiler water an oxygen scavenging amount of carbohydrazide, said oxygen scavenging amount being at a level of a least 0.5 moles of carbohydrazide per mole of dissolved oxygen.

2. The method of claim 1 wherein the boiler water is subjected to deaeration to reduce the level of dissolved oxygen and the carbohydrazide is added to the boiler water after deaeration to remove remaining dissolved oxygen.

4,269,718

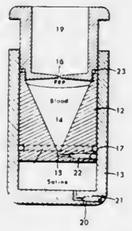
PROCESS AND DEVICE FOR CENTRIFUGAL SEPARATION OF PLATELETS

Maxim D. Persidsky, San Francisco, Calif., assignor to The Institutes of Medical Sciences, San Francisco, Calif.

Filed May 5, 1980, Ser. No. 146,461

Int. Cl.³ B01D *21/26*

U.S. Cl. 210—787 **12 Claims**



8. The method of separating platelets from a blood sample comprising

(a) supporting the blood sample in a centrifugal chamber having inner and outer ends,

(b) subjecting the chamber to an intial centrifugal force of at least a predetermined minimum to stratify red cells in the sample away from the inner end, and

(c) subjecting the chamber to a second centrifugal force while (1) injecting into the outer end of the chamber from a cavity, a displacing liquid having a volume of between 0.2 and two times the volume of plasma in the sample at a flow rate less than about 1.0 ml. per minute per ml. of the blood sample, and (2) displacing platelet rich plasma from the inner end of the chamber at substantially the same volume and rate with the displacing liquid ejected from the cavity by the second centrifugal force on the blood sample.

4,269,719

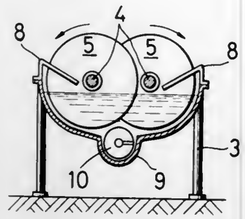
SLURRY DEHYDRATING APPARATUS

Morio Yamamoto, 2780-12 Haracho 2-chome, Suita-shi, Osaka, Japan

Filed Aug. 13, 1979, Ser. No. 65,942

Int. Cl.³ B01D *21/00*

U.S. Cl. 210—803 **10 Claims**



9. A method of dehydrating a liquid containing solids utilizing a vessel open at the upper side and adapted to receive the liquid, at least one rotatable shaft extending substantially horizontally over said open side, and a row of spaced discs mounted on said shaft and rotatable therewith, said method comprising the steps of flowing a quantity of the liquid and the solids into the vessel to cover the lower portions of the discs, slowly rotating the discs to carry a portion of the liquid and the solids upwardly and expose them to air above the liquid, continuing to rotate the discs at a rate slow enough to permit substantially all of the liquid to evaporate from the discs and thereby concentrate the solids, removing the concentrated solids from the discs, periodically removing the concentrated solids from the lower side of the vessel, and periodically flowing an additional quantity of said liquid and solids into said vessel after the concentrated solids have been removed.

4,269,720

AMINE ANTIOXIDANT

John D. Bartleson, Franklin, and John C. Wollensak, Bloomfield Hills, both of Mich., assignors to Ethyl Corporation, Richmond, Va.

Filed May 29, 1979, Ser. No. 42,970

Int. Cl.³ C08K *5/18;* **C10L** *1/22;* **C10M** *1/34, 3/28*

U.S. Cl. 252—50 **7 Claims**

1. Organic material normally susceptible to gradual degradation in the presence of oxygen during use over an extended period containing an antioxidant amount of N-(2-amino-3-ethyl-α-methylbenzylidene)-2,6-diethylaniline.

4,269,721

DUST ABATEMENT WITH CALCIUM SULFATE

Klaus W. Mueller, Yonkers, and Norman R. Olsen, Peekskill, both of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Dec. 21, 1979, Ser. No. 106,322

Int. Cl.³ C09K *3/22*

U.S. Cl. 252—88 **5 Claims**

1. A method of allaying dusting and moisture penetration of stored coal comprising covering the stored coal with sufficient amount of an aqueous mixture of a calcium sulfate containing composition to form a hardened crust over the stored coal.

4,269,722

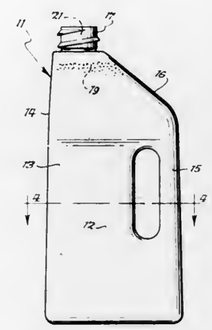
BOTTLED PARTICULATE DETERGENT

David Joshi, Piscataway, N.J., and Richard Klingaman, Houston, Tex., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 727,838, Sep. 29, 1976, abandoned. This application Dec. 21, 1978, Ser. No. 964,037

Int. Cl.³ C11D *17/06*

U.S. Cl. 252—90 **12 Claims**



1. A bottled particulate laundry detergent which comprises a transparent bottle having a neck portion for dispensing detergent from the bottle, the bottle being made of a thin-walled synthetic organic polymeric plastic which is essentially moisture proof, the neck being located at the top of the bottle and adjacent one side and having a passageway therethrough with a cross-sectional area of less than 40% of the average cross-sectional area of the bottle, wherein said neck passageway has a cross-sectional area of about from 2 to 40 sq. cm., the bottle being provided further with an integral hollow handle located on the side of the bottle opposite that of the neck, wherein the interior of said handle communicates with other interior portions of the bottle, and said handle has an internal cross-sectional area in the range of about from 1 to 10 sq. cm., and a free-flowing particulate detergent in said bottle, pourable through said neck and handle, the particles of which comprises from about 2 to 50% by weight of a synthetic organic detergent selected from the group consisting of nonionic detergents and mixtures of said nonionic detergents with anionic detergents, wherein said nonionic detergent is a normally liquid or tacky ethoxylated detergent, and from about 50 to 90% by weight of builders for said detergent, wherein said builders are selected from the group consisting of ion-exchanging clays, organic builders and sodium salts of at least one of bicarbonates, borates, carbonates, phosphates and silicates, said particles sized such that at least 90% thereof pass through an 8 mesh screen and are retained on a 200 mesh screen (U.S. Sieve Series), are of a bulk density of at least 0.5 g/cc., are of a flowability sufficiently high so that detergent flows freely through the neck and handle of said bottle, and are substantially dust-free so that after pouring some of said composition from said bottle the bottle and the contained volume above the level of the particulate detergent composition return to a transparent condition, and a resealable cap for said neck portion.

4,269,723

PROCESS FOR MAKING A LAVATORY CLEANSING BLOCK AND USE

Eric D. Barford, Thetford; Robin A. Gray, Attleborough, and Michael R. Saul, Hockwold, all of England, assignors to Jeyes Group Limited, Norfolk, England

Filed Mar. 20, 1979, Ser. No. 22,300

Claims priority, application United Kingdom, Mar. 21, 1978, 11218/78

Int. Cl.³ C11D *17/00, 3/50, 3/48*

U.S. Cl. 252—106 **25 Claims**

1. A process for the preparation of a lavatory cleansing tablet adapted for immersible use in the cistern of a lavatory which comprises forming a free-flowing particulate mixture consisting essentially of:

(a) from 5 to 90% by weight of a surface active component comprising one or more organic surface active agents;

(b) from 0.5 to 75% by weight of one or more binders which act as dissolution retarding agents selected from clays and water-soluble or water-dispersible gel-forming organic polymeric materials;

(c) from 0 to 20% of one or more dyestuffs;

(d) from 0 to 35% by weight of a perfume component comprising a solid perfume or a liquid perfume optionally in admixture with a solid absorbent therefor;

(e) a total of from 0 to 75% by weight of:

(i) one or more inert water-soluble fillers;

(ii) one or more water-softening or chelating agents;

(iii) one or more solid water-soluble acids;

(iv) one or more inert water-insoluble inorganic or polymeric organic fillers (in an amount of not more than 50% by weight of the mixture);

(v) one or more tablet lubricants (in an amount of not more than 30% by weight of the mixture);

(f) from 0 to 20% by weight of one or more germicides, fungicides, and/or chlorine release agents; and compressing the mixture to form a tablet.

4,269,724

COMPOSITION FOR PAINT STRIPPER

James V. Hodson, 1650 E. 500 South, Fruit Heights, Utah 84037

Filed Feb. 13, 1980, Ser. No. 121,304

Int. Cl.³ C11D *7/50;* **C23G** *5/02*

U.S. Cl. 252—171 **8 Claims**

1. A finish remover composition comprising methylene chloride and iso-propyl alcohol as active solvents, said methylene chloride and iso-propyl alcohol being present in a weight ratio of about 3:1 and an amine-glycolate acid salt formed by the addition of about 2% by volume mono-ethanolamine and about 5% by volume of a water-glycolic acid mixture based on the volume of the composition so as to form a pH of about 5.

4,269,725

WASHING COMPOSITIONS

Eileen Smith, Runcorn, and David A. Morgan, Queen's Park, both of England, assignors to Laporte Industries Limited, London, England

Filed Apr. 3, 1978, Ser. No. 892,966

Claims priority, application United Kingdom, Apr. 21, 1977, 16701/77; Aug. 5, 1977, 32876/77; Jan. 19, 1978, 2263/78

Int. Cl.³ C11D *10/02, 7/02*

U.S. Cl. 252—174.25 **5 Claims**

1. A washing composition comprising from 5 to 95% by weight of at least one surfactant and from 95 to 5% by weight of a mixture of zeolite 13X and xeolite 4A, the weight ratio of zeolites 13X:4A being in the range of 85:15 to 65:35.

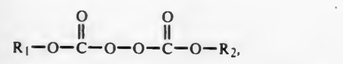
4,269,726

COMPOSITIONS COMPRISING ASYMMETRICAL PEROXYDICARBONATES AND METHODS FOR THEIR USE

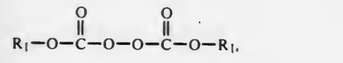
James R. Kolczynski, Clarence Center, and Gerald A. Schultz, Lockport, both of N.Y., assignors to Akzona Incorporated, Ashville, N.C.

Filed Dec. 26, 1979, Ser. No. 107,999
Int. Cl.³ C07C *179/14*; C01B *13/00*
U.S. Cl. 252—186 **2 Claims**

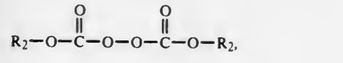
1. A composition comprising from about 25 to about 70 molar percent of an asymmetrical peroxydicarbonate of the formula



from about 15 to about 45 molar percent of a first symmetrical peroxydicarbonate of the formula



and from about 15 to about 45 molar percent of a second symmetrical peroxydicarbonate of the formula



wherein R_1 is isopropyl and R_2 is sec-butyl.

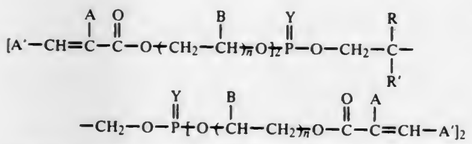
4,269,727

RADIATION CURABLE FLAME RETARDANT COMPOSITIONS CONTAINING 2,2-DIALKYLPROPANE-1,3-DIOLBIS[BIS-(ACRYLOYLOXYLKYL) PHOSPHATES]

George J. Atchison; Gerald K. McEwen, and Violete L. Stevens, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 960,383, Nov. 13, 1978. This application Oct. 5, 1979, Ser. No. 82,191
Int. Cl.³ C08F *2/48*; C09F *9/09*
U.S. Cl. 252—188.3 R **5 Claims**

1. A radiation curable composition comprising (1) a compound of the formula:



wherein A is hydrogen or methyl; A′ is hydrogen, methyl, phenyl or halogen; n is 1 or 1.5 and when n is 1, B is hydrogen or methyl and when n is 1.5, B is hydrogen; Y is oxygen or sulfur; R and R′ are hydrogen, methyl, chloromethyl or bromomethyl and (2) a photoinitiator.

4,269,728

METHOD FOR STORING SPENT NUCLEAR FUEL IN REPOSITORIES

Donald G. Schweitzer, Bayport; Cesar Sastre, Shoreham, and Warren Winsche, Bellport, all of N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 21, 1979, Ser. No. 68,359
Int. Cl.³ G21F *9/34*
U.S. Cl. 252—301.1 W **5 Claims**

1. In a method for storing spent fuel elements from nuclear reactors wherein the elements are immersed in a storage medium in a repository, the improvement which comprises said medium being elemental sulfur.

4,269,729

MICROENCAPSULATION PROCESS AND RESULTING MICROCAPSULES

Hitoshi Maruyama; Koichi Kajitani, and Makoto Shiraishi, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Jul. 23, 1979, Ser. No. 59,733
Claims priority, application Japan, Jul. 21, 1978, 53-89843
Int. Cl.³ B01J *13/02*
U.S. Cl. 252—316 **12 Claims**

1. A process for producing microcapsules having walls formed from a polyvinyl alcohol polymer in an aqueous medium, which comprises the steps of:

(a) dispersing a substantially water insoluble nuclear material in an aqueous solution of a polyvinyl alcohol polymer, which solution has a cloud point;

(b) phase separating and depositing a concentrated aqueous solution of the polyvinyl alcohol polymer as a separated phase around said nuclear material from the bulk continuous phase in the absence of a substance which induces the phase separation by maintaining the temperature of the system above the cloud point of the aqueous polyvinyl alcohol polymer solution; and

(c) subjecting the phase separated solution to conditions which substantially solidify or gel said polyvinyl alcohol polymer in said concentrated aqueous solution of said separated phase around said nuclear material but which do not substantially solidify or gel the polyvinyl alcohol in the diluted aqueous solution of the continuous phase.

12. Microcapsules prepared by the process of claim 1.

4,269,730

SUBSTITUTED IMIDAZOLINE REACTIONS WITH CHLOROACETATE SALTS

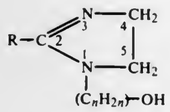
Joseph R. Wechsler, Chicago; Thomas G. Baker, Wilmette; George T. Battaglini, Buffalo Grove, and Frank L. Skradski, Grayslake, all of Ill., assignors to Stepan Chemical Company, Northfield, Ill.

Continuation-in-part of Ser. No. 901,713, May 1, 1978, abandoned. This application Aug. 28, 1979, Ser. No. 70,537
Int. Cl.³ B01F *17/28, 17/30*; C11D *1/10*
U.S. Cl. 252—356 **11 Claims**

1. A process for making an amphoteric surfactant composition having low skin irritation and low eye irritation characteristics comprising the steps of

(A) first heating an agitated mixture comprised of

(1) at least one substantially pure compound of the formula:



where:

R is an aliphatic radical containing from about 5 to 19 carbon atoms per molecule, and

n is a positive whole number of from 2 to 4, inclusive,

(2) at least one chloroacetate salt wherein the cationic portion thereof is selected from the group consisting of alkali metal, ions, and

(3) water

said mixture containing the equivalent of from about 1.0 to 2.5 moles of said chloroacetate salt for each mole of said formula compound, and further containing a quantity of water such that said mixture comprises from about 20 to 50 weight percent solids on a 100 weight percent total said mixture basis, said first heating being conducted at a temperature ranging from about 70° to 80° C. for a time sufficient to substantially completely consume said chloroacetate salt,

(B) mixing with the resulting reactant mixture from about 1 to 2.5 moles, corresponding to the equivalent molar amount of chloroacetate salt added to said reactant mixture in step A of at least one base selected from the group consisting of alkali metal hydroxides, and then

(C) secondly heating the resulting reactant mixture at a temperature of from about 70° to 80° C. at least until substantially all of the imidazoline rings present in said resulting reactant mixture have opened, thereby forming a clear aqueous solution of from about 15 to 35 weight percent linear amphoteric compounds on a 100 weight percent total solution basis.

4. The composition produced by the process of claim 1 said composition having a foamability of at least about 16 centimeters by the Ross-Miles test procedure, said composition being further characterized by

(A) having a stability such that said composition remains a clear solution after at least about 7 days of storage at 5° C.,

(B) containing an amphoteric compound having a tertiary amide function in which one of the substituents on the tertiary nitrogen is either $—CH_2CH_2OH$ or $—CH_2COONa$, said amphoteric compound being present in the amount of at least 25% by weight of total ampholyte, and

(C) containing at least one of the linear ampholytes of the formulae:



said linear ampholyte being present in the amount of at least 10% by weight of total amphoteric compounds.

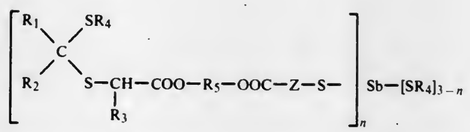
4,269,731

ANTIMONY MERCAPTOCARBOXYLIC ACID ESTER STABILIZERS FOR POLYVINYL CHLORIDE RESIN COMPOSITIONS AND PROCESS

Gerry Mack, Jackson Heights, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y.

Filed Aug. 27, 1979, Ser. No. 69,959
Int. Cl.³ C09K *15/12*; C08K *5/09, 5/36*
U.S. Cl. 252—400 R **56 Claims**

1. Antimony mercaptocarboxylic acid esters having the formula:



wherein:

R_1 is selected from the group consisting of hydrogen, alkyl having from one to about eighteen carbon atoms and alkylene linked with R_2 in a ring having from three to about eight carbon atoms;

R_2 is selected from the group consisting of alkyl having from one to about eighteen carbon atoms, phenyl, and alkylene linked with R_1 in a ring having from three to about eight carbon atoms;

R_3 is selected from the group consisting of hydrogen and alkyl having from one to three carbon atoms;

R_4 is selected from the group consisting of alkyl, aryl, alkylaryl, alkoxycarbonyl-alkylene and acyloxyalkylene having from three to about twenty carbon atoms, the alkylene having from two to about six carbon atoms;

R_5 is selected from the group consisting of alkylene and cycloalkylene having from one to about eighteen carbon atoms, and such groups having from one to four hydroxyl groups;

Z is a bivalent alkylene group having from one to five carbon atoms and carrying the sulfur in a position alpha or beta to —OOC—; and

n is a number from 1 to 3.

4,269,732

OLEFIN POLYMERIZATION CATALYSTS

Andras G. T. G. Kortbeek, and Wilhelmina J. M. van der Linden-Lemmers, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 17, 1979, Ser. No. 58,406
Claims priority, application United Kingdom, Jul. 25, 1978, 30970/78
Int. Cl.³ C08F *4/64*
U.S. Cl. 252—429 B **8 Claims**

1. In the process for the preparation of an olefin polymerization catalyst component comprising reducing $TiCl_4$ with an organoaluminum compound in the presence of a dialkyl ether, the improvement of reducing $TiCl_4$ with an aluminum trihydrocarbyl compound in a molar ratio of Ti:Al of 2.7:1 to 4.0:1 in the presence of diisoamyl ether and a hydrocarbon solvent by gradually adding $TiCl_4$ to the aluminum trihydrocarbyl compound and at least a substantial proportion of the diisoamyl ether at a temperature of from 15° to 50° C. during a period of from 0.7 to 2.5 hours to produce a precipitate of $TiCl_3$, and thereafter converting said precipitate into active $TiCl_3$ by heating at a temperature of from 80° to 110° C. during at least 30 minutes.

4,269,733

ULTRA HIGH EFFICIENCY CATALYST FOR POLYMERIZING OLEFINS

Randall S. Shipley, Alvin, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 28, 1979, Ser. No. 79,773
Int. Cl.³ C08F *4/64, 4/68, 4/62*
U.S. Cl. 252—429 C **9 Claims**

1. The catalytic reaction product of

(A) the reaction product or complex formed from the admixture of

(1) at least one transition metal compound represented by the formulae $Tm(OR)_yX_{x-y}$ or $Tm(OR)_{x-2}O$ wherein Tm is a transition metal selected from groups IVB, VB or VIB; each R is independently a hydrocarbyl group, having from 1 to about 20 carbon atoms; each X is independently a halogen; x has a value equal to the valence of Tm and y has a value from 1 to the valence of Tm; and

(2) at least one zinc compound represented by the formulae R_2Zn and RZnX wherein each R is independently a hydrocarbyl group having from 1 to about 20 carbon atoms and X is a halogen; and

(B) a magnesium halide resulting from the reaction of

(1) an organomagnesium compound represented by the formula $MgR''_2.xMR''_y$ wherein M is aluminum or zinc, each R'' is independently a hydrocarbyl or hydrocar-

byloxy group having from 1 to about 20 carbon atoms, x has a value from zero to 10 and y has a value corresponding to the valence of M; with

(2) a halide source selected from

(a) an active non-metallic halide, said non-metallic halide corresponding to the formula R'X wherein R' is hydrogen or a hydrocarbyl group such that the hydrocarbyl halide is at least as active as sec-butyl chloride and does not poison the catalyst and X is halogen or

(b) a metallic halide corresponding to the formula $MR_{y-a}X_a$ wherein M is a metal of Group IIB, and IIIA or IVA of Mendeleev's Periodic Table of Elements, R is a monovalent hydrocarbyl radical, X is halogen, y is a number corresponding to the valence of M and a is a number of 1 to y; and

(C) when the organomagnesium component and/or the halide source provides insufficient quantities of aluminum, an aluminum compound represented by the formula $AlR_{y'}X_{y''}$ wherein R and X are as defined above and y' and y'' each have a value of from zero to three with the sum of y' and y'' being three; and

wherein the components are employed in quantities which provide an atomic ratio of the elements Mg:Tm of from about 1:1 to about 2000:1; Zn:Tm at least about 0.03:1; Al:Tm of from about 0.1:1 to about 2000:1 and an excess X:Al of from about 0.0005:1 to about 10:1.

4,269,734

PROCESS FOR PRODUCING HYDROPEROXIDES

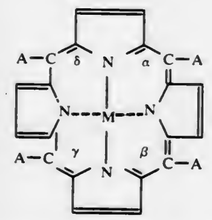
Michael E. Coltrin, Champaign, Ill., and Yulin Wu, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 883,018, Mar. 3, 1978, Pat. No. 4,202,992. This application Jan. 24, 1980, Ser. No. 114,923

Int. Cl.³ B01J *31/22*

U.S. Cl. 252—430 **7 Claims**

1. A composition comprising at least one porphine complex having the formula



wherein M is Ni (II) or Cu (II), each A is individually selected from the group consisting of hydrogen, alkyl, or aryl radicals, and at least one A is an aryl radical, supported on magnesium oxide or calcium oxide.

4,269,735

MAGNESIUM OXIDE CATALYST

Bruce E. Leach, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Jan. 21, 1980, Ser. No. 113,991

Int. Cl.³ B01J *27/02, 21/18, 29/00*

U.S. Cl. 252—440 **5 Claims**

1. A catalyst for the alkylation of phenol and phenolic material, comprising magnesium oxide promoted with from about 0.5% to about 15.0% by weight of amorphous titanium, uranium, zirconium and chromium ions or mixtures of these, together with from about 0.50% to about 15% by weight of sulfate ion, all based on the total weight of the final catalyst.

4,269,736

PARAFIN CONVERSION CATALYST

Thomas M. Notermann, South Charlston, W. Va., assignor to Norton Company, Worcester, Mass.

Filed Nov. 14, 1979, Ser. No. 93,976

Int. Cl.¹ B01J *29/22*

U.S. Cl. 252—455 Z **5 Claims**

1. A catalyst for the conversion of hydrocarbons, said catalyst comprising one or more platinum-group metals supported on a crystalline alumino-silicate, and said catalyst being prepared by drying in an atmosphere containing water vapor at low temperatures and in the presence of a mild organic acid during periods after incorporation of the metal into the zeolite and prior to the catalytic reaction, whereby an aquo complex of the platinum group metal is formed.

2. A catalyst for the conversion of hydrocarbons, said catalyst comprising one or more platinum group metals supported on a crystalline alumino-silicate zeolite, and said catalyst being prepared, after impregnation in an aqueous solution containing ions of said one or more platinum group metals, by drying in an atmosphere containing at least 30,000 ppm of water, at a temperature of between 25° and 200° C.

4,269,737

METHOD FOR PREPARING A GROUP IVB, VB OR VIB METAL OXIDE ON INORGANIC REFRACTORY OXIDE SUPPORT CATALYST AND THE PRODUCT PREPARED BY SAID METHOD

Dane C. Grenoble, Plainfield; Chang J. Kim, Somerset, and Lawrence L. Murrell, Elizabeth, all of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation-in-part of Ser. No. 927,829, Jul. 25, 1978, abandoned. This application Oct. 5, 1979, Ser. No. 82,316

Int. Cl.¹ B01J *23/20, 23/24*

U.S. Cl. 252—464 **65 Claims**

1. In an acid catalyst preparation method wherein a catalytic component is deposited upon an inorganic refractory metal oxide support which is not itself an acid cracking catalyst so as to result in a supported catalyst which is pretreated prior to use in acid catalyzed hydrocarbon conversion processes, the improvements comprising:

(a) using as the catalytic component a metal oxide selected from the group consisting of the oxides of niobium, tungsten, and mixtures thereof, and tungsten or niobium oxides in combination with one or more additional metal oxides selected from the group consisting of tantalum oxide, hafnium oxide, chromium oxide, titanium oxide and zirconium oxide, and

(b) subjecting the supported catalyst prior to use to a steam atmosphere at a temperature of from 600° to 1200° C.

6. The catalyst preparation method of claim **1** wherein the refractory metal oxide support is alumina.

12. An acid catalyst comprising a catalytic metal oxide component selected from the group consisting of oxides of tungsten, niobium and mixtures thereof, and tungsten or niobium oxides in combination with one or more additional metal oxides selected from the group consisting of tantalum oxide, hafnium oxide, chromium oxide, titanium oxide and zirconium oxide supported on an inorganic refractory metal oxide base which is not itself an acid cracking catalyst prepared by the process of contacting a catalytic metal oxide precursor salt with an inorganic refractory metal oxide base or metal oxide base precursor salt, converting the salt or salts to catalytic metal oxide and refractory metal oxide base respectively and steaming the resulting composite at a temperature of from 600° to 1200° C., the steaming being conducted in a steam atmosphere comprising from 0.1 to 100% steam, the balance being inert gas.

34. The acid catalyst of claim **12** wherein said catalyst contains one or more promoter materials selected from the group consisting of oxides of barium, calcium and magnesium.

4,269,738

ELECTRICALLY CONDUCTING POLYMERS

Guido Pez, Boonton, and Lowell R. Anderson, Morristown, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Nov. 3, 1978, Ser. No. 957,635

Int. Cl.³ H01B *1/00*

U.S. Cl. 252—500 **14 Claims**

1. A composition comprising a solid polyacetylene having density at least about 0.90 g/cc and having incorporated therein a fluorine-containing peroxide of the group consisting of bisfluorosulfuryl peroxide, bistrifluoromethylsulfuryl peroxide, bistrifluoroacetyl peroxide, bistrifluoromethyl trioxide and bistrifluoromethyl peroxide and their mixtures; wherein the specific direct current conductivity of the composition is greater than that of said polyacetylene alone, as measured by the four-probe method at room temperature; said peroxide being present in an amount of about 0.001 to 40 weight percent of said polyacetylene present.

4,269,739

AGENT FOR SURFACE TREATMENT AND CLEANING OF RECORDS AND SIMILAR OBJECTS

Teddy Grejsner, Taastrup, Denmark, assignor to CBS Records ApS, Vanlose, Denmark

Filed Aug. 3, 1979, Ser. No. 63,399

Claims priority, application Denmark, Aug. 4, 1978, 3461/78

Int. Cl.³ C11D *3/60*

U.S. Cl. 252—547 **7 Claims**

1. An agent for surface treatment and cleaning of objects, comprising dissolved in a solution or emulsified in an emulsion:

(A) from 0.001 to 1.2% by weight of natural or synthetic wax or wax-like substance,

(B) from 0.001 to 2.5% by weight of fluid silicone oil with lubricating activity,

(C) from 0.001 to 2.5% by weight of surface-active polysiloxane copolymer,

(D) from 0.001 to 1.2% by weight of fluorinated organic surface-active compound, and

(E) from 0.001 to 2.5% by weight of nonionic surfactant

wherein the % by weight is based on the total weight of the solution or emulsion.

4,269,740

PROCESS FOR PRODUCING ELASTOMERIC PARTICLES FREE OF AGGLOMERATION

Martin E. Woods, Concord Township, Lake County, and Daniel M. Chang, Avon Lake, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Sep. 28, 1979, Ser. No. 79,752

Int. Cl.³ C08L *7/00, 9/00, 11/00*

U.S. Cl. 260—4 R **15 Claims**

1. The process of producing elastomer particles in the form of dry, non-agglomerating powders or crumbs which comprises, forming a dispersion of elastomer particles in an aqueous medium containing from about 15% to about 40% by weight of total solids, adding thereto with agitation an aqueous dispersion of a preplasticized resin latex containing from about 20% to about 60% by weight of total solids, said resin being selected from preplasticized homopolymers and copolymers of vinyl and vinylidene halides, adding to the combined dispersions a coagulating agent in an aqueous medium with agitation whereby said resin is precipitated in the form of a film on said elastomer particles thereby encapsulating said particles with said resin, continuing the agitation for a period of about 15 to about 90 minutes, and then separating the encapsulated particles from the aqueous medium and drying the same, said dried encapsulated particles being such that they do not irreversibly agglomerate upon storage.

4,269,741

OXYGEN-CURABLE MERCAPTOORGANOSILOXANE COMPOSITIONS POSSESSING RAPID SURFACE REACTION AND METHOD OF FORMING HIGHER MOLECULAR WEIGHT PRODUCTS THEREFROM

Gary R. Homan, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,255

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—18 S **26 Claims**

1. A composition of matter, stable in the absence of oxygen, consisting essentially of a product obtained by mixing the following substantially in the absence of oxygen

(A) 100 parts by weight of at least one mercapto-functional organosiloxane, said mercapto-functional organosiloxane having an average of at least two mercapto-functional siloxane units per molecule selected from the group consisting of mercapto-functional siloxane units of the average unit formula

$$(HSC_nH_{2n})_xR_y^4SiO_{\frac{4-x-y}{2}}$$ and $$HSCH-CH_2 \underset{CH_2-CH_2}{\overset{R_w^4}{SiO_{\frac{2-w}{2}}}}$$,

any other siloxane units present having the average unit formula

$$R_z^2SiO_{\frac{4-z}{2}}$$,

wherein

each R^2 is R^4 or a 3,3,3-trifluoropropyl radical,

each R^4 is R^3 or OR^1,

each R^3 is an alkyl radical of 1 to 4 inclusive carbon atoms or phenyl radical,

each R^1 is an alkyl radical of 1 to 4 inclusive carbon atoms,

n has a value of from 2 to 4 inclusive,

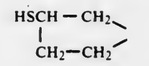
w has a value of from 0 to 1 inclusive,

x has a value of from 1 to 2 inclusive,

y has a value of from 0 to 2 inclusive,

z has a value of from 0 to 3 inclusive, and the sum of x+y has a value of from 1 to 3 inclusive,

and the ratio of total R^3, HSC_nH_{2n}—,



and 3,3,3-trifluoropropyl radicals to silicon atoms in the mercapto-functional organosiloxane is in the range of 0.981/1 to 3.00/1;

(B) 0 to 200 parts by weight of at least one filler;

(C) a catalytic amount of an iron carbonyl catalyst selected from the group consisting of $Fe(CO)_5$, $Fe_2(CO)_9$, $Fe_3(CO)_{12}$, dicyclopentadienyldiiron tetracarbonyl, butadieneiron tricarbonyl, and cyclohexadieneiron tricarbonyl; and

(D) 0.1 to 6 parts by weight of an acid which meets the following criteria: (1) it must be compatible with the mixed composition, (2) it must be a proton donor and (3) the dissociation constant of the acid in an aqueous solution must be greater than 10^{-5}.

2. The composition as claimed in claim **1** wherein the catalytic amount of (C) is in a range of 0.1 to 6 parts by weight of iron carbonyl catalyst per 100 parts by weight of the mercapto-functional organosiloxane.

3. The composition as claimed in claim **2** wherein the iron carbonyl catalyst is $Fe(CO)_5$.

4. The composition as claimed in claim **3** wherein the acid is 2-ethylhexanoic acid.

4,269,742

EPOXY RESIN HARDENING AGENTS FROM MANNICH BASES AND METHOD FOR CURING

Ulrich Goeke, Luenen, and Michael Richter, Unna, both of Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 7,834, Jan. 30, 1979, abandoned. This application Dec. 3, 1979, Ser. No. 99,977
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1978, 2805853; May 31, 1978, 2823682
Int. Cl.[3] C08G 59/50, 59/54
U.S. Cl. 260—18 PN 17 Claims

1. The method of curing an epoxy resin to form a crosslinked duroplast product, which method comprises reacting an epoxy compound having an average of more than one epoxy group per molecule with a liquid amine compound having an average of more than two active amine hydrogen atoms per molecule, which liquid amine compound is prepared by the reaction, with amine exchange and liberation of secondary amine, of a Mannich base and an amount of a member selected from the group consisting of aminoamides, aminoimidazolines, aminoamides containing an imidazoline group, and polyamines such that the amine compound reaction product has an average of more than two active hydrogen atoms per molecule, said Mannich base being prepared by reacting formaldehyde, a monophenol or polyphenol, and a secondary amine.

4,269,743

LOW TOXICITY VINYL HALIDE STABILIZER COMPOSITIONS

Ramchandra K. Hulyalkar, Oakland, and Gerald A. Baum, Paramus, both of N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Jun. 4, 1979, Ser. No. 45,551
Int. Cl.[3] C08K 5/05, 5/09
U.S. Cl. 260—23 XA 21 Claims

1. A resin heat stabilizer composition which consists essentially of a metal salt of a higher fatty acid and a polyhydric alcohol selected from the group consisting of tripentaerythritol, mixtures of dipentaerythritol and tripentaerythritol, and mixtures of dipentaerythritol and tripentaerythritol, individually and in combination, with any of pentaerythritol, mannitol, sorbitol and mixtures thereof.

10. A vinyl halide resin composition which comprises a vinyl halide resin and, as stabilizer an effective amount of a composition consisting essentially of a metal salt of a higher fatty acid and a polyhydric alcohol selected from the group consisting of tripentaerythritol, mixtures of dipentaerythritol and tripentaerythritol, and mixtures of dipentaerythritol and tripentaerythritol, individually and in combination, with any of pentaerythritol, mannitol, sorbitol and mixtures thereof.

4,269,744

VINYL HALIDE STABILIZER COMPOSITIONS

Ramchandra K. Hulyalkar, Oakland, and Gerald A. Baum, Paramus, both of N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Jun. 4, 1979, Ser. No. 45,552
Int. Cl.[3] C08K 5/05, 5/09
U.S. Cl. 260—23 XA 31 Claims

1. A resin heat stabilizer composition which consists essentially of a metal salt of a higher fatty acid, a polyhydric alcohol selected from the group consisting of dipentaerythritol, tripentaerythritol, mixtures of dipentaerythritol and tripentaerythritol, and mixtures of dipentaerythritol and tripentaerythritol, individually and in combination, with any of pentaerythritol, mannitol, sorbitol and mixtures thereof, and a magnesium compound selected from the group consisting of magnesium oxide, magnesium hydroxide, magnesium acetate, magnesium carbonate, magnesium citrate, magnesium phosphate and mixtures thereof.

14. A vinyl halide resin composition which comprises a vinyl halide resin and, as a stabilizer an effective amount of a composition consisting essentially of a metal salt of a higher fatty acid, a polyhydric alcohol selected from the group consisting of dipentaerythritol, tripentaerythritol, mixtures of dipentaerythritol and tripentaerythritol; and mixtures of dipentaerythritol and tripentaerythritol, individually and in combination, with any of pentaerythritol, mannitol, sorbitol and mixtures thereof and a magnesium compound from the group consisting of magnesium oxide, magnesium hydroxide, magnesium acetate, magnesium carbonate, magnesium citrate, magnesium phosphate and mixtures thereof.

4,269,745

STYRENE SUPPRESSED UNSATURATED POLYESTER RESIN COMPOSITIONS

Dennis J. Neumann, Port Washington, Wis., assignor to Freeman Chemical Corporation, Port Washington, Wis.

Filed Apr. 4, 1980, Ser. No. 137,553
Int. Cl.[3] C08L 63/10, 67/06
U.S. Cl. 260—23 P 1 Claim

1. A polymerizable resinous composition comprising
1 part by weight unsaturated polyester resin syrup containing
45 to 80 weight percent unsaturated polyester resin;
20 to 55 weight percent copolymerizable monomers, predominantly monomeric styrene;
0.03 to 0.2 percent by weight hydrocarbon wax;
0.5 to 7.0 percent by weight of an unsaturated alkyd resin product of
alpha, beta-ethylenically unsaturated dicarboxylic acid;
glycol; and
linseed oil fatty acids.

4,269,746

COMPOUNDING POLYCHLOROPRENE RUBBER

Ronald J. Tabar, Amherst, Mass., and Paul C. Killgoar, Jr., Livonia, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 1, 1979, Ser. No. 16,658
Int. Cl.[3] C08C 19/00; C08F 36/16
U.S. Cl. 260—23.7 H 4 Claims

1. A rubber compound for an automotive suspension bushing that resists tear and has compression set below 50% after 22 hours at 150° C., said rubber compound consisting essentially of:

(A) 100 parts by weight mercaptan modified chloroprene rubber;

(B) particulate filler which consists essentially of about 10–200 parts by weight of:
1. high structure, large particle carbon black; and
2. finely divided silica;

(C) sulfur current comprising a sulfur donor;

(D) about 1–30 parts by weight of a low volatility, low viscosity plasticizer that exhibits loss of below about 10% by weight at 150° C. in 24 hours and viscosity below about 500 cP at 22° C.

4,269,747

CROSSLINKABLE ADHESIVE COMPOSITION

Akira Wada, Yokohama, Japan, and Bernard J. Davis, Pass Christian, Miss., assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Apr. 22, 1980, Ser. No. 142,765
Claims priority, application Japan, Apr. 23, 1979, 54-50152
Int. Cl.[3] C08L 53/02
U.S. Cl. 260—27 BB 4 Claims

1. A crosslinkable adhesive composition comprising
(a) a thermoplastic elastomer of the general formula $(A—B)_n$ or $(A—B)_{n-1}—A$ wherein A represents a block of a monovinyl aromatic hydrocarbon polymer, B represents a block of a conjugated diolefin polymer, and n represents an integer of from 2 to 10,
(b) a non-crosslinkable tackifying resin, and

(c) a crosslinkable tackifying resin, said crosslinkable tackifying resin (c) being an ester of a hydroxyl-containing tackifying resin with acrylic or methacrylic acid.

4,269,748

PROCESS FOR THE PREPARATION OF AQUEOUS POLYURETHANE DISPERSIONS AND SOLUTIONS

Klaus Nachtkamp, Bergisch-Gladbach; Josef Pedain, Cologne, and Jurgen Grammel, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 2, 1979, Ser. No. 17,017
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1978, 2811148
Int. Cl.[3] C08L 75/12
U.S. Cl. 260—29.2 TN 18 Claims

1. A process for the preparation of aqueous solutions or dispersions of polyurethanes prepared by the reaction of prepolymers which have at least two free isocyanate groups and contain either chemically fixed hydrophilic groups and/or external emulsifiers which are not chemically fixed, with chain lengthening agents in the aqueous phase, characterized in that the isocyanate prepolymer which is hydrophilically modified and/or contains an external emulsifier is mixed with azine chain lengthening agents in the absence of water, and the resulting mixture is then mixed with water before significant increases in viscosity occur.

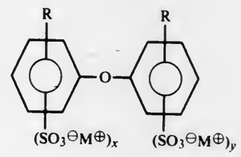
4,269,749

METHOD OF IMPARTING SALT AND/OR MECHANICAL STABILITY TO AQUEOUS POLYMER MICROSUSPENSIONS

Robert C. Marriott; Frank W. Kristal, and Robert M. Julier, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 30, 1979, Ser. No. 34,786
Int. Cl.[3] C08L 33/00
U.S. Cl. 260—29.6 MQ 13 Claims

1. In a method of imparting salt and/or mechanical stability to an aqueous polymer microsuspension by admixing with the microsuspension a stabilizing amount of a mono- and dialkyldiphenyl ether sulfonate surfactant composition, the improvement wherein at least about 35 weight percent of the composition is at least one dialkyldiphenyl ether sulfonate of the formula



(I)

wherein:
each R is an alkyl radical and each R can be the same or different,
each $M^{\oplus}$ is a hydrogen, alkali metal ion, alkaline earth metal ion or ammonium ion and each $M^{\oplus}$ can be the same or different, and
x and y are individually 0 or 1 with the proviso that x or y is 1 and the average value of $\Sigma(x+y)$ for all (I) is at least about 1.7.

4,269,750

PROCESS FOR THE PREPARATION OF POLYMERS CONTAINING HYDANTOIN GROUPS

Jürgen Lewalter; Ludwig Rottmaier, both of Odenthal; Rudolf Merten, Leverkusen; Wilfried Zecher, Leverkusen; Willi Dünwald, Leverkusen, and Bernhard Schulte, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,419
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854442
Int. Cl.[3] C08G 18/00
U.S. Cl. 260—30.2 11 Claims

1. A process for the production of compounds containing (thio)hydantoin groups comprising reacting a glycine ester with a polyiso(thio)cyanate or iso(thio)cyanurate polyisocyanate at a temperature of from −10° to 500° C. in the presence of an acid having at least one free carboxylic acid group in a solventless system or in the presence of non-phenolic solvent.

4,269,751

KNEADABLE MASTIC COMPOSITION COMPRISED OF EPOXY RESIN AND AROMATIC DIAMINE CURING AGENT

Francis G. Firth, Los Angeles, Calif., assignor to Applied Plastics Co., Inc., El Segundo, Calif.

Filed Mar. 9, 1979, Ser. No. 19,266
Int. Cl.[3] C08L 63/00; C09J 3/16; C08K 5/13, 5/10
U.S. Cl. 260—31.2 R 17 Claims

1. A non-toxic, kneadable two component epoxy mastic composition consisting essentially of a first component epoxy resin and a curing means therefor as a second component, said components sharing the same environment being in close side by side relationship confined in a closed container and packaged upon or between film and after mixing being capable of curing to a solid state in a short time at ambient temperature without the application of external heat when mixed in the correct proportions, said second component consisting essentially of an aromatic diamine dissolved in a compatible aromatic solvent, said composition further characterized by the presence of a catalyst selected from the group consisting of 2-hydroxy benzoic acid and benzoic acid, and having a stable unlimited shelf life.

4,269,752

POLYESTER IMIDE WIRE ENAMELS

Otto S. Zamek, Schenectady; Denis R. Pauze, Scotia, both of N.Y., and Richard J. Jablonski, Coshoston, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed May 18, 1979, Ser. No. 40,218
Int. Cl.[3] C08K 5/06, 5/10
U.S. Cl. 260—31.4 R 6 Claims

1. An electrical wire enamel comprising:
(a) a polyester imide obtained by heating ingredients consisting essentially of
(i) an aromatic diamine;
(ii) an aromatic carboxylic anhydride containing at least one additional carboxylic group;
(iii) terephthalic acid or a di(C_1–C_6) alkyl ester, amide or acyl halide thereof;
(iv) a polyhydric alcohol having at least three hydroxyl groups;
(v) an alkylene glycol; and
(vi) an effective amount of 1-phenoxy-2-propanol to reduce molecular weight abatement until reaction therebetween is substantially complete; and
(b) a solvent therein comprising predominantly
(i) an alkylene glycol monoether or monoester,
(ii) a polyalkylene glycol monoether or monoester or
(iii) a mixture of (i) and (ii).

4,269,753

SILOXANE COMPOSITIONS WHICH CAN BE CERAMIFIED AT HIGH TEMPERATURES

Katsutoshi Mine; Tsuneo Maruyama, both of Ichihara, and Kazuhide Takeshita, Tokyo, all of Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Jan. 28, 1980, Ser. No. 115,983
Claims priority, application Japan, Mar. 7, 1979, 54/25646
Int. Cl.³ C08K *5/05*
U.S. Cl. 260—33.4 SB **7 Claims**

1. A composition of matter consisting essentially of
(A) 100 parts by weight of a siloxane copolymer consisting essentially of $R_3SiO_{\frac{1}{2}}$ units and $SiO_{4/2}$ units wherein R is a monovalent organic radical having 1–10 carbon atoms and containing at least two unsaturated groups and at least two alkoxy groups bound to silicon atoms per molecule,
(B) 0–600 parts by weight of a linear or branched organopolysiloxane polymer having at least two unsaturated groups bound to silicon atoms per molecule,
(C) an organopolysiloxane having at least two hydrogen atoms bonded to silicon atoms per molecule,
(D) 3–300 parts by weight of a ceramic forming filler substance and,
(E) a catalytic amount of an addition reaction catalyst wherein in the components (A), (B) and (C) the mole ratio of hydrogen atoms bound to silicon atoms to unsaturated groups bound to silicon is from 0.5/1 to 10/1 and the total number of unsaturated groups in component (A) and component (B) and the total numer of hydrogen atoms bonded to silicon atoms in component (C) is at least five.

4,269,754

PHENOLIC RESIN PARTICLES AND PROCESSES FOR THEIR PRODUCTION AND FRICTION ELEMENTS CONTAINING SAME

Edward J. Lang, Grand Island, and Michael G. Dubenitz, Williamsville, both of N.Y., assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Jul. 19, 1979, Ser. No. 58,899
Int. Cl.³ C08K *5/01*
U.S. Cl. 260—33.6 R **19 Claims**

1. A process for producing a friction particle comprising dispersing a liquid, heat curable phenolic resin in a paraffinic oil having a viscosity of at least about 1,000 SUS at 100° F. at a temperature of about 100° to about 175° C.

4,269,755

COMPOSITION COMPRISING AROMATIC POLYCARBONATE AND PASSIVATED WOLLASTONITE FILLER PARTICLES

Fred F. Holub, Schenectady, N.Y., and Gerald F. Macke, Mount Vernon, Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 20, 1979, Ser. No. 105,724
Int. Cl.³ C08L *69/00*
U.S. Cl. 260—37 PC **10 Claims**

1. A composition comprising an aromatic polycarbonate resin and an effective, modulus- and surface-improving amount of wollastonite filler particles carrying in combined state a small but effective amount, in the range of 0.01% to 10%, of the weight of said particles, of an aryl epoxy compound as agent improving the affinity of said particles for said aromatic polycarbonate.

4,269,756

USE OF ORGANOTITANATE IN THE ENCAPSULATION OF ELECTRICAL COMPONENTS

Tsung-Yuan Su, Greenville, S.C., assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 27, 1979, Ser. No. 107,536
Int. Cl.³ C08L *81/04*
U.S. Cl. 260—37 R **3 Claims**

1. A method of making a material for use in the encapsulation of electrical components by making a blend consisting essentially of poly(phenylene sulfide), about 30 to 70% by weight of inorganic filler and organotitanate in an amount of from about 0.5 to 5% by weight of the inorganic filler in the blend.

4,269,757

SILOXANE COMPOSITIONS WHICH FORM CERAMICS AT HIGH TEMPERATURES

Katsutoshi Mine; Tsuneo Maruyama, both of Ichihara, and Kazuhide Takeshita, Tokyo, all of Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Jan. 18, 1980, Ser. No. 113,170
Claims priority, application Japan, Mar. 13, 1979, 54-28621
Int. Cl.³ C08L *83/04*
U.S. Cl. 260—37 SB **8 Claims**

1. A composition of matter consisting essentially of
(A) 100 parts by weight of a siloxane copolymer consisting essentially of $R_3SiO_{\frac{1}{2}}$ units and $SiO_{4/2}$ units wherein R is a substituted or unsubstituted monovalent hydrocarbon radical containing 1–10 carbon atoms;
(B) 0–600 parts by weight of an organopolysiloxane polymer having the average unit formula

$$R_aSiO_{(4-a)/2}$$

and containing no $SiO_{4/2}$ units wherein R has the same meaning as in (A) above and a has an average value of 1–3;
(C) 3–500 parts by weight of a ceramic-forming filler and,
(D) 0.1–10 parts by weight of an organic peroxide.

4,269,758

METHOD FOR HARDENING A COMPOSITION PARTICULARLY INTENDED FOR MAKING FOUNDRY CORES AND MOULDS

Gerard Y. Richard, Precy-sur-Oise, France, assignor to Societe D'Applications de Procedes Industriels et Chimiques S.A.P.I.C., Ansieres, France

Filed Mar. 12, 1979, Ser. No. 19,511
Claims priority, application France, Mar. 14, 1978, 78 07331
Int. Cl.³ C08L *61/06*
U.S. Cl. 260—38 **13 Claims**

1. Process for the hardening of a composition intended particularly for the production of foundry cores or moulds as well as for the manufacture of refractory products, abrasive products or construction materials, the said composition including at least one granular charge and at least one acid hardenable resin to cohere the granules of the charge, the said process including the known steps of gasification of the composition by sulfurous anhydride and of the introduction into the composition before or at the same time as the said gasification of an oxidizing agent for the sulfurous anhydride characterised in that the sulfurous anhydride is blown in in dilution in another gas of lower diffusibility in the ratio of one part of sulfurous anhydride for two to twenty parts of the other gas, the temperature of the resultant gas mixture being below the critical temperature of sulfurous anhydride and the gas mixtures being introduced under superatmospheric pressure into the composition to be hardened.

4,269,759

3,3'-TETRAGLYCIDYLSULFONYLDIANILINE THERMOSETTING COMPOSITIONS AND POLYBUTADIENE RUBBER MODIFIED THERMOSETTING COMPOSITIONS PREPARED FROM THE SAME

Robert Edelman, Richmond, N.Y., assignor to Celanese Corporation, New York, N.Y.

Filed Aug. 1, 1979, Ser. No. 62,873
Int. Cl.³ C08L *63/00;* **C08K** *7/06*
U.S. Cl. 260—42.17 **8 Claims**

1. A thermosetting composition which when cured has improved resistance to moisture and improved resistance against reductions in the glass transition temperature when subjected to temperatures of about 140° to about 180° F. at a relative humidity of from about 50 to about 100% comprising (a) 3,3'-tetraglydidylsulfonyldianiline; (b) an effective amount of a curing agent selected from at least one member of the group consisting of 4,4'-diaminodiphenylsulfone and 3,3'-diaminodiphenylsulfone; (c) a carboxyl terminated polybutadiene rubber comprising from about 80 to about 100%, by weight, 1,2-polybutadiene and from about 20 to about 0%, by weight, 1,4-polybutadiene, wherein said polybutadiene rubber is present in said composition in an amount of from about 30 to about 40%, by weight based on the weight of (a) and rubber; (d) an effective amount of a chromium octoate esterification catalyst; and (e) an effective amount of at least one free radical initiator having a decomposition half life at 350° F. of not greater than about 2 minutes.

4,269,760

FINE SPHERICAL POLYMER PARTICLES CONTAINING INORGANIC PIGMENT AND/OR COLORING AGENT AND PROCESS FOR THE PREPARATION THEREOF

Saburo Wakimoto, Hayama; Sadayasu Miyahara, Fujisawa, and Yoshihiko Hyosu, Sagamihara, all of Japan, assignors to Sinloihi Company Limited, Osaki, Japan

Filed Jul. 13, 1979, Ser. No. 57,344
Claims priority, application Japan, Nov. 9, 1978, 53-137337; Nov. 9, 1978, 53-137338
Int. Cl.³ C08J *3/20*
U.S. Cl. 260—42.53 **22 Claims**

1. Fine spherical polymer particles with a uniform particle size distribution containing at least one member selected from the group of inorganic pigments and black coloring agents, which comprise polymerized products from polymerizable monomers and an inorganic dispersion stabilizer in which said polymerizable monomers are charged with cation or anion and said inorganic dispersion stabilizer has an opposite charge to said monomers, the surface of said polymer particles being firmly bound through ionic bond to and being completely covered with said inorganic dispersion stabilizer.

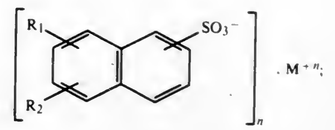
4,269,761

ALKYLNAPHTHALENE SULFONIC ACID SALTS AS FILLER DEACTIVATORS IN POLYOLEFINS

Richard A. Suhoza, Norwalk, Conn., assignor to R. T. Vanderbilt Company, Inc., Norwalk, Conn.

Filed Mar. 12, 1979, Ser. No. 20,106
Int. Cl.³ C08K *5/42*
U.S. Cl. 260—45.7 S **6 Claims**

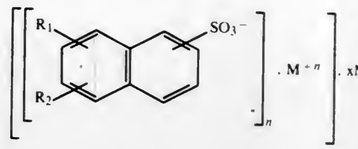
1. An improved stabilized polyolefin composition containing an inorganic or mineral filler and antioxidants wherein the improvement comprises:
about 0.5 to 15 parts and preferably 0.8 to 2.5 parts based on hundred parts polymer of a filler deactivator selected from a group consisting of normal salts of alkylnaphthalenesulfonic acid of the formula



(I)

$\cdot M^{+n};$

overbased salts of the formula



(II)

$\cdot xMX;$

and mixtures thereof wherein
R_1 = nonyl, dodecyl;
R_2 = H, nonyl, dodecyl;
M = ammonium radical, Group IA and Group IIA metals;
n = 1–2;
x > 1
X = anion of a base, anion of a weak acid

4,269,762

POLYCARBONATE CONTAINING A SALT OF A TETRAHYDROCARBYL BORATE AS AN IGNITION DEPRESSANT

Lowell S. Thomas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Apr. 21, 1980, Ser. No. 142,328
Int. Cl.³ C07F *5/02;* **C08K** *5/50, 5/55*
U.S. Cl. 260—45.7 P **6 Claims**

1. A composition comprising a carbonate polymer having dispersed therein a thermally stable salt of a tetrahydrocarbyl borate in an amount sufficient to retard combustion when the composition is exposed to a low temperature ignition source.

4,269,763

METHOD FOR THE PRODUCTION OF LOW MELTING RING ALKYLATED DIPHENYL-PARA-PHENYLENEDIAMINES

Donald E. Miller, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 21, 1980, Ser. No. 132,598
Int. Cl.³ C08K *5/18*
U.S. Cl. 260—45.9 QB **4 Claims**

1. An oxidizable diene rubber having incorporated therein an antioxidant/antiozonant in the amount of from 0.25 to 8.0 percent by weight based on the weight of the rubber of a mixture of ring alkylated diphenyl-p-phenylenediamine prepared by reacting in the presence of a condensation catalyst at temperatures from 175°325° C., said reaction involving the continuous removal of water as it is formed, (a) hydroquinone, and (b) 2.0 to 2.5 moles of an amine mixture per mole of (a): the improvement comprising an amine mixture of o-toluidine, mixed xylidines and aniline where all the amine mixture ratios are defined by the equation:

$$\text{melting point} = 64.85 + 0.1496x + 0.013.07y - 0.001245x^2 + 0.011403y^2 - 0.022xy;$$

wherein the melting point is 60° C. or less and x is the mole percent mixed xylidines, $[(y/100)(100-x)]$ is the mole percent o-toluidine and $\{100-[x+y(100-x]\}$ is the mole percent aniline, and wherein the mole percent of mixed xylidines is less than 50.

4,269,764

PREPARATION FOR TREATMENT OF ALLERGIC PATIENTS SENSITIVE TO RAGWEED POLLEN

Roy Patterson, 3109 Country La., Wilmette, Ill. 60091; and Floyd C. McIntire, 7780 E. Cornell Ave., Denver, Colo. 80231

Continuation of Ser. No. 63,152, Aug. 2, 1979, which is a division of Ser. No. 879,966, Feb. 21, 1978, Pat. No. 4,180,562, which is a continuation of Ser. No. 788,049, Apr. 15, 1979, abandoned, which is a continuation of Ser. No. 358,223, May 8, 1973, abandoned. This application Jun. 27, 1980, Ser. No. 163,719

Int. Cl.³ A61K *39/36*

U.S. Cl. 260—112 R **2 Claims**

1. A mixture of polymers of ragweed antigen E, said polymer mixture being the product of the reaction of antigen E with glutaraldehyde, all of the polymers of said mixture being water soluble and comprising polymers of molecular weights both above and below 200,000.

4,269,765

IMMUNE SERUM FOR DIAGNOSIS OF CANCER AND PREPARATION THEREOF

Yoshiji Matsuda; Keiji Tamura, both of Sendai; Hiroaki Motoki, Koganei; Fumio Kitame, and Nakao Ishida, both of Sendai, all of Japan, assignors to Kabushiki Kaisha Saikin Kagaku Kenkyujo, Miyagi and Kabushiki Kaisha Kayaku Kosei Bushitsu Kenkyujo, Tokyo, both of, Japan

Filed Mar. 30, 1978, Ser. No. 891,645

Claims priority, application Japan, Jun. 16, 1977, 52-71349

Int. Cl.³ A61K *39/00, 39/44;* **C07G** *7/00;* **G01N** *33/54*

U.S. Cl. 260—112 B **4 Claims**

1. A specific diagnostic immune serum for cancer diagnosis prepared by immunizing a non-human animal with an acid protein composition having immunosuppressive properties (IAP) having an isoelectric point pH of 2.9 to 3.3 determined by thin layer gel electrofocusing and a molecular weight of about 59,000 determined by electrophoresis with 2.5% polyacrylamide gel containing sodium dodecyl sulfate, said acid protein compositions being a white powder exhibiting the following properties:

decomposition point 265° C.

soluble in water and in 0.01 M phosphate buffered saline

insoluble in methanol, ethanol, butanol, acetone, ethylacetate and chloroform

positive color reaction with von Euler's reagent, Ehrlich's reagent, Buret's reagent and Molisch's reagent

negative color reaction with ferric chloride reagent and Lieberman's reagent

positive reaction to ninhydrin after hydrolysis in 6 N hydrolchloric acid at 120° C. for 15 hours

infrared absorption spectrum with 0.5% K Br showing maxima at 3300 cm^{-1}, 2940 cm^{-1}, 2340 cm^{-1}, 1650 cm^{-1}, 1540 cm^{-1}, 1440 cm^{-1}, 1400 cm^{-1}, 1240 cm^{-1}, 1060 cm^{-1},

ultra-violet absorption spectrum of an 0.02% solution in distilled water $\lambda max = 280$ nm and which is obtainable by negative ion-exchange chromatography from a human body liquid selected from the group consisting of serum, peritoneal fluid, thoracic fluid, urine and other body liquids of humans suffering from cancer and the liquid extracted from placentas of healthy humans.

2. A method for preparing a specific diagnostic immune serum for cancer diagnosis which comprises the steps of:

(a) preparing a solution in an aqueous injectable medium of an acid protein composition having immunosuppressive properties (IAP) having an isoelectric point pH of 2.9 to 3.3 determined by thin layer gel electrofocusing and a molecular weight of about 59,000 determined by electrophoresis with 7.5% polyacrylamide gel containing sodium dodecyl sulfate, said acid protein composition being a white powder exhibiting the following properties:

decomposition point 265° C.

soluble in water and in 0.01 M phosphate buffered saline

insoluble in methanol, ethanol, butanol, acetone, ethylacetate and chloroform

positive color reaction with von Euler's reagent, Ehrlich's reagent, Buret's reagent and Molisch's reagent

negative color reaction with ferric chloride reagent and Lieberman's reagent

positive reaction to ninhydrin after hydrolysis natant IAP antibody-containing liquid phase; and

(i) separating the supernatant IAP anti-body-containing liquid from the sediment.

4,269,766

METHOD AND APPARATUS FOR FRACTIONATING THE WHOLE WHEAT KERNEL BY SEQUENTIAL MILLING

Ganta V. Rao, Louisville, Ky., and Floyd K. Shoup, Hutchinson, Kans., assignors to Far-Mar-Co., Inc., Hutchinson, Kans.

Continuation-in-part of Ser. No. 910,633, May 30, 1978, Pat. No. 4,201,708, which is a continuation of Ser. No. 831,905, Sep. 9, 1977, abandoned. This application Feb. 20, 1980, Ser. No. 109,216

The portion of the term of this patent subsequent to May 6, 1997, has been disclaimed.

Int. Cl.³ A23J *1/12*

U.S. Cl. 260—112 G **19 Claims**

1. A process for fractionating the whole wheat kernel into its gluten and non-gluten endosperm components comprising the steps of:

a. tempering whole wheat kernels in water to a moisture content, by weight, in the range from 14% to saturation;

b. flaking the whole sheat kernels to a flake thickness in the range from 0.0005 to 0.025 inches;

c. milling the flakes into primarily bran-germ and endosperm particles, and bran-germ particles being larger than said endosperm particles, and said bran-germ and endosperm particles having a size distribution such that 20 to 90% by weight of the particles are retained on a 30 mesh U.S. Standard screen;

d. hydrating said particles in an additional quantity of water ranging from 65 to 85% by weight of said particles to be hydrated and in an amount just sufficient to achieve a saturation moisture content and agitating the particles and water to form a thick, dough-like mass;

e. water washing a major proportion of said non-gluten endosperm components from said dough-like mass to leave a primarily gluten-containing agglomerate; and

f. separating and recovering vital wheat gluten from said agglomerate.

4,269,767

DIAZOTIZATION OF AROMATIC AMINES

Serge Ratton, La Verpilliere, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed Mar. 6, 1979, Ser. No. 18,024

Claims priority, application France, Mar. 6, 1978, 78 06905

Int. Cl.³ C07C *113/00*

U.S. Cl. 260—141 **15 Claims**

1. A process for the preparation of an aqueous solution of an aryldiazonium salt, comprising diazotizing an aqueous solution of an aromatic amine salt with a nitrogenous vaporous admixture which comprises nitric oxide and nitrogen peroxide, the molar ratio of NO/NO_2 in said admixture being at least 2.

4,269,768

PROCESS FOR THE PREPARATION OF CHLOROZINCATE SALTS OF THIAZOLIUM AZO DYESTUFFS

Rudolf Neeb, Obertshausen; Kurt Hohmann, Neu-Isenburg, and Reinhard Mohr, Offenbach am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 6, 1979, Ser. No. 54,993

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840121

Int. Cl.³ C09B *45/00*

U.S. Cl. 260—146 R **5 Claims**

1. In a process for the manufacture of a chlorozincate salt of a thiazolium azo dyestuff which comprises treating a thiazole azo compound with a dialkylsulfate having from 1 to 4 carbon atoms in each alkyl moiety in an aqueous medium at a temperature of approximately from 10° to 50° C. and at a pH between 7 and 3 in the presence of an acid-binding zinc compound, and subsequently precipitating the alkylated product as chlorozincate salt, the improvement consisting of: (1) carrying out the alkylation with the use of from 1.8 to 2.5 mols of the dialkylsulfate, calculated on the thiazole azo compound and (2) precipitating the thiazolium azo dyestuff formed from the reaction solution as the chlorozincate salt by adding an alkali metal chloride.

4,269,769

DIAZO COMPOUNDS OBTAINED BY COUPLING ACETOACETANILIDES WITH TETRAZOTIZED DIAMINOBENZANILIDES

Ugo Moiso; Vincenzo Massabo, and Danilo Domenis, all of Saronno, Italy, assignors to Aziende Colori Nazionali Affini ACNA S.p.A., Saronno, Italy

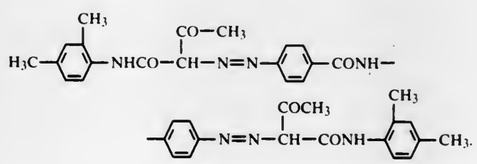
Continuation of Ser. No. 274,620, Jul. 24, 1972, abandoned. This application Apr. 27, 1979, Ser. No. 34,000

Claims priority, application Italy, Jul. 26, 1971, 7669 A/71; Dec. 29, 1971, 33062 A/71

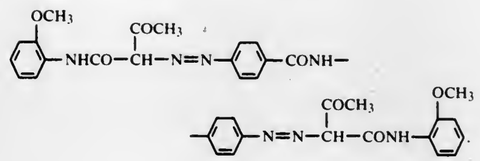
Int. Cl.³ C09B *35/30, 35/32;* **C09D** *11/02, 17/00*

U.S. Cl. 260—176 **2 Claims**

1. A diazo pigment of the formula:



2. A diazo pigment of the formula:



4,269,770

PROCESS FOR THE PREPARATION OF CYANOAZO DYESTUFFS

Rainer Hamprecht, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,842

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1978, 2846438

Int. Cl.³ C07C *107/00;* **C09B** *43/00*

U.S. Cl. 260—208 **8 Claims**

1. Process for the preparation of azo compounds, which carry in the diazo component at least one cyano group in the ortho-position relative to the azo bridge, by reacting corresponding ortho-halogenoazo dyestuffs with metal cyanides in an aqueous medium, characterised in that the reaction is carried out with copper-cyano complexes without the addition of water-immiscible solvents and/or catalysts.

4,269,771

TOTAL SYNTHESIS OF 7-OXO-4-THIA-1-AZABICYCLO-[3,2,0]-HEPTANE-2-CARBOXYL DERIVATIVES USEFUL AS β-LACTAMASE INHIBITORS AND ANTIBACTERIAL AGENTS

Paolo Lombardi; Giovanni Franceschi, and Federico Arcamone, all of Milan, Italy, assignors to Farmitalia Carlo Erba, Milan, Italy

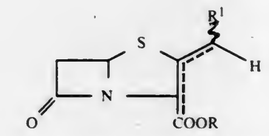
Filed Nov. 13, 1979, Ser. No. 93,603

Claims priority, application United Kingdom, Apr. 6, 1979, 12168/79

Int. Cl.³ C07D *499/00*

U.S. Cl. 260—245.2 R **2 Claims**

1. A process for the preparation of compounds of formula I:

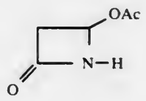


I

wherein R is hydrogen, lower alkyl, trichloroethyl, benzyl, p-nitrobenzyl, acetoxymethyl, pivaloyloxymethyl, phthalidyl, or a $-CH(CH_3)OCOOEt$ group;

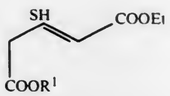
R^1 is $-CH_2OH$, $-CHO$, $-CH_3SH$, $-CH_2NH_2$, $-CH_2OCOR^2$, $-COOR^2$, $-CH_2NHCOR^2$, or $-CH_2OR^3$, where R^2 is a lower alkyl, and R^3 is a lower alkyl, benzyl, or trityl,

which comprises reacting a 4-acetoxy azitidinone of formula II:

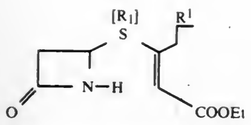


II

dissolved in a solvent selected from the group consisting of acetone, tetrahydrofuran, dimethylformamide, water, and mixtures thereof, at room temperature and in the presence of a base selected from the group consisting of $NaHCO_3$, KOH, K_2CO_3, and Et_3N, with a β-thioketoester of formula:



where R^1 has the meanings given above, to obtain a mixture of diastereoisomeric products of formula III;

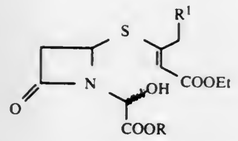


III

where R^1 is as above defined, which mixture is successively condensed, dissolved in anhydrous acetone and in the presence of a base selected from the group consisting of pyridine and triethylamine, at room temperature, with a glyoxylic ester of formula:

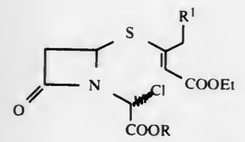


where R has the meanings given above, to give a mixture of diastereoisomeric substituted carbinols of formula IV:



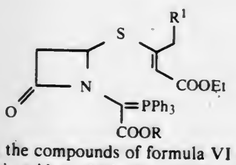
IV

where R and R^1 are as above defined, reacting that mixture with thionyl chloride, at a temperature ranging from −78° C. to 0° C. and in the presence of pyridine, to afford the corresponding chlorides of formula V:



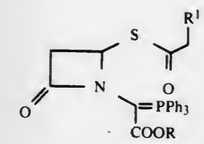
V

which are transformed by means of triphenylphosphine and a base selected from the group consisting of pyridine and 2,6-lutidine, at a temperature of 25°–50° C., into their respective phosphorous ylids of formula VI:



VI

ozonolysing the compounds of formula VI in the presence of trifluoroacetic acid, to obtain the corresponding phosphoranes of formula VII:



VII

and successively heating the so-obtained phosphoranes of formula VII at a temperature ranging from 30° to 140° C., in an inert solvent selected from the group consisting of benzene, toluene, and xylene, to obtain the desired compounds of formula I.

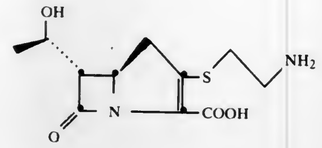
4,269,772

SYNTHESIS OF THIENAMYCIN VIA TRANS-3-CARBOXYMETHYLENE-4-CARBOXY-5-METHYL-Δ^2-ISOXAZOLINE

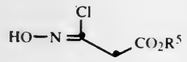
David G. Melillo, Scotch Plains, and Kenneth M. Ryan, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 14, 1980, Ser. No. 112,057
Int. Cl.[3] **G07D** *487/04*
U.S. Cl. 260—245.2 T **1 Claim**

1. A process for preparing:



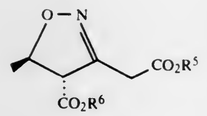
and its pharmaceutically acceptable salts which comprise the cycloaddition of:



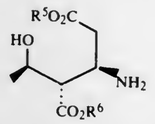
with

$CH_3CH{=}CHCOOR^6$

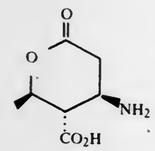
to form:



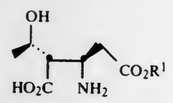
followed by reduction to yield:



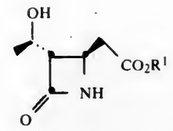
followed by cyclization and deblocking to yield:



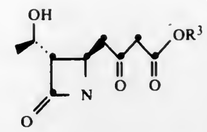
followed by alcoholysis with R^1OH to form:



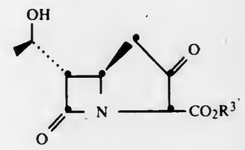
followed by cyclizing to form:



followed by carboxyl-deprotecting, activating and treating with $(R^3O_2CCH_2CO_2)_2Mg$ to form:



followed by deprotecting, diazotizing, and cyclizing to form:



followed by activating, treating with $HSCH_2CH_2NHR^4$ and deprotecting wherein R^1, R^3, R^4, R^5 and R^6 are removable protecting groups.

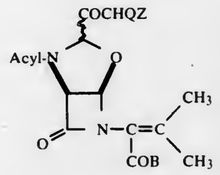
4,269,773

FUSED OXAZOLIDINE COMPOUNDS

Yoshioka Mitsuru, Toyonaka; Tsuji Teruji, Takatsuki; Nishitani Yasuhiro, Izumi, and Nagata Wataru, Nishinomiya, all of Japan, assignors to Shionogi & Co., Ltd., Japan

Division of Ser. No. 790,618, Apr. 25, 1977, Pat. No. 4,159,984. This application Mar. 29, 1979, Ser. No. 25,065
Claims priority, application Japan, Apr. 27, 1976, 51-49274
Int. Cl.[3] **C07D** *498/06*
U.S. Cl. 260—245.4 **11 Claims**

1. A compound of the following formula:



wherein Acyl is a member selected from the group consisting acetyl, cyclopentylcarbonyl, cyclopentylacetyl, cyclohexylcarbonyl, cyclohexylacetyl, cyclohexylpropionyl, cyclohexadienylacetyl, cycloheptylcarbonyl, cycloheptylacetyl, cycloheptylpropionyl, chloroacetyl, chloropropionyl, fluoroacetyl, bromoacetyl, difluoroacetyl, dichloroacetyl, chloropropionyl, hexenoyl, methoxyacetyl, isopropoxyacetyl, pentyloxyacetyl, hexyloxyacetyl, cyclohexyloxyacetyl, phenoxyacetyl, phenoxypropionyl, phenoxybutyryl, diphenoxyacetyl, methylthiophenoxyacetyl, tetrahydronaphthyloxyacetyl, methylthioacetyl, butylthioacetyl, cyclohexylthioacetyl, phenylthioacetyl, phenylthiopropionyl, fluorophenylthioacetyl, chlorophenylthioacetyl, pyridylthioacetyl, pyrimidylthioacetyl, benzoyl, methylbenzoyl, dimethylbenzoyl, carboxybenzoyl, aminobenzoyl, methoxybenzoyl, chlorobenzoyl, dimethoxybenzoyl, trimethoxybenzoyl, methylenedioxybenzoyl, phenylbenzoyl, naphthoyl, methylnaphthoyl, methoxynaphthoyl, ethoxynaphthoyl, tetrahydronaphthoyl, acetylnaphthoyl, phenylacetyl, phenylpropionyl, phenylbutyryl, hydroxyphenylacetyl, methoxyphenylacetyl, acetyloxyphenylacetyl, aminophenylacetyl, fluorophenylacetyl, chlorophenylacetyl, bromophenylacetyl, methylthiophenylacetyl, methylphenylacetyl, dimethylphenylacetyl, naphthylacetyl, thienylacetyl, tetrazolylacetyl, methoxycarbonyl, ethoxycarbonyl, t-butoxycarbonyl, cyclohexyloxycarbonyl, chloroethoxycarbonyl, trichloroethoxycarbonyl, tribromoethoxycarbonyl, bromoethoxycarbonyl, iodoethoxycarbonyl, cyclopropylmethoxycarbonyl, cyclopropylethoxycarbonyl, cyclopentyloxycarbonyl, cyclohexyloxycarbonyl, cycloheptyloxycarbonyl, cyclohexadienyloxycarbonyl, isobornyloxycarbonyl, methanesulfonylethoxycarbonyl, ethanesulfonylpropoxycarbonyl, phenoxycarbonyl, methylphenoxycarbonyl, dimethylphenoxycarbonyl, diphenylmethoxycarbonyl, naphthyloxycarbonyl, benzyloxycarbonyl, bromobenzyloxycarbonyl, chlorobenzyloxycarbonyl, nitrobenzyloxycarbonyl, dimethylbenzyloxycarbonyl, methylenedioxybenzyloxycarbonyl, methanesulfonyl, ethanesulfonyl, benzenesulfonyl, methylbenzenesulfonyl, and benzylsulfonyl; COB is lower alkoxycarbonyl or aralkoxycarbonyl; Q is hydrogen, C_1 to C_5 alkyl, phenyl, tolyl, methoxylphenyl, chlorophenyl or isopropylphenyl; and Z is a hydrogen or a nucleophilic group selected from the group consisting of halogen, alkoxy, aralkoxy, aryloxy, hydroxy, alkylthio, aralkylthio, arylthio, mercapto, sulfo, alkylsulfonyl, amino, acetoxy, propionyloxy, butyryloxy, isobutyryloxy, pivaloyloxy, cyclobutylcarboxy, carbamoyloxy, methylcarbamoyloxy, ethylcarbamoyloxy, chloroethylcarbamoyloxy, trichloroethyoxycarbamoyloxy, dimethylcarbamoyloxy, di-(methoxybenzyl)-carbamoyloxy, phenylcarbamoloxy, anisylcarbamoyloxy, sulfophenylcarbamoyloxy, carboxymethylphenylcarbamoyloxy, methanesulfonyloxy, sulfonyloxy, thiopropionylthio, propylthiocarbonylthio, cyclopentyloxythiocarbonylthio, thiocarbamoylthio, dimethylthiocarbamoylthio, tosylthio, furylcarbonylthio, methylamino, ethylamino, diethylamino, chloroethylamino, anilino, tolylamino, methylnitrophenylamino, naphthylamino, methylpyrrolyl, pyridazinyl, and triazinyl, said nucleophilic groups which contain carbon atoms containing up to 10 carbon atoms.

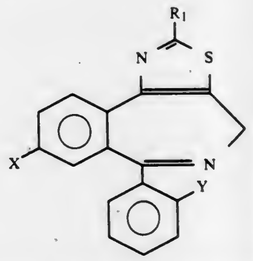
4,269,774

THIAZOLO[5,4-D][2]BENZAZEPINES

Rodney I. Fryer, North Caldwell, and Norman W. Gilman, Wayne, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

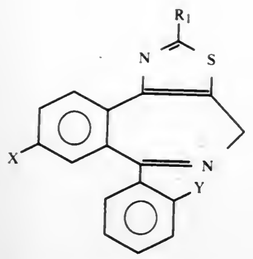
Filed Jun. 23, 1980, Ser. No. 161,713
Int. Cl.[3] **A61K** *31/55;* **C07D** *513/04*
U.S. Cl. 260—245.5 **4 Claims**

1. A compound of the formula

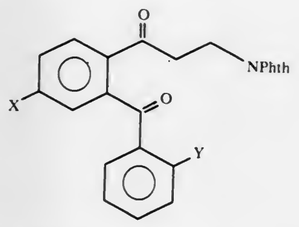


wherein X and Y are hydrogen or halogen and R_1 is lower alkyl or NR_2R_3
wherein R_2 and R_3 are hydrogen or lower alkyl
and the pharmaceutically acceptable salts thereof.

4. A process to produce a compound of the formula



wherein X and Y are hydrogen or halogen and R_1 is lower alkyl or NR_2R_3
wherein R_2 and R_3 are hydrogen or lower alkyl
which comprises
(A) reacting a compound of the formula



wherein X and Y are as above and Phth is phthaloyl with a brominating agent,
(B) reacting the product of (A) with a substituted thioamide of the formula



wherein R_1 is as above,
(C) reacting the product of (B) with an aqueous solution of a lower alkyl amine and thereafter isolating the end product.

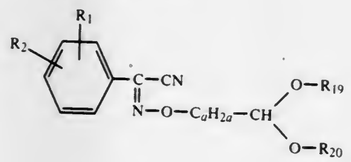
4,269,775

OXIME DERIVATIVES FOR PROTECTING PLANT CROPS

Henry Szczepanski, Rheinfelden; Henry Martin, Allschwil; Werner Föry, Basel, all of Switzerland, and Georg Pissiotas, Lörrach, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,414
Claims priority, application Switzerland, Sep. 1, 1978, 9252/78
Int. Cl.³ C07D *317/30, 319/06;* **C07C** *131/00*
U.S. Cl. 260—340.7 **17 Claims**

1. A compound of the formula



wherein
R_1 is hydrogen, methyl, methoxy, chlorine, cyano or trifluoromethyl,
R_2 is hydrogen or chlorine, or
R_1 and R_2 taken together is —CH=CH—CH=CH— attached to adjacent carbon atoms in the ring,
a is 1 or 2, and
R_{19} and R_{20} are each methyl or ethyl, or
R_{19} and R_{20} taken together is C_2-C_7 alkylene having 2 or 3 carbon atoms in its principal chain.

4,269,776

JET PUMP EXHAUST RECYCLE IN PRODUCTION OF PHTHALIC ANHYDRIDE

Gerhard Keunecke, Geyen, and Herbert Krimphove, Pulheim, both of Fed. Rep. of Germany, assignors to Davy Powergas GmbH, Cologne, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 49,836, Jun. 18, 1979, abandoned, and a continuation-in-part of Ser. No. 110,571, Jan. 9, 1980, abandoned. This application Jan. 30, 1980, Ser. No. 117,143
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826346
Int. Cl.³ C07D *307/89*
U.S. Cl. 260—346.4 **10 Claims**

1. In a process for the production of phthalic anhydride comprising a stage of catalytic oxidation of a mixture of o-xylene or naphthalene and air, a stage of separation of the crude phthalic anhydride from the reaction gas by cooling, and a stage of purification of the crude phthalic anhydride by rectification under vacuum, said vacuum being maintained by at least one jet pump, the improvement which comprises employing compressed air as the operating medium for said jet pump, and recycling resultant compressed air loaded with the exhaust gas to a process gas upstream of the phthalic anhydride separation stage, said process gas being any gas leading to the separation stage.

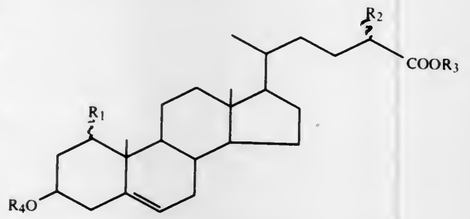
4,269,777

ISOTOPICALLY LABELED VITAMIN D DERIVATIVES AND PROCESSES FOR PREPARING SAME

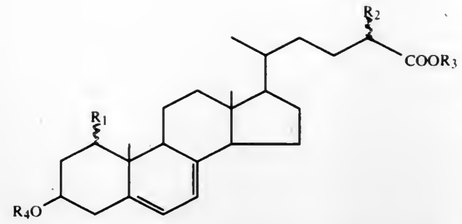
Hector F. De Luca; Heinrich K. Schnoes, both of Madison, Wis.; Joseph L. Napoli, Dallas, Tex., and Mary A. Fivizzani, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed May 21, 1979, Ser. No. 41,080
Int. Cl.³ C07J *9/00*
U.S. Cl. 260—397.1 **23 Claims**

11. Compounds of the structure



where each of R_1 and R_2 is selected from the group consisting of hydrogen, hydroxy, and O-acyl with the proviso that R_1 and R_2 cannot both be hydrogen and R_3 is an alkyl group of from 1 to about 4 carbon atoms and R_4 is hydrogen or acyl.
15. Compounds of the structure



where each of R_1 and R_2 is selected from the group consisting of hydrogen, hydroxy, O-acyl, except that R_1 and R_2 cannot both be hydrogen, and where R_3 is an alkyl group of from 1 to 4 carbon atoms and where R_4 is selected from hydrogen or acyl.

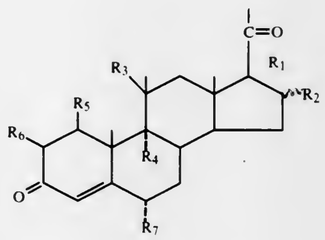
4,269,778

PROCESS FOR THE PREPARATION OF STEROIDS

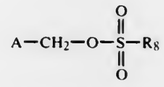
Dieran R. Torossian, Bourg-La-Reine, and Gilbert G. Aubard, Palaiseau, both of France, assignors to SIPSY, Avrille, France

Filed Nov. 20, 1979, Ser. No. 96,153
Claims priority, application France, Dec. 1, 1978, 78 33959
Int. Cl.³ C07J *5/00*
U.S. Cl. 260—397.45 **10 Claims**

1. In a process for the preparation of a steriod of formula $A—CH_2—S—COR$ in which R is alkyl, cycloalkyl, aryl, aralkyl or alkylaryl and A is the monovalent steriod group of formula:



in which:
R_1 is hydrogen or hydroxy,
R_2 is hydrogen or an α-methyl or β-methyl group,
R_3 is hydroxy or oxo
R_4 is hydrogen or fluorine,
R_5 and R_6 are each hydrogen or together form a double bond between the carbon atoms carrying them,
R_7 is hydrogen or fluorine,
whereby an alcohol of formula $A—CH_2OH$ is sulphonated with a sulphonating agent of formula $(R_8SO_2)_n—Y$ in which R_8 is a monovalent saturated hydrocarbon group and Y is oxygen when n is equal to 2, but is a halogen when n is equal to 1 in a dissolving or suspending medium in the presence of a stoichiometric excess of an amine to obtain a sulphonate of formula:



which is thiocarboxylated by a reaction with a solution in acetone or in dimethylformamide of a thiocarboxylate of formula $M—S—CO—R$ in which M is an alkali metal or a trialkylamine group, the improvement which consists in effecting the sulphonation in the same medium as that used for the thiocarboxylation with a sulphonating agent whose group R_8 is aliphatic and in the presence of a lower trialkylamine as acid binding agent and in effecting the thiocarboxylation by bringing the solution or suspension of intermediate suphonate directly in contact with the solution of thiocarboxylate without intermediate isolation of the sulphonate.
2. Process according to claim **1**, which consists in using in the suphonating step 3 to 15 liters of suspending or dissolving medium per mole of alcohol used.

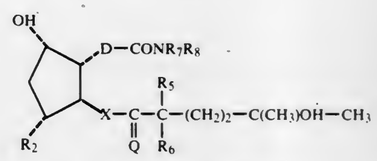
4,269,779

19-HYDROXY-19-METHYL-6-OXO-PGF$_1$ AMIDES

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,494
Int. Cl.³ C07C *103/18, 103/19*
U.S. Cl. 260—404 **1 Claim**

1. A prostacyclin-type compound of the formula



wherein D is $—(CH_2)_2—CO—CH_2—L_2—$ or $—CH_2—CO—CH_2—L_3—$
wherein L_2 is
(1) $—(CH_2)_j$, wherein j is one to 4, inclusive,
(2) $—(CH_2)_q—CF_2—$, wherein q is one, 2, or 3, or
(3) —CH=CH—,
wherein L_3 is
(1) $—(CH_2)_n—$, wherein n is one to 5, inclusive,
(2) $—(CH_2)_p—CF_2—$, wherein p is 2, 3, or 4, or
(3) $—CH_2—CH=CH—$;
wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;
wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different;
wherein X is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) $—CH_2CH_2—$.

4,269,780

OLEFIN DISPROPORTIONATION

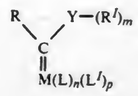
Dennis S. Banasiak, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 6, 1979, Ser. No. 101,031
Int. Cl.³ C09F *5/00;* **C11C** *3/00, 3/02*
U.S. Cl. 260—405 **66 Claims**

1. A process for forming non-polymeric disproportionation products comprising contacting suitable non-conjugated olefinic reactants under suitable reaction conditions with a catalytic amount of a catalyst composition comprising effective amounts of
(1) at least one metal compound component selected from the group consisting of the chlorides and bromides of Groups IVa, IVb, Vb, VIb, VIIb, VIII, and Ib; and the oxychlorides and oxybromides of molybdenum tungsten, vanadium, and chromium, wherein if the metal is vanadium it is in an oxidation state of either 4 or its highest

stable common ionic oxidation state, if the metal if molybdenum, tungsten, or rhenium, it is in an oxidation state of either 5 or its highest stable common ionic oxidation state; and if the metal is other than vanadium, molybdenum, tungsten, or rhenium, the metal is in its highest stable common ionic oxidation state; and

(2) at least one neutral carbene complex having the general formula



wherein R is selected from the group consisting of alkyl or cycloalkyl radicals containing 1 to 10 carbons per radical and aryl or substituted aryl radicals containing 6 to 30 carbon atoms per radical wherein the substituted radicals can have one or more substituents each of which can be the same or different and selected from the group consisting of halides, alkoxides, and alkyl radicals containing 1 to 20 carbon atoms per radical; wherein R^1 is selected from the group consisting of alkyl, cycloalkyl, aryl, substituted aryl, triarylsilyl, and trialkylsilyl radicals containing 1 to 30 carbon atoms per radical and wherein the aryl substituents are as described for R; M can be Cr, when said metal compound component contains Ti; or M can be W or Re; Y is O, Se, S, N, or P; each L is a neutral ligand individually selected from CO, NO, Pr_3^1, PCl_3, PF_3, and pyridine, where R^1 is as defined above, and L^1 is cyclopentadienyl; p is 0 or 1; n is 5 when p is 0 or 2 when p is 1; and m is 2 when y is N or P and 1 when Y is 0, Se, or S.

4,269,781

DIMERIC CARBONYLATION OF 1,3-BUTADIENE

Thomas H. Vanderspurt, Stockton, and Paul M. Zema, Kenilworth, both of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Feb. 8, 1980, Ser. No. 119,683

Int. Cl.[3] C11C *3/02*

U.S. Cl. 260—410.9 R **32 Claims**

1. A process for producing and recovering alkyl nonadienoate which comprises the steps of (1) reacting 1,3-butadiene with carbon monoxide and a water-soluble alkanol containing between about 0.5–10 weight percent of water, in the presence of a catalyst complex of palladium and tertiary phosphine ligand, to yield a liquid phase product mixture containing alkyl nonadienoate; (2) contacting the product mixture with a hydrocarbon solvent to form two liquid phases; and (3) separating the two liquid phases, and recovering alkyl nonadienoate from the hydrocarbon solvent phase.

4,269,782

PREPARATION OF MIXTURES OF METHYLTIN TRICHLORIDE AND DIMETHYLTIN DICHLORIDE FROM STANNIC CHLORIDE AND DIMETHYLTIN DICHLORIDE

Gerald Spiegelman, Wayne, and Koei-Liang Liauw, Wyckoff, both of N.J., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Filed Jul. 19, 1979, Ser. No. 59,094

Int. Cl.[3] C07F *7/22*

U.S. Cl. 260—429.7 **3 Claims**

1. A process for preparing a product comprising a mixture of dimethyltin dichloride and monomethyltin trichloride by heating under superatmospheric pressure dimethyltin dichloride with 0.1 to 0.7 molar proportion of stannic chloride in the absence of catalyst.

4,269,783

CONVERSION OF SYNGAS TO HIGH OCTANE OLEFINIC NAPHTHA

James A. Brennan, Cherry Hill; Philip D. Caesar, Princeton; Julius Ciric, Pitman; William E. Garwood, Haddonfield, and Robert E. Holland, Runnemede, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Mar. 7, 1977, Ser. No. 775,129

Int. Cl.[3] C07C *27/06*

U.S. Cl. 518—718 **6 Claims**

1. In a syngas conversion process wherein a mixture of gaseous carbon oxides and hydrogen at hydrogen donors is contacted at elevated temperatures and pressures with a Fischer-Tropsch catalyst, the improvement which comprises carrying out said conversion at a temperature of from 500° to 800° F., a space velocity of from 1000 to 30,000 GHSV, and a pressure of from 100 to 1000 psig with a catalyst composite comprised of an intimate mixture of an iron Fischer-Tropsch component and a component containing an acidic solid wherein the volume ratio of said component containing an acidic solid to said iron Fischer-Tropsch component is 1–20, said acidic solid being selected from the group consisting of hydrogen exchanged silica-alumina, silica-magnesia, erionite, mordenite, faujasite, and ZSM-4 with the proviso that when the acidic solid is silica-alumina or silica-magnesia, the temperature is at least 600° F., and with the further proviso that when the acidic solid is a zeolite, the zeolite has no more than 0.5 wt.% of alkali metal cations associated therewith, and recovering a product comprising an olefinic naphtha having a boiling range of less than 400° F. at 90% overhead with an aromatic content less than 20 weight percent, an olefin plus aromatic content of at least 50 weight wherein the olefins have predominantly internal double bonds.

4,269,784

PROCESS FOR CONVERTING CO AND H_2O INTO HYDROCARBONS USING WATER-SOLUBLE RUTHENIUM CATALYSTS

Gerald Doyle, Bridgewater, N.J., assignor to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Oct. 15, 1979, Ser. No. 85,106

Int. Cl.[3] C07C *1/02, 1/10*

U.S. Cl. 518—715 **6 Claims**

1. A process for preparing C_9 to C_{60} aliphatic hydrocarbons or their deuterated or tritiated derivatives which comprises:

contacting CO and water selected from at least one of the groups consisting of H_2O, D_2O, and T_2O in the presence of a homogeneous aqueous solution containing a catalytically effective amount of water-soluble ruthenium compound selected from the group consisting of ruthenium halide, ruthenium acetyl acetonate and a complex salt of the formula $(RuL_6)^n$ where L is halide, amine, phosphine, nitric oxide, carbon monoxide, cyanide, aquo, sulfite or mixtures thereof and n is a number from -4 to $+3$; and heating the solution to temperatures of from 200° to 500° C. at pressures of from 0.1 to 100 MPa.

4,269,785

TRIALKYLDITHIOCARBAMATES AND METHOD OF MAKING SAME

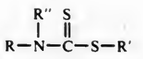
Lawrence H. Nash, P.O. Box 23837, Ft. Lauderdale, Fla. 33307

Continuation of Ser. No. 888,633, Mar. 21, 1978, abandoned, and a continuation-in-part of Ser. No. 717,137, Aug. 24, 1976, abandoned, which is a continuation-in-part of Ser. No. 671,932, Mar. 30, 1976, abandoned. This application Jul. 18, 1979, Ser. No. 58,663

Int. Cl.[3] A01N *47/10*; C07C *155/08*

U.S. Cl. 260—455 A **4 Claims**

1. A process for preparing a compound of the formula:



wherein R and R′ are each alkyl groups containing from 1 to 6 carbon atoms and R″ is hydrogen or an alkyl group containing from 1 to 6 carbon atoms, said compound being free of alkali metal, of side products from reactions resulting from the use of an alkali metal hydroxide in synthesis of said compound, and free of ethylene thiourea; and said compound being substantially free of color, water-soluble, and forming clear solutions with water;

said process comprising the steps of (a) reacting a first compound of the formula RR″NH wherein R is an alkyl group of 1 to 6 carbon atoms and R″ is hydrogen or an alkyl group of 1 to 6 carbon atoms, a second compound of the formula $R'NH_2$ wherein R′ is an alkyl group of 1 to 6 carbon atoms, and CS_2 is aqueous solution, said reaction being carried out in said aqueous solution within an enclosed chamber for a period of time sufficient to permit the pressure therein to fall below an atmospheric pressure of about 760 mm. Hg., whereby said compound and ammonia are formed, (b) opening the reactor and removing the ammonia, and (c) recovering said compound.

4,269,786

ALKYL GLYCERYL ETHER SULFATE SALTS AND PROCESS FOR THEIR PREPARATION

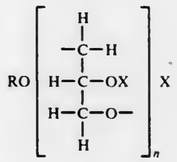
Sidney Berkowitz, Highland Park, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Division of Ser. No. 960,342, Nov. 13, 1978, Pat. No. 4,217,296, which is a continuation-in-part of Ser. No. 927,183, Jul. 24, 1978, abandoned. This application Nov. 15, 1979, Ser. No. 95,032

Int. Cl.[3] C07C *141/08*

U.S. Cl. 260—458 R **23 Claims**

1. A composition of matter consisting essentially of a mixture of sulfated alkyl mono-and poly-glyceryl ether alcohol compounds of the general formula:



wherein R is a linear alkyl radical containing from about 10 to about 20 carbon atoms, n is an integer from 1 to 3, and X is selected from the group consisting of hydrogen and sulfonic acid salt radicals, at least one X in each compound of the mixture being a sulfonic acid salt radical.

4,269,787

BIFUNCTIONAL MONOMERS HAVING TERMINAL OXIME AND CYANO OR AMIDINE GROUPS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Robert W. Rosser; Ibrahim M. Shalhoub, both of San Jose, Calif., and Hanoi Kwong, Sacramento, Calif.

Division of Ser. No. 28,301, Apr. 9, 1979. This application Apr. 30, 1980, Ser. No. 145,283

Int. Cl.[3] C07C *121/43, 123/00*

U.S. Cl. 260—465.5 R **1 Claim**

1. A bifunctional monomeric compound having the formula Q-R-C(NOH)NH_2, wherein: (a) R is a bivalent organic radical selected from the class consisting of alkylene radicals of the formula $-(CX_2)_p-$ and alkylether radicals of the formula

$$-CFY(OCF_2CFY)_mO(CX_2)_pO(CFYCF_2O)_n-CFY-,$$

or mixtures thereof, wherein X is fluorine of hydrogen, Y is fluorine or trifluoromethyl, p ranges from 1 to about 18, and m+n ranges from 2 to about 7; and (b) Q is a group selected from the triazine ring-forming class consisting of —C≡N and



4,269,788

PHENYL-CYCLOHEXADIENE-ALKYLAMINE DERIVATIVES

Peter M. Müller, Arlesheim; Rudolf Pfister, and Rene Urban, both of Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

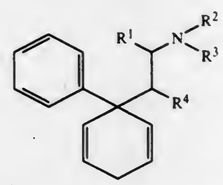
Filed Oct. 4, 1979, Ser. No. 81,712

Claims priority, application Switzerland, Oct. 11, 1978, 10552/78

Int. Cl.[3] C07C *91/16*

U.S. Cl. 260—501.1 **4 Claims**

1. A compound of the formula



I

wherein R^1 is hydrogen or methyl, R^2 is hydrogen, methyl or ethyl, R^3 is methyl or ethyl and R^4 is hydrogen or methyl; provided that at least one of R^1 and R^4 is hydrogen; a pharmaceutically acceptable acid addition salt thereof, or an optically active antipode of a compound of formula I which has an asymmetric carbon atom.

4,269,789

PETROLEUM SULFONATION

David R. Zornes, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 31, 1979, Ser. No. 108,303

Int. Cl.[3] C07C *143/24*

U.S. Cl. 260—505 P **9 Claims**

1. In a process for producing petroleum sulfonates comprising

(a) sulfonating a hydrocarbon oil feedstock by contacting said feedstock with a sulfonating agent under sulfonating conditions to obtain a sulfonated product,

(b) neutralizing said sulfonated product by contacting it with a basic neutralizing agent to obtain a neutralized product,

(c) contacting said neutralized product with a separating agent comprising alcohol and water to form a separation mixture,

(d) having the separation mixture separate into

a top phase

an intermediate phase and

a bottom phase, and

(e) recovering a petroleum sulfonate product from said intermediate phase

the improvement comprising using as said separating agent in step (c) one that comprises in addition to water and a lower alcohol a lower alkane selected from the alkanes

and cycloalkanes having 5 to 10 carbons and mixtures thereof.

4,269,790

HYDROCARBYLETHYL SULFONYL FLUORIDE

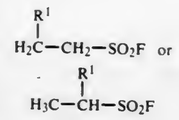
Louis de Vries, Greenbrae, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 889,314, Mar. 23, 1978, abandoned. This application Jun. 18, 1979, Ser. No. 49,995

Int. Cl.³ C07C *143/70*

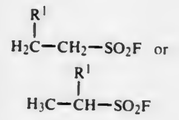
U.S. Cl. 260—543 F **4 Claims**

1. Compounds having the formula

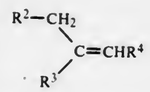


wherein R_1 is a polymeric 1-olefin-derived hydrocarbyl group of from 50 to 150 carbon atoms with 1 to 3 double bonds.

2. A process for the preparation of hydrocarbylethyl sulfonyl fluorides of the formula:



wherein R^1 contains about 3 to 350 carbon atoms consisting essentially of reacting vinyl sulfonyl fluoride with an unsaturated hydrocarbyl precursor selected from the group consisting of; an olefin of the formula:



wherein R^2 is hydrogen, an alkyl group of 1 to 20 carbon atoms, an alkenyl group of 3 to 20 carbon atoms, a cycloalkyl group of 5 to 12 carbon atoms, or an aryl group of 6 to 12 carbon atoms, R^3 and R^4 are independently hydrogen, an alkyl group of 1 to 20 carbon atoms, an alkenyl group of 3 to 20 carbon atoms or a cycloalkyl group of 5 to 12 carbon atoms, provided that the total number of carbon atoms in R^2, R^3 and R^4 is less than 21, or R^2 may be joined to either of R^3 or R^4 to form a 5 to 12 membered carbocyclic ring; an olefin polymer or copolymer, at a temperature of from 100° to 300° C.

4,269,791

HYDROGEN-OXYGEN MIXER APPARATUS AND PROCESS

Brian A. Hills, Houston, Tex., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 14, 1977, Ser. No. 851,243

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—36 R **5 Claims**

1. A method for providing a mixture of gases for diving comprising:

forming a column of liquid;

inducing a region of turbulent flow in a portion of said liquid column;

introducing bubbles of a first gas into said region;

separately introducing bubbles of at least one different gas into the same region, said bubbles being introduced into said turbulent region such that gas transfer between the bubbles produces a mixture of said first and at least one different gas by equilibriation between the bubbles within the liquid;

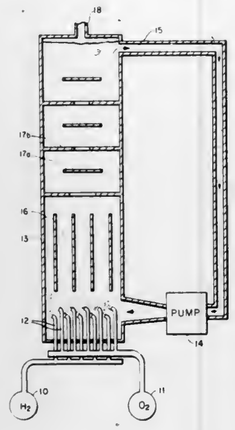
withdrawing a mixture of said first and at least one different gas from said column of liquid; and

providing said mixture as a breathing gas for diving.

2. An apparatus for providing a mixture of multiple gases comprising:

means for providing a column of liquid;

means for inducing a turbulent flow at one end of said column and decreasing said turbulence along said column to the opposite end;



means for introducing bubbles of a plurality of gases into said region of turbulent flow such that gas transfer between the bubbles produces a mixture of said plurality of gases by equilibriation between the bubbles within the liquid, said means for introducing including,

a source of hydrogen and a source of oxygen each coupled to a plurality of needle injectors positioned to provide said gas bubbles to said turbulent region, and

means for extracting a mixture of said hydrogen and said oxygen from the region of decreased turbulence.

4,269,792

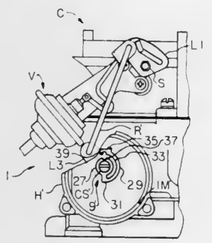
TAMPER RESISTANT CHOKE OPENING MEANS

Jerry H. Winkley, St. Louis, Mo., assignor to ACF Industries Incorporated, New York, N.Y.

Filed Feb. 13, 1980, Ser. No. 120,973

Int. Cl.³ F02M *1/08*

U.S. Cl. 261—39 B **11 Claims**



1. In a carburetor for an internal combustion engine, the carburetor having an air induction passage, a choke valve mounted in the passage and including a disk mounted on a rotatable choke shaft, a choke lever attached to one end of the choke shaft, a vacuum unit acting on the choke lever to effect an initial opening of the choke valve when the engine is started, the improvement comprising tamper resistant temperature responsive means for controlling further opening of the choke valve as the engine warms up, the means including a housing, a choke countershaft one end of which extends into the housing, a cover attachable to the housing and containing a thermostatic coil, a lever attached to the one end of the counter shaft and having a tang contacted by one end of the thermostatic coil thereby for the coil to exert a choke valve closing force on the lever, the force lessening as the engine heats up, and a substantially straight, nondeformable link connecting the choke countershaft and the choke lever, the lever within the choke housing being adjustable by a suitable adjusting tool to position the lever so opening of the choke valve is properly controlled thereby to aid in controlling engine emissions and whereby the setting of the lever cannot be tampered with once the cover is attached to the choke housing.

4,269,793

CARBURETTOR FOR INTERNAL COMBUSTION ENGINE

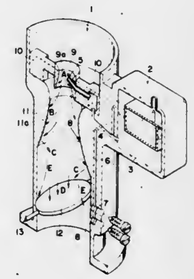
Jack K. Ibbott, 4-17-7 Nishi Azabu, Minato-Ku, Tokyo, Japan

Continuation of Ser. No. 732,288, Oct. 14, 1976, abandoned, which is a continuation-in-part of Ser. No. 610,886, Sep. 5, 1975, abandoned. This application Jun. 26, 1978, Ser. No. 919,309

Claims priority, application Japan, Jul. 25, 1975, 50-91012

Int. Cl.³ F02M *29/14*

U.S. Cl. 261—65 **17 Claims**



1. A carburetor for an internal combustion engine, said carburettor comprising:

a venturi into which passes air, said venturi including a throat and a portion diverging in the downstream direction from said throat, the pressure in said venturi increasing in the downstream direction from said throat;

main fuel delivery orifice means for spraying liquid fuel into the interior of said venturi at said throat such that a portion of said sprayed fuel is converted into vapor which joins with said air to form an air and vaporized fuel mixture and a further portion of said sprayed fuel is thrown in liquid form against the interior walls of said diverging portion of said venturi;

a butterfly throttle valve positioned downstream of said venturi and comprising a disc having a first surface facing said venturi and a second surface facing away from said venturi, the pressure within said carburetor adjacent said first surface being greater than the pressure adjacent said second surface; and

said venturi being provided from said throat longitudinally throughout said diverging portion with means for vaporizing any liquid portion of said fuel passing thereby, said means comprising porous material having a porosity of less than 2μ and formed of minute interconnected cells, said porosity being insufficient to allow passage through said porous material of said air and vaporized fuel mixture and insufficient to allow any condensation within said porous material of the thus vaporized fuel, said porous material being capable of being wetted by said fuel in liquid form, such that said liquid fuel is absorbed by said porous material and all of said absorbed fuel is vaporized internally of said porous material and is released therefrom in vapor form in said downstream directions due to said porosity and said increasing pressure.

4,269,794

FIRE CONTROL SYSTEM FOR A GAS AND LIQUID CONTACT APPARATUS

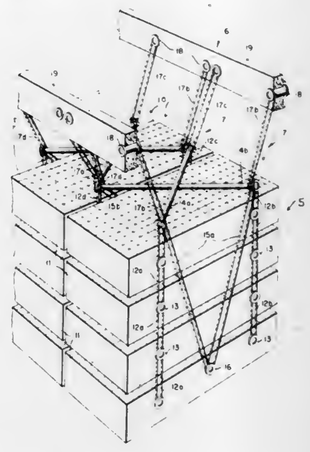
Jacques G. P. E. Bosne, Viroflay, and Christian A. A. Chofflet, Paris, both of France, assignors to Hamon Sobelco, Belgium

Filed Jul. 11, 1980, Ser. No. 168,686

Claims priority, application France, Sep. 3, 1979, 79 21986

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—108 **9 Claims**



1. A gas and fluid contact assembly comprising:

an enclosure;

a lower peripheral gas inlet for the enclosure and an upper gas outlet from the enclosure;

a combustible fluid/gas contact unit for the enclosure;

means for suspending said contact unit in the enclosure above the peripheral gas inlet; and

said suspending means characterized by including temperature responsive release means to release said contact unit at a predetermined temperature at the most equal to the ignition temperature of the contact unit.

4,269,795

PACKING IN WET COOLING TOWERS AND METHOD OF AND MEANS FOR SUPPORTING THE PACKING

Peter B. Bosman, Sandton, South Africa, assignor to WLPU Holdings Limited, Johannesburg, South Africa

Filed Mar. 20, 1979, Ser. No. 22,280

Claims priority, application South Africa, Mar. 22, 1978, 78/1679

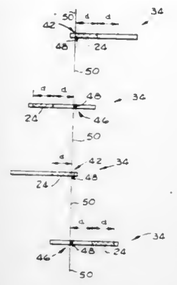
Int. Cl.³ B01F *3/04*

U.S. Cl. 261—111 **20 Claims**

1. A method of supporting a packing element of a packing in an evaporative cooling tower, the packing being of the splash pack type which splits and diffuses a spray of heated liquid into smaller droplets and the packing element is adapted to split and diffuse the spray of liquid into smaller droplets, the packing including at least two vertically spaced packing elements having each at least one elongate splash member, the method including suspending each packing element at a central region thereof from a common suspension element so that the packing elements are vertically spaced from each other and so that the splash members are substantially parallel and are horizontally off-set from each other.

6. A packing element for an evaporative cooling tower of

the splash pack type which is adapted to split and diffuse a spray of heated liquid into smaller droplets, the packing element having at least one splash member for splitting and diffusing the spray of heated liquid into smaller droplets, the packing element having support means by which the packing element is



suspended in different positions at a central region of the element so that when at least two such packing elements are suspended in a vertically spaced relationship from a common suspension element, the splash members in the elements are horizontally off-set from each other.

4,269,796

WET/DRY COOLING TOWER AND METHOD

Leon R. Glicksman, Lynnfield, and Warren R. Rohsenow, Waban, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 16, 1976, Ser. No. 714,557
Int. Cl.[2] B01F *3/04*
U.S. Cl. 261—112 **11 Claims**



1. A method of cooling hot water which comprises:

(a) providing a flow of hot water in spaced wetted areas across the surface of an element having high heat transmission characteristics so as to leave non-wetted dry areas intermediate wetted areas in such a manner that the intermediate dry areas are larger than the wetted areas,

(b) permitting the heat of the wetted areas from the hot water to be transmitted through the element to the dry areas,

(c) providing a flow of cooling air on said element in contact with said wet and dry areas to thus extract most of the total heat of the hot water by cooling of said dry areas without dependence on evaporation and a lesser amount of cooling by evaporation from said wetted areas.

2. A cooling tower system for cooling hot water comprising, in combination, a source of hot water to be cooled, a highly heat conductive heat transfer element having a surface disposed to receive hot water from said source thereon and being provided with a plurality of discrete spaced open channels arranged to flow substantially all said hot water on spaced areas wetted thereby leaving larger substantially dry areas intermediate said wetted areas wherein the heat of said hot water is distributed by conduction throughout said element from said wetted areas to said dry areas;

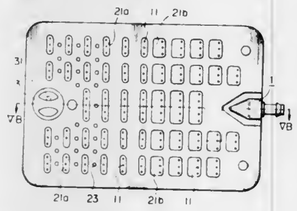
a source of cooling air disposed to move air across the surface of said element primarily cooling the dry areas by extraction of heat therefrom transmitted thereto from said wetted areas whereby the greater portion of total heat of said hot water is thus removed via said dry areas by air flow contact therewith without dependence on evaporation and a lesser portion of total heat removed by evaporation effected by the flow of cooling air in contact with said wetted areas.

4,269,797

BUBBLE GENERATOR

Toshio Mikiya; Tadahisa Mogaki, and Nobuyuki Nozawa, all of Tokyo, Japan, assignors to Nikki Co., Ltd., Japan

Filed Jun. 6, 1980, Ser. No. 157,095
Claims priority, application Japan, Nov. 22, 1979, 54-163033[U]
Int. Cl.[1] B01F *3/04*
U.S. Cl. 261—122 **6 Claims**



1. A bubble generator comprising

a bubble plate and an adjuster plate slidably coupled to each other in order to be registered at any one of three different bubbling positions a first bubbling position allowing generation of small bubbles only, a second bubbling position allowing simultaneous generation of small and large bubbles and a third bubbling position allowing generation of large bubbles only;

said bubble plate including

an air chamber to be connected to a given supply source of compressed air, and

a bubble generating face provided with a number of aligned bubble holes communicating with said air chamber,

said bubble holes being arranged in parallel rows which run substantially normal to the sliding direction of the plates at equal center pitch;

said adjuster plate including

aligned small slots formed in the one half of its bubble generating face along said sliding direction of the plates, said small slots being larger in width than the largest contour of said bubble holes in said bubble plate, and arranged in parallel rows which run substantially normal to said sliding direction of the plates at equal center pitch,

aligned bubble holes arranged in parallel rows between and parallel to adjacent said rows of said small slots, said bubble holes being larger in contour than said bubble holes in said bubble plate, and communicating with associated recesses defined by walls for said small slots on the back side of said adjuster plate, and

aligned large slots formed in the other half of said bubble generating face along said sliding direction of the plate, said large slot being larger in width than said smaller slots and arranged in parallel rows which run substantially normal to said sliding direction of the plates at equal center pitch; and

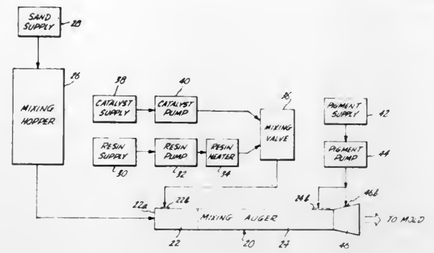
center pitches between adjacent rows of said small slots, adjacent rows of said bubble holes and adjacent rows of said large slots in said adjuster plate being all equal to said center pitch between said adjacent rows of said bubble holes in said bubble plate.

4,269,798

METHOD FOR PRODUCING A CURABLE, FILLED RESIN COMPOSITION, E.G., ARTIFICIAL MARBLE

Frank E. Ives, 26601 Dover Ct., Kent, Wash. 98031

Filed Oct. 23, 1978, Ser. No. 953,798
Int. Cl.[1] B29B *1/10, 3/00, 5/00;* **B29C** *9/00*
U.S. Cl. 264—73 **11 Claims**



1. A method for producing a curable filled resin composition comprising the steps of:

feeding a dry, resin free, granular filler material to a first location in a tubular conveying zone,

separately feeding a curable, thermosetting filler free, polyester resin to a second location in said conveying zone downstream from said first location, said resin being at a temperature above room temperature and below 140° F. when it is fed to the conveying zone,

conveying said filler material and said resin under confinement through said conveying zone to a confined mixing zone, said mixing zone being tubular and being an axial extension of said tubular conveying zone, said filler material and said resin being subjected to pressure in said conveying zone so as to force the resin and filler material into and through said mixing zone, and mechanically mixing said filler material and said resin by subjecting the filler material and resin to shear forces both in circumferential and axial directions relative to said tubular mixing zone, thereby to form an uncured filled resin composition,

transferring said composition to a mold immediately after it exits from the confinement of said mixing zone without further mixing, and

allowing said composition to cure.

4,269,799

METHOD OF FORMING FUSION CAST REFRACTORIES

Dale L. Rockwell, Belleville, Ill., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 31, 1979, Ser. No. 108,619
Int. Cl.[1] C04B *35/60*
U.S. Cl. 264—85 **2 Claims**

1. A method of forming a fusion cast refractory comprising the steps of:

(a) providing a mold for said refractory having a mold cavity of the desired shape, said mold including an organic binder and said cavity containing air;

(b) introducing an inert gas which is heavier than air into said mold cavity whereby said air is displaced from said mold cavity; and

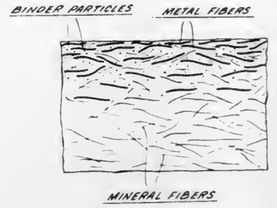
(c) pouring molten fusion cast refractory material into said mold cavity and allowing it to solidify.

4,269,800

PROCESS FOR THE PREPARATION OF A COMPOSITE MAT CONSISTING OF A LAYER OF MINERAL WOOL AND A LAYER OF STEEL WOOL

Rolf Sommer, Darmstadt; Gustav Schweinfurth, Frankenthal, and Heinz-Jurgen Ungerer, Virnheim, all of Fed. Rep. of Germany, assignors to Saint-Gobain Industries, France

Filed Oct. 18, 1978, Ser. No. 952,336
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1977, 2746796
Int. Cl.[1] B22F *3/24*
U.S. Cl. 264—111 **3 Claims**



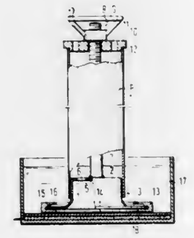
1. A process for making a composite fibrous mat incorporating a mixture of different types of fibers, comprising spraying a liquid thermo-hardenable binder on mineral fibers and forming the mat by scattering and depositing the mineral fibers onto a collecting surface, intertwining fleece-like metal fibers with the mineral fibers by distributing such metal fibers in the mineral fibers as the mineral fibers are being deposited to form the mat on the collecting surface, such distribution of the metal fibers in the mineral fibers being effected in at least one surface layer portion of the mat being formed, and heating the composite mat to harden the binder and thereby bond the mineral and metal fibers together.

4,269,801

METHOD AND DEVICE FOR FORMING A FLANGE ON A TUBULAR ELEMENT OF A SYNTHETIC RESIN

Hendrik Klasema, Bergen op Zoom, Netherlands, and Hendrikus A. Prince, Kometenlaan 29, Bergen op Zoom, Netherlands, assignors to Hendrikus Andreas Prince, Bergen op Zoom, Netherlands

Filed Mar. 16, 1978, Ser. No. 887,308
Claims priority, application Netherlands, Mar. 16, 1977, 7702866
Int. Cl.[1] B29C *17/00*
U.S. Cl. 264—156 **7 Claims**



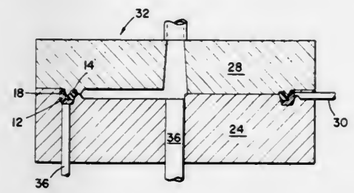
1. The method of producing a flange at one end of a tubular element of thermoplastic synthetic resinous material which comprises the steps of:

(a) providing a cylindrical molding body having a gradually radially flaring guide surface at one end thereof;

(b) securing a split, annular element to said one end of the molding body to provide at least an upstanding annular stop surface concentric with the molding body;

(c) sliding the tubular element onto said molding body;
(d) heating the molding body and at least that portion of the tubular element surrounding said molding body until the softening point temperature of said synthetic resinous material is reached and then forcing said tubular element axially of said molding body to form a flange which engages said stop surface;
(e) cooling said molding body and the flange end of the tubular element below said softening point temperature; and then
(f) splitting and removing said annular element to release the finished article.

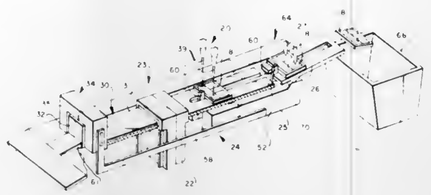
4,269,802
PROCESS FOR MAKING DUAL-MATERIAL SELF-BONDING LIP SEAL
Terry D. Linne, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Division of Ser. No. 667,769, Mar. 17, 1976, Pat. No. 4,066,269. This application Aug. 12, 1977, Ser. No. 824,144
Int. Cl.[1] B29D *9/00;* **B29F** *1/00*
U.S. Cl. 264—255 **10 Claims**



1. A process for the injection molding of a unitary seal having a support section formed of a high modulus rigid polycarbonate plastic and a sealing section formed of a polyurethane elastomeric material, consisting essentially of:
injecting sufficient polycarbonate, heated on a temperature from about 200° C. to about 400° C., into a first injection mold to fill said first injection mold;
retaining said polycarbonate in said first injection mold for a time sufficient to allow solidification of said polycarbonate and formation thereof into said support section;
forming a second injection mold with a surface portion of said support section defining a portion of the surface of said second injection mold;
injecting polyurethane elastomer, heated to a temperature from about 150° C. to about 300° C., into said second injection mold in a sufficient amount to fill said second injection mold;
confining said polyurethane elastomer in said second injection mold for a time sufficient to allow solidification thereof into said sealing section; and
retaining said second mold intact under sufficient pressure to retain a pressed contact between said surface portion of said support section and a mating surface portion of said sealing section, while maintaining said sections at a temperature from about 50° C. to about 400° C. for a time sufficient to cause a bonding between said contacting surface portions to form said unitary seal.

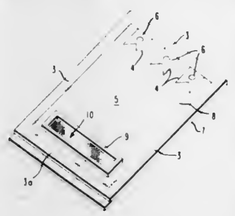
4,269,803
SLIDE TRANSFER MECHANISM
Thomas C. Jessop, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jul. 2, 1979, Ser. No. 54,063
Int. Cl.[1] G01N *21/01, 35/04*
U.S. Cl. 422—63 **15 Claims**

1. In an apparatus for chemical analysis of a sample fluid wherein operations are performed on an analysis slide at a plurality of stations in the apparatus, the combination comprising:
means defining a path for movement of a slide between and through said stations; and
transfer means for advancing a slide along said path, said transfer means comprising a first member for advancing a slide from a first station to a second station and a second



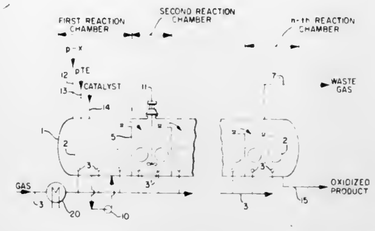
member for indexing the slide from said second station to a third station, said members being movable together to advance slides in each of said stations when a force is applied to said first member, and said second member being movable independently of said first member to advance slides in less than all of said stations when a force is applied to said second member.

4,269,804
SELF-CONTAINED GASEOUS CONTAMINANT DOSIMETER
Elbert V. Kring, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 69,574, Aug. 24, 1979, abandoned, which is a continuation-in-part of Ser. No. 922,546, Jul. 7, 1978, Pat. No. 4,208,371. This application Dec. 3, 1979, Ser. No. 99,704
The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.
Int. Cl.[1] B01D *53/22, 59/10;* **G01N** *31/22, 33/00*
U.S. Cl. 422—86 **11 Claims**



1. A personal dosimeter for measuring the average concentration of a gaseous contaminant over a given period of time comprising:
a pouch-like receptacle of polymeric material having at least one compartment, the compartment occupying less than the total volume of the receptacle, leaving a reaction chamber, the compartment containing a pre-determined quantity of a color-forming reagent and being adapted to release the reagent into the reaction chamber independently of any other reagents present in any other compartments, and the reaction chamber containing a collecting medium for the gaseous contaminant; and
a gas diffusion device which is sealed into a boundary of the receptacle and through which the contaminant diffuses at a rate in linear proportion to its concentration in the atmosphere, the diffusion device providing the only communication between the atmosphere and the interior of the reaction chamber.

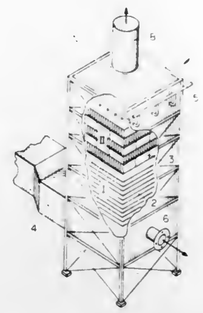
4,269,805
REACTOR FOR THE OXIDATION OF ALKYL AROMATICS WITH OXYGEN-CONTAINING GASES IN THE LIQUID PHASE
Anton Schoengen, Witten, and Heinrich Schroeder, Dortmund-Syburg, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany
Filed Feb. 12, 1979, Ser. No. 11,656
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1978, 2805915
Int. Cl.[1] B01J *8/10, 8/12;* **C07C** *51/21;* **G05D** *9/00*
U.S. Cl. 422—106 **27 Claims**



1. A multi-stage reactor for the oxidation of alkyl aromatics, especially mixtures of p-xylene and methyl p-toluate in a liquid phase reaction mixture with oxygen-containing gases under elevated pressure and at an elevated temperature in the presence of an oxidation catalyst, which comprises an elongated closed tank having a multiplicity of reaction chambers arranged successively from one end to the other end of the tank for containing the liquid reaction mixture at predetermined levels in each chamber, an oxidizing gas feed system for introducing an oxygen-containing gas into each chamber, feed means for introducing at least one alkyl aromatic reactant and an oxidation catalyst into at least one of the chambers, a vapor-collecting conduit means in communication with each of said chambers for removing reaction gas from each of said chambers, discharge means for removing the oxidized product from the reactor tank, and an internally disposed cooling conduit system containing a coolant for removing the heat of reaction from said reactor tank including a group of cooling conduits for each of said reaction chambers, said groups comprising horizontally disposed cooling conduits arranged below the level of the liquid reaction mixture and exposed to transverse flow of the oxygen-containing gas through each of the reaction chambers.

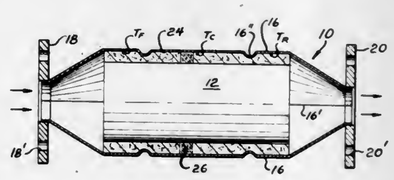
4,269,806
SCRUBBER FOR REMOVAL OF SULFUR DIOXIDE FROM EXHAUST GAS
Kunihide Yaguchi; Masakazu Takaiwa, and Minoru Aoki, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 7, 1979, Ser. No. 64,638
Int. Cl.[1] B01D *47/12;* **B01J** *10/02*
U.S. Cl. 422—171 **1 Claim**

1. A scrubber for removing sulfur dioxide from a sulfur dioxide containing exhaust gas with an aqueous absorbent containing a salt of an organic acid, comprising:
a zone (I) of absorbing sulfur dioxide, a zone (II) of absorbing vapor of organic acid on the upper side of said zone (I), an inlet for said exhaust gas beneath said zone (I), an inlet for said absorbent at the top of said zone (II), an outlet for the effluent of the absorbent at the bottom of said scrubber and an outlet for the discharge of the decontaminated exhaust gas at the top of said scrubber,
said zone (I) being provided with multistaged perforated plates in number of 5 to 20, each of said perforated plates having a plurality of holes of 3 to 10 mm in diameter and a perforation of 30 to 55% in area, and being disposed horizontally with an inter-plate distance of 40 to 500 mm, and said zone (I) being provided with multiple multistages of wetted walls with a total height of 1 to 4 meters, each of said stages of said wetted walls having a plurality of plates



placed vertically and in parallel, each of said stages being disposed horizontally an inter-stage distance of 100 to 300 mm and being piled up in number of more than 4 and having the direction of plates thereof different from that of adjacent stages, and said vertically placed plates being disposed with an inter-plate distance of 10 to 30 mm.

4,269,807
CATALYTIC CONVERTER MOUNTING ARRANGEMENT FOR REDUCING BYPASS LEAKAGE
Charles H. Bailey, Mt. Prospect; Ted V. DePalma, Schaumburg, and James E. Dillon, Elgin, all of Ill., assignors to UOP Inc., Des Plaines, Ill.
Filed Oct. 22, 1979, Ser. No. 86,990
Int. Cl.[3] F01N *3/28;* **B23P** *19/04;* **B32B** *31/06*
U.S. Cl. 422—179 **4 Claims**



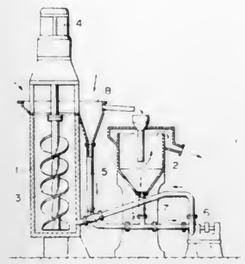
1. In a catalytic converter of the type having a ceramic monolithic catalyst element held within a metal housing by a blanket of resiliently compressed metal wire mesh, the improvement wherein a continuous circumferential band of intumescent material containing ceramic fibers is positioned within said mesh blanket and throughout the thickness thereof at at least one position along the axial length of said catalyst element, said band of intumescent material being of substantially less axial length than said catalyst element and expandable when heated so as to block any longitudinal bypass leakage through said wire mesh.

4,269,808

METHOD OF SIMULTANEOUSLY SUBJECTING ORES TO PULVERIZATION AND LEACHING OR EXTRACTION

Shigekatsu Kawabata, Tokyo, Japan, assignor to Seika Sangyo Co., Ltd. and Japan Tower Miller Co., Ltd., both of Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,051
Int. Cl.³ C22B *3/00*
U.S. Cl. 423—1 **5 Claims**



1. A process of treating ore, comprising the steps of:
(a) filling a shell of a vertical abrasion mill with an ore and a liquid solution, a mixture thereby being formed,
(b) pulverizing the ore into particles in the solution by circulating the ore in a generally vertical direction through said shell,
(c) obtaining an overflow stream from the mixture of the ore and the liquid solution,
(d) separating said overflow stream into a part containing larger particles and a part containing smaller particles, the part containing larger particles being recirculated to the shell and separating the part containing smaller particles into two subparts, a first subpart containing the larger of these particles and a second subpart containing the smaller of these particles, wherein the solution performs leaching or extraction during the pulverizing step.

4,269,809

RECOVERY IN TITANIUM METAL VALUES BY SOLVENT EXTRACTION

William K. Tolley, Arlington Heights, and William C. Laughlin, Schaumburg, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Dec. 19, 1979, Ser. No. 105,341
Int. Cl.³ C01G *23/053*
U.S. Cl. 423—70 **6 Claims**

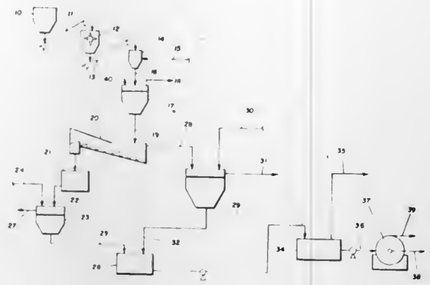
1. A process for the recovery of titanium values from a hydrochloric acid leach liquor containing titanium trichloride which comprises treating said leach liquor at a temperature of from about ambient to about 50° C. with a solution of mono- or di-2-ethylhexylphosphoric acid, contacting the resultant acid solution at a temperature of from about ambient to about 50° C., with an inorganic solution comprising a mixture of hydrogen peroxide and sulfuric or nitric acid to strip said titanium values from said acid solution, heating the resultant titanium-containing inorganic solution to a temperature of from about 100° to about 200° C. to hydrolyze titanium values to titanium dioxide precipitate, and separating said precipate from the inorganic solution.

4,269,810

METHOD FOR DESULFATION OF BATTERY MUD

Michael A. Kolakowski, Milltown, N.J., assignor to NL Industries, Inc., New York, N.Y.

Filed Oct. 10, 1978, Ser. No. 950,074
Int. Cl.³ C01G *21/00, 21/12, 21/14*
U.S. Cl. 423—92 **5 Claims**



1. A process for desulfating battery mud in a lead-acid battery recycling process, comprising:
a. crushing lead-acid batteries to obtain a crushed material comprising crushed battery cases and separators, crushed metallics, and battery mud comprising sulfuric acid, $PbSO_4$, PbO, and PbO_2;
b. adding an aqueous solution containing an alkali metal reagent in an amount sufficient to neutralize said sulfuric acid and to combine with essentially all of said $PbSO_4$, said alkali metal reagent being selected from the group consisting of water soluble alkali metal salts, alkali metal hydroxides, and admixtures thereof, to said crushed material to form an aqueous slurry of alkali metal sulfate and precipated lead compounds having a solids content of from about 10–20%;
c. separating said crushed battery cases and separators, and said crushed metallics from said battery mud containing said precipitated lead compounds; and
d. separating said battery mud from said alkali metal sulfate.

4,269,811

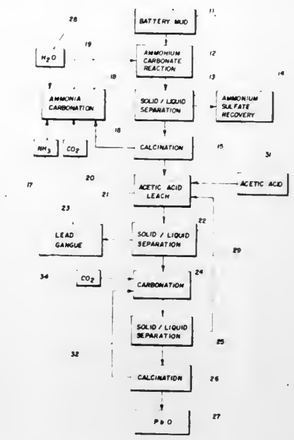
PRODUCTION OF LEAD MONOXIDE FROM LEAD SULFATE WITH ACETIC ACID

Eugene Striffler, Jr., Hightstown, and Michael A. Kolakowski, Milltown, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 950,078, Oct. 10, 1978, abandoned. This application Mar. 3, 1980, Ser. No. 126,625
Int. Cl.³ C01G *21/02*
U.S. Cl. 423—92 **17 Claims**

1. A process for producing lead monoxide from solid lead sulfate bearing material which comprises:
(a) reacting said material with an ammonium carbonate solution to convert said lead sulfate to lead carbonate;
(b) decomposing substantially all of the lead carbonate to impure lead monoxide by heating at temperatures from about 400° to 650° C.,
(c) reacting the impure lead monoxide with an effective amount of an acetic acid solution to convert said lead monoxide to a lead acetate solution;
(d) separating said lead acetate solution from the insoluble impurities;

(e) contacting the lead acetate solution from step (d) with carbon dioxide gas to form lead carbonate; and



(f) decomposing the lead carbonate to produce lead monoxide.

4,269,812

HORIZONTAL CROSS-FLOW SCRUBBER FOR SULFUR OXIDE REMOVAL

William M. Edwards, and C. Peter Huang, both of Houston, Tex., assignors to Pullman Incorporated, Chicago, Ill.

Filed Jul. 27, 1979, Ser. No. 61,225
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—242 **6 Claims**

1. A process for removing sulfur dioxide from industrial waste gas comprising:
(a) passing the waste gas substantially horizontally through a horizontal, elongate, gas-liquid contacting zone having a substantially unrestricted flow path, a waste gas inlet at one end, and a cleaned gas outlet at the opposite end; and
(b) passing aqueous absorbent through the waste gas within at least a longitudinal portion of the gas-liquid contacting zone in a plurality of interfering cones of spray droplets having an initial Sauter mean diameter of from about 800 to about 2000 microns directed substantially vertically downward wherein the aqueous absorbent has a maximum interfering spray density at any horizontal plane within the longitudinal portion less than about 100 liters per second per square meter.

4,269,813

CRYSTALLINE BOROSILICATE AND PROCESS OF PREPARATION

Marvin R. Klotz, Batavia, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 836,403, Sep. 26, 1977, abandoned, Ser. No. 819,974, Jul. 28, 1977, abandoned, and Ser. No. 733,267, Oct. 18, 1976, abandoned. This application Apr. 18, 1978, Ser. No. 897,360
Int. Cl.³ C01B *35/10*
U.S. Cl. 423—277 **41 Claims**

1. A crystalline borosilicate which comprises a molecular sieve material having the following composition in terms of mole ratios of oxides:

$$0.9 \pm 0.2 M_{2/n}O : B_2O_3 : YSiO_2 : ZH_2O$$

wherein M is at least one cation having a valence of n, Y is between 4 and about 600, and Z is between 0 and about 160, and providing an X-ray diffraction pattern comprising the following X-ray diffraction lines and assigned strengths:

d (A)	Assigned Strength
11.2 ± 0.2	W-VS
10.0 ± 0.2	W-MS
5.97 ± 0.07	W-M
3.82 ± 0.05	VS
3.70 ± 0.05	MS
3.62 ± 0.05	M-MS
2.97 ± 0.02	W-M
1.99 ± 0.02	VW-M

4,269,814

PROCESS FOR PREPARING CRYSTALLINE AMMONIUM DIHYDROGEN PHOSPHATE

Soichi Asagao; Masaru Nakatani; Shinsuke Nakagawa; Yoshiyuki Takahara, and Naoki Okada, all of Ube, Japan, assignors to Central Glass Company, Limited, Ube, Japan

Filed Aug. 28, 1979, Ser. No. 70,499
Claims priority, application Japan, Aug. 30, 1978, 53-104864
Int. Cl.³ C01B *25/28*
U.S. Cl. 423—308 **3 Claims**

1. A process for preparing crystalline ammonium dihydrogen phosphate from an aqueous solution of ammonium dihydrogen phosphate obtained from wet process phosphoric acid, comprising the steps of:
(a) adding ethylenediamine tetraacetate into the wet process ammonium dihydrogen phosphate aqueous solution, the amount of said ethylenediamine tetraacetate added being within a range of from 0.1 to 1 wt. percent relative to crystals of ammonium dihydrogen phosphate;
(b) heat-treating said aqueous solution at a temperature of 70° C. or more and for a time within a range of from 10 to 60 minutes, after addition of said ethylenediamine tetraacetate; and
(c) crystallizing ammonium dihydrogen phosphate out of said aqueous solution after said heat-treating.

4,269,815

METHOD OF EXCHANGING SODIUM ZEOLITE

John Lim, Anaheim; Warren Huang, San Gabriel, and Michael Brady, Studio City, all of Calif., assignors to Filtrol Corporation, Los Angeles, Calif.

Filed May 23, 1980, Ser. No. 152,704
Int. Cl.³ C01B *33/28*
U.S. Cl. 423—328 **6 Claims**

1. A process of exchanging a sodium Y which comprises forming a mixture of sodium Y and a water solution of a salt of a cation chosen from the group consisting of monovalent cation other than an alkali metal cation and a polyvalent cation, heating said mixture under autogenous pressure to a selected temperature in the range of about 300° F., and substantially less than 500° F., to reduce the sodium content of the zeolite to the range of about 4% to about 6% (expressed as the equivalent Na_2O) on a volatile free basis, quenching the mixture of exchanged Y and salt solution by adding water at a substantially lower temperature in amounts to reduce the temperature to less than the boiling point, and separating the exchanged Y zeolite and re-exchanging the exchanged zeolite by mixing the separated zeolite with a water solution of a salt of a cation chosen from the above group at a temperature in the range of about 300° F. to substantially less than 500° F., and separating said exchanged Y.

4,269,816

PREPARATION OF ANHYDROUS MAGNESIUM CHLORIDE

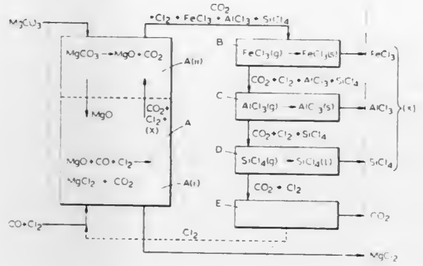
Charles E. E. Shackleton, deceased, late of London, England; By Edward A. B. Shackleton, executor, Lymington, England; Anthony J. Wickens, Rudgwick, England, and John H. W. Turner, via Stockport, England, assignors to Mineral Process Licensing Corp. BV, The Hague, Netherlands

Filed Jul. 27, 1979, Ser. No. 61,416

Claims priority, application United Kingdom, Jul. 27, 1978, 31427/78

Int. Cl.³ C01F *5/34*

U.S. Cl. 423—498 **13 Claims**



1. A process for the preparation of anhydrous magnesium chloride, the process comprising adding magnesium carbonate pieces to a reactor vessel and heating the pieces to a temperature above about the melting point of magnesium chloride and below about 1200° C. to form a heated packed bed comprising the heated pieces; reacting the heated pieces in the packed bed with gaseous chlorine in the presence of gaseous carbon monoxide; withdrawing carbon dioxide from above the packed bed and withdrawing molten anhydrous magnesium chloride from below the packed bed.

8. A continuous process for the preparation of anhydrous magnesium chloride, the process comprising preheating magnesium carbonate ore pieces and feeding such pieces into a packed bed reactor comprising heated magnesium carbonate ore; passing carbon monoxide and chlorine gas upwardly through the packed bed, the packed bed being maintained at a temperature in the range above about the melting point of magnesium chloride and below about 1200° C.; continuously removing molten magnesium chloride from beneath the packed bed; continuously removing residual solids from the lower portion of the packed bed while removing a gas from above the packed bed, the gas comprising carbon dioxide; continuously passing the carbon dioxide through a preheating zone while simultaneously continuously passing magnesium carbonate ore pieces through the preheating zone to form preheated and decomposed magnesium carbonate ore pieces and removing cooled carbon dioxide.

4,269,817

PRODUCTION OF CHLORINE FROM CHLORIDE SALTS

Charles A. Rohrmann, Kennewick, Wash., assignor to Battelle Memorial Institute, Richland, Wash.

Filed Jul. 27, 1979, Ser. No. 61,406

The portion of the term of this patent subsequent to Aug. 15, 1995, has been disclaimed.

Int. Cl.³ C01B *7/04*

U.S. Cl. 423—502 **6 Claims**

1. A process for producing elemental chlorine from a chloride salt comprising:

reacting, in a first zone, a chloride salt with sulfuric acid at an elevated temperature sufficient to produce hydrogen chloride gas;

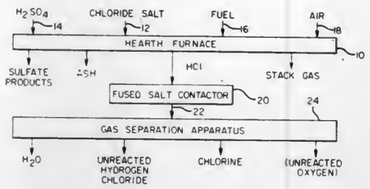
recovering the evolved hydrogen chloride; and

contacting, in a second zone,

a. the hydrogen chloride,

b. a molten salt mixture, and

c. a non-gaseous oxygen compound capable of reacting with said hydrogen chloride to produce elemental chlorine and water,



said contacting occurring in the substantial absence of an oxygen-bearing gas and at an elevated temperature sufficient to sustain a reaction between said oxygen compound and said hydrogen chloride to produce a gaseous effluent stream which contains steam and chlorine and which is substantially free of gaseous oxygen.

4,269,818

METHOD OF PRODUCING HYDROGEN

Masahiro Suzuki, 423, Yasaka, Kakegawa, Shizuoka, Japan

Filed Nov. 13, 1979, Ser. No. 93,660

Claims priority, application Japan, Nov. 13, 1978, 53-139632

Int. Cl.³ C01B *1/07*

U.S. Cl. 423—657 **4 Claims**

1. A method for producing hydrogen by the reaction between magnesium and water, which comprises the steps of:

immersing magnesium in an aqueous electrolytic solution containing at least one compound of at least one metal selected from the group consisting of nickel, chromium, manganese, iron and platinum, for a short period of time and without applying an external electroplating current, whereby to deposit said metal on the surface of said magnesium and thereby activate said surface so that said magnesium will rapidly react with water over an extended period of time to generate a large volume of hydrogen; and then immersing the activated magnesium in sea water or an aqueous solution of a salt selected from the group consisting of NaCl, KCl, Na_2SO_4 and K_2SO_4 and thereby generating hydrogen.

4,269,819

2,4,6-TRIIODOBENZONITRILE DERIVATIVES AND X-RAY CONTRAST MEDIA COMPRISING THEM

Heinz Gries, Berlin, Fed. Rep. of Germany, assignor to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

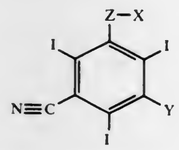
Filed Jul. 12, 1979, Ser. No. 57,243

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2831496; Jan. 19, 1979, 2902456

Int. Cl.³ A61K *49/04;* **C07C** *121/52*

U.S. Cl. 424—5 **20 Claims**

1. A compound of the formula



wherein Z is a direct bond or alkylene or alkenylene of up to 7 carbon atoms; X is —COOH or



wherein R_1 is a hydrogen atom or alkyl or hydroxy alkyl of up to 4 carbon atoms or a corresponding hydroxy alkyl group, and R_2 is the acyl radical of a hydrocarbon carboxylic acid of 2 to 5 carbon atoms or of a corresponding hydroxy carboxylic acid, and Y is a hydrogen atom or —COOH; and the physiologically acceptable salts with bases, and the corresponding esters and acid amides of the above compounds wherein at least one of X and Y is (a) of the formula —CO—OR wherein R is hydrocarbon of 1-4 carbon atoms or a corresponding hydrocarbon group substituted by one or more hydroxy groups, or (b) of the formula —CO—NR_3—R_4 wherein R_3 and R_4 each is a hydrogen atom or alkyl of 1-4 carbon atoms or corresponding alkyl substituted by 1-3 hydroxy groups, or (c) of the formula —CO—NH—R_5 wherein R_5 is methyl or ethyl.

19. An X-ray contrast agent adapted for oral or intravenous administration comprising a radiopaque amount per unit dosage of a compound of claim 1, in admixture with a pharmaceutically acceptable carrier.

4,269,820

SAFEGUARDED TOXIC CHEMICAL COMPOSITIONS CONTAINING EFFECTIVE EMESIS-INDUCING S-TRIAZOLO-[1,5-α]PYRIMIDINE DERIVATIVES

George E. Davies, Wilmslow, and David M. Foulkes, Henly-on-Thames, both of England, assignors to Imperial Chemical Industries Limited, London, England

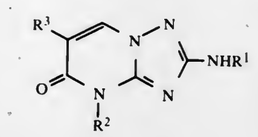
Continuation of Ser. No. 873,497, Jan. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 830,765, Sep. 6, 1977, Pat. No. 4,160,017, which is a continuation of Ser. No. 716,801, Aug. 23, 1976, Pat. No. 4,046,552. This application Dec. 18, 1979, Ser. No. 104,758

Claims priority, application United Kingdom, Feb. 11, 1977, 5708/77; Apr. 29, 1977, 18008/77

Int. Cl.³ A61K *7/047, 7/08, 7/15, 7/46*

U.S. Cl. 424—10 **8 Claims**

1. An emetic composition comprising a toxic amount of a toxic chemical substance which is other than a herbicidal bipyridylium quaternary salt, which is not intended for oral ingestion but when so orally ingested passes into the blood through the stomach and digestive tract and for which treatment by induction of emesis is medically advisable and an emetically effective amount of 0.01 to 5 parts by weight per 100 parts of the composition of an emetically active s-triazolo-[1,5-α]-pyrimidine derivative of the formula



wherein R^1 is hydrogen, a C_{1-4} alkyl radical, or a $COOC_2H_5$ radical; R^2 is a C_{1-4} alkyl radical or an allyl radical, and R^3 is a C_{1-4} alkyl radical, or a pharmaceutically acceptable emetically active addition salt thereof, the ratio of emetic to toxic chemical being such as to induce emesis when the composition is orally ingested.

4,269,821

BIOLOGICAL MATERIALS

Jörg Kreuter, 25 Münstergasse, CH-8001 Zurich, and Peter P. Speiser, 26 Wassbergstrasse, CH-8127 Forch, both of Switzerland, assignors to Jörg Kreuter and Peter Paul Speiser, both of Basel, Switzerland

Division of Ser. No. 931,680, Aug. 7, 1978, Pat. No. 4,225,581, which is a continuation of Ser. No. 862,213, Dec. 19, 1977, abandoned, which is a continuation of Ser. No. 666,611, Mar. 15, 1976, abandoned. This application May 2, 1980, Ser. No. 146,018

Claims priority, application Switzerland, Mar. 20, 1975, 3573/75; May 13, 1975, 6125/75

Int. Cl.³ A61K *37/26, 9/14, 9/52, 9/58*

U.S. Cl. 424—19 **2 Claims**

1. Submicroscopic particles of a polymerized styrene or acrylic monomer on which is absorbed insulin, in suspension or colloidal solution in a sterile aqueous medium, wherein the submicroscopic particles have a particle size of from 50 to 500 nm diameters, whereby the submicroscopic particles are formed by suspending the polymeric particles in a liquid medium containing the insulin.

4,269,822

ANTISEPTIC DENTIFRICE

Michael A. Pellico, Los Angeles, and Robert E. Montgomery, West Los Angeles, both of Calif., assignors to Laclede Professional Products, Inc., Brooklyn, N.Y.

Continuation-in-part of Ser. No. 59,243, Jul. 20, 1979, abandoned. This application Aug. 29, 1980, Ser. No. 182,384

Int. Cl.³ A61K *7/22, 7/28, 37/50, 31/195*

U.S. Cl. 424—50 **8 Claims**

1. An antiseptic dentifrice containing from about 0.01 to about 0.5 wt.% of an oxidizable amino acid substrate and from about 50 to about 1,000 International Units of an oxidoreductase enzyme specific to said substrate for producing ammonia and hydrogen peroxide upon oral applicaton of said dentifrice, said dentifrice being stabilized against the production of ammonia and hydrogen peroxide prior to the oral application thereof by incorporating into the dentifrice a non-aqueous fluid carrier in an amount from about 30 to about 60 wt.% and limiting any water present in the dentifrice to an amount not more than about 10 wt.%.

4,269,823

PERIODONTAL DENTAL PREPARATION

Eric Baines, Flixton, and Kenneth Harvey, Wilmslow, both of England, assignors to Colgate-Palmolive Co., New York, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,068

Claims priority, application United Kingdom, May 15, 1979, 16874/79

Int. Cl.³ A61K *7/18*

U.S. Cl. 424—52 **7 Claims**

1. A periodontal dental preparation consisting essentially of about 0.01-5% by weight of folic acid, a dentally acceptable water-insoluble polishing agent which is principally sodium aluminosilicate, hydrated alumina, calcium carbonate, insoluble sodium metaphosphate, or a mixture thereof which polishing agent reduces the soluble folic acid present in the preparation and a fluorine-containing agent which increases retention of soluble folic acid in said preparation, the fluorine-containing agent being an alkali metal fluoride, an alkali metal monofluorophosphate, or a mixture thereof.

4,269,824

THIXOTROPIC HAIR CONDITIONER COMPOSITION

Arturo A. Villamarin, Mine Hill, and Mabel A. S. de Gomez, Passaic, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jun. 20, 1979, Ser. No. 50,358

Int. Cl.³ A61K *7/06*

U.S. Cl. 424—70 **5 Claims**

1. An aqueous hair conditioner composition consisting es-

sentially of (1) from about 0.5 to 4.5 percent by weight of a dimethyl di(hydrogenated tallow) ammonium salt, (2) from about 0.5 to 2.0 percent by weight of a quaternized hydrolyzed collagen protein in which 90 percent of the protein amino groups have been substituted with a quaternary of the stearyl trimethyl ammonium chloride type and having a molecular weight of about 12,500, (3) from about 0.1 to 0.5 percent by weight of a cationic quaternized polymer of hydroxyethyl cellulose and (4) from about 1.3 to 1.7 percent by weight, based on the weight of the composition of a mixture of long chain fatty alcohols comprising at least 90 percent by weight of said mixture of C_{16} and C_{18} alcohols in a ratio of about 1:2, respectively and the balance water.

4,269,825

NEW GLYCOPROTEIN AND PROCESS FOR ISOLATING IT

Hans Bohn, Marburg, and Wilhelm Winckler, Wenkbach, both of Fed. Rep. of Germany, assignors to Behringwerke AG, Marburg, Fed. Rep. of Germany

Continuation of Ser. No. 915,261, Jun. 13, 1978, abandoned. This application Dec. 19, 1979, Ser. No. 105,416

Claims priority, application Fed. Rep. of Germany, Jun. 15, 1977, 2726886

Int. Cl.[3] A61K *39/00;* **C07G** *7/00*

U.S. Cl. 424—85 **3 Claims**

1. An isolated, enriched glycoprotein obtainable by fractionating human blood serum or an aqueous extract of human placenta, said glycoprotein having:

(a) a protein content of 75±6%;

(b) a carbohydrate content of 24.6±5.2%, consisting of 8.9±2% of hexoses, 7.1±1.5% of N-acetylated hexoseamine, 0.2±0.2% of fucose, and 8.4±1.5% of N-acetylated neuraminic acid;

(c) a sedimentation coefficient S_{20w} of 2.5±0.3 S;

(d) a molecular weight of 35,000±5,000, determined in the ultracentrifuge;

(e) an iso-electric point of pH 3.4±0.4;

(f) an extinction coefficient $E_{1\ cm}^{1\%}$ (280 nm) of 1.9±0.3;

(g) an electrophoretic mobility in the range between the α_1-and α_2-globulins:

(h) a specific immunologic reaction with an antibody directed specifically against the glycoprotein.

3. An antiserum against the glycoprotein of claim 1.

4,269,826

PHYSIOLOGICAL PREPARATION CONTAINING LOADED CELLS IN SUSPENSION AND A MAGNETIC AGENT FOR LOCAL CONCENTRATION THEREOF IN A LIVING BODY

Ulrich Zimmermann, Jülich, and Günter Pilwat, Niederzier, both of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschrankter Haftung, Jülich, Fed. Rep. of Germany

Filed Dec. 12, 1977, Ser. No. 859,563

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1976, 2656317

Int. Cl.[3] A61K *35/14, 37/48, 43/00*

U.S. Cl. 424—101 **14 Claims**

5. A suspension of loaded cells in a physiological solution in which said loaded cells are animal cells selected from the group consisting of blood cells and liver cells and are loaded with at least two materials extraneous to the original cell content, said material including a first material which is an agent selected from the group consisting of tumor-treating agents, medicaments and radionuclides and a second material which is a ferrimagnetic, ferromagnetic or paramagnetic compound, containing combined oxygen as well as at least one metal, in the form of particles having a diameter in the range between 1 and 20 nm coated with a silicone film and present in said loaded cells in sufficient quantity to enable said loaded cells to be gathered and held at a predetermined position in a physiological solution by the application of a magnetic field by means external to said physiological solution.

4,269,827

PROCESS AND COMPOSITION FOR REDUCING BLOOD PRESSURE

James A. Burton, Amesbury, and Edgar Haber, Weston, both of Mass., assignors to The Massachusetts General Hospital, Boston, Mass.

Filed Jun. 23, 1980, Ser. No. 162,082

Int. Cl.[3] A61K *37/00;* **C07C** *103/52*

U.S. Cl. 424—177 **5 Claims**

1. A blood pressure reducing composition which inhibits renin in vivo having the peptide structure:

Z-His-Pro-Phe-His-X-X-Val-Tyr-Y

wherein the Xs are the same or different and are selected from the group consisting of phenylalanyl, tyrosyl and a chlorinated phenylalanyl, Y is a charged amino acid residue selected from the group consisting of lysyl, arginyl, aspartyl and glutamyl and Z is selected from the group consisting of prolyl and polyprolyl having up to 5 prolyl residues.

4,269,828

INDOLE ANTI-INFLAMMATORY COMPOSITION

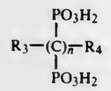
Lawrence Flora, Hamilton, and Marion D. Francis, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 782,144, Mar. 28, 1977, abandoned. This application Jul. 13, 1978, Ser. No. 924,477

Int. Cl.[3] A61U *31/40, 31/66*

U.S. Cl. 424—204 **10 Claims**

1. A method for treating or preventing pain and inflammation in animal tissues, comprising administering to an animal in need of such treatment from about 50 milligrams to about 6000 milligrams per day of an indole-based anti-inflammatory compound selected from indomethacin and pharmaceutically acceptable salts and esters thereof and from about 200 milligrams to about 2000 milligrams per day of an organophosphonate compound selected from the group consisting of geminal organophosphonates of the formula



or pharmaceutically acceptable salts thereof, wherein n is an integer from 1 to about 10; R_3 is selected from the group consisting of H, C_1–C_{20} alkyl or cycloalkyl, C_2–C_{20} alkenyl, aryl, phenylethyl, benzyl, halogen, amino, substituted amino, —CH_2COOH, —$C_2PO_3H_2$, —$CH(PO_3H_2)$ (OH) or —$CH_2CH(PO_3H_2)_2$; and R_4 is selected from the group consisting of H, lower alkyl, amino, benzyl, halogen, —OH, —CH_2COOH, —$CH_2PO_3H_2$, or —$CH_2CH_2PO_3H_2$.

4,269,829

METHOD AND COMPOSITION FOR TREATING HELMINTHS CONTAINING O,O-DIALKYL-N-(SUBSTITUTED PHENYL)AMINOTHIOCARBONYL PHOSPHORAMIDATES

Michael Seidel, Chalfont; W. David Weir, Levittown, and Martha H. Wolfersberger, Perkasie, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jun. 18, 1979, Ser. No. 49,849

Int. Cl.[3] A61K *31/66;* **C07F** *9/24*

U.S. Cl. 424—211 **3 Claims**

1. A compound named O,O-diethyl-N-(2-styrylphenyl)-aminothiocarbonyl phosphoramidate.

2. A method for treating helminths which comprises the administration of an effective amount of the compound of claim 1.

4,269,830

COMPOSITIONS AND METHODS FOR THE TREATMENT OF CHRONIC TRYPANOSOMIASIS INFECTIONS

Francis W. Jennings, Glasgow, Scotland, assignor to Merck & Co., Inc., Rahway, N.J.

Filed May 17, 1979, Ser. No. 39,706

Int. Cl.[3] A61K *31/655, 31/42*

U.S. Cl. 424—226 **3 Claims**

1. A composition useful for treating trypanosomiasis in humans and animals caused by *Trypanosoma brucei* TREU 667/1 which comprises 40 mg of diminozene aceturate and 80 mg of 3'-(1-methyl-5-nitroimidazole-2-yl)-4,5'-hexamethylene-Δ^2-isoxazoline.

4,269,831

TOPICAL DERMATOLOGICAL METHOD OF USE OF AN ANDROSTENOPYRAZOLE

Richard A. Ferrari, Bethlehem, and Arthur L. Beyler, North Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed May 9, 1979, Ser. No. 37,439

Int. Cl.[3] A61K *31/58*

U.S. Cl. 424—241 **1 Claim**

1. The method of treating dermatological conditions associated with androgenic stimulatory influence including acne and hirsutism which comprises applying to the affected skin area a composition comprising an antiandrogenically and glucocorticoidally effective amount equivalent to at least 5 micrograms per flank organ of a hamster of 17β-hydroxy-6α-methyl-17α-propynyl-4-androsteno[3,2-c]pyrazole in a pharmaceutical formulation suitable for topical application.

4,269,832

METHOD OF TREATING ARTHRITIC DISEASE

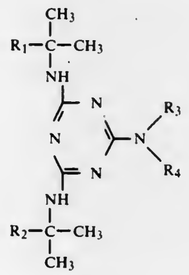
Andrew S. Tomcufcik, Old Tappan, N.J., and Adolph E. Sloboda, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 17,797, Mar. 5, 1979, abandoned, which is a continuation-in-part of Ser. No. 895,572, Apr. 12, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,813

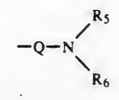
Int. Cl.[3] A61U *27/00, 31/33, 31/53, 31/54*

U.S. Cl. 424—244 **3 Claims**

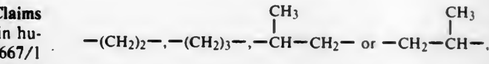
1. The method of inhibiting the progression of arthritis in a mammal which comprises administering to said mammal an effective amount of a compound selected from the group consisting of those of the formula:



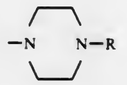
wherein R_1 and R_2 are each individually selected from the group consisting of methyl, tert.-butyl, tert.-amyl, neopentyl and 3,3-dimethylbutyl; R_3 is hydrogen or alkyl having up to 4 carbon atoms; R_4 is selected from the group consisting of tert.-butyl, 1,1,2,2-tetramethylpropyl, 1,1,2,2-tetramethylbutyl, 1,1,3,3-tetramethylbutyl, 1,1,4,4-tetramethylamyl, 2-(2-pyridyl)-ethyl and a moiety of the formula:



wherein Q is a moiety of the formulae:



R_5 and R_6 are each alkyl having up to 4 carbon atoms and R_5 and R_6 taken together with their associated Nitrogen is pyrrolidino, piperidino, morpholino or thiomorpholine; and R_3 and R_4 taken together with their associated Nitrogen is selected from the group consisting of pyrrolidino, piperidino, hexamethyleneimino, heptamethyleneimino and a moiety of the formula:



wherein R is hydrogen, alkyl having up to 4 carbon atoms, phenyl, p-methoxyphenyl or carboalkoxy having up to 4 carbon atoms; and the non-toxic acid-addition and quaternary ammonium salts thereof.

4,269,833

HEXAHYDRO-1,4-OXAZEPINES, THEIR PREPARATION, AND DRUGS CONTAINING THESE COMPOUNDS

Hans J. Treiber, Bruehl; Dieter Lenke, Ludwigshafen, and Wolfgang Worstmann, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

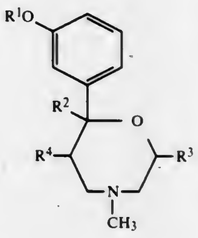
Filed Dec. 31, 1979, Ser. No. 108,370

Claims priority, application Fed. Rep. of Germany, Jan. 13, 1979, 2901180

Int. Cl.[3] C07D *313/04*

U.S. Cl. 424—244 **4 Claims**

1. A hexahydro-1,4-oxazepine of the general formula



I

where

R^1 is hydrogen, or alkyl or acyl each of 1 to 4 carbon atoms,

R^2 is alkyl of 1 to 4 carbon atoms and

R^3 and R^4 may be identical or different and each is hydrogen or methyl,

and its salts with physiologically acceptable acids.

4. The method of alleviating pain in a patient suffering therefrom which comprises administering an effective amount of a compound according to claim 1.

4,269,834

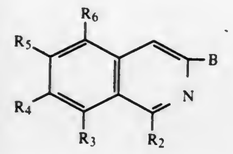
COPPER COMPLEXES OF ISOQUINAZOLINES

Wijbe T. Nauta, Rembrandtlaan 17, Nieuw Loosdrecht, Netherlands

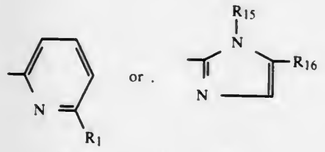
Filed Jun. 19, 1978, Ser. No. 916,541
Claims priority, application United Kingdom, Jun. 17, 1977, 25539/77; Netherlands, Dec. 15, 1977, 7713938
Int. Cl.³ C07F *1/08;* **C07D** *401/04, 403/04;* **A61K** *31/555*
U.S. Cl. 424—245 **16 Claims**

1. A method for combatting mycoplasma-induced diseases in animals, including humans, and plants, comprising treating the animal or plant with a composition containing a carrier acceptable for use for the subject being treated and an effective amount of either

a complex of a copper salt, having an anion substantially harmless to the subject being treated with an organic compound of the formula



wherein B represents a group of the formula



Ia Ib

in which R_1 represents a hydrogen atom or a lower alkyl group, R_{15} represents a hydrogen atom or a lower alkyl or lower alkenyl and R_{16} represents a hydrogen atom or a nitro group,

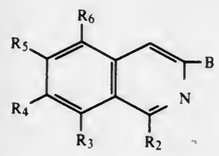
R_2 represents a hydrogen or halogen atom or a lower alkyl, phenyl, amino, lower alkylamino or di(lower alkyl)-amino group, with the proviso that R_2 is hydrogen, halogen, methyl, amino, lower alkylamino or di(lower alkyl)amino when B is a group of formula Ib,

R_3 and R_6 are the same or different and each represents a hydrogen or halogen atom or a lower alkyl group,

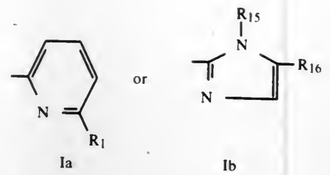
R_4 and R_5 are the same or different and each represents a hydrogen or halogen atom, an alkyl group having at most twelve carbon atoms or a lower alkoxy group, or

with a mixture of the copper salt and the organic compound from which such a complex can be formed in situ.

2. A complex of copper salt, useful for treating mycoplasma induced diseases in plants and animals including humans, said copper salt having an anion substantially harmless to the subject of said treatment and said complex being with an organic compound of the formula



wherein B represents a group of the formula



Ia Ib

in which R_1 represents a hydrogen atom or a lower alkyl group, R_{15} represents a hydrogen atom or a lower alkyl or lower alkenyl group and R_{16} represents a hydrogen atom or a nitro group,

R_2 represents a hydrogen or halogen atom or a lower alkyl, phenyl, amino, lower alkylamino or di(lower alkyl)-amino group, with the proviso that R_2 is hydrogen, halogen, methyl, amino, lower alkylamino or di(lower alkyl)amino when B is a group of formula Ib,

R_3 and R_6 are the same or different and each represents a hydrogen or halogen atom or a lower alkyl group,

R_4 and R_5 are the same or different and each represents a hydrogen or halogen atom, an alkyl group having at most twelve carbon atoms or a lower alkoxy group.

12. An animal feed composition which contains at least one copper complex as defined in claim **2** in association with an animal feed component selected from ground grains, grain by-products, animal protein, vitamins, bone meal, limestone and other inert inorganic compounds.

4,269,835

NASAL COMPOSITION FOR RELIEVING NASAL DISTRESS

Barry J. Whittle, 8770 Sand Point Way NE., Seattle, Wash. 98115

Filed Dec. 13, 1979, Ser. No. 103,208
Int. Cl.³ A61K *31/54, 31/355*
U.S. Cl. 424—247 **8 Claims**

1. A composition for topical application to the nasal passageways which does not employ a vasoconstrictor compound as a decongestant, consisting essentially of a buffered, isotonic aqueous solution containing 0.25 to 0.8 percent by weight of an antihistamine and a saturated amount of one or more of the natural or synthetic isomers of tocopherol or the esters of one of the isomers of tocopherol.

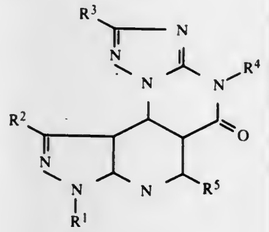
4,269,836

4H-PYRAZOLO[4',3':5,6]PYRIDO[4,3-D][1,2,4]TRIAZOLO[3,2-B]-PYRIMIDIN-5(8H)ONE AND DERIVATIVES THEREOF

Theodor Denzel, Regensburg, and Hans Hoehn, Tegernheim, both of Fed. Rep. of Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Jul. 13, 1976, Ser. No. 704,855
Int. Cl.³ A61K *31/505;* **C07D** *487/22, 265/30, 279/12*
U.S. Cl. 424—246 **18 Claims**

1. A compound of the formula



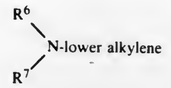
wherein

R^1 is hydrogen, lower alkyl, phenyl, phenyl-lower alkylene, R_8-benzoyl;

R^2 and R^5 each is hydrogen or lower alkyl;

R^3 is hydrogen, lower alkyl, phenyl, lower alkylthio or lower alkylsulfinyl;

R^4 is hydrogen, lower alkyl, phenyl-lower alkylene, R_8-benzoyl, lower alkanoyl, lower alkoxy-lower alkylene, lower alkylthio-lower alkylene, R_8-phenyl, amino-lower alkylene or



wherein R^6 and R^7 each is lower alkyl or together join to complete the heterocycle piperidine, morpholine, thiamorpholine or piperazine;

R_8 is hydrogen, halogen, lower alkoxy or lower alkyl; said lower alkyl, lower alkylene, lower alkoxy and lower alkanoyl groups having up to seven carbon atoms.

18. A method for treating inflammation which comprises administering to a mammal suffering therefrom a composition comprising about 10 to 250 mg. of a compound of claim **1** and a physiologically acceptable carrier therefor.

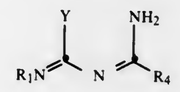
4,269,837

HYPOGLYCEMIC GUANYLAMIDINES, COMPOSITIONS AND USE

David S. Watt, East Lyme, Conn., and Jeffrey L. Ives, King of Prussia, Pa., assignors to Pfizer Inc., New York, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,155
Int. Cl.³ A61K *31/54, 31/155;* **C07D** *295/12;* **C07C** *129/12*
U.S. Cl. 424—246 **46 Claims**

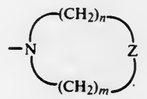
1. A compound of the formula



and the pharmaceutically acceptable acid addition salts thereof,

wherein R_1 and R_4 are each selected from phenyl; phenyl monosubstituted with chloro, bromo, fluoro, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms; benzyl; naphthyl, pyridyl, quinolyl; furyl, thienyl and pyrimidinyl;

and Y is



or $-NR_2R_3$,

wherein

n and m are each 1, 2 or 3, with the proviso that the sum of n and m is from 3 to 5;

Z is CH_2, O, S, SO, SO_2, NH or NCH_3;

and R_2 and R_3 are each selected from n-alkyl of 1 to 4 carbon atoms; alkoxyethyl, wherein said alkoxy group is of 1 to 3 carbon atoms; phenyl; and phenyl monosubstituted with chloro, bromo, fluoro, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms.

41. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and an effective blood-sugar lowering amount of a compound of claim **1**.

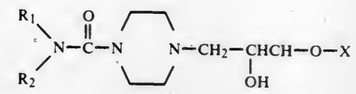
4,269,838

CARBAMYL PIPERAZINE DERIVATIVES

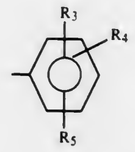
Shingo Matsumura, Kyoto; Hiroshi Enomoto, Nagaokakyo; Yoshiaki Aoyagi, Kyoto, and Haruo Tanaka, Hikone, all of Japan, assignors to Nippon Shinyaku Co. Ltd., Japan

Filed Oct. 23, 1979, Ser. No. 87,363
Claims priority, application Japan, Oct. 23, 1978, 53-130922
Int. Cl.³ C07D *295/20, 31/495*
U.S. Cl. 424—250 **46 Claims**

1. A compound selected from the group consisting of a carbamylpiperazine of the formula:



and the pharmaceutically acceptable acid addition salts thereof wherein each of R_1 and R_2, independently of the other, is hydrogen or lower alkyl, and X is naphthyl or



wherein each of R_3, R_4 and R_5, independently of the others, is selected from the group consisting of hydrogen, hydroxy, halo, lower alkyl, lower alkoxy, lower alkanamido and benzyloxy.

46. A pharmaceutical composition comprising an amount of a compound according to claim **1** sufficient to effect a β-adrenergic blocking response in combination with a pharmaceutically acceptable carrier.

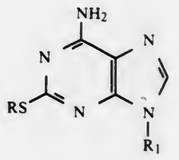
4,269,839

ALKYLTHIO-ADENINES USED AS BRONCHODILATORS

Takayuki Naito, Kawasaki; Susumu Nakagawa, Tokyo; Tetsuro Yamasaki; Taka-aki Okita, both of Ichikawa, and Haruhiro Yamashita, Tokyo, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,848
Int. Cl.³ A61K *31/52*
U.S. Cl. 424—253 **3 Claims**

1. A bronchodilating process which comprises systemic administration to a mammal in need thereof an effective dose of from about 0.1 to 20 mg./kg. body weight of a compound of Formula I



(I)

wherein

R is lower alkyl of 1 to 4 carbon atoms inclusive;

R_1 is cyclohexyl or 2-cyclohexenyl;

or a pharmaceutically acceptable acid addition salt thereof.

4,269,840

CERTAIN 7-(β-PHENYL-β-HYDROXYETHYLAMINOPROPYL)-THEOPHYLLINES AS LIPOLYSIS PROMOTERS

Hugh H. Keasling, Modesto, Calif., assignor to Shell Oil Company, Houston, Tex.

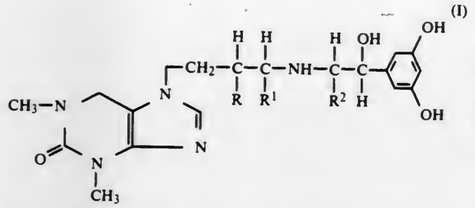
Filed Jan. 14, 1980, Ser. No. 111,736

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ A61K *31/52*

U.S. Cl. 424—253 **1 Claim**

1. A method of promoting lipolysis in swine which comprises administering, to a pig in need of such treatment, orally or parenterally, an effective dosage of a compound of the formula:



(I)

wherein both of R and R^1 are hydrogen, or one is methyl or hydroxyl and the other is hydrogen, and R^2 is hydrogen or methyl, and their physiologically acceptable acid addition salts.

4,269,841

CERTAIN 7-(PHENETHYLAMINOALKYL)THEOPHYLLINE DERIVATIVES AS LIPOLYSIS PROMOTERS

Hugh H. Keasling, Modesto, Calif., assignor to Shell Oil Company, Houston, Tex.

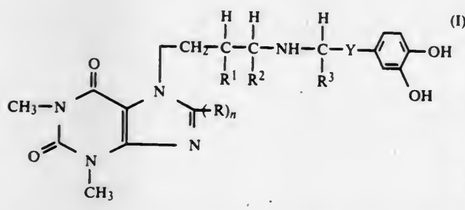
Filed Jan. 14, 1980, Ser. No. 111,737

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ A61K *31/52*

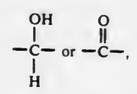
U.S. Cl. 424—253 **1 Claim**

1. A method of promoting lipolysis in swine which comprises administering, to a pig in need of such treatment, orally or parenterally, an effective dosage of a compound of the formula:



(I)

wherein R is 1-piperidinyl, n is zero or one, both of R^1 and R^2 are hydrogen, or one is methyl or hydroxyl and the other is hydrogen, R^3 is hydrogen or methyl, and Y is



and their physiologically acceptable acid addition salts.

4,269,842

METHOD FOR TREATING RHINOVIRAL COMPLAINTS

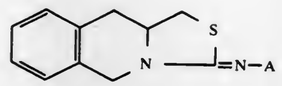
Daniel Farge, Thiais; Alain Jossin, St-Cloud; Gerard Ponsinet, Sucy-en-Brie, and Daniel Reisdorf, Thiais, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Dec. 5, 1979, Ser. No. 100,524

Int. Cl.³ A61K *31/47*

U.S. Cl. 424—258 **6 Claims**

1. A method for treating rhinoviral complaints, which comprises administering to a mammal in need of said treatment an effective anti-rhinoviral amount of a compound of the formula:



(I)

in the S form, in which A is pyrid-3-yl, 2-chloropyrid-3-yl, 2-fluoro-pyrid-3-yl, 2-methoxy-pyrid-3-yl, isoquinol-5-yl, or 3-methylisoquinol-5-yl or a pharmaceutically acceptable salt thereof.

4,269,843

N-SEC-ALKYL ANALOGS OF NORCODEINE AND NORMORPHINE AND ANALGESIC COMPOSITIONS AND METHODS EMPLOYING THE NORMORPHINE DERIVATIVES

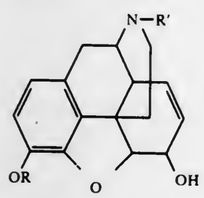
Joseph I. De Graw, Sunnyvale; John A. Lawson, Monte Vista; Howard L. Johnson, Sunnyvale, and Gilda H. Loew, Atherton, all of Calif., assignors to SRI International, Menlo Park and The Board of Trustees of Leland Stanford Jr. University, Stanford, both of, Calif.

Division of Ser. No. 909,257, May 24, 1978, Pat. No. 4,218,454, which is a continuation-in-part of Ser. No. 813,796, Jul. 8, 1977, abandoned. This application Jul. 8, 1980, Ser. No. 166,948

Int. Cl.³ A61K *31/485*; C07D *489/02*

U.S. Cl. 424—260 **9 Claims**

1. Compounds having the structure



wherein R represents hydrogen or methyl and wherein R′ represents 2-butyl, α-methylallyl, or 3-pentyl, together with their pharmaceutically acceptable acid addition salts.

8. A dosage unit for pharmaceutical composition for the amelioration of pain comprising an amount within a range of from about 2 to 1750 mg per dosage unit, therapeutically effective to ameliorate pain, of at least one compound selected from the group consisting of N-2-butylnormorphine, N-α-methylallylnormorphine, N-3-pentylnormorphine and their pharmaceutically acceptable acid addition salts, together with a pharmaceutically acceptable nontoxic carrier or diluent therefor.

9. A method having little addiction potential for ameliorating pain in a warm-blooded animal, said method comprising administering to said animal an amount, effective to ameliorate the pain, of at least one compound selected from the group consisting of N-2-butylnormorphine, N-α-methylallylnormorphine and N-3-pentylnormorphine, together with the salts thereof, said compounds having good antagonist characteristics.

4,269,844

ALKOXYPYRIDYL N-CYANO OR N-CARBAMOYLGUANIDINO ALKANES, COMPOSITIONS CONTAINING SAME AND USES THEREOF

Graham J. Durant; Charon R. Ganellin, both of Welwyn Garden City, and George S. Sach, Welwyn, all of England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

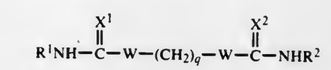
Division of Ser. No. 948,617, Oct. 4, 1978, Pat. No. 4,210,652, which is a division of Ser. No. 816,420, Jul. 18, 1977, Pat. No. 4,139,624. This application Nov. 26, 1979, Ser. No. 97,297

Claims priority, application United Kingdom, Jul. 28, 1976, 31392/76

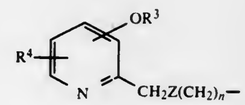
Int. Cl.³ C07D *213/56, 213/57, 213/58*; A61K *31/44*

U.S. Cl. 424—263 **10 Claims**

1. A compound of the formula



wherein X^1 and X^2, which may be the same or different, are each NY where Y is cyano or $CONH_2$; R′ is a grouping of the structure



wherein R^3 is lower alkyl or $-(CH_2)_pA$ where p is 2 to 4, and A is hydroxy, lower alkoxy or dimethylamino; R^4 is hydrogen, lower alkyl, lower alkoxy, amino, halogen, or methylamino; or $-OR^3$ and R^4 can together form a $-O(CH_2)_bO$-group attached to adjacent carbon atoms on the pyridine ring; where b is 1 to 4; Z is sulphur or methylene; n is 2 or 3; R^2 has the same scope as R′ or is a grouping of the structure:

$$Het-(CH_2)_{m'}Z'(CH_2)_{n'}-$$

wherein Het is a nitrogen containing 5 or 6 membered heterocyclic ring selected from the group consisting of imidazole, pyridine, thiazole, isothiazole, oxazole, isoxazole, pyrazole, triazole and thiadiazole which is optionally substituted by lower alkyl, hydroxy, halogen or amino; Z′ is sulphur or methylene; m′ is 0, 1 or 2; n′ is 2 or 3 and the sum of m′ and n′ is 3, 4; W is NH and q is an integer from 2 to 8 or a pharmaceutically acceptable acid addition salt thereof.

9. A method of inhibiting H-2 histamine receptors which comprises administering orally or parenterally to an animal in need thereof in an effective amount to inhibit said receptors a compound of claim 1.

4,269,845

TRIAZOLE AND IMIDAZOLE COMPOUNDS AND THEIR USE AS FUNGICIDES AND PLANT GROWTH REGULATING AGENTS

Paul A. Worthington, and Margaret C. Shephard, both of Maidenhead, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 20, 1978, Ser. No. 901,125

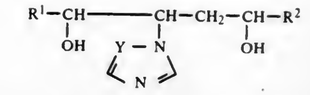
Claims priority, application United Kingdom, Jan. 20, 1977, 2304/77; Oct. 26, 1977, 44540/77

The portion of the term of this patent subsequent to Dec. 19, 1995, has been disclaimed.

Int. Cl.³ A01N *43/50, 43/64*; C07D *233/60, 249/08*

U.S. Cl. 424—269 **12 Claims**

1. A compound of general formula (I):



wherein each of R^1 and R^2, which may be the same or different is $C_{1\text{-}6}$ alkyl, halo ($C_{1\text{-}6}$ alkyl) or phenyl optionally substituted with up to three substituents selected from the class consisting of halogen, nitro, $C_{1\text{-}4}$ alkyl, and $C_{1\text{-}4}$ alkoxy, and Y is =N— or =CH—; or an alkanoate ester, an alkyl, phenyl or benzyl ether, an acid addition salt or a copper, zinc, manganese or iron complex thereof.

9. A method of combating fungal diseases in a plant, the method consisting essentially of the step of applying to the plant, to seed of the plant or to the locus of the plant or seed, a fungicidally effective amount of a compound, alkanoate ester, alkyl, phenyl or benzyl ether, acid addition salt or copper, zinc, manganese or iron complex as claimed in claim 1.

4,269,846

HETEROCYCLIC COMPOUNDS USEFUL AS ANTI-ALLERGY AGENTS

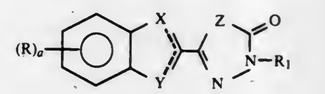
Fu C. Huang, Boonton, N.J., and John H. Musser, Hawthorne, N.Y., assignors to USV Pharmaceutical Corporation, Tuckahoe, N.Y.

Filed Oct. 29, 1979, Ser. No. 89,246

Int. Cl.³ A61K *31/41*; C07D *271/10, 285/12, 249/02*

U.S. Cl. 424—269 **21 Claims**

1. An anti-ailergic compound of the formula



wherein:

the dotted line indicates that the double bond may be in either position;

R is hydrogen, alkyl, alkenyl, alkoxy, alkenyloxy, aryloxy, aralkoxy, halogen, cyano, nitro, carboxy, hydroxy, formyl, carbalkoxy, hydroxyalkyl, amino, alkylamino, trifluoromethyl, mercapto, trifluoromethoxy, alkylthio, or aminoalkyl, wherein the number of carbon atoms in the alkyl and alkenyl moieties is up to 7 and in the aryl moieties is up to 10;

Y is N, N—R_2 or CR_2 wherein R_2 is hydrogen, alkyl or aryl and the number of carbon atoms is up to 7 in said alkyl moiety and is up to 10 in the aryl moiety, with the proviso that when Y is NH, $(R)_a$ is not hydrogen;

a is an integer from 1 to 4;

X and Z are independently O, S, NR_2 or CR_2 wherein R_2 is as defined above, with the proviso that when Y is NR_2, X is not CR_2; and

R_1 is hydrogen, alkyl, aryl, acyl, carbalkoxy, or carbaryloxy, wherein the number of carbon atoms in is up to 7 in the alkyl and aliphatic acyl groups and is up to 10 in the aryl and aromatic acyl groups; and

acid addition salts thereof.

4. A pharmaceutical composition comprising a compound as claimed in claim 1 in a pharmaceutically-acceptable excipient.

4,269,847

ANTIINFLAMMATORY-4,5-DIPHENYL-2-SUBSTITUTED-THIO-IMIDAZOLES AND THEIR CORRESPONDING SULFOXIDES AND SULFONES

Ulrich Niedballa, and Irmgard Böttcher, both of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

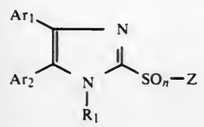
Filed May 22, 1979, Ser. No. 41,367

Claims priority, application Fed. Rep. of Germany, May 24, 1978, 2823197

Int. Cl.³ A61K *31/415;* **C07D** *233/84*

U.S. Cl. 424—273 R **24 Claims**

1. An imidazole derivative of the formula



wherein

Ar_1 and Ar_2 are each phenyl; phenyl substituted by halogen, C_{1-4} alkyl, C_{1-4} alkoxy or C_{2-6} dialkylamino; with the proviso that Ar_1 and Ar_2 are not both unsubstituted phenyl;

R_1 is hydrogen, C_{1-4} alkyl or C_{1-4} alkyl substituted by hydroxy, C_{1-4} alkoxy or C_{1-6} alkanoyloxy;

n is 0, 1 or 2; and

Z is a C_{2-6}-alkenyl residue substituted by one or two of hydroxy, C_{1-4} alkoxy, C_{2-8} alkylenedioxy, C_{1-6} alkanoyloxy or benzoyloxy, or by one alkoxycarbonyl group; or C_{1-6} alkyl substituted by two hydroxy or by one or two of C_{1-4} alkoxy; C_{2-8} alkylenedioxy; C_{1-6} alkanoyloxy or benzoyloxy;

and the salts thereof with physiologically acceptable acids.

24. A method of treating inflammation in a mammal which comprises administering an antiinflammatorily effective amount of a compound of claim **1**.

4,269,848

5-SUBSTITUTED INDAN-2-CARBOXYLIC ACID AND FUNCTIONAL DERIVATIVES

Michel Bayssat, Charbonnieres; Francis Sautel, Lyons; Jean-Claude Depin, Lyons, and Annie B. Matibet, Lyons, all of France, assignors to Lipha, Lyonnaise Industrielle Pharmaceutique, Lyons, France

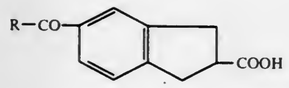
Continuation-in-part of Ser. No. 756,862, Jan. 4, 1977, abandoned. This application Jan. 27, 1978, Ser. No. 873,075

Claims priority, application France, Jan. 12, 1976, 76 00552

Int. Cl.³ B29H *3/04*

U.S. Cl. 424—275 **8 Claims**

1. A 5-substituted indan-2-carboxylic acid, or functional derivative thereof, having the formula:



in which R is selected from the group consisting of furyl, alkylfurl, pyridyl, theinyl, and thienyl substituted by at least one of the substituents selected from the group consisting of halogen atoms and alkyl groups,

in the free form or a therapeutically acceptable salt, ester or amide thereof.

7. A therapeutic composition for combatting inflammation and pain comprising an anti-inflammatory or analgesic amount of a compound in accordance with claim **1** and a pharmaceutically acceptable excipient therefor.

4,269,849

FUNGICIDAL 3-(N-CYCLOALKYLCARBONYL-N-ARYLAMINO)-GAMMA-BUTYROLACTONES AND GAMMA-BUTYROTHIOLACTONES

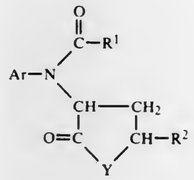
David C. K. Chan, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 13,856, Feb. 22, 1979, which is a continuation-in-part of Ser. No. 847,502, Nov. 1, 1977, abandoned, which is a continuation-in-part of Ser. No. 837,121, Sep. 29, 1977, Pat. No. 4,141,989, which is a continuation-in-part of Ser. No. 731,491, Oct. 12, 1976, Pat. No. 4,107,323, which is a continuation-in-part of Ser. No. 631,351, Nov. 12, 1978, Pat. No. 4,012,519, which is a continuation-in-part of Ser. No. 548,660, Feb. 10, 1975, Pat. No. 3,933,860. This application Dec. 12, 1979, Ser. No. 102,793

Int. Cl.³ A01N *43/02*

U.S. Cl. 424—275 **11 Claims**

1. A compound of the formula



(I)

wherein Ar is phenyl, naphthyl, or phenyl or naphthyl substituted with 1 to 4 of the same of different substituents selected from fluoro, chloro, bromo, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms; R^1 is cycloalkyl of 3 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms substituted with 1 to 4 of the same or different substituents selected from alkyl of 1 to 4 carbon atoms, fluoro, chloro, bromo, hydroxy or alkoxy of 1 to 4 carbon atoms; and R^2 is hydrogen, chloro, bromo, alkyl of 1 to 6 carbon atoms, phenyl or phenyl substituted with 1 to 2 of the same or different substituents selected from fluoro, chloro, bromo and alkyl of 1 to 6 carbon atoms; and Y is S.

8. A method of the control of fungi which comprises contacting said fungi or their habitats with a fungicidally effective amount of a compound of the formula defined in claim **1**.

11. A fungicidal composition comprising a biologically inert carrier and a fungicidally effective amount of a compound of the formula defined in claim **1**.

4,269,850

ENTEROCHELIN COMPLEXES

Henry J. Rogers, Clophill, England, assignor to National Research Development Corporation, London, England

Filed May 2, 1979, Ser. No. 35,415

Claims priority, application United Kingdom, May 5, 1978, 18003/78

Int. Cl.³ A61K *31/335;* **C07D** *323/00*

U.S. Cl. 424—279 **10 Claims**

1. A complex of enterochelin with indium.

2. A complex of enterochelin with scandium.

3. An antibacterial pharmaceutical composition, comprising: an antibacterially effective amount of a complex of enterochelin with indium or scandium.

10. A method of treating bacterial infections in a human or animal patient, which comprises: administering to such patient an antibacterially effective amount of a scandium or indium complex of enterochelin.

4,269,851

8-AMINOALKYL-4-ALKYLPSORALENS

Kurt D. Kaufman, Kalamazoo, Mich., assignor to Thomas C. Elder, Inc., Hamilton, Ind.

Filed Sep. 10, 1979, Ser. No. 73,907

Int. Cl.³ C07D *493/04;* **A61K** *31/365*

U.S. Cl. 424—279 **9 Claims**

1. 4-loweralkyl-8-primaryaminoloweralkypsoralen.

7. The method of effecting photochemical sensitivity on the skin of a mammal comprising the step of orally or topically administering to the said mammal an effective photosensitizing dose of a compound of claim **1**.

4,269,852

4'-SUBSTITUTED-4,5',8-TRIALKYLPSORALENS

Kurt D. Kaufman, Kalamazoo, Mich., assignor to Thomas C. Elder, Inc., Hamilton, Ind.

Filed Sep. 10, 1979, Ser. No. 73,909

Int. Cl.³ C07D *493/04;* **A61K** *31/365*

U.S. Cl. 424—279 **15 Claims**

1. 4'-R-4,5',8-triloweralkylpsorälen, wherein the R substituent on the 4' carbon atom is selected from the group consisting of hydroxyloweralkoxyloweralkyl and N-(hydroxyloweralkyl)aminoloweralkyl.

11. The method of effecting photochemical sensitivity on the skin of a mammal comprising the step of orally or topically administering to the said mammal an effective photosensitizing dose of a compound of claim **1**.

4,269,853

COMPOSITION AND METHOD FOR TREATING SKIN MAST CELLS AND/OR DELAYED CELLULAR HYPERSENSITIVITY REACTIONS

Thomas S. C. Orr, Melton Mowbray, and Raymond W. Keogh, East Goscote, both of England, assignors to Fisons Limited, England

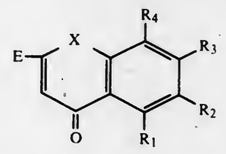
Division of Ser. No. 794,030, May 5, 1977, Pat. No. 6,160,844. This application Mar. 5, 1979, Ser. No. 17,422

Claims priority, application United Kingdom, May 21, 1976, 20986/76

Int. Cl.³ A61K *31/35, 31/41*

U.S. Cl. 424—283 **12 Claims**

1. A pharmaceutical composition suitable for application to the skin for treatment of a condition in a mammal involving skin mast cells and/or delayed cellular hypersensitivity reaction, said composition comprising a pharmaceutical carrier acceptable on the skin of said mammal and, as active ingredient, an effective amount of a compound having the formula,



in which R_1 represents hydrogen or $—NR_5R_6$, in which R_5 and R_6, which may be the same or different, each represent hydrogen or alkyl C 1 to 6,

an adjacent pair of R_2, R_3 and R_4 form a $—(CH_2)_4—$ chain, and the remaining substituent R_2 or R_4 represents propyl,

E represents a 5-(1H)tetrazolyl- or a —COOH group, and

X represents oxygen,

or a pharmaceutically acceptable salt, ester, or amide thereof.

4,269,854

6,7,8,9-TETRAHYDRO-4H-NAPHTHO-[2,3-B]PYRAN-2-CARBOXYLIC ACIDS

Dennis A. Smith, Loughborough, England, assignor to Fisons Limited, Suffolk, England

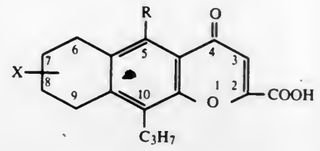
Filed Aug. 10, 1979, Ser. No. 65,542

Claims priority, application United Kingdom, Sep. 12, 1978, 36428/78

Int. Cl.³ C07D *311/92;* **A61K** *31/35*

U.S. Cl. 424—283 **10 Claims**

1. A compound of formula I,



I

in which R is hydrogen, hydroxy, or alkoxy C 1 to 6, and

X is hydroxy, carbonyl oxygen or alkoxy C 1 to 6,

and pharmaceutically acceptable salts, esters and amides thereof.

9. A method of treatment of a condition involving the combination of antibody and specific antigen or involving skin mast cells or a delayed hypersensitivity reaction, which comprises administration of an effective amount of a compound according to claim **1** to a patient suffering from such a condition.

4,269,855

(3-ALKYLAMINO-2-HYDROXYPROPOXY)-FURAN-2-CARBOXYLIC ACID ANILIDES AND PHYSIOLOGICALLY TOLERATED ACID ADDITION SALTS THEREOF AND MEDICAMENTS CONTAINING THEM

Joachim Uhlendorf, Erftstadt-Lechenich; Hans Betzing, Kerpen-Horrem; Hamied Gabbar, Erftstadt-Lechenich; Erich Graf, Kerpen-Horrem, and Ille-Stephanie Doppelfeld, Cologne, all of Fed. Rep. of Germany, assignors to A. Nattermann & Cie. GmbH, Cologne, Fed. Rep. of Germany

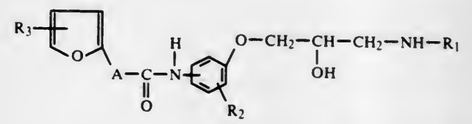
Filed Jun. 3, 1980, Ser. No. 155,953

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1979, 2923817

Int. Cl.³ C07D *307/54, 307/73*

U.S. Cl. 424—285 **5 Claims**

1. (3-Alkylamino-2-hydroxypropoxy)-furan-2-carboxylic acid anilides of the formula:



wherein R_1 is selected from the group consisting of a straight or branched C_1 to C_5 alkyl group, cyclopropyl and cyclopentyl; R_2 is selected from the group consisting of hydrogen, halogen, methyl, methoxy, nitro and acetyl; R_3 is selected from the group consisting of hydrogen, halogen, and nitro; and A is selected from the group consisting of single bond, $—CH_2—$, and $—CH=CH—$; and physiologically tolerated acid addition salts thereof.

5. A method for the treatment or prophylaxis of disorders of the coronary vessels and cardiac arrhythmias which comprises administering to a subject an effective amount of a compound as claimed in claim **1**.

4,269,856

MITE AND MITE OVICIDAL COMPOSITIONS

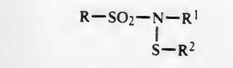
David C. K. Chan, San Francisco, and Arthur A. Whipp, Walnut Creek, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 912,166, Jun. 2, 1978, Pat. No. 4,208,348, which is a division of Ser. No. 760,042, Jan. 17, 1977, Pat. No. 4,107,332. This application Sep. 10, 1979, Ser. No. 74,358

Int. Cl.³ A01N *9/16*

U.S. Cl. 424—321 **6 Claims**

1. A mite ovicidal composition comprising a biologically inert carrier and an ovicidally effective amount of a compound of the formula:



wherein one R or R^1 group is cycloalkyl of 5 to 8 carbon atoms substituted with up to 2 alkyl of 1 to 4 carbon atoms or alkenyl of 3 to 6 carbon atoms and the other R or R^1 group is alkyl of 1 to 6 carbon atoms, alkenyl of 3 to 6 carbon atoms, or phenyl or benzyl substituted with up to 2 of the same or different substituents selected from the group consisting of fluoro, chloro, bromo, trifluoromethyl, trichloromethyl, tribromomethyl and alkenyl of 1 to 2 carbon atoms; and R^2 is tetrachlorethyl.

4,269,857

CONTROL OF PLANT-VIRUS DISEASES

Takuro Tokuda; Susumu Ikeda; Yoshikazu Kubota; Tutomu Takagi, and Yuuichi Kokagi, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

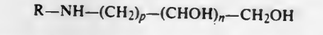
Filed Oct. 19, 1979, Ser. No. 86,441

Claims priority, application Japan, Nov. 2, 1978, 53-135382

Int. Cl.³ A61K *31/13, 31/70*

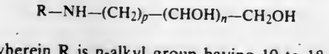
U.S. Cl. 424—325 **15 Claims**

1. A method of controlling a plant virus disease occurring on a plant which comprises applying an effective amount of a chemical compound represented by the formula:



wherein R is n-alkyl group having 10 to 18 carbon atoms, p represents an integer of one or two and n represents an integer of three or four, provided p+n equals four or five, or of a salt thereof onto the plant to be protected from the plant virus disease.

4. A composition for controlling a plant virus disease comprising an effective amount of at least one substance selected from the group consisting of compounds having the formula:



wherein R is n-alkyl group having 10 to 18 carbon atoms, p represents an integer of one or two and n represents an integer of three or four, provided p+n equals four or five, and salts thereof, and at least one member selected from the group consisting of carriers, diluents, spreaders and other adjuvants which are applicable to an agricultural chemical.

4,269,858

ANTIHYPERTENSIVE METHOD

John F. DeBernardis, Lake Villa, and John J. Kyncl, Lake Forest, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Apr. 28, 1980, Ser. No. 144,742

Int. Cl.³ A61K *31/135*

U.S. Cl. 424—330 **6 Claims**

1. The method of lowering elevated blood pressure in warm-blooded animals consisting essentially in orally administering to a hypertensive animal an antihypertensively effective amount of 2-fluorononepinephrine.

4,269,859

CELLULOSE FLOC GRANULES AND PROCESS

Erwin E. Morse, Berlin, N.H., assignor to Brown Company, Kalamazoo, Mich.

Filed Apr. 19, 1979, Ser. No. 31,544

Int. Cl.³ A61K *9/20, 47/00*

U.S. Cl. 424—362 **34 Claims**

1. A substantially dry process for producing cellulose granules having a particle size as follows:

less than five percent (5%) on a 35 mesh (Tyler) screen;

less than thirty percent (30%) through a 100 mesh screen;

and less than five percent (5%) through a 200 mesh screen, as measured on a sifter using a 25 gram sample and with a sieving time of 25 minutes, said cellulose granules consisting essentially of substantially dry compacted, granulated, and screened cellulose consisting essentially of cellulose fibers, which comprises the steps of substantially dry compacting cellulose powder or floc, wherein the cellulose fibers have an average length on their largest dimension of between about 20 and about 55 microns, by the application of pressure into a dense sheet of compacted cellulose, breaking the sheet up into granules of cellulose by substantially dry granulation, and classifying the granules by passage through one or more sieves to yield the desired cellulose granules having the aforesaid predetermined size ranges.

4,269,860

PROCESS FOR PREPARING A GAS-DEVELOPING CHEWING GUM

Koichi Ogawa, Tokyo; Masatoshi Terasawa, Tokorozawa; Shizuo Iwata, Tama; Yoshihisa Suzuki, Kawasaki, and Hideki Tanakamaru, Urawa, all of Japan, assignors to Lotte Co. Ltd., Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,934

Claims priority, application Japan, Sep. 21, 1979, 54-120706

Int. Cl.³ A23G *3/30*

U.S. Cl. 426—5 **3 Claims**

1. A process for preparing a gas-developing chewing gum comprising the steps of granulating as a basic component 92 to 97 parts by weight of a salt selected from the group consisting of carbonate, bicarbonate salt and mixtures thereof, together with 0.5 to 2.0 parts by weight of a constituent selected from the group consisting of sodium sulfate and anhydrous sodium sulfate and mixtures thereof, and with 0 to 5 parts by weight of a constituent selected from the group consisting of polyphosphates, sugars and organic acid salts and mixtures thereof; admixing 5 to 50 parts by weight of said granulated basic component with 50 to 95 parts by weight of an acidic component selected from the group consisting of fruit acid, fruit powder, sugar, flavoring agent and mixtures thereof to form a gas-developing composition; and thereafter

introducing 5 to 20 parts by weight of said composition into 80 to 95 parts by weight of a chewing gum.

4,269,861

PROCESS FOR PREPARING FRENCH FRIED POTATOES AND APPARATUS

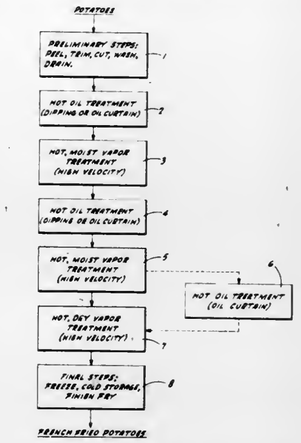
Andrew A. Caridis, Foster City; Clark K. Benson, Millbrae; Steven G. Leary, San Mateo, and Arthur A. Nilsen, San Francisco, all of Calif., assignors to Heat and Control, Inc., So. San Francisco, Calif.

Filed Feb. 21, 1979, Ser. No. 13,461

Int. Cl.³ A23L *1/216*

U.S. Cl. 426—438 **8 Claims**

1. In a process for preparing pre-fried french fry potatoes in which potatoes are first peeled, trimmed, cut into french fry strips and then washed, the steps comprising: immersing the strips in a hot oil bath at a temperature of between 250° F. and 350° F. for a period of about 15 to 35 seconds to increase the weight of the potato strips by about 2% to about 5% of the original weight of the potato strips, exposing the potato strips to a hot, moist, process vapor having a moisture content of between 60 to 65% and a temperature of about 300° F. to about 400° F. for a period of time of about 1½ to 3½ minutes; again treating the potato strips with hot oil within the initial temperature and time limitations specified above; repeating the vapor treatment step in which the strips are exposed to hot moist process vapor within the moisture, temperature and time limitations specified above; again treating the potato strips with



hot oil under substantially the same conditions; and exposing the potato strips to a hot, dry atmosphere at about 300° F. to 400° F. for a period of time of about 3 to 6 minutes serving to reduce both the moisture and oil content of the potato strips to about 23 to 31% moisture and to about 3 to 7% oil, whereby the strips may then be frozen and later finished fried for about 1½ to 3 minutes in an oil bath at a temperature from 300° F. to about 375° F. or oven reconstituted to produce french fried potatoes products which resemble in quality, color, texture and flavor french fried potatoes prepared directly from fresh potato stock.

4,269,862

USE OF 1,3,5,5-TETRAMETHYL-2-OXABICYCLO[2.2.2]OCTANE IN AUGMENTING OR ENHANCING THE AROMA OR TASTE OF FOODSTUFFS

Mark A. Sprecker, Sea Bright; Frederick L. Schmitt, Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 953,128, Oct. 20, 1978, Pat. No. 4,195,099. This application Sep. 21, 1979, Ser. No. 77,539

The portion of the term of this patent subsequent to Mar. 25, 1997, has been disclaimed.

Int. Cl.³ A23L *1/226*

U.S. Cl. 426—536 **2 Claims**

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising adding to a foodstuff from 0.02 parts per million up to about 500 parts per million based on said foodstuff of 1,3,5,5-tetramethyl-2-oxabicyclo[2.2.2]octane having the structure:



4,269,863

STARCH AND AGAR CONTAINING NOODLES AND PROCESS OF PREPARING

Kaoru Inagami, Tokyo; Kazutaka Ohmura, Asaka; Masao Haruna, Tokyo, and Takeshi Terabayashi, Hino all of Japan, assignors to Calpis Shokuhin Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1979, Ser. No. 85,421

Claims priority, application Japan, Jun. 12, 1979, 54-73073

Int. Cl.¹ A23L *1/16;* **A21D** *2/36;* **A23L** *1/04, 1/195*

U.S. Cl. 426/575 **18 Claims**

1. A method for the production of a low-caloric noodle comprising the steps of preparing a sol mixture having a composition of 100 parts by weight of water, 0.7 to 3.5 parts by weight of agar and 10 to 40 parts by weight of starch, containing the agar in a dissolved state and the starch in an ungelatinized state and exhibiting a viscosity of 100 to 6500 cp at 55° C. and subsequently shaping the sol mixture by extrusion through an orifice.

4,269,864

MILK REPLACER FOR CARAMELS

Dominick J. Chirafisi, Bronx, and Nicholas Melachouris, White Plains, both of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 974,207, Dec. 28, 1978, abandoned, which is a continuation of Ser. No. 859,409, Dec. 12, 1977, abandoned, which is a continuation-in-part of Ser. No. 700,285, Jun. 28, 1976, abandoned. This application Sep. 10, 1979, Ser. No. 74,218

Int. Cl.³ A23C *21/00, 11/00;* **A23G** *3/32*

U.S. Cl. 426—583 **28 Claims**

1. A milk solids replacer for caramels consisting essentially of:

(a) from about 35% to about 45% by weight dry whey solids;

(b) from about 8% to about 12% by weight sodium or calcium caseinate; and

(c) whey protein concentrate having from about 24% to about 40% protein based on the total weight of the concentrate in an amount sufficient to provide the remainder and to provide whey protein in an amount of from about 13.75% to about 17.25% by weight, said whey protein concentrate being prepared by processing whey to concentrate the protein therein or by diluting a whey protein concentrate having a protein content higher than 40%;

all percentages, unless otherwise specified, being by weight based on the total combined weight of said dry whey solids, said caseinate and said concentrate.

4,269,865

PROCESS FOR THE PRODUCTION OF A FOOD PRODUCT FROM FEATHERS

Rowland Retrum, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

Continuation of Ser. No. 922,934, Jul. 10, 1978, abandoned. This application Oct. 12, 1979, Ser. No. 84,345

Int. Cl.³ A23J *3/00*

U.S. Cl. 426—657 **3 Claims**

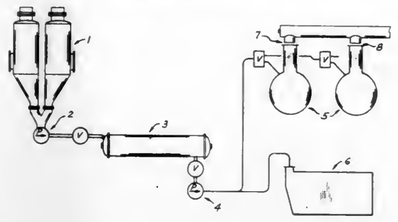
1. A process for the conversion of feathers into a food product comprising:

a. subjecting moistened feathers in a closed tank to a pressure of 15–40 psig and elevated temperature without agitation for at least about 5 minutes but less than about 15 minutes to form a pumpable pulpy mass of feathers;

b. pumping the pulpy mass to a digester

c. agitating the pulpy mass of feathers in the digester at a pressure greater than the pressure in step (a) and in the range of 40–80 psig for at least about 3 minutes but less

than about 15 minutes to hydrolyze and digest the feathers to convert the mass of feathers into a highly nutritious



food product having greater than about 70% digestible protein.

4,269,866

COATING COMPOSITION HAVING A WATER-DILUTABLE MALEINIZED OIL BASE, PROCESS FOR THE APPLICATION AND BAKING THEREOF

Gerhard Günter, Ettlingen, and Hartmut Haeufler, Aldingen, both of Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Filed Feb. 15, 1980, Ser. No. 121,792

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 7901275

Int. Cl.³ B05D *1/06*

U.S. Cl. 427—27 **14 Claims**

1. A coating composition based on a water-dilutable maleinized oil, characterized in that it contains a binder made up of 30–95% by weight of the water-dilutable maleinized oil and 5–70% by weight of a solid particulate epoxy group-containing compound having a number average molecular weight of at least 1000 and an epoxy equivalent weight in the range of 450 to 7500, the percentages by weight being calculated on the sum of the two solvent-free components, and said solid particulate epoxy group-containing compound having an average particle size of about 0,5 to 35 μm.

4,269,867

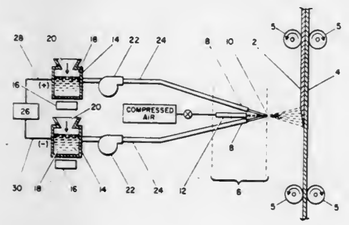
METALLIZING OF A CORRODIBLE METAL WITH A PROTECTIVE METAL

Kenneth J. Altorfer, Greenwich, Conn., and Daniel R. Marantz, Port Washington, N.Y., assignors to Texasgulf Inc., Stamford, Conn.

Filed Sep. 4, 1979, Ser. No. 72,117

Int. Cl.³ B05D *1/02;* **B05B** *5/06;* **C23C** *7/00*

U.S. Cl. 427—37 **20 Claims**



1. Apparatus for spray metallizing a substrate comprising:
at least two electrically isolated containers for holding molten metal to be sprayed;
a pair of nozzles for causing two streams of molten metal to converge at a point adjacent to the surface to be metallized;
a spray nozzle behind the point of convergence of the two streams for supplying gas to the streams at the point of convergence for propelling the metal from the point of convergence to the surface to be metallized;
conduits for conveying molten metal from the containers to each of the pair of nozzles;
means for causing a molten metal to flow from a container through a conduit to a nozzle; and
a power supply for electrifying the streams of molten metal to cause an arc at the point of convergence.

4,269,868

APPLICATION OF METALLIC COATINGS TO METALLIC SUBSTRATES

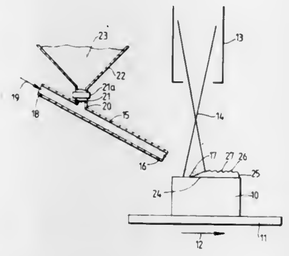
Norman B. Livsey, Colne, England, assignor to Rolls-Royce Limited, London, England

Filed Feb. 25, 1980, Ser. No. 125,022

Claims priority, application United Kingdom, Mar. 30, 1979, 11294/79

Int. Cl.³ C23C *17/00*

U.S. Cl. 427—53.1 **7 Claims**



1. A method of applying a metallic coating to a metallic substrate comprising:
(a) simultaneously directing a laser beam and a gas stream containing entrained particles of the metallic coating material on to the same area of the substrate so that said laser beam melts said particles forming a molten pool of said metallic coating material in the area of impingement of said laser beam upon said substrate, and
(b) effecting relative movement between said laser beam and substrate while continuing to direct said particle carrying gas stream on to the area of laser beam impingement so that said area of laser beam impingement and hence a pool of said molten metallic coating material traverses said substrate at a rate such that fusion takes place between said substrate and said molten coating material.

4,269,869

METHOD FOR IMPROVING SURFACE PROPERTIES OF POROUS INORGANIC MATERIAL BY COATING

Yasushi Morohashi, Tokyo; Yasuji Komatsu, Hoya; Toshiaki Hanyuda, Yokohama; Eiichiro Takiyama, Kamakura; Tohei Horishima, Koganei, and Kenji Sugimoto, Chigasaki, all of Japan, assignors to Showa Highpolymer Co., Ltd. and Taisei Corporation, both of Tokyo, Japan

Filed Nov. 20, 1979, Ser. No. 96,167

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—54.1 **10 Claims**

1. A method for improving the surface properties of a porous inorganic material which comprises
applying to said material at least one coating of an infiltratable light-curable paint having a viscosity of 0.5 to 300 poise, allowing the first coating of said paint to infiltrate into said material and exposing the paint to ultraviolet radiation so that the depth of infiltration of paint into the porous inorganic material is from 5 to 5000 microns, at least the outermost paint coating being an infiltratable light-curable paint consisting essentially of unsaturated spiroacetal resin.

4,269,870

SOLDER FLUX AND METHOD

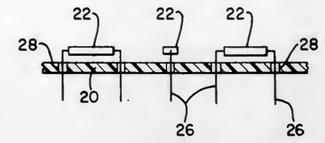
Kenneth G. Boynton, Milford, N.H., assignor to Cooper Industries, Inc., Houston, Tex.

Division of Ser. No. 469,536, May 13, 1974, Pat. No. 3,973,322.

This application Feb. 2, 1976, Ser. No. 654,366

Int. Cl.³ H05K *3/34*

U.S. Cl. 427—96 **14 Claims**



1. A method of mass fluxing electrical and electronic components assembled in a perforated circuit board, said board having adjacent at least some of its perforations a metallic pattern to which the component leads can subsequently be joined by solder, and wherein the component leads extend through at least some of the perforations in said board, said method comprising applying to said leads and metallic pattern a flux active agent intermixed in a meltable material, said meltable material having the characteristics of being compatible with said solder and flux active agent, of having a melting point below that of said solder, and of being capable of forming a solid matrix in which said leads and metallic pattern are retained in a fixed relationship.

4,269,871

ANTILUMPING EXPANDABLE STYRENE POLYMERS

Elizabeth A. Blommers, Monroeville; William J. Poole, and Alvin R. Ingram, both of Murrysville, all of Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed Jun. 30, 1980, Ser. No. 164,442

Int. Cl.³ C08J *9/14*

U.S. Cl. 427—222 **4 Claims**

1. In a process for making expandable styrene polymer particles by suspending styrene polymer particles in water containing a suspending agent, heating the suspension to a temperature between 60° and 150° C., and thereafter impregnating said particles with a blowing agent, the improvement comprising dissolving 0.04 to 0.25 weight percent based on the polymer particles of a conjugated diene elastomer in a portion or all of the blowing agent, adding the solution of elastomer and the remaining blowing agent, it any, to the suspended polymer particles to impregnate the particles with blowing agent and coat the particles with elastomer, whereby the final particles have reduced lumping during pre-expansion with heat.

4,269,872

METHOD OF PRODUCING AN EROSION RESISTANT SURFACE

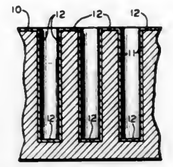
John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., City of Commerce, Calif.

Division of Ser. No. 50,920, Jun. 21, 1979. This application Mar. 26, 1980, Ser. No. 134,049

Int. Cl.³ C23C *13/04*

U.S. Cl. 427—239 **6 Claims**

1. The method of reducing erosion of a surface subject to contact by a high velocity fluid containing abrasive particulates, comprising the steps of: forming a closely spaced series of depressions in said surface, each said depression having walls normal to the surface and a depth substantially in excess of the width of the depressions; and applying an erosion resistant coating to the remaining portions of said surface and to all surfaces of said depressions, whereby the erosion of the erosion



resistant coating from said surface creates a multitude of closely spaced, parallel walled columns having unprotected outer surfaces and side walls of erosion resistant material.

4,269,873

2-, 5-, AND 6-SUBSTITUTED-1-CARBADETHIAPEN-2-EM-3-CARBOXYLIC ACIDS

Burton G. Christensen, Scotch Plains; David B. R. Johnston, Warren, and Susan M. Schmitt, Scotch Plains, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

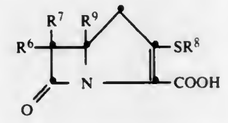
Filed Jul. 25, 1979, Ser. No. 60,552

The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.

Int. Cl.³ C07D *487/04;* **A61K** *31/40*

U.S. Cl. 424—274 **7 Claims**

1. A compound having the structure:



and the pharmaceutically acceptable salts thereof; wherein R^6 is selected from the group consisting of hydrogen and loweralkyl; R^7 is selected from the group consisting of: hydroxyloweralkyl which may be substituted with cycloloweralkyl, phenyl, trifluoromethyl, dioxolane, carboxyl, methyltetrazole and aminomethylphenyl and aminoloweralkyl; R^8 is selected from the group consisting of hydrogen, loweralkyl which may be substituted with amino, formamidino, acetamidino, guanidino, loweralkanoyl, hydroxy, halo and morpholane, phenyl which may be substituted with aminomethyl, formamidinomethyl and acetamidinomethyl, methylthiadiazole, methyltetrazole, pyridine, aminomethylthiadiazole and aminomethyltetrazole; and R^9 is selected from the group consisting of loweralkyl, cycloloweralkyl, cycloloweralkylloweralkyl, phenyl, halophenyl, loweralkoxyphenyl and trifluoromethyl; and wherein R^7 is not 1-hydroxyethyl when R^6 is hydrogen and R^8 is 2-aminoethyl.

7. An antibiotic pharmaceutical composition comprising a therapeutically effective amount of a compound according to claim 1 and a pharmaceutical carrier therefor.

4,269,874

METHOD AND APPARATUS FOR MARKING PARTS

Timothy R. Pryor, Tecumseh; David M. Alway, and Omer L. Hageniers, both of Windsor, all of Canada, assignors to Diffracto Ltd., Windsor, Canada

Filed Aug. 8, 1979, Ser. No. 64,866

Int. Cl.³ B05D *1/32*

U.S. Cl. 427—282 **14 Claims**

1. A method of marking an object comprising:
(a) providing means for forming a spray of marking liquid;
(b) providing a rotatable stencil member adjacent said spraying means for receiving said spray of marking liquid, said

stencil member having at least one opening therein forming at least one stencil character;
(c) positioning an object to be marked adjacent said stencil member;
(d) positioning said stencil member such that a stencil character is interposed between said spraying means and said object;
(e) spraying said marking liquid to form said spray to mark the object with a mark corresponding to said stencil character; and
(f) periodically rotating said stencil member sufficiently rapidly to effect removal of marking liquid therefrom by centrifugal force.

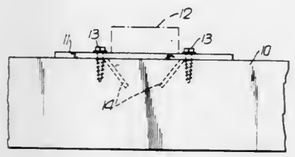
14. Apparatus for marking objects comprising:
(a) means for forming a spray of marking liquid;
(b) a rotatable stencil member positioned adjacent said spraying means for receiving said spray of marking fluid, said stencil member having at least one opening therein forming at least one stencil character;
(c) means for positioning an object to be marked adjacent said stencil member;
(d) means for automatically rotating said stencil member such that a stencil character is interposed between said spraying means and said object;
(e) means for spraying said marking liquid substantially horizontally to form said spray to mark the object with a mark corresponding to said stencil character;
(f) means for periodically rotating said stencil member such that a portion thereof bearing marking liquid is moved through a body of cleaning liquid at a marking liquid removal location for removal of marking liquid therefrom; and
(g) means for minimizing relative motion of said object and stencil member during step (e).

4,269,875

METHOD OF PRESERVING TIMBER

Carl C. Bechgaard, Vejle, Denmark, and Joseph Dulat, Fetcham, England, assignors to Wood-Slimp GmbH, Chur, Switzerland

Continuation of Ser. No. 899,884, Apr. 25, 1978, abandoned. This application Oct. 31, 1979, Ser. No. 89,722
Int. Cl.³ B05D *3/12;* **B27K** *3/16*
U.S. Cl. 427—291 **15 Claims**



1. A method of preserving timber from decay liable to be induced in the presence of moisture, which comprises forming at least one cavity in the timber and inserting in each such cavity one or more solid elements wherein each element consists of a water-soluble wood-preservative compound or composition which is solid at ambient temperatures and fused into a monolithic body shaped to substantially fit the cavity.

4,269,876

TREATMENT OF CARBON FIBRE

David J. Lind, Breadsall; Valerie J. Coffey, Long Eaton, and Joyce Hallam, Milford, all of England, assignors to Rolls-Royce Limited, London, England

Division of Ser. No. 948,293, Aug. 29, 1978. This application May 14, 1980, Ser. No. 149,930
Claims priority, application United Kingdom, Oct. 4, 1977, 41140/77
Int. Cl.³ B05D *3/10, 3/00*
U.S. Cl. 427—309 **2 Claims**

1. In a method of incorporating carbon fibers in a resin matrix with enhanced strength thereof, the improvement comprising the steps of:
(1) subjecting the fiber to a surface removal step in which the surface layer of the fiber is removed together with any flaws therein to leave functional groups on the thus-exposed surface of said fiber and subsequently
(2) deactivating the fiber surface wherein at least some of the functional groups on the thus-exposed surface of said fiber are rendered incapable of forming a chemical bond with said resin matrix by coating said fiber with a polymer which is incapable of forming a chemical bond with either the functional groups on said thus-exposed fiber surface or said resin matrix material and wherein said polymer coating provides a physical barrier to chemical bonding between such functional groups on said thus exposed fiber surface and said resin matrix material.

4,269,877

AROMATIC TRIAZOLE, PRECIPITATION COMPOUND AND OXIDIZING COMPOUND FOR INCREASED SURFACE PROTECTION AND IMPROVED ADHESION OF BRASS COATED STEEL TO RUBBER

Robert M. Shemenski, Sr., North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 567,586, Apr. 14, 1975. This application Sep. 25, 1975, Ser. No. 616,704
Int. Cl.³ B05D *3/02, 3/00;* **B29H** *17/08, 17/10*
U.S. Cl. 427—327 **2 Claims**

1. A method of improving the ability of a brass coated steel tire cord to adhere to rubber after vulcanization comprising cleaning the brass coated steel tire cord, treating the clean tire cord with benzotriazole and (A) cyclohexylamine borate and zinc chromate or (B) zinc chromate and then drawing said cord.

4,269,878

STAND STRUCTURE

Harry N. Boström, Box 805, Borlange, Sweden

Filed Jun. 25, 1979, Ser. No. 51,647
Int. Cl.³ A47G *1/16;* **G08B** *3/00;* **G10K** *1/068*
U.S. Cl. 428—11 **2 Claims**



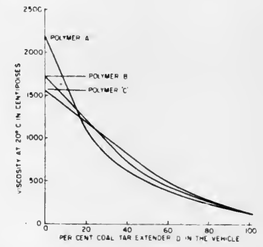
1. Stand structure, comprising a base portion, a pillar projecting from said base portion, a bracket projecting sideways from said pillar and at least one vertically extending journalling shaft having a journalling end and a lower end, said bracket comprising two preferably identical parts or members each having an elongated indentation projecting from an end surface thereof said parts being superimposed in a reversed manner such that said indentations together define an opening preferably having a circular section, said journalling shaft being inserted into the opening so defined, the pillar and the bracket further having cooperating means to keep the bracket parts pressed against each other and hold said lower end of the journalling shaft clamped between said bracket parts, wherein the pillar is a tubular member which has in one end thereof diametrically opposite guide means each one having guiding surfaces located at a distance from each other in the circumferential direction of the bar or tubular member corresponding to the thickness of the assembled bracket, said bracket preferably in an opposite end surface having a punched out portion said parts being superimposed in a reversed manner such that said punched portions are in register with each other and the end of the bar or tubular member provided with said guiding surfaces is inserted into the punched out portions of the bracket such that the edge portions of the bracket parts surrounding the punched out portions preferably by frictional force are kept between the guiding surfaces of said bar or tubular member, wherein the bracket in the assembled form defines a star having arms extending therefrom.

4,269,879

SOLVENTLESS EPOXY-BASED COATING COMPOSITION, METHOD OF APPLYING AND ARTICLE COATED THEREWITH

Murray L. Davis, Boxford, Mass., assignor to The Dampney Company, Everett, Mass.

Filed Apr. 20, 1979, Ser. No. 31,840
Int. Cl.³ F16L *9/02, 9/08*
U.S. Cl. 428—36 **25 Claims**



1. A coating composition having a viscosity less than about 1000 cps. which is substantially free of volatile solvent consisting essentially of:
(a) an epoxy fraction consisting of polyphenol epoxy resins and mixtures thereof; and,
(b) a curing fraction consisting essentially of:
(1) about 20–80 wt.-% based on the total coating composition of a non-volatile, aromatic extender selected from the group consisting of coal tar, distillates of coke and petroleum with boiling points above about 200° C., and mixtures thereof;
(2) an amine curing agent having a molecular weight of about 200–600 selected from the group consisting of:
(i) cycloaliphatic diamines having a single amine group directly attached to a single ring structure and the other amine group directly attached to a carbon atom in an aliphatic chain or to a second ring structure;
(ii) polyamines having polyaliphatic oxide back-bones; and,
(iii) mixtures thereof; and,
(3) a curing accelerator selected from the group consisting of tertiary amines.

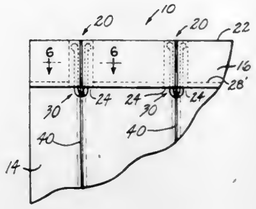
24. An article comprising a metal or concrete conduit coated along at least one surface with a coating composition consisting essentially of the reaction product of:
(a) an epoxy fraction consisting essentially of polyphenol epoxy resins; and,
(b) a curing fraction consisting essentially of an amine curing agent and from about 20–80 wt.-% based on the total coating composition of a non-volatile, aromatic extender wherein said amine curing agent has a molecular weight of about 200–600 and is selected from the group consisting of:
(i) cycloaliphatic diamines having a single amine group directly attached to a single ring structure and the other amine group directly attached to a carbon atom in an aliphatic chain or to a second ring structure;
(ii) polyamines having polyaliphatic oxide back-bones; and,
(iii) mixtures thereof;
and said aromatic extender is selected from the group consisting of coal tar, distillates of coke and petroleum with boiling points above about 200° C. and mixtures thereof.

4,269,880

DISPOSABLE SELF-PLEATING DRAPES AND METHOD FOR MAKING SAME

Debra A. Nalepka, 25 Woodland Dr., Avon, Conn. 06001

Filed Jan. 13, 1978, Ser. No. 869,166
Int. Cl.³ A47H *23/08*
U.S. Cl. 428—43 **18 Claims**



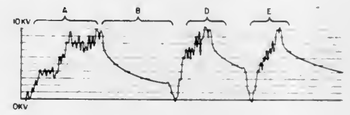
1. A disposable self-pleating drape for use with a plurality of drapery hooks each having at least two spaced parallel prongs, said drape comprising a single piece of disposable material including a sheet defining the body of the drape, an elongated pleating strip having an upper edge integrally connected to the upper edge of said sheet along a common fold line defining the upper edge of said drape and extending along a longitudinally disposed upper marginal portion of the sheet in overlying relation therewith, and means connecting said pleating strip in direct face-to-face relation to said upper marginal portion of said sheet along longitudinally spaced and transversely extending lines of attachment to define prong receiving pockets at a longitudinally spaced series of pleating locations, said connecting means cooperating with said pleating strip and said upper marginal portion at each of said pleating locations to define at least two longitudinally spaced prong receiving pockets defining prong receiving openings between the lower edge of said pleating strip and associated position of said sheet, said prong receiving openings at each of said pleating locations being longitudinally spaced apart a distance substantially greater than the distance between the two spaced parallel prongs of an associated drapery hook.

4,269,881

ANTI-STATIC MATS AND CARPETS

Donald C. Johnson, Fremont, and Walter L. Burdorf, Port Clinton, both of Ohio, assignors to Ludlow Corporation, Needham Heights, Mass.

Filed Oct. 18, 1976, Ser. No. 733,136
Int. Cl.³ B32B *5/18*
U.S. Cl. 428—95 **15 Claims**



1. Carpet product adapted to minimize the static voltage on a person using the carpet, said carpet comprising
(a) a facing yarn comprising some electrically conductive fibers therein.
(b) a tufting substrate forming means to hold said facing yarn and formed of a fabric having a maximum resistivity of 300,000 ohms per square
(c) a polymer-based backing adherent and adjacent to said tufting substrate, said backing itself having a layer of

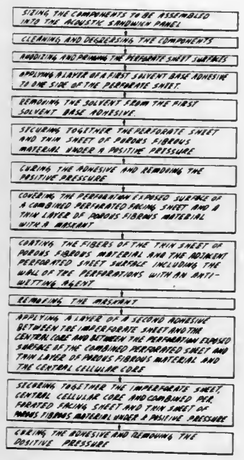
low-density polymeric foam of high electrical resistivity adherent thereto, said foam forming the bottom of said carpet product and wherein said backing has a minimum volume resistivity of about 5×10^{10} ohm-cm^{-1}

4,269,882

METHOD OF MANUFACTURING OF HONEYCOMB NOISE ATTENUATION STRUCTURE AND THE STRUCTURE RESULTING THEREFROM

Robert M. Carrillo, San Bernardino, and Muriel L. Koss, Arlington, both of Calif., assignors to Rohr Industries, Inc., Chula Vista, Calif.

Filed Oct. 29, 1979, Ser. No. 88,949
Int. Cl.³ B32B *3/12, 31/12*
U.S. Cl. 428—116 **4 Claims**



1. A process for manufacturing an improved acoustic sandwich panel for attenuating a wide range of noise frequencies which is suitable structurally for use in a severe environment, said sandwich panel including a central cellular core positioned between an imperforate facing sheet and a perforated facing sheet having a plurality of perforations therethrough, the opposite side of the perforated sheet from said central cellular core having a single thin layer of porous fibrous material bonded thereto wherein a predetermined flow through resistance from the outer surface of said sandwich panel to cells of said central cellular core is established, the steps of the process comprising:

(a) cleaning and degreasing the imperforate sheet, central cellular core, perforate facing sheet and single thin layer of porous fibrous material;

(b) applying a non-conductive coating on the perforate sheet surfaces;

(c) applying a layer of a solvent base first adhesive to one side of the perforated sheet;

(d) removing the solvent from the layer of said solvent base first adhesive;

(e) securing together the solvent base first adhesive coated surface of the perforate sheet and the thin sheet of porous fibrous material under a positive pressure;

(f) curing the solvent base first adhesive and removing the positive pressure;

(g) covering the perforation exposed surface including the perforations of the combined perforated facing sheet and single thin sheet of porous fibrous material with a maskant;

(h) coating the fibers of the thin sheet of porous fibrous material and the perforated sheet surface adjacent thereto with an anti-wetting agent;

(i) removing the maskant;

(j) applying a layer of a second adhesive between the imperforate sheet and the central cellular core and between the perforation exposed surface of the combined perforated sheet and thin layer of porous fibrous material and the central cellular core;

(k) securing together the imperforate sheet, central cellular core and combined perforated facing sheet and thin single sheet of porous fibrous material under a positive pressure; and

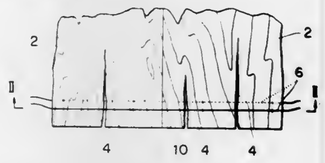
(l) curing the second adhesive and removing the positive pressure.

4,269,883

REINFORCED VENEER AND METHOD OF REINFORCING A VENEER SHEET

Katsuji Hasegawa, Ohbu, Japan, assignor to Meinan Machinery Works, Inc., Ohbu, Japan

Filed Aug. 3, 1979, Ser. No. 63,533
Claims priority, application Japan, Aug. 17, 1978, 53-100731
Int. Cl.³ B32B *21/10, 21/14;* **B27D** *5/00*
U.S. Cl. 428—120 **27 Claims**



1. A reinforced veneer comprising

(1) a veneer sheet;

(2) at least one piece of cord extending on one side of said veneer sheet, said cord being thrust through the veneer sheet thickness at appropriate intervals such that the thrust cord projects from another side of the veneer sheet; and

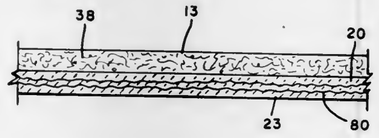
(3) a plurality of fastening means formed on the projecting portions of the cord and having a size larger than the diameter of the cord.

4,269,884

FIBER REINFORCED MULTI-PLY STAMPABLE THERMOPLASTIC SHEET

Michael P. DellaVecchia, Sparta; Joseph E. Mackey, East Hanover, and Albert H. Steinberg, Morris Plains, all of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Oct. 10, 1979, Ser. No. 83,447
Int. Cl.³ B32B *3/10*
U.S. Cl. 428—131 **13 Claims**



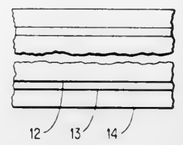
1. A thermoplastic composite, laminated sheet comprising, in terms of percent by weight of each layer: (a) at least one layer comprising from about 40 percent to 100 percent of a synthetic thermoplastic polymer, about 0 percent to 50 percent of a particulate filler, and up to about 45 percent short nonsiliceous fibers having a length ranging from 0.01 to ¾ of an inch and arranged generally parallel to the plane of the sheet surface, (b) a reinforcing layer adjoining said one layer comprising 50 percent to 100 percent of synthetic thermoplastic polymer on an extruded basis, a long nonsiliceous fiber mat comprised of fibers having a length of at least 1 inch and having a weight ranging from 0.5 to 16 ounces per square foot, particulate filler ranging from 0 percent to 50 percent on an extruded basis and (c) mat positioning means disposed between said at least one layer and said mat, for holding said mat within said reinforcing layer during formation of said composite, said mat being substantially encased in a matrix of the thermoplastic polymer.

4,269,885

LAMINATED MATERIAL AND METHOD OF FORMING

John E. Mahn, 5688 Woodhaven Dr., Cincinnati, Ohio 45211

Filed Jan. 26, 1979, Ser. No. 6,750
Int. Cl.³ B32B *7/02, 27/08*
U.S. Cl. 428—216 **9 Claims**



1. A laminated material for adhering to a material when subjected to a selected temperature and pressure for a selected period of time including a first layer selected from the group consisting of polyurethane and polyether, a second layer of polyester, said first and second layers being bonded to each other, said second layer having the same coefficient of expansion and contraction as said first layer, said first layer being treated to prevent it from curling, and said second layer becoming adhesive for adhering to a material when said bonded first and second layers are subjected to the selected temperature and pressure for the selected period of time.

4,269,886

NOVEL GLASS FIBER MAT

Alfredo A. Bondoc, Middlesex, N.J., assignor to GAF Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 923,553, Jul. 11, 1978, Pat. No. 4,183,782. This application Aug. 30, 1979, Ser. No. 70,991
Int. Cl.³ B32B *7/00*
U.S. Cl. 428—219 **11 Claims**



1. A novel glass fiber mat comprising glass fibers, voids extending through the thickness of said mat and a binder to hold said fibers together, said fibers having a length of about ¼ to 3 inches and a diameter of about 3 to 20 microns, said mat having a thickness of about 0.1 to 3 mm. and a basis weight of about 20 to 200 g./m^2, characterized in that:

(a) at least about 70% by weight of said fibers are substantially uniformly enmeshed individual filament fibers,

(b) less than about 20% of the area of said mat are voids which extend through the thickness of the mat, the rest being fibers, and,

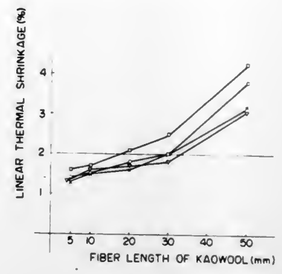
(c) at least about 80%, 30% and 10% of said voids have an equivalent diameter which is less than about 50, 10 and 5 microns, respectively.

4,269,887

CERAMIC FIBER FELT

Kazuo Sonobe, Aichi, and Takeo Kato, Toyokawa, both of Japan, assignors to Isolite Babcock Refractories Co., Ltd., Aichi, Japan

Filed May 17, 1979, Ser. No. 39,969
Claims priority, application Japan, Nov. 24, 1978, 53-145862
Int. Cl.³ D04H *1/08, 1/10*
U.S. Cl. 428—280 **9 Claims**



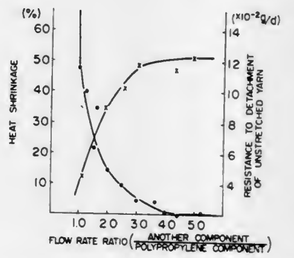
1. A ceramic fiber felt which is the product obtained by mixing alumina crystalline ceramic fibers having a filament length of from about 10 to about 30 mm and aluminosilicate non-crystalline ceramic fiber having a filament length of from about 5 to about 30 mm in weight proportions of from about 4:6 to 7.5:2.5, and binding the said crystalline and non-crystalline fibers with a binder.

4,269,888

HEAT-ADHESIVE COMPOSITE FIBERS AND PROCESS FOR PRODUCING SAME

Shozo Ejima; Susumu Tomioka; Tadao Matsumoto, and Naruaki Hane, all of Moriyamashi, Japan, assignors to Chisso Corporation, Osaka, Japan

Continuation-in-part of Ser. No. 600,037, Jul. 29, 1975, Pat. No. 4,189,338. This application Nov. 16, 1979, Ser. No. 95,085
Claims priority, application Japan, Nov. 25, 1972, 47-118322
The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.
Int. Cl.³ D04H *1/04*
U.S. Cl. 428—296 **6 Claims**



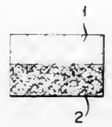
4. Heat-adhesive side-by-side type composite fibers having naturally developed crimps of 12 crimps per 25 mm or less and few latent crimpability, which consist of a component composed mainly of a crystalline polypropylene and a component composed mainly of an olefin polymer or olefin polymers other than said crystalline polypropylene, having a melting point lower than that of the former component by 30° C. or more and a melt flow rate in the range of 1.5 times to 5 times that of the former component, and in a stretching ratio of 3 or more.

4,269,889

POLYURETHANE CUSHION MATERIAL AND PREPARING THE SAME

Sadaaki Takagi, 39, Mikage-cho, Okazaki-shi, Aichi-ken, Japan

Continuation of Ser. No. 742,568, Nov. 17, 1976, abandoned.
This application Apr. 5, 1978, Ser. No. 893,277
Claims priority, application Japan, Nov. 18, 1975, 50-138520
Int. Cl.[2] B32B 3/26, 5/20
U.S. Cl. 428—315 6 Claims



1. A polyurethane cushion material comprising a foamed polyurethane having incorporated therein a mass of crimped polyester fiber filament of 50 to 1000 denier, in which said fiber filament has been twisted and then further twisted into a double crimped state, wet heat-set while in the double crimped state, and then opened up to form a three-oriented, crimped polyester fiber filament of 50 to 1000 denier and wherein said mass amounts to from 10 to 50 percent by weight in the polyurethane cushion material.

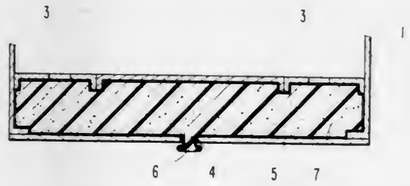
5. A cushion material which comprises a layer of polyurethane cushion material according to claim 1, wherein said layer is bonded to a separate layer of fiber-free foamed polyurethane.

4,269,890

PROCESS AND APPARATUS FOR INTRODUCING FOAM INTO AUTOMOBILE BODY CAVITIES

Rolf Breitling, Sindelfingen; Wolfgang Mayer, Stuttgart, and Wolfgang Labatzke, Sindelfingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Sep. 28, 1978, Ser. No. 946,648
Claims priority, application Fed. Rep. of Germany, Oct. 25, 1977, 2747721
Int. Cl.[3] B29D 27/04
U.S. Cl. 428—320 20 Claims



1. A process for introducing a material, comprising a mixture of expandable components which form a resin foam, into a body cavity, wherein said body cavity is defined by a body having openings therein, comprising the steps of:

(a) providing a bag having a predetermined volume, corresponding to an amount of the body cavity to be filled with the resin foam, and a filler opening means, said bag being in a non-filled condition;

(b) introducing the bag in the non-filled condition into said body cavity; and

(c) temporarily filling the bag with a fluid prior to the introduction of said material into the bag, whereby the bag assumes a proper initial position for introducing said material, by inflation, and obstacles to the flow of the subsequently introduced material in the bag is alleviated; and

(d) introducing said material into the bag through the filler opening means, whereby said bag prevents said material from leaking out of said openings in the body prior to the foaming of said material.

4,269,891

RECORDING SHEET FOR INK JET RECORDING

Nobuhiko Minagawa, Fujinomiya, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 28, 1979, Ser. No. 52,893
Claims priority, application Japan, Jun. 28, 1978, 53/78315
Int. Cl.[3] B32B 5/16; G01D 15/34
U.S. Cl. 428—335 11 Claims

1. An ink jet recording sheet which can be viewed under both reflected and transmitted light comprising a support and an ink absorbing layer provided thereon comprising a white pigment having ink adsorbing ability and a binder resin possessing film forming ability, wherein the weight ratio of white pigment to binder resin is about 0.2 to 10, the degree of opacity of said sheet being about 55.0 to 97.5% and the ink absorbing power of said ink absorbing layer being about 1.5 to 18.0 mm/min.

4,269,892

POLYESTER RIBBON FOR NON-IMPACT PRINTING

Meredith D. Shattuck, San Jose, and William J. Weiche, Los Gatos, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,161
Int. Cl.[3] B32B 9/04; B41J 31/00
U.S. Cl. 428—337 10 Claims

1. A ribbon for non-impact thermal transfer printing comprising a transfer layer and a substrate comprising a polyester resin containing from about 15% to about 40% by weight of electrically conductive carbon black.

6. A ribbon for non-impact thermal printing comprising a transfer layer and a substrate which comprises polyester resin which has been cross-linked by reaction with an isocyanate, and which contain from about 15% to about 40% by weight of electrically conductive carbon black.

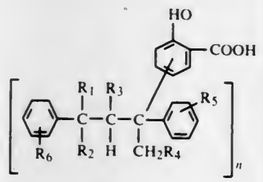
4,269,893

RECORDING MATERIAL CONTAINING A NOVEL COLOR DEVELOPER

Hajime Kato; Masato Satomura, both of Fujinomiya, and Kozo Sato, Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed May 10, 1979, Ser. No. 37,608
Claims priority, application Japan, May 12, 1978, 53/56214
Int. Cl.[3] B41L 1/20; B41M 5/16, 5/22
U.S. Cl. 428—341 11 Claims

1. In a recording material in which images are formed by the reaction of a substantially colorless color former with a color developer, the improvement which comprises said color developer comprising the reaction product of salicyclic acid and a styrene dimer or a metal salt thereof, wherein said reaction product is represented by the following general formula:



wherein R_1 to R_6 each represents a hydrogen atom or an alkyl group having 1 to 5 carbon atoms, R_5 and R_6 represents a hydrogen atom or an alkyl group having 1 to 5 carbon atoms or halogen atom and n is 1 or 2.

2. The recording material of claim 1, wherein said color developer is coated on a support in an amount of 0.1 g/m^2 to 3.0 g/m^2.

4,269,894

ELECTRIC WINDINGS AND PRODUCTION THEREOF CHARACTERIZED BY THE USE OF A CONDENSATION TYPE SILICON RESIN FOR COMBINATION WITH AN ADDITION TYPE SILICON RESIN

Masahiko Sakai, Hitachi; Shinichi Toyoda, Katsuta; Toshikazu Narahara, Tokaimura; Takeshi Hakamada, and Tomoya Tsunoda, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 3, 1979, Ser. No. 99,850
Int. Cl.[3] H01B 3/40, 3/46, 13/08, 17/62
U.S. Cl. 428—377 17 Claims

1. A winding for electric rotating machines having a plurality of layers of a sheet-form composite insulating material wrapped around a conductor and a cured resin impregnated into said layers, said cured resin being of an epoxy-isocyanate varnish, said sheet-form composite insulating material comprising two or more sheet-form insulating materials bonded by a binder, characterized in that said binder is a mixture of a condensation polymerization type silicone resin containing hydroxyl groups in the molecule and an addition polymerizatior type silicone resin.

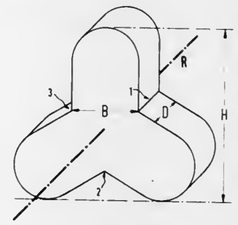
8. A process for producing an electric winding comprising wrapping around a conductor a plurality of layers of a sheet-form composite insulating material comprising two or more sheet-form insulating materials bonded by a binder, impregnating the layers with an impregnating varnish of an epoxy-isocyanate resin and curing the resulting impregnated varnish, the improvement wherein said binder is a mixture of a condensation polymerization type silicone resin containing hydroxyl groups in the molecule and an addition polymerization type silicone resin.

4,269,895

FREE-FLOWING PACKING MATERIAL OF FOAMED PLASTICS PARTICLES

Herbert Borchert; Walter Albert, both of Frankfurt am Main; Günter Kohaut, Königstein; Ulrich Schulte, Kelkheim, and Bruno Rapp, Alsbach-Hähnlein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 6, 1979, Ser. No. 91,779
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848338
Int. Cl.[3] B32B 27/00
U.S. Cl. 428—402 3 Claims



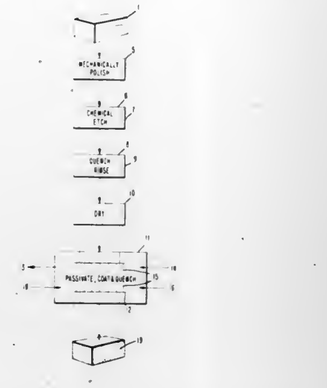
1. A free-flowing packing material consisting of foamed plastics particles having a three-legged, star-like shape the three legs of which are on the same plane, wherein the ratio of particle thickness (D) to particle height (H) is from 1:2.75 to 1:3.3 and that of leg width (B) to particle height (H) is from 1:2.2 to 1:2.5; the height (H) being from 10 to 60 mm.

4,269,896

SURFACE PASSIVATED ALKALI HALIDE INFRARED WINDOWS

Frederick G. Yamagishi, Newbury Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 31, 1979, Ser. No. 71,605
Int. Cl.[3] B05D 3/06; B32B 9/04
U.S. Cl. 428—411 20 Claims



1. A moisture resistant alkali halide crystal optical element comprising a crystal substrate having passivated hydroxyl ion free outer surfaces, defined exclusively by alkali cations and halogen anions maintained in a spatial relationship with respect to each other by electrostatic bonds, coated with a thin amorphous saturated film of polymerized carbon and hydrogen atoms.

16. A process for rendering an alkali halide crystal moisture resistant comprising the steps of:

(a) mechanically polishing the surface of said crystal;

(b) chemically etching said surface by dipping said crystal into an aqueous solution of hydrochloric acid;

(c) causing the etching action of said hydrochloric acid solution to cease by dipping said crystal in an alcohol whose structure is $C_nH_{2n+1}OH$ where n is greater than 1 and less than 4;

(d) removing said alcohol by causing a flow of air to impinge upon said crystal and subsequently placing said crystal in a plasma reactor;

(e) evacuating said reactor and subsequently causing a potentially reactive atmosphere to be created by introducing a chlorofluorocarbon gas into said reactor at a preselected flow rate and pressure;

(f) creating a first plasma and causing the molecules of said reactive gases to be bombarded by electrons within said plasma to create nascent halogen anions which displace hydroxyl anions thereby passivating the surface of said crystals;

(g) terminating said first plasma and evacuating said reactor to remove said chlorofluorocarbon gas;

(h) causing an alkane gas to be introduced into said reactor at a preselected flow rate and pressure;

(i) creating a second plasma in said reactor thereby causing said alkane gas to polymerize and deposit onto the surface of said crystal;

(j) terminating said second plasma, evacuating said system and introducting an alkene gas into said reactor to create a quenching atmosphere; and

(k) removing said coated crystal from said reactor after said crystal has been alowed to stand in said alkane gas overnight.

4,269,897

FLEXIBLE IMPACT RESISTANT TRIM AND METHOD FOR MANUFACTURE THEREOF

Leo Gans, Teaneck, N.J.; Paul F. Bruins, Douglaston, N.Y.; Jay B. Shapiro, Roslyn, N.Y., and Myron Rothman, Westbury, N.Y., assignors to Voplex Corp., Pittsford, N.Y.

Filed Dec. 1, 1978, Ser. No. 965,487
Int. Cl.³ B29F *3/10*
U.S. Cl. 428—419 **17 Claims**

1. In a process for extruding resilient, impact resistant thermoplastic products with at least one visible region having a metallic appearance, the steps comprising

providing a non-metallic film strip of a material selected from the group consisting of polysulfones and polyether sulfones and having at least one metallized surface, said non-metallic film strip with said metallized surface thereon having melting and deformation temperatures higher than the melting and deformation temperatures of the transparent thermoplastic material to be extruded thereon and a resiliency and an elasticity at least as high as the resiliency and elasticity of such transparent thermoplastic when extruded thereon and,

while feeding said film strip through an extrusion die with said metallized surface facing in the direction where, in the extruded product, said metallic appearance is to be visible, thermally extruding around said metallized surface film strip said transparent thermoplastic material thereby forming from said film strip and said transparent thermoplastic material a flexible, impact resistant thermoplastic product.

10. An extruded thermoplastic impact resistant product with at least one visible region having a metallic appearance said product comprising a non-metallic film strip of a material selected from the group consisting of polysulfones and polyether sulfones and having at least one metallized surface and a transparent thermoplastic material extruded about said non-metallic film strip having a melting and deformation temperature higher than the melting and deformation temperature of said transparent thermoplastic material and a resiliency and an elasticity at least as high as the resiliency and elasticity of such transparent thermoplastic, said non-metallic film strip forming with said transparent thermoplastic material a flexible, impact resistant product.

4,269,898

RESISTANCE MATERIAL

Alexander H. Boonstra; Cornelis A. H. A. Mutsaers, and Franciscus N. G. R. Van der Kruijs, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 14, 1979, Ser. No. 75,468
Claims priority, application Netherlands, Sep. 20, 1978, 7809553
Int. Cl.³ B32B *15/00*
U.S. Cl. 428—426 **7 Claims**

1. A resistance material consisting of a mixture of at least one metal oxidic compound, a permanent low melting glass or synthetic resin binder and a temporary organic binder, the at least one metal oxide material comprising a metal rhodate as the resistance-determining component, wherein said resistance-determining component consists of thallium rhodate of the formula $TlRh_2O_4$.

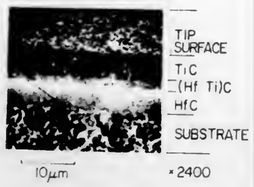
7. A compound of the formula $Tl_xPb_{(1-x)}Rh_2O_4$ wherein $0.5 \leqq x \leqq 1$.

4,269,899

SURFACE HAFNIUM-TITANIUM CARBIDE COATED HARD ALLOY AND METHOD

Moriaki Fuyama; Haruhiko Honda, and Mitsuru Ura, all of Hitachi, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 54,274
Claims priority, application Japan, May 22, 1979, 54-63090
Int. Cl.³ B32B *15/04*
U.S. Cl. 428—457 **19 Claims**



1. A surface coated hard alloy material comprising: a substrate made of a cemented carbide, cermet or the like material; a first coating layer constituted by a film of a hafnium compound and coating said substrate; a second coating layer constituted by a film of solid solution of a hafnium compound and a titanium compound and coating said first coating layer; and a third coating layer constituted by a film of a titanium compound.

4,269,900

SOLDERLESS CAPILLARY CHIPS

Minoru Ozawa, Urawa, Japan, assignor to Adamant Kogyo Co., Ltd., Tokyo, Japan

Filed Jul. 12, 1979, Ser. No. 56,848
Int. Cl.³ B32B *1/06*; A44C *17/00*
U.S. Cl. 428—542 **2 Claims**



1. In combination, a solderless capillary chip formed of a corundum-system precious stone such as a ruby or sapphire, said chip having a straight bore in a tip portion thereof, with a communicating bore having a bulging portion, the inner diameter of which is progressively increased;

means for feeding a wire to be pressure bonded through said bores so that an end of said wire extends from said tip portion;

means for heating said tip portion to cause said wire end to form a ball;

means comprising said tip portion for pressure bonding said ball to a substrate; and

means comprising an exterior surface of said tip portion for severing a portion of said wire adjacent the bonded ball from the remainder of said wire.

4,269,901

DEVICE FOR PROTECTION AGAINST FIRE

Francis N. Chamberlain, 69 Wood St., Dalby, Queensland, Australia (4405)

Filed Aug. 7, 1979, Ser. No. 64,505
Int. Cl.³ A47G *5/04*
U.S. Cl. 428—542 **10 Claims**



1. A shield for protection against fire, comprising:

a pliable curtain of heat-insulating material having front and rear faces;

a resilently flexible top stiffener member secured to and extending along an upper edge of said curtain for holding said curtain transversely extended;

a window of transparent, heat-resistant material in an upper part of the sheet; and

an upper handle secured at the rear face of said curtain to said top stiffener member;

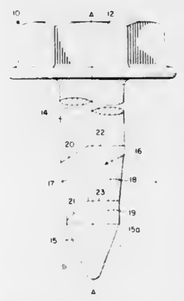
said shield being rollable into a compact roll for storage, and being vertically extendible for protection against fire by lifting said handle such that said curtain is suspended from and transversely extended by said top stiffener member.

4,269,902

EXTRUDING AND TAPPING SCREW AND BLANK FOR MANUFACTURE OF SUCH SCREW

Henry A. Sygnator, Arlington Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Division of Ser. No. 883,061, Mar. 3, 1978, Pat. No. 4,179,976. This application Aug. 9, 1979, Ser. No. 65,246
Int. Cl.³ F16B *25/00*
U.S. Cl. 428—577 **8 Claims**



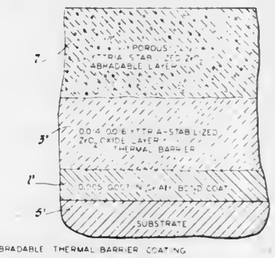
1. A screw blank used in the formation of an extruding and thread-forming screw fastener, including a shank with an enlarged head at one extremity, the shank comprised of a substantially cylindrical upper portion of a predetermined diameter adjacent the head of the blank, a lead portion formed at the extremity opposite the head, the largest diameter of the lead portion being less than the predetermined diameter of the upper shank portion, an intermediate, transition shank portion between the lead and the upper shank portions and including a pair of dissimilar partially frustoconical tapering regions forming two opposing, peripheral segments of said transition portion located on either side of a plane extending longitudinally of the blank, a first of said two opposing peripheral segments merging with the upper shank portion along a juncture line lying on a plane transverse of said shank which is disposed at an acute angle downwardly relative to a plane extending perpendicularly to the longitudinal axis of the blank, the lowermost region of the first of said two segments extending downwardly on the shank a distance from the head which is greater than the extent of the lowermost region of the second of said two segments, the angle of taper of at least the first of said two peripheral segments relative to the longitudinal axis of the blank being generally 6° so that a single lobular region is created on a blank which facilitates the formation of a screw with a thread-forming region having a plurality of partial threads on the lobular region and an absence of threads on the opposing peripheral side of the screw which therefore minimizes the drive torque to apply a screw of this type.

4,269,903

ABRADABLE CERAMIC SEAL AND METHOD OF MAKING SAME

David L. Clingman, Carmel; John R. Cavanagh, Brownsburg; Berton Schechter, Indianapolis, and Kenneth R. Cross, Lebanon, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Sep. 6, 1979, Ser. No. 73,550
Int. Cl.³ B32B *15/04*
U.S. Cl. 428—591 **3 Claims**



1. A thermal barrier-fluid seal abradable coating for use in machinery having cooperating members capable of relative rotational movement and operating in a high temperature environment, at least one of said members being the coating substrate, the coating on said substrate comprising a bond layer consisting essentially of a NiCrAlY alloy covering a wear surface of said substrate, a thermal barrier layer on said bond layer consisting essentially of zirconia and a zirconia stabilizing oxide selected from the group consisting of Y_2O_3, MgO and CaO, and an abradable layer on said thermal barrier layer consisting essentially of porous stabilized zirconia, said porous zirconia resulting from the thermal decomposition of an organic filler material codeposited with the stabilized zirconia on said barrier layer, said abradable layer having from about 20 to about 33% voids.

2. In a turbomachine having two members capable of relative rotational movement, at least one of the members having a thermal barrier coating of the stabilized zirconia type subject to rubbing contact, and a bond layer of a NiCrAlY alloy between said thermal barrier coating and said member, the improvement comprising a porous abradable layer on said coating consisting essentially of zirconia containing an oxide from the group consisting of Y_2O_3, MgO and CaO, said porous abradable layer resulting from the thermal decomposition of a polyester particulate filler codeposited with said zirconia and said oxide in an amount of from about 20 to about 33% by volume to achieve the desired layer density and abradability.

4,269,904

MANGANESE SURFACE COATED STEEL MATERIALS

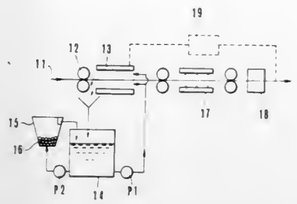
Teruo Ikeno, Mitaka; Satoshi Kado, Fujisawa; Saburo Ayusawa, Funabashi; Hironobu Kawasaki, Machida, and Takashi Watanabe, Ayase, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Jun. 1, 1979, Ser. No. 44,486

Claims priority, application Japan, Jun. 5, 1978, 53-67467; Jul. 20, 1978, 53-88639; Oct. 31, 1978, 53-134038; Nov. 2, 1978, 53-135423

Int. Cl.³ B32B *15/08, 15/18*

U.S. Cl. 428—623 **6 Claims**



1. A coated steel material having excellent corrosion resistance, comprising a manganese coating and hydrated $MN.MNO_3$ of thickness 400 to 1000 Å formed on the manganese coating.

4,269,905

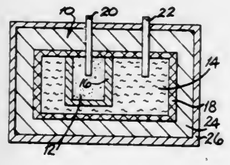
ELECTROCHEMICAL CELL AND THE PROTECTION OF AN ELECTROCHEMICAL CELL

Roger J. Wedlake, Johannesburg, South Africa, assignor to South African Inventions Development Corp., Pretoria, South Africa

Filed Nov. 28, 1979, Ser. No. 97,949

Int. Cl.³ H01M *14/00*

U.S. Cl. 429—8 **26 Claims**



1. A method of reducing the potential hazard presented by electrochemical cell contents escaping from an electrochemical cell, which method includes the step of associating a sorbent micromolecular sieve material with an electrochemical cell to sorb the electrochemical cell contents escaping from the cell, the micromolecular sieve material being sealed off from said cell contents and the cavities in the micromolecular sieve material being substantially free of said cell contents, and said material having an average window size of less than 1 micron leading into its internal cavities the window size being selected such as to permit rapid sorption of the cell contents into said cavities, effectively to reduce the potential hazard.

14. An electrochemical cell which has a sorbent micromolecular sieve material associated therewith for sorbing electrochemical cell contents escaping from the cell thereby reducing the potential hazard presented by such escaping contents, the micromolecular sieve material being sealed off from said cell contents and the cavities in the micromolecular sieve material being substantially free of said cell contents, and said material having an average window size of less than 1 micron leading into its internal cavities the window size being selected such as to permit rapid sorption of the cell contents into said cavities, effectively to reduce the potential hazard.

4,269,906

PUMP DEVICE

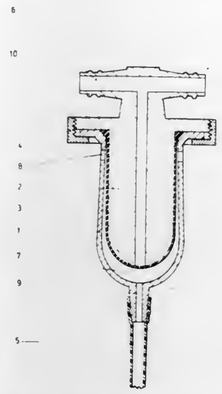
Rune Schmechtig, Nol, Sweden, assignor to Aktiebolaget Tudor, Sundbyberg, Sweden

Filed Sep. 12, 1978, Ser. No. 941,790

Claims priority, application Sweden, Sep. 12, 1977, 7710182

Int. Cl.³ H01M *2/38;* **F04B** *45/00*

U.S. Cl. 429—67 **5 Claims**



1. A pump device for intermittently pressurizing a working fluid, comprising:

a pump house having a primary portion and a secondary portion forming a space therebetween,

said secondary portion being cup-shaped, an upper section of which containing at least one non-valved inlet opening for admitting working fluid to said space, and a bottom section of which containing a non-valved outlet opening for ejecting the admitted working fluid;

said primary portion including means for introducing a control pressure fluid into said space;

an elastic membrane supported on said primary portion and extending within said space to a level below said inlet opening to form a fluid-tight seal between said primary and secondary portions, said elastic member being cup-shaped and normally in a contracted condition and including:

an inner surface facing said primary portion to be acted upon by control pressure fluid from the latter to expand said membrane, and

an outer surface facing said secondary portion and being spaced therefrom in said contracted condition of said membrane to define a working space therebetween, the depth of said working space between said outer surface of said membrane and said secondary portion progressively increasing from said inlet opening to said outlet opening so that upon expansion of said membrane, said outer surface closes said inlet opening and progressively closes said working space toward said outlet opening to express working fluid therethrough.

4,269,907

ELECTROCHEMICAL CELL

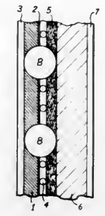
William R. Momyer, Palo Alto, and Ernest L. Littauer, Los Altos Hills, both of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed May 5, 1980, Ser. No. 146,498

Int. Cl.³ H01M *2/38*

U.S. Cl. 429—67 **8 Claims**

1. In a reactive metal anode-aqueous electrolyte electrochemical cell, an alkali metal anode having an electrically insulating film on its surface and a solid cathode spaced from said anode, said cell characterized by a non-conductive flow screen defining an electrolyte flow channel between said anode and cathode and being positioned against said anode insulating film and a porous, expandable element, said element being positioned between and contacting said flow screen and said cathode, thereby maintaining contact between said film and screen as the anode is consumed during operation.



4,269,908

BATTERY MOUNTING CHAMBER FOR A POCKET CALCULATOR

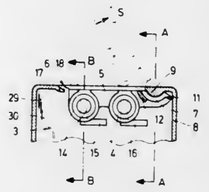
Walter Stemme, Sulzbach, Fed. Rep. of Germany, assignor to Braun AG, Kronberg, Fed. Rep. of Germany

Filed Oct. 26, 1979, Ser. No. 88,668

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 7831842[U]

Int. Cl.³ H01M *2/10*

U.S. Cl. 429—98 **3 Claims**



1. A battery mounting chamber for a pocket calculator characterized by:

(a) a pair of battery insert trays (**3**, **4**) attached to a side surface (**5**) of an otherwise parallel surfaced support body (**6**),

(b) a hook-shaped extension (**7**) on one end of the support body which at least partially fits around a cylindrical pivot face (**9**) formed on a housing (**8**), and

(c) the support body extension having a T-shaped cross-section and the free end of the extension having a transverse crossbar (**11**) engagable with at least one stop tab (**12**) running crosswise to the support body and integral with the housing, whereby the support body may be rotated out of the housing about the pivot face to expose the trays for battery insertion or removal.

4,269,909

SODIUM-SULFUR CELL WITH METHOD OF CONSTRUCTING THE SULFUR ELECTRODE

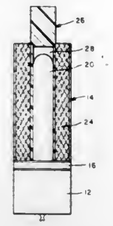
Randall N. King, Johnstown, and Stephan P. Mitoff, Clifton Park, both of N.Y., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Jan. 18, 1980, Ser. No. 113,280

Int. Cl.³ H01M *4/36*

U.S. Cl. 429—104 **7 Claims**

1. A sodium sulfur cell including means containing a supply of sodium, an elongated housing joined at one end with said sodium containing means, a beta-alumina electrolyte tube located within and extending from the joined end of said housing so as to define a compartment within said housing around said tube, and a mixture including sulfur and an electrically conductive filler disposed within said compartment, said mixture being provided in said compartment in accordance with a, method comprising: positioning a cover sleeve within the compartment around said electrolyte tube; filling the available space within said compartment between said cover sleeve and



housing with a mixture of sulfur and said solid filler; allowing the sulfur within said compartment to cool and solidify, if not already solid, whereby to provide a solid mixture therein; thereafter, removing said cover sleeve from said compartment leaving an empty space in its place, said empty space surrounding said electrolyte tube; and filling said empty space with electrically conductive filler without sulfur whereby subsequent melting of said solidified sulfur will expand within the entire compartment without exerting a force on said electrolyte tube sufficient to damage the latter.

4,269,910

ELECTROCHEMICAL CELLS HAVING A GELLED ANODE-ELECTROLYTE MIXTURE

Teresita O. Graham, Dobbs Ferry, and John T. Goodman, Croton-on-Hudson, both of N.Y., assignors to Duracell International Inc., Bethel, Conn.

Filed Dec. 26, 1979, Ser. No. 106,996

Int. Cl.³ H01M *6/22*

U.S. Cl. 429—190 **11 Claims**

1. An electrochemical cell comprising an anode, an aqueous alkaline electrolyte solution, a separator and a cathode, said anode comprising an intimate gelled mixture of a powdered metal, aqueous alkaline electrolyte solution and an agent capable of gelling said mixture, said agent comprising a material capable of absorbing water, said agent comprising a carbohydrate backbone having water soluble side chains grafted thereon.

4,269,911

ALUMINUM-HALOGEN CELLS

Masayuki Fukuoka; Tatsumi Arakawa; Muneaki Kimura; Yukihisa Masukawa, and Hidehiko Kobayashi, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 10, 1979, Ser. No. 101,976

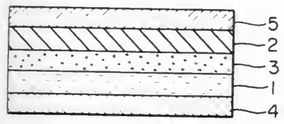
Claims priority, application Japan, Dec. 15, 1978, 53-154190; Dec. 18, 1978, 53-154935; Dec. 21, 1978, 53-156873; Mar. 5, 1979, 54-24517

Int. Cl.³ H01M *6/00*

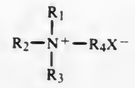
U.S. Cl. 429—199 **16 Claims**

1. An aluminum-halogen cell comprising an anode collector, an anode active material layer of aluminum, a cathode active material layer comprising at least one halogen compound selected from the group consisting of N-halocarboxylic acid amides, copper bromide, lead chloride and cesium iodide, and a cathode collector, said cathode active material layer containing as a stabilizer at least one member selected from the group

consisting of magnesium halides, zinc halides, organic carboxylic acids and their anhydrides, aluminum salts of perhaloid



acids, metallic salts of perhaloid acids in which said metal is more basic than aluminum, and quaternary ammonium salts of the formula:



wherein R_1, R_2, R_3 and R_4 are independently a hydrogen atom or an alkyl group having 1 to 4 carbon atoms; and X is a halogen atom, in an amount of 0.001 to 5.0 moles per mole of the cathode active material.

4,269,912

LEAD STORAGE BATTERY WITH STORED EXPANDER

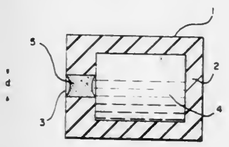
Heinrich Rabenstein; Angela Kalbitz, both of Frankfurt, and Karl H. Kleber, Hofheim, all of Fed. Rep. of Germany, assignors to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,127

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855313

Int. Cl.³ H01M *4/56*

U.S. Cl. 429—225 **8 Claims**



- 1 -

1. Lead storage battery containing a reservoir means of expander material wherein

during at least a portion of the useful life of the storage battery a reservoir means of expander material is provided in the electrolyte for delivering the expander progressively into the electrolyte.

4,269,913

NOVEL INORGANIC-ORGANIC COMPOSITE FELT FOR USE IN ALKALINE STORAGE CELLS AND PROCESS FOR MAKING SAME

Hong S. Lim, Agoura, and Scott A. Verzwyvelt, Thousand Oaks, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 23, 1978, Ser. No. 953,523

Int. Cl.³ H01M *2/16*

U.S. Cl. 429—251 **6 Claims**

1. A porous inorganic-organic composite separator for use in alkaline storage batteries prepared by the process of:

a. first providing an aqueous suspension of chopped selected inorganic fibers;

b. transferring said suspension to a chemically inert filter paper placed over a porous suction apparatus and allowing the fibers of said suspension to settle from said suspension thereby forming a randomly oriented fluffy fiber mat;

c. providing a compacting means by placing a second sheet of chemically inert filter paper on top of said suspension meniscus and applying suction to said apparatus whereby the liquid component and air is sequentially pulled through said mat;

d. placing said apparatus containing said mat in an oven whereby said mat is dried;

e. providing a polymer-solvent coating solution by dissolving from 2–10% of an alkali stable polymer in a selected solvent;

f. removing said apparatus from said oven and causing said polymer solution to flow through said mat under suction whereby the fibers of said mat are coated with said solution;

g. flushing said mat with a selected liquid while applying suction to said apparatus to remove said solvent and thereby forming an inorganic-organic composite, consisting of randomly oriented fibers bonded together with an organic polymer, having a multiplicity of pores caused by the flow of said liquid through said mat; and

h. drying said mat at an elevated temperature to remove residual traces of liquid prior to its use as a separator.

4,269,914

ULTRASONOGRAPHIC ELEMENTS CONTAINING MULTIPLE LAYERS AND PROCESSES FOR THEIR USE

Robert E. Bacon, Rochester; Ronald G. Raleigh, Brockport, and Robert B. Rosenfeld, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 16, 1979, Ser. No. 30,665

Int. Cl.³ G03C *1/76, 5/26*

U.S. Cl. 430—3 **16 Claims**

1. In an ultrasonographic element comprising

a support and

a silver halide emulsion layer containing a diffusible densensitizer in an amount sufficient to suppress the response of said emulsion layer to electromagnetic radiation, so that upon imagewise ultrasonic exposure of said ultrasonographic element while in contact with a transport liquid accelerated diffusion of said desensitizer from said emulsion layer occurs in ultrasonically exposed areas, thereby permitting an ultrasonographic image to be formed by exposure to electromagnetic radiation and photographic processing,

the improvement comprising

a second layer capable of receiving and immobilizing said desensitizer and

barrier means interposed between said emulsion layer and said second layer for impeding diffusion of said desensitizer in the absence of ultrasound while permitting diffusion of said desensitizer in the presence of ultrasound.

4,269,915

INFORMATION CARRIER ORIGINAL FOR ZERO ORDER DIFFRACTION PROJECTION

Roland Moraw, Naurod, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 27, 1978, Ser. No. 928,700

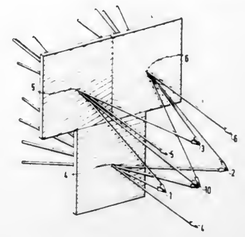
Claims priority, application Fed. Rep. of Germany, Aug. 1, 1977, 2734581

Int. Cl.³ G03C *5/00, 11/00*

U.S. Cl. 430—11 **8 Claims**

1. An original of an information carrier, comprising:

a layer of carrier material; and a recording layer which has been applied to said carrier material and which contains a relief image for reproducing in zero order diffraction color projection an information stored in said relief image, the relief image being composed of a plurality of relief part-images on the free surface of the recording layer, said relief part-images comprising relief grids having different grid depths of rectangular profile in the areas of the individual relief part-images, said plurality of relief part-images comprising at least four relief part-images adjoining one another without overlapping, and said grid depths of the relief part-images being selected in a manner that the zero order diffraction color projection with polychromatic light provides the colors yellow, red, blue-violet and green.



4,269,916

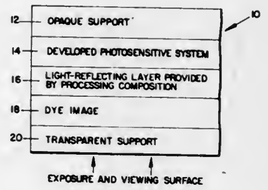
PHOTOGRAPHIC PRINTS UTILIZING LAMELLAR PIGMENT MATERIALS

Ruth C. Bilofsky, Lexington, and Howard G. Rogers, Weston, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 921,186, Jul. 3, 1978, Pat. No. 4,216,018, which is a continuation-in-part of Ser. No. 744,598, Nov. 24, 1976, abandoned. This application May 27, 1980, Ser. No. 153,589

Int. Cl.³ G03C *1/84, 1/78, 1/96*

U.S. Cl. 430—11 **18 Claims**



1. A photographic print comprising a support carrying an image-containing layer which is viewable against a substantially white layer comprising a lamellar pigment dispersed in a matrix material, said lamellar pigment having at least one layer with a geometric thickness of a value with the expression:

$$T = \frac{\lambda}{4} / n \text{ (or an odd multiple thereof)}$$

where: T is the geometric thickness of the layer, λ represents a wavelength or wavelength range of radiation in the visible region of the spectrum, n is the refractive index of the layer material and is at least 1.7, any layer adjacent said one layer having a geometric thickness of a value also within said expression but comprising a layer material having a refractive index different from the refractive index of said one layer.

4,269,917

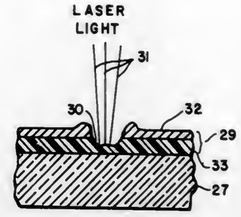
DATA STORAGE MEDIUM HAVING REFLECTIVE PARTICULATE SILVER LAYER

Jerome Drexler, Los Altos Hills, and Eric W. Bouldin, Woodside, both of Calif., assignors to Drexler Technology Corporation, Mountain View, Calif.

Division of Ser. No. 55,270, Jul. 16, 1979. This application Jul. 14, 1980, Ser. No. 168,335

Int. Cl.³ G03C *1/02, 5/32;* **G01D** *15/24, 15/26*

U.S. Cl. 430—16 **17 Claims**



1. A reflective data storage medium comprising,

a low melting temperature colloid matrix supported on a substrate, and

a surface layer of non-filamentary individual silver particles, disposed in said matrix, having maximum particle dimensions primarily under 0.05 microns, some of which are aggregated with similar particles, and having a volume concentration of silver particles greater at said surface than in the interior of said matrix, said surface having an areawise substantially uniform reflectivity to visible light, said uniform reflectivity being between 15% and 75% and being electrically non-conductive.

4,269,918

PROCESS FOR FORMING PATTERNWISE COATED POWDER LAYER

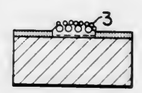
Saburo Nonogaki; Hajime Morishita, both of Tokyo; Shoichi Uchino, Hachioji, and Toshikatsu Manabe, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 3, 1979, Ser. No. 63,474

Claims priority, application Japan, Aug. 30, 1978, 53-104916

Int. Cl.³ G03C *5/34*

U.S. Cl. 430—28 **16 Claims**



1. a process for forming a patternwise coated powder layer on a substrate surface, which comprises:

(1) a first step of applying to a substrate surface a thin layer of an aromatic diazonium salt or a photosensitive composition containing an aromatic diazonium salt as a photosensitive component capable of becoming sticky due to the formation of a photolytic reaction product of said salt by light exposure,

(2) a second step of subjecting the thin layer to patternwise light exposure, thereby forming the photolytic reaction product in the light-exposed parts and making the light-exposed parts sticky,

(3) a third step of contacting the light-exposed thin layer with powdery grains, thereby making the thin layer accept the powdery grains according to the ability of the sticky light-exposed parts of the thin layer to accept the powdery grains and forming a powder-containing coating layer, and

(4) a fourth step of contacting the powder-containing coating layer with a powdery material which reacts with the

photolytic reaction product of the aromatic diazonium salt to form a water-insoluble non-sticky material or slightly water-soluble non-sticky solid material thereby fixing the powdery grains to the substrate.

4,269,919

INORGANIC PHOTOCONDUCTIVE COATING, ELECTROPHOTOGRAPHIC MEMBER AND SPUTTERING METHOD OF MAKING THE SAME

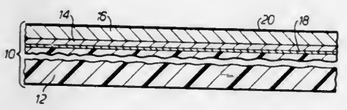
Manfred R. Kuehnle, Lexington, Mass., assignor to Coulter Systems Corporation, Bedford, Mass.

Continuation-in-part of Ser. No. 704,780, Jul. 13, 1976, Pat. No. 4,025,339, Ser. No. 434,699, Jan. 18, 1974, abandoned, Ser. No. 378,180, Jul. 11, 1973, abandoned, Ser. No. 323,132, Jan. 12, 1973, abandoned, and Ser. No. 260,848, Jun. 8, 1972, abandoned, said Ser. No. 704,780, is a continuation of Ser. No. 434,699, , which is a continuation-in-part of Ser. No. 378,180, , which is a continuation-in-part of Ser. No. 323,132, , which is a continuation-in-part of Ser. No. 260,848, , abandoned. This application May 20, 1977, Ser. No. 798,876

The portion of the term of this patent subsequent to Sep. 4, 1996, has been disclaimed.

Int. Cl.³ G03G *5/082*; C23C *15/00*

U.S. Cl. 430—67 **55 Claims**



1. A photoconductive coating which comprises a deposit having a thickness between 0.1 micron and about 2 microns upon a planar substrate having the following characteristics:

A. formed of a material which is wholly inorganic and comprises a compound of ultrapurity exclusive of doping, if any, and which when deposited has near perfect stoichiometry,

B. microcrystalline, comprising hexagonal, closely packed crystals about 600 to 800 Angstroms in diameter, with all of the crystals of any particular deposit being the same diameter and all being the same length as the thickness of the coating, of a uniformity that results in the collective exhibition of single crystal configuration in response to electron diffraction testing, the coating thickness and crystal length being equal to the extent of the depletion layer or less, all of the crystals being vertically oriented relative to the substrate,

C. the deposit having a surface layer which is at least chemically different from the remainder of the deposit and includes oxygen in a combined form, which is of the order of 20 to 50 Angstroms thick and has properties differing substantially from those of the remainder of the coating in that it

i. has a surface resistivity of the order of 10^{20} ohms per square irrespective of charge condition and light exposure to give electrical anisotropy and surface resolution for imaging 1000 lines per millimeter and better;

ii. accepts rapid charge at speeds which can be nanoseconds as well as slower, retains charge over long periods of time in darkness under all conditions of charge speed;

iii. accepts charge to a degree enabling toning for excellent grey scale in an absolute surface potential proportional to the thickness of the coating and having a ratio of dark to light resistivity at least of the order of about 10^6 and a dark resistivity of at least 10^{14} ohm centimeters;

D. the crystals of the deposit having multiple boundaries in cross sectional planes of the respective crystals providing, in the bulk of said deposit below the surface layer slight nonuniformities giving rise to additional traps and energy levels for electrons, resulting in increased spectral response when a charged coating is discharged at exposure wavelengths below the band gap energy of the material in addition to discharge above said band gap energy by at least a substantial part of visible light with some dropoff in the red end of the visible spectrum in an absence of doping, and have transverse resistivity in light much less than in darkness,

E. the electronic configuration of the deposit evidencing a nonlinear electric field distribution, with the surface layer acting as an N layer of an NPN semiconductor device, the zone of the deposit immediately adjacent the surface layer having an inordinately high electric field and an excess of immobile positive energy states corresponding to a P layer when the coating is charged, the remaining portion of the said bulk of the deposit below the surface layer and the immediately adjacent zone dropping off rapidly en electric field when compared to that of said zone and hence acting as an N layer, said electronic configuration providing a quantum gain for undoped coating greater than unity for most of the visible spectrum, total dischargeability when illuminated sufficiently, sustaining of the electric field distribution for the entire time of carrier transit, no fatigue after extended use or reuse,

F. the deposit being flexible per se, transparent per se to a degree related to its thickness and being 70 to 85% light transmissive over most of the useful range of thickness, dense to about 95% or better of theoretical maximum for the material, having a glass-hard, smooth, abrasion-resistant surface and being unaffected by moisture or heat below several hundred degrees Celsius and not irreversibly affected by radiation while in uncharged condition.

4,269,920

DRY PROCESS DEVELOPING MATERIAL FOR ELECTROPHOTOGRAPHY

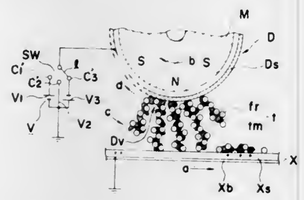
Kenichi Wada; Tateki Oka; Susumu Tanaka, and Kenji Tabuchi, all of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Japan

Filed Sep. 6, 1978, Ser. No. 940,133

Claims priority, application Japan, Sep. 16, 1977, 52-112081

Int. Cl.³ G03G *9/14*

U.S. Cl. 430—107 **5 Claims**



1. A developing material for dry developing an electrostatic latent image which material comprises (a) electrically insulating magnetizable toner particles in the range from 5 to 25 μ-microns having a resistance higher than 10^{13} Ω·cm and comprising resin and magnetizable fine particles, and (b) fine particles of substantially colorless and transparent resin in the range of 0.1 to 30 microns, wherein said fine particles of resin are admixed with said electrically insulating magnetizable toner in an amount of from 1 to 50 weight % with respect to said electrically insulating magnetizable toner;

said fine particles of resin being different from said electrically insulating magnetizable toner in their position on a frictional electrical charging row whereby said electrically insulating magnetizable toner and fine particles of resin are triboelectrically charged respectively to opposite polarities to each other through frictional contact therebetween, and said toner, as a result of said frictional contact with said fine particles, having a polarity opposite that of said electrostatic latent image;

said electrically insulating magnetizable toner and said fine particles being mixed to form said developing material.

4,269,921

METHOD FOR PREVENTING DEGRADATION OF A LIQUID DEVELOPER FOR ELECTROSTATIC RECORDING

Hiroshi Tanaka, Tokyo, and Terukuni Tsuneda, Matsudo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 822,339, Aug. 5, 1977, which is a continuation of Ser. No. 555,088, Mar. 4, 1975, abandoned. This application Mar. 12, 1979, Ser. No. 19,568

Claims priority, application Japan, Mar. 8, 1974, 49/27616

Int. Cl.³ G03G *13/22*, *13/14*

U.S. Cl. 430—119 **2 Claims**

1. In an electrophotographic process including the steps of

(a) developing an electrostatic latent image on a support by contacting said latent image with a negatively-charged liquid developer comprising toner particles dispersed in a highly insulating carrier liquid to thereby form a toner image on said support in said carrier liquid;

(b) transferring said toner image onto a sized transfer paper in the presence of said carrier liquid by contacting said toner image with said transfer paper and applying an electric field thereto;

(c) recovering and combining any nontransferred liquid developer remaining on said support with the liquid developer employed in step (a) for reuse in subsequent developing steps; and

(d) repeating steps (a)–(c);

wherein the improvement comprises suppressing the accelerated deterioration of the liquid developer during such repeated use by using a sized transfer paper which (1) has no electrically-conductive coating thereon, (2) does not cause the elution of substantial amounts of rosin aluminum soap into said nontransferred liquid developer during said transferring step (b) and (3) is selected from the group consisting of alkylketene dimer, sodium salt of carboxymethylcellulose, waxes, petroleum resin, reaction products of terpene resin with acrylonitrile, organic silicon compounds, asphalt emulsion, pitch, hydrophobic polyfunctional amine salt, algin, alkylene imine resin, cyclic petroleum oil, cyclic dicarboxylic acid anhydride, reaction products of a monocarboxylic acid with a dialkanolamine or trialkanolamine, condensates of alkylamine with methylene-bis-acrylamide, tall oil, hydrogenated tall oil, maleic tall oil, saponified dodecenyl succinic anhydride, modified petroleum resin, a mixture of hydrogenated animal fat or casein with aqueous ammonia or sodium hydroxide, condensates of epichlorohydrin with aliphatic primary amine, and hardened fatty acid soap.

4,269,922

POSITIVE TONERS CONTAINING LONG CHAIN HYDRAZINIUM COMPOUNDS

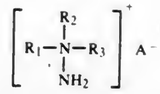
Chin H. Lu, and Peter F. Erhardt, both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 12, 1979, Ser. No. 19,695

Int. Cl.³ G03G *13/16*

U.S. Cl. 430—126 **7 Claims**

1. A method of imaging comprising forming an electrostatic latent image on a photoreceptor, contacting the image with positively charged developer comprising a positively charged resin material, a colorant or pigment, a negatively charged carrier, and a long chain hydrazinium charge inducing compound of the following formula, which compound is blended into the resin material or coated on the pigment in an amount of from about 0.1 weight percent to about 10 weight percent:



wherein R_1 is a hydrocarbon radical containing from 8 to 22 carbon atoms, R_2 and R_3 are independently selected from hydrogen or hydrocarbon radical containing from 1 to 22 carbon atoms, and A is an anion selected from halides, sulfate, sulphonate, phosphate and nitrate, subsequently transferring the developed latent image to a substrate, and permanently affixing the image thereto.

4,269,923

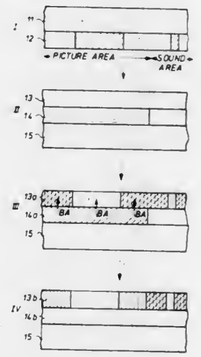
PHOTOGRAPHIC IMAGING PROCESS AND MATERIALS SUITABLE THEREFOR

Raymond A. Roosen, 's-Gravenwezel; Robert J. Pollet, Vremde, and Antoon L. Vandenberghe, Hove, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Jan. 22, 1980, Ser. No. 114,296

Int. Cl.³ G03C *7/24*

U.S. Cl. 430—140 **19 Claims**



1. A process wherein a photographic silver image is formed in at least one hydrophilic colloid layer called "silver-imaging layer" of a light-sensitive photographic material incorporating silver halide, by means of exposure and alkaline development steps, followed by bleaching of quantities of silver which are present in areas of said layer extraneous to those where imaging silver is required, characterized in that a non-diffusible silver bleach inhibitor is initially present in said silver-imaging layer or is released therein during processing of the material but before bleaching, to prevent bleaching of the required imaging silver in such layer in the bleaching step and in that the prevention of the bleaching of the silver by the bleach inhibitor in the areas extraneous to those where imaging silver is required is counteracted by the presence in the corresponding areas of such layer of a bleach accelerator which is caused to define into such areas from an adjacent hydrophilic colloid layer called "accelerator release layer" during the development processing of the material.

4,269,924

PHOTOGRAPHIC MATERIAL SUITED FOR THE PRODUCTION OF MULTICOLOR IMAGES BY MEANS OF DIFFUSION TRANSFER OF COMPLEXED SILVER HALIDE

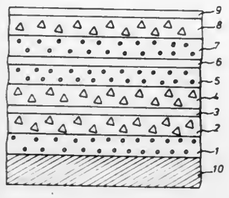
Wilhelmus Janssens, Aarschot; Alphonse Somers, Edegem, and Daniël A. Claeys, Mortsel, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Jan. 25, 1979, Ser. No. 6,487

Claims priority, application United Kingdom, Jan. 27, 1978, 3434/78

Int. Cl.³ G03C *1/40, 1/10, 1/76*

U.S. Cl. 430—214 **10 Claims**



1. A photographic material comprising a support having thereon at least three differently spectrally sensitive silver halide emulsion layers that are each sensitive to light of a different additive primary colour, and associated with each such silver halide emulsion layer a silver-precipitating layer containing development nuclei and a different dye- or dye precursor-releasing compound for producing a subtractive multi-colour image, wherein (1) each of the silver halide emulsion layers is on one side contiguous to its associated silver-precipitating layer but on its opposite side is not contiguous to another such silver precipitating layer, (2) two of said differently spectrally sensitive silver halide emulsion layers are arranged in contiguous relationship or are arranged with an interlayer in between them which is penetrable by diffusing silver complexes, and two of said silver-precipitating layers containing different dye-releasing compounds are arranged in contiguous relationship or are arranged with a non-light-sensitive, non-dye-releasing water-permeable hydrophilic colloid interlayer in between them, and (3) each of the silver halide emulsion layers contains a diffusion-resistant silver halide developing agent.

4,269,925

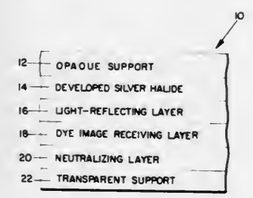
POLYMERIC OPTICAL FILTER AGENTS AND PHOTOGRAPHIC PRODUCTS AND PROCESSES CONTAINING SAME

Derek H. R. Barton, Gif-sur Yvette, France; Irena Y. Bronstein-Bonte, Newton, and Lloyd D. Taylor, Lexington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 29, 1979, Ser. No. 89,558

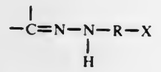
Int. Cl.³ G03C *1/40, 1/84, 5/54, 1/10*

U.S. Cl. 430—215 **71 Claims**

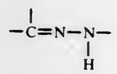


12. A photographic film unit for forming a diffusion transfer image which comprise in combination:

a photosensitive element comprising an opaque support carrying at least one photosensitive silver halide emulsion layer, each said silver halide emulsion layer having associated therewith a dye image-forming material; an image-receiving element comprising a transparent support carrying at least a polymeric image-receiving layer dyeable by said dye image-forming material, said image-receiving element being adapted to exposure therethrough of said photosensitive element and being in a superposed fixed relation to said photosensitive element with said supports outermost; a rupturable container releasably holding an aqueous alkaline processing composition, said rupturable container being positioned so as to release said processing composition for distribution between said dyeable polymeric layer and said photosensitive element adjacent thereto upon application of pressure to said container after photoexposure of said photosensitive element; and disposed in said film unit in said processing composition and/or in a layer intermediate said photosensitive element and said image-receiving element, a polymeric optical filter agent having a light-absorbing capability at a pH above the pKa of the optical filter agent effective to absorb at least a portion of actinic radiation within a predetermined range, said polymeric optical filter agent having attached directly or indirectly to the backbone thereof the following hydrazone moiety:



where R is a group which provides a carbon-to-carbon double bond for conjugation with the



portion of the moiety to provide said light-absorbing capability for the moiety at a pH above the pKa of the moiety and X represents a substituent of R providing at least one electron-withdrawing group.

4,269,926

STABILIZATION OF ORGANIC SUBSTRATE MATERIALS INCLUDING PHOTOGRAPHIC DYE IMAGES AGAINST THE ACTION OF LIGHT

Hiroshi Hara, Asaka; Kotaro Nakamura, and Yoshiaki Suzuki, both of Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

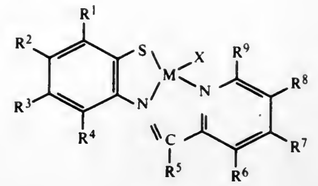
Division of Ser. No. 29,085, Apr. 11, 1979. This application May 15, 1980, Ser. No. 150,023

Claims priority, application Japan, Apr. 17, 1978, 53/45063

Int. Cl.³ G03C *1/40, 1/84, 1/10*

U.S. Cl. 430—216 **2 Claims**

1. A diffusion transfer color photographic material comprising a photosensitive element and an image-receiving element, said image-receiving element comprising a support having thereon a mordanting layer containing a complex of the formula (I):



(I)

wherein M represents a Cu, Co, Ni, Pd or Pt atom; R^1, R^2, R^3, R^4, R^6, R^7, R^8 and R^9 each represents a hydrogen atom, a halogen atom, a cyano group, an alkyl group, an aryl group, a cycloalkyl group or a heterocyclic ring which may be attached to the carbon atom on its respective ring directly or indirectly via a divalent coupling group, or R^1 and R^2, R^2 and R^3, R^3 and R^4, R^6 and R^7, R^7 and R^8, or R^8 and R^9 combine to represent the non-metallic atoms necessary to complete a 6-membered ring; R^5 represents a hydrogen atom, an alkyl group or an aryl group; and X represents a chlorine atom, a bromine atom or an iodine atom.

4,269,927

INTERNALLY DOPED SURFACE SENSITIZED HIGH CHLORIDE SILVER HALIDE EMULSIONS AND PHOTOGRAHIC ELEMENTS AND PROCESSES FOR THEIR PREPARATION

Robert E. Atwell, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 27,325, Apr. 25, 1979, abandoned. This application Jul. 16, 1980, Ser. No. 169,241

Int. Cl.³ G03C *1/28*

U.S. Cl. 430—217 **35 Claims**

1. A negative-working silver halide emulsion of the developing out type comprised of silver halide grains which are capable of producing surface latent image sites and which are at least 80 mole percent silver chloride and less than 5 mole percent silver iodide, based on total silver halide, said silver halide grains being internally doped with cadmium, lead, copper, zinc, or mixtures thereof in a speed increasing amount of up to 7×10^{-5} mole per mole of silver halide.

4,269,928

PROCESS FOR THE PRODUCTION OF PHOTOGRAPHIC IMAGES BY DYE DIFFUSION TRANSFER AND PHOTOGRAPHIC MATERIAL SUITABLE IN THIS PROCESS

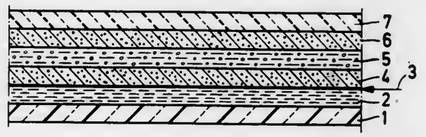
Leslie F. A. Mason, Brentwood; Rainer Kitzing, Ingatestone; Brian R. D. Whitear, Brentwood; William E. Long, Brentwood; Glenn P. Wood, Brentwood, and David L. R. Reeves, Brentwood, all of England, assignors to Ciba-Geigy Aktiengesellschaft, Basel, Switzerland

Filed Feb. 23, 1979, Ser. No. 14,776

Claims priority, application United Kingdom, Feb. 28, 1978, 7789/78; Oct. 13, 1978, 40401/78; Oct. 30, 1978, 42414/78; Nov. 20, 1978, 45305/78

Int. Cl.³ G03C *5/54, 7/00, 1/40, 1/10*

U.S. Cl. 430—239 **61 Claims**



1. A process for the production of a photographic image by use of silver halide material which comprises the steps:

(a) imagewise exposing a photographic assembly which comprises at least during the silver halide developing step, in order, at least one silver halide emulsion layer, a dye mordant layer and a support base, there being associated with the silver halide emulsion layer a compound of the general formula

D—E—F—BAL (I)

where D is a group which contains the residue of a diffusible dye, BAL is ballasting group, D and E being joined by any type of chemical bond and E and F represent an azo, hydrazo, imino or amino bridging group which links D and BAL and which has a reduction potential above −200 mV measured against a standard hydrogen electrode at a pH of less than 3 and which bond can be reductively cleaved at a pH of less than 3 by a reducing agent which is able to act at a pH below 3,

(b) processing the exposed assembly to develop the latent image in the silver halide emulsion layer(s),

(c) and simultaneously or subsequently producing an imagewise distribution of a reducing agent in an aqueous acid medium having a pH below 3 and reductively cleaving the E–F bond of the compound of formula (I) thereby liberating a diffusible dye imagewise,

(d) Allowing or causing the diffusible dye to diffuse to the dye mordant layer

(e) and there to mordant the dye to form a dye image having a peak absorption within the range of 300–800 nm.

4,269,929

HIGH CONTRAST DEVELOPMENT OF PHOTOGRAPHIC ELEMENTS

Ronald J. Nothnagle, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 14, 1980, Ser. No. 112,249

Int. Cl.³ G03C *5/30*

U.S. Cl. 430—264 **25 Claims**

1. A method for high contrast development of a photographic element comprising at least one silver halide emulsion layer, which method comprises contacting said element in the presence of a hydrazine compound with an aqueous alkaline developing solution which has a pH of above 10 and below 12 and contains a dihydroxybenzene developing agent, a 3-pyrazolidone developing agent, a sulfite preservative, and a contrast-promoting amount of an amino compound.

4,269,930

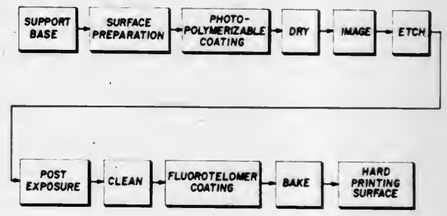
PHOTOPOLYMERIC COMPOSITION CONTAINING POLYAMIDE AND DICARBOXYLIC ACID DIESTER

David R. Kress, Rochester, N.Y., assignor to Matrix Unlimited, Inc., Rochester, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,622

Int. Cl.³ G03C *1/68*

U.S. Cl. 430—270 **2 Claims**



1. A photopolymerizable composition of matter comprising a mixture of:

(a) from about 70–95% by weight of an alcohol-soluble linear polyamide;

(b) from about 0.5–15% by weight of a low molecular weight dicarboxylic acid diester selected from the group

consisting of saturated and unsaturated dicarboxylic acid diesters having up to eight carbon atoms in the acid backbone and up to about four carbon atoms in the alcohol moiety appended at the ester linkage; and,

(c) an effective amount of at least one photosensitizer and at least one polymerization inhibitor.

4,269,931

SUPPORTS FOR PRINTING PLATES

Kazuyoshi Suzuki; Teruo Takahashi; Tadashi Shingu, all of Hino; Kiyomi Naka, Kokubunji, and Akihiro Horike, Hino, all of Japan, assignors to Teijin Limited, Osaka, Japan

Continuation of Ser. No. 882,099, Mar. 1, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,279

Claims priority, application Japan, Mar. 8, 1977, 52-24354

Int. Cl.³ G03C *1/68*

U.S. Cl. 430—271 **25 Claims**

1. In a support for use in making a printing plate using a liquid photosensitive resin selected from the group consisting of polyester resin, polyurethane resin and mixtures thereof, the support comprising (A) a base plate, (B) an adhesive layer formed on the surface of the base plate, and (C) an activating layer formed on the surface of the adhesive layer; the improvement wherein the activating layer (C) comprises as an activating agent a phosphorus compound (a) selected from the group consisting of tertiary phosphite compound (a-i) and tertiary phosphine compound (a-ii) in an amount of about 10–100 weight percent and having a thickness of 0.1–50 microns.

4,269,932

PROCESS FOR PREPARING AN ORIGINAL INFORMATION CARRIER FOR ZERO-ORDER DIFFRACTION

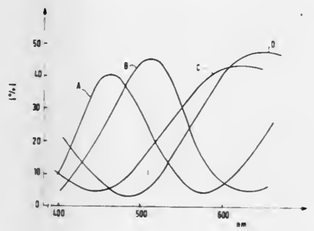
Roland Moraw, and Renate Schädlich, both of Naurod, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 27, 1978, Ser. No. 928,701

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1977, 2734580

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—290 **6 Claims**



1. A process for producing a relief original information carrier for use in zero order diffraction color projection which comprises the steps of:

(a) exposing an entire recording layer containing a photoresist layer applied on a carrier to a grating pattern for a time sufficient to provide, upon subsequent development, a uniform relief path corresponding to a certain projection color, and being smaller than the thickness of the recording layer,

(b) subsequent to said grating pattern exposure, image-wise exposing said recording layer through at least one of individual color separation originals to form at least one relief part-image corresponding to a different projection color, each of said color separation originals being transparent in the areas of the particular projection colors of the individual color separation originals, each of said relief part-images of the projection color adjoining one another without overlap and having a depth different than said uniform relief depth and different from those relief part-images corresponding to other projection colors, which are transparent in the area of their corresponding projection color, part-image areas of which adjoining one another without overlap,) said image-wise exposing through each individual color separation original provided with a different energy density for each color separation original,

(c) said energy density used for each image-wise exposing through an individual color separation original being lower than the required energy density for an exposure of a similar recording layer through the same color separation original without a preceding grating exposure, to obtain the required projection color, and

(d) developing said exposed recording layer.

4,269,933

METHODS OF DEVELOPING PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING AN o-NITROAROMATIC COMPOUND AS PHOTOINHIBITOR

José F. Pazos, Claymont, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 913,906, Jun. 8, 1978, Pat. No. 4,198,242, which is a continuation-in-part of Ser. No. 758,699, Jan. 17, 1977, abandoned, which is a continuation-in-part of Ser. No. 667,536, Mar. 17, 1976, abandoned. This application Sep. 28, 1979, Ser. No. 80,082

Int. Cl.³ G03C *5/00*

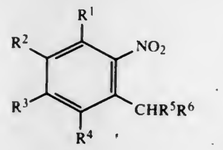
U.S. Cl. 430—291 **17 Claims**

1. Method of making a positive polymeric image on a substrate which comprises

(1) coating the substrate with the photopolymerizable coating composition in which the photopolymerizable and photosensitive components consist essentially of

(a) normally nongaseous, ethylenically unsaturated compound selected from the group consisting of unsaturated esters of polyols, unsaturated amides, vinyl esters and unsaturated aldehydes capable of addition polymerization by free-radical initiated chain propagation,

(b) 0.004 to 0.7 part by weight, per part of component (a), of nitroaromatic compound of the formula



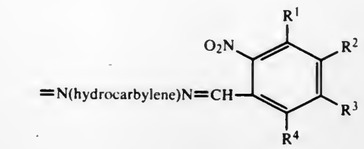
wherein

R^1, R^2, R^3 and R^4, alike or different, are H, OH, halogen, NO_2, CN, alkyl of 1 to 18 carbons, alkoxy in which the alkyl is of 1 to 18 carbons, acyloxy of 2–7 carbons, aryl of 6 to 18 carbons, benzyl, halogen-substituted phenyl, polyether of 2 to 18 carbons and 2 to 10 oxygens, dialkylamino in which each alkyl is of 1 to 18 carbons, thioalkyl in which the alkyl is of 1 to 18 carbons, or thioaryl in which the aryl is of 6 to 18 carbons, R^2 and R^3, taken together, are $—OCH_2O—$ or $—O—CH_2CH_2O—_q$ in which q is an integer from 1 to 5, or any two of R^1, R^2, R^3 and R^4, taken together, are the residue of a second benzene ring fused onto the benzene nucleus, with the proviso that not more than one of R^1, R^2, R^3 and R^4 is OH or NO_2,

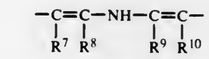
R^5 is H, alkyl of 1 to 18 carbons, halogen, phenyl, or alkoxy in which the alkyl is of 1 to 18 carbons,

R^6 is H, OH, alkyl of 1 to 18 carbons, phenyl, alkoxy in which the alkyl is of 1 to 18 carbons, or aryloxy of 6 to 18 carbons unsubstituted or substituted with halogen, alkyl of 1 to 6 carbons, or alkoxy of 1 to 6 carbons, with the proviso that only one of R^5 and R^6 is H, or

R^5 and R^6 taken together are $=O$, $=CH_2$, $—O—CH_2—$, $=NC_6H_5$, $=NC_6H_4N(alkyl)_2$ in which each alkyl is of 1 to 18 carbons, $—O—C_2H_4—O—$, $=N(alkyl)$ in which the alkyl is of 1 to 6 carbons,



in which the hydrocarbylene group is of 1 to 18 carbons, or



in which R^8 and R^9, alike or different, are H or alkyl of 1 to 4 carbons, and R^7 and R^{10}, alike or different, are —CN, $—COR^{11}$ in which R^{11} is alkyl of 1 to 5 carbons, or $—COOR^{12}$ in which R^{12} is alkyl of 1 to 6 carbons which may be interrupted by an oxygen atom, alkenyl of 2 to 5 carbons, or alkynyl of 2 to 5 carbons, or R^7 and R^8 together, or R^9 and R^{10} together, complete a 6-membered carbocyclic ring containing a keto group, and

(c) 0.001 to 10 parts by weight, per part of component (a), of an organic, radiation-sensitive, free-radical generating system, activatable by actinic radiation that does not significantly rearrange the nitroaromatic compound to an inhibitor of free-radical polymerization,

(2) imagewise exposing a portion of the photopolymerizable coating through an image-bearing transparency to radiation at least 20% of which has a wavelength of 200 to 380 nm, thereby rearranging at least some of the nitroaromatic compound to polymerization inhibiting nitroso-aromatic compound, and

(3) subjecting the coating to a second exposure whereby a greater portion of the coating, including the portion exposed during the imagewise exposure, is exposed to radiation substantially limited to wavelengths greater than 380 nm, whereby a positive polymeric image is formed in the areas exposed during the second exposure but not exposed during the imagewise exposure.

4,269,934

TIN OXIDE, CADMIUM CHLORIDE DOPED SILVER CHLORIDE ELECTRON BEAM RECORDING MEDIUM

Nicholas F. Borrelli, Elmira, and Peter L. Young, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,829

Int. Cl.³ G03C *1/72, 1/733*

U.S. Cl. 430—296 **10 Claims**

1. An electron beam recording medium comprising a supported polycrystalline film containing cadmium chloride-doped silver chloride in combination with tin oxide.

6. A method for making an optical mask which comprises the step of selectively darkening portions of a polycrystalline film containing cadmium chloride-doped silver chloride in combination with tin oxide by exposing said portions to an electron beam for a time sufficient to obtain an optical contrast ratio of at least about 3 between the selectively darkened portions of the film and the undarkened portions thereof.

4,269,935

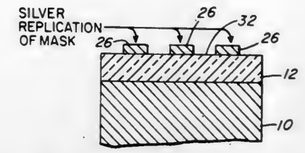
PROCESS OF DOPING SILVER IMAGE IN CHALCOGENIDE LAYER

Joseph I. Masters, Cambridge, and Gershon M. Goldberg, Arlington, both of Mass., assignors to Ionomet Company, Inc., Brighton, Mass.

Continuation-in-part of Ser. No. 57,183, Jul. 13, 1979, abandoned. This application Oct. 17, 1979, Ser. No. 86,198

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—323 **8 Claims**



1. In a process employing a chalcogenide glass to delineate a pattern, the steps of:

(a) distributing a silver halide deposit over the outer surface of the chalcogenide glass;

(b) exposing portions of said silver halide deposit to a pattern of actinic radiation on said silver halide deposit to produce a latent image corresponding to a desired pattern in said silver halide deposit;

(c) photographically processing said latent image to form a metallic silver replication of said pattern; and

(d) causing said metallic silver replication to penetrate into the surface of said chalcogenide glass to dope with silver the immediately-underlying surface of said chalcogenide glass.

4,269,936

PROCESS OF FORMING YELLOW PHOTOGRAPHIC IMAGES

Atsuaki Arai; Yasushi Oishi; Kiyoshi Nakazyo; Atsushi Sugizaki, and Akio Okumura, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

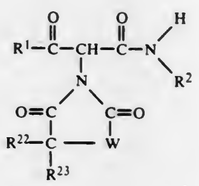
Filed Dec. 29, 1972, Ser. No. 319,806

Claims priority, application Japan, Dec. 28, 1971, 47-3039

Int. Cl.³ G03C *1/40*

U.S. Cl. 430—389 **25 Claims**

1. A method for forming dye images comprising exposing and processing a silver halide photographic emulsion with an aromatic primary amino developing agent in the presence of a yellow dye-forming coupler represented by the following formula:



wherein R^1 represents an aryl group; R^2 represents an aryl group or a heterocyclic group; W represents an oxygen atom or a sulfur atom; and R^{22} and R^{23}, which may be the same or different, each represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an aryl group, an arvloxy group, a sulfo group or a carboxyl group.

4,269,937

PHOTOGRAPHIC POLYOLEFIN COATED PAPER BASES WITH IONOMER LAYER

Yoshimasa Asanuma, and Taiichi Nishimura, both of Fujinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Minamiashigara, Japan

Filed Jun. 25, 1979, Ser. No. 52,047
Claims priority, application Japan, Jun. 23, 1978, 53-76161
Int. Cl.³ G03C 1/86
U.S. Cl. 430—538 **11 Claims**

1. In a base for a photographic light-sensitive material comprising a polyolefin coated paper, the improvement which comprises a layer of an ionomer of

(a) an α-olefin represented by the formula $RCH{=}CH_2$, where R represents a hydrogen atom or a hydrocarbon group having 1 to 8 carbon atoms, and

(b) an α,β-ethylenically unsaturated carboxylic acid in which the degree of neutralization of the carboxyl groups in said acid by metal ions ranges from 20 to 90%, said acid being present in the ionomer in an amount of about 0.2 to 40 mol%,

between the surface of the paper and the polyolefin coating.

4,269,938

ASSAY OF PEROXIDATIVELY ACTIVE MATERIALS

David S. Frank, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 8, 1979, Ser. No. 18,532
Int. Cl.³ G01N 31/14; C09K 3/00; G01N 31/22
U.S. Cl. 435—7 **41 Claims**

1. A composition useful for the determination of a substance having peroxidative activity, said composition, consisting essentially of diacetyldichlorofluorescin and a source of hydrogen peroxide in a concentration of from about 10^{-6} to 10^{-2} M, the ratio of diacetyldichlorofluorescin to hydrogen peroxide or generated hydrogen peroxide ranging from 1:5 to 1:100.

19. A method for assaying peroxidase comprising the steps of

(a) contacting a substantially dry element comprising a reagent having a composition consisting essentially of diacetyldichlorofluorescin and a dry source of hydrogen peroxide at a concentration of from about 10^{-6} to 10^{-2} M with a sample for analysis, the ratio of diacetyldichlorofluorescin to generated hydrogen peroxide ranging from 1:5 to 1:100; and

(b) detecting the dichlorofluorescein resulting from said contact.

41. A method of assaying for antigen or antibody present in a sample to be tested comprising:

(a) labeling a known amount of antigen or antibody with peroxidase and adding said labeled antigen or antibody with said sample to be tested to a known amount of corresponding antigen or antibody; and

(b) determining the amount of unknown antigen or antibody by

(i) contacting in an aqueous medium the mixture of (a) and a composition consisting essentially of diacetyldichlorofluorescin and a source of hydrogen peroxide at a concentration of from about 10^{-6} to 10^{-2} M to produce dichlorofluorescein, the ratio of diacetyldichlorofluorescin to hydrogen peroxide or generated hydrogen peroxide ranging from 1:5 to 1:00;

(ii) detecting the dichlorofluorescein.

4,269,939

PREPARATION OF HETEROPOLYSACCHARIDE S-119

Kenneth S. Kang, La Jolla; George T. Veeder, and Peter J. Mirrasoul, both of San Diego, all of Calif., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jun. 20, 1980, Ser. No. 161,619
Int. Cl.³ C12P 19/06
U.S. Cl. 435—104 **4 Claims**

1. A process for producing heteropolysaccharide S-119 which comprises growing a variant strain of Agrobacterium radiobacter, ATCC 31643 in an aqueous nutrient medium by aerobic fermentation of an assimilable carbon source and recovering said heteropolysaccharide S-119.

4,269,940

MICROBIOLOGICAL ALKANE OXIDATION PROCESS

Ramesh N. Patel; Ching-Tsang Hou, both of Edison, N.J., and Allen I. Laskin, New York, N.Y., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 896,476, Apr. 14, 1978, abandoned. This application Mar. 27, 1979, Ser. No. 24,306
Int. Cl.³ C12P 7/26
U.S. Cl. 435—148 **10 Claims**

1. A process for increasing the oxidative state of an oxidizable organic substrate selected from the group consisting of C_1-C_2 alkanes to the corresponding alcohols, C_3-C_6 alkanes to the corresponding 1- and 2- alkanols and methyl ketones which comprises: oxidizing said oxidizable substrate under aerobic conditions, in the presence of cells of a bacterial methylotrophic microorganism or an enzyme preparation prepared from said cells which exhibits oxygenase enzyme activity until at least a portion of said corresponding oxidized product is produced in isolatable amounts, wherein said microorganisms have been aerobically grown in a nutrient medium containing methane which provides the carbon and energy source for growth of the cells and induces oxygenase enzyme activity in said cells and said microorganisms are methane-utilizing microorganism strains selected from the group consisting of:

Methylosinum trichosporium—(CRL 15 PM1)—NRRL B-11,202

Methylosinus sporium—(CRL 16 PM2)—NRRL B-11,203

Methylocystis parvus—(CRL 18 PM4)—NRRL B-11,204

Methylomonas methanica—(CRL M4P)—NRRL B-11,205

Methylomonas methanica—(CRL 21 PM7)—NRRL B-11,206

Methylomonas albus—(CRL M8Y)—NRRL B-11,207

Methylomonas streptobacterium—(CRL 17 PM3)—NRRL B-11,208

Methylomonas agile—(CRL 22 PM9)—NRRL B-11,209

Methylomonas rubrum—(CRL M6P)—NRRL B-11,210

Methylomonas rubrum—(CRL 20 PM6)—NRRL B-11,211

Methylomonas rosaceus—(CRL M1OP)—NRRL B-11,212

Methylomonas rosaceus—(CRL M7P)—NRRL B-11,213

Methylobacter chroococcum—(CRL M6)—NRRL B-11,214

Methylobacter chroococcum—(CRL 23 PM8)—NRRL B-11,215

Methylobacter bovis—(CRL M1Y)—NRRL B-11,216

Methylobacter bovis—(CRL 19 PM5)—NRRL B-11,217

Methylobacter vinelandii—(CRL M5Y)—NRRL B-11,218

Methylococcus capsulatus—(CRL M1)—NRRL B-11,219

Methylococcus minimus—(CRL 24 PM12)—NRRL B-11,220

Methylococcus capsulatus—(CRL 25 PM13)—NRRL B-11,221

Methylobacterium organophilum—(CRL 26 R6)—NRRL B-11,222

and mutants thereof.

4,269,941

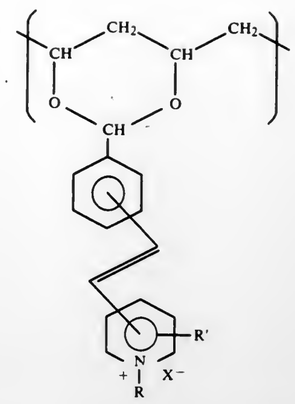
METHOD FOR ENZYME IMMOBILIZATION

Kunihiro Ichimura, Yokohama, Japan, assignor to Agency of Industrial Science and Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

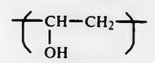
Filed Jul. 31, 1979, Ser. No. 62,486
Claims priority, application Japan, Aug. 9, 1978, 53/96804
Int. Cl.³ C12N 11/04
U.S. Cl. 435—182 **8 Claims**

1. A method for the immobilization of an enzyme, which comprises:

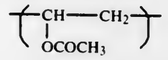
dissolving in water a photo-crosslinking resin having a polymerization degree of 300 to 4000, consisting of 0.1 to 10.0 mol% of a unit containing a crosslinking group of the formula:



wherein, R represents one member selected from the group consisting of a hydrogen atom, an alkyl group, a hydroxy-alkyl group and an aralkyl group, R′ represents one member selected from the group consisting of a hydrogen atom and an alkyl group, and X^- represents a strongly acidic anion, 70.0 to 99.0 mol% of a unit containing a hydroxyl group of the formula:



and 0.1 to 30.0 mol% of a unit containing an acetyl group of the formula:



adding the enzyme to the resultant aqueous solution containing the photo-crosslinking resin, and

exposing the enzyme-containing resin to light to induce a crosslinking reaction of the photo-crosslinking resin and produce a polymer containing the enzyme entrapped therein,

wherein the concentration of the photo-crosslinking resin in water is 1-40% by weight.

4,269,942

PROCESS FOR PREPARING ACYL-COA SYNTHETASE LCF-18

Hideaki Yamada; Sakayu Shimizu, and Yoshiki Tani, all of Kyoto, Japan, assignors to Amano Pharmaceutical Co. Ltd., Nagoya, Japan

Continuation-in-part of Ser. No. 28,604, Apr. 9, 1979, Pat. No. 4,229,538. This application Mar. 20, 1980, Ser. No. 132,177
Claims priority, application Japan, May 15, 1978, 53-056604; Jan. 26, 1979, 54-007244
Int. Cl.³ C12N 9/10
U.S. Cl. 435—193 **1 Claim**

1. A process for preparing acyl-CoA synthetase LCF-18, comprising cultivating *Pseudomonas aeruginosa* IFO 3919 in a medium under aerobic conditions until a substantial amount of acyl-CoA synthetase LCF-18 is accumulated in the cells, and then isolating acyl-CoA synthetase LCF-18 from the thus cultured cells.

4,269,943

THERMALLY STABLE RESINS PREPARED BY BROMINATION OR CHLORINATION OF AROMATIC POLYMER BEADS FOLLOWED BY SULPHONATION

Charles R. Costin, Jenkintown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Aug. 23, 1979, Ser. No. 69,039
Int. Cl.³ C08F 8/22, 8/36
U.S. Cl. 521—33 **10 Claims**

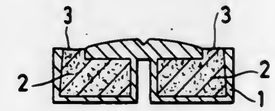
1. A process for producing a strong acid cation exchange resin having enhanced thermal stability comprising the steps of (1) chlorinating or brominating the aromatic nuclei of polymer beads, said chlorine or said bromine being introduced onto said aromatic nuclei in an amount of from about 8% to about 25% based on the weight of the polymer, said polymer beads being prepared from a monomer system consisting essentially of (a) from about 50% to about 96%, based on the total weight of the monomers present, of a monovinyl aromatic monomer, the balance being a polyvinyl aromatic monomer and (b) the monomers of (a) with up to about 5% by weight of the polymer of a monomer selected from the class consisting of acrylonitrile, methyl acrylate, methyl methacrylate, and mixtures thereof, and (2) sulfonating the chlorinated or brominated polymer beads whereby the resultant cation exchange resin exhibits enhanced thermal stability.

4,269,944

COMPOSITION FOR FORMING AN INTUMESCENT MATERIAL

Cyril A. Redfarn, London, England, assignor to Dixon International Limited, Pampisford, England

Continuation-in-part of Ser. No. 874,513, Feb. 2, 1978, Pat. No. 4,210,725. This application May 16, 1980, Ser. No. 150,426
Int. Cl.³ C08J 9/00
U.S. Cl. 521—100 **12 Claims**



1. An intumescent material upon heating decomposes into gas and a solid foam residue comprising:

cured hydrophobic melamine formaldehyde resin in which the curing agent is selected from the group consisting of guanidine and dicyandiamide;

a hydrated inorganic setting agent, said setting agent having chemically absorbed water to make the intumescent material coherent;

an ammonium phosphate;

polyvinyl acetate;

a polyhydroxy compound; and

reinforcing fibrous material.

4,269,945

REACTION INJECTION MOLDED POLYURETHANES EMPLOYING ALIPHATIC AMINE CHAIN EXTENDERS

James A. Vanderhider, Lake Jackson, and Gerald M. Lancaster, Surfside, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jan. 24, 1980, Ser. No. 114,803
Int. Cl.³ C08G 18/14
U.S. Cl. 521—159 **5 Claims**

1. In a process for preparing RIM urethane systems which systems employ a composition which comprises (A) a relatively high molecular weight hydroxyl-containing polyol, (B) a chain extender and (C) a polyisocyanate, a polyisothiocyanate or mixture thereof; the improvement which comprises employing as the chain extender, component (B), a mixture comprising

(1) at least one member selected from the group consisting of
(a) hydroxyl-containing materials which are essentially free of aliphatic amine hydrogen atoms, have an average OH functionality of from about 2 to about 4 and have an average OH equivalent weight of from about 30 to about 120 and
(b) aromatic amine-containing materials which are essentially free of aliphatic amine hydrogen atoms and which contain at least two aromatic amine hydrogen atoms and
(2) at least one aliphatic amine-containing material having at least one primary amine group, an average aliphatic amine hydrogen functionality of from about 2 to about 16 and an average aliphatic amine hydrogen equivalent weight of from about 15 to about 500; and wherein
(i) components (A), (B) and (C) are present in quantities such that the weight percent of the theoretical reaction product of the amine hydrogen atoms of component (B-2) with a stoichiometric quantity of component (C) based upon the total weight of Components (A), (B) and (C) is from about 5 to about 25 and
(ii) the NCX index is from about 0.6:1 to about 1.50:1 with the proviso that when an NCX trimerization catalyst is also present the index is up to about 5:1.

4,269,946

LOW DENSITY HIGH RESILIENCY FOAMS

Carl M. Sullivan, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 31, 1980, Ser. No. 117,406
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—163 **5 Claims**

1. A process for producing a flexible polyurethane foam having improved load bearing characteristics for its density by effecting reaction between (a) a polyisocyanate and (b) a polymeric polyol which is a polyalkylene ether having a number average molecular weight in the range of 1000 to 7000 in the presence of (c) a catalyst and (d) a blowing agent, and 1,2-diaminocyclohexane.

4,269,947

CURED OR UNCURED AROMATIC POLYESTER COMPOSITION AND PROCESS FOR ITS PRODUCTION

Hiroo Inata; Makoto Ogasawara; Tsuto Morinaga, and Akihiro Norike, all of Hino, Japan, assignors to Teijin Limited, Osaka, Japan

Division of Ser. No. 920,834, Jun. 30, 1978, Pat. No. 4,196,066. This application Sep. 25, 1979, Ser. No. 78,680
Claims priority, application Japan, Jul. 5, 1977, 52/79445; Apr. 10, 1978, 53/41326; Apr. 12, 1978, 53/420262
Int. Cl.³ C08J *3/28*
U.S. Cl. 525—10 **10 Claims**

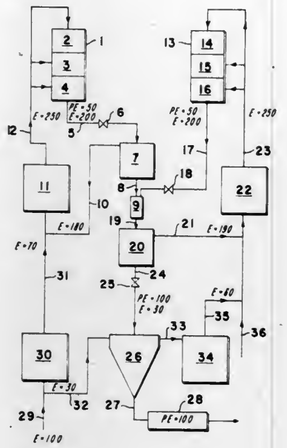
1. A cured or uncured linear aromatic polyester composition melt-blended and composed of
(A) 100 parts by weight of a saturated linear aromatic polyester in which at least 70 mole% of the acid component consists of an aromatic dicarboxylic acid, and
(B) 0.1 to 50 parts by weight of a reactive compound which is solid at room temperature or is a liquid having a boiling point of at least 200° C. under atmospheric pressure, and which contains in its molecule at least one aliphatic unsaturated group substantially non-reactive with the polyester (A) and the aliphatic unsaturated group of the reactive compound (B) under conditions of melt-blending with the polyester (A) and at least one epoxy group reactive with the polyester (A) under the melt-blending conditions.

4,269,948

PROCESS AND APPARATUS FOR WIDENING THE POLYETHYLENE MOLECULAR WEIGHT DISTRIBUTION BY USING TWO REACTORS AND TWO SEPARATORS

Adrien Nicco, Bethune, France, assignor to Societe Chimique des Charbonnages - CdF CHIMIE, Paris, France

Filed Dec. 28, 1979, Ser. No. 108,235
Claims priority, application France, Dec. 28, 1978, 78 36625
Int. Cl.³ C08F *2/02, 10/02*
U.S. Cl. 525—53 **6 Claims**



1. A process for polymerizing ethylene at a pressure between 600 and 3,000 bars and at a temperature between 160° C. and 320° C. in two reactors operating in parallel, comprising reacting ethylene in a first reactor in the presence of less than 0.1% of hydrogen for the purpose of producing a polymer of high molecular weight, reacting ethylene in a second reactor in the presence of 0.2 to 5% of hydrogen for the purpose of producing a polymer of low molecular weight, expanding the effluents from these two reactors, and transferring said expanded effluents to a set of two separators so interconnected as to efficiently mix the polymers produced in the two reactors by recycling the least amount of hydrogen possible in the supply circuit of the first reactor in such a manner that the proportion of hydrogen in said first reactor remains less than 0.1% in moles.

4,269,949

PHENOL FORMALDEHYDE RESIN FOR HARDBOARD APPLICATIONS

Charles H. Hickson, New Albany Floyd, Ind., and Pitchaiya Chandramouli, Louisville, Ky., assignors to Borden, Inc., Columbus, Ohio

Filed Jun. 27, 1979, Ser. No. 52,452
Int. Cl.³ C08G *8/10*
U.S. Cl. 525—58 **13 Claims**

1. Composition of matter comprising:
A. A homogeneous phenol formaldehyde resole resin having a formaldehyde to phenol ratio of about 1.2 to 2.5 and a water tolerance in excess of 2000%;
B. An alkaline catalyst;
C. An effective amount of weak acid to give a resin reactively value of about a quarter of an hour; and;
D. An effective amount of a non-cellulosic protective colloid to give a resin of improved flow properties including at least a good amount of stringiness; wherein the resin is prepared in a two stage process insitu by first reacting at least 80% of the total phenol and formaldehyde in the presence of the alkaline catalyst in a first stage to give a high molecular weight condensation resin of about zero water tolerance and then treating the resulting resin with additional phenol and formaldehyde in an amount up to 20% of the total phenol and formaldehyde in a second stage until a resin having a desired water tolerance in excess of about 2000% is obtained.

4,269,950

THERMOPLASTIC MOLDING COMPOSITIONS OF VINYL AROMATIC COMPOUND α,β UNSATURATED CYCLIC ANHYDRIDE COPOLYMERS

Visvaldis Abolins, Delmar, and Gim F. Lee, Jr., Albany, both of N.Y., assignors to General Electric Company, Selkirk, N.Y.

Division of Ser. No. 935,919, Aug. 23, 1978, which is a division of Ser. No. 477,435, Jun. 7, 1974, Pat. No. 4,124,654. This application Jun. 6, 1980, Ser. No. 157,068
Int. Cl.³ C08L *51/04, 35/06*
U.S. Cl. 525—68 **2 Claims**

1. A thermoplastic molding composition which comprises:
(a) from 40–95 parts by weight of a copolymer of a vinyl aromatic compound and an α,β-unsaturated cyclic anhydride; and
(b) from 10–50 parts by weight of an emulsion graft copolymer comprising (1) from 20–80% by weight of a backbone polymer of the units of butadiene or butadiene and styrene, wherein the butadiene units are present in quantities of at least 40% by weight of the backbone polymer, (2) 80–20% by weight of an acrylic monomer chosen from the group consisting of lower alkyl methacrylates, alicyclic methacrylates and alkyl acrylates, graft polymerized to (1) and (3) 0 to 60% by weight of a styrene monomer graft polymerized to (1) sequentially before the polymerization of (2).

4,269,951

PURIFICATION OF WET STRENGTH RESINS

Donald N. Van Eenam, Des Peres, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed May 19, 1980, Ser. No. 150,790
Int. Cl.³ C08F *8/08, 8/24, 8/32*
U.S. Cl. 525—359 **8 Claims**

1. A process for the removal of epihalohydrin and dihalopropanol impurities from an aqueous solution of a perepiquat resin which process comprises adjusting the pH of the solution to a value in the range 8 to 13 and volatilizing from the solution, at a temperature below 40° C., an azeotrope of epihalohydrin and water.

4,269,952

PREPARATION OF GLYCIDYL POLYARYLETHERS

Jean-Louis Locatelli, Vienne, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed Jan. 4, 1980, Ser. No. 109,566
Claims priority, application France, Jan. 5, 1979, 79 00682
Int. Cl.³ C08G *59/06*
U.S. Cl. 525—507 **23 Claims**

1. In a process for the preparation of a glycidyl polyarylether comprising reacting at least one alkali metal salt of a polyhydric phenol with at least one 1-halo-2,3-epoxyalkane, in an anhydrous and aprotic reaction medium, the improvement which comprises said reaction medium being heterogeneous and including an organic compound selected from the group comprising acetonitrile, propionitrile, benzonitrile and ethylene sulfide.

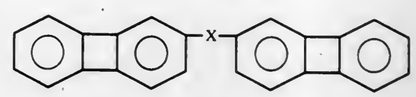
4,269,953

METHOD OF CROSSLINKING AROMATIC THERMOPLASTIC POLYMERS USING A BIPHENYLENE TERMINATED COMPOUND

Richard A. Brand, Poway, Calif., assignor to General Dynamics Corporation, San Diego, Calif.

Filed Apr. 2, 1979, Ser. No. 26,616
Int. Cl.³ C08F *283/00;* C08G *75/20, 75/23*
U.S. Cl. 525—534 **13 Claims**

1. The method of crosslinking aromatic thermoplastic polymers which comprises the steps of:
providing an aromatic thermoplastic polymer which is substantially resistant to degradation at temperatures below about 350° C.;
dissolving said polymer in a solvent;
mixing therewith from about 2 to 30 wt% (based on the polymer weight) of a biphenylene terminated compound having the general formula:



wherein X is selected from the group consisting of: isophthaloyl, carbonyl, sulfonyl, ethylene, ethylenedioxy, ethylidene, glyceryl, hydrazo, imido, malonyl, methylene, methylendioxy, oxy, phthaloyl, propylene, succinyl, sulfinyl, terephthaloyl, tetramethylene, thio, thiocarbonyl, trimethylene, ureylene, vinylene; vinylidene, xylylene and mixtures thereof;
evaporating the solvent, and
heating the mixture to a temperature of from about 300° to 350° C.

4,269,954

PROCESS FOR PRODUCING HOMO- OR COPOLYMERS OF VINYL OR VINYLIDENE HALIDES HAVING REDUCED POLYMER BUILDUP IN THE REACTOR

Marion G. Morningstar, and William D. Postel, Jr., both of Avon Lake, Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Continuation of Ser. No. 947,670, Oct. 2, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,320
Int. Cl.³ C08F *2/00, 14/06, 14/08*
U.S. Cl. 526—62 **22 Claims**

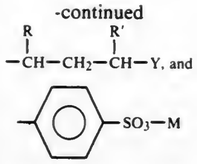
1. A process for producing homopolymers of vinyl and vinylidene halides and copolymers thereof either with each other or with up to 80% by weight of one or more vinylidene monomers having at least one terminal $CH_2=C<$ grouping comprising, forming a monomer premix containing the monomer or monomers to be polymerized, the aqueous reaction medium, from about 0.02% to about 0.20% by weight of a free-radical yielding catalyst based on the weight of 100 parts of monomer or monomers being polymerized, from about 0.0005% to about 0.02% by weight, based on the weight of the monomer(s), of an activator for said catalyst, from about 0.5% to about 4.0% by weight, based on the weight of the monomer(s) of at least one emulsifier selected from the group consisting of ammonium salts of a saturated fatty acid, alkali metal salts of a saturated fatty acid, said fatty acid containing from 8 to 20 carbon atoms, and a sulfate or sulfonate type soap having the general formula

$$CH^3(C_nH_{2n})—X$$

wherein n is an integer from 7 to 18, X is selected from the group consisting of

$$—CH=CH—CH_2—Y,$$

-continued



and wherein R is selected from the group consisting of —H, —OH, and an alkyl group having from 1 to 4 carbon atoms, R' is selected from the group consisting of —H, and an alkyl group having from 1 to 4 carbon atoms, and Y is selected from the group consisting of $-SO_3-M$, $-O-SO_3-M$, and $-O-CH_2CH_2-O)_mSO_3-M$, wherein M is selected from the group consisting of NH_3, Na and K, and m is an integer from 7 to 17, at least one long straight chain saturated alcohol containing from 12 to 24 carbon atoms, wherein the ratio of alcohol to emulsifier is 1.0 or greater than 1.0, homogenizing said premix at a temperature below the reactivity of the catalyst or catalysts employed, passing said homogenized premix to a reaction vessel having a coating on the inner surfaces thereof comprised of a water phase polymerization inhibitor, emulsion polymerizing said homogenized premix in a first stage at a temperature in the range of about 30° C. to about 50° C. to a conversion in the range of about 25% to about 30%, thereafter polymerizing said premix in a second stage at a temperature in the range of about 35° C. to about 60° C., then polymerizing said premix in a third stage at a temperature in the range of about 40° C. to about 70° C., wherein the temperature in each of said stages is different and chosen so as to maintain a substantially constant reaction rate, maintaining the pH of the reaction mixture in said stages in the range of about 9.0 to about 11.0 until the reaction is complete, the total time to complete reaction in said first stage through said third stage being in the range of about 6 hours to about 14 hours, and thereafter recovering the homopolymer or copolymer, whereby polymer buildup in said reaction vessel is substantially reduced.

4,269,955

CATALYST COMPOSITION POLYMERIZATION OF ISOOLEFINS AND MULTIOLEFINS

Joseph Wagensommer, Westfield, and Pacifico V. Manalastas, Jersey City, both of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 827,700, Aug. 25, 1977, abandoned. This application Feb. 1, 1979, Ser. No. 8,789

Int. Cl.[3] C08F *4/52*

U.S. Cl. 526—185 **3 Claims**

1. A catalyst composition used for preparing polymers at polymerization conditions of about −50° C. to about −100° C. at a pressure of about 0 to about 1000 psig for about 1 to about 60 minutes from a mixture of monomers dissolved in a cosolvent, said cosolvent selected from the group consisting of cyclic, branched and normal paraffinic hydrocarbons, said mixture of monomers consisting essentially of an isoolefin and one or more multiolefins, said isoolefin being selected from the group consisting of isobutylene, 2-methyl-butene, 3-methyl-butene, 4-methyl-pentene-1 and β-pinene, said multiolefin being selected from the group consisting of isoprene, piperylene, cyclopentadiene, and methylcyclopentadiene and mixtures thereof, a weight ratio of said isoolefin to said cosolvent being about 1 to about 10, said catalyst composition comprising a soluble reaction product formed in a paraffinic hydrocarbon solvent from the reaction of a material of the formula $RAlX_2$ and a halogen containing material, wherein X is the same or different halogen selected from the group consisting of Cl and Br, wherein said halogen containing material is selected from the group consisting of Cl_2, Br_2, and BrCl, wherein R is an alkyl of straight or branched chain structure of from 1 to 7 carbon atoms, wherein the molar ratio of the halogen containing material to said $RAlX_2$ is about 0.014 to about 0.065, said catalyst composition being soluble in said mixture of monomers and said cosolvent, and a molar ratio of said catalyst composition to said mixture of said monomers being about 0.0002 to about 0.0008.

4,269,956

PEROXYGEN COMPOUND-METAL CARBOXYLATE REDOX CATALYST SYSTEM FOR VINYL CHLORIDE POLYMERIZATION

Norman G. Gaylord, New Providence, and Meshulam Nagler, Irvington, both of N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Dec. 21, 1979, Ser. No. 106,325

Int. Cl.[3] C08F *14/06*

U.S. Cl. 526—192 **12 Claims**

1. A process for the preparation of polymers and copolymers of vinyl chloride, which consists in polymerization in bulk or suspension, at a temperature of 70° C. or below in the presence of a redox catalyst system consisting essentially of a peroxygen compound selected from the class consisting of peroxyesters and diacyl peroxides, a reduced agent selected from the class consisting of stannous carboxylates and antimony (III) carboxylates, and a complexing agent and where the peroxygen compound/reducing agent mole ratio is 1/0.01-2 and wherein the polymerization is carried out at a temperature wherein the peroxygen compound has a half-life of more than 50 hours in the absence of the reducing agent.

4,269,957

PEROXYGEN COMPOUND-METAL CARBOXYLATE REDOX CATALYST SYSTEM FOR VINYL MONOMER POLYMERIZATION

Norman G. Gaylord, New Providence; Meshulam Nagler, Irvington, and Marvin M. Fein, Westfield, all of N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Dec. 21, 1979, Ser. No. 106,332

Int. Cl.[3] C08F *14/06*

U.S. Cl. 526—192 **12 Claims**

1. A process for the preparation of polymers and copolymers of ethylenically unsaturated monomers subject to free radical polymerization, which consists in polymerization in bulk or suspension, at a temperature of 70° C. or below in the presence of a redox catalyst system consisting of a peroxygen compound selected from the class consisting essentially of peroxyesters and diacyl peroxides, and a reducing agent selected from the class consisting of stannous carboxylates and antimony (III) carboxylates, and where the peroxygen compound/reducing agent mole ratio is 1/0.01-2 and wherein the polymerization is carried out at a temperature where the peroxygen compound has a half-life of more than 50 hours in the absence of the reducing agent.

4,269,958

PEROXYGEN COMPOUND-STANNOUS CHLORIDE REDOX CATALYST SYSTEM FOR SUSPENSION POLYMERIZATION OF VINYL CHLORIDE

N. Grant Gaylord, New Providence, N.J., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Dec. 21, 1979, Ser. No. 106,333

Int. Cl.[3] C08F *14/06*

U.S. Cl. 526—192 **6 Claims**

1. A process for the preparation of polymers and copolymers of vinyl chloride, which consists in suspension polymerization at a temperature of 70° C. or below, in the presence of a redox catalyst system consisting essentially of a peroxygen compound selected from the class consisting of peroxyesters and diacyl peroxides, and stannous chloride wherein the polymerization is carried out at a temperature wherein the peroxygen compound has a half-life of more than 50 hours in the absence of stannous chloride.

4,269,959

METHOD OF PREPARING IMPROVED IMBIBITIVE POLYMER

Emil A. Lawton, Sherman Oaks, Calif., assignor to Whittaker Corporation, Los Angeles, Calif.

Filed Oct. 22, 1979, Ser. No. 86,928

Int. Cl.[3] C08F *20/14*

U.S. Cl. 526—194 **5 Claims**

1. A method of preparing an improved imbibitive polymer, said method comprising:

a. linearly polymerizing with a free radical-yielding catalyst selected from the group consisting of benzoyl peroxide, azo-bis-isobutyro-nitrile and mixtures thereof, a suspension of methyl acrylate in an aqueous medium, the concentration of said catalyst being about 1% by weight of the methyl acrylate, said medium containing a selected suspending agent comprising liquid suspending agent selected from the group consisting of sodium polyacrylate, polyacrylamide and mixtures thereof in a concentration of about 1-15% by weight of the methyl acrylate and a solid suspending agent selected from the group consisting of talc, bentonite, calcium carbonate, kaolin and mixtures thereof, said solid suspending agent being in a concentration of about 1-5% by weight of the methyl acrylate, said linear polymerizing being carried out while cross-linking the partially polymerized methyl acrylate with cross-linking agent selected from the group consisting of divinyl benzene, 1,6-hexane-diol acrylate, ethylene glycol dimethacrylate and mixtures thereof, said cross-linking agent being present in a concentration of about 0.02-0.4%, by weight of said methyl acrylate; and,

b. recovering the resulting lightly cross-linked polymethyl acrylate beads having an average diameter of about 150-1000 μm, said beads being capable of imbibing liquids with solubility parameters of about 8,5-11.5 Hildebrands.

4,269,960

PEROXYGEN COMPOUND-6-O-ALKANOYL-L-ASCORBIC ACID REDOX CATALYST SYSTEM FOR VINYL MONOMER POLYMERIZATION

Norman G. Gaylord, New Providence, N.J., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Dec. 21, 1979, Ser. No. 106,330

Int. Cl.[3] C08F *14/06*

U.S. Cl. 526—213 **11 Claims**

1. A process for the preparation of polymers and copolymers of ethylenically unsaturated monomers subject to free radical polymerization, which consists in polymerization in bulk or suspension, at a temperature of 70° C. or below in the presence of a redox catalyst system consisting essentially of a peroxygen compound selected from the class consisting of peroxyesters and diacyl peroxides, and a 6-O-alkanoyl-L-ascorbic acid as a reducing agent and wherein the polymerization is carried out at a temperature where the peroxygen compound has a half-life of more than 50 hours in the absence of the reducing agent.

4,269,961

LOW TEMPERATURE CURABLE COMPLIANT BISMALEIMIDE COMPOSITIONS

Robert J. Jones, Hermosa Beach; Howard E. Green, Seal Beach, and Sandra C. Quinlivan, Torrance, all of Calif., assignors to TRW, Inc, Redondo Beach, Calif.

Division of Ser. No. 845,058, Oct. 25, 1977, Pat. No. 4,179,551. This application Oct. 15, 1979, Ser. No. 84,651

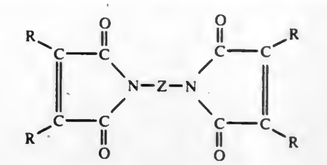
Int. Cl.[3] C08F *226/06*

U.S. Cl. 526—262 **37 Claims**

1. A low temperature curable composition which is curable upon additon of an acid catalyst and/or heating to about 65° C. and which comprises:

(a) a curable prepolymer which is a polyimide formed at an elevated temperature sufficient to cause thermal reaction between heated components of:

(i) at least one aliphatic bismaleimide of the formula:



wherein Z is a polyaliphatic ether in which each aliphatic ether group individually contains from 1 to about 6 carbon atoms, and in which each R is independently selected from the group consisting of hydrogen, an aliphatic group containgin 1 or 2 carbon atoms, a benzenoid radical and a halogen; and

(ii) at least one aromatic polyamine ; and

(b) at least one trismaleimide.

4,269,962

ELECTRON RESIST

Jaroslav Kalal; Bohumil Bednar; Jaromir Zachoval; Jiri Petr; Zdenek Pelcbauer, all of Prague, and Frantisek Svec, Kladno, all of Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Filed Oct. 27, 1978, Ser. No. 955,457

Claims priority, application Czechoslovakia, Nov. 7, 1977, 7258/77

Int. Cl.[3] B41N *1/08*; G03F *7/10*; C08F *220/20, 236/14*

U.S. Cl. 526—273 **1 Claim**

1. An electron resist for electron lithography formed by copolymers of glycidyl methacrylate or glycidyl acrylate with monomers, selected from the group consisting of butadiene-1,3 or isoprene, wherein said copolymers contain 20 to 65 mol. % of glycidyl methacrylate or glycidyl acrylate and have the number average molecular weight in the region of 4,000 to 90,000.

4,269,963

MERCAPTOORGANOPOLYSILOXANES AND CURABLE COMPOSITIONS INCLUDING SAME

Gary R. Homan, and Chi-Long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

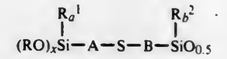
Filed Dec. 3, 1979, Ser. No. 99,300

Int. Cl.[3] C08G *77/06*

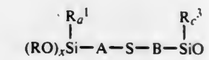
U.S. Cl. 528—17 **11 Claims**

6. A composition of matter comprising a material prepared by mixing

(A) an organopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units, trimethylsiloxane units, sulfur-containing siloxane units of the formula



and pendent sulfur-containing siloxane units of the formula



wherein:

R and R^1 are the same or different and selected from the group consisting of methyl and ethyl;

x has a value of 2 or 3;

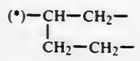
a has a value of 0 or 1;
A and B are the same or different and selected from among the group consisting of divalent radicals of the formulas

$$-C_mH_{2m}-$$

and

$$-C_nH_{2n}-$$

wherein: m and n are the same or different and have a value of from 2 to 4 inclusive, and trivalent radicals having the formula



forming a silacyclopentamer by attachment of the (+) bond to a sulfur atom and the other two bonds to one silicon atom;
R^2 is a monovalent radical selected from the group consisting of alkyl and alkoxy radicals having from 1 to 3 carbon atoms inclusive and phenyl radical;
b has a value of 1 or 2;
R^3 is methyl or ethyl;
c has a value of 0 or 1;
provided that (1) in the divalent radical, no carbon atom is attached to both a silicon atom and a sulfur atom; (2) when A is a trivalent radical, x is 2 and a is 0; (3) when B is a trivalent radical, b is 1 and c is 0; and (4) when B is a divalent radical, b is 2 and c is 1; said organopolysiloxane containing an average of at least two sulfur-containing siloxane units per molecule and no more than 10 mole percent pendent sulfur-containing siloxane units based on the total number of siloxane units present in the organopolysiloxane;
(B) a curing catalyst in an amount equal to from about 1 to about 10 parts by weight per 100 parts by weight of (A);
(C) a filler in an amount of from about 0 to about 200 parts by weight per 100 parts by weight of (A); and
(D) a cross-linking agent in an amount of from 0 to 10 parts by weight per 100 parts by weight of (A).

11. The composition of matter in accordance with claim **6** in which the curing catalyst of (B) is a titanium ester and the composition is stable when packaged to exclude moisture but will cure spontaneously upon exposure to moisture.

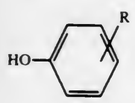
4,269,964

POLYCARBONATES WITH ALKYLPHENYL END GROUPS, THEIR PREPARATION AND THEIR USE

Dieter Freitag; Werner Nouvertne; Claus Burkhardt, all of Krefeld, and Frank Kleiner, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 14, 1979, Ser. No. 75,439
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2842005
Int. Cl.³ C08G *8/28*
U.S. Cl. 528—126 **14 Claims**

1. A thermoplastic aromatic polycarbonate with a molecular weight Mw (weight average) of about 10,000 to 200,000, which is based on at least one diphenol and, if appropriate, a branching agent, characterized in that it is also based on at least one phenolic chain stopper of the general formula



(I)

in which
R represents a branched alkyl radical consisting of 8 or 9 C atoms, and, in the alkyl radical, the proportion of CH_3 protons is between about 47% and 89% and the proportion of the sum of the CH and CH_2 protons is between about 53% and 11%, and wherein R can be in the o-position or p-position relative to the OH group, the upper limit of the ortho proportion being about 20%.

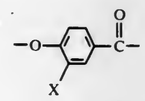
4,269,965

AROMATIC POLYESTER WHICH FORMS OPTICALLY ANISOTROPIC MELTS AND FILAMENTS THEREOF

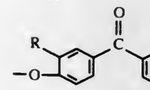
Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 17, 1979, Ser. No. 76,799
Int. Cl.³ C08G *63/60*
U.S. Cl. 528—128 **16 Claims**

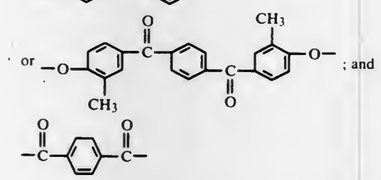
1. Fiber-forming copolyesters consisting essentially of units I, II and III having the structural formulas:



I



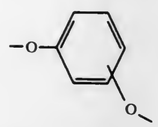
II



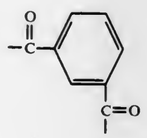
; and

III

where X and R are independently hydrogen, methyl- or chloro-, in the proportions of about 50–75 mol % of Unit I, about 10–25 mol % of Unit II, and about 10–25 mole % of Unit III with from 0–10 mol % of



units selected from 1,3- or 1,4-dioxybenzene or from 0 to 5 mole % of



units.

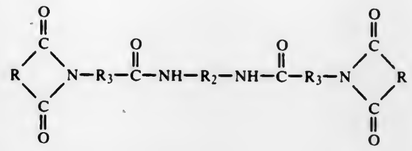
4,269,966

POLYIMIDE PREPOLYMER, POLYIMIDE RESIN FROM IMIDE ACID CHLORIDE AND DIAMINE

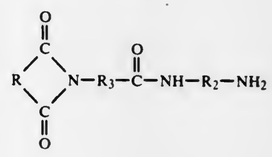
Horst Stenzenberger, Dossenheim, Fed. Rep. of Germany, assignor to Technochemie GmbH Verfahrenstechnik, Heidelberg, Fed. Rep. of Germany

Division of Ser. No. 703,548, Jul. 8, 1976, abandoned. This application Dec. 4, 1978, Ser. No. 966,168
Claims priority, application Fed. Rep. of Germany, Jul. 9, 1975, 2530571
Int. Cl.³ C08G *69/26, 73/10*
U.S. Cl. 528—322 **10 Claims**

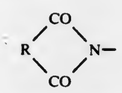
1. A polyimide prepolymer mixture consisting of a compound of the formula



and a compound of the formula



in which
the group of the formula



is an unsaturated dicarboxylic acid imido group,
the group of the formula $-R_3-CO-$ is an acyl group attached to the imido nitrogen atom, and
R_2 is a group forming with the two nitrogen atoms attached thereto a diamino member,
said polyimide prepolymer mixture being convertible by heating between about 80° C. and about 400° C. into a substantially infusible and insoluble, cross-linked polyimide resin.

4,269,967

SEMIPERMEABLE MEMBRANES OF AROMATIC DISULFIMIDE CONTAINING POLYAMIDES

Klaus Elfert; Gerhard D. Wolf, and Hans J. Rosenkranz, all of Dormagen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 835,313, Sep. 21, 1977, abandoned. This application May 30, 1979, Ser. No. 43,623
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1976, 2642979
Int. Cl.³ C08G *69/32*
U.S. Cl. 528—337 **7 Claims**

1. A water-insoluble semipermeable membrane consisting of an aromatic polyamide containing at least 20 mol % of structural segments containing disulphimide groups and having a relative viscosity η_{rel} of ≧1.4, as measured on a 0.5% N-methyl pyrrolidone solution at 20° C.

4,269,968

SYNTHESIS OF POLYAMIC ACID

John Duran; Leo Missel, both of San Jose, and Thomas O. Montelbano, Palo Alto, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,779
Int. Cl.³ C08G *73/10*
U.S. Cl. 528—351 **5 Claims**

1. A process for preparing polyamic acid which has improved adhesion properties, said process comprising the steps of:
(1) compacting a solid aromatic dianhydride to reduce its surface area to weight ratio,
(2) forming a solution by dissolving an aromatic diamine in an inert non-aqueous solvent, and
(3) reacting the aromatic dianhydride in solid compacted form with the solution of the organic diamine.

4,269,969

POLYBUTADIENEDIOL PURIFICATION

James T. O'Toole, Philadelphia, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Nov. 13, 1979, Ser. No. 93,467
Int. Cl.³ C08F *6/10;* **C08C** *2/02*
U.S. Cl. 528—498 **7 Claims**

1. In the method of deodorizing in which a polybutadiene suitable for preparing polyurethanes by reaction with polyisocyanates is prepared by polymerization of butadiene in a system containing hydrogen peroxide as the catalyst, the improvement which consist of:
modifying a composition containing said polybutadiene by blending therewith sufficient kerosene consisting predominantly of saturated hydrocarbons having at least 9 but not more than 13 carbons, as a hydrocarbon entraining agent, to constitute from about 0.4 to about 6% of said polybutadiene to prepare a blended composition;
subjecting said blended composition to a hot vacuum zone at about 93° C. about 121° C. at 2 to 300 mm pressure to volatilize substantial portions of any vinyl cyclohexene, any related odiferous materials, hydrocarbon entraining agent, and any other components covolatilizable therewith, thereby providing a deodorized polybutadiene composition containing less than 20 ppm of vinyl cyclohexene and recovering said deodorized composition as the product of the method.

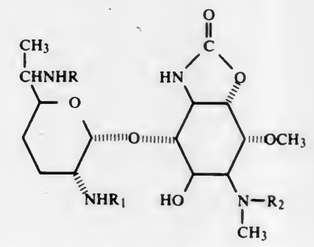
4,269,970

1,2-CARBAMATES OF FORTIMICIN B AND DERIVATIVES

John S. Tadanier, and Jerry R. Martin, both of Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Sep. 26, 1979, Ser. No. 79,138
Int. Cl.³ C07H *15/22;* **C07D** *413/02*
U.S. Cl. 536—17 R **13 Claims**

1. A 1,2-carbamate of fortimicin B and derivatives represented by the formula



wherein: R is hydrogen or a monocyclicaryloxycarbonyl amine-protecting group; R_1 is hydrogen or a monocy-

clicaryloxycarbonyl amine-protecting group; and R_2 is selected from the group consisting of loweralkyl, loweralkoxycarbonyl, aminoloweralkyl, hydroxyloweralkyl, hydroxy-substituted aminoloweralkyl, an amino acid residue, an N-protected amino acid residue, and when R or R_1 are hydrogen, R_2 can also be hydrogen, and when any of R, R_1 or R_2 are hydrogen, the acid addition salts thereof.

4,269,971

ANTIBIOTIC TM-531

Michio Yamagishi, Tokorozawa; Akira Kawashima, Tokyo; Taku Mizutani, Ageo; Hiroshi Hara, Kitamoto; Kazutoshi Mizoue, Urawa; Sadafumi Omura, Ageo; Haruo Seto, Uenomachi, and Noboru Otake, Yokohama, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

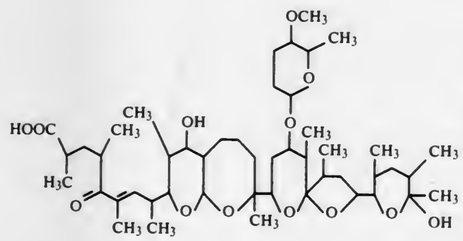
Filed Dec. 31, 1979, Ser. No. 108,625

Claims priority, application Japan, Dec. 29, 1978, 53-14118

Int. Cl.³ A61K *31/71;* **C07H** *7/06*

U.S. Cl. 536—17 R **1 Claim**

1. Antibiotic TM-531 having the formula:



4,269,972

PROCESS FOR PRODUCING CELLULOSE DIACETATE HAVING IMPROVED RESISTANCE TO DELUSTERING PHENOMENON IN HOT WATER

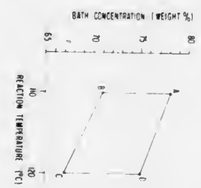
Hideo Yabune, and Yoshiyuki Ikemoto, both of Himeji, Japan, assignors to Daicel Ltd., Sakai, Japan

Filed Jun. 11, 1979, Ser. No. 47,469

Claims priority, application Japan, Jun. 9, 1978, 53-70278

Int. Cl.³ C08B *3/06*

U.S. Cl. 536—71 **6 Claims**



1. A process for producing cellulose diacetate having reduced delustering tendency in hot water which comprises acetylating cellulose in the presence of an acetylation catalyst and hydrolyzing the product to form secondary cellulose acetate, with the process further comprising completely neutralizing the acetylation catalyst before at least the middle stage of the hydrolysis reaction while maintaining the temperature and concentration of the bath within the area defined by and including the points A (110, 78), B (110, 71), C (120, 67), and D (120, 75), in rectangular coordinates (degree C., % by weight) shown in FIG. 2 in the accompanying drawings.

4,269,973

PROCESS AND APPARATUS FOR MAKING ALKALI CELLULOSE IN SHEET FORM

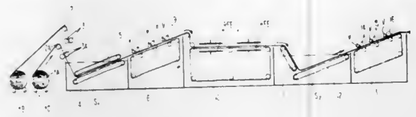
Charles J. Geyer, Jr., Berwyn, and Ben E. White, Wayne, both of Pa., assignors to Fiber Associates, Inc., Berwyn, Pa.

Continuation of Ser. No. 576,200, May 9, 1975, Pat. No. 4,163,840. This application Jan. 18, 1979, Ser. No. 4,302

The portion of the term of this patent subsequent to Aug. 7, 1996, has been disclaimed.

Int. Cl.³ C08B *1/08, 1/10*

U.S. Cl. 536—101 **6 Claims**



1. An apparatus for mercerizing alkali cellulose comprising: a mercerizing chamber including means for generation of an RF energy field therein, and having means for subjecting said cellulose to mercerizing conditions including said RF energy field.

4,269,974

CLABBER-FREE XANTHAN GUM

Peter Wintersdorff, San Diego, Calif., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Nov. 14, 1979, Ser. No. 93,961

Int. Cl.³ C08B *37/00*

U.S. Cl. 536—114 **5 Claims**

1. Clabber-free xanthan gum, wherein a milled emulsion consisting essentially of 1.0% said gum, 6.0% vegetable oil, 80% H_2O, 12% acetic acid (10%), and 1% KCl exhibits at room temperature a working yield value at a shear stress of 0.01 sec^{-1} at least 50% less than a control emulsion consisting essentially of 1.0% unsheared xanthan gum, 6.0% vegetable oil, 80% H_2O, 12% acetic acid (10%), and 1% KCl.

4,269,975

PREPARATION OF GUAR GUM

Morton W. Rutenberg, North Plainfield, and Thomas R. Molnar, Edison, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Mar. 10, 1980, Ser. No. 129,141

Int. Cl.³ C08B *37/00;* **C07G** *17/00*

U.S. Cl. 536—114 **10 Claims**

1. A process for preparing a guar gum from guar splits, which comprises the steps of:

a. hydrating guar splits with water at about 5° to 95° C. for at least 0.25 hour whereby the total moisture content of said guar splits is increased to about 25 to 80% by weight;

b. extruding said hydrated guar splits by passage through an extruder having an elongated cylindrical barrel provided with an inlet opening, a die opening at the outlet end of said barrel, and a screw rotatable within said barrel to transport and work said guar splits; and

c. grinding said hydrated and extruded guar splits.

4,269,976

PIGMENT OF SODIUM SALT OF BIS-METHINE-BARBITURIC ACID

Armand Roueche, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

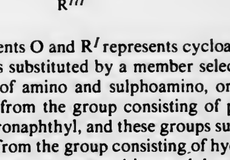
Filed Aug. 24, 1979, Ser. No. 69,411

Claims priority, application Switzerland, Sep. 5, 1978, 9335/78

Int. Cl.³ C09B *23/00, 55/00*

U.S. Cl. 542—445 **1 Claim**

1. The pigment of the formula



4,269,977

PROCESS FOR THE MANUFACTURE OF 8-OXO-5-THIA-1-AZABICYCLO [4,2,0]OCT-2-ENE OR 3-ENE COMPOUNDS

Heinrich Peter, Riehen, and Hans Bickel, Binningen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

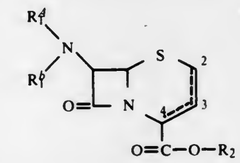
Continuation of Ser. No. 255,826, May 22, 1972, abandoned. This application Mar. 24, 1976, Ser. No. 670,035

Claims priority, application Switzerland, May 24, 1971, 7540/71; Apr. 13, 1972, 5425/72

Int. Cl.² C07D *501/04*

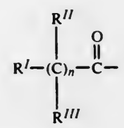
U.S. Cl. 544—16 **7 Claims**

1. A process for the manufacture of 7β-amino-cephem-4-carboxylic acid compounds of the formula



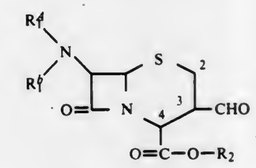
(I)

wherein $R_1{}^A$ is an acyl group of the formula



(IA)

in which n represents O and R^I represents cycloalkyl with 5–7 ring carbon atoms substituted by a member selected from the group consisting of amino and sulphoamino, or represents a member selected from the group consisting of phenyl, naphthyl and tetrahydronaphthyl, and these groups substituted by a member selected from the group consisting of hydroxyl, lower alkoxy and halogen, or represents 4-isoxazolyl and 4-isoxazolyl substituted by a member selected from the group consisting of lower alkyl, phenyl and halogeno-phenyl, or represents amino N-substituted by a member selected from the group consisting of lower alkyl and halogen-lower alkyl, or n represents 1, R^I represents a member selected from the group consisting of lower alkyl and lower alkyl substituted by a member selected from the group consisting of halogeno, phenyloxy, hydroxy-phenyloxy, halogeno-phenyloxy, amino and carboxyl, or represents lower alkenyl or represents a member selected from the group consisting of phenyl, hydroxyl-phenyl, halogeno-phenyl and phenyloxy-phenyl, or represents a member selected from the group consisting of pyridyl, pyridinium, thienyl, 1-imidazolyl and 1-tetrazolyl or such heterocyclic radical substituted by a member selected from the group consisting of lower alkyl, amino and amino-methyl, or represents a member selected from the group consisting of lower alkoxy, phenyloxy, hydroxyl-phenyloxy and halogeno-phenyloxy, or represents a member selected from the group consisting of lower alkylthio and lower alkenylthio, or represents a member selected from the group consisting of phenylthio, 2-imidazolylthio, 1,2,4-triazol-3-ylthio, 1,3,4-triazol-2-ylthio, 1,2,4-thiadiazol-3-ylthio, 1,3,4-thiadiazol-2-ylthio and 5-tetrazolylthio, and such groups substituted by lower alkyl, or represents a member selected from the group consisting of halogeno, carboxyl, lower alkoxy-carbonyl, cyano, carbamoyl and carbamoyl N-substituted by a member selected from the group consisting of lower alkyl and phenyl, or represents a member selected from the group consisting of lower alkanoyl and azido, and R^{II} and R^{III} represent hydrogen, or n represents 1, R^I represents a member selected from the group consisting of phenyl and thienyl and these groups substituted by a member selected from the group consisting of hydroxyl and halogeno, or represents 1,4-cyclohexadienyl, R^{II} represents a member selected from the group consisting of amino, lower alkoxycarbonylamino, 2-halogeno-lower alkoxycarbonylamino, carbamoylamino, guanidinocarbonylamino, sulphoamino, azido, carboxyl, lower alkoxycarbonyl, cyano, sulpho, hydroxyl, lower alkoxycarbonyloxy, 2-halogeno-lower alkoxycarbonyloxy, lower alkoxy, phenyloxy and halogeno, and R^{III} represents hydrogen, or n represents 1, R^I and R^{II} each represent a member selected from the group consisting of halogeno and lower alkoxycarbonyl, and R^{III} represents hydrogen, or n represents 1 and each of the groups R^I, R^{II} and R^{III} represents lower alkyl, $R_1{}^b$ is hydrogen, and R_2 is a member selected from the group consisting of hydrogen, 2-halogeno-lower alkyl, phenacyl, nitrophenyl, polyhalogeno-phenyl, lower alkoxy-benzyl, nitrobenzyl, tert.-butyl, diphenylmethyl, 4,4'-dimethoxydiphenyl, bis-(4-methoxyphenyloxy)-methyl, trityl, lower alkanoylaminomethyl, carbamoylaminomethyl, ureidocarbonylaminomethyl quanidinocarbonylaminomethyl, or lower alkanoyloxymethyl, tri-lower alkyl-silyl and tri-lower alkyl-stannyl, and which cephem compounds contain a double bond in one of the positions 2,3 and 3,4, as well as 1-oxides of the formula I, in which the ring double bond is in the 3,4-position, or metal or ammonium salts of compounds of the formula I in which R_2 represents hydrogen, or acid addition salts of such compounds, wherein $R_1{}^a$ and $R_1{}^b$ represent hydrogen or which possess a basic group in the radical $R_1{}^a$ and $R_1{}^b$, or internal salts of such compounds which possess both types of salt-forming groups, characterized in that a 3-formylcephem-4-carboxylic acid compound of the formula



(II)

which contains a double bond in the 2,3-position, or a 1-oxide of a ceph-3-em compound of the formula II, is decarbonylated in the 3-position by treating in an inert solvent and at a temperature of between 10° C. to 150° C. with tris-triphenylphosphine-rodium-I-chloride, bis-triphenylphosphine-platinum-II-chloride, bis-triphenylphosphine-carbonyliridium-II-chloride or tris-triphenylphosphine-iridium-I-chloride.

4,269,978

THIAZOLYLPHTHALIDE COMPOUNDS

Jean C. Petitpierre, Kaiseraugst, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

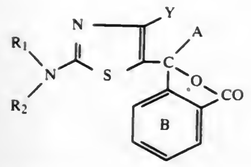
Division of Ser. No. 629,156, Nov. 5, 1975, Pat. No. 4,100,169. This application Mar. 27, 1978, Ser. No. 890,440

Claims priority, application Switzerland, Nov. 14, 1974, 15189/74

Int. Cl.³ C07D *277/20*

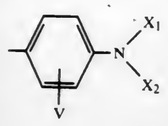
U.S. Cl. 544—133 **5 Claims**

1. A thiazolylphthalide compound of the formula



(I)

wherein A represents a p-aminophenyl radical of formula



(Ia)

each of R_1, R_2, X_1 and X_2, independently represents hydrogen, alkyl of 1 to 12 carbon atoms, alkoxyalkyl of 2 to 8 carbon atoms, benzyl or phenyl, or

each pair of substituents R_1 and R_2, X_1 and X_2, together with the nitrogen atom to which they are attached, independently represent a pyrrolidine, piperidine or morpholine,

Y represents hydrogen, alkyl of 1 to 12 carbon atoms, benzyl or phenyl or phenyl substituted by halogen, nitro, alkyl, alkoxy or dialkylamino, each containing 1 to 4 carbon atoms in the alkyl moiety,

V represents hydrogen, alkyl of 1 to 12 carbon atoms, alkoxy of 1 to 12 carbon atoms or alkanoyloxy of 2 to 4 carbon atoms, and

the benzene rings B is unsubstituted or substituted by halogen, nitro or by an amino group which is unsubstituted or substituted by alkyl of 1 to 6 carbon atoms, and

wherein at least one pair of substituents R_1 and R_2, X_1 and X_2, together with the nitrogen atom to which they are attached represent a pyrrolidine, piperidine or morpholine.

4,269,979

PROCESS FOR THE PRODUCTION OF SUSPENSION OR SOLUTION OF CYANURIC CHLORIDE IN ORGANIC SOLVENTS (II)

Klaus Hentschel, Kalmthout, Belgium; Friedrich Bittner, Bad Soden, and Gerd Schreyer, Hanau, both of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,874

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850243

Int. Cl.[3] **C07D** *251/28*

U.S. Cl. 544—190 **7 Claims**

1. A process for the production of a suspension or solution of cyanuric chloride in a pure organic solvent containing less than 0.1 weight % of water, comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from the upper portion of a vertical tubular zone closed at the top thereof to contact and mix with said organic solvent which forms a liquid layer defining said tubular zone, constricting said layer in breast -shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening; discharging said organic solvent as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top above said constriction and below the point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed in breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,269,980

(SUBSTITUTED-PHENYL)-1,2,4-TRIAZOLO[4,3-c]PYRIMIDINES AND (SUBSTITUTED-PHENYL)-1,2,4-TRIAZOLO[1,5-c]PYRIMIDINES

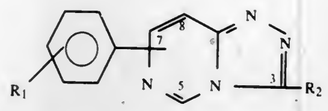
Robert A. Hardy, Jr., Ridgewood, N.J.; Jannie S. Baker, White Plains, and Nicanor Q. Quinones, New York, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 17, 1979, Ser. No. 104,526

Int. Cl.[3] **C07D** *239/70*

U.S. Cl. 544—256 **19 Claims**

1. A compound of the formula:



wherein R_1 is selected from the group consisting of hydrogen, fluoro, chloro, trifluoromethoxy and alkoxy having up to 3 carbon atoms and R_2 is selected from the group consisting of hydrogen and alkyl having up to 3 carbon atoms.

4,269,981

CERTAIN PYRIDYLMETHYL ESTERS OF FORMAMIDO-LOWER-ALKANOATES AND DERIVATIVES THEREOF

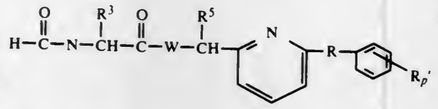
Clive A. Henrick, Palo Alto, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

Division of Ser. No. 78,525, Sep. 24, 1979, which is a continuation-in-part of Ser. No. 69,445, Aug. 24, 1979, Pat. No. 4,226,872, which is a continuation-in-part of Ser. No. 16,775, Mar. 2, 1979, abandoned. This application Jun. 12, 1980, Ser. No. 158,834

Int. Cl.[3] **C07D** *213/55, 213/56, 213/57*

U.S. Cl. 546—291 **5 Claims**

1. A compound of the formula (III'):



(III')

wherein,

W is oxygen or sulfur;

p is zero, one or two;

R is oxygen, sulfur, methylene or carbonyl;

R^3 is lower alkyl of 2 to 5 carbon atoms, lower alkenyl of 2 to 5 carbon atoms or lower cycloalkyl of 3 to 4 carbon atoms;

R^5 is hydrogen, cyano, methyl, ethyl, ethynyl or Trifluoromethyl; and

R' is fluoro, bromo, chloro, trifluoromethyl, methyl, methoxy or methylthio.

4,269,982

PROCESS FOR PREPARING 5-AMINO-1,2,3-THIADIAZOLES

Mamoru Nakai; Katsumasa Harada, and Yoshikatsu Mori, all of Ube, Japan, assignors to Ube Industries, Ltd., Ube, Japan

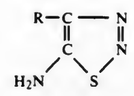
Filed Apr. 22, 1980, Ser. No. 142,718

Int. Cl.[3] **C07D** *285/06*

Claims priority, application Japan, Dec. 27, 1979, 54-169292

U.S. Cl. 548—127 **6 Claims**

1. A process for preparing a 5-amino-1,2,3-thiadiazole represented by the formula



wherein R represents a hydrogen atom, a lower alkyl group or an aryl group, which comprises bringing a diazoacetonitrile represented by the formula



wherein R has the same meaning as defined above, into contact with hydrogen sulfide in the presence of a base or with a salt of hydrogen sulfide, in a solvent.

4,269,983

3-[5-[1-(2 OR 3-HALOPHENOXY)ALKYL, ALKYNYL, ALKENYL, OR HALOALKYL]-1,3,4-THIADIAZOL-2-YL]-4-HYDROXY-1-METHYL-2-IMIDAZOLIDINONES

Jerome M. Lavanish, Akron, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

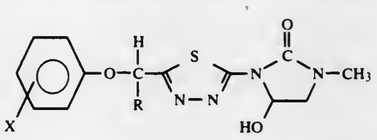
Filed Jun. 18, 1979, Ser. No. 49,017

The portion of the term of this patent subsequent to Aug. 19, 1997, has been disclaimed.

Int. Cl.[3] **A01N** *43/82;* **C07D** *285/12, 417/02, 417/04*

U.S. Cl. 548—137 **11 Claims**

1. a compound graphically represented by Formula I:



wherein:

X is chlorine, bromine, fluorine or iodine, positioned at the ortho (2) or meta (3) position, and R is an alkyl of up to four carbon atoms, an alkenyl of up to three carbon atoms, an alkynyl of up to three carbon atoms, or a haloalkyl selected from the group consisting of chloromethyl, bromomethyl, 2-chloroethyl and 2-bromoethyl.

4,269,984

BIOCIDAL MERCAPTOTHIADIAZOLE HALOACRYLYLNITRILE COMPOUNDS

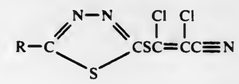
Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Jul. 25, 1980, Ser. No. 172,355

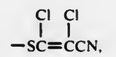
Int. Cl.[3] **A01N** *43/82;* **C07D** *285/12*

U.S. Cl. 548—142 **2 Claims**

1. A compound having the structural formula



wherein R is selected from the group consisting of methyl, ethyl, propyl, butyl,



phenyl and substituted phenyl wherein the substituents are selected from the group consisting of $-CH_3$, $-CF_3$, $-NO_2$, —Br and —Cl.

4,269,985

PROCESS FOR THE PREPARATION OF 2-AMINO-5-NITROTHIAZOLE

Dah-Chieh O. Cheng, and Kim S. Chamberlin, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 30, 1980, Ser. No. 173,537

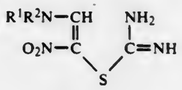
Int. Cl.[3] **C07D** *277/38*

U.S. Cl. 548—191 **10 Claims**

1. Process for the preparation of 2-amino-5-nitrothiazole which comprises the steps of:

A. Halogenating a compound having the formula $O_2NCH{=}CHNR^1R^2$ to obtain a compound having the formula $O_2N(X)C{=}CHNR^1R^2.HX$ and/or $O_2N(X)CHCH(X)NR^1R^2$;

B. Reacting the product of A with thiourea to obtain a compound having the formula



HX and

C. Contacting the product of B with water; wherein R^1 and R^2 are each alkyl containing up to about 4 carbon atoms or in combination they can be pentamethylene or 3-oxapentamethylene and X is Cl or Br.

4,269,986

HYDROXYACETYL OXAZOLIDINE HERBICIDAL ANTIDOTES

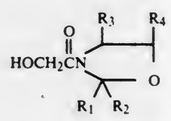
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Apr. 25, 1980, Ser. No. 143,665

Int. Cl.[3] **C07D** *263/04;* **A01N** *43/76*

U.S. Cl. 548—215 **2 Claims**

1. A compound of the formula



in which R_1-R_4 are each independently selected from the group consisting of hydrogen and alkyl having 1-4 carbon atoms.

4,269,987

PURIFICATION OF TRIAZOLES

Richard P. Carr; Ashok K. Nanda, both of Cincinnati, Ohio; Charles A. Schneider, Villa Hills, Ky., and Girish K. Malhotra, Cincinnati, Ohio, assignors to The Sherwin-Williams Company, Cleveland, Ohio

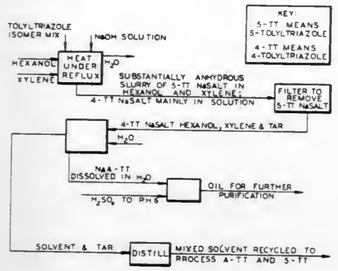
Filed Jun. 13, 1979, Ser. No. 48,530

Int. Cl.[3] **C07D** *249/16, 249/18*

U.S. Cl. 548—257 **7 Claims**

1. A method for purifying a benzo-/tolyl-triazole composition, which method includes the steps of producing a substantially anhydrous slurry in an alcohol of an alkali metal or of an alkaline earth metal salt of the triazole to be purified, with the

proviso that the salt is not a magnesium salt when the triazole is a tolyl triazole, separating purified triazole salt solids from



the slurry and washing the purified triazole salt solids with an alcohol.

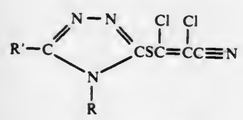
4,269,988

BIOCIDAL MERCAPTOTRIAZOLE HALOACRYLYLNITRILE COMPOUNDS

Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Jul. 25, 1980, Ser. No. 172,328
Int. Cl.[3] A01N *43/64*; C07D *249/12*
U.S. Cl. 548—263 **2 Claims**

1. A compound having the structural formula



wherein R and R' are independently selected from the group consisting of methyl, ethyl, propyl, butyl, ethenyl, propenyl, butenyl, phenyl and substituted phenyl wherein the substituents are selected from the group consisting of $-NO_3$, $-CH_3$, $-CF_3$, $-Cl$ and $-Br$.

4,269,989

PROCESS FOR THE PREPARATION OF BENZIMIDAZOLONE-(2)

Hartmut Heise, Bad Soden am Taunus; Ernst Hille, Kelkheim; Reinhard Wagner, Wiesbaden, and Kurt Kümmerle, Kelkheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,106
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855226
Int. Cl.[2] C07D *235/26*
U.S. Cl. 548—305 **13 Claims**

1. In a process for the preparation of benzimidazolone-(2) by heating o-phenylenediamine and an excess of urea in water to a temperature of at least 90° C., the improvement comprising heating o-phenylenediamine and an excess amount of urea, the molar ratio of urea to o-phenylenediamine being up to 1.5:1, and maintaining the pH in a range of from 4 to 9 throughout the reaction.

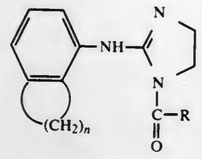
4,269,990

1-ACYL-2-IMIDAZOLINES AND THEIR MANUFACTURE

Hans-Joachim May, Neustadt, and Horst Koenig, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 31,032, Apr. 18, 1979, abandoned, which is a continuation of Ser. No. 846,814, Oct. 31, 1977, abandoned. This application Dec. 5, 1979, Ser. No. 100,655
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1976, 2652004
Int. Cl.[3] C07D *233/50, 401/06, 405/06, 409/06*
U.S. Cl. 548—315 **6 Claims**

1. A 1-acyl-2-imidazoline of the formula



I

where n is 3 or 4 and R is hydrogen, alkyl of 1 to 4 carbon atoms (which is unsubstituted, or is monosubstituted, disubstituted or trisubstituted by halogen, alkoxy of 1 to 4 carbon atoms, alkoxycarbonyl, where alkyl is of 1 or 2 carbon atoms, or phenoxy), cycloalkyl of 3 to 7 carbon atoms in the ring, alkoxy (where alkyl is of 1 to 8 carbon atoms, and which is unsubstituted or monosubstituted, disubstituted or trisubstituted by halogen, or monosubstituted by alkoxy of 1 to 4 carbon atoms), cycloalkoxy of 3 to 10 carbon atoms in the ring (which is unsubstituted or substituted by alkyl of 1 to 4 carbon atoms), alkenyloxy of 3 or 4 carbon atoms, alkoxycarbonyl, where alkyl is of 1 or 2 carbon atoms, benzyloxy, methoxybenzyloxy, chlorobenzyloxy, nitrobenzyloxy, phenoxy, nitrophenoxy, phenyl and phenylalkyl of 7 or 8 carbon atoms (where phenyl is unsubstituted or monosubstituted, disubstituted or trisubstituted by alkyl of 1 to 4 carbon atoms, trifluoromethyl, halogen, alkoxy of 1 to 4 carbon atoms, methylenedioxy, ethylenedioxy or phenyl), phenylalkenyl of 8 or 9 carbon atoms (which is unsubstituted or monosubstituted, disubstituted or trisubstituted by halogen, or alkoxy of 1 to 4 carbon atoms), thienyl, furyl, pyridyl or chloropyridyl.

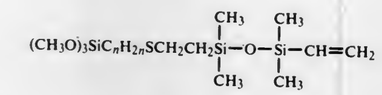
4,269,991

NOVEL MERCAPTOORGANOSILOXANES

Gary R. Homan, Midland, Mich., and Louis H. Toporcer, Twinsburg, Ohio, assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,251
Int. Cl.[3] C07F *7/08, 7/18*
U.S. Cl. 556—427 **4 Claims**

1. A compound of the formula,



wherein n has a value of from 1 to 3 inclusive.

4,269,992

PREPARATION OF HYDROLYZABLE POLYSILOXANE-POLYOXYALKYLENE BLOCK COPOLYMERS

Carl J. Litteral, Bethal, Conn., and David L. Mullins, Williamstown, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 28, 1977, Ser. No. 865,127
Int. Cl.[3] C07F *7/18*
U.S. Cl. 556—446 **14 Claims**

1. A process for producing a hydrolyzable polysiloxane-polyoxyalkylene block copolymer which comprises refluxing a reaction mixture containing:

(a) a polydihydrocarbonsiloxane comprising units of the formula R_2SiO, wherein R is a monovalent hydrocarbon group, and containing at least one halogen group bonded directly to at least one silicon atom of the polydihydrocarbonsiloxane,

(b) a polyoxyalkylene alcohol of the formula:

$$HO(C_nH_{2n}O)_vY$$

wherein

n has a value of 2 or 3, v is an integer of from about 5 to about 200, and

Y is a terminal group selected from the class cnsisting of alkyl, alkenyl, aryl and aralkyl radicals, and

(c) a solvent selected form the group consisting of alkyl halides and alkenyl halides having boiling points at atmospheric pressure of from about 25° C. to about 130° C.

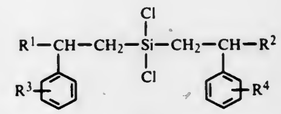
4,269,993

DIARALKYLDICHLOROSILANES

Nobumasa Ohtake; Isao Koga, both of Yokohamashi, and Yohji Terui, Chibashi, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Oct. 15, 1979, Ser. No. 84,574
Int. Cl.[3] C07F *7/08*
U.S. Cl. 556—450 **13 Claims**

1. Di-β-phenylalkyldichlorosilanes expressed by the general formula



(I)

wherein R^1 and R^2 each represent an alkyl group of 1 to 4 carbon atoms or one of them represents hydrogen atom and the other represents an alkyl group of 1 to 4 carbon atoms, and R^3 and R^4 each represent hydrogen atom.

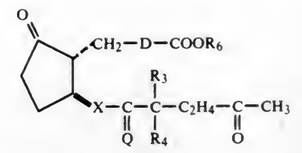
4,269,994

13,14-DIHYDRO-INTER-PHENYLENE-11-DEOXY-19-OXO-PGE$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, Pat. No. 4,228,104. This application Mar. 20, 1980, Ser. No. 132,227
Int. Cl.[3] C07C *177/00*
U.S. Cl. 560—53 **4 Claims**

1. A compound of the formula



wherein D is

(1) $-(m-Ph)-(CH_2)_2-$, or

(2) $-(m-Ph)-O-CH_2-$,

wherein $-(m-Ph)-$ is inter-meta-phenylene;

wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;

wherein R_6 is

(a) hydrogen,

(b) alkyl of one to 12 carbon atoms, inclusive,

(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

(d) aralkyl of 7 to 12 carbon atoms, inclusive,

(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,

(g) $-(p-Ph)-CO-CH_3$,

(h) $-(p-Ph)-NH-CO-(p-Ph)-NH-CO-CH_3$,

(i) $-(p-Ph)-NH-CO-(p-Ph)$,

(j) $-(p-Ph)-NH-CO-CH_3$,

(k) $-(p-Ph)-NH-CO-NH_2$,

(l) $-(p-Ph)-CH=N-NH-CO-NH_2$,

(m) β-naphthyl,

(n) $-CH_2-CO-R_{28}$,

wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and

wherein X is $-CH_2CH_2-$

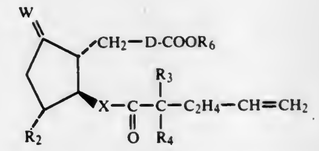
4,269,995

19,20-DIDEHYDRO-13,14-DIHYDRO-PG$_2$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,621
Int. Cl.[3] C07C *177/00*
U.S. Cl. 560—121 **1 Claim**

1. A compound of the formula



wherein D is

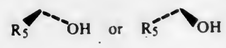
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,

(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,

(3) cis—CH_2—CH=CH—CH_2—CH_2—,

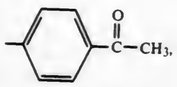
(4) trans—$(CH_2)_3$—CH=CH—, wherein g is zero, one, 2, or 3;

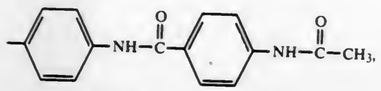
wherein Q is

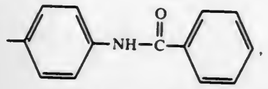


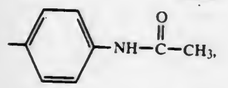
wherein R_5 is hydrogen or methyl,

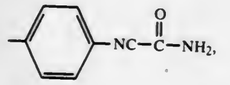
wherein R_6 is (a) hydrogen, (b) alkyl of one to 12 carbon atoms, inclusive, (c) cycloalkyl of 3 to 10 carbon atoms, inclusive, (d) aralkyl of 7 to 12 carbon atoms, inclusive, (e) phenyl, (f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;

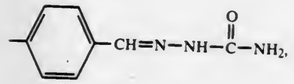
(g) 

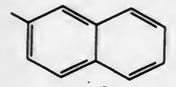
(h) 

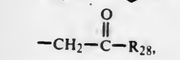
(i) 

(j) 

(k) 

(l) 

(m) 

(n) 

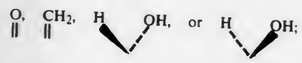
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation;

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is



and wherein X is $-CH_2CH_2-$.

4,269,996

19-HYDROXY-CIS-4,5-DIDEHYDRO-PG$_1$ ANALOGS

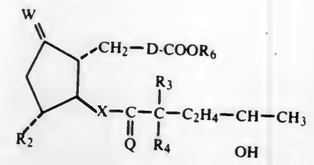
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,899, Apr. 2, 1979, Pat. No. 4,228,104. This application Oct. 26, 1979, Ser. No. 88,448

Int. Cl.^{3} C07C *177/00*

U.S. Cl. 560—121 **2 Claims**

1. A compound of the formula



wherein D is cis—CH_2—CH=CH—CH_2—CH_2—, wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl, wherein R_6 is

(a) hydrogen,

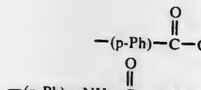
(b) alkyl of one to 12 carbon atoms, inclusive,

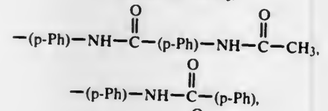
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

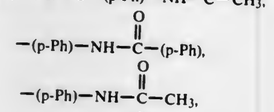
(d) aralkyl of 7 to 12 carbon atoms, inclusive,

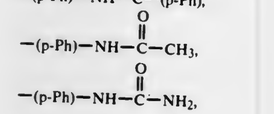
(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;

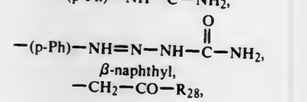
(g) 

(h) 

(i) 

(j) 

(k)

(l) 

(m) β-naphthyl,

(n)

(m) β-naphthyl,

(n) —CH_2-CO-R_{28},

wherein (p-Ph) is para-phenyl or inter-para-phenylene and R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation; wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and wherein X is cis- or trans—CH=CH—, or —C≡C—, with the proviso that R_6 is not hydrogen or alkyl of one to 12 carbon atoms, inclusive, when:

R_2 is hydroxy, R_3 and R_4 are hydrogen, Q is α-OH:β-H, W is oxo or α-OH:β-H, and D is cis—CH=CH—CH_2—$(CH_2)_g$—CH_2— and X is trans—CH=CH— or R_2, R_3, and R_4 are hydrogen, Q is α-OH:β-H; W is oxo; D is cis—CH=CH—CH_2—$(CH_2)_g$—CH_2— and X is trans—CH=CH—.

4,269,997

TREATMENT OF UREA SOLUTIONS

Primo Pastormerlo, Mortara, Italy, assignor to Stamicarbon B.V., Netherlands

Filed Jul. 11, 1979, Ser. No. 56,551

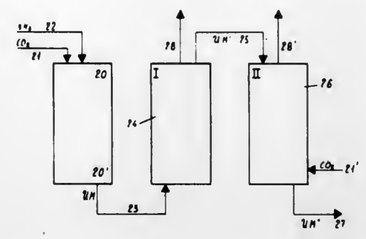
Claims priority, application Italy, Jul. 24, 1978, 26020 A/78

Int. Cl.^{3} C07C *126/02*

U.S. Cl. 564—73 **4 Claims**

1. A process for the treatment of urea solutions obtained from high yield synthesis reactors wherein ammonia in excess over the stoichiometric ratio and carbon dioxide are reacted under pressure and at high temperature, and containing in addition to urea, free ammonia, water, unreacted ammonium carbamate, and other by-products, comprising:

(a) a first distillation step in which a substantial amount of free ammonia is distilled from the urea solution and the unreacted ammonium carbamate only partially decomposed, comprising heating said solution at a temperature of between 190°–230° C. at a pressure of at least 100 bars for a period less than 50 seconds resulting in the upward flow of said urea solution concurrently with gaseous material, and



(b) a second decomposition by stripping and distillation step in which a substantial amount of the ammonium carbamate is decomposed and the remaining NH_3 is distilled from the urea solution, comprising heating said solution at a temperature of 190°–230° C. at a pressure of at least 100 bars for a period of at most 60 seconds while the urea solution is flowing downwards and in countercurrent contact with the gases produced therefrom.

4,269,998

PRODUCTION OF DIALKYL FORMAMIDE

Tamotsu Imai, Mt. Prospect, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Feb. 19, 1980, Ser. No. 122,153

Int. Cl.^{3} C07C *102/00*

U.S. Cl. 564—132 **15 Claims**

1. A process for the preparation of dialkyl formamide which comprises reacting dialkyl amine with carbon dioxide and hydrogen in the presence of a transition metal hydrogenation catalyst and a promoter comprising an alkali metal hydroxide or alkali metal carbonate, and recovering the resultant dialkyl formamide.

4,269,999

Patent Not Issued For This Number

4,270,000

PROCESS FOR PREPARING 3-PHENOXY MORPHINANS

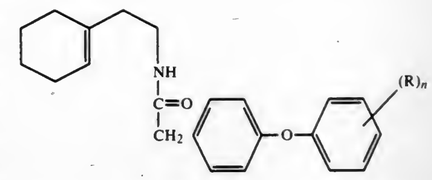
Ernest Mohacsi, Nutley, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 74,183, Sep. 10, 1979, which is a division of Ser. No. 914,656, Jun. 12, 1978, Pat. No. 4,194,044, which is a continuation-in-part of Ser. No. 811,233, Jun. 29, 1977, Pat. No. 4,113,729, which is a continuation-in-part of Ser. No. 748,022, Dec. 6, 1976, abandoned. This application Aug. 18, 1980, Ser. No. 179,207

Int. Cl.^{3} C07C *103/78*

U.S. Cl. 564—174 **2 Claims**

1. A compound of the formula:



wherein R is halo, lower alkyl, nitro, lower alkoxy, hydroxy or hydrogen; and n is an integer from 1 to 5.

4,270,001

QUATERNARIES OF HYDROXYALKYLAMINOALKYLAMIDES

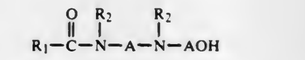
Derek Redmore, Ballwin, and Benjamin T. Outlaw, Webster Groves, both of Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 684,711, May 10, 1976, Pat. No. 4,060,553. This application Jul. 11, 1977, Ser. No. 814,572

Int. Cl.^{3} C07C *103/78, 103/38*

U.S. Cl. 564—186 **6 Claims**

1. Quaternaries of hydroxyalkylaminoalkylamides of the general formula



where R_1 is a hydrocarbon radical selected from the group consisting of alkyl, aryl, aralkyl and alkaryl, R_2 is hydrogen, methyl or hydroxyethyl and A is alkylene.

4,270,002

N-(PHENYLCYCLOALKYL)ACETAMIDE DERIVATIVES, AND THEIR PRODUCTION AND USE

Osamu Kirino, Hyogo; Shunichi Hashimoto, Sonehigashi; Hiroshi Matsumoto, Hyogo, and Hiromichi Oshio, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

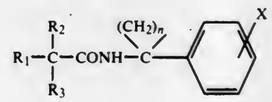
Filed Oct. 23, 1979, Ser. No. 87,642

Claims priority, application Japan, Nov. 9, 1978, 53-138510

Int. Cl.^{3} C07C *103/34, 103/375;* A01N *37/18*

U.S. Cl. 564—221 **7 Claims**

1. A compound of the formula:



wherein R_1 and R_2, which may be the same or different, are each a C_1–C_3 alkyl group, a chloromethyl group or a halogen

atom, R_3 is a hydrogen atom, a methyl group or a halogen atom, n is an integer of 2 to 5 and X is a hydrogen atom, a methyl group, a methoxy group or a chlorine atom.

4,270,003

HYDROQUINONE DERIVATIVES AND PREPARATION THEREOF

Yoshiji Fujita; Takashi Ohnishi, and Takashi Nishida, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

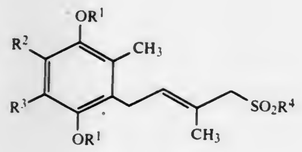
Filed Jul. 30, 1979, Ser. No. 62,031

Claims priority, application Japan, Aug. 2, 1978, 53-94727; May 8, 1979, 54-56677

Int. Cl.³ C07C *147/08, 43/20, 43/205*

U.S. Cl. 568—33 **15 Claims**

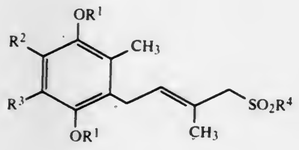
1. A hydroquinone compound having the structural formula:



(I)

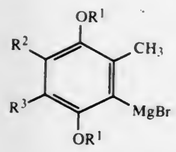
wherein R^1 is methoxyethoxymethyl, R^2 and R^3 are each selected from the group consisting of methyl and methoxy, and R^2 and R^3, taken together with the carbon atoms from which they depend, can form a benzene ring, and R^4 is a lower alkyl substituted or unsubstituted aromatic hydrocarbon having from 6 to 10 nuclear carbons.

6. A process for preparation of the hydroquinone compound having the structural formula:



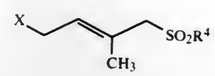
(I)

wherein R^1 is selected from the group consisting of lower alkyl, lower alkoxy lower alkyl and methoxyethoxymethyl, R^2 and R^3 are each selected from the group consisting of methyl and methoxy, and R^2 and R^3, taken together with the carbon atoms from which they depend, can form a benzene ring, and R^4 is a lower alkyl substituted or unsubstituted aromatic hydrocarbon having from 6 to 10 nuclear carbons comprising reacting a compound having the structural formula:



(II)

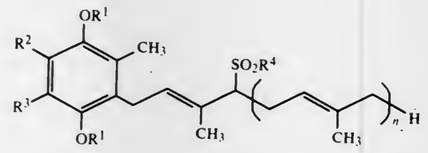
wherein R^1, R^2 and R^3 are as defined above, with a compound having the structural formula:



(III)

wherein X is selected from the group consisting of halogen and tosyl, with the aid of a copper compound selected from the group consisting of cuprous halides and lithium copper chloride whereby said reacting comprises reacting said compound (II) with compound (III) in the presence of the copper compound, or reacting said compound (II) initially with the copper compound and the resulting reaction product therefrom being reacted with compound (III).

14. A hydroquinone compound having the structural formula:



wherein R^1, R^2, R^3 and R^4 are as defined in claim 1 and n is an integer of 1 to 11.

4,270,004

CHEMICAL PROCESS FOR THE PREPARATION OF 4-(6¹-METHOXY-2¹-NAPHTHYL)BUTAN-2-ONE

Carl J. Rose, London, and David Miller, Herts, both of England, assignors to Beecham Group Limited, England

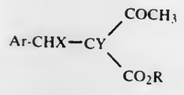
Division of Ser. No. 973,748, Dec. 26, 1978, Pat. No. 4,247,709. This application Oct. 11, 1979, Ser. No. 83,837

Claims priority, application United Kingdom, Jan. 7, 1978, 602/78

Int. Cl.³ C07C *45/65, 67/313*

U.S. Cl. 568—314 **9 Claims**

1. A process for the preparation of 4-(6¹-methoxy-2¹-naphthyl)butan-2-one which process comprises the hydrogenation of a compound of the formula (I):



(I)

wherein Ar is a 6-methoxy-2-naphthyl group; X and Y represent a second bond between the carbon atoms to which they are attached; and $-CO_2R$ is a carboxylic acid ester group convertible to a CO_2H group by catalytic hydrogenation in the presence of a supported, noble, metal catalyst at about atmospheric pressure.

4,270,005

1,9-DIHYDROXYOCTAHYDROPHENANTHRENES AND INTERMEDIATES THEREFOR

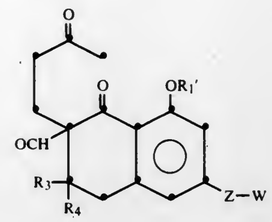
Thomas H. Althuis, Groton; Charles A. Harbert, Waterford; Michael R. Johnson, Gales Ferry, and Lawrence S. Melvin, Jr., Ledyard, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 851,503, Nov. 14, 1977, Pat. No. 4,188,495. This application Sep. 24, 1979, Ser. No. 78,474

Int. Cl.³ A01N *35/00;* C07C *49/733*

U.S. Cl. 568—328 **14 Claims**

1. A compound of the formula



wherein

R'_1 is selected from hydrogen, alkanoyl of 1 to 6 carbon atoms and benzoyl;

R_3 is selected from hydrogen, methyl and ethyl;

R_4 is selected from hydrogen, alkyl of 1 to 6 carbon atoms and benzoyl;

Z is selected from:

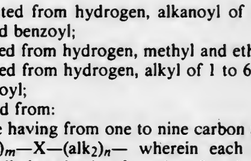
(a) alkylene having from one to nine carbon atoms;

(b) $-(alk_1)_m-X-(alk_2)_n-$ wherein each of (alk_1) and (alk_2) is alkylene having from 1 to 9 carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than 9;

m and n are each 0 or 1;

X is selected from O, S, SO and SO_2; and

W is selected from hydrogen, methyl, phenyl, monochlorophenyl, monofluorophenyl and



wherein W_1 is selected from hydrogen, phenyl, monochlorophenyl and monofluorophenyl; a is an integer from 1 to 5 and b is 0 or an integer from 1 to 4, with the proviso that the sum of a and b is not greater than 5.

4,270,006

PREPARATION OF ALIPHATIC CARBONYL COMPOUNDS

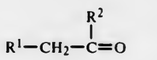
Gerd Heilen, Speyer; Axel Nissen, Leimen, and Otto Woerz, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 27, 1979, Ser. No. 106,884

Int. Cl.³ C07C *45/45, 47/02, 49/04*

U.S. Cl. 568—396 **1 Claim**

1. In a process for the preparation of an aliphatic carbonyl compound by aldol condensation of a carbonyl compound of the formula I



I

where R^1 and R^2 are hydrogen or C_1–C_8-alkyl, in the presence of hydrogen and of a catalyst which possesses both condensing and hydrogenating properties, wherein a catalyst system is used wherein, the improvement which comprises: carrying out the process in the presence of an effective amount of a catalyst system wherein the active components are from 1 to 90 percent by weight of a noble metal of group VIII of the periodic table and from 10 to 99 percent by weight of an oxide or salt of a rare earth metal, or of a mixture of different oxides and/or salts of rare earth metals, said catalyst system having both condensing and hydrogenating properties, said process being conducted under pressure of from 1 to 100 bar and at a temperature of from 20° to 250° C.

4,270,007

PERFUME ALDEHYDES FROM HYDROFORMYLATION OF CARYOPHYLLENE

Jens Hagen, Ketsch, and Klaus Bruns, Krefeld-Traar, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

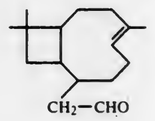
Filed Nov. 14, 1979, Ser. No. 94,278

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849720

Int. Cl.³ C07C *47/445, 45/50*

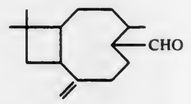
U.S. Cl. 568—445 **1 Claim**

1. A mixture consisting essentially of the stereoisomers of the aldehydes



I

and



II

4,270,008

2-PROPYL-PENT-4-EN-1-AL

Jürgen Weber, Oberhausen; Wolfgang Bernhagen, Mülheim, and Helmut Springer, Oberhausen, all of Fed. Rep. of Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany

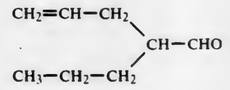
Filed Oct. 11, 1979, Ser. No. 83,893

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844635

Int. Cl.³ C07C *47/21*

U.S. Cl. 568—448 **2 Claims**

1. 2-propyl-pent-4-en-1-al of the formula



4,270,009

1,4-BIS-[(2-PROPYNYLOXY)-METHYL] CYCLOHEXANE

Silvia Dorn, Dielsdorf; Albert Pfiffner, and Rene Zurflüh, both of Bülach, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 43,204, May 29, 1979. This application Sep. 7, 1979, Ser. No. 73,336

Claims priority, application Switzerland, May 31, 1978, 5957/78

Int. Cl.³ C07C *43/162*

U.S. Cl. 568—670 1 Claim

1. 1,4-Bis-[(2-propynyloxy)-methyl]-cyclohexane.

4,270,010

HYDROQUINONE BY HYDROLYSIS OF P-AMINOPHENOL OR SALTS

Efim Biller, Hochstrasse 28, Zurich, Switzerland

Filed Feb. 29, 1980, Ser. No. 125,959

Claims priority, application Switzerland, Mar. 1, 1979, 2045/79

Int. Cl.³ C07C *37/045*

U.S. Cl. 568—767 6 Claims

1. Process of making hydroquinone from p-aminophenol or from salts of p-aminophenol with acids made by catalytic or electrolytic reduction of nitrobenzene, which process comprises

heating at a temperature of 190°–300° C. an aqueous solution containing 0.5 to 30% by weight of said p-aminophenol or p-aminophenol salt and containing 0.3–3 moles of organic sulfonic acid per mole of said p-aminophenol or p-aminophenol salt to form a reaction mixture containing hydroquinone, and

extracting said hydroquinone from said reaction mixture by contacting said mixture with a water-insoluble solvent for said hydroquinone to leave a hydroquinone-free aqueous mixture.

4,270,011

PROCESS FOR THE PRODUCTION OF TERTIARY BUTYL ALCOHOL

Yoshiharu Okumura, Kawagoe, and Katsumi Kaneko, Ooi, both of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 9, 1980, Ser. No. 157,689

Int. Cl.³ C07C *29/04*

U.S. Cl. 568—899 3 Claims

1. A process for the production of tertiary butyl alcohol which comprises selectively reacting isobutylene in a C_4 hydrocarbon mixture with water by carrying out the reaction at a temperature not higher than 100° C. in the presence of a porous, acid-type cation exchange resin and a sulfone.

4,270,012

PREPARATION OF HNS FROM HNBB USING OXYGEN

Everett E. Gilbert, Morristown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 16, 1980, Ser. No. 112,585

Int. Cl.³ C07C *79/10*

U.S. Cl. 568—931 10 Claims

1. A method for preparing 2,2',4,4',6,6'-hexanitrostilbene comprising the step of treating 2,2',4,4',6,6'-hexanitrobibenzyl in an appropriate solvent with an oxygen containing gas.

4,270,013

PROCESS FOR THE SEPARATION OF NITROTOLUENE ISOMERS

James W. Priegnitz, Elgin, and Arthur M. Landis, Carpentersville, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Oct. 19, 1979, Ser. No. 86,489

Int. Cl.³ C07C *79/10*

U.S. Cl. 568—940 20 Claims

1. A process for separating para-nitrotoluene from a feed mixture comprising para-nitrotoluene and at least one other isomer of nitrotoluene, which process comprises contacting at adsorption conditions said mixture with an adsorbent comprising a type X zeolite containing chromium at the exchangeable cationic sites, or a type Y zeolite containing calcium at the exchangeable cationic sites, selectively adsorbing said para isomer to the substantial exclusion of the remaining isomers, and thereafter recovering high-purity para-nitrotoluene.

4,270,014

PRODUCTION OF HIGH ENERGY FUEL

Richard V. Norton, Dublin, and Steven C. Howe, Columbus, both of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Apr. 30, 1979, Ser. No. 34,879

Int. Cl.² C07C *13/28*

U.S. Cl. 585—22 5 Claims

1. A process for the production of exo-tetrahydrodicyclopentadiene which comprises:

(a) hydrogenating the endo dimer of cyclopentadiene containing a dispersed nickel hydrogenation catalyst to provide a crude endo-tetrahydrodicyclopentadiene derivative having a melting point of at least about 70° C,;

(b) contacting the crude product of (a) containing said catalyst with aluminum chloride and maintaining the contacted crude at a temperature of from about 100°–150° C. to effect the substantially complete conversion of said endo isomer to the corresponding exo isomer form; and

(c) separating said exo isomer from the sludge component of the isomerization reaction mixture.

4,270,015

MANUFACTURE OF ETHYLENE FROM SYNTHESIS GAS (D#75,673-C1)

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 8,988, Feb. 5, 1979, abandoned. This application Jul. 14, 1980, Ser. No. 167,875

Int. Cl.³ C07C *1/00*

U.S. Cl. 585—324 12 Claims

1. A process for the synthesis of ethylene from mixtures of carbon monoxide and hydrogen which comprises the following steps:

(1) Contacting a mixture of carbon monoxide and hydrogen with one or more C_2–C_4 aliphatic carboxylic acids, the corresponding acid anhydrides, trifluoroacetic acid or the corresponding anhydride, and a ruthenium catalyst selected from the group consisting of ruthenium (IV) dioxide hydrate, ruthenium (VIII) tetraoxide, ruthenium acetate, ruthenium propionate, ruthenium acetyl acetonate, ruthenium chloride and ruthenium bromide, and a cocatalyst selected from the group consisting of cesium salts, quaternary ammonium and phosphonium salts and iminium salts, to form a reaction mixture;

(2) Heating said reaction mixture to temperatures between about 100° and 350° C., at superatmospheric pressures of 500 psi or greater to effect formation of predominantly the methyl, ethyl and propyl esters of said carboxylic acids,

(3) Isolating said formed ethyl ester and pyrolyzing said isolated formed ester under an inert atmosphere to yield ethylene and also regenerating the carboxylic acid coreactant.

4,270,016

METHOD OF PREPARING TRANS-, TRANS-, TRANS-1,5,9-CYCLODODECATRIENE

Genrikh A. Tolstikov, ulitsa Pushkina, 54, kv. 49; Usein M. Dzhemilev, ulitsa Dostoevskogo, 102/3, kv. 61, both of Ufa; Grigory I. Rutman, ulitsa Revoljutsionnaya, 7, kv. 6, Sterlitamak; Jury I. Michurov, prospekt Lenina, 13, kv. 4, Sterlitamak; Boris I. Pantukh, ulitsa Khudaiberdina, 162, kv. 89, Sterlitamak; Stanislav S. Shavanov, ulitsa Mira, 59, kv. 29, Sterlitamak; Sagid R. Rafikov, ulitsa Novaya Mostovaya, 25, kv. 9, Ufa; Sofia A. Egoricheva, ulitsa Nugumanova, 66a, kv. 23, Sterlitamak; Valery P. Juriev, ulitsa Dostoevskogo, 102/3, kv. 14, Ufa; Alexandr G. Liakumovich, ulitsa Galeeva, 10, kv. 8, Kazan; Valerian M. Sobolev, naberezhnaya M. Gorkogo, 46/50, kv. 185, Moscow; Boris S. Korotkevich, ulitsa Fortunatovskaya, 31/35, kv. 71, Moscow; Jury A. Shmuk, Leninsky prospekt, 13, kv. 31, Moscow, and Elena Y. Mandelshtamm, prospekt Mira, 72, kv. 2, Moscow, all of U.S.S.R.

Filed Jun. 1, 1979, Ser. No. 44,778

Int. Cl.³ C07C *2/42, 13/02*

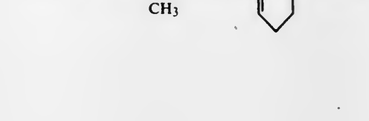
U.S. Cl. 585—366 3 Claims

1. A method of preparing trans-,trans-,trans-1,5,9-cyclododecatriene comprising cyclotrimerization of butadiene at a temperature within the range of from 50° to 150° C. in the presence of a catalytic system consisting of a compound of bivalent nickel, an organo-aluminium compound selected from the group consisting of compounds of formula (I) or (2)

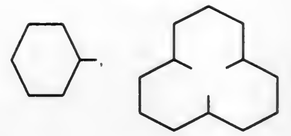
$$R_3Al \quad (1)$$

$$R_2Al{-}X(R')_n \quad (2)$$

wherein R and R' are selected from the group consisting of



-continued



X is —O— when n=1, -N when n=2; and an activator, viz. a compound selected from the group consisting of compounds of formula (3) and (4);

$$R_3Si{-}OR' \quad (3)$$

wherein R is an alkyl; R' is selected from the group consisting of C_6H_5—, C_6H_{11}—, an alkyl;

$$N(CRR'{-}CRR'')_3B \quad (4)$$

wherein R' and R'' are selected from the group consisting of CH_3—, C_2H_5—, C_6H_{10}—, C_8H_{11}—, H—; R is H—.

4,270,017

PROCESS FOR SELECTIVELY PRODUCING PARA-XYLENE

Dean A. Young, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Feb. 16, 1979, Ser. No. 12,868

Int. Cl.³ B01J *27/14*

U.S. Cl. 585—437 20 Claims

1. A process for preparing an aromatic alkylating catalyst which comprises contacting a silica polymorph with an acid or ammonium salt; mulling the silica polymorph with an inorganic refractory oxide; calcining the silica polymorph and inorganic refractory oxide; contacting the calcined silica polymorph and inorganic refractory oxide with a phosphorus compound; and calcining the resultant catalyst; said catalyst having an alkali content of less than about 1.3 milliequivalents per gram as available alkali.

4,270,018

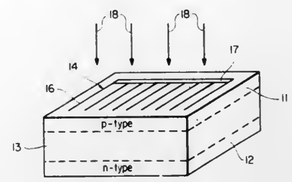
AMORPHOUS SOLAR CELLS

James F. Gibbons, 320 Tennyson Ave., Palo Alto, Calif. 94301

Filed Dec. 26, 1979, Ser. No. 107,437

Int. Cl.³ H01L *31/04*

U.S. Cl. 136—258 **3 Claims**



1. A solar cell comprising a n-type and p-type silicon single crystal or polycrystalline collecting layers separated by an amorphous layer that serves as a layer which absorbs the optical energy and generates carriers.

4,270,019

CONNECTING PIECE BETWEEN CABLES AND BUS BARS

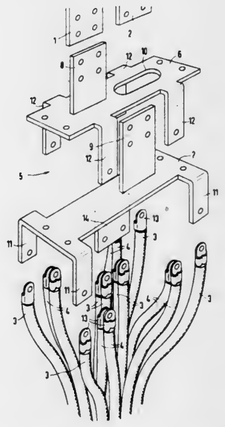
Jürgen Thye, and Karl Höffner, both of Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,463

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2825037

Int. Cl.³ H02B *1/20;* **H01R** *11/00*

U.S. Cl. 174—32 **3 Claims**



1. In a connector for connecting bus bars of different polarities with the ends of a fairly large number of cables, bunched to produce a low stray field, comprising at least two electrically conducting plates, each adapted for connection to a bus bar, and disposed, insulated from each other, in parallel planes, the improvement comprising, in a connector for use in the end-to-end connection of bus bars and cables:

at least one connecting strap attached to each plate pointing towards the direction of approach of the bus bars and adapted for connection to a bus bar, one of the connecting straps protruding through a cutout in the other plate; and

connecting lugs, pointing towards the direction of approach of the cable ends and adapted for connection to cable terminals on the cable ends, the connecting lugs attached to the plates and interleaved in such a way that the cables, when attached, produce a low stray field.

4,270,020

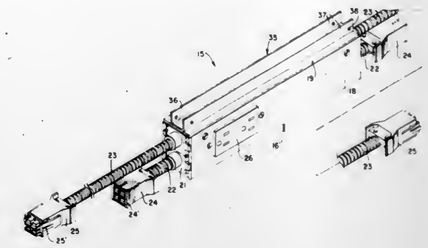
PARTITION WIRING SYSTEM

Max H. Kenworthy, Youngstown, and Melvin A. Textoris, Struthers, both of Ohio, assignors to GF Business Equipment, Inc., Youngstown, Ohio

Filed Nov. 21, 1979, Ser. No. 96,312

Int. Cl.³ H02G *3/00*

U.S. Cl. 174—48 **25 Claims**



1. A wiring system for a partition assembly having a plurality of elevated panels provided with end edges attached to intermediate upright means including, an electrical assembly associated with at least two adjacent said panels, each said electrical assembly including a housing mounted beneath one said panel, each said housing provided with opposed side walls and end walls, an exposed outlet mounted through at least one said side wall, each said housing including a short flexible conduit extending from one end wall and a long flexible conduit extending from the other end wall, said short conduits extendable to points short of the juxtaposed said intermediate upright means a distance substantially equal to the distance said long conduit connectors are extendable beyond their juxtaposed said intermediate upright means, said conduits on each said housing terminating in mating connectors, opposed conduits of adjacent said housings having mating connectors joined to said conduit connectors of the adjacent said housings, hanger means mounted beneath said panels, and separate removable cover means attachable to said hanger means on each side of said panels to provide an enclosed raceway beneath said panels containing said electrical assemblies whereby, when all said mating conduit connectors are joined said conduits are substantially fully extended.

4,270,021

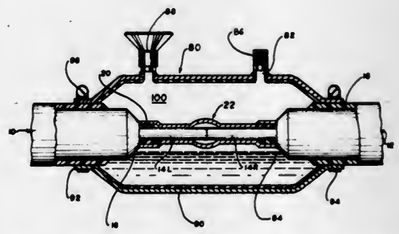
HIGH VOLTAGE CABLE SPLICE USING CONDENSATION REACTION POLYMERIC INSULATION

Marvin H. Gold, 5050 Dory Way, Fair Oaks, Calif. 95628

Division of Ser. No. 874,105, Feb. 1, 1978. This application Dec. 6, 1979, Ser. No. 100,931

Int. Cl.³ H02G *15/08;* **H01R** *5/02*

U.S. Cl. 174—84 R **11 Claims**



1. Spliced high voltage cable prepared from a splicing of two

insulation and conductor portions, said spliced cable comprising:

electrically and mechanically joined conductor portions, and

a monolithic cured polymeric insulation splice prepared by the reaction of a castable mixture comprising a liquid polyolefin having pendent groups capable of entering into a condensation reaction, a chain extension agent reactive with said pendent groups, and a particulated solid saturated polyolefin with the two insulation portions.

4,270,022

IDEOGRAPHIC CHARACTER SELECTION

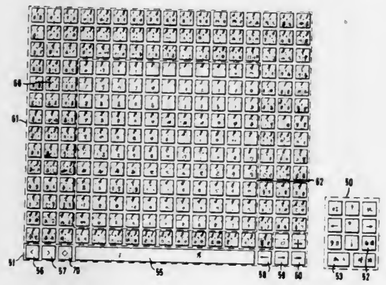
Shiu C. Loh, Flat 6b, University Residence No. 4, The Chinese University of Hong Kong, Shatin N.T., Hong Kong

Filed Jun. 18, 1979, Ser. No. 49,089

Claims priority, application United Kingdom, Jun. 22, 1978, 27636/78; Nov. 3, 1978, 43081/78

Int. Cl.³ B41J *3/50*; H04L *3/00*

U.S. Cl. 178—30 **14 Claims**



2. A character selection keyboard for an ideographic language of which the characters can each comprise one or more of a set of character components as herein defined, the keyboard comprising an array of character component keys each bearing a symbol corresponding to a character component of which some of said components have separate linguistic identity and can accordingly be used in said ideographic language in isolation to constitute characters in said ideographic language, and wherein said components having separate linguistic identity are all depicted within a part of the array which is disposed substantially centrally of the array and wherein those components, not having separate linguistic identity, are disposed outwardly of said central part of the array.

4,270,023

CYLINDRICAL SPEAKER MECHANISM

Harold N. Beveridge, 505 E. Montecito St., Santa Barbara, Calif. 93103

Filed May 31, 1979, Ser. No. 44,127

Int. Cl.³ H04R *5/02*

U.S. Cl. 179—1 GA **13 Claims**

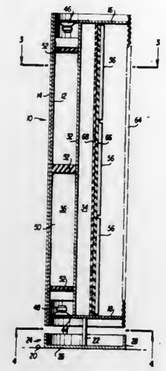
1. A loudspeaker for use in a room having a ceiling and a floor comprising:

a cabinet extending substantially from near said floor toward said ceiling and above a listener region, said cabinet having a cabinet vertical axis, said cabinet having a cabinet top surface, a cabinet bottom surface, and at least one vertical side surface;

a waveform generator housed in said cabinet for generating a cylindrical wave front from said vertical side surface of said cabinet, said generator being capable of generating audible frequencies including frequencies above a cross-over frequency;

a first low frequency generator housed in said cabinet proximate said cabinet top surface for generating frequencies including frequencies below said cross-over frequency; and,

a second low frequency generator housed in said cabinet proximate said cabinet bottom surface for generating



frequencies including frequencies below said cross-over frequency, said first and said second low frequency generators being essentially vertically unsymmetrical with respect to the listener region.

4,270,024

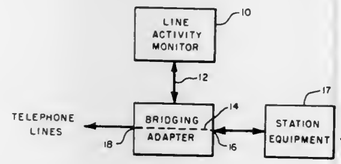
TELEPHONE LINE ACTIVITY MONITOR

Peter Theis, McHenry; Gregory D. Buchberger, Mt. Prospect, and William J. Krueger, Vernon Hills, all of Ill., assignors to Morgan Electronics, Chicago, Ill.

Filed Dec. 22, 1978, Ser. No. 972,326

Int. Cl.³ H04M *3/36*

U.S. Cl. 179—8 A **12 Claims**



1. A portable monitor for use with station equipment connected to a plurality of telephone lines by way of first and second mating connectors directly associated with said station equipment, said monitor comprising:

monitor means including a portable computer programmed to tabulate a plurality of telephone line traffic parameters representative of the line activity and usage patterns of a predetermined maximum number of monitor input channels;

adapter means for connecting said monitor input channels to the plurality of telephone lines, said adapter means including first connector means for mating with said first connector and second connector means for mating with said second connector, said adapter means further including means for interconnecting the station equipment and the telephone lines.

4,270,025

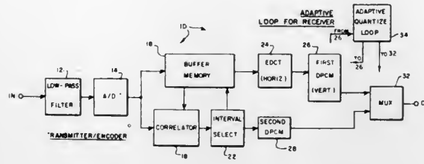
SAMPLED SPEECH COMPRESSION SYSTEM

James M. Alsup, and Harper J. Whitehouse, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 9, 1979, Ser. No. 28,406

Int. Cl.³ G10L *1/00*

U.S. Cl. 179—15.55 R **3 Claims**



1. A sampled speech compression and expansion system analogous to a two-dimensional processing of speech, or other type of audio signal, in that the processing is performed on sequences of sample data, each sequence comprising a line of data consisting of a plurality of samples, comprisng transmit-/encode apparatus and receive/decode apparatus, wherein the transmit/encode apparatus comprises:

means, adapted to receive an analog input signal, for filtering through low-frequency analog signals;

means, connected to the filtering means, for converting the analog signals into digital signals;

means, whose input is connected to the output of the converting means, for storing the digitized signals;

means, having inputs from the converting means and the storing means, for correlating the digital signal received directly from the converting means with a delayed signal from the storing means;

interval select means, whose input is connected to the output of the means for correlating, for comparing the autocorrelation value with subsequent peaks in the correlation function, identifying those peak values which are greater than a specified fraction of the autocorrelation value, and selecting one of them and the interval of time and the number of samples to the autocorrelation peak, the interval-select means having an output which is connected to the means for storing;

means, whose input is connected to the storing means so that specified blocks of stored signal are routed to it, with a starting point defined by the selected interval value, for performing an even discrete cosine transform (EDCT) of the stored signal;

a first means, whose input is connected to the output of the EDCT means, for differential pulse code modulation (DPCM) of its input signal;

a second means, whose input is connected to the output of the interval-select means, for differential pulse code modulation of its input signal;

each DPCM means determining a set of quantization coefficients according to a predetermined set of quantization rules; the speech compression system further comprising:

means, having an input connected to the output of the first and second modulating means, for multiplexing the two DPCM signals.

4,270,026

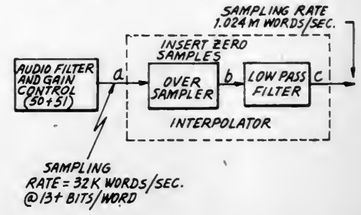
INTERPOLATOR APPARATUS FOR INCREASING THE WORD RATE OF A DIGITAL SIGNAL OF THE TYPE EMPLOYED IN DIGITAL TELEPHONE SYSTEMS

Kishan Shenoi, Fairfield, and Bhagwati P. Agrawal, Shelton, both of Conn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,105

Int. Cl.³ G10L *1/00*

U.S. Cl. 179—15.55 R **27 Claims**



1. An interpolator apparatus for increasing the word rate of an input digital signal, said input digital signal consisting of a plurality of digital words, each having the same number of given bits, with said rate of said digital signal being of a predetermined value, comprising:

interface means responsive to said digital signal for repeating each of said words a given number of times at said increased word rate, with a given separation region between said words as repeated, said interface means including means for inserting a fixed number of zero bit words between said words as repeated wherein said fixed number of zero bit words occupy said given region, with each of said zero bit words the same number of given bits as each digital word, to thereby provide an output signal of a predetermined pattern,

low pass digital recursive filter means responsive to said output signal of said predetermined pattern, to provide at an output of said recursive filter, a filtered digital signal at said increased rate, manifesting a plurality of digital words, each of a lesser number of bits than said words of said output signal with each word manifesting a value providing a smooth transition between successive words at said increased rate.

4,270,027

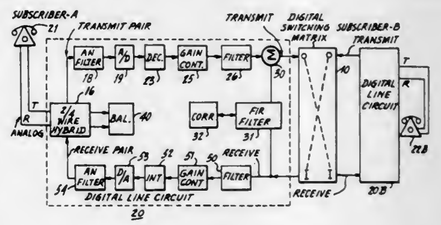
TELEPHONE SUBSCRIBER LINE UNIT WITH SIGMA-DELTA DIGITAL TO ANALOG CONVERTER

Bhagwati P. Agrawal, Shelton, and Kishan Shenoi, Fairfield, both of Conn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,103

Int. Cl.³ H04M *1/00*

U.S. Cl. 179—81 R **5 Claims**



1. A telephone subscriber line circuit for coupling a subscriber to a digital transmission path in a telephone switching system comprising in combination:

two-to-four wire converter means coupled to a near-end

subscriber line to provide a transmit path and a receive path for said line,

analog-to-digital converter means for converting near-end analog signals coupled thereto from said two-to-four wire converter in said transmit path, said converter means operative to provide a digital signal comprising a plurality of digital words, each having the same number of bits with each word manifesting a weighted value of said near-end analog signal, with at least one bit in each word indicative of a sign bit indicating whether said word and therefore said weighted value of said analog signal is positive or negative,

means for applying said digital signal to said digital transmission path,

means coupled to said digital transmission path adapted to receive a far end digital signal of the same format as said applied digital signal,

interpolator means responsive to said digital signal as received for providing a second digital signal having a lesser number of bits than said far digital signal and an increased word rate,

digital to analog converter means in said receive path of said line circuit and coupled to said interpolating means to provide an analog signal, said converter means comprising:

adding means for receiving said second digital signal and adding to each word of said signal an error signal, to provide at an output, a modified word having a given number of bits including a sign bit manifesting the sum of a word in said second digital signal as modified by said error signal,

sign detecting means responsive to said modified word for providing an output pulse when the sign of said word is indicative of one value as positive or negative, said output pulse indicative of the value of said analog signal as being positive or negative,

feedback control means responsive to the sign of said modified word as detected for inverting said sign and adding the same to said modified word to provide said error signal for application to said adding means to cause each successive digital word as applied to said adding means to be modified by said error signal as based on the sign of said previous modified word, to cause said sign detecting means to provide said output pulse for each word in said second digital signal having the same sign bit,

low pass filter means coupled to said sign detecting means for providing a replica of said analog signal as derived from said far end digital signal,

means for coupling said far end analog signal to said two or four wire converter means to enable a subscriber to receive and therefore respond to said far end analog signals.

4,270,028

DIGITALLY ACTIVATED RINGING CIRCUIT FOR GENERATION OF AC VOLTAGES

John S. Young, Scottsdale, Ariz., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Sep. 24, 1979, Ser. No. 78,330
Int. Cl.³ H04M 3/02
U.S. Cl. 179—84 R **10 Claims**

1. A digitally activated ringing circuit for generation of AC voltages connected between a telephone office central processor and a telephone office switching network for providing ringing service to a plurality of telephone subscribers each subscriber having a unique ringing frequency, said switching network including a plurality of relays and associated switching contacts, said ringing circuit comprising:

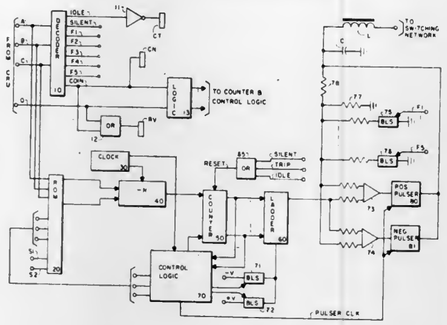
a clock providing periodic pulses;

decoding means connected to said telephone office central processor for determining a particular ringing frequency of said plurality to be applied to said switching network and selectively attenuating each ringing frequency;

frequency approximating means connected to said decoding means and to said clock, and operated in response to a request for one particular frequency of said plurality of unique frequencies to produce a binary number representing an approximation to an instantaneous value representing the sinusoidal ringing signal to be produced;

counting means connected to said frequency approximating means and operated in response to said periodic pulses divided by said binary number to produce a binary value representing an instantaneous approximation of the voltage of said sinusoidal ringing signal;

resistive network means connected to said counting means for converting said binary value representation to an analog representation of said binary number;



pulsing means connected between said resistive network means and said telephone office switching network and operated in response to said analog representation of said binary number to produce a series of pulses of a first characteristic and alternatively operated to produce a series of pulses of a second characteristic, each of said series of said pulses providing an incremental quantity of current according to said binary value representing said approximation of the voltage of said ringing signal, via said telephone office switching network for transmission to a particular telephone subscriber providing said subscriber with said ringing service.

4,270,029

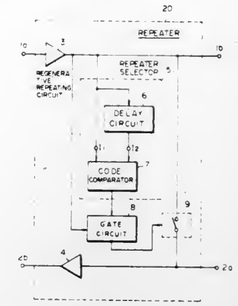
SELECTION SYSTEM FOR DIGITAL SIGNAL REPEATERS

Masanori Sato, Machida; Hiroharu Wakabayashi, Nakamura; Yoshihiro Ejiri, Tokyo, and Hitoshi Yamamoto, Kawasaki, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 15, 1979, Ser. No. 20,873
Claims priority, application Japan, Mar. 23, 1978, 53/32344; Mar. 23, 1978, 53/32345
Int. Cl.³ H04B 1/60
U.S. Cl. 179—175.31 R **7 Claims**

1. A digital signal repeater selecting system for a digital signal transmission system equipped with a plurality of digital signal repeaters disposed on a transmission line at desired intervals, comprising in each of the repeaters: a delay circuit having a particular delay time corresponding to an integral multiple of the unit code length of a digital signal and assigned to the repeater and having its input terminal connected to the transmission line; and a code comparator for comparing the input signal to and the output signal from the delay circuit with each other to produce a predetermined output signal when both signals are determined by the code comparator to be substantially identical with each other, wherein when a repeater selecting code train repeating in synchronism with the

delay time is provided on the transmission line, the repeater to which the delay time is assigned produces the predetermined



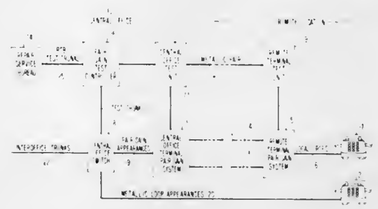
output signal from the code comparator to allow a selecting operation of the repeater.

4,270,030

TESTING OF SUBSCRIBER LOOP PAIR GAIN SYSTEMS

Stephen J. Brolin, Livingston; Jeffrey L. Gottesman, Morristown; Dennis H. Morgen, Roseland, and Kenneth H. Swanson, Mendham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 27, 1979, Ser. No. 97,699
Int. Cl.³ H04B 3/46; H04J 3/14
U.S. Cl. 179—175.2 D **21 Claims**



1. A pair gain subscriber loop testing system for testing subscriber loops implemented by a combination of carrier-derived channels in at least one pair gain subscriber loop transmission system and local drop wires from the remote terminal of said transmission system to subscriber stations, said testing system

CHARACTERIZED BY

drop testing means for extending a metallic path from a central office testing facility to the local drop of a tested subscriber, and

channel testing means for simultaneously testing the carrier-derived channel corresponding to said tested subscriber.

4,270,031

CIRCUIT BREAKER INTERLOCKING MECHANISM

Russell T. Borona, Seymour, and Kenneth R. Coley, Fairfield, both of Conn., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 28, 1979, Ser. No. 24,768
Int. Cl.³ H01H 9/26
U.S. Cl. 200—50 C **5 Claims**

1. A power transfer device for switching from one power supply to another,

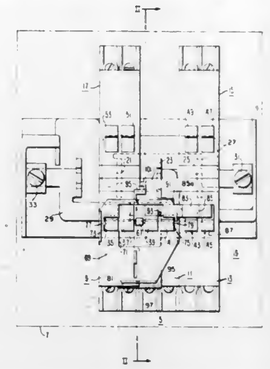
(a) four circuit breakers in side-by-side fixed alignment in a row, each of the circuit breakers having a top wall and a handle projecting therefrom and movable between "on" and "off" positions,

(b) the first and second circuit breakers in the row having separate line terminals and common load terminals,

(c) the third and fourth circuit breakers in the row having separate neutral terminals and common load terminals,

(d) first tie means interconnecting the handles of the first and fourth circuit breakers into pairs for simultaneous movement,

(e) second tie means interconnecting the handles of the



second and third circuit into pairs for simultaneous movement,

(f) the first and second tie means each comprising a rigid tie member to enable operation of corresponding pairs of tied handles, and

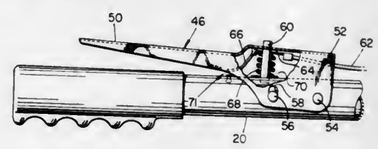
(g) a locking plate pivotally mounted for movement between the paths of movement of the pairs of tied circuit breaker handles, whereby movement of either of the pairs of tied handles to the "on" position pivots the locking plate into the path of movement of the other pair to prevent movement to the "on" position.

4,270,032

COMBINED SAFETY LEVER AND IGNITION INTERLOCK SWITCH

Dale R. Dobberpuhl, Horicon, Wis., assignor to Deere & Company, Moline, Ill.

Filed Apr. 2, 1979, Ser. No. 25,817
Int. Cl.³ H01H 9/06
U.S. Cl. 200—61.85 **7 Claims**



1. An operator presence-sensing safety lever and switch assembly, comprising: an electrically conductive support; a lever having a handle section joined to a channel-like end section; said end section receiving said support and being pivotally connected thereto; an electrically non-conductive guide stem located in the end section and respectively fixed to one and slidably received in another of the lever and support; an electrical lead having an end received on the guide stem; an electrical conductive switch element received on the guide stem; a coil compression spring received on the guide stem and acting to bias the switch element and lead into engagement with each other and to bias the handle section of the lever to an inactive position away from the support wherein the switch

element is spaced from the support; electrical insulation located between the spring and support and the lever handle section and switch element being configured for movement to an active position against the support to thereby establish an electrical connection between the support and the lead.

4,270,033

BRAKE-FLUID LEVEL DETECTOR

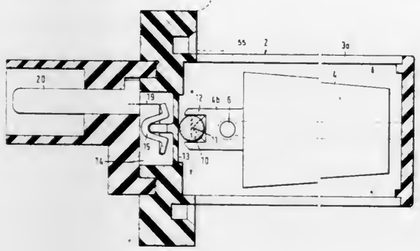
Alfred Hoffmann, Bad Harzburg, Fed. Rep. of Germany, assignor to Helphos-Autolight Schardmüller & Co., Bad Harzburg, Fed. Rep. of Germany

Filed May 30, 1979, Ser. No. 43,850

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2824035

Int. Cl.³ H01H *35/18*

U.S. Cl. 200—84 C **12 Claims**



1. A fluid-level detector comprising:
a container adapted to hold a supply of a fluid and having a side wall having an outer surface forming a pair of vertical spaced abutments;
a float inside said container adapted to float on said fluid;
a permanent bar magnet inside said container, having a longitudinal and horizontal magnet axis generally parallel to said wall, and magnetized transverse to said magnet axis;
link means inside said container connecting said magnet to said float for vertical displacement of said magnet through a predetermined magnet position lying horizontally between said abutments on vertical displacement of said float through a predetermined float position corresponding to a fluid level at which a signal is to be given;
a pair of contacts outside said container;
a switch element outside said container and adjacent said magnet, said element being displaceable by the field of said magnet between a closed position engaging and forming a closed circuit with said contacts and an open position out of engagement with at least one of said contacts, said switch element being generally U-shaped and having a pair of vertically spaced legs, a bight interconnecting said legs and generally horizontally level with said magnet position, and a magnetically attractable and horizontally elongated foot on each of said legs extending generally parallel to said wall and each level with a respective one of said abutments; and
means on said container including a pivot on said outer surface and engaging said bight for defining a pair of stable positions for said switch element respectively corresponding to said open and closed positions and for establishing an unstable metastable position between said stable positions and corresponding to said predetermined magnet position, one of said feet being attracted by said magnet and lying flatly against the respective abutment in said open position and the other of said feet being attracted by said magnet and lying flatly against the respective abutment in said closed position, whereby as said magnet passes through said predetermined magnet position said switch element moves between said open and closed positions.

4,270,034

PUFFER TYPE CIRCUIT INTERRUPTER

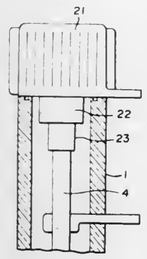
Masami Kii, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Amagasaki, Japan

Filed Mar. 24, 1978, Ser. No. 889,982

Claims priority, application Japan, Mar. 24, 1977, 52/32901; Mar. 24, 1977, 52/32902; Mar. 24, 1977, 52/32909; Mar. 24, 1977, 52/32915; Mar. 24, 1977, 52/32926; Mar. 24, 1977, 52/32929; Mar. 24, 1977, 52/32931; Mar. 24, 1977, 52/32932; Mar. 24, 1977, 52/32934; Mar. 24, 1977, 52/32935; Mar. 24, 1977, 52/36165[U]; Mar. 24, 1977, 52/36166[U]; Jun. 14, 1977, 52/70687; Jul. 21, 1977, 52/88074

Int. Cl.³ H01H *33/82*

U.S. Cl. 200—148 R **29 Claims**



4. A puffer type circuit interrupter comprising:
a chamber containing an arc extinguishing fluid;
a fixed contact in said chamber;
a movable contact in said chamber, said movable contact adapted to contact said fixed contact and to be movable away from said fixed contact in a first direction whereby an arc is formed;
means for moving said movable contact;
an arc space formed between said contacts when said movable contact is not contacting said fixed contact;
a constant volume pressure chamber connected to said arc space, said pressure chamber including at least one fin thereon;
a fluid discharge passage in said movable contact, said fluid discharge passage being closed until said movable contact has moved a predetermined distance in said first direction; and
a flow guide made from insulating material surrounding at least a portion of said movable contact, said flow guide being of such a length that it provides said closed condition for said fluid discharge passage.

4,270,035

SNAP ON MOUNTING CLIP FOR CIRCUIT BREAKERS

Konrad J. Richter, Sr., Lawrenceville, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

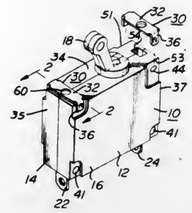
Filed Jul. 16, 1979, Ser. No. 57,709

Int. Cl.³ H01H *13/06*

U.S. Cl. 200—294 **14 Claims**

2. In a circuit breaker the combination comprising
a molded case comprising two half-cases abutting each other,
a spring fastener embracing said half-cases,
said half-cases having recesses,
said fastener comprising a central portion and flexible arms on either side thereof embracing said half-cases and biasing said half-cases toward each other,
each arm having a tab deformed toward the embraced half-case,
each tab extending into one of said recesses,

each recess being defined by a wall which surrounds said tab so as to limit movement of said tab in three directions,
said arms including end portions flared outwardly of said case,



said arms being bowed to permit said arms to spring freely as they are pushed over said half-cases,
said case including a top wall, and
said central portion is bowed downwardly so as to be concave relative to said top wall of said case.

4,270,036

DEVICE FOR WELDING TOGETHER TWO BARS ON THEIR FRONT SIDES

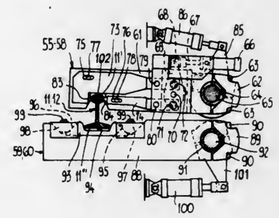
Hans-Rudolf Zollinger, Geroldswil, Switzerland, assignor to H. A. Schlatter AG, Zurich, Switzerland

Filed Oct. 24, 1979, Ser. No. 87,665

Claims priority, application Switzerland, Nov. 10, 1978, 11567/78

Int. Cl.³ B23K *11/32, 37/04*

U.S. Cl. 219—53 **11 Claims**



1. Welding apparatus for welding together, in end-to-end relationship to form a continuous rail, rail sections having a base, a web and a head having a running surface and side flanks, said welding apparatus comprising, in combination: a pair of vertical clamping assemblies for vertically aligning the respective ones of a pair of rail sections to be welded together with the running surfaces thereof at the same fixed height, said vertical clamping assemblies engaging the running surface of the rail head of said rail sections to vertically align said rail sections; and a lateral aligning device comprising at least a first pair of clamping arms disposed substantially perpendicular to the longitudinal length of said rail sections and between said vertical clamping assemblies, one of said clamping arms being associated with one of said rail sections, respectively, said first pair of clamping arms at one end thereof being pivotally rotatable about a common axis which is parallel to the longitudinal length of said rail sections into engagement with the respective ones of said rail sections, each of said clamping arms having stop means which engage said running surface of said rail heads of said rail sections to position said clamping arms with respect to said rail sections, said clamping means comprising a pair of clamping jaws which when laterally operated with respect to one another engage the respective ones of the side flanks of said rail heads of said rail sections to clamp said rail heads between them to laterally align the ends of said rail sections to be welded together.

4,270,037

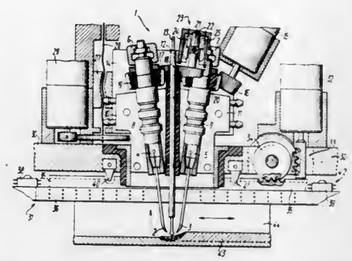
ARC WELDING MACHINE USING NON-CONSUMABLE ELECTRODE

Vladimir V. Grinin, ulitsa Raitsentr, 43, kv. 34, Krasnogorsk Moskovskoi oblasti, and Mikhail M. Shtrikman, ulitsa Molodezhnaya, 4, kv. 186, Moscow, both of U.S.S.R.

Filed Nov. 9, 1979, Ser. No. 92,687

Int. Cl.³ B23K *9/12*

U.S. Cl. 219—125.12 **1 Claim**



1. An arc welding machine using non-consumable electrode, comprising:
a welding head;
a body of said welding head, having an interior surface;
a passage formed in said interior surface, with a filler wire extending therethrough;
two current nozzles of said welding head, each being articulated within said body and arranged at an angle to said passage so as to be able to rotate about its axis:
two non-consumable electrodes of said welding head, each having a bent-away tip and being fixed in one of said nozzles so as to be able to move along its axis, thereby ensuring a requisite spacing between the said bent-away tips;
a welding head vertical travel mechanism geared to said welding head;
a screw pair of said welding head vertical travel mechanism, having a nut and a screw and being fixed in position by said nut on the body of said welding head;
an actuator of said welding head vertical travel mechanism, operably connected with the screw of said screw pair;
a movable platform mounting said actuator of said welding head vertical travel mechanism;
a welding head longitudinal travel mechanism geared to the welding head;
an actuator of said welding head longitudinal travel mechanism, said actuator being operably connected with said movable platform;
an electrode oscillating mechanism geared to said welding head;
an actuator of said electrode oscillating mechanism, said actuator being rigidly connected with the body of said welding head;
a gear drive of said electrode oscillating mechanism, said oscillating actuator being geared to said actuator and to said non-consumable electrodes of the welding head;
a sensor means for sensing angular position of the non-consumable electrodes, said sensor means having an input, a first output, a second output and a third output, and being operably connected through said input thereof with said nonconsumable electrodes;
a make-and-break switch having a first input, a second input, a third input and an output, and having its first and second inputs connected with said non-consumable electrodes at the moment when the welding process is started;
a device for controlling the arc length at a welding edge,

said device having a first input, a second input, a third input, a first output and a second output, and being connected through its first input with said output of said make-and-break switch, through its second and third inputs respectively with said first and second outputs of said electrode position sensor means, and through its first and second outputs with the actuator of said electrode oscillating mechanism;

an arc length stabilizer having a first input, a second input and an output, said stabilizer being connected through its first input with the output of said make-and-break switch, through its second output with the third output of said electrode position sensor means, and through its output with the actuator of said welding head vertical travel mechanism;

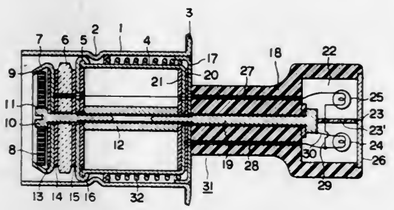
a mechanism for reversing longitudinal motion of said welding head, said mechanism having a first input, a second input, a first output and a second output, and being operably connected through its first and second inputs with said welding head, through its first output with the third input of said make-and-break switch, and through its second output with the actuator of said welding head longitudinal travel mechanism.

4,270,038

CIGARETTE LIGHTER WITH A BUILT-IN BATTERY CHECKER

Yoshinori Warihashi, 43-4, Daita 1-chome, Setagaya-ku, Tokyo, Japan

Filed Jan. 31, 1979, Ser. No. 8,042
Claims priority, application Japan, Feb. 6, 1978, 53/12670[U]; Mar. 14, 1978, 53/31581[U]
Int. Cl.³ F23Q *7/22*
U.S. Cl. 219—269 **13 Claims**



1. A cigarette lighter with a built-in battery checker for use in automobiles which comprise two parts, one being a heater part in which a movable body provided with a heater at one end and a push nob at the other is mounted slidably in reciprocal front and rear directions to a holder and the other being a basal part into which the heater part is detachably inserted in such manner that when the nob is pushed to bring the heater into contact with an electrode plate connected to a battery, the heater can be heated by electric current from the battery so as to enable the heater part to be pulled out from the basal part, comprising:

the push nob being provided inside with a variable illumination means in which brightness of the illumination is diminished according to increase in the degree of consumption of the battery; and

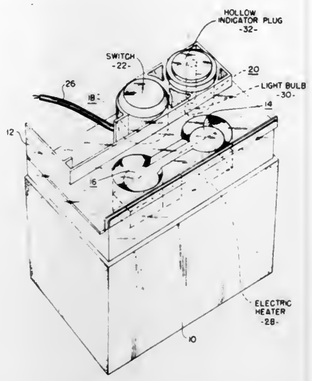
the push nob being further provided inside with a standard illumination means for comparison in brightness with the variable illumination means.

4,270,039

HEATING UNIT WITH INDICATOR FOR DISINFECTING SOFT LENSES, OR THE LIKE

Stephen G. Hauser, Tarzana, Calif., assignor to Rincon Industries, Inc., Los Angeles, Calif.

Filed Aug. 17, 1979, Ser. No. 67,478
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—439 **4 Claims**



1. In an electrically energized heating unit which comprises a bowl having an open top, an incubator supported in and covering the open top of the bowl and including at least one well extending into the bowl, electrical heating means mounted in the bowl, and wax contained in the bowl to be heated from a solid state to a molten state by the electrical heating means when the electrical heating means is energized so as to introduce heat into the well; the combination of a hollow plug extending into said bowl and into the wax contained in said bowl, said plug containing wax which is molten and transparent when the wax in the bowl is molten and transparent, and which is solid and opaque when the wax in the bowl is solid; a transparent member mounted at the top of the plug, and an indicator member mounted at the bottom of the plug to be visible through the transparent member when the wax in the plug is in a molten state and to be invisible through the transparent member when the wax in the plug is in a solid state.

4,270,040

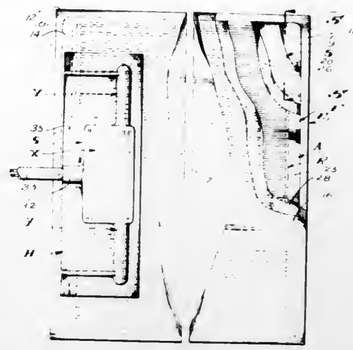
HEATER WITH REINFORCING STRATE

James P. McMullan, and Albert Stevens, both of 2630 Seaman Ave., El Monte, Calif. 91733

Filed Oct. 19, 1979, Ser. No. 86,400
Int. Cl.³ H05B *3/34*
U.S. Cl. 219—528 **8 Claims**

1. An elongate, flat rectangular laminated heater structure comprising a flat rectangular reinforcing strate of thin, flexible substantially dimensionally stable metal having flat top and bottom surfaces, opposite side edges and opposite end edges, a thin flat carrier film of dielectric plastic having flat top and bottom surfaces arranged atop and bonded to the top surface of the strate by a flexible cement, an elongate resistance heating element of thin flat metal foil ribbon arranged in a serpentine pattern throughout and occupying the major portion of the top surface of the film and bonded thereto by a flexible cement, said element has end portions extending to a portion of the top surface of the film unoccupied by the remainder of the element and integrally joined with metal foil terminals accessible at the top of the film, a flat rectangular envelope of flexible dielectric plastic sheet stock about the strate, film and the element with

a lower layer adjacent the bottom surface of the strate and a top layer adjacent the top surface of the film and the element;



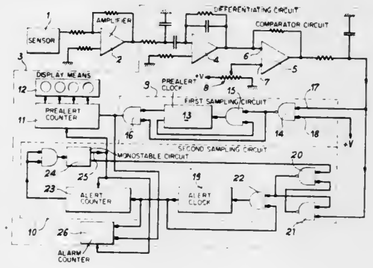
said top layer has access openings at said terminals providing access to said terminals.

4,270,041

PROCESS AND APPARATUS FOR DETECTING THE PRESENCE OF A PHYSICAL PHENOMENON

Gaëtan Pleyber, Domene, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Sep. 22, 1978, Ser. No. 945,014
Claims priority, application France, Oct. 3, 1977, 77 29652
Int. Cl.³ G07C *1/10*; G06M *3/14*
U.S. Cl. 235—92 MT **6 Claims**



1. An apparatus for the detection of the presence of a physical phenomenon comprising:

a sensor sensitive to a characteristic magnitude of the phenomenon to be detected and able to supply a signal representative of said phenomenon;

at least one amplifier connected to the sensor output;

means for indicating passing beyond a predetermined threshold significant for the phenomenon to be detected, said means being connected to the amplifier output; wherein the means for indicating exceeding the significant threshold comprises:

a differentiating circuit connected to the amplifier output and supplying a signal which is the derivative relative to time of the signal representing the phenomenon;

a comparator whose one input is connected to the output of the differentiating circuit and whose other input is raised to a prealert reference potential, said comparator being able to supply a signal for initiating the prealert as soon as the amplitude of the differentiating circuit signal exceeds the amplitude of the reference potential;

a first time sampling circuit for fixing the elementary prealert periods of duration τ as soon as the comparator supplies a first signal for initiating the prealert;

a second time sampling circuit connected to said first sampling circuit for fixing alert periods of duration $T > \tau$ and a prealert counter having an input connected to an output of the first time sampling circuit and able to count during the alert periods of duration T the number N_p of prealert sampling periods during which the reference potential is exceeded;

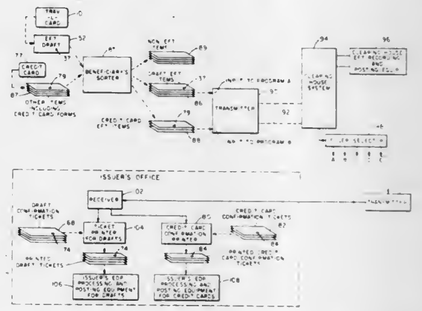
alert display means connected to the prealert counter output for indicating the presence of an alert during time T as soon as the number N_p of prealerts exceeds a predetermined number N_{al}, the numbers N_p and N_{al} being whole numbers and the number N_{al} being selected in such a way that $1 < N_{al} < T/\tau$.

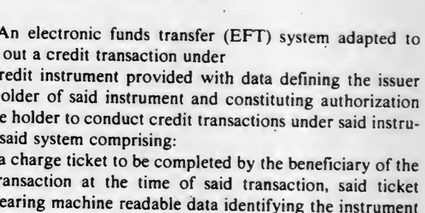
4,270,042

ELECTRONIC FUNDS TRANSFER SYSTEM

John M. Case, 35 Lehigh Rd., Wellesley, Mass. 02181

Continuation-in-part of Ser. No. 820,633, Aug. 1, 1977, abandoned. This application Jul. 13, 1978, Ser. No. 924,200
Int. Cl.³ G06F *15/30*; G06K *19/06*
U.S. Cl. 235—379 **3 Claims**





1. An electronic funds transfer (EFT) system adapted to carry out a credit transaction under

a credit instrument provided with data defining the issuer and holder of said instrument and constituting authorization for the holder to conduct credit transactions under said instrument said system comprising:

(a) a charge ticket to be completed by the beneficiary of the transaction at the time of said transaction, said ticket bearing machine readable data identifying the instrument holder, his account at the issuer, the amount of the transaction, the issuer and a machine readable element located at a predetermined optional standards position on said ticket, said last named machine readable element defining the ticket to be cleared on an EFT basis;

(b) sorting means at the beneficiary's location for segregating said ticket as an EFT item in response to the detection of said last named machine readable element;

(c) a message transmitter;

(d) means for transferring said segregated ticket to said message transmitter;

(e) said message transmitter being adapted to read the machine readable data from the segregated ticket and transmit to a clearing house receiver, as a separate message for each said ticket, all of said data together with an identification of the beneficiary and a designation of the transmission as an EFT item;

(f) said clearing house receiver being adapted to segregate each such separate message in accordance with the identification of the issuer and for delivering said separate message to a transmitter connected to a receiver at said issuer;

(g) a printer at said issuer, said printer containing a blank confirmation ticket having a machine readable element in the same predetermined standards optional position as the

corresponding machine readable element on said charge ticket;

(h) said printer being connected to the output of said last named receiver and being adapted to print on said confirmation ticket all of the data delivered to it by said receiver; and

(i) means for delivering each printed confirmation ticket to electronic data processing equipment which is adapted to detect the presence and position of said last named machine readable elements and, in response to said detection to clear said confirmation ticket respectively through and to the proper credit accounts on the books of the issuer.

4,270,043

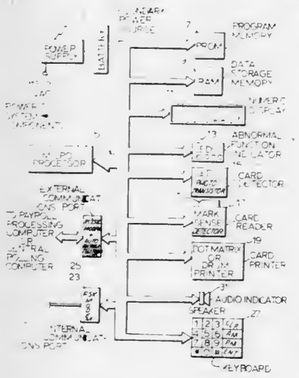
METHODS OF AND APPARATUS FOR TIME CLOCK RECORDING AND COMPUTATION AND RELATED USES

Larry K. Baxter, Lexington, Mass.; Robert D. Cohen, Belle Harbor, N.Y.; Mark S. Ain, Newton, and Sheldon P. Apsell, Nahant, both of Mass., assignors to Kronos Inc., Brighton, Mass.

Filed Mar. 13, 1979, Ser. No. 20,223

Int. Cl.[3] **G06C** *15/00;* **G06F** *3/08;* **G06K** *7/10;* **G06F** *15/12*

U.S. Cl. 235—419 **56 Claims**



1. A method of time-clock recording for use with a time and other data card provided with information identifying the user and space for recording additional data, that comprises, electronically storing identification, time and other data of users; electronically reading the identifying information on a user's card at times of check-in and check-out; withdrawing from such electronic storage, in response to such reading, data associated with the user; electronically totaling time periods between times of check-in and check-out to maintain stored data as to summary time periods for the user; and recording such summary time period data upon the said space of the card at check-out.

4,270,044

OPTICAL REFERENCE GYRO

John M. Elwell, Jr., Sudbury, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Apr. 25, 1979, Ser. No. 33,214

Int. Cl.[3] **G01J** *1/20*

U.S. Cl. 250—201 **22 Claims**

1. An inertially-aided optical system on a support platform, comprising:

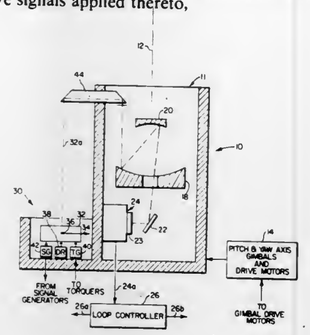
A. an optical sensor coupled to said platform and including a focal plane, an objective for gathering light from an optical field about an optical axis, and associated optical elements adapted to form an image of said optical field on said focal plane,

B. an optical reference gyro (ORG) rigidly coupled to said sensor and including:

wheel means adapted for continuous rotation about a spin axis and for rotational displacement about two orthogonal input axes, said input axes being fixed with respect to said sensor and said input axes and said spin axis having a common point of intersection,

means for driving said wheel means to continuously rotate about said spin axis,

torquer means coupled to said sensor for applying torques to said wheel means about said input axes in response to drive signals applied thereto,



optical source means coupled to said wheel means for generating a collimated optical beam directed along said spin axis from said wheel means,

C. beam coupling means for coupling said optical beam through said objective of said optical sensor to said focal plane,

D. optical detector means for detecting the point of incidence of said optical beam on said focal plane and for generating beam position signals, said beam position signals being representative of the position of said point of incidence in said focal plane, and

E. feedback means responsive to said beam position signals to control the position of said beam incidence point in said focal plane.

4,270,045

APPARATUS FOR READING AN OPTICAL RADIATION-REFLECTING INFORMATION CARRIER FOR CONTROLLING FOCUS

Willem G. Opheij, and Peter F. Greve, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 19, 1977, Ser. No. 834,243

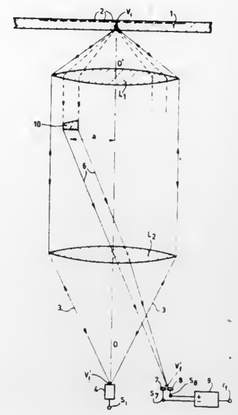
Claims priority, application Netherlands, Jun. 20, 1977, 7706753

The portion of the term of this patent subsequent to Jan. 16, 1996, has been disclaimed.

Int. Cl.[3] **H04N** *5/76;* **G01J** *1/36*

U.S. Cl. 250—204 **6 Claims**

1. An apparatus for reading an optical radiation-reflecting information carrier having an information structure, which apparatus comprises a radiation source which supplies a read beam, an objective system for focussing the read beam to a read spot on the information structure of the information carrier and for imaging the read spot on said radiation source, said radiation source also functioning as a radiation-sensitive information detector whose output signal represents the information, an opto-electronic focussing error detection system for determining a deviation between the desired and the actual position of the plane of focussing of the objective system, which focussing error detection system comprises two radiation-sensitive detectors and a single radiation-deflecting element disposed on one side of the optical axis of the objective system, the surface area of said element being substantially smaller than the cross-sectional area of the read beam, said element being disposed in the path of the read beam which has been reflected by the information carrier and which originates



from the read spot and being configured to deflect a portion of said reflected read beam onto said detectors and to shift the position of the deflected radiation with respect to said detectors in response to changes in the distance between said objective and said information carrier.

4,270,046

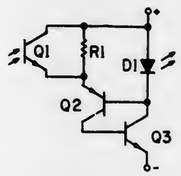
TWO-TERMINAL OPTICAL SENSOR

Paul M. Werking, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 2, 1978, Ser. No. 947,675

Int. Cl.[3] **G01J** *1/32*

U.S. Cl. 250—205 **10 Claims**



1. A two-terminal optical sensor comprising an electroluminescent component optically coupled with a light sensing component, a resistance means, and means for electrically biasing said electroluminescent component, said light sensing component and said resistance means in parallel relationship, said electroluminescent component having amplifier means electrically coupled in series therewith, driven by the output from said light sensing component.

4,270,047

INFORMATION DETECTING APPARATUS

Noritaka Mochizuki, and Yoshioki Hajimoto, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1979, Ser. No. 34,206

Claims priority, application Japan, Apr. 28, 1978, 53-51837

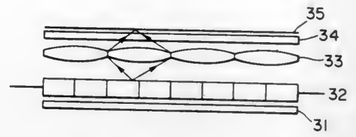
Int. Cl.[3] **H01J** *40/14*

U.S. Cl. 250—216 **4 Claims**

1. Information detecting apparatus comprising:

a photoelectric sensor including a plurality of sensor elements;

an image forming optical system for forming an image of an original surface on the surface of said photoelectric sensor;



a light source unit for illuminating the original surface through said photoelectric sensor and said image forming optical system;

means for reading the signals provided on each photoelectric conversion surface in a fashion of time series; and

driving means for producing a relative movement between said photoelectric sensor and said original.

4,270,048

APPARATUS FOR DETERMINING THE ANGLE OF INCIDENT ELECTROMAGNETIC RADIATION

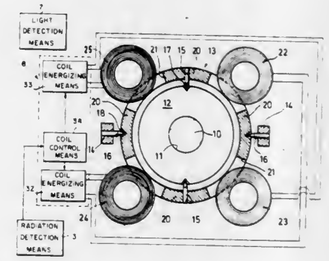
Lotar Liebing, Neuhausen, Fed. Rep. of Germany, assignor to Deutsche Forschungs-und-Versuchsanstalt für Luft-und Raumfahrt e.V., Bonn, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,440

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1979, 2910588

Int. Cl.[3] **H01J** *3/14*

U.S. Cl. 250—216 **15 Claims**



1. In an apparatus for receiving electromagnetic radiation energy at various angles of incidence and for directing the radiation energy upon a stationary radiation detection device (3), including a movable optical element (2) for directing the radiation upon the detection element, a magnet (12) rigidly connected with the optical element, and means (22-25) for producing an adjustable external magnetic field for reacting with the field of the magnet to displace the optical element to cause the radiation to be always directed, independently of the angle of incidence of the radiation, upon the detection element: the improvement which comprises

(a) a cage (13);

(b) first pivot means (15) connecting said magnet with said cage for pivotal movement about a first pivot axis;

(c) second pivot means (16) connecting said cage for pivotal movement about a second pivot axis;

(d) said magnet being permanently magnetized in a radial direction parallel to a first plane containing said first pivot axis; and

(e) coil means (22, 24; 23, 25) for generating an electromagnetic field for reaction with the field of the permanent magnet to pivot said magnet about at least one of said first and second pivot axes, said coil means including a plurality of coils arranged in a second plane con-

taining said second pivot axis, the axes of said coils being normal to said second plane, whereby upon selective energization of the coils, the magnet can be pivoted about a desired pivot axis.

4,270,049

LIQUID LEAKAGE DETECTION SYSTEM

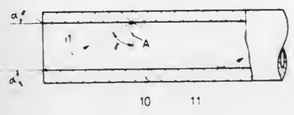
Masaya Tanaka, Tokyo; Mitsuo Ono, Koganei, and Sadao Degawa, Tanashi, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,208

Claims priority, application Japan, Jun. 12, 1978, 53-70660; Jun. 12, 1978, 53-70661; Jun. 12, 1978, 53-70662; Jun. 12, 1978, 53-80296[U]; Jul. 12, 1978, 53-95914[U]

Int. Cl.³ G02B *5/16*

U.S. Cl. 250—227 **9 Claims**



1. A liquid leakage detection system comprising a plurality of light guides each being provided with a relatively straight light guide core that has a predetermined index of refraction and a cladding which is an outer layer wholly surrounding said light guide core, said cladding having an index of refraction lower than that of said light guide core and is adapated to be swelled by a liquid whose leakage is to be detected, said light guides being stranded into a detector cable and being provided with a covering sheath, the ends of said light guide core being uncoated so that a light ray entering into said light guide core at one end thereof may emerge from the other end thereof with a minimum transmission loss, a light-emitting element optically coupled to one end of said detector cable, an optical sensor optically coupled to the other end of said detector cable, and an electrical circuit for deriving the output signal whose level or intensity is in proportion to the intensity of the light rays intercepted by said optical sensor whereby the liquid leakage may be detected in terms of the drop in the intensity of the light rays intercepted by said optical sensor due to the adhesion of said liquid to said cladding.

4,270,050

APPARATUS FOR MEASURING PRESSURE BY ABSORPTION SPECTRUM CHANGE

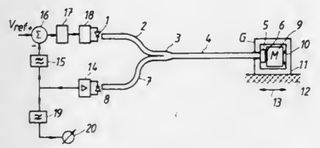
Torgny Brogardh, Vesteras, Sweden, assignor to ASEA Aktiebolag, Vesteras, Sweden

Filed Sep. 7, 1979, Ser. No. 73,191

Claims priority, application Sweden, Sep. 15, 1978, 7809710

Int. Cl.³ G01D *5/34*

U.S. Cl. 250—231 R **15 Claims**



1. Optical measuring device for measuring physical parameters, comprising:

a transducer for transforming a physical parameter to be measured into mechanical stresses in at least one modulator included in the transducer, said modulator comprising a material having optical properties dependent on said mechanical stresses;

means for radiating said transducer with light; and

means for measuring the optical properties of said modulator by means of light affected by said modulator, said optical properties being varied by the pressure dependency of at least one absorption edge in the light-absorption spectrum of said material.

4,270,051

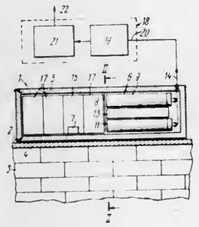
DEVICE FOR GAUGING THICKNESS OF REFRACTORY LINING

Jury M. Galkin, ulitsa Frunze, 67, kv. 29; Albert B. Saulin, ulitsa Studencheskaya, 52a, kv. 7, and Jury N. Olshvang, ulitsa Belinskogo, 220/3, kv. 7, all of Sverdlovsk, U.S.S.R.

Filed May 1, 1979, Ser. No. 35,052

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—358 R **13 Claims**



1. A device for gauging the thickness of a refractory lining of a heating plant, said refractory lining including a portion which is subjected to thickness measurement, said device comprising:

an electric pulse measuring unit having an input;

and

a lining thickness pulse transducer mounted on said portion of said refractory lining which is subjected to thickness measurements, said lining thickness pulse transducer having an output and being connected via said output to said input of said electric pulse measuring unit;

said lining thickness pulse transducer having a sealed housing including a wall adjoining said portion of said lining which is subjected to said thickness measurements;

said lining thickness pulse transducer including a fast neutron source accommodated in said sealed housing;

said lining thickness pulse transducer including a thermal and epithermal neutron detector accommodated in said sealed housing;

said lining thickness pulse transducer further including a protective shield accommodated in said sealed housing and interposed between said fast neutron source and said thermal and epithermal neutron detector;

said thermal and epithermal neutron detector further including thermal neutron counters in a number determined by the activity of said fast neutron source;

said thermal and epithermal neutron detector further comprising a neutron moderator intended to expand the energy intervals of neutrons counted by said thermal neutron counters.

4,270,052

RADIOACTIVE GAS DOSE COMPUTER

Russell W. King, 1220 Via Granate, Sierra Madre, Calif. 91024

Continuation of Ser. No. 853,476, Nov. 21, 1977, abandoned. This application Jun. 18, 1979, Ser. No. 49,644

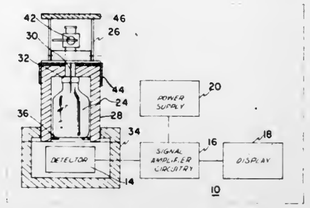
Int. Cl.³ G01N *23/10;* **G21F** *5/00*

U.S. Cl. 250—432 PD **12 Claims**

1. An apparatus for directly determining the volume of a radioactive gas to be withdrawn from a radiation-shielded closed container such that withdrawn volume will constitute a predetermined dose of radioactivity, the determination and withdrawal of the desired amount of radioactive gas being accomplished without removing the closed container from its radiation shield, said apparatus comprising, in combination:

(a) radiation-shielded means for containing radioactive gas, the radioactive gas producing gamma radiation corresponding to the dosage of radioactivity in said radiation-shielded means;

(b) shielded-valve means in operable association with said radiation-shielded means for containing radioactive gas, the shielded-valve means being adapted for withdrawal of a predetermined volume of radioactive gas from said radiation-shielded means for containing radioactive gas;



(c) radiation-detection means in operable association with said radiation-shielded means for converting said gamma radiation into an electronic signal indicative of the amount of radioactivity in said radiation-shielded means;

(d) display means for displaying the amount of the radioactive gas in the radiation-shielded closed container at any given time;

(e) display means for displaying the volume of radioactive gas required to be withdrawn from the radiation-shielded closed container to provide a predetermined dose; and

(f) means for amplification of the electrical signal from said radiation-detection means.

4,270,053

ELECTRONIC OR IONIC OPTICAL APPARATUS

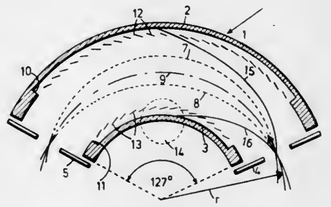
Hermann Froitzheim, Aachen, Fed. Rep. of Germany, assignor to Leybold-Heraeus GmbH, Cologne, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,840

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1978, 2848538

Int. Cl.³ H01J *35/16*

U.S. Cl. 250—508 **8 Claims**



1. Electronic or ionic optical apparatus comprising means forming a particle path with baffle means including baffles inclined about 5° to 25° with respect thereto and disposed such that there is a high probability of passage therethrough of particles deviating from the desired particle path.

4,270,054

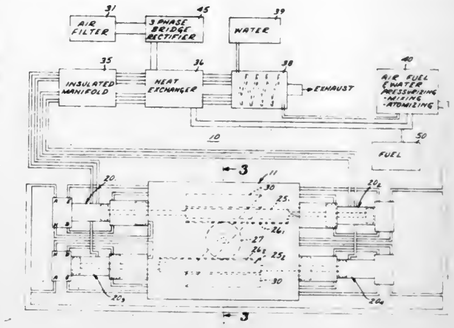
POWER PLANT

Norton W. Dowd, 4283 Turner Rd., Prince George, B.C., Canada (V2K 2J5)

Filed Apr. 25, 1980, Ser. No. 143,878

Int. Cl.³ H02K *33/00*

U.S. Cl. 290—4 R **5 Claims**



1. An electrical generator assembly, comprising:

a first pair of opposed piston assemblies connected for common reciprocal articulation;

a second pair of opposed piston assemblies connected for common reciprocal articulation;

gearing means connected between said first and second pairs of opposed piston assemblies for providing opposing interconnection therebetween;

a first and second set of interdigitated pole pieces respectively connected to said first and second pairs of opposed cylinder assemblies;

a stator disposed proximate said first and second sets of pole pieces for electromagnetic induction; and

a winding connected for electric excitation to said stator and aligned to produce magnetic forces in said first and second sets of pole pieces.

4,270,055

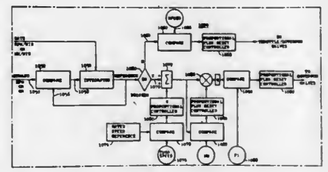
SYSTEM AND METHOD FOR TRANSFERRING THE OPERATION OF A TURBINE-POWER PLANT BETWEEN SINGLE AND SEQUENTIAL MODES OF TURBINE VALVE OPERATION

Uri G. Ronnen, Monroeville, Pa.; Leaman B. Podolsky, Wilmington, Del., and Theodore C. Giras, Pittsburgh, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 306,789, Nov. 15, 1972, abandoned. This application Dec. 30, 1977, Ser. No. 866,155

Int. Cl.² H02P *9/04*

U.S. Cl. 290—40 R **20 Claims**



1. A control system for a turbine power plant wherein a plurality of valve means, each of which includes at least one valve, controls the admission of steam to respective circumferentially spaced nozzle arcs inside the turbine casing, including means to govern the operation of such plurality of valve means either in a single valve mode to admit steam flow equally through each valve to a full arc of nozzles or in a sequential

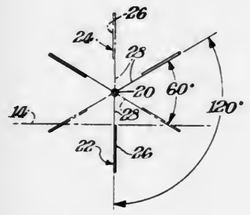
mode to admit steam through a partial arc of the nozzle, the extent of which arc depends on the amount of total load requirement of the turbine; comprising first means to select the other mode of valve operation when operating in the one mode of valve operation; second means to generate a representation based upon total steam flow demand to the turbine; calculating means including (a) third means to generate a representation of steam flow for each of the valve means in the one mode of operation, (b) fourth means responsive to the selection means when operating in the one mode to generate a representation of desired steam flow for each of the valve means for the other mode of valve operation in accordance with the total turbine flow representation, (c) means governed by the representation generated by the third and fourth means to generate a representation based upon flow change for each respective valve means, said generated representation in the total corresponding to an effective zero change in the total flow of steam to the turbine; and valve control means to operate each valve means in accordance with its respective flow change representation.

4,270,056

UNDERSHOT CURRENT MOTOR

Oliver D. Wright, 609 Rosedale Ave., Bellefonte, Del. 19809

Filed Feb. 15, 1980, Ser. No. 121,803
Int. Cl.³ F03B 7/00
U.S. Cl. 290—54 **8 Claims**



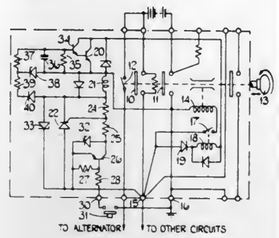
1. An undershot current motor comprising:
a float or barge adapted to be moored on the surface of moving water and having an opening vertically through the center thereof,
support means on said float for supporting a horizontal, rotatable drive shaft above said water over said opening, the drive shaft extending transversely to the direction of water flow,
a horizontal drive shaft rotatably supported above said water by said support means,
at least two sets of 3-bladed paddle assemblies affixed to said drive shaft, each paddle assembly comprising 3 blades and each blade extending lengthwise along said drive shaft and radially outwardly from said drive shaft, each blade in each assembly being positioned substantially 120 degrees from each other blade, and said blades in each said set being positioned so that they bisect the angles formed by the blades in an adjacent set,
the blades extending through said opening and into said water during a portion of each revolution of said paddle assemblies and drive shaft,
said drive shaft being connected to, in appropriate sequence, an optional gear box, an optional electrical generator, and thence to a power takeoff device such that, when moored on moving water, the water causes the paddle assemblies and drive shaft to rotate, thereby generating power at said power takeoff.

4,270,057

BATTERY ISOLATOR SWITCHES FOR USE IN ROAD VEHICLES

William D. Holt, Colne, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Nov. 20, 1979, Ser. No. 95,945
Claims priority, application United Kingdom, Nov. 25, 1978, 46080/78
Int. Cl.³ H02J 1/00
U.S. Cl. 307—10 BP **6 Claims**



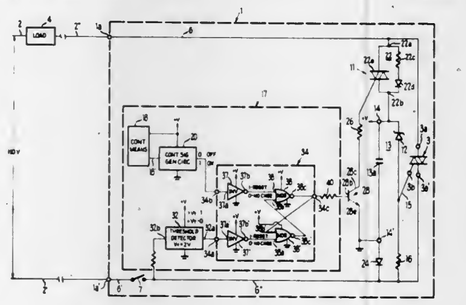
1. A battery isolator switch comprising battery connection contact means, alternator connection contact means, latching mechanical means for closing said contact means, said mechanical means latching with the contact means in closed position, electrical release means operating on said mechanical means for opening said contact means, a relay winding operable independently of said mechanical means for opening said alternator connection contact means and an electrical control circuit for operating said electrical release means and said relay winding and including a latching circuit operable by momentary closure of a remote contact and providing current to said relay winding and a delay circuit for operating said electrical release means after a predetermined delay.

4,270,058

POWER SUPPLY AND CONTROL CIRCUIT FOR SERIES CONNECTED CONTROLLER

Louis W. Schornack, 7300 W. Keeney, Niles, Ill. 60648

Filed Jul. 25, 1979, Ser. No. 60,578
Int. Cl.³ H05B 37/02
U.S. Cl. 307—140 **23 Claims**



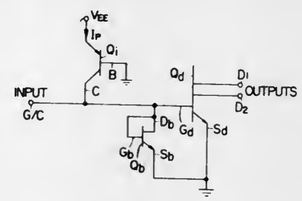
1. In a DC power supply and control circuit including a pair of AC input terminals to be connected across and energized from one AC power line and one conductor extending to one terminal of a load device whose other terminal is to be connected across another AC power line, a triggerable threshold power switch having a pair of load terminals coupled to said AC input terminals and a control terminal for receiving a trigger signal which triggers said power switch into a conductive state which continues until current flow therethrough drops below a given holding current level during the half cycle of the applied AC voltage involved, control means for selectively providing or terminating a control signal which is to initiate a conductive mode of operation of said power threshold switch, and a DC power supply for said control means for energizing the same, said DC power supply including a chargeable energy storing means having output terminals at which appears the DC voltage to which the storing means charges, said output terminals being coupled to said control means to energize the same, and a circuit for feeding charging current to said energy storing means from said pair of AC input terminals, said circuit including rectifier means for converting AC to DC and a relatively large impedance means connected in series with said rectifier means and energy storing means, and shunting means for shunting said large impedance means with a low impedance during short intervals at the beginning of the half cycle conducting periods of the power switch when the switch is still non-conductive, the improvement wherein said shunting means is an AC threshold device having load terminals in parallel with said large impedance means and a control terminal, switching means selectively operable by said control signal to conductive or non-conductive states, the control terminal of said shunting AC threshold device being coupled only through said switching means between one of said AC input terminals and the terminal of said energy storage means remote from the other AC input terminal, and power switch triggering means following the conduction of said shunting AC threshold device each half cycle for generating a power switch triggering signal fed to the control terminal of said power threshold switch to trigger the same into conduction each half cycle shortly after said shunting threshold device becomes conducting, said energy storage means being charged by current flowing through the shunting threshold device at least every other half cycle prior to the initiation of conduction of said power threshold switch.

4,270,059

STATIC INDUCTION TRANSISTOR LOGIC CIRCUIT

Jun-ichi Nishizawa, and Tadahiro Ohmi, both of Sendai, Japan, assignors to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

Filed May 18, 1978, Ser. No. 907,318
Claims priority, application Japan, May 28, 1977, 52-62648
Int. Cl.³ H03K 19/091, 19/20; H01L 27/04, 29/80
U.S. Cl. 307—446 **7 Claims**



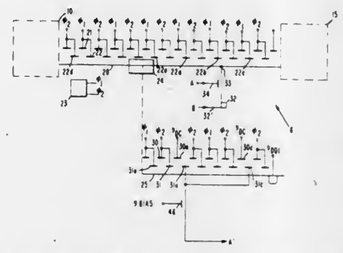
1. A static induction transistor logic circuit comprising:
an injector transistor having a control electrode held at a reference potential, a first electrode, and a second electrode applied with a potential to thereby cause a current having a value determined by the potential applied to flow through the first electrode;
a driver static induction transistor having a gate connected to said first electrode of the injector transistor, a drain, and a source held at said reference potential; and
a bypath static induction transistor having a gate, a drain connected to both the gate of the bypath transistor and said gate of said driver transistor, and a source held at said reference potential,
said bypath transistor having in its conductive state a larger internal resistance than said driver transistor in its conductive state and being operative so that when said driver transistor is in its conductive state, the bypath transistor becomes conductive to allow a part of said current supplied from said first electrode to flow through the bypath transistor, with a certain potential developed at the drain of the bypath transistor,
said certain potential, when applied at said gate of said driver transistor, allowing said driver transistor to turn to be conductive, and having a value associated with that of said current supplied from said first electrode.

4,270,060

MONOLITHIC FOCAL PLANE ARRAY HAVING ON-CHIP APERTURE CORRECTOR

Michael Y. Pines, and Israel D. Levy, both of Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 10, 1979, Ser. No. 83,423
Int. Cl.³ G11C 19/28; H01L 29/78, 27/14, 31/00
U.S. Cl. 307—221 D **23 Claims**



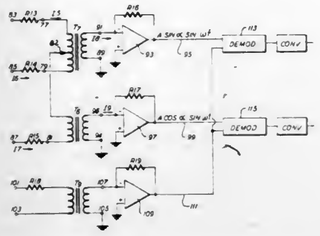
1. In a charge coupled device (CCD) formed on a semiconductive layer transferring charge packets once every CCD clock period, an optically scanned focal plane array having a serial output register storing charge packets arranged in an order parallel to the direction of optical scan, a multiplexer and an on-chip aperture corrector, said aperture corrector comprising:
a main CCD charge flow channel in said semiconductive layer for serially transferring main charge packets from said serial register to said multiplexer, having a charge injection location intermediate said register and said multiplexer;
a secondary CCD charge flow channel in said semiconductive layer adjacent said main channel for transferring charge packets in synchronism with charge transfer in said main channel;
a charge splitter for continuously diverting a selected portion, 1-p, of the charge flowing in said main channel into said secondary channel to create secondary charge packets in said secondary channel split off from corresponding main charge packets in said main channel;
a charge injector for continuously creating a supplementary charge flow into said main channel at said intermediate charge injection location;
a charge sensor in said secondary channel for sensing each of said secondary charge packets at a first selected interval from the time of arrival of each of said corresponding main charge packets at said intermediate charge injection location; and,
means for reducing said supplementary charge flow at said intermediate injection location in response to said charge sensor according to the amount of charge of each of said secondary charge packets.

4,270,061

CURRENT TRANSFORMER INPUT SYSTEM FOR AC CONVERSION DEVICES

Alfred D. Gronner, White Plains, N.Y., and David J. Simon, Saddle Brook, N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Nov. 3, 1978, Ser. No. 957,525
Int. Cl.³ G06G 7/12; H03K 3/26
U.S. Cl. 307—270 **5 Claims**



1. An input system for isolating sine and cosine resolver outputs from converter or demodulator inputs which comprises:

a first current transformer having a primary winding and a secondary winding;

a first resistor adapted to be connected between the sine resolver output and the primary winding of the first transformer;

a first operational amplifier having an inverting input directly connected to the secondary winding of the first transformer and having an output voltage proportional to the current at its inverting input;

a first feedback resistor connected to the output and the inverting input of the first operational amplifier;

a second current transformer having a primary winding and a secondary winding;

a second resistor adapted to be connected between the cosine resolver output and the primary winding of the second transformer;

a second operational amplifier having an inverting input directly connected to the secondary winding of the first transformer and having an output voltage proportional to the current at its inverting input; and

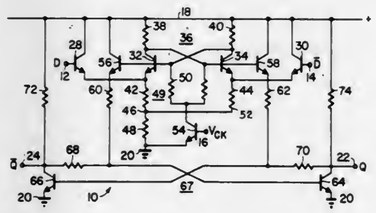
a second feedback resistor connected to the output and the inverting input of the second operational amplifier.

4,270,062

"D" FLIP-FLOP

John E. Hanna, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 887,918, Mar. 17, 1978, abandoned, which is a continuation of Ser. No. 756,167, Jan. 3, 1977, abandoned. This application Feb. 27, 1979, Ser. No. 15,849
Int. Cl.³ H03K 3/289
U.S. Cl. 307—272 A **12 Claims**



1. A flip-flop circuit including in combination:

power supply conductor means;

master latch means having a first transistor and a second transistor, each of said transistors having emitter, collector and base electrodes;

first feedback means coupling said collector and said base electrodes of said first transistor respectively to said base and said collector electrodes of said second transistor;

second feedback means having a resistive network connected in a path between said emitter electrode of said first transistor and said emitter electrode of said second transistor, said resistive network providing positive feedback between said first and second transistors to increase noise immunity and stabilize signal levels in said flip-flop circuit;

means for inputting data having output terminals coupled to said first and second transistors, said means for inputting data including a third transistor having a base electrode adapted to receive data and an emitter electrode directly connected to said emitter electrode of said first transistor and a collector electrode directly and only connected to said power supply conductor means, and a fourth transistor having a base electrode adapted to receive data and an emitter electrode directly connected to said emitter electrode of said second transistor and a collector electrode directly and only connected to said power supply conductor means, said third and fourth transistors thereby operating as emitter followers which respectively drive said emitters of said first and second transistors so that said first and second transistors are operated in common base configurations for maximizing the speed power product of the flip-flop circuit;

means for transferring data having input terminals and output terminals, said input terminals of said means for transferring data being coupled to said first and second transistors; and

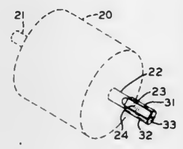
slave latch means having input terminals coupled to said output terminals of said means for transferring data, said slave latch means having output terminals for providing the output signals of the flip-flop circuit.

4,270,063

MOTOR HAVING ADAPTED SHAFT AND SHAFT ADAPTER

Richard W. Dochterman, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Jun. 19, 1978, Ser. No. 917,078
Int. Cl.³ H02K 7/00; E05B 3/00
U.S. Cl. 310—66 **3 Claims**



1. An adapted shaft motor comprising a stator assembly, a rotor assembly including a shaft of a predetermined diameter and having at least one round end extending from the stator assembly for connection to a driven device having a bore greater than said predetermined diameter, and an adapter positively interlocked with the shaft and positively located on the at least one end of the shaft; said adapter comprising a tube sector having a connecting segment bottomed against the end of the shaft, and first and second laterally extending segments that extend along the shaft in cantilever fashion from the connecting segment; said laterally extending segments each having a continuous smooth shaft embracing interior surface with a curvature corresponding substantially throughout to the curvature of the shaft; said laterally extending segments having adjacent continuous edges thereof spaced from one another to establish a fastener accommodating passageway that extends to

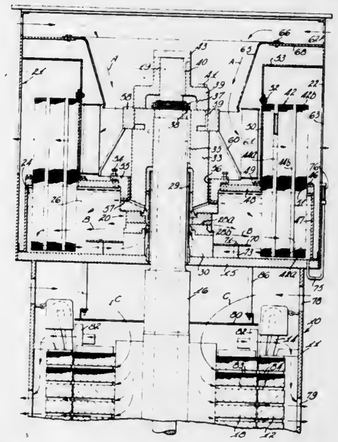
the free ends of the laterally extending segments whereby a burr raised on the shaft due to a fastener will not interfere with removal of the tube sector from the shaft; and said tube sector gripping the shaft with sufficient force to prevent inadvertent removal of the tube sector from the shaft and yet so that the tube sector may be readily manually removed from the shaft, said connecting segment limiting movement of the adapter on the shaft.

4,270,064

HEAT EXCHANGE ARRANGEMENT FOR COOLING LUBRICANT FOR VERTICAL ELECTRIC MOTOR THRUST BEARING

Frank J. Glandorf; Paul D. Wagner, both of Cincinnati, Ohio, and John J. Keuper, Cold Spring, Ky., assignors to Siemens-Allis, Inc., Atlanta, Ga.

Filed Jun. 5, 1978, Ser. No. 912,979
Int. Cl.³ H02K 5/16
U.S. Cl. 310—90 **10 Claims**



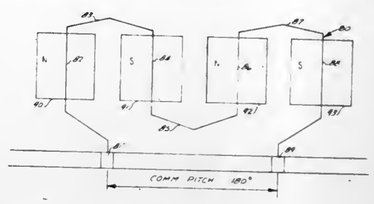
1. A lubricant heat exchanger arrangement for a vertical electric motor comprising, in combination, a cylindrical motor housing with its axis disposed vertically and including top and bottom end frames, a stator rigidly mounted in said housing, a rotor rotably mounted in said housing, a drive shaft affixed to said rotor with its axis disposed vertically and extending through said top and bottom end frames, wall means above said top end frame defining a cup-shaped lubricant-receiving reservoir, a thrust bearing disposed in said reservoir and having a stationary annular bearing surface mounted in fixed relation to said top end frame and a rotatable annular bearing surface mounted in fixed relation to said shaft and being in sliding rotatable engagement with said stationary bearing surface so that said thrust bearing rotatably supports said shaft and said rotor, liquid lubricant in said reservoir in lubricating and heat absorbing relation with said thrust bearing, a plurality of heat transferring heat pipes disposed in said reservoir with one end submerged in said lubricant and the other end exposed to air within said housing above said lubricant, and air inlet and air exhaust means for moving air into said housing above said lubricant and for circulating it past said other end of said heat tubes and exhausting it from said housing, said means for moving air including a plurality of fan blades within said housing and means operatively connected to said shaft for rotating said fan blades.

4,270,065

FOUR POLE WAVE WOUND DIRECT CURRENT MACHINE WITH MULTI-TURN ARMATURE COILS

Jeffrey T. Major, Cygnet, Ohio, assignor to Eltra Corporation, Toledo, Ohio

Filed Mar. 19, 1979, Ser. No. 21,454
Int. Cl.³ H02K 23/32
U.S. Cl. 310—207 **5 Claims**



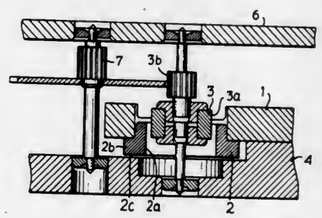
1. A wave wound armature for a 4-pole direct-current machine comprising a plurality of commutator segments spaced around said armature and electrically insulated from each other, a laminated core having an outer surface defining a plurality of parallel spaced slots each having first and second ends with said first ends adjacent said commutator segments, and a plurality of continuous electrical conductors each having two ends electrically connected to a different two of said commutator segments spaced substantially 180° apart about said armature, each of said conductors following a different path extending continuously from one of the two connected commutator segments to the first end of a first slot, along the first slot, from the second end of the first slot to a second end of a second slot spaced substantially 90° about said armature from said first slot, along the second slot, from the first end of the second slot to the first end of a third slot spaced substantially 90° about said armature from said second slot and substantially 180° about said armature from said first slot, along the third slot, from the second end of the third slot to the second end of a fourth slot spaced substantially 90° about said armature from said third slot and between said first and third slots, along the fourth slot, and from the first end of the fourth slot to the other of the two connected commutator segments whereby each conductor forms at least two open turns on said armature.

4,270,066

MINIATURE MOTOR FOR AN ELECTRONIC TIMEPIECE INCLUDING A STATOR HAVING A NON-MAGNETIC REINFORCING RING

Kiichi Terade, Tokyo, and Yasuhiro Iida, Funabashi, both of Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Continuation-in-part of Ser. No. 686,502, May 14, 1976, abandoned. This application Jan. 8, 1979, Ser. No. 1,789
Claims priority, application Japan, May 16, 1975, 50-59148
Int. Cl.³ H02K 1/12
U.S. Cl. 310—258 **13 Claims**



1. The combination of a stator for a miniature electric motor for an electronic timepiece, and a reinforcing ring for reinforc-

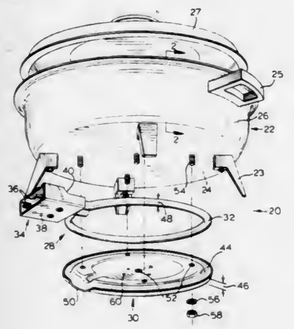
ing the stator comprising: a platelike one-piece stator of magnetizable material having a pair of opposite major surfaces and a hole defined by a sidewall extending through said one-piece stator and opening at said major surfaces and dividing said one-piece stator into a pair of stator portions connected together by narrow bridges of magnetizable material having narrow cross sections; and a reinforcing ring made of non-magnetic material disposed within the hole through said one-piece stator, said reinforcing ring having a circumferential outer surface in continuous contact with a substantial portion of the sidewall of the hole through said one-piece stator and said reinforcing ring having an outer diameter effective to ensure a snug fit of said reinforcing ring within the hole through said one-piece stator to impart stiffness to a portion of said one-piece stator surrounding the hole therethrough including said narrow bridges for preventing deformation of said narrow bridges of said stator and the hole through said one-piece stator due to mechanical impact forces to which said one-piece stator is subjected.

4,270,067

ELECTRIC FRYING PAN

Alvin W. Thomas, Waterdown, and Benjamin G. Mills, Oakville, both of Canada, assignors to Trans-Canada Life-Ware Limited, Oakville, Canada

Filed Oct. 18, 1978, Ser. No. 952,883
Claims priority, application Canada, Oct. 18, 1977, 288966
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—438 **4 Claims**



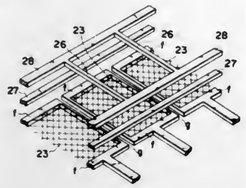
1. An improved electric frying pan comprising:
a pan constructed of an aluminum core and a layer of stainless steel on each of the surfaces thereof and including a bottom and a continuous peripheral side wall upstanding from the bottom, and at least two threaded studs connected to the underside of said bottom in spaced relationship with each other;
means, resistant to heat conduction, to support said pan in an elevated position;
a plurality of washers and companion threaded lock nuts adapted to be received as a set on each of said studs;
an electrically insulated heating element of a generally circular cross-section including a flat upper surface portion for contacting the bottom of said pan, said element adapted to be connected to an electrical source;
a support plate defining a depression of depth less than the thickness of said heating element and into which said heating element will lie, a series of first holes for engagement over said studs and a plurality of second holes adjacent the centre of said plate for drainage of water that may become trapped above said support plate;
in which by advancing said nuts onto said studs until said nuts are tight to the support plate, all parts of said heating element are subject to a compressive load.

4,270,068

FLUORESCENT DISPLAY DEVICE

Takao Kishino; Kishio Kawasaki, and Nobuo Yamaguchi, all of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Filed Sep. 28, 1978, Ser. No. 946,731
Claims priority, application Japan, Oct. 6, 1977, 52-133663[U]
Int. Cl.³ H01J *1/72, 61/66*
U.S. Cl. 313—497 **1 Claim**



1. In a fluorescent display device having at least a filamentary cathode for emitting electrons, a plurality of pattern display sections each composed of a plurality of anodes each coated with a fluorescent material layer, a plurality of control electrodes electrically independent of one another provided opposite to said pattern display sections respectively, said anodes and control electrodes being selectively given drive signals thereby to make the electrons emitted from said filamentary cathode impinge on said anodes so as to display characters, numerals, graphic forms and the like on said pattern display sections, the improvement which comprises a plurality of auxiliary electrodes provided at or above and in the vicinity of gaps between said control electrodes respectively and at all times kept at a positive potential with respect to said filamentary cathode; said positively charged auxiliary electrodes shaping an electric field formed above said anodes in order to make said electrons emitted from said filamentary cathode impinge uniformly on the entire surface area of said selected anodes to thereby prevent display defects, to produce uniform light emission for a clear fluorescent display and to decrease the space between said pattern display sections; said auxiliary electrodes being supported above and in the vicinity of said gaps by at least two conductive support members that are located perpendicular to said gaps and said auxiliary electrodes; and said auxiliary electrodes being spaced above and in the vicinity of said gaps by at least two insulating spacers that are located perpendicular to said gaps and said auxiliary electrodes; said at least two insulating spacers separating said at least two conductive support members from said control electrodes.

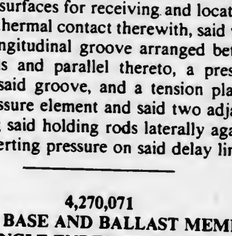
4,270,069

TRAVELING WAVE TUBE AND METHOD OF MAKING SAME

Wolf Wiehler, Neubiberg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 25, 1979, Ser. No. 60,373
Claims priority, application Fed. Rep. of Germany, Aug. 3, 1978, 2834135
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—3.5 **9 Claims**

1. A method of making a traveling wave tube having a copper vacuum shell, a delay line in the form of a spiral or ring ribbon conductor formed of tungsten or molybdenum arranged between an electron generating system and an electron beam collector, and a plurality of dielectric support rods running parallel to the delay line and interposed between said delay line and the vacuum shell, comprising the steps of; providing a metalization on said support rods at locations which contact said delay line, assembling said delay line, said support rods and said vacuum shell, placing the assembly within a thick-walled metal tube and heating said assembly to soldering temperature, whereby said support rods and said delay line are soldered together and said vacuum shell is simultaneously shrunk onto said support rods.

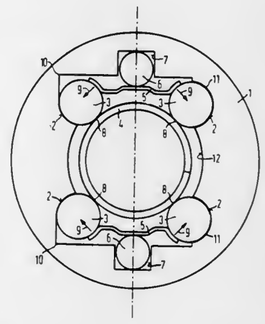


4,270,070

TRAVELING WAVE TUBE

Franz Gross, Lörrach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,722
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842255
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—3.5 **7 Claims**



1. A traveling wave tube having an interior delay line housed within a vacuum envelope, a plurality of dielectric holding rods arranged parallel to one another and soldered to said delay line for supporting said delay line, said vacuum envelope having surfaces for receiving and locating said holding rods in good thermal contact therewith, said vacuum envelope having a longitudinal groove arranged between two of said holding rods and parallel thereto, a pressure element received within said groove, and a tension plate interposed between said pressure element and said two adjacent holding rods, for pressing said holding rods laterally against said surfaces, without exerting pressure on said delay line.

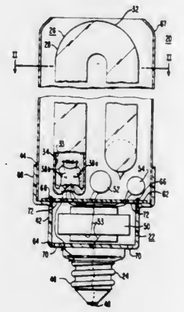
4,270,071

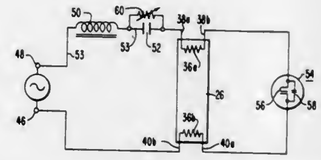
COMPOSITE BASE AND BALLAST MEMBER FOR COMPACT SINGLE-ENDED FLUORESCENT LAMP

Edward W. Morton, Teaneck, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 26, 1979, Ser. No. 97,278
Int. Cl.³ H05B *41/16*
U.S. Cl. 315—62 **9 Claims**

1. A composite base member including a lamp ballast and electrical adapter member and adapted to have operatively mounted thereon a single-ended fluorescent lamp of the compact type, said lamp having an elongated envelope which is curved in predetermined fashion so that the maximum dimension of the volume occupied by said composite base member and said lamp as operatively mounted is sufficiently small to permit same to be utilized as the light source for a conventional-type fixture normally intended to be operated with incandescent lamp means, a pair of thermionic electrodes operatively positioned within said envelope proximate the ends thereof, a pair of lead-in conductors sealed through the ends of said envelope and connecting to each of said electrodes, and said envelope enclosing a discharge-sustaining filling and having phosphor material carried on the interior surface thereof, said composite base member comprising:
(a) a housing body having a hollow configuration of predetermined dimensions and having an open end portion, said lamp envelope adapted to be mounted to said composite base member and to project from the open end of said housing body, said electrical adapter member having two terminals and affixed to and projecting from the portion of said housing body which is opposite to the open end portion thereof, and said electrical adapter member operable to be connected to a source of household-type AC energy;
(b) said ballast comprising inductor means and capacitor





means connecting in series circuit, the reactance of said capacitor means at household frequency being a predetermined amount greater than the reactance of said inductor means; when said lamp is operatively connected in circuit to said composite base member, said series-connected inductor means and capacitor means are connected between one electrical terminal of said electrical adapter member and one of said lead-in conductors which connect to one of said lamp electrodes, the other of said lead-in conductors which connect to said one lamp electrode is connected through a current-interrupting means to one of said lead-in conductors which connect to said other electrode, and the other of said lead-in conductors which connect to said other electrode is connected to said other electrical terminal of said electrical adapter member; upon energization of said lamp as connected in circuit, said current-interrupting means completing a series circuit through said lamp electrodes to preheat same to a thermionic condition, and said current interrupting means thereafter opening to interrupt the series circuit with the resulting inductive surge initiating an operating discharge between said lamp electrodes; and
(c) mounting means affixed within said housing body and

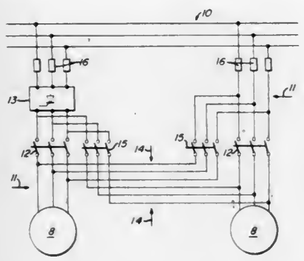
defining separate sections, said capacitor means positioned on one side of said mounting means and said inductor means positioned on the other side of said mounting means to provide a spacing between these two ballast elements, and said inductor means and said capacitor means having the ambient atmosphere in contact therewith to facilitate dissipation of heat therefrom.

4,270,072

CURRENT SUPPLY CIRCUIT OF CUTTING DRUM MOTORS ON A MINING MACHINE

Karl-Heinz Weber, Witten-Heven, Fed. Rep. of Germany, assignor to Gebr. Eickhoff Maschinenfabrik und Eisengeisserei m.b.H., Bochum, Fed. Rep. of Germany

Filed Jan. 18, 1979, Ser. No. 4,428
Int. Cl.[3] H02P *1/54*
U.S. Cl. 318—34 **4 Claims**



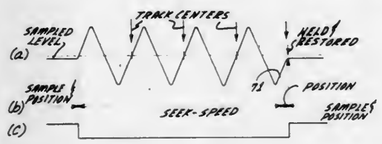
1. In a mining machine adapted to move back and forth along a mine seam such as a drum-cutter loader, having two cutting drums independently driven by separate drive motors each supplied with electrical current from a divided branch section of a common cable extending onto the mining machine, the combination therewith of branch switch means coupled in each divided branch section of the cable, controller means coupled in one divided branch section of the cable before the branch switch means therein, crossover lines bridging the branch switch means in each divided branch section of the cable, and bridge switch means in each bridging crossover line whereby said branch switch means and said bridge switch means are operatively coupled to deliver electrical current from said controller means to one of either of the seperate drive motors for rotating the cutting drum which is trailing in relation to movement by the mining machine and to deliver electrical current to the other of the separate drive motors from the remaining divided branch section of the cable for rotating the cutting drum which is leading in relation to movement by the mining machine.

4,270,073

POSITION CONTROL IN DISK DRIVE SYSTEM

Jefferson H. Harman, Thousand Oaks, Calif., assignor to Per-Sci, Inc., Los Angeles, Calif.

Filed Feb. 28, 1979, Ser. No. 16,066
Int. Cl.[3] G05D *23/275*
U.S. Cl. 318—632 **13 Claims**



1. In a disk drive system having a spinning disk; at least one transducer for cooperation with the disk in any of plural concentric tracks;

a linear motor for moving and positioning the transducer radially along a particular axis and in relation to the disk;

position feedback means for monitoring the position of the transducer in relation to the disk and providing a signal representative thereof;

a control circuit connected to and incorporating the feedback means for controlling the motor;

the improvement for offsetting the effect of tilting of said axis, comprising:

a relatively high gain sample and hold circuit connected to the feedback means and being responsive to the position signal; and

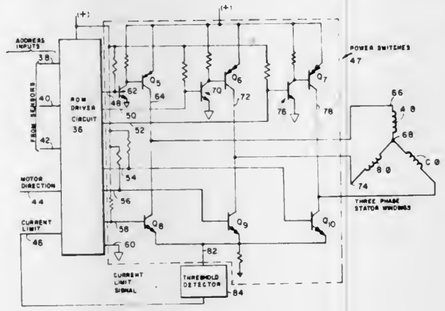
circuit means for causing the sample and hold circuit to stop sampling and to hold the most recently sampled value upon command execution by the control circuit to move the transducer to a different track, and to apply the held value to the control circuit to be directly effective for motor control while the transducer moves towards said different track for compensating the effect of gravity on the transducer as moved and positioned by the motor, sampling resuming after the transducer has arrived above said different track.

4,270,074

BRUSHLESS DC MOTOR CONTROL UTILIZING A ROM

James J. Duckworth, Morris Plains, and William J. Glennon, Maplewood, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Oct. 22, 1979, Ser. No. 86,874
Int. Cl.[3] H02P *6/02*
U.S. Cl. 318—254 **2 Claims**



1. In a control system for a brushless DC motor incorporating stator windings and having motor shaft position sensors connected to the input of a speed control circuit which in turn generates a digital signal at the output thereof, an improved motor driver circuit for the system, comprising:

a ROM connected at several of its inputs to the output of the speed control circuit, the ROM having a preselected program of operation;

means connected to an output of the ROM for switching power between selected terminals of the motor stator windings

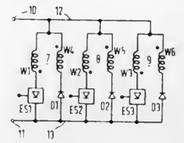
threshold detection means connected between the power switching means and an additional input to the ROM for generating an input signal to the ROM which causes the power switching means to terminate energization of the windings when the load current through the windings exceeds a preselected threshold level.

4,270,075

MOTOR ENERGIZED BY A DC VOLTAGE

Nils H. Nygaard, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Jun. 28, 1979, Ser. No. 52,936
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829685
Int. Cl.[3] H02P *6/02*
U.S. Cl. 318—254 **8 Claims**



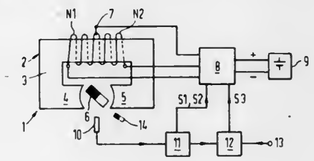
1. A motor of the type energized by a DC voltage, comprising, a plurality of poles and a like number of parallel subcircuits for said poles, each of said poles having operating and demagnetizing coils oppositely wound and inductively coupled, each of said subcircuits having first and second parallel arranged series circuits, each of said first series circuits including the corresponding one of said operating coils and a controllable switching element, and each of said second series circuits having only passive elements including the corresponding one of said demagnetizing coils and diode means poled oppositely of said switching element.

4,270,076

CIRCUIT FOR A BRUSHLESS D.C. MOTOR

Nils H. Nygaard, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Aug. 29, 1979, Ser. No. 70,619
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1978, 2839712
Int. Cl.[3] H02P *6/02*
U.S. Cl. 318—254 **1 Claim**



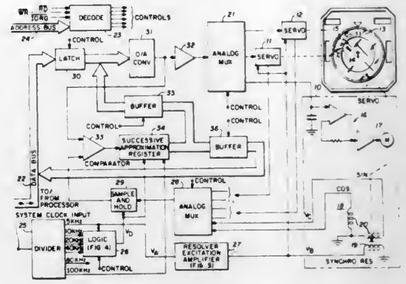
1. A DC motor assembly comprising, a permanent magnet rotor, a pair of poles, parallel circuit branches having a pair of windings with a common positive terminal connection for a DC voltage source, a pair of controlled rectifiers in said branches in respective series with said windings, a series branch connected to said parallel branches and having a smoothing choke and an electronic chopper switch connected in series, said series branch having a negative terminal connection for a DC voltage source, a return diode interposed between the junction of said smoothing choke and said chopper and said positive terminal connection, detector means for detecting the angular position of said rotor, means for switching said controlled rectifiers on and off in a push-pull mode, an extinguishing circuit which includes a series circuit of an extinguishing capacitor and a swing-over choke connected between the stream sides of said controlled rectifiers, said extinguishing circuit including extinguishing diodes connected in respective antiparallel relation to said controlled rectifiers, at least one free running diode bridging at least said smoothing choke and said chopper switch blocking diodes poled in the same sense as the said controlled rectifiers connected respectively between said controlled rectifiers and said windings and upstream from said series circuit containing said extinguishing capacitor and said swing-over choke.

4,270,077

DEMODULATORLESS SYNCHRO POSITION SENSOR APPARATUS UTILIZING SQUARE WAVE EXCITATION

Harold L. Swartz, Glendale, and Joseph M. Buemi, Jr., Phoenix, both of Ariz., assignors to Sperry Corporation, New York, N.Y.

Filed Mar. 10, 1980, Ser. No. 129,133
Int. Cl.[3] G05B *1/06*
U.S. Cl. 318—661 **15 Claims**



1. Apparatus for use with a synchro device having excitation input winding means and output winding means for providing a demodulated synchro output signal, comprising

excitation means for providing a square wave excitation signal to said excitation input winding means, said square wave excitation signal being coupled from said excitation input winding means to said output winding means for providing a square wave output signal thereat, and

sampling means for sampling said square wave output signal at a predetermined time phase of said square wave excitation signal thereby providing a sampled square wave output signal,

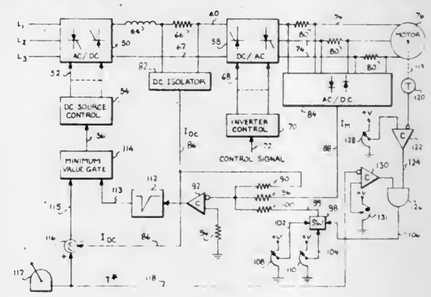
said sampled square wave output signal providing said demodulated synchro output signal.

4,270,078

METHOD AND APPARATUS FOR A VARIABLE FREQUENCY INVERTER SYSTEM HAVING COMMUTATION FAULT DETECTION AND CORRECTION CAPABILITIES

Loren H. Walker, Salem, and John H. Cutler, Roanoke, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 24, 1979, Ser. No. 32,761
Int. Cl.[3] H02P *7/42*
U.S. Cl. 318—803 **14 Claims**



1. An inverter system for supplying controlled, variable

output voltage, current and frequency electrical power to a load comprising:

(a) a source of variable direct current power for providing a d.c. output current;

(b) control means for controlling the d.c. output current of said source;

(c) an inverter circuit for receiving said d.c. output current and for providing an a.c. output current of variable frequency and voltage and current for application to said load;

(d) a d.c. link circuit for carrying said d.c. output current from said source to said inverter circuit; and,

(e) circuit means for detecting a commutation fault condition within said inverter circuit comprising,

(1) means to produce a first feedback signal proportional to the magnitude of the d.c. current in said d.c. link circuit,

(2) means to produce a second feedback signal proportional to the magnitude of the a.c. output current of said inverter circuit.

(3) means to provide first and second reference signals of differing magnitudes,

(4) selection means responsive to an operational state of said load to select, for use, a one of said first and second reference signals,

(5) means responsive to a prescribed relationship of said first and second feedback signals and to the selected one of said reference signal to develop a correction signal, and,

(6) means for applying said correction signal to said control means to effect a reduction in the magnitude of the d.c. output current of said source.

4,270,079

FLASH DEVICE
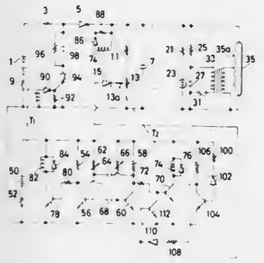
Kazuo Ikawa, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 6, 1979, Ser. No. 46,036

Claims priority, application Japan, Jun. 14, 1978, 53-71860

Int. Cl.[3] H02J *15/00*; H05B *41/32*

U.S. Cl. 320—1 **8 Claims**



1. A flash device comprising:

(a) a power supply source;

(b) a capacitor for accumulation of a flashing energy;

(c) a switching means for forming and blocking a power supply path leading to said capacitor;

(d) a detection circuit for detecting the charged status of said capacitor, said detection circuit being arranged to produce a signal when said capacitor is charged up to a predetermined voltage value; and

(e) a control circuit which alternately produces signals for causing said switching means to perform forming and blocking control over said power supply path, said control circuit being arranged to produce only the signal which causes said switching means to block said power supply path in response to the signal produced by said detection circuit.

4,270,080

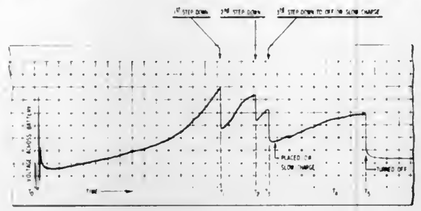
AUTOMATIC BATTERY CHARGE APPARATUS AND METHOD

Raymond T. Kostecki, Glenview, Ill., assignor to Sun Electric Corporation, Crystal Lake, Ill.

Filed Dec. 14, 1978, Ser. No. 969,299

Int. Cl.[3] H02J *7/04*

U.S. Cl. 320—24 **28 Claims**



1. An automatic battery charger for charging a storage battery capable of conducting a battery charging current and generating a battery voltage, said charger comprising:

battery cable means for connecting the battery to the charger;

current control means operable in a first mode for conducting through the cable means a charging current regulated at a first predetermined level, and operable in a second mode for conducting through the cable means a charging current regulated at a second predetermined level less than the first predetermined level;

voltage monitor means operable in a first mode for generating a first monitor signal in response to a first battery voltage condition, and operable in a second mode for generating a second monitor signal in response to a second battery voltage condition less than the first battery voltage condition; and

sequencing means for operating the current control means and voltage monitor means in their first modes, for operating the current control means and voltage monitor means in their second modes in response to the first monitor signal, and for enabling the current control means to reduce the charging current in response to the second monitor signal, whereby the battery is automatically charged at a rapid yet safe rate.

4,270,081

CONSTANT-CURRENT CIRCUIT

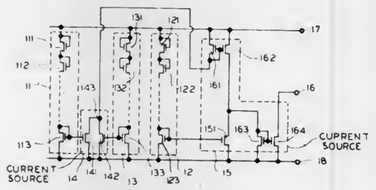
Kyuichi Hareyama, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Oct. 10, 1979, Ser. No. 83,552

Claims priority, application Japan, Oct. 11, 1978, 53-1255611

Int. Cl.[3] G05F *3/08*

U.S. Cl. 323—316 **11 Claims**



1. A constant-current circuit comprising a first series circuit including a first number l of field effect transistors (l being a positive integer) connected in series between two potential, a second series circuit including a second number m of field effect transistors (m being a positive integer) connected in series between said two potential, a third series circuit including a third number n of field effect transistors (n being a positive integer) connected in series between said two potentials, said l, m and n being different each other, a first current source means adapted to output a current that is dependent upon a current flowing through said first series circuit in quantity, a second current source means adapted to output a current that is dependent upon a current flowing through said second series circuit in quantity, a third current source adapted to output a current that is dependent upon a current flowing through said third series circuit in quantity, and an output circuit means adapted to output a current obtained by subtracting the current of said second current source from the sum of the currents of said first current source and said third current source.

4,270,082

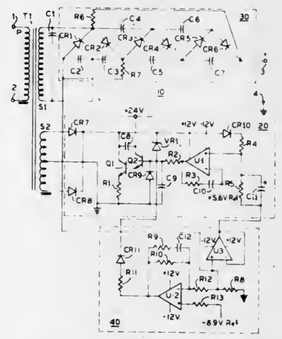
OPEN-CIRCUIT SHUNT-REGULATED HIGH-VOLTAGE CIRCUIT

Pradhumankumar S. Zaveri, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Jul. 24, 1979, Ser. No. 60,196

Int. Cl.[3] G05F *1/64*

U.S. Cl. 323—248 **9 Claims**



1. A High-Voltage Circuit with Open Circuit Shunt Regulation comprising:

a ferroresonant transformer including a high-reactance transformer having a low voltage primary winding for connection to a source of AC electrical energy, and a high-voltage secondary winding for producing a high-voltage output; and a capacitance connected across the high-voltage secondary winding;

a low-voltage secondary control winding magnetically coupled with the high-voltage secondary winding of the high-reactance transformer; and

control means associated with the secondary control winding for regulating the high-voltage output of the ferroresonant transformer, the control means including:

means for rectifying the output voltage produced by the control winding;

means for controlling current flow through the control winding, said current controlling means being connected across the rectified output of the control winding thereby to regulate the output voltage thereof;

means for clamping peak control winding output voltage for producing a signal to effect operation of the current controlling means;

means for sampling and averaging the clamped control winding output voltage; and

means for comparing the averaged sampled control winding output voltage with a reference voltage and for producing a signal to effect operation of the current controlling means when the averaged sampled output voltage is greater than the reference voltage;

whereby the high-voltage output tracks the control winding output voltage.

4,270,083

MICROWAVE MOISTURE MEASURING INSTRUMENT WITH SWITCHABLE MEASURING REGIONS

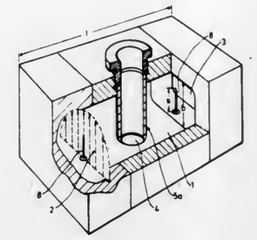
Hans G. Fitzky, Odenthal; Jörg M. Söder; Franz Schmitt, both of Cologne; Norbert Bollongino, Leichlingen, and Helmut Rehrmann, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 1, 1979, Ser. No. 90,372

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2848993

Int. Cl.[3] G01R *27/04*

U.S. Cl. 324—58.5 C **16 Claims**



1. An apparatus for measuring the water content of a sample of an electrically non-conductive isotropic material, comprising means for producing a frequency modulated microwave signal, a sample container, a cavity measuring resonator receptive of the microwave signal in a transmission arrangement and configured to be loaded in the centre thereof with the sample container, a detector circuit for measuring the peak amplitude of the transmission signal from the resonator a change of which corresponds to a change in the quality factor caused by the sample introduced and means for switching over the mean frequency of the microwave oscillator in several steps to excite the resonator in a different field mode during each switch over thereby locating the sample in a mode region of the electrical measuring field for measuring high water content and in a maximum of the electrical measuring field for measuring low water contents.

4,270,084

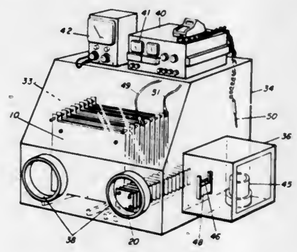
APPARATUS AND METHOD FOR DETERMINING ELECTRICAL CONDUCTIVITY OF WATER VAPOR

Hugh R. Carlon, and Rex M. Pritt, both of Bel Air, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 9, 1979, Ser. No. 55,716

Int. Cl.[3] G01R *27/02*

U.S. Cl. 324—65 R **11 Claims**



1. An apparatus for determining the conductivity and number of water ion clusters in a moist air environment which comprises:

a test chamber having a main chamber section, an access

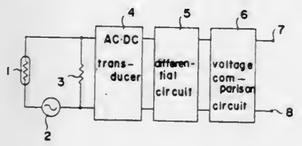
compartment section proximately disposed adjacent to said main chamber section, and glove means for permitting the changing of electrical connections within said main chamber section;
means for introducing moist air into said main chamber section;
first plate means proximately disposed in said test chamber for providing a comparative reference insulator leakage level;
second plate means proximately positioned adjacent said first plate means, having a "cell factor" approximately 25 times larger than said first plate means, for collecting water ion clusters in said moist air environment;
power supply means for applying DC voltage alternately to said first and second plates means;
a vacuum tube voltmeter electrically connected in series with said power supply means and said first or second plate means; and
temperature measuring means for determining the temperature of a moist air sample within said test chamber.

4,270,085

HUMIDITY DETECTING APPARATUS

Jiro Terada; Tsuneharu Nitta, both of Katano, and Yukihiko Ise, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Japan

Filed Oct. 11, 1979, Ser. No. 83,933
Claims priority, application Japan, Oct. 11, 1978, 53-125339
Int. Cl.³ G01R *27/02*
U.S. Cl. 324—65 R **4 Claims**



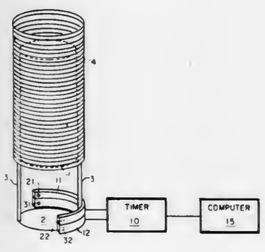
1. A humidity detecting apparatus comprising a humidity-sensing resistor and a differential circuit for differentiating the voltage variation accompanied by the resistance variation of the humidity-sensing resistor thereby to detect variations in the surrounding humidity of said humidity-sensing resistor.

4,270,086

ELECTROMAGNETIC PLUNGER DROP TIMER

Frederick E. Hankins, Flemington, and John H. Umberger, Holmdel, both of N.J., assignors to Research-Cottrell, Inc., Somerville, N.J.

Filed May 15, 1979, Ser. No. 39,174
Int. Cl.³ G04F *8/00, 10/00*
U.S. Cl. 368—118 **9 Claims**



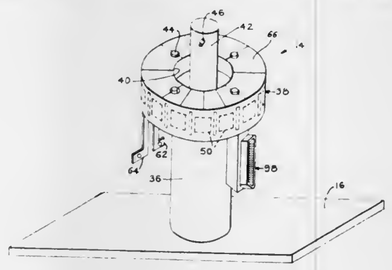
1. A timer, comprising:
(a) a first radiation switch responsive to a radiation source and having a first radiation responsive means positioned apart from said radiation source for creating a first radiation circuit;
(b) a second radiation switch responsive to a radiation source and having a second radiation responsive means positioned apart from said radiation source for creating a second radiation circuit;
(c) means for producing a continuous train of clock pulses;
(d) a clock pulse gate responsive to said second radiation switch for selectively passing said continuous train of clock pulses;
(e) a first timing gate responsive to said first radiation switch for selectively passing said clock pulse train;
(f) a second timing gate responsive to said second radiation switch for selectively passing said clock pulse train;
(g) wherein said first and second radiation responsive means each include an amplifier circuit controlled by a radiation responsive diode for producing a first logic level signal when said radiation circuit is uninterrupted and a second logic level signal when said radiation circuit is interrupted; and
(h) a first counter responsive to the clock pulse output of said first timing gate for registering the number of pulses which occur between the time that said first radiation circuit is interrupted and said second radiation circuit is interrupted before said first radiation circuit is reestablished.

4,270,087

APPARATUS FOR TESTING PERMANENT MAGNETS USING ELECTRO-MAGNETS AND HALL SENSORS

Arthur K. Littwin, 65555 N. LeMai, Lincolnwood, Ill. 60646

Filed Sep. 1, 1978, Ser. No. 938,970
Int. Cl.³ G01R *33/12;* G01N *27/74*
U.S. Cl. 324—205 **9 Claims**



1. Apparatus for testing a plurality of permanent magnets arranged in a series, comprising,
an input circuit unit adapted for connection with a source of AC and including the primary of transformer means,
a series of electro-magnets positioned in close proximity and relation individually to respective ones of the permanent magnets, each related permanent magnet and electro-magnet forming a set,
means adapted for connection with a source of DC and establishing a magnetic field in each electro-magnet,
a sensing probe positioned in close proximity to each said set, each sensing probe including an input element and an output element,
the magnetic field passing through the related permanent magnet and electro-magnet of each set and through the sensing probe related to that set,
a series of sub-circuit units each including a secondary of said transformer means and the input element of one of the sensing probes in series,
an output circuit unit including the output elements of the sensing probes interconnected in series without electrical controls therebetween, and thereby establishing an accumulation of the voltages of all of said sets, and

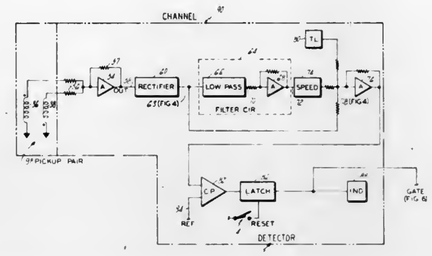
means responsive to the output circuit unit for measuring the accumulated voltage.

4,270,088

METHOD AND APPARATUS FOR MAGNETICALLY TESTING METAL TAPES

Herbert R. Weischedel, South Windsor, Conn., assignor to Otis Elevator Company, Hartford, Conn.

Filed Feb. 21, 1979, Ser. No. 13,657
Int. Cl.³ G01N *27/82;* G01R *33/12*
U.S. Cl. 324—241 **8 Claims**



1. Apparatus for testing slotted, magnetizable metal tapes to locate cracks therein, comprising:
means for magnetizing a section of the tape,
means for sensing magnetic flux which radiates from cracks and slots in the tape,
means for providing an indication of the presence of the crack, in a portion of the tape, in response to an output signal, provided by said sensing means, characterized by:
said sensing means comprising means for simultaneously sensing, at two positions at different distances from the tape surface, flux radiating from the tape, and providing, for each position, a signal which reflects the sensed flux; means for summing said signals so as to remove components that are common to each signal for providing a difference signal comprising substantially the components caused by the flux from a crack; and means for deriving a signal representing the average level of said difference signal and for summing said average level signal with said difference signal and predetermined threshold for providing a crack identification signal comprising substantially a signal component caused by the flux from the crack; and
said means for providing an indication of the presence of a crack comprising means for comparing said crack identification signal with a predetermined reference signal, and resetable means, operable in response to an output signal from said comparing means for operating an indicator device, such as a light or alarm or both.

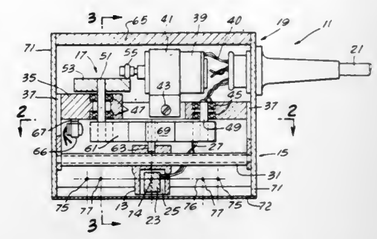
4,270,089

SCANNING MAGNETIC TEST HEAD

Peter Häberlein, Reutlingen, Fed. Rep. of Germany, assignor to Samsonite Corporation, Denver, Colo.

Filed Sep. 25, 1978, Ser. No. 945,681
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1977, 2745159
Int. Cl.³ G01R *33/00;* F16H *19/06, 37/00*
U.S. Cl. 324—262 **8 Claims**

1. A magnetic test head having a support carrying at least one test probe, guide means defining a path of movement for said support, and a drive means, comprising:
an endless belt mounted on a pair of spaced guide rollers;
means interconnecting at least one of said guide rollers to said drive means;
pinlike means carried by said belt and interacting with said support for reciprocating said support and test probe along said path of movement for scanning the surface of an article to be tested, said pinlike means being magnetized and cooperating with a sensing element mounted adjacent the path of movement on moving therepast to generate a signal sequence in synchronism with the belt frequency of revolution; and
a housing having walls enclosing and supporting the test probe, guide means, endless belt, interconnecting means



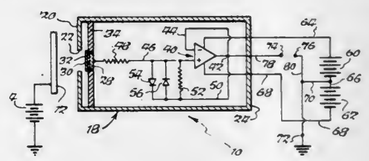
and pinlike means, said housing including a bottom plate for contacting the surface of an object to be tested spaced from said test probe, guide means, endless belt, interconnecting means and pinlike means constructed of a material having relatively poor electrical conductivity and magnetic properties.

4,270,090

D.C. ELECTROSTATIC VOLTAGE FOLLOWER HAVING ION-COUPLED PROBE

Bruce T. Williams, 86 Park Lane Cir., Lockport, N.Y. 14094

Filed Apr. 24, 1978, Ser. No. 899,390
Int. Cl.³ G01R *5/28, 29/12*
U.S. Cl. 324—457 **17 Claims**



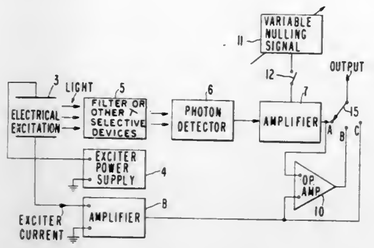
1. A d.c. electrostatic voltage follower comprising:
(a) a detector adapted to be exposed to an electric field or potential associated with a surface;
(b) means operatively associated with said detector for ionizing the air in the region between said detector and the surface only to a degree necessary to detect the presence of any non-zero field or potential between said detector and said surface and providing a resistive coupling of said detector to said region for establishing an ionic current flow into said detector in response to said non-zero field or potential difference between said detector and said surface;
(c) a d.c. amplifier having an input and an output;
(d) means for d.c. coupling said detector to said amplifier input; and
(e) said amplifier having a d.c. coupled feedback path between said output and said detector to provide a d.c. reference potential for said detector so as to be connected as a d.c. voltage follower whereby the flow of ionic current into said detector drives said amplifier to cause said output to change said detector reference potential in a manner reducing the field or potential difference between said detector and the surface to zero so that said amplifier output and said detector are driven to the same potential as that on the surface independent of the distance between the surface and said detector.

4,270,091

APPARATUS AND METHOD FOR MEASURING PRESSURES AND INDICATING LEAKS WITH OPTICAL ANALYSIS

Joseph K. Mann, Palo Alto, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Division of Ser. No. 872,209, Jan. 25, 1978, Pat. No. 4,147,431.
This application Nov. 17, 1978, Ser. No. 961,806
Int. Cl.³ G01L *21/32*
U.S. Cl. 324—462 **2 Claims**



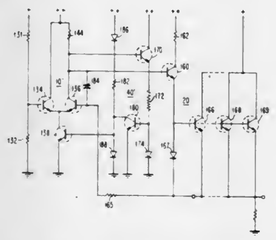
1. A vacuum pressure gauge comprising a tubular housing enclosing a Penning cell including a cathode and an anode, a window hermetically sealed to the side of said housing adjacent said cell, an opaque container attached to said housing and enclosing a photomultiplier, said container having a light filter therein aligned between said window and said photomultiplier, said container having a tubular portion connected to the side of said housing and containing said filter, said container having a second tubular portion substantially parallel to said tubular housing and containing said photomultiplier, first contact pins for said cathode and anode projecting through one end of said tubular housing , said photomultiplier having second contact pins projecting in the same direction as said first contact pins, and a unitary socket receiving said first and second pins.

4,270,092

CURRENT CONTROLLING CIRCUITRY FOR LOGICAL CIRCUIT REFERENCE ELECTRIC LEVEL CIRCUITRY

Warren A. Christopherson, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 18, 1979, Ser. No. 40,270
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—257 **8 Claims**



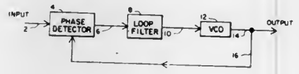
1. Current controlling circuitry for logical circuit reference electric energy level generating circuitry comprising
a differential amplifying circuit having an internal adjustable bias source, having one input terminal to which a primary reference potential is applied, having another input terminal, having an amplifying circuit bias source controlling terminal, and having an output terminal,
repeating circuitry having an input terminal connected to said output terminal of said differential amplifying circuit and having an output terminal at which said electric energy level is delivered,
a feedback lead connected between said output terminal of said repeating circuitry and said other input terminal of said differential amplifying circuit, and
current flow controlling circuitry including a current mirror amplifier circuit having an input terminal connected to said output terminal of said differential amplifying circuit and having an output terminal connected to said bias source controlling terminal of said differential amplifying circuit.

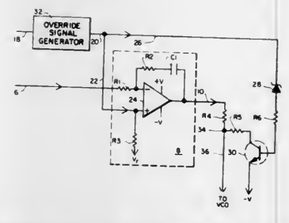
4,270,093

APPARATUS FOR FORCING A PHASE-LOCK OSCILLATOR TO A PREDETERMINED FREQUENCY WHEN UNLOCKED

Gerard J. Miille, Redwood City, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Jun. 27, 1979, Ser. No. 52,380
Int. Cl.³ H03L *7/08, 7/14*
U.S. Cl. 331—17 **5 Claims**





1. In a phase-lock loop which includes a phase detector having an output terminal and a voltage control oscillator (VCO) having a control input terminal, apparatus for forcing the VCO to provide a predetermined output frequency under abnormal conditions comprising:
first means responsive to said abnormal operating conditions for generating an override signal at an output terminal;
second means, having a first input terminal connected to the output terminal of said phase detector, and having a second input terminal connected to the output terminal of said first means and responsive to said override signal for deriving a voltage having a predetermined value at an output terminal; and
third means, having a first input terminal connected to the output terminal of said first means and having a second input terminal connected to the output terminal of said second means, said third means being responsive both to said override signal and said predetermined voltage to develop a selected portion of said predetermined voltage which is available at an output terminal of said third means and is applied to the control input terminal of said VCO, whereby said predetermined frequency is obtained.

4,270,094

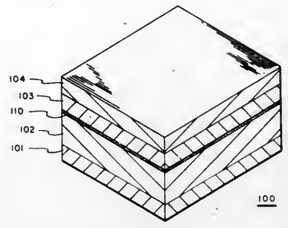
SEMICONDUCTOR LIGHT EMITTING DEVICE

Nick Holonyak, Jr., Urbana, Ill., assignor to University of Illinois Foundation, Urbana, Ill.

Filed Oct. 13, 1978, Ser. No. 951,515
Int. Cl.³ H01S *3/19*
U.S. Cl. 331—94.5 H **28 Claims**

1. A semiconductor heterostructure device, comprising:
first and second relatively wide bandgap semiconductor regions of opposite conductivity types; and

a single quantum well active layer disposed between said first and second regions, said active layer being formed of



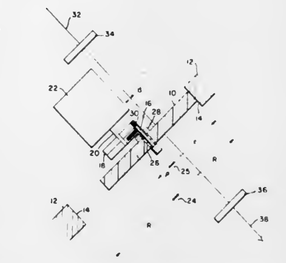
a relatively narrow bandgap semiconductor having a thickness which is in the range between about 100 angstroms and 200 angstroms.

4,270,095

CYCLOID-SCANNING LASER PUMPING METHOD AND APPARATUS

Steve Guch, Jr., Sepulveda, and Gordon L. Lundgren, Agoura, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed May 3, 1979, Ser. No. 35,680
Int. Cl.³ H01S *3/08*
U.S. Cl. 331—94.5 L **8 Claims**



1. A method for pumping a laser comprising:
exposing a disk having laser material distributed substantially throughout said disk to a pumping light beam of a wavelength capable of exciting said laser material to a condition of population inversion; and
moving the center of said disk in a circular orbit about a fixed point in a plane perpendicular to said pumping light beam while rotating said disk about its center in said plane in a rotational direction opposite to that in which its center is moved such that said pumping light beam impinges upon said disk along a cycloidal path.

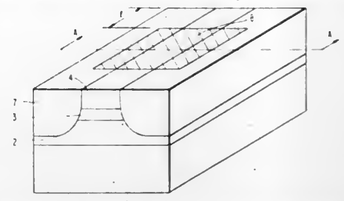
4,270,096

SEMICONDUCTOR LASER DEVICE

Izuo Hayashi, and Takao Furruse, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,963
Claims priority, application Japan, May 12, 1978, 53-56781
Int. Cl.³ H01S *3/19*
U.S. Cl. 331—94.5 H **5 Claims**

1. A semiconductor laser device comprising a semiconductor crystal having a pair of principal surfaces and optically reflective first and second side surfaces constituting an optical resonator therebetween, and a pair of electrodes, said semiconductor crystal including an active layer bounded by said first and second side surfaces and four heterojunction interfaces within said crystal, said active layer having an exciting region elongated within said crystal between said first and second side surfaces and bounded by said four heterojunction interfaces, one and the other ends of said exciting region being spaced apart from said first and second side surfaces, respectively, said pair of electrodes being provided on said pair of principal surfaces so as to supply injection current to said exciting region to emit a light, said active layer further having first and second non-exciting regions at said one and other ends of said exciting



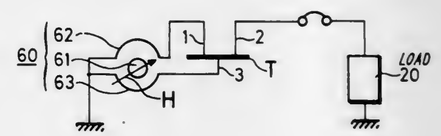
region, said first non-exciting region extending from said one end of said exciting region to said first side surface and said second non-exciting region extending from said other end of said exciting region to said second side surface, said non-exciting regions being transparent to said light emitted from said exciting region, and the band gap of said exciting region being narrower than that of said non-exciting regions.

4,270,097

OSCILLATOR ELECTRONICALLY TUNABLE WITHIN A VERY WIDE FREQUENCY BAND

Yves Le Tron; Juan Obregon; Pierre-Georges Marechal, and Serge Barvet, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Mar. 6, 1979, Ser. No. 17,970
Claims priority, application France, Mar. 3, 1978, 78 06431
Int. Cl.³ H03B *5/18*
U.S. Cl. 331—96 **5 Claims**



1. An electronic oscillator of the type comprising:
a three terminal active component to which are connected, by their first terminals a tuning dipole, a load dipole and a feedback loop comprising a coupling dipole, the second terminals of these dipoles being common, wherein the tuning dipole and the coupling dipole comprise reactors which are simultaneously variable by electronic means;
said variable reactors comprising resonators having a common sphere of monocrystalline magnetic material such that the reactance of said resonators is correspondingly varied by a common magnetic field.

4,270,098

MEANS FOR LINEARIZING A VOLTAGE VARIABLE CAPACITOR CONTROLLED OSCILLATOR

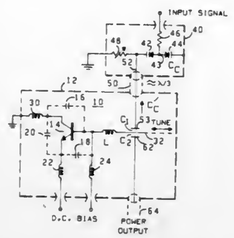
George A. Bowman, Arlington Hts., Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 864,169, Dec. 27, 1977, abandoned.
This application Apr. 5, 1979, Ser. No. 27,541
Int. Cl.³ H03B *5/18*
U.S. Cl. 331—96 **6 Claims**

1. In a voltage controlled osciliator wherein an active gain stage is arranged in a circuit configuration to oscillate at a

frequency which is a function of a variable reactance coupled to said circuit, the improvement comprising:

voltage variable capacity means comprised of a first and a second voltage variable capacity diode, said diodes having a common connection, arranged to receive a control voltage at the common connection to produce a capacitance related to the level of said control voltage, and with the free end of the first diode being coupled to AC ground;



an impedance transforming means, coupling the free end of the second voltage variable capacity diode to said voltage controlled oscillator for predeterminedly transforming the capacity means such that it is suitable for varying the frequency of oscillation of the oscillator; and

variable impedance means, coupled to said impedance transforming means and to the free end of the second voltage variable capacity diode, said variable impedance means being of predetermined value such that the frequency of oscillation of said oscillator is linearly related to the amplitude of the control voltage.

4,270,099

CIRCUIT ARRANGEMENT FOR GENERATING AND STABLY AMPLIFYING BROADBAND RF SIGNALS

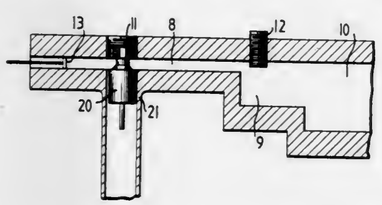
Hardial S. Gill, and Othmar Tegel, both of Backnang, Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,158

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1978, 2826767

Int. Cl.³ H03B *9/14*

U.S. Cl. 331—96 **7 Claims**



1. A circuit arrangement for generating and stably amplifying broadband rf signals comprising:

A first rectangular waveguide for operation in a frequency range below its cutoff frequency;

An active semiconductor element disposed in the first rectangular waveguide;

Means for supplying a direct voltage to the semiconductor element;

A second rectangular waveguide for operation at the operating frequency, said first rectangular waveguide having a height and width which is less than that of the second rectangular waveguide;

At least one waveguide section connecting the first and second rectangular waveguides and having the same width as the second rectangular waveguide and a height less than the height of the second rectangular waveguide, the waveguide section matching the cross section of the first rectangular waveguide to the cross section of the second rectangular waveguide; and

A plurality of tuning devices disposed in the first rectangular waveguide and the waveguide section, the tuning devices including at least one capacitively acting tuning screw and an inductively acting tuning device, the inductively acting tuning device being disposed in an end of the first rectangular waveguide remote from the waveguide section.

4,270,100

MICROWAVE ACOUSTIC WAVE OSCILLATOR

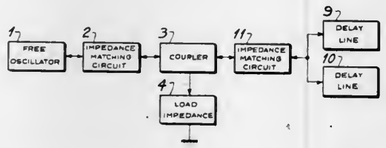
Jean-Pierre Bergero; Yves Charlet, and Philippe Leschaeve, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Apr. 12, 1979, Ser. No. 29,271

Claims priority, application France, Apr. 18, 1978, 78 11314

Int. Cl.³ H03B *3/06*

U.S. Cl. 331—107 A **7 Claims**



1. A microwave acoustic wave oscillator which comprises:

a free oscillator formed by an active quadripole connected to two passive networks such that this system enters into oscillation;

two acoustic wave delay lines coupled to the free oscillator which are operating by reflection and reproducibly select a single mode of operation, the modes of operation of the microwave oscillator being the frequencies at which the microwave signal coming from the free oscillator is in phase with the signal reflected by the acoustic wave delay lines, the first line imposing for one reciprocation a delay $2\tau_1$ sufficient to obtain a high overvoltage coefficient and, hence, high short-term stability of the microwave oscillator at certain points of the band of frequencies separating two successive modes of operation, from which points the working point will be selected, and the second line imposing for one reciprocation a delay $2\tau_2$ which is a sub-multiple of the delay imposed by the first line, enabling the frequency band separating two successive modes of operation to be brought to $1/2\tau_2 = a/2\tau_1$, where a is integer greater than 1.

4,270,101

RELAXATION OSCILLATOR HAVING SWITCHED CURRENT SOURCE

Adel A. A. Ahmed, Clinton Township, Mercer County, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 19, 1979, Ser. No. 4,843

Int. Cl.³ H03K *3/82, 3/352*

U.S. Cl. 331—111 **11 Claims**

1. In a relaxation oscillator of the type including a capacitor having a first plate connected to a reference potential, and having a second plate,

means for supplying current of a first polarity to a first node connected at least at selected times to the second plate of the capacitor for charging the capacitor, and

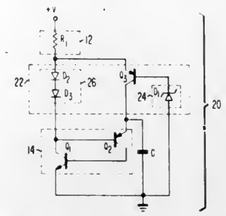
an SCR having a main conducting path connected across the capacitor for discharging the capacitor responsive to the voltage thereacross reaching a threshold voltage level,

and having a gate electrode at which there is a demand for gate current of said first polarity when the SCR is conductive,

the improvement comprising:

means connecting the gate electrode of the SCR to the first node, for diverting substantially all the current supplied by the means for supplying current to the gate electrode of the SCR when the SCR is conductive;

a transistor having output and common electrodes with a main-conduction path therebetween, and having an input



electrode, the output electrode connecting to the second plate of the capacitor and the common electrode connecting to the first node; and

means for applying a bias voltage to the input electrode of said transistor, which bias voltage is unidirectional with respect to the reference potential and is not related to the conduction of the SCR through its main conduction path, for conditioning said transistor for conduction and nonconduction responsive to the gate electrode current of the SCR when the SCR is nonconductive and conductive, respectively.

4,270,102

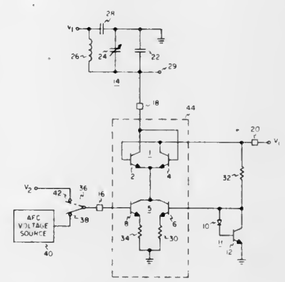
INTEGRATED CIRCUIT FM LOCAL OSCILLATOR WITH AFC CONTROL AND TEMPERATURE COMPENSATION

Glenn B. Gawler, Liverpool, and Robert J. McFadyen, Syracuse, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Apr. 26, 1979, Ser. No. 33,358

Int. Cl.³ H03B *5/12*

U.S. Cl. 331—115 **3 Claims**



1. A local oscillator circuit for fabrication by an integrated circuit process of a given high frequency performance, having an improved higher frequency range, said circuit including in combination

A. a tuned circuit, tunable over said higher frequency range,

B. a cross coupled differential pair of transistors with the collector and base of one transistor coupled to the base and collector, respectively, of the other transistor and the emitters of said transistors joined together, the collectors of said pair of transistors being coupled to said tuned circuit,

C. said transistors with current flow therein being constructed to exhibit an emitter current responsive variable capacitance and substantial negative conductance over said higher frequency range, said construction including the provision of a double base contact stripe for reduction of the base resistance, and

D. current source means coupled to said emitters for providing an emitter current in said transistors at a level providing said negative conductance to ensure oscillation and including a controlled current component for capacitance control of the oscillation frequency.

4,270,103

AMPLIFIER HAVING A VARIABLE PROPAGATION CONSTANT

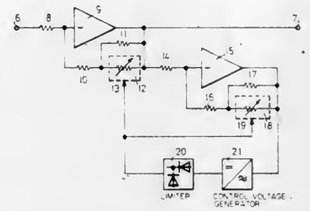
Ernst Schröder, Pinkenburger Strasse 25D, D-3000 Hannover 51, Fed. Rep. of Germany

Filed Mar. 22, 1979, Ser. No. 23,006

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 2812431

Int. Cl.³ H03H *11/12*; H04B *1/64*

U.S. Cl. 333—14 **5 Claims**



1. A circuit arrangement for receiving an audio frequency signal applied to an input terminal thereof, and generating an output signal at an output terminal thereof, comprising:

a first signal path having an input coupled to said input terminal and an output coupled to said output terminal, said first signal path including a first amplifier having a first negative feedback path connected between its input and output, said first negative feedback path comprising a first variable resistor for varying the transmission characteristic of said first path and a first impedance means;

a second signal path having an input coupled to one of said input and output terminals, said second signal path including a second amplifier having a second negative feedback path connected between its input and output, said second negative feedback path comprising a second variable resistor for varying the transmission characteristic of said second path and a second impedance means;

a control voltage generator coupled to the output of said second signal path for generating a direct voltage corresponding to the alternating voltage at the output of said second signal path; and

limiting means coupled between the output of said control voltage generator and said first and second variable resistors, said first and second variable resistors being varied in accordance with the output of said control voltage generator over a predetermined range determined by said first and second impedance means and said limiting means.

4,270,104

PHASE EQUALIZER IN MICROWAVE TRANSMISSION LINE

Alfred Schwarzmann, Mt. Laurel, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,823

Int. Cl.³ H01P *1/20*

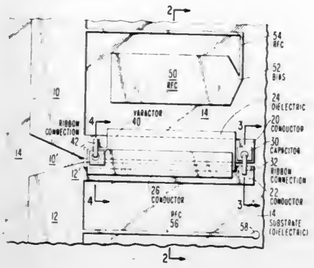
U.S. Cl. 333—28 R **5 Claims**

1. A resonant circuit phase equalizer in a microwave stripline transmission line having a planar substrate with a ground plane conductor on the bottom surface and input and output strip conductors on the top surface, comprising

two quarter-wavelength-long strip conductors extending in

close parallel relationship on said substrate from integral contact with adjacent ends of respective input and output strip conductors, to capacitively couple microwave signals from said input strip conductor through said two parallel strip conductors to said output strip conductor,

a first direct-current-blocking and radio-frequency tuning capacitor connected across the remote ends of said quarter-wave strip conductors,



an electrically-controllable capacitor connected across the near ends of said quarter-wave strip conductors connected with said input and output strip conductors, and

radio-frequency choke conductors on said substrate and connected to said input and output strip conductors through which to supply a variable direct-current bias voltage to said electrically-controllable capacitor to vary the capacitance thereof and the center frequency tuning of the resonant circuit.

4,270,105

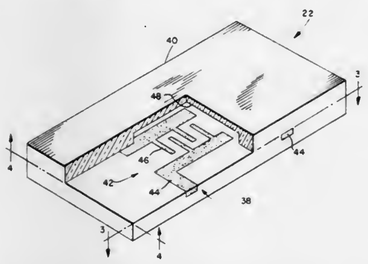
STABILIZED SURFACE WAVE DEVICE

Thomas E. Parker, Framingham, and Clarence J. Dunnrowicz, Waltham, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed May 14, 1979, Ser. No. 39,024

Int. Cl.³ H03H *9/25, 9/42, 9/68*

U.S. Cl. 333—155 **6 Claims**



1. A surface acoustic wave device comprising:

a crystalline base;

an assembly of electrodes deposited on a surface of said base; and

means for passivating said surface comprising a coating deposited on said surface and on said electrode assembly, said coating being formed of a hydrophobic polymer.

4,270,106

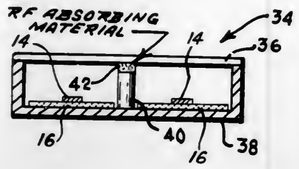
BROADBAND MODE SUPPRESSOR FOR MICROWAVE INTEGRATED CIRCUITS

James D. Woermbke, Glen Burnie, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 7, 1979, Ser. No. 91,993

Int. Cl.³ H01P *1/16*

U.S. Cl. 333—246 **2 Claims**



1. A broadband mode suppressor for microwave integrated circuits comprising: a housing having first and second walls, a top and bottom; a microwave integrated circuit located on the bottom of the housing, said circuit including chip components forming circuit discontinuities and causing undesired RF modes; a metal post mounted on the bottom of the housing and extending in the direction of the top of the housing for suppressing an undesired fundamental radiation mode; a lossy RF absorbing pellet positioned between the said post and top of the housing for suppressing RF modes at higher harmonic frequencies and lower frequencies than the fundamental frequency.

4,270,107

RECTANGULAR WAVEGUIDE ELBOW FORMED WITH A TRUNCATED CORNER AND HAVING PIPES FORMED THEREIN

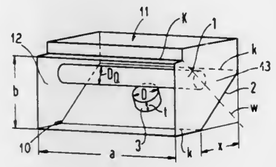
Eberhard Schuegraf, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 24, 1979, Ser. No. 78,189

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842577

Int. Cl.³ H01P *1/02, 5/02*

U.S. Cl. 333—249 **3 Claims**



1. A rectangular waveguide E-elbow with wide and narrow sides in which the wide side of the waveguide is bent to form an outside corner which is symmetrically beveled to form a conductive level plane (2) comprising, an electrically conductive cross bar (1) mounted in said waveguide at the median of the geometrical angle of the bend, said cross bar aligned parallel to the wide sides of said waveguide and extending between the opposite narrow sides of said waveguide; and a second conductive means (3) mounted at the diagonal point of intersection of said level plane (2) and projecting into the inner space of said waveguide.

4,270,108

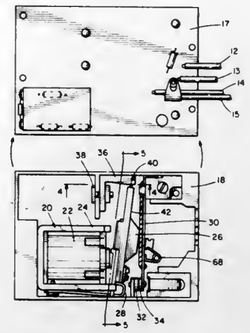
BISTABLE CONTROL SWITCH

William W. Wright, Wheaton, Ill., assignor to Guardian Electric Manufacturing Company, Chicago, Ill.

Filed Dec. 10, 1979, Ser. No. 101,469

Int. Cl.³ H01H *5/00*

U.S. Cl. 335—188 **8 Claims**



1. In a bistable position switch comprising a coil with a field piece, an armature pivotally connected to the field piece and responsive to current passing through the coil, the improvement of an armature holding end release mechanism for effectively maintaining the armature in a first coil actuated position upon termination of current through the coil and in a second release position upon subsequent actuation of the armature by the coil followed by release thereof, said improvement comprising in combination:

(a) a cantilever member projecting from the armature, said member being flexible in a plane generally transverse to the direction of armature movement;

(b) a cam guide member fixed with respect to the cantilever member, said cam guide member being cooperative with the cantilever member and including a

(i) first track for guiding the cantilever member to a notch holding position, and

(ii) a second track for guiding the cantilever member from the notch holding position to a release position.

4,270,109

BOUNCE-FREE LIFTING DEVICE

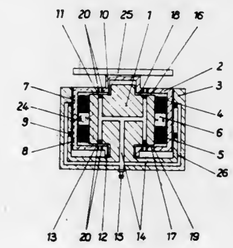
Eberhard Riessland, and Karl-Heinz Krüger, both of Dresden, German Democratic Rep., assignors to VEB Elektromat, Dresden, German Democratic Rep.

Filed May 15, 1979, Ser. No. 39,568

Claims priority, application German Democratic Rep., Jun. 1, 1978, 205722

Int. Cl.³ H01F *1/00, 3/00, 7/00*

U.S. Cl. 335—277 **11 Claims**



1. Bounce-free lifting device, comprising: at least one electromagnet having a stationary core defining a peripheral surface and two opposite end surfaces; a guide wall supporting said core and forming an interspace with said peripheral surface; a lifting armature disposed for reciprocating movement in said interspace, and enclosing said core, said armature defining two opposite abutment surfaces facing, respectively, said end surfaces and defining a gap therebetween; gas conduits provided in said core and in said guide wall; lateral nozzles arranged in said guide wall for connecting said conduits with said interspace and nozzles arranged in said end surfaces for connecting said conduits in said core with said gap.

4,270,110

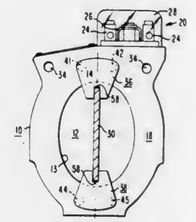
BUS BAR ADAPTOR FOR WINDOW TYPE CURRENT TRANSFORMERS

Paul W. Martincic, Sharpsville, and Charles E. Greene, Sharon, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 6, 1980, Ser. No. 127,618

Int. Cl.³ H01F *40/06*

U.S. Cl. 336—174 **4 Claims**



1. A bus bar adaptor arrangement and window type current transformer including a casing having a continuous inner wall defining a center opening for receiving a primary conductor and a pair of end walls extending around the ends of said opening, comprising:

plural retainer projections extending outwardly from both of said end walls of said transformer casing at predetermined symmetrically disposed positions thereof with each being in mutual axial alignment with another retainer projection extending from the other transformer end wall;

a one-piece bus bar adaptor made of a molded insulating material including a U-shaped side configuration having a base conforming to the inner wall surface of said transformer opening, further including a pair of flat attachment members extending outwardly from said base so as to define the sides of said U-shaped configuration positioned over the ends of said current transformer, and still further including a mounting portion having parallel spaced side walls defining a bar receiving slot disposed inwardly from said base, said attachment sides including recessed portions in mutually facing relationship wherein each recess conforms to the shape of said retainer projections and receives said projections in a complementary fashion so as to attach said adaptor within said transformer opening in a predetermined indexed relationship such that said bar receiving slot is disposed parallel to the axis of said opening for receiving a rectangular bar conductor said adaptor being detachably assembled to said retainer projections.

4,270,111

ELECTRICAL INDUCTIVE APPARATUS

Lloyd E. Meyer, Delaware Township, Mercer County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 25, 1980, Ser. No. 124,485

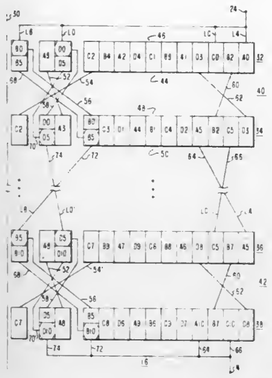
Int. Cl.³ H01F *15/14*

U.S. Cl. 336—70 **4 Claims**

1. An interleaved turn winding assembly for electrical inductive apparatus, comprising:

a plurality of axially spaced pancake coils, each having a plurality of insulated conductor turns defining first, second, third and fourth electrical paths therethrough,

and means interconnecting said plurality of pancake coils such that said first, second, third and fourth electrical paths are continued from coil to coil, with said interconnecting means defining an interleaving pattern, which mutually interleaves the turns of the first, second, third and fourth electrical paths wherein physically adjacent turns are from different electrical paths, and from electrically different portions of the winding assembly,



said interleaving pattern connecting the pancake coils in basic pairs, wherein the interleaving pattern is completed over two adjacent pancake coils, and then repeated in succeeding basic pairs,

each of said first, second, third and fourth electrical paths having N conductor turns in one pancake coil of a basic pair, and N+1 turns in the other, with the additional turns from two of the paths being in one pancake coil, and the additional turns from the remaining two paths being in the other pancake coil, such that each pancake coil has the same total number of conductor turns, to provide an average of $N+\frac{1}{2}$ conductor turns in each electrical path, in each pancake coil.

4,270,112

NORMAL CONDUCTIVE OR SUPERCONDUCTIVE MAGNET COIL

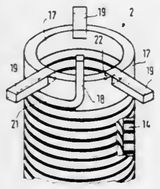
Hans-Jörg Schneider-Muntau, Meyland, and Klaus Hackbarth, Sassenage, both of France, assignors to Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V., Gättingen, Fed. Rep. of Germany

Filed Feb. 13, 1979, Ser. No. 11,925

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1978, 2811504

Int. Cl.³ H01F *27/30*

U.S. Cl. 336—197 **16 Claims**



1. A high field magnet coil for generating high magnetic fields, the magnet coil being comprised of helical conductor turns so as to have a substantial radial thickness wherein the magnet coil is radially subdivided into a plurality of cylindrical thin individual coils, concentrically nested one inside another, each of said individual coils being comprised of a single conductor turn layer that is maintained both mechanically and electrically separated from adjacent individual coils throughout the length of its conductor turns so as to define a gap between all adjacent coils throughout their conductor turn layers, each individual coil having at each axial end a conductor end portion axially projecting beyond its conductor turn layer, each individual coil having two holding cylinders, one at each axial end, which extend axially beyond the conductor turn layer, each of said conductor end portions being fixed to a respective one of said holding cylinders, each coil together with a holding cylinder at each axial end comprising an individual, self-supporting structure in which the conductor turns throughout the turn layer of the coil and the holding cylinders are bonded together by a mechanically strong adhesive, such that the conductor turns are equidistantly spaced from each other throughout the turn layer; the assembly of said plurality of coils being held together by holding means for axially, radially and circumferentially fixing said plurality of coils in place, said holding means engaging the holding cylinders and being common to all coils so that said holding means individually acts on each coil at both axial ends thereof.

4,270,113

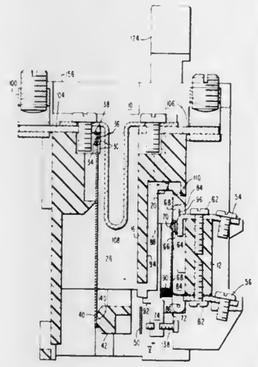
THERMAL OVERLOAD RELAY

Paul T. Anderson, Brighton Township, Beaver County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 6, 1979, Ser. No. 28,021

Int. Cl.³ H01H *71/16*

U.S. Cl. 337—75 **6 Claims**



1. An electrical control device comprising a housing, one pair of spaced terminals on the housing, one of the terminals comprising a stationary contact within the housing, a movable contact mounted on and extending from the other terminal and being biased in one of the open and closed positions of the stationary contact, the movable contact comprising a resilient elongated contact arm which is spring-biased in one of the open and closed positions, a slide within the housing for moving the movable contact between said positions, latch means on the slide for latching the slide in one of said positions and being spring-biased in the other position, manual reset means for moving the slide to a latched position, at least one pole unit including a bimetal element responsive to current flow to effect heating thereof, and means associated with the latch menas for unlatching the latch means.

4,270,114

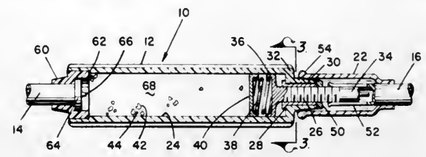
ENERGY TRANSMISSION DEVICES

David L. Cannom, 276 Cabrillo, #C, Costa Mesa, Calif. 92627

Filed Apr. 7, 1980, Ser. No. 137,590

Int. Cl.³ H01C *8/00*

U.S. Cl. 338—224 **7 Claims**



1. An energy transmission device comprising a pair of electrodes electrically interconnected by a body of irregularly shaped granules of a metal, and enclosure means for retaining said body of granules compressed sufficiently to complete an electrical path between said electrodes the direct current impedance of which exceeds the impedance exhibited by a solid body of said metal which occupies an equal volume;

said granules of metal comprising at least one-half by volume of copper.

4,270,115

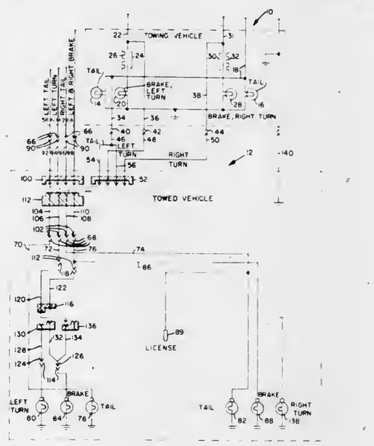
ADAPTER FOR ADAPTING SIGNAL LAMP SYSTEMS OF TOWED AND TOWING VEHICLES

Robert N. Bonnett, 481 Yorkshire Dr., Severna Park, Md. 21146

Filed Dec. 15, 1978, Ser. No. 969,864

Int. Cl.³ B60Q *1/46;* **H01R** *11/00*

U.S. Cl. 340—67 **4 Claims**



1. An adapter for adapting lamps of a four wire lamp system of a towed vehicle to lamps of a three wire lamp system of a towing vehicle, the four wire system including first and second turn lamps and first and second brake lamps, the first and second lamps being on opposite sides of the towed vehicle, an electrical lead normally extending from the power source on the towed vehicle to the first turn signal lamp, a pair of normally interconnected electrical leads normally extending from the power source on the towed vehicle to the respective first and second brake lamps, the three wire system including first and second combined turn and brake lamps on opposite sides of the towing vehicle corresponding to the location of the first and second lamps on the towed vehicle, said adapter comprising means for disconnecting from the power source on the towed vehicle the lead connected to one of the first and second turn lamps and also the interconnected pair of leads to the first and second brake lamps, means for disconnecting from said one turn lamp the lead normally connecting same to the power source and connecting said lead to one of the brake lamps, means for disconnecting one of said pair of normally interconnected leads from the said one of said brake lamps, means for connecting the former turn lamp lead following connection thereof to the first brake lamp of the towed vehicle to the first combined brake and turn lamp of the towing vehicle, and means for connecting the remaining one of the pair of normally interconnected leads connected to the second brake lamp of the towed vehicle to the second combined brake and turn lamp of the towing vehicle, whereby the former brake lamps of the towed vehicle are converted into combined turn and brake lamps operable in unison with the corresponding lamps on the towing vehicle.

4,270,116

HIGH SPEED DATA LOGICAL COMPARISON DEVICE

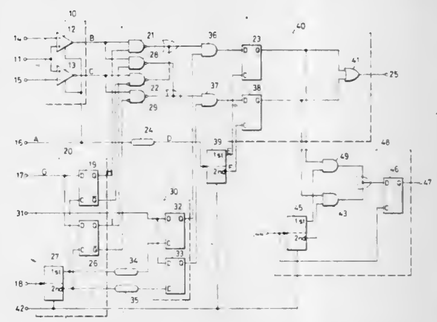
Yoshichika Ichimiya, Tokorozawa; Tsuneta Sudo, Kodaira; Hiromi Maruyama, Gyoda; Shigeru Sugamori, Gyoda; Susumu Sumida, Gyoda; Masao Shimizu, Gyoda, and Toshiaki Wakita, Gyoda, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation and Takeda Riken Kogyo Kabushikikaisha, both of Tokyo, Japan

Filed Aug. 24, 1979, Ser. No. 69,347

Claims priority, application Japan, Aug. 28, 1978, 53-105301

Int. Cl.³ G06F *7/04*

U.S. Cl. 340—146.2 **9 Claims**



1. A logical comparison device operatively connected to receive a reference logical data train, a clock signal and input logical data, comprising:

a data dividing circuit for generating spatially divided reference logical data by sequentially dividing the reference logical data train for each time slot into n (n being an integer greater than 1) data trains sequentially displaced one time slot apart in phase, each data of the n data trains having an n time slot length;

a clock signal dividing circuit for generating spatially divided clock signals by dividing the clock signal, for determining the timing of comparison, into n clock signals displaced one time slot apart in phase and occurring with a period of n time slots;

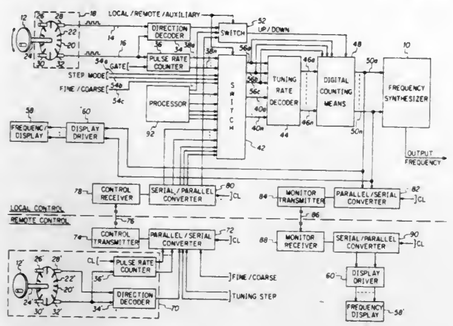
comparator means, operatively connected to said data dividing circuit, for comparing the input logical data to the spatially divided reference logical data to detect whether or not they are coincident with each other, wherein the timing of comparison is determined in accordance with the clock signal; and

a comparison output circuit, operatively connected to said clock signal dividing circuit and said comparator means, for reading out the comparison results from said comparator means by the spatially divided clock signals.

4,270,117
VARIABLE RATE DIGITAL CONTROLLER FOR A FREQUENCY SYNTHESIZER

Paul J. Ziegelbein, Cedar Rapids; Sylvan L. Dawson, Marion, and Gerald A. Erickson, Cedar Rapids, all of Iowa, assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 2, 1979, Ser. No. 8,897
Int. Cl.³ G01R *23/10*
U.S. Cl. 340—168 B **13 Claims**



1. A variable rate digital controller for a frequency synthesizer which is responsive to digital signals for controlling its frequency, comprising:

rate indicating means for periodically generating a digital signal from among a plurality of such digital signals representative of various tuning rates;

rate decoding means for receiving the digital signals and providing in response thereto digital control words, with each word being associated with at least one of the digital signals;

digital counting means having a plurality of counting rates, with each rate being determined by a different one of the control words applied thereto, and

means for applying the digital count of said digital counting means to the frequency synthesizer to control its frequency.

4,270,118
PARALLEL ANALOG-TO-DIGITAL CONVERTER

Adrian P. Brokaw, Burlington, Mass., assignor to Analog Devices, Incorporated, Norwood, Mass.

Continuation of Ser. No. 867,102, Jan. 5, 1978, abandoned. This application Jan. 22, 1979, Ser. No. 5,526
Int. Cl.³ H03K *13/17*
U.S. Cl. 340—347 AD **18 Claims**

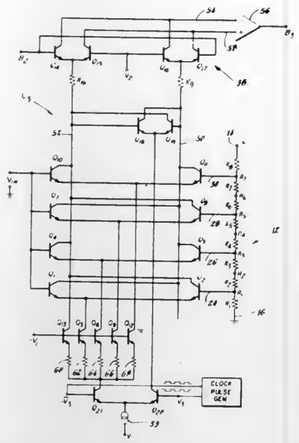
1. An A-to-D converter comprising an electronic comparator for comparing an analog input signal with each of a number of discrete level reference signal inputs, said comparator having a one bit binary output, the value of which alternates as the analog signal increases to successively exceed said reference signal levels, said comparator comprising:

a pair of differential transistors associated with each reference input, the base of a reference transistor of each pair being connected to the associated reference input and the base of an input transistor of each pair being connected to the analog input signal;

first common connector means for connecting the outputs of the reference transistors of a first set of transistor pairs associated with a first set of non-successive reference inputs in common with each other and with the outputs of the input transistors of a second set of transistor pairs associated with a second set of non-successive reference inputs;

second common connector means for connecting the outputs of the reference transistors of said second set of transistor pairs in common with each other and with the outputs of the input transistors of said first set of transistor pairs;

differential transistor bias means for drawing predetermined amounts of current through each of said pairs of differential transistors, the portions of said predetermined amounts of current drawn through each transistor of each



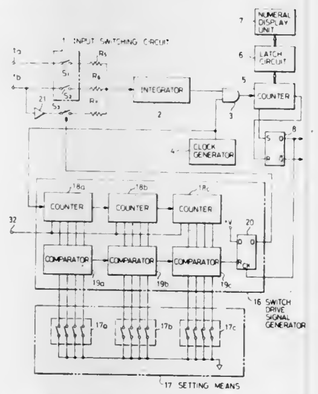
pair being determined by the level of said analog input signal relative to said associated reference input; and

means for detecting the amount of current drawn through said first common connector means relative to the current drawn through said second common connector means, whereby the relative currents through said connector means indicates said one bit binary output.

4,270,119
DUAL SLOPE SYSTEM A-D CONVERTER

Masakazu Mitamura, Gyoda, Japan, assignor to Takeda Riken Kogyo Kabushikikaisha, Tokyo, Japan

Filed Jul. 11, 1979, Ser. No. 56,630
Claims priority, application Japan, Jul. 14, 1978, 53-86511
Int. Cl.³ H03K *13/20*
U.S. Cl. 340—347 NT **11 Claims**



1. In an A-D converter having a first switch which is turned on to connect therethrough an analog input voltage which is applied to an integrator for a predetermined period of time to perform first integration of the analog input voltage, having a second switch which is turned on to connect a reference voltage opposite in polarity to the analog input voltage which is applied to the integrator to perform second integration of the reference voltage until the output from the integrator becomes equal to the output at the start of the first integration, wherein the second integration period is converted into an output digital value, the improvement comprising:

setting means for setting a set digital value corresponding to a constant;

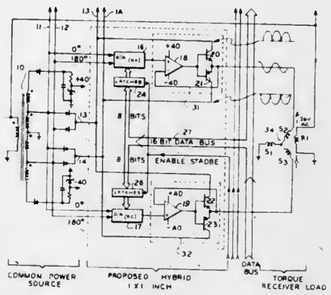
switch drive signal generating means, operatively connected to said setting means, for receiving the set digital value set by the setting means and for generating a switch drive signal having a time width corresponding to the set digital value; and

switching means, operatively connected to said switch drive signal generating means, for connecting the inverted polarity reference voltage to the integrator, for receiving the switch drive signal and for providing the inverted polarity reference to the integrator in dependence upon the switch drive signal, the inverted polarity reference voltage being provided to the integrator prior to the second integration.

4,270,120
SOLID STATE SYNCHRO TORQUE RECEIVER DRIVER

Robert S. Prill, Parsippany, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed Jul. 18, 1979, Ser. No. 58,696
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 SY **3 Claims**



1. A solid state synchro torque receiver driver comprising:

a source of data bits,

a latching circuit connected to said source of data bits,

transformer means providing raw AC voltages at 0° and 180° phase differences, said transformer means including a plurality of rectifying diodes,

converter means for converting said AC voltage into ratiometric signals, said converter means including a digital to analog converter having 0° and 180° phase output signals controlled by said latching circuit,

output circuit means connected to said 0° and 180° phase AC voltage, said output circuit means including a push pull amplifier, and

comparing means for comparing the outputs of said output circuit means and said converting means for deriving an error signal indicative of the amplitude difference between said output circuit means and the output of said converting means, said comparing means continuously nulling said error signal so that said output circuit means follows the output of said converting means, said comparing means including a feedback amplifier connected to the output of said digital to analog converter and to the output of said circuit output means whereby said feedback amplifier generates an error signal indicative of any change in the amplitude relationship between the output of said digital to analog converter and said output circuit means, and

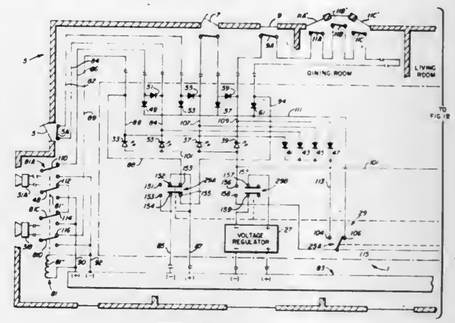
a synchro having first and second windings and having a rotor winding, said first stator winding being connected to ground, said rotor winding being excited by the same AC phase as said transformer, said push-pull amplifier being connected to said second stator winding so that the rotor phase shift of said synchro approximates the phase angle of said input signal and so that the amplifier output partially powers the synchro output, wherein

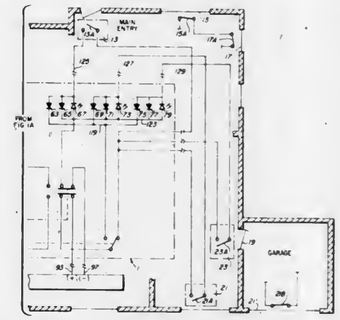
said push-pull amplifier includes an NPN output transistor and a PNP output transistor, each said output transistor having a collector line connected to said plurality of rectifying diodes.

4,270,121
CIRCUITRY FOR BURGLAR ALARM ANNUNCIATOR

Raymond E. Verr, 6614 S. Dorsey La., Tempe, Ariz. 85283

Filed Apr. 10, 1980, Ser. No. 138,889
Int. Cl.³ G08B *29/00*
U.S. Cl. 340—514 **9 Claims**





9. An annunciator circuit for displaying information identifying individual closed access switches in an open loop burglar alarm system, the burglar alarm system including:

(i) first and second access switches each having a first terminal and a second terminal, said first and second access switches being normally open access switches, and

(ii) a sensing unit having first and second terminals thereof, said annunciator circuit comprising in combination:

a. a first display element having first and second terminals, and first means for coupling the second terminal of said first display element to the first terminal of said first access switch;

b. a second display element having first and second terminals and second means for coupling the second display element to the first terminal of said second access switch;

c. a voltage source having first and second terminals, the voltage on the first terminal of said voltage source being greater than the voltage on the second terminal thereof by a predetermined voltage difference;

d. first switching means for selectively coupling the first

terminals of said first and second access switches to the first terminal of said sensing unit and for selectively coupling the second terminals of said first and second access switches to the second terminal of said sensing unit;

e. a first diode having an anode and a cathode coupled to the second and first terminals, respectively, of said first access switch;

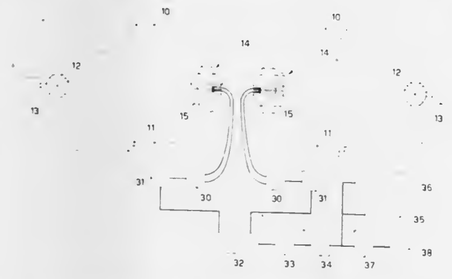
f. second switching means for selectively coupling the first terminal of said voltage source to the first terminals of said first and second display elements when said first and second terminals of said sensing unit are not coupled to said first and second terminals of said first and second access switches, respectively.

4,270,122

PRESSURE-SENSITIVE SIGNALLING DEVICE FOR DETECTING INTRUSION INTO AN ENCLOSED AREA

Pietro Capula, Via Arduino 91, Ivrea, Torino, Italy

Filed Jul. 31, 1979, Ser. No. 62,474
Claims priority, application Italy, Aug. 24, 1978, 68965 A/78
Int. Cl.³ G08B *13/10*
U.S. Cl. 340—566 **8 Claims**



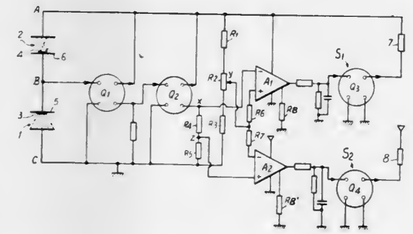
1. A pressure sensitive signalling device for sensing intrusion into an enclosed area, comprising at least one yeilding pipe embedded underground along the periphery of the enclosed area and filled with fluid, said pipe being divided into two separate sections by a deformable baffle plate to which are connected sensor means for supplying a signal depending on the deformation of said baffle plate, for actuating signalling means when said baffle plate is deformed.

4,270,123

DETECTOR FOR INDICATING A FIRE OR DETECTOR MALFUNCTION

Jean-Claude Collard, Brussels, Belgium, assignor to Universal Det, S.A.R.L., Boulogne, France

Filed Feb. 26, 1979, Ser. No. 15,052
Int. Cl.³ G08B *17/10*
U.S. Cl. 340—629 **13 Claims**



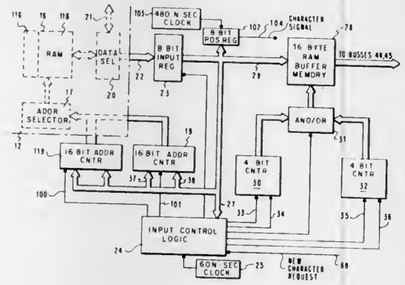
1. A detector for a predetermined condition such as a rise in temperature or the presence of radiation or combustion gas comprising a reference element and an analysis element whose impedance varies as a function of said predetermined condition connected together as two arms of a Wheatstone bridge whose other two arms are constituted by resistors, a measuring diagonal of the bridge being connected to a pair of voltage comparators for respectively triggering warning systems, each of the comparators having input terminals of opposite polarity and an output terminal that produces a control signal when the voltage on the positive input terminal exceeds the voltage on the negative input terminal, the improvement comprising: connecting one end of the measuring diagonal to respective input terminals of opposite polarity of the comparators, connecting the other end of the measuring diagonal to the other input terminal of a first of the comparators and to the other input terminal of a second of the comparators whereby control signals produced by the first and second comparators, in response to unbalancing of the bridge, trigger respective warning systems that indicate the existence of a fault and the existence of said predetermined condition.

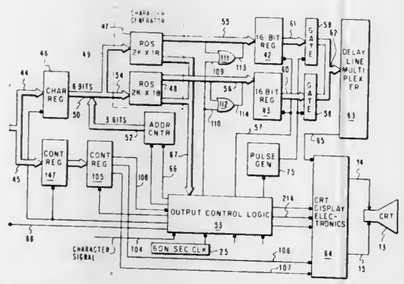
4,270,124

ALPHANUMERIC CRT DISPLAY SYSTEM WITH UNITARY CHARACTER FORMATION AND REFRESH

Charles R. Bringol, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 8, 1979, Ser. No. 46,877
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—731 **5 Claims**





1. A cathode ray tube display system for displaying a block comprising a plurality of alphanumeric characters arranged in a plurality of character lines having cyclic refresh means wherein each whole character is refreshed before the next succeeding character is refreshed comprising:

means for continuous repetitive raster scanning of the cathode ray tube in a raster of horizontal passes, each traversing a whole one of said character lines, and

each of said passes comprising a continuous subraster of vertical scan lines wherein each character position in said character line being traversed is scanned by a group of said vertical scan lines, and

means for modulating the light intensity along the vertical scan lines of each of said groups to selectively provide an alphanumeric character at the position being scanned by said group,

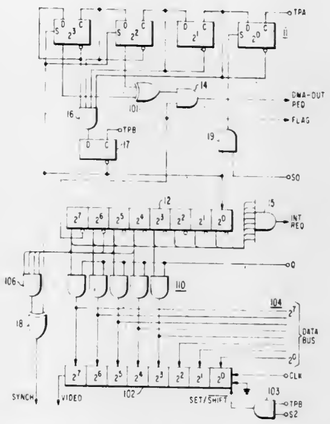
said alphanumeric characters having varying widths and said groups having a variable number of scan lines dependent on the width of the alphanumeric character to be formed from the group.

4,270,125

DISPLAY SYSTEM

Joseph A. Weisbecker, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 13, 1976, Ser. No. 722,584
Int. Cl.³ G06F *3/153*
U.S. Cl. 340—744 **2 Claims**



1. A system for displaying a pattern on a raster scanned display device by mapping bits from a display location in a memory associated with a computer onto the raster as contrasting spots depending on the value of each bit, wherein said computer is responsive to a direct memory access request to produce on a data bus, data signals retrieved from said memory at a location specified by a pointer address register, comprising the combination of:

clock means for producing timing signals;

output means for coupling signals to said display device;

means, including interval timing means, responsive to said timing signals, for producing horizontal synchronizing signals and applying them to said output means;

line counter means responsive to said horizontal synchronizing signals for producing output signals identifying individual horizontal lines;

first decoder means responsive to said interval timing means and to said line counter means for supplying direct memory access requests to said computer;

second decoder means responsive to said line counter means for supplying vertical synchronization signals to said output means;

means for storing data signals from said data bus in response to a signal derived from said timing signals when said computer responds to a direct memory access request and for shifting said data serially to said output means in response to said timing signals; and

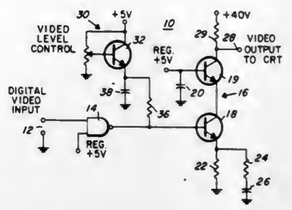
a plurality of gating means, responsive to a command signal, for coupling the output signals from the line counter means to the data bus means.

4,270,126

VIDEO AMPLIFIER ARRANGEMENT WITH WIDEBAND D-C GAIN CONTROL

Michael P. Bafaro, Park Ridge, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 19, 1979, Ser. No. 86,548
Int. Cl.³ G08B *5/36*
U.S. Cl. 340—748 **5 Claims**



1. An improved video amplifier arrangement for applying a source of digital video pulse signals to the control element of a cathode ray tube, comprising in combination:

amplifier means having an input and an output coupled to the control element of the CRT;

open-collector logic gate means having an input for receiving the source of digital video pulse signals and an output coupled to said input of said amplifier means; and

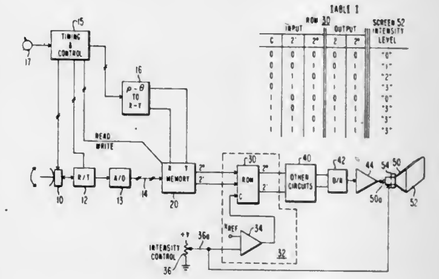
D-C amplifier means having an output coupled to the output of said logic gate, said D-C amplifier means including variable adjustable means for determining the output current therefrom and, in turn, the load current through said logic gate means.

4,270,127

DIGITAL DATA COMPRESSION CIRCUIT

Charles A. Clark, Jr., Chatsworth, Calif., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 27, 1979, Ser. No. 52,416
Int. Cl.³ G01S *13/95*
U.S. Cl. 343—5 W **4 Claims**



1. In a radar system of the type including means for receiving echo signals from targets in a searched space and means for producing from the received echo signals, digitally formated data representative of the searched space, the improvement comprising:

multiple state conversion means responsive to a control signal for determining the state thereof and including circuit means and display means for converting said digitally formated data into different visible light patterns in accordance with the state of said conversion means; and

settable means producing a signal the value of which determines the overall intensity of said visible light patterns, said settable means also providing said control signal for

determining the state of said conversion means depending on the setting of said settable means;

said conversion means, when in a first state, converting said data into a light pattern wherein all target magnitudes below a predetermined magnitude M_L are represented as dark areas and all target magnitudes greater than M_L are represented as light areas of varying intensities corresponding to a parameter of said targets;

said conversion means, when in a second state, converting said data into a light pattern wherein all target magnitudes below said predetermined magnitude M_L are represented as dark areas and all target magnitudes greater than M_L are represented as light areas of a single intensity.

4,270,128

RADIO ANTENNAE

Robert J. Drewett, Swindon, England, assignor to National Research Development Corporation, London, England

Continuation-in-part of Ser. No. 808,384, Jun. 20, 1977, Pat. No. 4,160,979. This application Apr. 4, 1979, Ser. No. 27,284

Claims priority, application United Kingdom, Jun. 21, 1976, 25727/76; Apr. 1, 1977, 13928/77

Int. Cl.³ H01Q *1/36*

U.S. Cl. 343—702 **9 Claims**



1. An end fed radio antenna comprising first and second extended conductors each having an electrical length of one quarter of the design wavelength and each disposed in helical, insulated windings being of opposite chirality, wherein the conductors are mutually coaxial and longitudinally co-extensive and wherein one pair of adjacent ends of the conductors are connected to each other to form the end feed of the antenna.

4,270,129

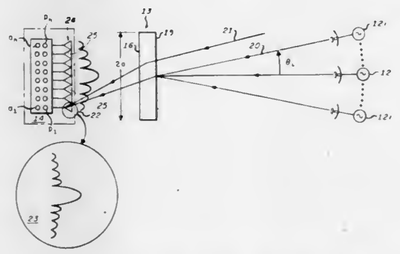
APPARATUS AND METHOD FOR REALIZING PRESELECTED FREE SPACE ANTENNA PATTERNS

John C. Herper, Glen Cove, and John J. Stangel, Mahopac, both of N.Y., assignors to Sperry Corporation, New York, N.Y.

Filed Jan. 30, 1979, Ser. No. 7,759

Int. Cl.³ H01Q *1/28*

U.S. Cl. 343—703 **2 Claims**



1. A method of achieving a desired far field pattern for an antenna having a focal region and a feed system with a feed antenna aperture in the focal region comprising the steps of:

positioning elements of said feed antenna at selected focal sectors of said focal region each of which correspond to a plane wave incident to the aperture of said antenna from a selected angular position such that sin θ_n is substantially equal to

$$\frac{2n-1}{2}\lambda/D$$

where θ_n in said angular position, n is an integer, λ is the operating wavelength of said antenna, and D the aperture dimension of said antenna;

locating detecting means in the far field of said antenna;

rotating said antenna such that said detecting means is angularly positioned relative to said antenna at one of said selected angular positions; ;p1 detecting radiation from said antenna at said detecting means; and

adjusting the phase and amplitude of the excitation from the element in said feed system corresponding to said selected angle of incidence at which said detecting means is located to achieve a signal level at said detecting means that is substantially equal to the relative signal level of the desired antenna pattern at the angular position of said detector.

4,270,130

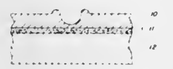
THERMAL DEFORMATION RECORD DEVICE WITH BLEACHABLE DYE

Conrad G. Houle, Webster; Dennis G. Howe, Fairport; Harold T. Thomas; Joseph J. Wrobel, both of Rochester, all of N.Y., and Bruce G. Fike, deceased, late of Rochester, N.Y. (by Joyce A. Fike, executrix), assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 8, 1979, Ser. No. 1,519

Int. Cl.³ G01D *15/02, 15/34*

U.S. Cl. 346—77 E **32 Claims**



1. In a record device comprising a support having superposed thereon a layer of thermal recording material that contains information recorded in the form of a deformation pattern, said thermal recording material in a first state being absorbant to radiation of a selected wavelength for recording of said deformation pattern by exposure to radiation, the improvement wherein said thermal recording material has been converted to a second state wherein it is significantly less absorbant to said exposing radiation.

4,270,131

ADAPTIVE ERROR CORRECTION DEVICE FOR A LASER SCANNER

E. Neal Tompkins, 12847 Castle Bend, San Antonio, Tex. 78230, and Henry M. Donzis, 4918 Brandeis, San Antonio, Tex. 78249

Filed Nov. 23, 1979, Ser. No. 96,624

Int. Cl.³ G01D *15/14*

U.S. Cl. 346—108 **12 Claims**

1. A dynamic error correction device for a laser scanner having at least a laser for generating a laser beam, a multiple facet spinner, and an acoustooptic modulator, comprising:

photodetector means having a mask for generating stepped voltage waveform output upon said laser beam sweeping thereacross;

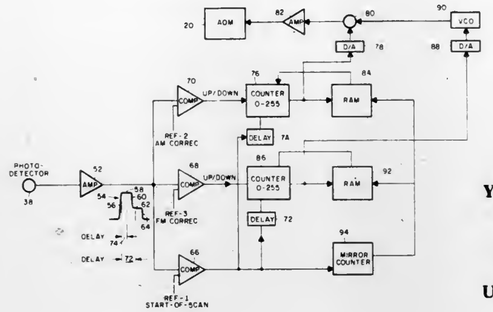
comparator means:

(1) receiving said stepped output to give start-of-scan signal;

(2) receiving said stepped output to give an intensity correction signal after a first predetermined delay from said start-of-scan signal;

(3) receiving said stepped output to give a facet-to-axis correction signal after a second predetermined delay from said start-of-scan signal;

memory means for storing previous amplitude and frequency modulation requirements for each facet of said multiple facet spinner;



first correction means receiving said previously stored amplitude modulation and incrementally increasing or decreasing amplitude modulation of said acoutooptic modulator depending upon said intensity correction signal;

second correction means receiving said previously stored frequency modulation and incrementally increasing or decreasing frequency modulation of said acoustooptic modulator depending upon said facet-to-axis correction signal; and

means for updating said memory means from said first correction means and said second correction means.

4,270,132

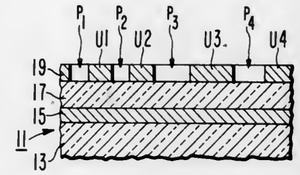
INFORMATION RECORD

Alan E. Bell, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 782,035, Mar. 28, 1977, abandoned. This application Apr. 12, 1979, Ser. No. 29,217

Int. Cl.³ G01D *15/34*

U.S. Cl. 346—135.1 **7 Claims**



1. A record blank for use in optical recording and playback with a light beam having a given light frequency corresponding to a wavelength, λ, within a given portion of the light spectrum, said record blank comprising, in combination:

a substrate;

a first layer of material exhibiting high reflectivity over at least said given portion of the light spectrum, said first layer overlying a surface of said substrate;

a second layer of material exhibiting light transparency over at least said given portion of the light spectrum and having a refractive index, n_D, said second layer overlying said first layer; and

a third layer of material exhibiting high reflectivity over at least said given portion of the light spectrum, high absorptivity to light at said given frequency, and substantial opacity to light at said given frequency, said third layer having a thickness d_1 overlying said second layer;

said first layer effecting a phase shift δ_2 to light reflected from the interface between said first layer and said second layer and said third layer effecting a phase shift δ_1 to light reflected therefrom;

the thickness of said second layer in the units of the wavelength λ, being equal to:

$$\frac{\lambda}{360(2n_D)}\left[\delta_2 - \delta_1 - 360\left(\frac{2d_1}{\lambda}\right) + 180\right]$$

4,270,133

INK SUPPLY DEVICE FOR AN INK JET PRINTER

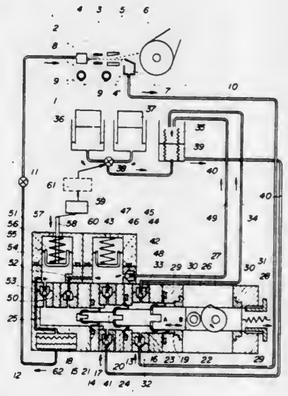
Yoichi Shimazawa, and Toshiaki Kawamoto, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 27, 1979, Ser. No. 52,603

Claims priority, application Japan, Jun. 29, 1978, 53-79863

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R **22 Claims**



1. An ink supply device for an ink jet printer which emits ink drops from a nozzle toward a recording sheet, selectively deflects said ink drops by a deflection means, and prints desired symbols on said recording sheet with said deflected ink drops, said ink supply device comprising:

an ink reservoir means for containing ink therein;

an ink collector means for collecting the ink drops which are not contributive to the recording purposes, said collected ink drops being fed back to said ink reservoir means; and

a constant flow rate pump means connected to said ink reservoir means and said ink collector means for feeding the ink collected by said collector means back to said ink reservoir means for recirculation of ink, said constant flow rate pump being adapted to supply ink drawn from the ink reservoir which includes the collected ink into a pressure chamber and force the ink out through an exhaust port at a constant flow rate, said constant flow rate pump including at least one operatively connected pressure accumulator means, said pressure accumulator means including a pressure sensing means operatively connected thereto for sensing variations in the ink pressure caused by variations in the viscosity of the ink; and

an ink supply means and an ink solvent supply means being in communication with a valve means operatively con-

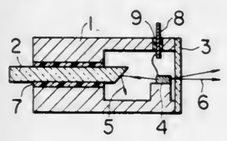
nected to said pressure sensing means and to said ink reservoir means wherein said valve means supplies ink from said ink supply means to said ink reservoir means during normal operating conditions and said valve means supplies an ink solvent from said ink solvent supply means to said ink reservoir means when the pressure sensing means senses an ink pressure above a predetermined pressure.

4,270,134

LIGHT-EMITTING SEMICONDUCTOR DEVICE

Yutaka Takeda, Ohme; Kunio Aiki, and Ryoichi Ito, both of Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 30, 1979, Ser. No. 34,263
Claims priority, application Japan, Apr. 28, 1978, 53-49829
Int. Cl.³ H01L *31/12, 33/00*
U.S. Cl. 357—19 **10 Claims**



1. A light-emitting semiconductor device, comprising:
a light-emitting semiconductor element capable of emitting light in two directions; and
a housing for said light-emitting element, said housing including a heat sink for the semiconductor element, a monitoring light guide for receiving and transmitting light from said light-emitting element in one of said two directions therethrough, and a light take-out means for receiving and transmitting light from the light-emitting element out of the housing in the other of said two directions,
wherein said monitoring light guide has a light-receiving face located adjacent said light-emitting element for receiving light therefrom in said one direction, at least part of which light-receiving face is substantially inclined in a direction relative to the optical axis of the light emitted in said one direction from said semiconductor element so that light reflected from the inclined part of said light-receiving face will be directed in a direction different than that of said other direction of light emitted by the light-emitting element so as not to interfere with said light emitted in said other direction.

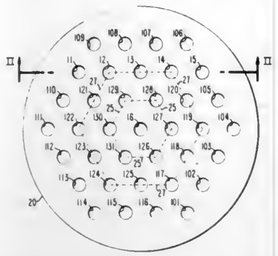
4,270,135

HIGH-FREQUENCY PHOTOTRANSISTOR OPERATED WITH MULTIPLE LIGHT SOURCES

Earl S. Schlegel, Plum Borough, and Maurice H. Hanes, Murrysville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 13, 1979, Ser. No. 103,129
Int. Cl.³ H01L *31/12*
U.S. Cl. 357—19 **9 Claims**

1. A photo-responsive semiconductor device comprising:
(1) a body of semiconductor material;
(2) a first electrode disposed on said body of semiconductor material, said first electrode having two apertures therein; and



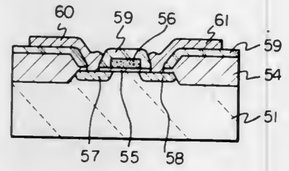
(3) means for admitting electromagnetic radiation through each aperture alternately for intermittently creating an electrical current in said body of semiconductor material.

4,270,136

MIS DEVICE HAVING A METAL AND INSULATING LAYER CONTAINING AT LEAST ONE CATION-TRAPPING ELEMENT

Nobuo Toyokura, Kawasaki; Hiroshi Tokunaga, Yokohama; Shinichi Inoue, Kawasaki; Hajime Ishikawa, Yokohama, and Masaichi Shinoda, Sagamihara, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Mar. 23, 1979, Ser. No. 23,460
Claims priority, application Japan, Mar. 25, 1978, 53/34529; Jun. 7, 1978, 53/68513
Int. Cl.³ H01L *29/78, 29/34, 23/48*
U.S. Cl. 357—23 **6 Claims**



1. A metal-insulator-semiconductor type semiconductor device comprising:
a semiconductor substrate,
an insulating layer convering a surface of said semiconductor substrate,
a metal layer comprising at least one metal element selected from the group consisting of tungsten, molybdenum, titanium, tantalum, niobium, hafnium and iron formed on said insulating layer, and
at least one cation-trapping element selected from the group consisting of boron, germanium, phosphorus, lead, tin, chromium and antimony comprised in said metal layer and in the upper part of said insulating layer.

4,270,137

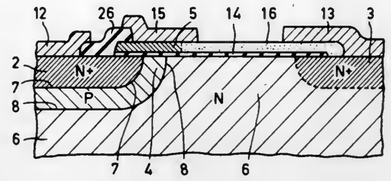
FIELD-EFFECT DEVICES

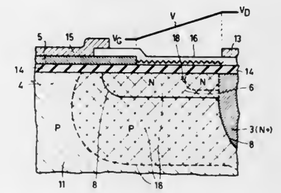
David J. Coe, Redhill; England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 15, 1978, Ser. No. 970,033
Claims priority, application United Kingdom, Dec. 15, 1977, 52209/77; Sep. 8, 1978, 36153/78
Int. Cl.³ H01L *29/78, 29/40, 27/02*
U.S. Cl. 357—53 **10 Claims**

1. A field-effect device comprising a semiconductor body in which a channel area of the device is present, a drain zone present in the body and situated adjacent the channel area, a drain electrode electrically connected to the drain zone, a gate

situated over and separated from the channel area by a barrier layer, a gate connection for biasing the gate independently of the drain electrode to control by field-effect action across the barrier layer the passage of charge-carriers along a current path through said channel area, and field-relief means connected to said gate and extending above the drain zone towards said drain electrode, said drain zone having a sufficiently low doping that during operation of the device said field-relief means serve to spread the electrostatic field which occurs in





this low-doped drain zone and to reduce at the body surface the magnitude of said field at the edge of said low-doped drain zone adjacent the channel area, characterized in that said field-relief means comprise a resistance layer which extends over the low-doped drain zone and is electrically connected between the gate and drain electrode free of a source electrode to permit during operation of the device the formation of a potential distribution along the resistance layer between the gate and drain electrode and over the current path in the underlying low-doped drain zone.

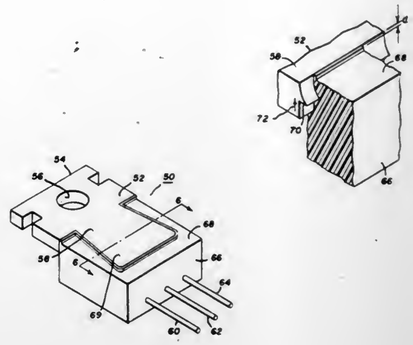
4,270,138

ENHANCED THERMAL TRANSFER PACKAGE FOR A SEMICONDUCTOR DEVICE

Richard J. Desmond, North Syracuse, N.Y., assignor to General Electric Company, Auburn, N.Y.

Filed Mar. 2, 1979, Ser. No. 17,032
Int. Cl.³ H01L *23/02, 39/02, 23/80*
U.S. Cl. 357—81 **7 Claims**

1. A semiconductor device manufacturable by molding of an encapsulating body onto an integral heat sink adapted for mounting to an external heat sink comprising:
a semiconductor element mounted in heat transfer relationship with said integral heat sink;
a peripheral burr on said integral heat sink extending away from said body for cooperating with a mold member during manufacture to keep a mounting surface of said body free from encapsulant;
an encapsulating body surrounding said semiconductor element and a portion of said integral heat sink and having a lower major surface spaced from a lower surface of said integral heat sink a distance sufficient to insure that said major surface of said encapsulating body does not interfere with an interface between said integral heat sink and an external heat sink and a narrow rim portion surrounding said burr for easy removal without removal of any substantial amount of material from said major surface.

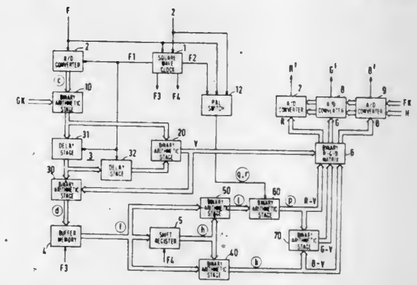


4,270,139

COLOR TELEVISION RECEIVER COMPRISING AT LEAST ONE INTEGRATED CIRCUIT FOR THE LUMINANCE SIGNAL AND THE CHROMINANCE SIGNALS

Peter M. Flamm, Freiburg, and Leslie Miskin, Gundelfingen, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 101,657
Int. Cl.³ H04N *9/50*
U.S. Cl. 358—23 **8 Claims**



1. A color-television receiver, comprising:
at least one integrated circuit for separating and conditioning the luminance signal and the chrominance signals from the composite color signal, said integrated circuit including a chrominance-subcarrier oscillator, a chrominance-subcarrier band-pass filter, a synchronous demodulator, a PAL switch, a color matrix and an R-G-B matrix, said chrominance-subcarrier oscillator is a square-wave clock generator providing four clock signals, the first of which has four times the chrominance-subcarrier frequency, and the second to fourth of which have the chrominance-subcarrier frequency, with the first and second clock signals having a mark-to-space ratio of 0.5, and the third and fourth clock signals each consisting of two consecutive, T/2-long pulses separated by T/2 within each 4T-long period (T=period of the first clock signal);

an analog-to-digital converter clocked by the first clock signal, whose analog input is presented with the composite color signal, and which forms as its output signal a parallel binary word from the amplitude of the composite color signal at those instants where the respective amplitudes of the undemodulated chrominance signal are equal to the amplitudes of the respective color-difference signal;

a first binary arithmetic stage which multiplies the output signal of the analog-to-digital converter by a binary overall-contrast control signal;

a two-stage delay line which delays the output signal of the first binary arithmetic stage by T/2;

a second binary arithmetic stage which forms the arithmetic means of the delayed and undelayed output signals of the first binary arithmetic stage;

a third binary arithmetic stage which subtracts the output signal of the second binary arithmetic stage from the output signal of the first delay stage;

a buffer-memory arrangement which temporarily stores the output signal of the third binary arithmetic stage and whose enable input is fed with the third clock signal;

a shift-register arrangement consisting of n parallel shift registers (n=number of bits at the output of the third binary arithmetic stage) each of which provides a delay of one line period and whose serial inputs are connected to the parallel outputs of the buffer-memory arrangement while their clock inputs are fed with the fourth clock signal;

a fourth binary arithmetic stage which forms the arithmetic mean of the input and output signals of the shift-register arrangement;

a fifth binary arithmetic stage which subtracts the input signal of the shift-register arrangement from the output signal of this arrangement and then divides the difference obtained by two;

a sixth binary arithmetic stage which, controlled by the PAL switch, either leaves the output signal of the fifth binary arithmetic stage unchanged or forms its absolute value; and

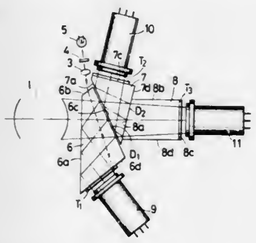
a seventh binary arithmetic stage which forms the green color-difference signal from the output signals of the fourth and sixth binary arithmetic stages, the outputs of the second, fourth, sixth and seventh binary arithmetic stages are connected to the binary R-G-B matrix, each of whose outputs is coupled to one of three digital-to-analog converters for deriving the analog signals for controlling the R-G-B values of the picture tube.

4,270,140

OPTICAL SYSTEM FOR IMPRINTING INFORMATION

Michiro Ohishi, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 22, 1979, Ser. No. 51,287
Claims priority, application Japan, Jul. 10, 1978, 53-83836
Int. Cl.³ H04N *9/04*
U.S. Cl. 358—55 **8 Claims**



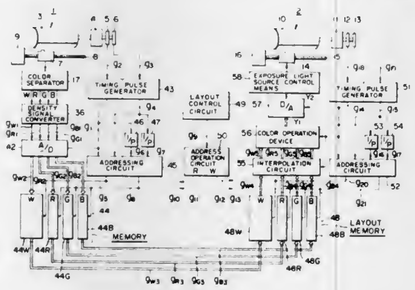
1. An optical system for a multiple image pick-up element type color television camera comprising; means forming an image of information indicia to be imprinted, a lens for projecting said image, said lens and said means forming an image of said information indicia arranged outside the path of light of a photographed image and in the vicinity of a color separation prism system, a separation prism system for said camera having at least one dichroic reflecting layer, means for applying the image of said information indicia to be imprinted as optical information to said color separation prism system, and an image pick-up element having an image forming surface; said optical information passing through said color separation prism system along an unreflected path to said image pick-up element and forming the image of said information on the image forming surface of said image pick-up element outside said color separation prism system.

4,270,141

METHOD AND MACHINE FOR REPRODUCING A COLOR PICTURE BY STORING SIGNAL STREAMS, ONE ENTIRELY, AND THE REST PARTIALLY

Takashi Sakamoto, Kyoto, Japan, assignor to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed Jul. 23, 1979, Ser. No. 59,739
Claims priority, application Japan, Aug. 4, 1978, 53-94507
Int. Cl.³ H04N *1/46*
U.S. Cl. 358—78 **16 Claims**



1. A method of reproducing a picture, which comprises:

(a) scanning a color original picture;

(b) generating an analog original picture signal;

(c) separating said analog picture signal into a plurality of n analog separation original picture signals;

(d) converting each of said n signals into a stream of digital separation original picture signals;

(e) storing all of one of said digital separation original picture signal streams in a memory;

(f) sampling each of the n−1 other digital separation original picture signal streams according to a regular pattern;

(g) storing said sampled n−1 signals in said memory;

(h) producing digital separation reproduction picture signal streams corresponding to said digital separation original picture signal streams;

(i) said producing comprising, in the case of the said one digital separation original picture signal stream, reading out said stored digital signal from said memory;

(j) said producing comprising, in the case of each of said n−1 other digital separation original picture signal streams, reading out said stored sampled digital separation original picture signals corresponding thereto from said memory;

(k) interpolating intermediate values between said stored sampled digital separation original picture signals;

(l) converting said digital separation reproduction picture signal streams to analog form; and

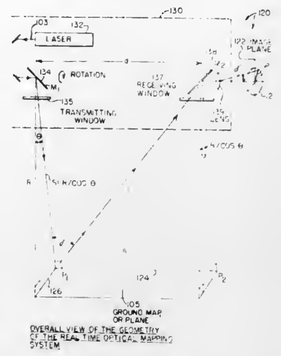
(m) using said converted signals to produce a reproduction picture.

4,270,142

ADAPTIVE SLANT RANGE COMPENSATOR FOR A REMOTE OPTICAL MAPPING SYSTEM

Gerald R. Mackelburg; Howard B. McCracken, and Peter D. McCardell, all of San Diego, Calif., assignors to The United Statets of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 18, 1978, Ser. No. 970,584
Int. Cl.³ H04N *7/18*
U.S. Cl. 358—99 **15 Claims**



OVERALL VIEW OF THE GEOMETRY OF THE REAL TIME OPTICAL MAPPING SYSTEM

1. An optical system, to be used with a light source, for mapping objects located in an underwater environment, comprising:

a first optical means, adapted to receive light from the light source, for transmitting the light produced by the light source to the object area to be mapped, thereby illuminating the area; and

a second optical means comprising:

an input means, adapted to receive reflected light from the illuminated object area, or plane;

an output means for conformally transforming, that is, conformally mapping, images of all objects in the object plane to an image plane located externally of the second optical means: and

means, disposed between the second optical means and the image plane, for masking light propagating between the optical means and the image plane, the masking means having a circular configuration; and

means adapted to receive illumination from the transforming means, for compensating for the absorption losses of the light as a function of the range to various parts of the object area.

4,270,143

CROSS-CORRELATION VIDEO TRACKER AND METHOD

Edwin E. Morris, Clinton, N.Y., assignor to General Electric Company, Utica, N.Y.

Filed Dec. 20, 1978, Ser. No. 971,197
Int. Cl.³ H04N *7/18*; G01S *13/00*
U.S. Cl. 358—125 **32 Claims**

1. A device for deriving a signal indicative of the direction and distance of movement between successive video frames, said device comprising:

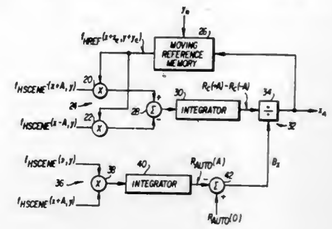
an input for receiving a video signal;

means for storing elements from a frame of the video signal to establish a reference;

means comparing elements from a subsequent frame of the video signal with the stored reference elements for generating a difference signal representing the difference between a pair of cross-correlation signals dependent on the correlations of the subsequent frame elements and the stored reference elements at two predetermined opposite relative shifts;

means for generating a gain control signal;

means responsive to the difference signal and to the gain control signal for generating an error signal indicative of



the amount of shift required to center the stored reference frame with respect to the subsequent frame; and

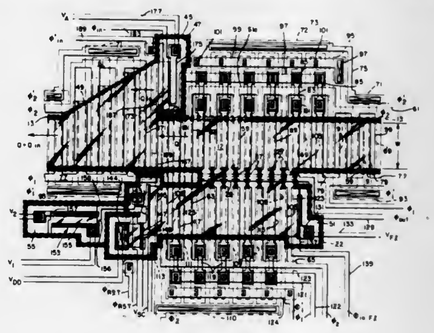
means for outputting the error signal.

4,270,144

CHARGE COUPLED DEVICE WITH HIGH SPEED INPUT AND OUTPUT

John M. Hartman, and Arthur L. Lancaster, both of Costa Mesa, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Continuation of Ser. No. 657,516, Feb. 12, 1976, which is a continuation of Ser. No. 510,108, Sep. 27, 1974. This application Jun. 3, 1977, Ser. No. 803,109
Int. Cl.³ G11C *19/28*; H01L *29/78*
U.S. Cl. 307—221 D **1 Claim**



1. In a charge-coupled device having a first linear array of electrode structures distributed over the surface of a semiconducting substrate to define, when energized, a first series of charge storage sites therein, means within said substrate defining a first charge-carrying channel within which said storage sites are distributed, and means for applying clocking signals to said electrode structures so as to step charge packets within said channel between successive ones of said storage sites. an improved readout station comprising:

(a) a second linear array of electrode structures distributed over the surface of said semiconductor substrate so as to define, when energized, a second series of charge storage sites, and means within said substrate defining a second charge carrying channel within which said second series of charge storage sites are distributed, said first and second linear arrays of electrode structures each including a series of spaced apart storage electrode members, each storage electrode member of said second series being aligned end to end with a corresponding storage electrode member of said first array;

(b) means for establishing individual connecting channels in said substrate between said first and second channels from

respective ones of said first series of storage sites to corresponding ones of said second series of storage sites, said means for establishing individual connecting channels comprising a series of doped partitions extending in said substrate from between a pair of adjacent storage electrode members in said first array of electrode structures to between a pair of adjacent storage electrode members in said second array of electrode structures;

(c) means for selectively establishing a depletion region gradient from respective ones of said first series of storage sites to corresponding ones of said second series of storage sites, such that charge flows from charge packets in the former to create output charge packets in the latter, said means for establishing a depletion region gradient including:

(1) a transfer electrode member which extends between the ends of respective pairs of aligned storage electrode members; and

(2) means for applying a voltage to said transfer electrode member between the ends of said aligned storage electrode members, the depth of the depletion region under said transfer electrode member being intermediate the depths of the depletion regions under respective members of said pairs of aligned electrodes; and

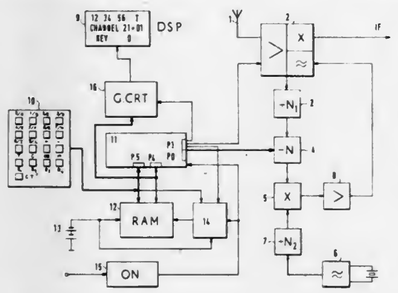
(d) means for applying clocking signals to said second array of electrode structures so as to step the output charge packets received in their associated storage sites in synchronism with the master charge packets from which they were derived, at such a rate as to cause continuing and cumulative transfer of charge from given charge packets in said first series of charge storage sites to their associated output charge packets in said second series of charge storage sites as the respective charge packet pairs pass through successive individually interconnected storage site pairs.

4,270,145

TELEVISION SET WHICH DISPLAYS ANALOG DATA RELEVANT TO THE OPERATION OF THE TELEVISION SET ON ITS VIDEO DISPLAY

Attilio Farina, Turin, Italy, assignor to Indesit Industria Elettrodomestici Italiana S.p.A., Italy

Filed May 17, 1979, Ser. No. 39,860
Claims priority, application Italy, May 22, 1978, 68163 A/78
Int. Cl.³ H04N *5/44, 5/50, 9/535*
U.S. Cl. 358—188 **11 Claims**



1. A television set, comprising:

a picture display device for displaying a video picture;

character generator means for generating signals representative of alphabetical, numerical and/or abstract characters;

said picture display device receiving said signals and displaying the alphabetical, numerical and/or abstract characters represented thereby; and

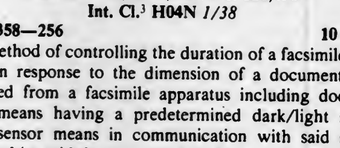
control means for determining the value of analog data, other than the tuning frequency of said television set, relating to the operation of said television set, and for causing said character generator means to generate signals representative of alphabetical, numerical and/or abstract characters which indicate said value of said analog data.

4,270,146

IDENTIFICATION INFORMATION ADDITION SYSTEM OF FACSIMILE APPARATUS

Eiichi Adachi, Atsugi, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed May 18, 1979, Ser. No. 40,142
Claims priority, application Japan, May 25, 1978, 53-61691
Int. Cl.³ H06N *1/40*
U.S. Cl. 358—256 **6 Claims**



1. An identification information addition system of a facsimile apparatus comprising:

a scanner on the transmitter side of said facsimile apparatus for scanning an original document, a plotter on the receiver side of said facsimile apparatus for scanning a recording sheet,

an identification information bearing sheet on said transmitter side which bears an identification information at a predetermined position thereof,

a memory apparatus on said transmitter side,

a memory means for storing in a memory portion of said memory apparatus corresponding to a predetermined scanning portion of said scanner said identification information which is obtained with said identification information bearing sheet scanned by said scanner,

a pick-out means for picking out said identification information stored in said memory apparatus at said predetermined scanning position of said scanner when said original document is scanned by said scanner, and

an information displacement means for displacing part of an image information which is obtained by scanning said original document, with the identification information picked up; said plotter upon reception of the scanned information from said original document and said identification information printing the exact scanned information and identification information in the same location on said recording sheet as they appear on said original document.

4,270,147

APPARATUS FOR LIMITING FACSIMILE TRANSMISSION DURATIONS

James A. Logie, Orlando; T. James Bryan, Altamonte Springs, and Arthur G. Wilson, Maitland, all of Fla., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

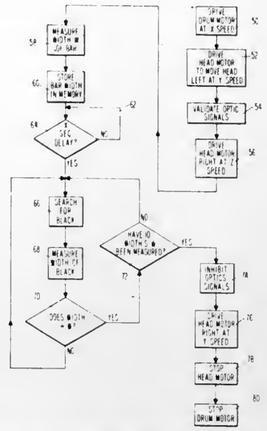
Filed Feb. 11, 1980, Ser. No. 120,490
Int. Cl.³ H04N *1/38*
U.S. Cl. 358—256 **10 Claims**

1. A method of controlling the duration of a facsimile transmission in response to the dimension of a document being transmitted from a facsimile apparatus including document support means having a predetermined dark/light surface pattern, sensor means in communication with said surface pattern and/or said document, means for scanning said sensor means relative to said support means and facsimile transmission means coupled to said sensor means for generating transmission signals representing dark/light variations on said document, said method comprising the following steps:

placing a document on said scanning means so as to expose at least a portion of said patterns;

scanning said sensor means relative to said support means;

transmitting facsimile signals representing dark/light variations on said document when said sensor means is in communication with said document;



detecting said pattern when said sensor means is in communication with said surface pattern; and

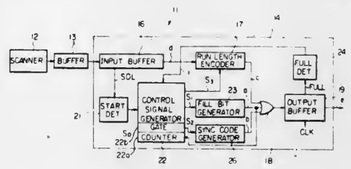
terminating said transmitting in response to said detecting.

4,270,148

FACSIMILE TRANSMISSION APPARATUS

Eiichi Adachi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jul. 11, 1979, Ser. No. 56,568
Claims priority, application Japan, Jul. 18, 1978, 53-86721
Int. Cl.³ H04N *7/12*
U.S. Cl. 358—260 **4 Claims**



1. A facsimile transmission apparatus including scanning means, compression means, input buffer means for storing two lines of data from the scanning means in such a manner as to feed out one line while storing a next line and output buffer memory means having a predetermined capacity for intermittently storing compressed data from the compression means while continuously feeding out the compressed data, characterized by comprising:

start detector means for detecting completion of storing a line of data in the input buffer means and producing a start signal in response thereto;

full detector means for detecting a full condition of the output buffer means and producing a full signal in response thereto;

fill bit generator means;

sync signal generator means; and

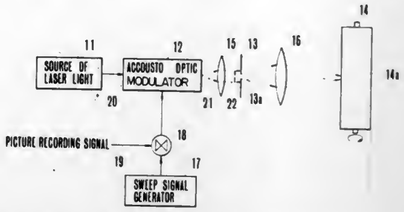
control means for controlling, in response to the start signal, the fill bit generator means to feed fill bits to the output buffer means until the full signal is generated, then controlling the sync signal generator means to feed the sync signal to the output buffer means and then controlling the compression means to feed compressed data to the output buffer means.

4,270,149

LASER BEAM FACSIMILE APPARATUS

Yoshinori Ohta; Keiichi Kubota, and Mitsuhito Sakaguchi, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Aug. 20, 1979, Ser. No. 67,788
Claims priority, application Japan, Aug. 21, 1978, 53-102062
Int. Cl.³ H04N *1/04*
U.S. Cl. 358—293 **3 Claims**



1. A laser beam facsimile apparatus comprising:

a laser light source;

an accousto-optic modulator cell disposed on the exit side of said laser light source for deflecting a laser beam emitted from said laser light source in a sub-scanning direction;

an optical system disposed on the exit side of said accousto-optic modulator cell for collimating said laser light beam;

a slit disposed on the exit side of said optical system and having an aperture larger than the diameter of the light beam deflected by said modulator cell in a predetermined direction;

an optical system for focusing a light beam passed through said aperture on a photosensitive medium;

means for scanning said deflected light beam on said photosensitive medium to produce a pattern of scan lines on said photosensitive medium;

a sweep signal generator connected to said modulator cell for scanning a light beam across said slit so that the deflected light beam runs over said aperture; and

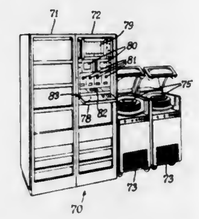
said sweep signal having a frequency sufficiently higher than the maximum frequency of a signal for producing said scan lines.

4,270,150

VIDEO FRAME STORAGE RECORDING AND REPRODUCING APPARATUS

Joachim P. Diermann, and Thomas W. Ritchey, Jr., both of Palo Alto, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Jan. 28, 1977, Ser. No. 763,371
Int. Cl.³ H04N *5/79*
U.S. Cl. 360—10 **25 Claims**



1. Apparatus for simultaneously recording on magnetic media a plurality of digital component signals, which comprise the digital component signals of an analog information signal, and for later simultaneously reproducing said component signals therefrom, said apparatus being adapted for use in a television studio which has a station reference video information signal source comprising:

disc drive means for holding and rotatably driving a remov-

able disc means at a constant predetermined rotational speed;

said disc drive means including carriage means carrying a plurality of transducing means for recording on and reproducing from one of two sets of recording surfaces, each set having a plurality of said surfaces, a transducing means being provided for each of said surfaces;

disc means removably mounted upon said disc drive means and having a plurality of substantially flat, circular discs having said two sets of magnetically recordable surfaces, there being a transducing means associated with each of said surfaces;

signal processing means including channel processing means for each digital component signal for applying each of said plurality of digital component signals to one of said transducing means associated with each of two sets of recording surfaces whereby each of said plurality of digital component signals is simultaneously recorded on one set of said surfaces, and for simultaneously reproducing said digital component signals from said set of separate surfaces and aligning the component signals so that they can be combined to reconstruct the information signal, said signal processing means including means for synchronizing all of said channel processing means to said information signal during recording and to said separate reference video information signal during reproducing; and,

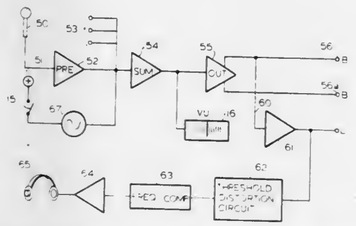
control means for controlling the operation of said disc drive means and said signal processing means, said control means including at least one operator control panel having a plurality of control keys thereon for controlling the selective recording and reproducing by said apparatus.

4,270,151

MICROPHONE MIXER WITH PREDISTORTION INDICATION

Dieter Steinmaier, 12231 Roscoe Blvd., Sun Valley, Calif. 91352

Filed Oct. 10, 1978, Ser. No. 950,234
Int. Cl.[3] G11B *27/36*
U.S. Cl. 360—31 **4 Claims**



1. A control circuit for minimizing distortion in a recorded or reproduced audio signal comprising:

means defining a signal channel including input terminals for receiving an audio signal to be recorded or reproduced and output terminals therefor,

said signal channel defining means including a preamplifier for audio input signals and an output stage for producing an output of audio signals to said output terminals;

means defining a control channel coupled to said signal channel including means for continuously monitoring said audio signal,

said control channel including a distortion circuit for selectively introducing distortion into the monitored audio signal in said control channel,

audio output means for use by the user of the equipment connected to the output of said distortion circuit,

said distortion circuit having a predetermined threshold below which input signals thereto pass virtually undistorted and above which are audibly distorted simulating distortion in the audio signal if recorded or reproduced under present conditions,

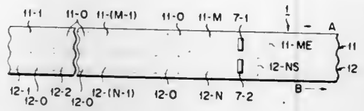
said threshold corresponding to a fixed level differential with respect to the distortion level of said signal channel.

4,270,152

MAGNETIC TAPE REPRODUCTION DEVICE

Masatoshi Ida, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 5, 1979, Ser. No. 1,189
Claims priority, application Japan, Jan. 13, 1978, 53-3189
Int. Cl.[3] G11B *15/12*
U.S. Cl. 360—74.4 **7 Claims**



1. A magnetic tape reproduction device comprising:

tape driving means for driving a magnetic tape having a plurality of recording tracks,

reproducing means for reproducing information recorded in the magnetic tape,

detecting means which produces a first output signal when having detected that an output signal corresponding to a non-signal region of a first recording tract of the tape continues to be produced for a specified period of time from said reproducing means while the tape is driven in first direction for signals recorded on the first track to be reproduced by said reproducing means, and which produces a second output signal when having detected that an output signal corresponding to a non-signal region of a second track of the tape continues to be produced for a specified period of time from said reproducing means while the tape is driven in said first direction.

first control means responsive to the first output signal from the detecting means for supplying an output signal to set the reproducing means in a first operation mode to pick information recorded on the second recording track, and

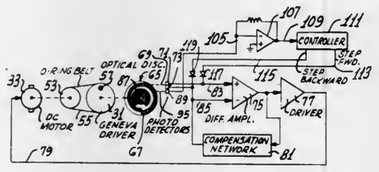
second control means responsive to the second output signal from the detecting means for applying its output signal to the driving circuit to drive the tape in a second direction opposite to said first direction.

4,270,153

OPTICAL CONTROL SYSTEM FOR TRANSDUCER POSITIONING APPARATUS

Abraham Bejerano, Costa Mesa; George J. Bennett, Huntington Beach, and Harold E. Arns, Chino, all of Calif., assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 52,738
Int. Cl.[3] G11B *21/08*
U.S. Cl. 360—78 **16 Claims**



1. An optical control system for use with apparatus having rotatable means for positioning a transducer head in a prescribed relationship relative to a selected track on a recording medium, said system comprising:

an optical disc coupled to said rotatable means and rotatably movable in correspondence therewith, said optical disc having a track for transmitting a beam of light in accordance with the angular position of the disc;

means for directing a beam of light at the track of said optical disc;

photodetector means, responsive to the beam of light transmitted by the track of said optical disc, for producing an error signal indicative of the angular position of said optical disc and, correspondingly, the angular position of said rotatable means; and

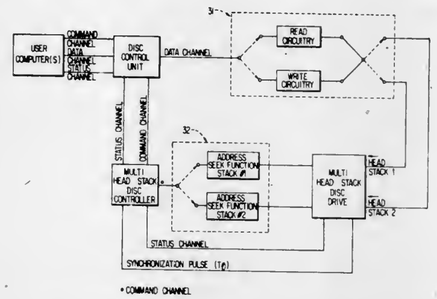
motor means responsive to the error signal for controllably rotating said rotatable means, to position the transducer head in the prescribed relationship relative to the selected track.

4,270,154

HEAD SELECTION TECHNIQUE

John E. Crawford, 4805 Coopers La., Hyattsville, Md. 20784

Continuation of Ser. No. 882,324, Mar. 1, 1978, abandoned. This application May 24, 1979, Ser. No. 42,201
Int. Cl.[3] G11B *5/012, 15/12*
U.S. Cl. 360—98 **6 Claims**



1. In a magnetic disc imformation storage system in which a plurality of concentric information tracks on a rotating magnetic disc storage unit are each accessible by at least two radially movable magnetic read/write heads circumferentially spaced from one another, a method for selecting one of said at least two magnetic heads to perform a read or write operation on a predetermined sector of a predetermined information track in response to a command signal, comprising the steps of:

(a) determining a candidate magnetic head in response to the instantaneous position of the predetermined sector relative to the magnetic heads;

(b) calculating the time it will take the candidate head to traverse from its instantaneous radial position to the radial position of the predetermined information track;

(c) selecting the candidate head as the magnetic head to perform the read or write operation if the candidate head is capable of reaching the radial position of the predetermined information track prior to the time the predetermined sector passes the candidate head on the first revolution of the storage disc after receipt of the command signal;

(d) selecting another magnetic head as the head to perform the read or write operation if said other head is capable of reaching the radial position of the predetermined information track prior to the time said predetermined sector passes the other head on the first revolution of the storage disc and if the candidate head cannot reach the predetermined information track prior to the time the predetermined sector passes the candidate head on the first revolution of the storage disc; and

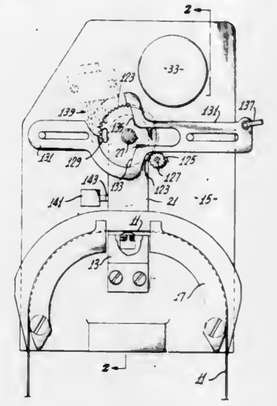
(e) selecting the magnetic head which is first able to reach the radial position of the predetermined information track prior to the time the predetermined sector passes it on a subsequent rotation of the storage disc as the head to perform the read or write operation if neither magnetic head is capable of reaching the radial position of the predetermined information track on the first revolution of the storage disc.

4,270,155

TRANSDUCER POSITIONING APPARATUS

Abraham Bejerano, Costa Mesa, Calif., assignor to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 52,739
Int. Cl.[3] G11B *21/08, 21/12, 21/24, 5/56*
U.S. Cl. 360—106 **9 Claims**



1. Apparatus for positioning a transducer head in a prescribed relationship relative to a selected track on a recording medium such that information can be recorded on, or recovered from, the selected track, said apparatus comprising:

a frame;

a lead screw mounted for rotation on said frame;

means for supporting said transducer head, said means being threadedly coupled to said lead screw;

a geneva wheel coupled to said lead screw; and

a geneva driver, engagable with said geneva wheel, for controllably rotating said geneva wheel and thereby rotating said lead screw in a prescribed fashion, to controllably move said supporting means, and thereby position said transducer head in the prescribed relationship relative to the selected track on the recording medium.

4,270,156

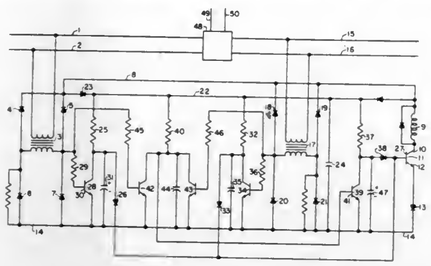
ELECTRONIC SYNCHRONIZATION MONITOR

Warren C. Fry, Connellsville, Pa., assignor to General Equipment & Mfg. Co., Inc., Louisville, Ky.

Filed Apr. 9, 1979, Ser. No. 28,559
Int. Cl.[3] H02H *3/36*
U.S. Cl. 361—21 **3 Claims**

1. An electronic power line synchronization monitor comprising, in combination, a first rectifier connected to a first of two power lines being monitored, a second rectifier connected to a second of two power lines being monitored, a first electronic switch that is conductive during alternate half cycles of the voltage on the first power line, a second electronic switch that is conductive during alternate half cycles of the voltage on the second power line, a condenser that is connected through a resistor to said rectifiers, said electronic switches being con-

nected to and arranged to discharge said condenser when conductive, and indicating means powered by said rectifiers



and connected to said condenser for indicating a rise in voltage on said condenser.

4,270,157

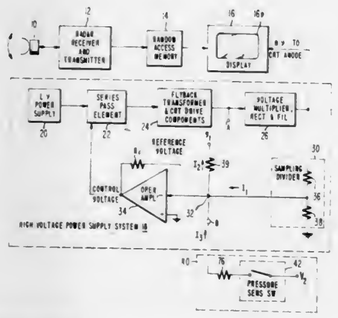
POWER SUPPLY PROTECTION CIRCUIT

Charles A. Clark, Jr., Chatsworth, Calif., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 849,399, Nov. 7, 1977, abandoned. This application May 11, 1979, Ser. No. 38,079

Int. Cl.³ H02H *7/04*

U.S. Cl. 361—35 **7 Claims**



1. In combination:

a power supply having an output signal and being of the type which includes feedback means to maintain said output signal at a preselected value;

means responsive to an environmental parameter attaining a preselected value for providing a command signal; and

means coupled to said feedback means and responsive to said command signal for providing to said feedback means a signal for altering said output signal from said preselected value so long as said command signal is present;

said feedback means including a summing node and means to apply to said summing node:

a. a signal of one polarity and of magnitude corresponding to the value of said output signal;

b. a reference signal of polarity opposite that of said one polarity and of magnitude equal to that of said signal of one polarity when said output signal is at said preselected value; and

c. said altering signal having the same polarity as said first signal.

4,270,158

SYSTEM OF PROTECTION AGAINST SHORT CIRCUITS AND FULMINATIONS

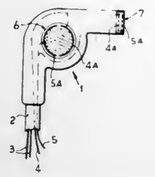
Giovanni Gilardoni, and Sergio Gilardoni, both of Lodi, Italy, assignors to Antonino Ravida and Regina Carla Ezzevalli Ravida, both of Lodi, Italy

Filed Oct. 25, 1978, Ser. No. 954,451

Claims priority, application Italy, Nov. 3, 1977, 29305 A/77

Int. Cl.³ H02H *3/16*

U.S. Cl. 361—42 **12 Claims**



1. Electronically fed apparatus protected against electric current short circuits, comprising a case defining openings therein and containing an electrical operating unit, a multiconductor feeding cable for a main feeding line connected to said operating unit, a two-conductor auxiliary elecrical line, connecting means for connecting said operating unit to a socket through said feeding cable, a pair of reciprocally spaced and electrically insulated wire nets screening each opening of the case, said auxiliary electrical line having each conductor connected to one of said wire nets, a switch connected to said main feeding line to disconnect each of the conductors of at least the main feeding line, a relay for holding said switch in a switched on position, a low tension auxiliary source consisting of a transformer means fed by said main feeding line downstream of said switch from a current supplied by said switch and an electronic cooperating circuit, said auxiliary source feeding said auxiliary electrical line and said relay through said electronic cooperating circuit, said electronic cooperating circuit being controlled by a short-circuit signal coming from said auxiliary electrical line for interrupting an electric current through said relay whereby said switch opens disconnecting the operating unit and auxiliary source from a source of voltage.

4,270,159

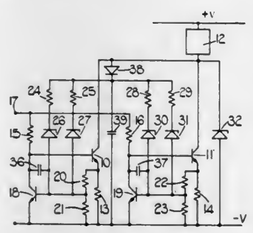
TRANSISTOR PROTECTION CIRCUITS

Allan S. Buckle, Kenilworth, England, assignor to Lucas Industries Limited, Birmingham, England

Filed May 1, 1979, Ser. No. 35,262

Int. Cl.³ H02H *3/38*

U.S. Cl. 361—79 **11 Claims**



1. A transistor circuit comprising a power supply rail, a return rail, a load terminal for connection by a load to the supply rail, first and second power transistors having their collector-emitter paths in parallel between the load terminal and the return rail so as to share between them a load current, first and second means sensitive to the current carried by the first and second power transistors, respectively, and operating to limit the current in each power transistor, means sensitive to the voltage across the collector-emitter paths of the power transistors and connected to vary the current limit in accordance with said voltage, said voltage circuits each including a zener diode and a resistor, a diode having one pole connected to the load terminal, and a capacitor connecting the other pole of said capacitor to the return rail, the first and second series circuits being connected between said other pole of the diode and the respective current sensitive means.

4,270,160

LIGHTNING RESISTIVE DEVICE IN AERIAL POWER TRANSMISSION SYSTEM

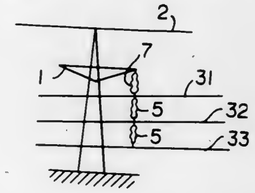
Nobuo Nagai, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 16, 1979, Ser. No. 21,175

Claims priority, application Japan, Mar. 17, 1978, 53-31294

Int. Cl.³ H02H *9/04*

U.S. Cl. 361—132 **4 Claims**



1. A power transmission system including lightning resistive means, comprising:

at least one steel tower;

at least three power transmission cable means conducting three current phases;

a first lightning resistive means connected between each said at least one steel tower and one of said power transmission cable means, said lightning resistive means supporting said one of said power transmission cable means; and

additional lightning resistive means serially connecting the remainder of said power transmission cable means to one another and to said first power transmission cable means in a vertically suspended array, for supporting said remainder,

wherein at least said additional lightning resistive means comprises an insulator and a lightning arrester including a nonlinear resistor having as a main component zinc-oxide sintered at high temperature.

4,270,161

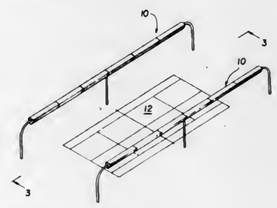
LIGHTING APPARATUS

Michael L. Perretta, Manlius, N.Y., assignor to Crouse-Hinds Company, Syracuse, N.Y.

Filed Jun. 8, 1979, Ser. No. 47,266

Int. Cl.³ F21V *21/00*

U.S. Cl. 362—249 **11 Claims**



1. Lighting apparatus comprising:

an elongated beam of light reflective material and of substantially polygonal cross section,

lighting means mounted on the exterior of said beam, and means connected to said beam for supporting it in an elevated, substantially horizontally extending position.

4,270,162

BEACON LAMP

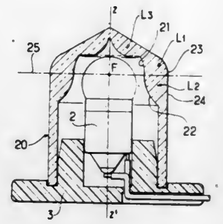
Dominique Cherouge, Le Vaudreuil Ville Nonvelle, France, assignor to Compagnie Industrielle des Piles Electriques "Cipel", Levallois-Perret, France

Filed Apr. 13, 1979, Ser. No. 30,052

Claims priority, application France, Apr. 24, 1978, 78 12031

Int. Cl.³ F21V *5/04*

U.S. Cl. 362—311 **5 Claims**



1. A beacon lamp including substantially point source of light located at a point F and a transparent cap enclosing the light source, the cap including an annular lens disposed around an axis zz' passing through the point F, the lens being adapted to refract light from the light source to form a beam substantially parallel to and including a plane perpendicular to the axis zz' and passing through the point F, the cap having a closed end located on one side of said plane and an open end located on the other side of said plane, wherein the annular lens comprises a first zone (L_1) and a second zone (L_2) located on said one and said other sides, respectively, of the plane, said first and said second zones being contiguous, the inside surfaces and outside surfaces of the zones being defined in terms of their cross-sectional profiles in a plane including the axis zz', as follows:

the cross-sectional profile of the inside surface of the first zone is a line, the distance of which from the axis zz' decreases with increasing distance from said plane;

the cross-sectional profile of the inside surface of the second zone is a line curved to be convex towards the axis zz', and the distance of which from the axis zz' increases with increasing distance from said plane;

the cross-sectional profile of the outside surface of the first zone is a line curved to be convex away from the axis zz'; and

the cross-sectional profile of the outside surface of the second zone is a line, the distance of which from the axis zz' does not decrease with increasing distance from said plane, such that the cross-sectional profiles of said inner and outer surfaces have no reentrant portions, so that any line parallel to the axis zz' intersects either profile no more than once, whereby the cap is adapted to be molded between a single inner male die and a single outer female die.

4,270,163

BRIDGE CONVERTER CIRCUIT

Richard H. Baker, Bedford, Mass., assignor to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 944,608, Sep. 21, 1978, abandoned. This application Aug. 2, 1979, Ser. No. 63,347

Int. Cl.³ H02M *7/537*

U.S. Cl. 363—43 **21 Claims**

1. A bridge converter circuit, comprising:

a first operating voltage terminal for receiving +E volts;

a second operating voltage terminal for receiving −E volts;

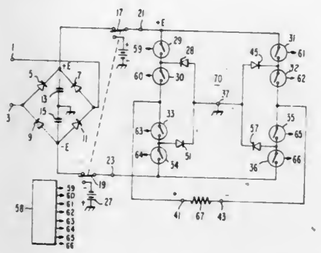
a reference voltage terminal for receiving a reference potential;

first and second output terminals for connection to a load therebetween;

first and second banks of switches located in diagonally opposing arms of said bridge converter, each bank having first, second, and third terminals, their first terminals being individually connected to said first and second operating voltage terminals, respectively, and their second terminals being individually connected to said first and second output terminals, respectively;

first diode means having an anode electrode connected to said reference voltage terminal, and a cathode electrode connected to the third terminal of and in combination with said first bank of switches forming a gated unidirectional current path; and

second diode means having a cathode electrode connected to said reference voltage terminal, and an anode electrode



connected to the third terminal of and in combination with said second bank of switches forming a gated unidirectional current path;

said first and second banks of switches each being operable to a first condition for electrically connecting their respective second and third terminals together, to a second condition for electrically connecting their respective first, second and third terminals, together, said first and second banks of switches being concurrently operable to their first conditions for producing zero volts across said load, to their second and first conditions, respectively, for producing +E volts across said load, and to their second conditions for producing +2E volts across said load, whereby said first and second banks of switches are repetitively operable through a given sequence of the latter three combinations of their respective conditions, for producing a predetermined half-wave positive polarity AC voltage waveform across said load.

4,270,164

SHORT CIRCUIT PROTECTION FOR SWITCHING TYPE POWER PROCESSORS

Kenneth R. Wyman, and Gerard A. Gallagher, both of Pittsburgh, Pa., assignors to Contraves Goerz Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1979, Ser. No. 16,187
Int. Cl.³ H02M *7/122*
U.S. Cl. 363—56 **12 Claims**

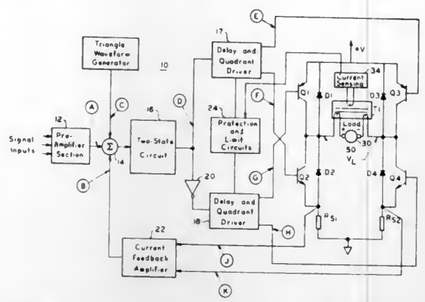
1. A servo controller having a switching output supplying an inductive load having protection against a short circuit current comprising:

a bridge connected output section;

first and second windings connected in series with the load connected to the output of the bridge connected output section;

a third winding inductively coupled to said first and second windings to provide an output representative of the rate of current change in the first or second windings;

a threshold detector connected to said third winding to provide a signal when the voltage induced in the third winding exceeds a predetermined value; and,



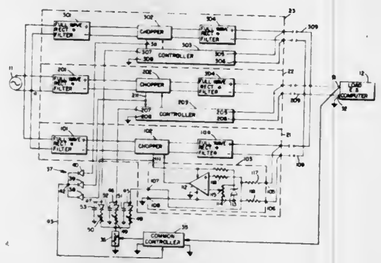
control means responsive to said threshold detector for turning off said bridge connected output section.

4,270,165

CONTROLLER FOR D.C. CURRENT SUPPLIED BY A PLURALITY OF PARALLEL POWER SUPPLIES

Ronnie L. Carpenter, San Diego, and Frank Cathell, Chula Vista, both of Calif., assignors to Qualidyne Systems, Inc., Chula Vista, Calif.

Filed Apr. 24, 1979, Ser. No. 32,857
Int. Cl.³ H02M *3/24*
U.S. Cl. 363—65 **25 Claims**



1. In combination,

I. a plurality of power supplies, $P_1 \ldots P_k \ldots P_n$, where n is an integer greater than 1 and k is selectively 1 . . . n, supply P_k being responsive to an a.c. source and supplying a d.c. current to a common d.c. load for the power supplies; supply P_k including:

(1) power output terminal means connected to supply the d.c. current to the d.c. load;

(2) a controller for the amplitude of the d.c. current supplied by the power output terminal means of power supply P_k to the load, said controller including:

(i) remote sense input terminal means across which a d.c. input voltage for the controller is derived;

(ii) d.c. impedance means connected in series with the power output terminals of power supply P_k;

(iii) a first source of d.c. reference voltage;

(iv) a first comparison circuit connected to be responsive to the first reference voltage and the voltage across the remote sense input terminal means of supply P_k for deriving a first error signal having a magnitude indicative of the deviation of the first reference voltage from the voltage across the remote sense terminal means of supply P_k; and

(v) means responsive to the first error signal for controlling the amplitude of the d.c. current supplied by power supply P_k to the load;

II. a second source of d.c. reference voltage;

III. a second comparison circuit connected to be responsive to the d.c. voltage across the load and the voltage of the second source for deriving a second error signal indicative of the deviation of the second reference voltage from the d.c. load voltage; and

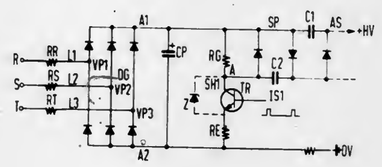
IV. a variable d.c. impedance connected so its value is responsive to the amplitude of the second error signal, said variable impedance having terminals connected in parallel across the sense input terminal means of the controllers of power supplies $P_1 \ldots P_k \ldots P_n$, whereby a voltage is developed across the remote sense input terminal means of the controller for supply P_k in response to the current flowing to the remote sense terminal means of the controller for supply P_k from the load terminal means of supply P_k and the variable impedance, said developed voltage causing the current supplied by power supply P_k to the load to be approximately equal to the current supplied by each of power supplies $P_1 \ldots P_n$.

4,270,166

CIRCUIT ARRANGEMENT FOR PRODUCING A REGULATED HIGH DC VOLTAGE FROM A THREE-PHASE CURRENT

Josef Immler, Puchheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,380
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809275
Int. Cl.³ H02P *13/24*
U.S. Cl. 363—89 **10 Claims**



1. A circuit arrangement for producing a regulated high dc voltage from three-phase current, comprising:

a three-phase current bridge rectifier including three connection points and a high voltage output;

a control circuit including a transistor having a collector-emitter path connected in parallel with said bridge rectifier and a base for receiving a pulse-shaped ac control current, and an impedance connected between said three-phase current bridge rectifier and said transistor; and

first, second and third resistors, each of said resistors connected to a respective connection point and adapted for connection to a respective phase of a three-phase supply.

4,270,167

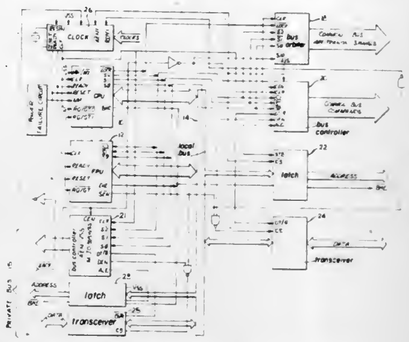
APPARATUS AND METHOD FOR COOPERATIVE AND CONCURRENT COPROCESSING OF DIGITAL INFORMATION

Robert J. Koehler, Cupertino, Calif., and John A. Bayliss, Portland, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jun. 30, 1978, Ser. No. 921,082
Int. Cl.³ G06F *15/16*
U.S. Cl. 364—200 **21 Claims**

1. A circuit for providing arbitration of a bus between a first and second processor mutually coupled to a bus, each processor being arranged and configured to execute at least one predetermined type of instruction not entirely executable by the other processor, wherein said first processor fetches all instructions and wherein said second processor detects at least one predetermined type of instruction executable therein, said circuit comprising:

first bidirectional means in said first processor for receiving a bus request signal indicative of a request from said second processor to said first processor for access and control of said bus, for selectively generating a bus grant signal indicative of release by said first processor of access and control of said bus, and for receiving a bus release signal indicative of a release by said second processor to said first processor of access and control of said bus;



second bidirectional means in said second processor for selectively generating said bus request signal in response to said second processor having detected said one predetermined type of instruction executable in said second processor, for receiving said bus grant signal, and for selectively generating said bus release signal;

wherein said first processor includes a means for transmitting a plurality of status signals indicative of the type of transfer cycle being performed by said first processor; and

whereby a plurality of instructions may be cooperatively processed in a concurrent manner in said first and second processors.

4,270,168

SELECTIVE DISABLEMENT IN FAIL-OPERATIONAL, FAIL-SAFE MULTI-COMPUTER CONTROL SYSTEM

Richard D. Murphy, Monroe, and Douglas H. Clelford, Shelton, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Aug. 31, 1978, Ser. No. 938,583
Int. Cl.³ G06F *11/00, 11/08, 15/16*
U.S. Cl. 364—200 **5 Claims**

1. A selective disablement, fail-operational, and fail-safe multi-computer process control system, comprising:

a plurality of computer systems;

a data connection between each computer and at least one other one of said computers;

each of said computer system comprising:

a plurality of outputs for controlling related functions of said process;

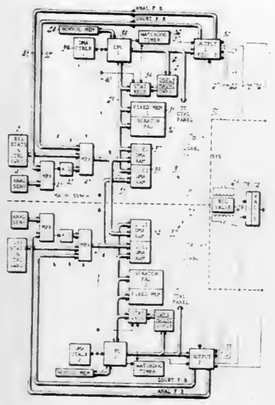
a plurality of inputs providing data manifestations related to the control of said process;

a data link connected to said data connection for providing data communication with another of said computer systems;

a disable connection between it and said another computer system; and

program controlled means for providing a plurality of self tests including bit by bit tests of at least a portion of the memory related to an important portion of said process and providing a test fault manifestation in response to any

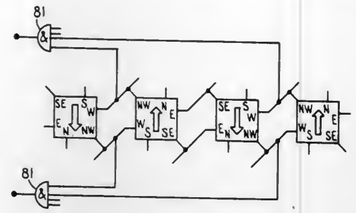
of said self tests failing, reading in of data from said inputs and calculating results manifestations, receiving calculation result manifestations across said data link from said another computer system, comparing the calculation result manifestations of both computer systems and, in response to comparison thereof, providing said calculation result manifestation to said outputs, or alternatively providing an error manifestation if the two calculation result manifestations do not compare, disabling said computer system in response to one or more of said self test fault manifestations, providing a manifestation over said data link to indicate to said another computer system the fact of said computer system being disabled, registering the fact



of said another computer system being disabled if provided thereto over said data link, by-passing the portion of said program for comparing calculations with said another computer system in response to a registered manifestation indicating that said another computer system has disabled itself, and forcing a disabled status in said computer system and said another computer system via said disable connection in response to said error manifestation concurrently with the absence of a registered manifestation indicating that said another computer system has disabled itself, whereby, if one computer system senses disagreement with another nondisabled computer system, such one computer system will disable itself and such another computer system.

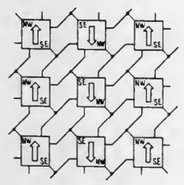
4,270,169
ARRAY PROCESSOR
David J. Hunt, Hitchin, and Stewart F. Reddaway, Baldock, both of England, assignors to International Computers Limited, London, England
Filed Mar. 15, 1979, Ser. No. 20,802
Claims priority, application United Kingdom, May 3, 1978, 17404/78
Int. Cl.³ G06F *15/16*
U.S. Cl. 364—200 **2 Claims**

1. An array processor comprising
(a) a plurality of identical processing modules in rows and columns to form a two-dimensional rectangular array;
(b) each module having a first set of terminals along a first edge of said module and a second set of terminals along a second edge of said module, said second edge being parallel to said first edge, said second set of terminals transferring signals which are functionally different from the signal transferred by said first set;
(c) each module comprising means for producing response signals and means for coupling said response signals internally of the module to terminals of said first set of terminals;
(d) the modules of alternate columns being rotated 180° with respect to each other so that the first sets of terminals of adjacent modules in the same row are opposite each other and also the second sets of terminals of adjacent modules in same row are opposite each other;
(e) the mutually opposite terminals being connected together;



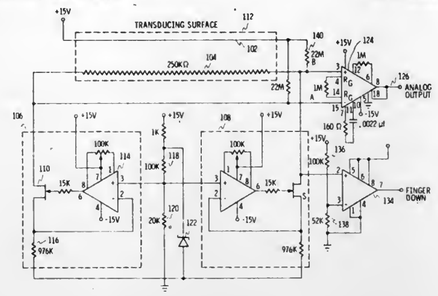
(f) a plurality of gates; and
(g) means for connecting each gate to a plurality of the interconnected mutually opposite pairs of terminals of the first sets of terminal whereby the outputs of the gates are the overall response signals.

4,270,170
ARRAY PROCESSOR
Stewart F. Reddaway, Baldock, England, assignor to International Computers Limited, London, England
Filed Mar. 15, 1979, Ser. No. 20,912
Claims priority, application United Kingdom, May 3, 1978, 17403/78
Int. Cl.³ G06F *15/16*
U.S. Cl. 364—200 **2 Claims**



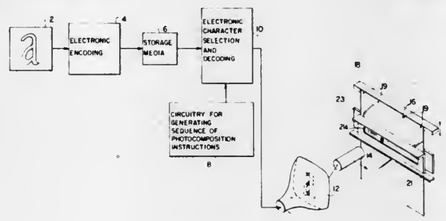
1. An array processor comprising a plurality of integrated circuit chips arranged in rows and columns in a two-dimensional rectangular array, each chip containing a two-dimensional sub-array of processing elements arranged in rows and columns, and each chip having a plurality of diagonal and non-diagonal connection pins, the processing elements along each edge of the sub-array of at least one of the chips being connected by way of said connection pins to the elements along the edge of the sub-array of a neighboring chip, the processing elements in each corner of the sub-array thus having two such connections to two different nearest neighboring chips, wherein the two connections to the element in one corner of the sub-array share a single one of said diagonal pins which is connected to the nearest non-diagonal pin on each of the two neighboring chips nearest that diagonal pin, and similarly the two connections to the element in the diagonally opposite corner of the sub-array share another single one of said diagonal pins which is connected to the nearest non-diagonal pin on each of the two neighboring chips nearest that diagonal pin.

4,270,171
POSITION SENSING AND INDICATING DEVICE
James A. Maples, 876 Colorado Ave., Palo Alto, Calif. 94303, and Robert B. Pepper, Box 277, Bolinas, Calif. 94924
Filed Mar. 7, 1979, Ser. No. 18,411
Int. Cl.³ H05B *39/00*
U.S. Cl. 364—480 **31 Claims**



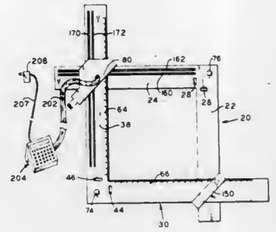
1. A level controlling device comprising:
position sensing transducer means having an elongated transducing surface for detecting the presence and position of an operator's finger on the tranducing surface; and
circuit means connected to the transducer means for producing a first signal representative of the fact that an operator's finger is present on the transducing surface and a second signal representative of the position of the operator's finger on the transducing surface for controlling the level of a utilization device.

4,270,172
ULTRAHIGH RESOLUTION PHOTOCOMPOSITION SYSTEM EMPLOYING ELECTRONIC CHARACTER GENERATION FROM MAGNETICALLY STORED DATA
James A. Tidd, Northbrook, and Miles H. Tidd, Deerfield, both of Ill., assignors to Alphatype Corporation, Niles, Ill.
Filed Sep. 15, 1978, Ser. No. 942,893
Int. Cl.³ G06F *15/20, 3/153*
U.S. Cl. 364—523 **61 Claims**



1. A method for forming a magnetic font disc upon which alphabet character designs are recorded by coded binary signals stored by magnetically altering a plurality of ordered storage cells permitting retrieval of the signals to enable an electronic display to generate successive optical character images as selectively desired, comprising the steps of
(a) scanning an optical image of a character design having at least one closed boundary contour in a predetermined line scanning pattern relative to a predetermined reference;
(b) generating in succession coordinate signals representative of the coordinates of boundary points defined by the intersection of the boundary contour of the character design with the line scanning pattern;
(c) converting the coordinate signals into successive encoded binary signals describing successive end to end translational paths between successive plural boundary points selected from a set of possible translational paths to best approximate the boundary contour by starting at a first boundary point and continuing around the entire boundary contour in successive ordered steps different from the order in which the coordinate signals are generated in step (b) until the first boundary point is again reached; and
(d) storing all of the encoded binary signals for a single character design in successive storage cells of the magnetic font disc in an order corresponding to the order of the successive end to end translational paths.

4,270,173
ELECTRONIC SCALER
Henry G. Suttler, 61 Sparks St., Cambridge, Mass. 02138
Filed Oct. 5, 1979, Ser. No. 82,038
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—523 **35 Claims**



1. An electronic photoscaler comprising:
a first framing arm including two adjacent straight cursor means which are substantially perpendicular;
a second framing arm having two adjacent straight cursor means which are substantially perpendicular,
means adjustably connecting said first and second arms together in overlapping arrangement to enclose a rectangular area of adjustable size bordered by said cursor means, said arms being movable relative to each other along orthogonal directions parallel to said cursor means,
detector means associated with said arms for detecting the degree of relative displacement between said arms along each of said orthogonal directions and providing an output signal quantitatively corresponding to said degree of displacement, and
electronic calculator means connected to said detector means and having an input connected to said output signal and having a display, said calculator means being responsive to said output signal for storing data corresponding to an initial relative position of said arms and data corresponding to a final relative position of said arms, and providing an indication associated with said display corresponding to the ratio of the areas enclosed by said cursor means in the initial and final positions, respectively, whereby an indication is made of the degree of enlargement or reduction between the respective areas.

4,270,174
REMOTE SITE ENGINE TEST TECHNIQUES
Richard A. Karlin, Chicago, and Carl J. Koskinen, Barrington, both of Ill., assignors to Sun Electric Corporation, Crystal Lake, Ill.
Filed Feb. 5, 1979, Ser. No. 9,258
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—551 **23 Claims**

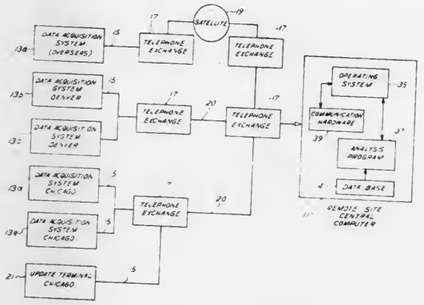
1. Apparatus for analyzing a first internal combustion engine located at a first site and a second internal combustion engine located at a second site displaced from the first site comprising:
first data acquisition means located at the first site for generating, displaying and storing first condition data quantitatively defining a plurality of conditions of the first engine

and for displaying first diagnostic data resulting from analysis of the first condition data based on first program instructions;

second data acquisition means located at the second site for generating, displaying and storing second condition data quantitatively defining a plurality of conditions of the second engine and for displaying second diagnostic data resulting from analysis of the second condition data based on second program instructions;

data processor means located at a third site displaced from the first and second sites for storing a data base defining engine condition specifications and for analyzing the first and second condition data by means of the data base in order to generate the first diagnostic data representing a diagnostic evaluation of the first engine and the second diagnostic data representing a diagnostic evaluation of the second engine;

first memory means located at the first site and dedicated to the storage of said first program instructions independent of the data processor means;



second memory means located at the second site and dedicated to the storage of said second program instructions independent of the data processor means;

terminal means for updating the data base; and

linking means for enabling the first and second condition data to be transmitted from the first and second data acquisition means, respectively, to the data processor means, for enabling the first and second diagnostic data to be transmitted from the data processor means to the first and second data acquisition means, respectively, and for enabling the first and second diagnostic data to be stored by the first and second data acquisition means, respectively, whereby acquisition and display of condition data representing engine conditions occurs at the sites of the engines, detailed analysis of the condition data is performed by the data processor means at the third site, and the results of the analysis are displayed at the sites of the engines, so that engines at displaced sites can be analyzed in detail by means of an up-to-date data base located at a remote site.

4,270,175

APPARATUS FOR DIVIDING A SEGMENT OF VARIABLE LENGTH INTO EQUAL PARTS

Pierre Lacombe, Orleans, France, assignor to Fonderie et Ateliers des Sablons, Saint Jean-Le-Blanc, France

Filed Dec. 28, 1978, Ser. No. 973,911
Claims priority, application France, Dec. 30, 1977, 77 39839
Int. Cl.[3] G06G *7/16, 7/48;* G06J *1/00*
U.S. Cl. 364—562 **6 Claims**

1. Apparatus for dividing in equal parts, a segment of variable length by any whole number divisor characterized in that it comprises:

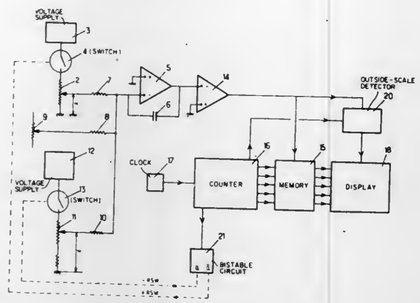
(a) means allowing the realization of said segment by a difference in distance separating a movable point and a fixed point;

(b) marking means for marking successively, when the movable point is displaced relative to the fixed point, in the interval of a segment, the successive divisions with their numeral representation in part; and

(c) means to tie the numerical marking to the movement of the movable point, relative to the fixed point, by a linear function of the first degree, in the form

$$y=ax+b$$

y being the result furnished by the marking;



a being a constant representative of the ratio between the divisor and the total length of the segment; and

x is the position of the movable point relative to the fixed point;

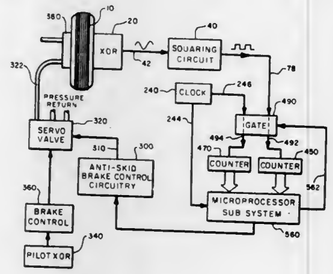
said tying means including an arrangement in which the movable point is coupled to a transducer which delivers a linearly varying voltage proportional to the displacement of said movable point, and that the voltage is directed to an analog/digital converter with a double ramp of integration operating by reference to an external reference voltage allowing said parameter a to be acted upon.

4,270,176

DIGITAL WHEEL SPEED SENSOR

Thomas Skarvada, Woodland Hills, Calif., assignor to Crane Co., Chicago, Ill.

Filed Sep. 27, 1979, Ser. No. 80,123
Int. Cl.[3] G06F *15/20;* B60T *8/00*
U.S. Cl. 364—565 **5 Claims**



4. In a brake control system including a rotatable wheel and means, responsive to the wheel, for generating a periodic wheel signal having a frequency indicative of the rotational behavior of the wheel, an apparatus for precisely measuring the time duration of one or more cycles of the wheel signal comprising:

clock means for generating a periodic clock signal;

first counter means for maintaining a count indicative of clock signal cycles;

second counter means for maintaining a count indicative of wheel signal cycles;

gating means for selectively enabling and disabling the first and second counter means, said gating means responsive both to a control signal and to the phase angle of the wheel signal, such that, when the control signal is in a first state, the first and second counter means are consistently enabled at a predetermined phase angle of the wheel signal and, when the control signal is in a second state, the first and second counter means are consistently disabled at the same predetermined phase angle of the wheel signal;

computer means, coupled to the first and second counter means and to the gating means, for generating the control signal to selectively control the gating means;

means, included in the computer means, for reading and storing the counts stored in the first and second counter means at a first time;

means, included in the computer means, for placing the control signal in the first state at a second time, subsequent to the first time, to cause the gating means to enable the first and second counter means at the next occurrence of the predetermined phase angle of the wheel signal;

means, included in the computer means, for placing the control signal in the second state at a third time, subsequent to the second time, to cause the gating means to disable the first and second counter means at the next occurrence of the predetermined phase angle of the wheel signal;

means, included in the computer means, for reading and storing the counts stored in the first and second counter means at a fourth time, subsequent to the third time and after the first and second counter means have been disabled;

means, included in the computer means, for calculating the difference between the count stored in the first counter means at the first and fourth times as a measure of elapsed time; and

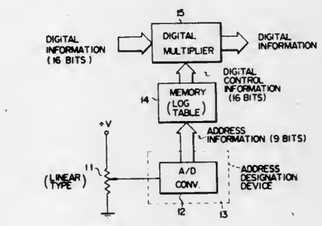
means, included in the computer means, for calculating the difference between the count stored in the second counter means at the first and fourth times as a measure of the number of wheel signal cycles occurring during the elapsed time.

4,270,177

DIGITAL AMPLITUDE CONTROL FOR DIGITAL AUDIO SIGNAL

Kenjiro Endoh; Yoshiyuki Ishizawa; Masanori Tanaka, all of Yokohama, and Koji Iwasaki, Gotenba, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 20, 1979, Ser. No. 50,215
Int. Cl.[3] H03G *3/00*
U.S. Cl. 364—571 **9 Claims**



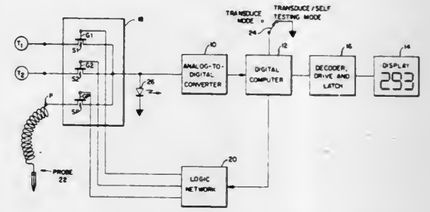
1. A digital amplitude control apparatus for a digital audio input signal comprising: a manipulatable digital signal generating means for producing a digital signal which is substantially linearly related to a manipulated variable to control the amplitude of the digital audio input signal; memory means storing a series of digital amplitude control values with predetermined amplitude changing characteristics in memory locations, and connected to receive as an address signal the digital signal from said digital signal generating means so as to read out a stored digital amplitude control value from one of said memory locations designated by the address signal; and digital multiplier means multiplying the digital audio input signal to be amplitude-controlled by the digital amplitude control value from said memory means.

4,270,178

MEASURING SYSTEM INCORPORATING SELF-TESTING PROBE CIRCUIT AND METHOD FOR CHECKING SIGNAL LEVELS AT TEST POINTS WITHIN THE SYSTEM

John E. Lillig, Diamond Bar, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Continuation of Ser. No. 816,997, Jul. 19, 1977, abandoned. This application Nov. 14, 1979, Ser. No. 94,267
Int. Cl.[3] G01R *31/00*
U.S. Cl. 364—579 **3 Claims**



1. In a system for measuring a sample parameter and including transducing means for monitoring said parameter and generating an analog signal in response thereto, an analog-to-digital converter for converting said analog signal to digital form, computer means operating on said digital signal to generate an output digital signal providing information regarding said parameter, said computer means including storage capacity for storing information regarding said parameter, and means for displaying said output digital signal, improved means for self-testing signal levels at test points within said system comprising:

a probe having a signal sensing element on one end adapted to be placed in contact with any of said test points;

an analog multiplexer having a plurality of input terminals and an output terminal, said output terminal connected to said analog-to-digital converter;

means connecting the other end of the probe to one input terminal of said analog multiplexer to supply a probe signal thereto, said probe as connected to said one input terminal being of a length enabling it to be manipulated to place the signal sensing element on said one end thereof in contact with any of said test points within said system;

means coupling said transducing means to another input terminal of said analog multiplexer to supply said transducing signal thereto;

logic means controlling said analog multiplexer to multiplex the input signals thereto and hence to supply a multiplexed signal containing both transducing and probe signal information to said analog-to-digital converter for conversion and supply to said computer means, said computer means for de-multiplexing said multiplexed signal and processing both said transducing signal and said probe signal information;

switching means connected to said computer means for switching said system to either (1) a transducing mode for measuring said parameter or to (2) a combined transducing/self-testing mode for measuring both said parameter and said test point signal levels; and

control means in said computer means and responsive to said

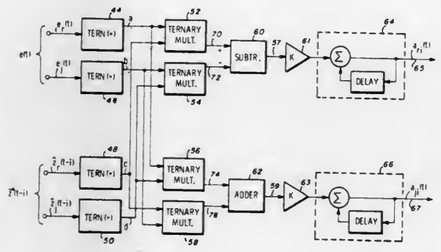
switching means for outputting said probe signal to said displaying means and for simultaneously inhibiting the outputting of said transducing signal thereto, said computer means, while said probe signal is displayed, continuing to process and store said transducing signal information for subsequent retrieval and display when said switching means returns said system to said transducing mode.

4,270,179

COMPLEX TERNARY CORRELATOR AND METHOD FOR ADAPTIVE GRADIENT COMPUTATION

Bruce M. Sifford, Los Altos, and D. Thomas Magill, Palo Alto, both of Calif., assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,226
Int. Cl.³ G06F *15/31, 15/336*
U.S. Cl. 364—724 **10 Claims**



1. A complex ternary correlator for performing a correlation operation on a first complex input signal including a first real component signal and a first imaginary component signal and a second complex input signal including a second real component signal and a second imaginary component signal, and for developing complex correlation output signals comprising:

ternary operator means responsive to said first and second real and imaginary component signals and operative to develop ternary output signals terna, ternb, ternc and ternd, respectively:

ternary multiplier means responsive to crosspairs of said ternary output signals and operative to develop cross-product output signals (terna·ternc), (ternb·ternd), (ternb·ternc), and (terna·ternd), respectively;

means for subtracting said (ternb·ternd) signal from said (terna·ternc) signal to develop a third real component signal, and means for adding said (ternb·ternc) signal to said (terna·ternd) signal to develop a third imaginary component signal; and

means for accumulating said third real and imaginary signals to develop complex correlation output signals.

4,270,180

DELAY LINE TIME COMPRESSION CORRELATION CIRCUIT

John D. Charlton, Canyon Country, Calif., assignor to The Bendix Corporation (Electrodynamics Div), N. Hollywood, Calif.

Filed Nov. 9, 1979, Ser. No. 92,823
Int. Cl.³ G06F *15/336*
U.S. Cl. 364—728 **13 Claims**

1. A delay line time compression correlation circuit utilizing a clock signal, comprising:

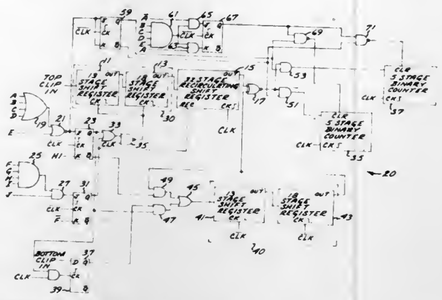
control counting means responsive to the clock signal for providing a first output indicative of correlation count and a second output indicative of beam position;

first and second storage means for sampling and storing respective input data for correlation;

first and second recirculating means for respectively receiving data from said first and second storage means, said first and second recirculating means providing respective sample outputs;

sample controlling means responsive to said control counting means for controlling the sampling and storing functions of said first and second storage means, and for controlling the transfer of data from said first and second storage means to said first and second recirculating means;

correlating means responsive to said respective sample outputs for providing a series of correlation outputs; and



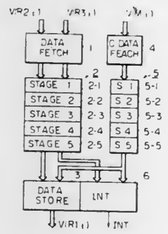
correlation counting means responsive to said control counting means and said correlation output for accumulating said correlation outputs and for providing an individual accumulation output associated with each beam position, said accumulation output being provided during the correlation of a beam position other than the beam position associated with said accumulation output.

4,270,181

DATA PROCESSING SYSTEM HAVING A HIGH SPEED PIPELINE PROCESSING ARCHITECTURE

Yoshiyuki Tanakura, Numazu, and Keiichiro Uchida, Kawasaki, both of Japan, assignors to Fujitsu Limited, Japan

Filed Aug. 29, 1979, Ser. No. 70,611
Claims priority, application Japan, Aug. 31, 1978, 53-106494
Int. Cl.³ G06F *7/38*
U.S. Cl. 364—736 **14 Claims**



1. A data processing system having a pipeline processing architecture for processing a plurality of groups of data, including a group of conditional data, and for performing a sequence of operations upon each of the plurality of groups of data except the group of conditional data, comprising:

first pipeline means, having stages, for performing the sequence of operations upon each of the plurality of groups of data except the group of conditional data and for generating an operation result; and

second pipeline means, having stages, for transmitting the group of conditional data therein, wherein the stages of said first pipeline means and the stages of said second pipeline means are equal in number and synchronized on the same time base, and wherein said second pipeline means is operatively connected to said first pipeline means,

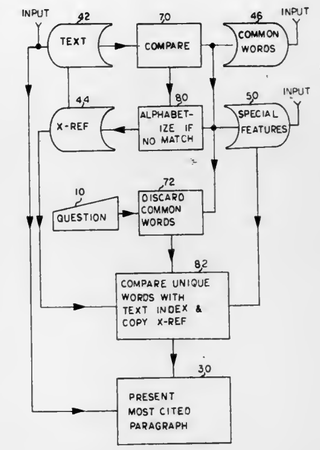
whereby the operation result of said first pipeline means is determined to be valid or invalid at the exit thereof in dependence upon the conditional data transmitted by said second pipeline means.

4,270,182

AUTOMATED INFORMATION INPUT, STORAGE, AND RETRIEVAL SYSTEM

Satya P. Asija, 1641 Cumberland St., Apt. 21, St. Paul, Minn. 55117

Filed Dec. 30, 1974, Ser. No. 537,551
Int. Cl.³ G06F *15/40*
U.S. Cl. 364—900 **17 Claims**



1. A process for information input using electromechanical devices, storage, search and output comprising the steps of:

(a) inputting textual information with full punctuation to a storage device;

(b) dividing the text into logical information units;

(c) assigning each logical unit of information a unique Logical Information Unit Number;

(d) assigning a unique storage address to each logical information unit;

(e) inputting plurality of common words such as, "I, we, you, he, she, it, as, an, at, am, are, was, is, on, in, upon, who, where, which, when, why,";

(f) arranging the common words in alphabetical order;

(g) establishing a match criteria;

(h) comparing each word from the text against each common word character by character;

(i) saving the word from the text at a separate location in case of a mismatch beyond the match criteria established in step (g) supra;

(j) arranging the saved words in alphabetical order;

(k) compiling & storing general purpose synonym directory in alphabetical order;

(l) compiling & storing special purpose searchonym directory with respect to the text stored in step (a) supra;

(m) adding synonyms and searchonyms to the words saved in step (i) supra;

(n) alphabetizing said saved words;

(o) computing and storing search index information against each saved word of step (n) supra;

(p) framing and inputting researcher's free-form narrative natural language non-preprogrammed question;

(q) comparing each word of the question with each of the common words stored in step (e) supra;

(r) saving the mismatched words from the question that do not satisfy the match criteria established in step (g) supra;

(s) adding synonyms and searchonyms to the words saved from the user's question;

(t) arranging the words saved from the question alongwith their synonyms and searchonyms in alphabetical order;

(u) matching each word saved from the question including its synonym against each word saved from the text including its searchonym;

(v) copying search index information of step (o) against each word that matches upto the match criteria of step (g);

(w) establishing a priority criteria for calling logical information units to the attention of the researcher of the textual information;

(x) presenting the logical information units to the researcher of the information in the order established in step (w) supra;

(y) reframing the question and repeating steps (p) through (x) supra in case of unsatisfactory response; and

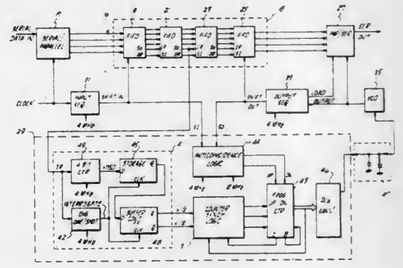
(z) framing the next question and repeating steps (p) through (y) supra, in case of satisfactory response.

4,270,183

DATA DEJITTERING APPARATUS

Robert L. Robinson, West Covina; David C. Hoff, Temple City, and Robert L. Midling, Azusa, all of Calif., assignors to Lockheed Aircraft Corp., Plainfield, N.J.

Filed Feb. 11, 1977, Ser. No. 767,807
Int. Cl.³ G06F *11/00*
U.S. Cl. 364—900 **15 Claims**



1. Dejittering apparatus for data comprising;

a first-in, first-out buffer adapted to be clocked for receiving and outputting said data;

input clocking means for clocking data into said buffer;

output clocking means for clocking data out of said buffer;

means for counting the amount of data clocked into said buffer by said input clocking means and for reducing said count in accordance with the amount of data clocked out by said output clocking means;

half-full circuit means for developing a half-full signal indicating that said buffer is less than or greater than approximately half-full;

counter synchronizing logic means responsive to said half-full signal for synchronizing said counter to the actual content of said buffer;

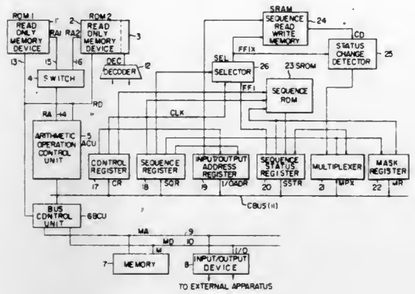
means for converting the count of said counting means into a frequency control signal; and

means responsive to said frequency control signal for controlli g the rate at which data is clocked out of said buffer by said output clocking means.

4,270,184
MICROPROCESSOR-BASED PROGRAMMABLE LOGIC CONTROLLER

Yoshiyuki Shimokawa, Hachioji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 16, 1978, Ser. No. 887,060
Int. Cl.[3] G06F *9/22, 13/00*
U.S. Cl. 364—900 4 Claims



1. A programmable logic controller comprising

an input/output device for inputting data indicating the actual status of external devices and for outputting signals indicating the desired status of the external devices,

a main memory device storing universal instructions and sequence instructions,

an arithmetic operation control unit connected to said main memory device for repeatedly and sequentially fetching the universal instructions and the sequence instructions and executing the same,

switch means connected to said arithmetic operation control unit for assuming a first state when a universal instruction is accessed by said arithmetic operation control unit and assuming a second state when a sequence instruction is accessed by said arithmetic operation control unit,

a first read only memory device storing microprograms including microinstructions used for executing the universal instructions and connected to said arithmetic operation control unit through said switch means for receiving designated addresses from said arithmetic operation control unit when said switch means is in said first state, and producing microinstructions of the designated addresses for controlling said arithmetic control unit for execution of the universal instructions,

a second read only memory device storing microprograms including microinstructions used for executing the sequence instructions, and connected to said arithmetic operation control unit through said switch means for receiving designated addresses from said arithmetic operation control unit when said switch means is in said second state, and

a sequence control unit connected to said second read only memory device and used for executing the sequence instructions,

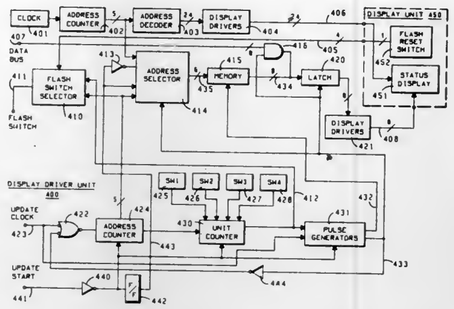
said second read only memory device producing microinstructions of the designated addresses for controlling said arithmetic operation control unit and sequence control unit for execution of the sequence instructions, and

said sequence control unit being controlled by said second read only memory drive to receive data indicating the status of the external devices obtained through said input-/output device and to execute the sequence instructions to produce signals indicating the desired status of the external devices.

4,270,185
MEMORY CONTROL CIRCUITRY FOR A SUPERVISORY CONTROL SYSTEM

Yitzhak Cohen, Yahud; Yigal Brandman, Ramat Hasharon, both of Israel, and Zvi Eckstien, Highland Park, Ill., assignors to Motorola Israel Limited, Tel-Aviv, Israel

Division of Ser. No. 807,850, Jun. 20, 1977, Pat. No. 4,161,718.
This application Dec. 4, 1978, Ser. No. 966,286
Int. Cl.[3] G11C *7/00*
U.S. Cl. 364—900 10 Claims



1. Control circuitry for storing data signals in, and reading out stored data signals from, a memory, comprising:

means for providing a train of first clock pulses;

means for repetitively providing an update signal and repetitively providing data signals;

means for providing a select signal alternately having first and second predetermined states in response to successive update signals;

first counting means responsive to the update signal for counting successive frames of a predetermined number of first clock pulses and providing first address signals and a first output pulse for each frame;

second counting means responsive to the update signal for counting a predetermined number of first output pulses and provided a second output pulse thereafter;

means for providing a train of second clock pulses;

third counting means for counting successive frames of a predetermined number of second clock pulses and providing second address signals for each frame;

memory means having first and second portions; and

control means for causing said memory means to read out stored data signals from locations addressed by the second address signals in the first and second portions of the memory means in response to the first and second predetermined states of the select signal, respectively, and causing said memory means to store data signals in locations addressed by the first address signals in the first and second portions of the memory means in response to the second output pulse and the second and first predetermined states of the select signal, respectively, whereby the first and second portions of the memory means are alternately updated in response to successive update signals and the first clock pulses.

4,270,186
MULTIPLE GENERATOR BLOCK REPLICATE BUBBLE MEMORY DEVICE

William E. Flannery, Norristown, Pa., assignor to Sperry Corporation, New York, N.Y.

Filed May 31, 1979, Ser. No. 44,278
Int. Cl.[3] G11C *19/08*
U.S. Cl. 365—15 8 Claims

1. A block replicate bubble memory device comprising:

a plurality of serial storage loops each having an input and an output gate,

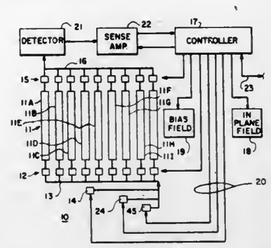
a write port for each storage loop connected to said input gates,

a read port for each storage loop connected to said output gates,

a serial write line connected to said write ports and adapted to provide data in parallel format to said storage loops simultaneously,

a first bubble generator connected to said serial write line and adapted to write data thereon in serial format,

a serial read line connected to said read ports and adapted to receive data in parallel format from said storage loops simultaneously, and



a bubble detector connected to said serial write line,

said bubble detector being connected on said serial read line substantially less than one-half of the storage loop time away from said storage loops, and

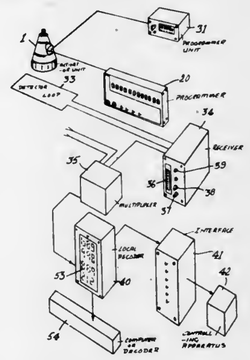
said first bubble generator being connected to said serial write line at a bit time distance away from said storage loops which is approximately equal to one-half of a storage loop time less the bit time distance said detector is removed from said storage loops,

whereby bubbles being destroyed at said detector may be replaced after being sensed in less than one-half of one storage loop time.

4,270,187
ACTIVATOR UNITS FOR IDENTIFICATION SYSTEMS AND SYSTEMS EMPLOYING SAME

David A. Buttemer, P.O. Box 1252, Pietermaritzburg 3200, South Africa

Continuation of Ser. No. 842,878, Oct. 17, 1977. This application Mar. 15, 1979, Ser. No. 20,734
Claims priority, application South Africa, Oct. 21, 1976, 76/6264
Int. Cl.[2] G11C *13/00*
U.S. Cl. 365—189 22 Claims



1. A coded identification system comprising:

an activator unit comprising a programmable memory for storing one of a plurality of activator identification codes, means for decoding an externally applied information signal frequency coded with one of said plurality of identification codes and for storing a frequency decoded identification code in said programmable memory and means for modulating an electromagnetic radiation field established between said activator unit and a detector unit with a stored identification code;

means for establishing said electromagnetic radiation field between said activator and said detector;

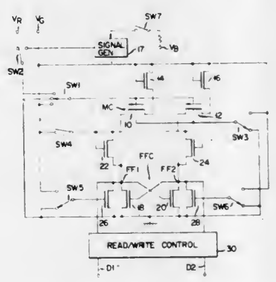
a programming unit located externally of said activator unit comprising means for selecting one of a plurality of identification codes, means for frequency coding an information signal according to a selected identification code, and means for applying said frequency coded information signal to said activator unit;

a detector unit comprising means for sensing said modulated electromagnetic radiation field, and means for determining the identification code modulated on said electromagnetic radiation field.

4,270,188
NONVOLATILE SEMICONDUCTOR MEMORY APPARATUS

Shozo Saito, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 30, 1979, Ser. No. 98,746
Claims priority, application Japan, Dec. 7, 1978, 53/150555
Int. Cl.[3] G11C *11/40*
U.S. Cl. 365—189 18 Claims



12. A nonvolatile semiconductor memory apparatus comprising:

a plurality of flip-flop circuits each formed of a pair of gate insulated field effect transistors and having bistable terminals;

a memory section coupled to each of said flip-flop circuits, and having at least one memory cell, said memory cell including a pair of nonvolatile memory cell elements whose memory state can be repeatedly changed and which are coupled to said bistable output terminals of the respective flip-flop circuits;

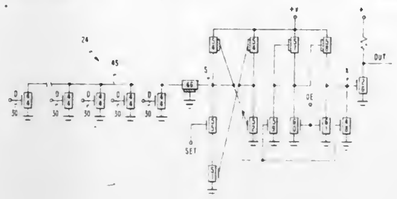
shortcircuiting means for selectively shortcircuiting the current paths of said pair of gate insulated field effect transistors;

control voltage supply means for applying a control voltage to said memory cell elements for setting a mode of operation of said memory cell;

a plurality of cascade-connected shift register circuits; and

data transfer control means coupled between said plurality of flip-flop circuits and cascade-connected shift register circuits for controlling a data transfer between said flip-flop circuits and shift register circuits.

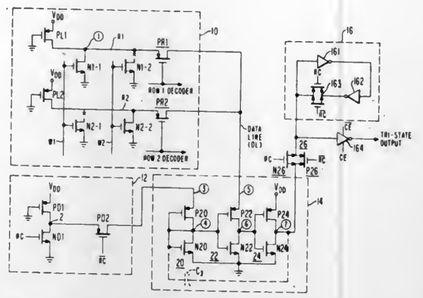
4,270,189
READ ONLY MEMORY CIRCUIT
Michael E. Brossard, Rochester, Minn.; Dale A. Heuer, Longmont, Colo., and Philip T. Wu, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 6, 1979, Ser. No. 91,842
Int. Cl.³ G11C 7/00, 7/06
U.S. Cl. 365—205 **2 Claims**



1. A semiconductor output sense circuit for providing a latched output signal comprising:
(a) a sense node;
(b) an output driver;
(c) means communicating the condition at said sense node to said output driver;
(d) latch means for maintaining the condition at said sense node at said output driver when said latch means is set;
(e) single clock means for providing a sequence of clock pulse cycles wherein each clock pulse cycle iniates and terminates said set condition of said latch means; and
(f) wherein said latching means comprises
a pair of cross connected field effect transistors;
a pair of load field effect transistors each operatively connected to one of said cross connected field effect transistors;
said sense node connected to the source of one load field effect transistor and the gating electrode of the cross connected field effect transistor associated with the other of said load field effect transistors; and
a set/reset field effect transistor with its drain connected to said sense node, its source connected to the drain of said cross connected field effect transistor associated with said one load field effect transistor and the gating electrode connected to said clock means.

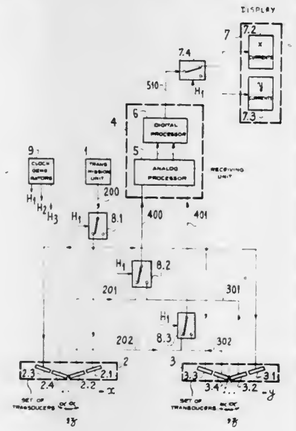
4,270,190
SMALL SIGNAL MEMORY SYSTEM WITH REFERENCE SIGNAL
Clifford P. Jindra, North Plainfield, and James H. Atherton, Flemington, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Dec. 27, 1979, Ser. No. 106,882
Int. Cl.³ G11C 7/00, 7/06
U.S. Cl. 365—208 **8 Claims**

1. The combination comprising:
a memory array of cells, each cell producing at its output a signal having either one of a high value (V_H) or a low value (V_L);
a reference signal producing means having an output at which is produced a signal which is less positive than V_H and which is more positive than V_L;
an inverting stage having first and second terminals, an input terminal, and an output terminal; said inverting stage having a "flip-point" voltage (V_{FP}) equal to V_P/K, where V_P is the potential applied between said first and second terminals; and K is a constant greater than 1; and where V_{FP} is the voltage for which the input voltage (V_{IN}) applied to said input terminal is equal to the output voltage (V_O) at said output terminal;
means for selectively coupling a cell output signal across said first and second terminals of said inverting stage, whereby the V_{FP} of said inverting stage has either a high value or a low value, corresponding to V_H and V_L, respectively; and



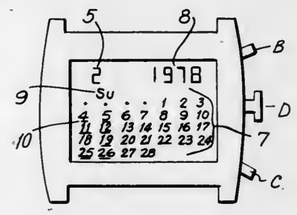
means for dividing by K the signal at the output of said reference signal producing means and for applying the divided reference signal to said input terminal of said inverting stage.

4,270,191
DOPPLER CURRENT METER FOR USE AT GREAT DEPTHS
Francois Peynaud, Paris, France, assignor to Thomson-CSF, Paris, France
Filed Nov. 6, 1979, Ser. No. 91,753
Claims priority, application France, Nov. 10, 1978, 78 31862
Int. Cl.³ G01S 15/58
U.S. Cl. 367—91 **7 Claims**



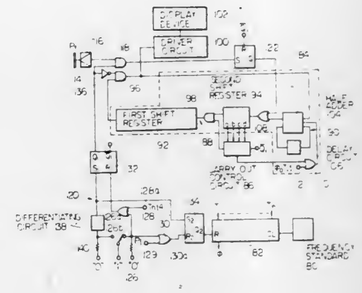
1. A device for measuring aquatic currents, known as a current meter, placed on a moving boat, comprising a Doppler effect sonar, transmitting and receiving in the directions D_1, D_2, D_3 and D_4, D_1 and D_2 being located in a plane $O\times z$ and forming an angle $+\alpha$ and $-\alpha$ with the vertical Oz, D_3 and D_4 being located in the plane Oyz perpendicular to $O\times z$ and D_3 and D_4 forming an angle of $+\alpha$ and $-\alpha$ with Oz and receiving signals coming from the volume reverberation in the aquatic medium and from the reflection off the sea bed, the device also comprising means for processing the signals received in order to calculate the horizontal components of the velocities of the currents relative to the boat and the horizontal components of the velocity of the boat, and means for calculating the horizontal components of the velocity of the currents at different depths, wherein the device comprises means for transmitting simultaneously at two frequencies f_1 and f_2 and means for receiving the volume reverberation signals affected by the Doppler effect at the frequencies $f_1^{(1)}$, $f_1^{(2)}$, $f_1^{(3)}$, $f_1^{(4)}$, $f_2^{(1)}$, $f_2^{(2)}$, $f_2^{(3)}$ and $f_2^{(4)}$ corresponding, respectively, to the emissions at the frequencies f_1 and f_2 in the directions D_1, D_2, D_3 and D_4, and means for receiving the signals at the frequencies $F^{(1)}$, $F^{(2)}$, $F^{(3)}$ and $F^{(4)}$ coming from the sea bed corresponding to waves at the frequency $F=f_1-f_2$ generated by the nonlinearity of the medium for the directions D_1, D_2, D_3, D_4, the signal processing device providing the values of the components of the boat/current velocity along Ox from the values $f_1^{(1)}-f_1^{(2)}$ and/or $f_2^{(1)}-f_2^{(2)}$ and the components along Oy from the values of $f_1^{(3)}-f_1^{(4)}$ and/or $f_2^{(3)}-f_2^{(4)}$, the components of the absolute velocity of the boat along Ox and Oy being calculated from the values $F^{(1)}-F^{(2)}$ and $F^{(3)}-F^{(4)}$, and wherein all these values of the velocity components are used to calculate the velocity of the currents.

4,270,192
ELECTRONIC TIMEPIECE
Yasuhiko Kudo, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Feb. 5, 1979, Ser. No. 9,556
Int. Cl.³ G04B 19/24; G09F 9/00
U.S. Cl. 368—29 **13 Claims**



1. An electronic timepiece including:
timekeeping means for generating timekeeping data and calendar data indicative of the present month and day;
means for storing data representative of calendar month;
display means for visibily presenting said timekeeping and calendar data;
control means for selecting data for presentation by said display means, whereby data identifying present month and day is displayed by said display means, or in the alternative, data of calendar months is selectively displayed, showing simultaneously all days of a selected month;
means for uniquely indicating special dates when said calendar months are displayed, all special dates in a selected month being simultaneously and uniquely indicated, said control means being adapted to modify the display of said selected calendar month whereby any number of special dates are entered or erased from any selected calendar month display by the performance of external operations by the user of said timepiece, said modification of said display causing only a first portion to be displayed of the dates in the calendar month while a second portion of said calendar dates is not displayed, said second portion being subsequent to said first portion of dates.

4,270,193
ELECTRONIC TIMEPIECE
Singo Ichikawa, Sayama, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan
Division of Ser. No. 726,014, Sep. 22, 1976, Pat. No. 4,147,022.
This application Apr. 2, 1979, Ser. No. 28,012
Claims priority, application Japan, Dec. 24, 1975, 50-154318
The portion of the term of this patent subsequent to Apr. 3, 1996, has been disclaimed.
Int. Cl.³ G04C 11/02
U.S. Cl. 368—47 **4 Claims**



1. An electronic timepiece having detecting means adapted to receive correction pulses transmitted as current time data from a standard timepiece, comprising:
a frequency standard providing a relatively high frequency signal;
a frequency converter responsive to said relatively high frequency signal for providing a relatively low frequency signal, timing signals and a train of clock pulses;
a timekeeping circuit including a first shift register, a second shift register, and a serial adder circuit connected in series to constitute a shift register ring in which timekeeping data are cyclically shifted in response to said timing signals;
correction switch means normally held in a non-correction state and selectively operable to assume a correction state to provide an input signal;
means for generating a control pulse in response to said input signal;
means for generating a control signal in response to said control pulse;
inhibiting gate means normally opened in the absence of said control signal to effect shifting of said timekeeping data in said shift register ring and inhibited in the presence of said control signal;
writing-in gate means coupled to said shift register ring;
control gate means connected to said detecting means and adapted to be opened in response to said control signal to pass said correction pulses therethrough;
said writing-in gate means being responsive to said correction pulses to correct said time-keeping data to coincide with said current time data;
a driver circuit responsive to said timekeeping data to provide drive signals; and
display means for providing a display of said current time data in response to said drive signals.

4,270,194
ELECTRONIC ALARM TIMEPIECE

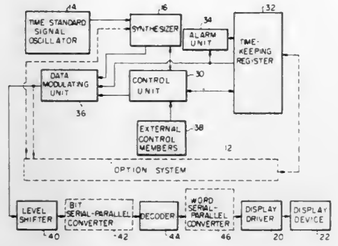
Shigeru Morokawa, Higashiyamato; Fukuo Sekiya, Tokorozawa; Yukio Hashimoto, Ishigami-Niiza; Yasushi Nomura, and Keiichiro Koga, both of Tokorozawa, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Division of Ser. No. 626,791, Oct. 29, 1975, Pat. No. 4,150,535. This application Sep. 15, 1978, Ser. No. 943,261

Claims priority, application Japan, Oct. 31, 1974, 49/125801

Int. Cl.³ G04B *23/02;* **G04C** *21/16*

U.S. Cl. 368—73 **24 Claims**



1. An electronic timepiece comprising:

a frequency standard for providing a relatively high frequency signal;

a frequency converter responsive to said relatively high frequency signal for providing a relatively low frequency time unit signal, timing signals, and a plurality of word pulses indicative of data words representing time data concerning current time and additional data concerning at least a single alarm time;

timekeeping register means for storing said time data and said additional data;

means for periodically updating said current time data in response to said time unit signal;

data altering means for altering the data contents of said timekeeping register means

display means responsive to an output of said timekeeping register means and including a plurality of display elements operable to display said current time data and at least a portion of said additional data;

means for generating an alarm data erasing signal, said data altering means being responsive to said alarm data erasing signal for automatically erasing at least a part of said additional data in said timekeeping register; and

erasure prevention means for preventing an erasing signal from being generated by said alarm data erasing signal generating means.

4,270,195
ALARM SETTING INDICATION DEVICE FOR DIGITAL CLOCK

Masuo Ogihara; Kozo Chimura; Nobuo Shinozaki, and Yoichi Seki, all of Shikawatashi, Japan, assignors to Seiko Koki Kabushiki Kasiha, Tokyo, Japan

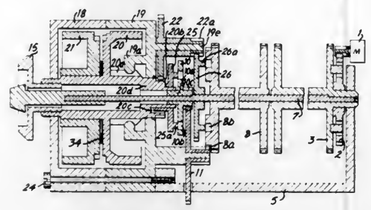
Filed Jan. 15, 1980, Ser. No. 112,183

Claims priority, application Japan, Feb. 27, 1979, 54-22337

Int. Cl.³ G04B *23/02, 19/20*

U.S. Cl. 368—74 **10 Claims**

1. An alarm setting indication device for a digital clock having an alarm device, a first drum having thereon figures for indicating the hour unit of alarm time, and a second drum having thereon figures for indicating the minute unit of alarm time, said indication device comprising: a setting indication plate provided with a shutter; means for setting and stopping operation of said alarm device; and indication plate positioning means, cooperative with said means for setting and stopping operation of said alarm device, for positioning said plate shutter to cover the figures on said first and second drums when operation of said alarm device is stopped and for positioning



said plate shutter to uncover the figures on said first and second drums when said alarm device is set for operation.

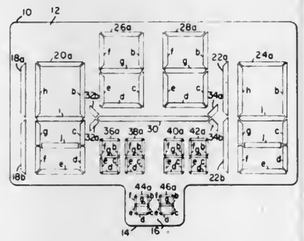
4,270,196
BALANCED COMPLEMENTARY DIGITAL TIME DISPLAYS

Berj A. Terzian, 66 Hirst Rd., Briarcliff Manor, N.Y. 10510

Continuation-in-part of Ser. No. 861,115, Dec. 16, 1977, abandoned. This application Mar. 6, 1979, Ser. No. 17,931

Int. Cl.³ G04C *19/00*

U.S. Cl. 368—82 **43 Claims**



27. A method as in claim **22**, **23**, **24**, **25** or **26** which further includes the steps of displaying digit values of seconds increasing in value from zero to thirty during the first half of each present minute and decreasing in value from twenty-nine to zero during the second half of the same minute.

4,270,197
ANALOG DISPLAY ELECTRONIC STOPWATCH

Yoshiki Minowa, Suwa, Japan, assignor to Kubushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Apr. 17, 1979, Ser. No. 30,963

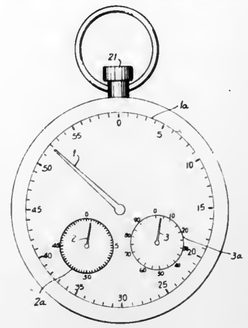
Claims priority, application Japan, Apr. 17, 1978, 53/44976

Int. Cl.³ G04F *7/00, 8/00*

U.S. Cl. 368—102 **14 Claims**

1. An analog display electronic stopwatch comprising elapsed time measuring means including oscillator means for generaging a relatively high frequency time standard signal, divider means for producing relatively low frequency timekeeping signals in a first selected time unit in response to said time standard signal, and counter means for producing a second elapsed time signal in a secondary time unit, said secondary time unit being a fraction of the first selected time unit, said second elapsed time signal being produced at the same time as said high frequency time standard signal is being divided, first hand means including at least one first hand for indicating elapsed time in the selected time unit during time measurement in response to said first selected time unit signals and secondary hand means for indicating time in said secondary time unit after

completion of time measurement in said first selected time unit in response to said second elapsed time signal of said counter



means and driving means coupled to said counter means for driving said first and secondary hand means.

4,270,198
ELECTRONIC TIMEPIECE

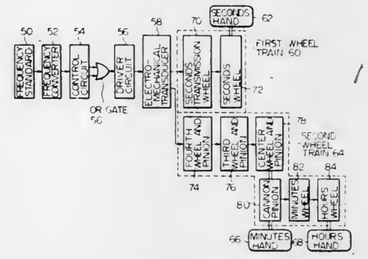
Munetaka Tamura, No. 32-18, 2-Chome, Igusa, Suginami-ku, Tokyo, and Toshikazu Hatuse, No. 23-10, 4-Chome, Shibakubo-cho, Tanashi-shi, Tokyo, both of Japan

Continuation-in-part of Ser. No. 862,141, Dec. 19, 1977, abandoned. This application Oct. 12, 1979, Ser. No. 84,127

Claims priority, application Japan, Dec. 22, 1976, 51-154773; Jan. 11, 1977, 52-1783

Int. Cl.³ G04B *19/02;* **G04C** *3/00, 5/00, 19/00*

U.S. Cl. 368—220 **9 Claims**



1. In an electronic timepiece having a frequency standard for providing a relatively high frequency signal, a frequency converter for providing a low frequency time unit signal in response to the relatively high frequency signal, a control circuit responsive to the time unit signal to provide first and second output signals, and a driver circuit responsive to said first and second output signals to provide first and second drive signals, the improvement comprising:

a single reversible electro-mechanical transducer driveable in a clockwise direction and in a counter-clockwise direction in response to said first and second drive signals respectively;

first time-indicating hand means for indicating time;

second time-indicating hand means for indicating time;

a first wheel train driven by said electro-mechanical transducer during clockwise rotation thereof to actuate said first time indicating hand means; and

a second wheel train independent of said first wheel train and driven by said electro-mechanical transducer during counter-clockwise rotation thereof to actuate said second time indicating hand means.

4,270,199
SWITCHING MECHANISM FOR ELECTRONIC WRISTWATCH

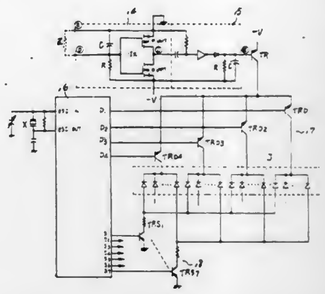
Takehiko Sasaki, Yamatokoriyama, and Hidetoshi Maeda, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 575,731, May 8, 1975, abandoned. This application Dec. 27, 1977, Ser. No. 864,802

Claims priority, application Japan, May 8, 1974, 49-51456; Jul. 4, 1974, 49-77029

Int. Cl.³ G04B *19/00*

U.S. Cl. 368—224 **7 Claims**



1. A touch-sensitive electronic switching circuit for an electronic wristwatch comprising:

a C-MOS inverter circuit having a gate terminal and two power supply terminals;

a power source connected across said power supply terminals;

resistance means connected between said gate terminal and one of said supply terminals for maintaining the input level at said gate at approximately the same potential level of said one supply terminal;

a first touch-sensitive electrode connected to the other said power supply terminal;

another touch-sensitive electrode connected to said gate terminal;

wherein said another touch-sensitive electrode comprises a conductive watch casing for engaging the body skin of a wearer, said casing being conductively connected to said gate terminal;

wherein said casing includes a crystal isolated from the body skin of a wearer; and

wherein said first touch-sensitive electrode comprises a transparent conductive coating on said crystal electrically isolated from said conductive casing and selectively connected thereto through the body resistance of a wearer by engagement with the skin of said wearer, thereby dividing the potential of said one supply terminal through said body resistance and said resistance means and applying said divided potential to said gate terminal.

4,270,200
TIMED CHIME SYSTEM

Helmut Stechmann, and Jens Haberer, both of Schwenningen, Fed. Rep. of Germany, assignors to Kienzle Uhrenfabriken GmbH, Schwenninen, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,189

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753733

Int. Cl.³ G04C *21/16*

U.S. Cl. 368—252 **10 Claims**

1. A timed chime apparatus for transmitting at least one audio signal corresponding to a time condition of a clock, comprising:

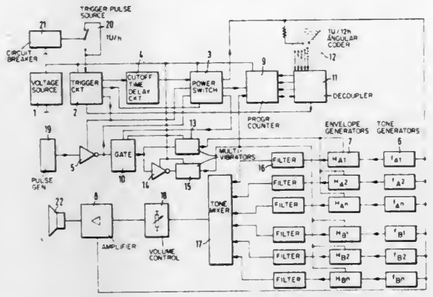
trigger means responsive to a periodic set trigger signal to

generate a corresponding chime initiation signal and responsive to a reset signal to generate a block signal,

coder means coupled to said clock for generating a count signal corresponding to the hour registration of said clock,

decoupler means coupled to said coder means for generating a count condition corresponding to said count signal and for generating said reset signal in response to a zero count condition,

counter means coupled to said decoupler means for registering said count condition from said decoupler means and adapted to be decremented to reduce the count in said counter means to said zero count condition thereby to cause said decoupler means to generate said reset signal,



timing pulse means for generating a plurality of control timing pulses in response to said chime initiation signal, said timing pulse means being operative to decrement said counter means upon occurrence of each control timing pulse and being responsive to said block signal to stop the generation of said control timing pulses,

electronic frequency generator means responsive to each of said control timing pulses to generate a corresponding audio chime signal,

power switch means responsive to said chime initiation signal for energizing said frequency generator means,

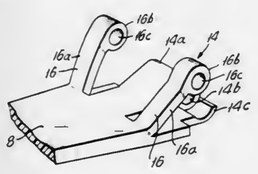
and delay means for receiving said block signal and responsive thereto for operating said power switch means to de-energize said frequency generator means after a particular time delay.

4,270,201

WATCH STRAP WITH ADJUSTABLE ATTACHMENT END

Bernard Pyne; Reginald W. H. Gray, both of Middlesex, and Peter R. Barber, Surrey, all of England, assignors to Timex Corporation, Waterbury, Conn.

Filed Dec. 31, 1979, Ser. No. 108,898
Int. Cl.³ G04B *37/00*
U.S. Cl. 368—282 **6 Claims**



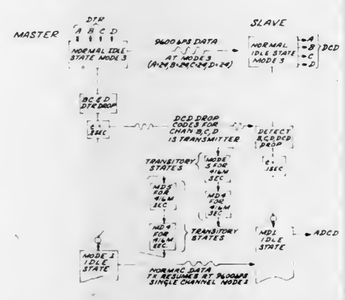
2. A watch strap useful with a connector bar for attachment between the spaced first and second lugs of a watchcase and having a bottom surface facing a wearer's wrist, said watch strap including an attachment end adapted to fit between the spaced lugs and to be adjustable in width to accommodate different lug spacings, said attachment end comprising a full loop portion defining a transverse passage to receive an intermediate portion of the connector bar, first and second upper loop extensions projecting from the sides of said full loop portion to provide first and second lateral enclosures with open bottoms on opposite sides of said full loop portion for positioning adjacent the respective first and second lugs of the watchcase, and a pair of resilient legs attached to the bottom surface of the strap with one leg extending toward the first lateral enclosure and the other leg extending toward the second lateral enclosure, each leg terminating in an auxiliary full loop adapted to be at least partially received in a respective one of the first and second lateral enclosures and being adapted to define an auxiliary transverse passage to receive one of the opposite ends of the connector bar when the strap and connector bar are attached to the first and second lugs, said legs being sufficiently resilient that the auxiliary loops can each be moved along the connector bar toward or away from the first and second lugs to accommodate different lug spacings and, in conjunction with the full loop portion and first and second upper loop extensions, hide the connector bar from view.

4,270,202

MODEM WITH AUTOMATIC PORT RECONFIGURATION APPARATUS

Edward B. Stuttard; John E. Blackwell, both of Reading, England, and Jessie Chao, Miami, Fla., assignors to Racal-Milgo, Inc., Miami, Fla.

Continuation of Ser. No. 795,876, May 11, 1977, abandoned.
This application Feb. 1, 1979, Ser. No. 8,511
Int. Cl.³ H04J *3/16, 6/02*
U.S. Cl. 370—80 **22 Claims**



1. In a multiple port data modem having a communication channel per port adapted to receive one of a plurality of channel requests from associated equipment, apparatus for reconfiguring the channel-port assignments, comprising:

means for multiplexing a plurality of channels in one of a plurality of configurations, wherein said channels have a priority order of 1 to N with 1 being the highest priority, and the number of multiplexing configurations are N with a priority order of 1 to N, said means being responsive to first control signals for selecting the particular channel configuration to be adopted; and

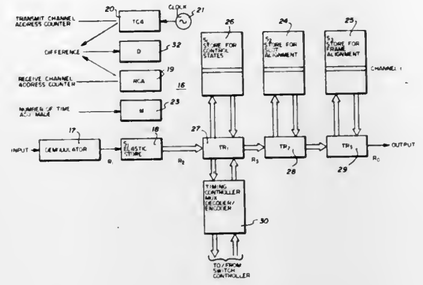
means for detecting new channel request signals supplied by said associated equipment and generating control signals to said multiplexing means to switch said multiplexing means to a new channel configuration wherein the lowest priority channel present in the channel configuration requested by the channel request signal is active.

4,270,203

TIMING ADJUSTMENT CIRCUIT FOR DIGITAL SWITCHING

Arthur A. Collins; Jon W. Bayless, Sr., and Robert D. Pedersen, all of Dallas, Tex., assignors to Arthur A. Collins, Inc., Dallas, Tex.

Filed Nov. 13, 1978, Ser. No. 959,900
Int. Cl.³ H04J *3/07*
U.S. Cl. 370—102 **12 Claims**



1. Slip free digital switching of a plurality of multiplexed digital data streams where each said stream is composed of c multiplexed communication channels and where each said multiplex stream may have a different clock rate R1, R2 . . . Rc all of which may be different from the switch clock rate comprising the steps of

(a) inserting a variable length timing code, one bit at at time, in each of said c channels in each multiplexed digital data stream wherein said multi-bit timing code is composed of successive variable length code words of length L and L+1 with the first L bits of each code word designating whether the code word length is L or L+1 bits,

(b) adjusting individual channel rates in each of said c channels in each of said multiplexed data streams by altering the length of said variable length code words making variable length code words of length L equal to code words of length L+1 where the input clock is slower than the switch clock and making input code words of length L+1 equal to code words of length L where the input clock is faster than the switch clock thereby equalizing the respective clock rates by the adjustment of just a sufficient set of said code words in each of said channels to result in equal rates,

(c) storing incoming bits of said multiplex data stream under control of the incoming clock rate and reading said bits under control of said switch clock thereby aligning bit timing with switch clock timing,

(d) sensing clock rate differences for control of channel timing adjustments to compensate for said clock rate differences,

(e) aligning slots for each of the individual c channels by storing up to b bits per channel, with excess bits of each channel stored in a slot alignment store when addition of timing adjustment bits results in b+1 bit channel word lengths, and reading previously stored bits from said slot alignment stored to yield b bit words for transmission when timing bits are deleted from a multiplex channel,

(f) aligning frames by storing b bit data words for each channel after slot alignment with successive words read from said slot alignment store in synchronism with switch clock frame alignment, and

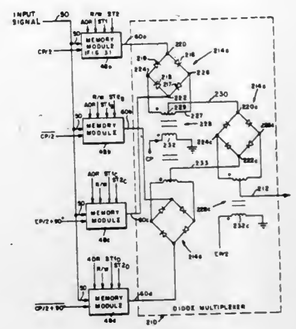
(g) switching said data streams under the control of said clock of said switch.

4,270,204

MULTIPLEXER CIRCUIT

Bruce E. Gordon, Santa Barbara, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Dec. 22, 1978, Ser. No. 972,592
Int. Cl.³ H04J *3/04*
U.S. Cl. 370—112 **5 Claims**



1. A multiplexer circuit, comprising:

(a) a first means for producing a first logical signal;

(b) a second means for producing a second logical signal;

(c) a plurality of diodes serially coupled in like polarity to provide a closed loop electrical circuit, said electrical circuit having four junctions, first one of said diodes being coupled between a first one and a second one of said junctions, a second one of said diodes being coupled between the second one and a third one of said junctions, a third one of said diodes being coupled between the third one and a fourth one of said junctions, and a fourth one of said diodes being coupled between the first one and the fourth one of said junctions, such first one of said junctions being connected to the first means and said third one of said junctions being connected to the second means; and

(d) coupling means, including a transformer having: a first winding having ends thereof connected to the second one and the fourth one of said junctions and having a tap between such ends; and a second winding inductively coupled to the first winding and fed by a control signal for electrically coupling the tap through the electrical circuit to either the first means or the second means selectively in accordance with the control signal.

4,270,205

SERIAL LINE COMMUNICATION SYSTEM

Wallace E. DeShon, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Feb. 27, 1979, Ser. No. 15,687
Int. Cl.³ G06F *11/10, 11/14*
U.S. Cl. 371—32 **28 Claims**

1. A method for increasing throughput for a communication system utilizing a serial communication line comprising the steps of:

transmitting a message on said serial communication line, at a prime baud rate, from a central station to a remote station;

automatically detecting the baud rate at which said message was transmitted and checking said message for errors at said remote station;

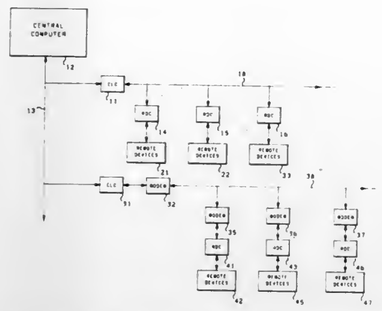
ignoring said message if said message contains at least a first predetermined number of errors;

completing the action required by said message if said message does not contain at least said first predetermined number of errors;

transmitting a reply message on said serial communication

line, at said prime baud rate, from said remote station to said central station if said message did not contain at least said first predetermined number of errors;

checking said reply message for errors at said central station; and



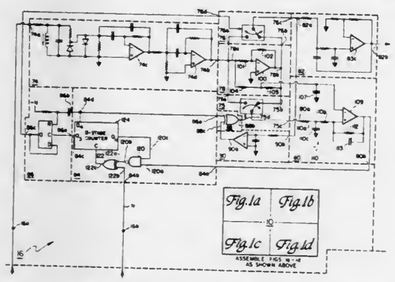
retransmitting said message on said serial communication line, at a secondary baud rate lower than said primary baud rate, from said central station to said remote station if said remote station did not reply to said message or if said reply message contained at least a second predetermined number of errors.

4,270,206

TRANSCEIVER FOR PHASE-SHIFT MODULATED CARRIER SIGNALS

William C. Hughes, Scotta, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 25, 1980, Ser. No. 124,347
Int. Cl.³ H04L *27/18*
U.S. Cl. 375—9 **30 Claims**



1. A transceiver for use in a system communicating digital data over a preselected transmission medium by phase-shift-modulation of a carrier waveform having a frequency related to the frequency of a system-wide waveform, comprising:

a transmitter section having an input receiving a clock frequency waveform, another input receiving a transmit clock waveform and an output, and including means for synthesizing a pseudo-bandpass-filtered waveform having said carrier frequency, responsive to receipt of said clock frequency waveform;

means receiving at least one bit of digital data to be transmitted for storing said data and for sequentially providing each successive data bit at an output thereof responsive to an associated one of successive portions of said transmit clock waveform;

means receiving the at least one data bit from said storing means output for modulating the phase shift of the carrier frequency waveform responsive to the digital value of the data bit to be then transmitted; and

means for amplifying the amplitude of the phase-shift-modulated, pseudo-bandpass-filtered carrier frequency waveform and coupling the amplified carrier waveform to said transmitter section output;

a receiver section having an received carrier input, a reference signal input and a recovered data output, said receiver section including means connected to said received carrier and reference signal inputs for providing a baseband data signal having each of a plurality of amplitude transitions thereof responsive to an associated reversal of the phase of the waveform of said received carrier;

means receiving said baseband data signal for generating a baud synchronization signal having periodic amplitude transitions synchronized to the transitions of said baseband data signal; and

means receiving said baud synchronization and baseband data signals for recovering the digital data modulated onto said received carrier waveform, and providing said recovered digital data at said receiver section recovered data output;

means for generating said transmit clock waveform with a preselected frequency and phase relationship to the waveform of said baud synchronization signal; and

a frequency synthesizer section having an input receiving said system-wide waveform and including means for generating said clock frequency waveform for said transmitter section; and

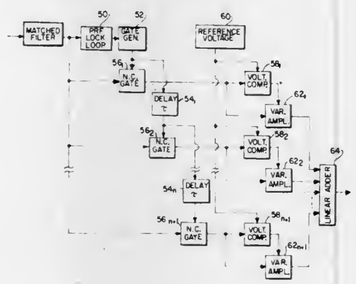
means for generating said reference signal for said receiver section.

4,270,207

COMBINED ECCM/DIVERSITY TROPOSPHERIC TRANSMISSION SYSTEM

Frank S. Gutleber, Little Silver, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 6, 1979, Ser. No. 64,161
Int. Cl.³ H03H *7/28*; H04B *15/00*; H04K *1/00*
U.S. Cl. 375—40 **4 Claims**



1. A signal communications system of the type utilizing the troposphere as the communication medium, and provided with receiver and transmitter apparatus in which said transmitter apparatus comprises:

means for generating a pair of coded message information signals;

means for generating a timing reference signal; and

means for multiplexing said message information signals with said timing reference signal for communication of said message information at selected time intervals within a predetermined transmission period; said coded signal generating means generating a pair of coded signals which upon receipt and detection by a receiver apparatus in communication with said transmitter apparatus produces an output signal having an impulse autocorrelation function during its selected time interval in said predetermined transmisson period; and said receiver apparatus comprises:

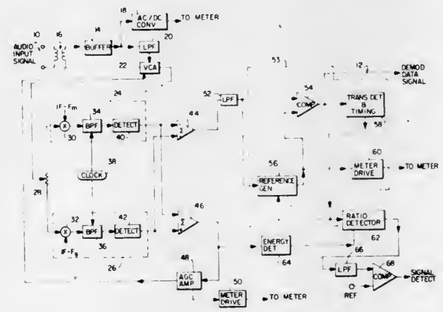
a receiver coupled to said transmitter, a demultiplexer coupled to said receiver, and a matched filter autocorrelation detector coupled to said demultiplexer to provide said output signal, said matched filter autocorrelation detector including a pair of adder circuits, a plurality of time delay circuits for successively delaying the application of received coded pulses to input terminals of said adders by one interval of time each, a plurality of phase control circuits for reversing the polarities of selected code pulses applied at said input terminals in accordance with the predetermined code patterns of said coded pulses, a common adder circuit connected to said pair of adder circuits to provide an output signal, and a diversity receiver maximal ratio combiner coupled to said output signal of said matched filter autocorrelation detector for extracting signal returns from the tropospheric medium at increased signal-to-noise power ratio, said diversity receiver including a narrowband pulse repetition frequency lock loop for synchronizing to the transmitted information bit, a gate generator connected to said lock loop for providing a gating signal of pulse width equal to the width of the individual noise code bits, delay means for progressively delaying said gating signal by increments of bit width and extracting uncorrelated multipath returns, a plurality of normally closed gates receiving said matched filter output signal and said gating signal, a plurality of voltage comparators and adjustable amplitude control circuits connected with the output of respective noramlly closed gates, the output of said voltage comparators being connected as a further input to said amplitude control circuits, a source of reference voltage connected to said voltage comparators, and a linear adder circuits coupled to the outputs of said amplitude control circuits to provide a combined output proportional to the strength of the individually adjusted signals from said amplitude control circuits.

4,270,208

THRESHOLD GENERATOR

Kenneth R. MacDavid, Fairport, N.Y., assignor to Harris Corporation, Melbourne, Fla.

Filed Apr. 2, 1979, Ser. No. 26,050
Int. Cl.³ H04L *25/06*
U.S. Cl. 375—76 **16 Claims**



12. A method for generating a reference signal in dependence upon the quality of a composite signal which varies between two amplitude levels, comprising the steps of:

detecting transitions in a composite signal between first and second amplitude levels;

sampling said composite signal for a predetermined time interval after a predetermined time after the detection of a transition from said second to said first amplitude level and storing the value of said first sample;

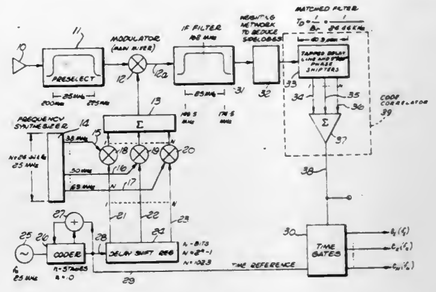
sampling said composite signal for a predetermined time interval after a predetermined time after the detection of a transition from said first to said second amplitude level and storing the value of said second sample; and combining the stored values to form a reference signal.

4,270,209

DIGITAL COMPRESSIVE RECEIVER

Damian F. Albanese, Chatsworth, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 7, 1979, Ser. No. 101,259
Int. Cl.³ H03H *15/00*; H03K *3/84*
U.S. Cl. 375—96 **12 Claims**



1. A compressive surveillance receiver, comprising:

frequency synthesizing means for generating a composite local oscillator signal including N discrete signal uniformly spaced in frequency;

first means for generating a repetitive digitally coded sequence having N bits;

second means responsive to said first means for providing N outputs, said coded sequence appearing at each of said N outputs in a delayed series whereby said coded sequence is extant at each successive output of said series delayed by one bit as compared to the preceding output in said series;

third means for modulating each of said N discrete local oscillator signals by said coded sequence extant at a corresponding one of said N outputs of said second means to provide N modulated outputs;

mixer means responsive to received input signals in a band of surveillance and to said third means outputs for converting said received input signals to signals in the intermediate frequency domain;

and means comprising a matched filter responsive to said intermediate frequency signals for correlating all coded sequence modulated intermediate frequency signals extant at the output of said mixer and corresponding to said received input signals to provide output pulses at times which are a function of the corresponding delay of the coded sequence modulated onto each corresponding local oscillator signal generated by said frequency synthesizer.

4,270,210

DIGITAL DIVERSITY RECEIVER, COMPRISING AN APC LOOP FOR LOCKING INSTANTS OF READ-OUT OF BUFFER MEMORIES TO AN AVERAGED PHASE OF SIGNALS SUPPLIED THERETO

Yoichi Tan, and Seiichi Noda, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

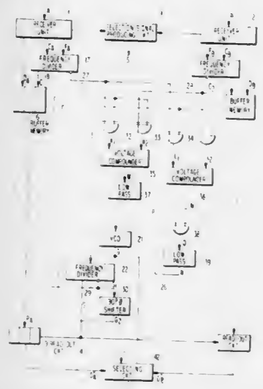
Filed Dec. 19, 1979, Ser. No. 105,172
Claims priority, application Japan, Dec. 26, 1978, 53/162424
Int. Cl.³ H04B *7/08*
U.S. Cl. 375—100 **3 Claims**

1. A digital signal combining circuit for use in a digital diversity receiver for deriving a receiver output signal from a plurality of route signals received thereby, said diversity receiver comprising a plurality of receiver units for receiving the respective route signals and a selection signal producing circuit connected to said receiver units for producing a selection

signal indicative of one of said route signals that is least subjected to fading of said route signals, each receiver unit deriving a clock pulse sequence of a reference clock period, a sequence of route digital signals variable at said reference clock period in compliance with the route signal received by said each receiver unit, and a frame synchronizing signal sequence of a frame period equal to an even integral multiple of said reference clock period from the last-mentioned route signal to produce said sequences, said combining circuit being for connection to said receiver units and said selection signal producing circuit and including;

a plurality of buffer memories connected to the respective receiver units, each buffer memory comprising a predetermined number of memory cells, said predetermined number being equal to an even integral submultiple of said integral multiple;

a plurality of write-in clock generators connected to the respective receiver units, each clock generator being for generating a set of write-in clock pulse trains of a write-in clock period equal to said reference clock period multiplied by said predetermined number and synchronized with the frame synchronizing signal sequence produced by the receiver unit connected to said each clock generator and of write-in clock phases staggered relative to each other to define a series of write-in instants, equal in number to said predetermined number, in every write-in clock period;



write-in means connected to each write-in clock generator, the receiver unit connected to said each write-in clock generator, and the memory cells of the buffer memory connected to the last-mentioned receiver unit for writing the digital signals of the digital signal sequences produced by the last-mentioned receiver unit cyclically in the last-mentioned memory cells at the respective write-in instants defined by the write-in clock pulse trains generated by said write-in clock generator, the last-mentioned memory cells thereby producing a plurality of those memorized digital signal trains, respectively, which comprise memorized digital signals variable at said write-in clock period and into which the last-mentioned digital signal sequence is divided with the route digital signals thereof converted to said memorized digital signals, respectively;

a plurality of read-out circuits connected to the respective buffer memories, each read-out circuit comprising a plurality of read-out units for receiving the memorized digital signal trains from the respective memory cells of the buffer memory connected to said each read-out circuit;

a voltage controlled oscillator for generating a local clock pulse train of a local clock period substantially equal to said reference clock period and of a controllable local clock phase; and

a read-out clock generator connected to said voltage controlled oscillator for frequency dividing said local clock pulse train by said predetermined number to generate a set of read-out clock pulse trains of a read-out clock period and of read-out clock phases staggered relative to each other to define a series of read-out instants, equal in number to said predetermined number, in every read-out clock period;

wherein the improvement comprises:

phase difference averaging means connected to predetermined ones of said receiver units and said write-in clock generators for averaging the phase differences of the write-in clock pulse train sets generated by the respective write-in clock generators relative to said local clock phase to produce a result signal representative of an average of said phase difference;

control means connected to said phase difference averaging means and said voltage controlled oscillator for controlling said local clock phase in response to said result signal;

read-out means connected to each read-out circuit and said read-out clock generator for reading a train of read-out digital signals cyclically from the read-out units of said each read-out circuit, said read-out digital signals being those portions of the memorized digital signals received by the last-mentioned read-out units, respectively, which are specified by said read-out instants; and

selecting means connected to said selection signal producing circuit, said voltage controlled oscillator, and the read-out means connected to the respective read-out circuits for deriving said receiver output signal by selecting, with reference to said selection signal and said local clock pulse train, one of the read-out digital signal trains read out of the respective read-out circuits.

4,270,211

SYSTEM FOR SYNCHRONIZING EXCHANGES OF A TELECOMMUNICATIONS NETWORK

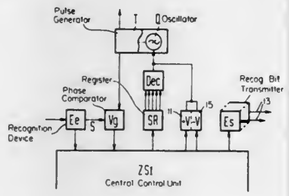
Max Schlichte, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 25, 1978, Ser. No. 945,565

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1977, 2743252

Int. Cl.³ H03K *1/17*

U.S. Cl. 375—107 **11 Claims**



1. For use in a telecommunications network having a central pulse generator and a plurality of exchanges, each of said exchanges having a local tuneable pulse generator for supplying timing pulses, a method of synchronizing said tuneable pulse generators, comprising the steps of:

determining when the difference in phase between a signal from said central pulse generator and a signal locally generated by a tuneable pulse generator exceeds a predetermined quantity,

subsequently changing the phase of the locally generated signal by applying a tuning voltage for rapidly correcting its phase to eliminate said phase difference,

determining the time interval between two successive occasions at which the difference in phase between the locally generated signal and the signal from the central pulse generator exceeds said quantity,

determining whether said time interval exceeds a predetermined interval,

and if said predetermined interval has not been exceeded, adjusting the frequency of said locally produced signal and thereafter maintaining the frequency of said locally produced signal as so adjusted until the next time the said predetermined interval is exceeded by said time interval.

4,270,212

CATV CONVERTER

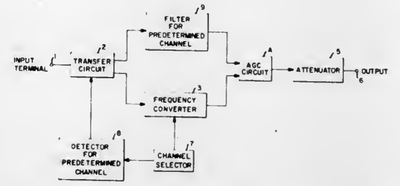
Hajime Furukawa, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Sep. 11, 1979, Ser. No. 74,488

Claims priority, application Japan, Sep. 13, 1978, 53-112835

Int. Cl.³ H04H *1/00*; H04B *1/18*

U.S. Cl. 455—3 **2 Claims**



1. A CATV converter comprising a frequency converting circuit for converting the frequency of an input TV signal into a frequency of a predetermined channel, a filter provided in parallel with said frequency converting circuit to pass only signals of the same frequency as the frequency of said predetermined channel included in said input TV signal, a transfer circuit for transferring said input TV signal to either one of said frequency converting circuit or said filter to extract said predetermined channel, a channel selector, and means for detecting selection of said predetermined channel coupled to control said transfer circuit, whereby when said detecting means detects said selection of said predetermined channel, said transfer circuit transfers said input TV signal to said filter passing said predetermined channel, and when any other channel than said predetermined channel is selected, said transfer circuit transfers said input TV signal into said frequency converting circuit.

4,270,213

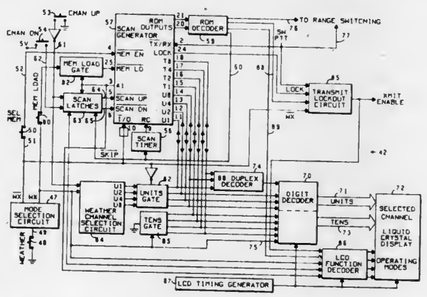
SEQUENTIAL CHANNEL SELECTOR SYSTEM

Terrence F. Falk, Villa Park; Terrence R. Schultz, Park Ridge, and James E. Hoffmann, Palatine, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 11, 1979, Ser. No. 47,385

Int. Cl.³ H04B *1/40*; H03J *7/18*

U.S. Cl. 455—77 **11 Claims**



1. A channel selector system in a two-way radio for selecting one of a plurality of channels each having a different carrier wave frequency, said radio having a frequency synthesizer responsive to a channel selector to generate a predetermined frequency associated with each selected channel to enable said radio to receive information from the selected channel or to transmit information on the selected channel, said channel selector system comprising:

display means for displaying the selected channel;

sequential generating means for controlling said frequency synthesizer and causing said frequency synthesizer to sequentially access an adjacent channel of said plurality of channels, at least some of said plurality of channels being restricted for either reception, transmission, or both, said sequential generating means also providing a first predetermined output code for any channels which are restricted, and a second predetermined output code for any channels which are unrestricted;

decoding means responsive to the first output code from said sequential generating means to provide an output signal to indicate when a restricted channel has been sequentially accessed,

timer means responsive to the output signal from the decoding means when indicative that a restricted channel has been accessed to cause said sequential generating means to rapidly scan through any restricted channel to the next unrestricted channel whereby said channel display means does not visually display any restricted channels and gives the appearance that the restricted channels are skipped; and

latching means also responsive to the output signal from said decoding means to latch said sequential generating means during access of any restricted channel such that the sequential generating means continues to scan through any restricted channels at the rapid restricted scanning rate until the next unrestricted channel is accessed, said latching means further adapted to disable said channel selector during rapid scanning over restricted channels to prevent any subsequent change in channel selector input from accessing a restricted channel.

4,270,214

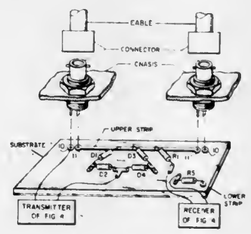
HIGH IMPEDANCE TAP FOR TAPPED BUS TRANSMISSION SYSTEMS

William W. Davis, Rosemount, and Ernest S. Griffith, St. Louis Park, both of Minn., assignors to Sperry Corporation, New York, N.Y.

Filed Mar. 26, 1979, Ser. No. 23,795

Int. Cl.³ H04B *1/48*

U.S. Cl. 455—80 **1 Claim**



1. Apparatus for passively coupling signals between a transceiver and a transmission line having at least a first and a second conductor and a characteristic impedance therebetween, comprising in combination:

a microstrip comprising:

a first and a second electrically conductive strip,

first and second connector means for connecting said first and second conductor to said respective first and second strips,

a dielectric substrate separating and insulating said first strip from said second strip, and

said first and second strips formed and arranged in combination with said connector means so as to exhibit substantially the same impedance characteristic as exhibited by said transmission line,

receiver coupling means mounted on said microstrip and connected, without inductive or capacitative coupling to said first and second strips and to a receiver section of said transceiver and having a high impedance characteristic with respect to said transmission line and said first and second strips for attenuating signals received from said transmission line and coupling the attenuated signals to said receiver section during receptions, comprising:

first voltage dividing means connected to a voltage source and having a first input and a second output terminal said first terminal connected to said first conductor and said second terminal connected to said receiver section for attenuating received signals via voltage division, and

second voltage dividing means connected to said voltage source having a third input and fourth output terminal, said third terminal connected to said second conductor and said fourth terminal to said receiver section for attenuating received signals via voltage division,

transmitter coupling means connected to said first and second strips and inductively coupled to a transmitter section of said transceiver and having a low impedance characteristic with respect to said transmission line during transmissions for conducting signals from said transmitter section to said transmission line during transmissions and not conducting signals during receptions, comprising;

first diode means mounted on said microstrip and having a fifth and a sixth terminal, said fifth terminal connected to said first strip, and a conductive threshold greater than the received signals for blocking received signals and conducting transmitted signals,

second diode means mounted on said microstrip and having a seventh and an eighth terminal, said seventh terminal connected to said first strip, and a conductive threshold greater than the received signals for blocking received signals and conducting transmitted signals, and

transformer means having a primary winding with ninth and tenth terminals and a secondary winding with eleventh and twelfth terminals, said ninth terminal connected to said sixth and eighth terminals, said tenth terminal connected to said second strip and said eleventh and twelfth terminals connected to said transmitter section for inductively coupling said transmitter section to said first and second diode means during receptions.

4,270,215

CHANNEL INDICATOR

Toshinori Murata, and Shigeo Matsuura, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 1, 1979, Ser. No. 35,101

Claims priority, application Japan, May 10, 1978, 53-5421; Jul. 7, 1978, 53-81982; Sep. 18, 1978, 53-114242

Int. Cl.³ H04B *1/26*

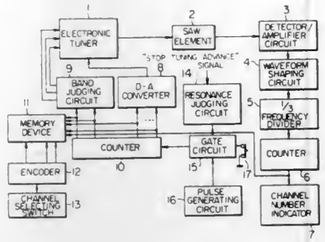
U.S. Cl. 455—158 **14 Claims**

1. A channel indicator comprising:

a voltage-controlled type electric tuner having sweeping means for generating a sweep voltage and a voltage-controlled type local oscillator for generating a sweeping local oscillation signal the frequency of which is varied in accordance with the sweep voltage supplied from said sweep means;

a comb-shaped surface acoustic wave filter coupled to the local oscillation signal, said filter having a multi-pass-band characteristic, the center frequencies of which pass-bands have predetermined frequency intervals therebetween, wherein said filter generates an output signal having peak values each of which corresponds to the passing of the local oscillation signal through each pass-band of said multi-band-pass characteristic of said comb-shaped surface acoustic wave filter;

means for amplitude-detecting the output of said comb-shaped surface acoustic wave filter and producing an output having peaks corresponding to the peak values of said filter output signal;



a counter for counting the number of peaks in the output of said amplitude-detecting means to determine the number of pass-bands of the filter which the local oscillation signal has swept through; and

a channel number indicator for indicating a channel number in a predetermined relation corresponding to the counted result of said counter.

4,270,216

TUNING AND VOLUME INDICATOR

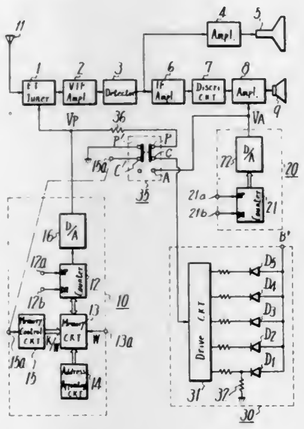
Tadahiko Suzuki, Yokohama, and Yasunari Ikeda, Funabashi, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 13, 1979, Ser. No. 75,491

Claims priority, application Japan, Sep. 19, 1978, 53-128488[U]

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—159 **7 Claims**



1. An electronic apparatus included in a television receiver, comprising means for tuning a television signal including means for generating a tuning control voltage corresponding to a desired television channel, said means for tuning including means for presetting a television signal, means for selecting a television signal, means for selectively operating alternatively said means for presetting and said means for selecting; an audio amplifier having an adjustable gain for amplifying an audio signal; means for generating a gain control voltage for establishing a desired gain of said audio amplifier; display means for displaying said gain control voltage; and means for alternatively applying said tuning control voltage to said display means in place of said gain control voltage, said means for alternatively applying being responsive to operation of said means for presetting to display said tuning control voltage and being further responsive to operation of said means for selecting to display said gain control voltage.

4,270,217

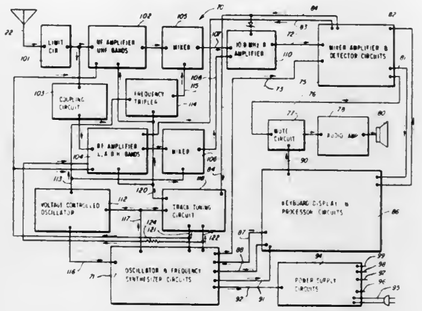
PROCESSOR CONTROLLED, SERVICE SELECTING, AM/FM SCANNING RADIO RECEIVER

William Baker, Indianapolis, Ind., assignor to Masco Corporation, Cumberland, Ind.

Filed Apr. 30, 1979, Ser. No. 34,738

Int. Cl.³ H03J *7/18*

U.S. Cl. 455—165 **17 Claims**



1. In a scanning radio receiver for reception in a frequency range including at least one service group of frequency channels allocated to a prescribed type of service usage, and including mixer means, frequency synthesizer means for generating and applying a local oscillator signal to said mixer means for mixing with a received modulated signal to develop a modulated IF signal at a certain IF frequency, said frequency synthesizer means being digitally controlled and being responsive to applied frequency codes to develop a local oscillator frequency for reception of a signal at a frequency corresponding to an applied frequency code. IF amplifier means for amplifying said IF signal, demodulator means for demodulating the amplified IF signal to produce an audio signal, signal-present means connected to said demodulator means for output of a signal-present signal in response to reception of a signal at a frequency determined by said local oscillator frequency and said IF frequency, keyboard means for supplying control data and including at least one service key operable by a user to signify selection of a certain service group of frequency channels for scanning, data storage means for storing of data including service group identification data identifying said certain service group of frequency channels, frequency code generating means for processing control data from said keyboard means and stored data from said data storage means for developing a frequency code for control of said frequency synthesizer means, frequency code output means for output of said frequency code from said frequency code generating means to said frequency synthesizer means, timer means for establishing a time interval for said frequency synthesizer means to adjust to a new frequency, and program means operable in response to data from said signal-present means, said keyboard means and said timer means to effect a scanning operation in which a series of frequency codes are output sequentially from said frequency code output means with said scanning operation being interrupted when and so long as a signal-present signal is produced by said signal-present means, said program means being operable in a service search mode in response to control data developed from operation of said service key and being then responsive to said service group identification data to effect scanning of said certain service group of frequency channels.

4,270,218

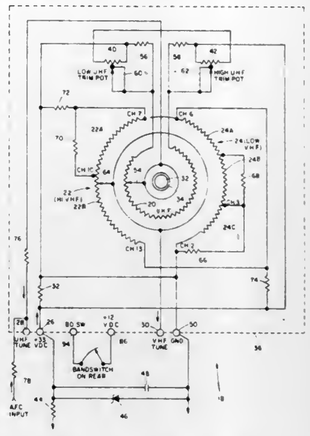
CONTINUOUS TUNE ALL-CHANNEL SELECTOR

Richard A. Smirl, Chicago, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Feb. 7, 1980, Ser. No. 119,348

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—176 **17 Claims**



1. A continuous tune, all-channel television selector system for providing tuning voltage signals to a variable frequency tuner having a plurality of tunable stages, wherein bandswitching is accomplished by selectively coupling a first DC potential source to said tunable stages, each of said VHF tunable stages including an abrupt junction-type varactor diode having a nonlinear frequency-to-tuning voltage characteristic and each of said UHF tunable stages including a hyper abrupt junction-type varactor diode having a frequency-to-tuning voltage characteristic which varies substantially from UHF tunable stage to UHF tunable stage, said channel selector system comprising:

a second DC potential source;

first continuously variable, contact resistor means coupling said second DC potential source to said varactor diodes in said VHF tunable stages, said first variable resistor means having a tapered, nonlinear contact position-to-output voltage characteristic which is complementary to the nonlinear frequency-to-tuning voltage characteristic of said VHF tunable stages, said complementary nonlinear characteristic producing a substantially linear first variable resistance means contact position-to-frequency characteristic;

second continuously variable, contact resistor means coupling said second DC potential source to said varactor diodes in said UHF tunable stages, said second variable resistor means having a substantially linear contact position-to-output voltage characteristic;

third and fourth continuously variable, contact resistor means coupled to the low resistance and high resistance ends, respectively, of said second contact resistor means for adjusting the low and high resistance values, respectively, of said second contact resistor means in normalizing said second contact resistor means to a predetermined UHF tunable stage frequency-to-tuning voltage characteristic variation; and

rotatable selector shaft means operatively coupled to said first and second continuously variable, contact resistor means for changing the voltage applied to said varactor diodes by means of said first and second resistor means in

tuning said tunable stages over the entire VHF and UHF television spectra, respectively.

4,270,219

CHANNEL SELECTION APPARATUS TUNABLE TO DESTINED FREQUENCY IN SHORT TIME

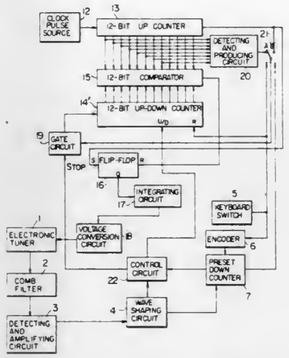
Toshinori Murata, and Shigeo Matsuura, both of Yokohama, Japan, assignors to Hitachi, Ltd., Japan

Filed Oct. 13, 1978, Ser. No. 951,043

Claims priority, application Japan, Oct. 14, 1977, 52-122387; Oct. 21, 1977, 52-125736

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—179 **12 Claims**



1. A channel selection apparatus comprising:

an electronic tuner including a local oscillator for producing a local oscillation signal;

a comb filter for receiving said local oscillation signal and passing only those frequency components of said signal which lie within selected equi-spaced frequency ranges, the characteristics of said comb filter being such that a frequency band of a broadcast station corresponds to one of said equi-spaced frequency ranges;

means for detecting the output of said comb filter and generating at least one pulse in response thereto;

a preset down counter for counting the at least one pulse from said detecting means and producing a count completion signal when a preset count for said preset counter has been reached; and

means for sweeping the frequency of the local oscillation signal from said local oscillator, said local oscillation signal frequency sweeping means including means responsive to an actuation of the channel selection apparatus, for setting the rate of sweeping the local oscillation signal at a first rate, and responsive to said count completion signal from said preset down counter for setting said frequency sweeping rate at a second rate lower than the first rate, and means for producing a sweep control signal in response to the output of said means for setting the rate of sweeping the local oscillation signal frequency, said sweep control signal being fed to said electronic tuner.

4,270,220

ELECTRONIC TUNING TYPE TELEVISION RECEIVER

Yoshimune Hagiwara, Kodaira; Terumi Sawase, Hachioji; Atsushi Takai, Musashino; Yuzo Kita, Fuchu, and Akira Honda, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

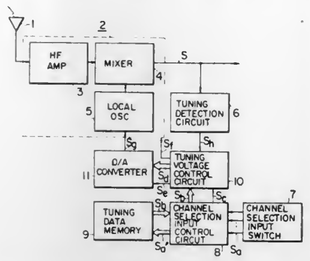
Filed Aug. 29, 1979, Ser. No. 70,817

Claims priority, application Japan, Sep. 1, 1978, 53-106212

Int. Cl.³ H04B *1/26*

U.S. Cl. 455—182 **3 Claims**

1. An electronic tuning type television receiver comprising a tuning circuit including a local oscillator whose oscillation frequency is controlled to be variable depending on a voltage applied to a variable capacitance means, signal input means for specifying a selected channel, memory means for storing digital data indicative of tuning voltages corresponding to a plurality of channels respectively so that a tuning voltage corresponding to a selected channel can be applied to said variable capacitance means in said tuning circuit, means for reading out from said memory means the digital data corresponding to the selected channel specified by said signal input means, a D/A converter converting the digital data read out from said memory means to an analog signal which is applied to said variable capacitance means, and a tuning detection circuit for generating a signal when said tuning circuit is tuned to the selected channel, wherein tuning voltage control means are provided for alternately increasing and decreasing, at a predetermined rate, the digital data read out from said memory means to sequentially apply a signal representative of said alternately increased and decreased data to said D/A converter, and for ceasing the increasing and decreasing operation in response to the appearance of an output from said tuning detection circuit.



4,270,221

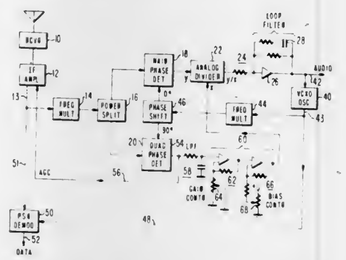
PHASELOCKED RECEIVER WITH ORDERWIRE CHANNEL

James W. Daniel, Jr., Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 17, 1979, Ser. No. 85,548

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—208 **5 Claims**



1. In a phaselocked radio receiver, a combination carrier extraction and FM orderwire de-emphasis system, comprising

a phaselocked loop including a voltage controlled oscillator having an output constituting a carrier extracted from a received data signal for use in demodulating the received data signal, a main phase detector receptive to the received data signal and the output of said oscillator, and a signal path from the output of said main phase detector to the control input of said oscillator and to an orderwire audio output, said signal path including a loop filter constructed to have a de-emphasis characteristic for an orderwire audio signal,

a quadrature phase detector receptive to the received data signal and a quadrature phase of the output of said oscillator and producing an output which varies with the signal-to-noise ratio of the received data signal, and

means responsive to the output of said quadrature phase detector to make the bandwidth of said phaselocked loop remain substantially constant despite changes in the signal-to-noise ratio of the received data signal.

4,270,222

RADIO-FREQUENCY HEAD HAVING A SELF-ADAPTIVE DYNAMIC RANGE

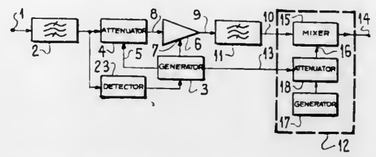
Christophe Menant, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Mar. 17, 1980, Ser. No. 131,181

Claims priority, application France, Mar. 20, 1979, 79 07012

Int. Cl.³ H04B *1/26*

U.S. Cl. 455—236 **3 Claims**



1. An HF head having one input and one output and comprising:

a stage for converting received signals in which provision is made for a local oscillation generator and a mixer and which stage has one signal input, one output and one input for controlling the level of local oscillation;

a variable attenuator having one signal input coupled to the input of the HF head, one output coupled to the signal input of the converter stage, and one input for controlling its attenuation coefficient;

means having one input and one output for detecting the level of signals received;

control means having one input coupled to the output of the detection means and at least one first output for delivering a first control signal, and one second output for delivering a second control signal, said first and second outputs being coupled respectively to the control inputs of the converter stage and of the attenuator in order to ensure that the level of the local oscillation current and the coefficient of attenuation of the attenuator between predetermined limiting values of the received signal level are of successively increasing value as a function of increasing received signal level.

4,270,223

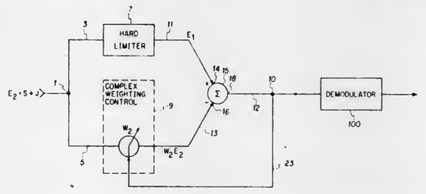
SIGNAL NORMALIZER

Robert K. Marston, Plano, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 11, 1978, Ser. No. 968,340

Int. Cl.³ H04B *1/12*

U.S. Cl. 455—305 **10 Claims**



1. A signal normalizer for a radio receiver comprising:

first circuit means for providing a first signal that results from removing essentially all AM components present on a received signal by the first circuit means, the AM component being the component present as a result of combining a desirable signal with an undesirable signal;

second circuit means for providing a second signal;

first arithmetic means for providing a third signal that results from an amplitude comparison of the first and second signals;

means for providing a received signal to said first and second circuit means; and

feedback path means for connecting the third signal to the second circuit means whereby the second circuit means in response to the received signal and the third signal provides the second signal, said first arithmetic means subtracting said second signal amplitude from the first signal which as a result of this subtraction the third signal is a normalized output signal.

4,270,224

MICROWAVE DOWN CONVERTER

Jacques Blondel, and Jean-Rene Mahieu, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Feb. 28, 1980, Ser. No. 125,700

Claims priority, application France, Mar. 1, 1979, 79 05345

Int. Cl.³ H04B *1/26*

U.S. Cl. 455—327 **3 Claims**



1. A balanced down converter for millimetric waves delivering a signal at the beat frequency between an input signal and a signal from a local oscillator, comprising:

a parallelepipedic cavity having first and second opened opposite faces and a third opened face;

two parallelepipedic housings each of which has an opened face in alignment with one of said two opened opposite faces of said cavity;

a dielectric wafer serving as substrate for a stripline and passing through said cavity and said two housings, said wafer carrying a conducting strip used for serially connecting two diodes whose non-common electrodes are respectively connected to fourth and fifth opposite faces of said cavity, said strip defining first and second microstrip line sections extending respectively in each of said two housings, said first microstrip line section propagating the signal from the local oscillator towards said cavity, and said second microstrip line section transmitting the beat frequency signal towards an output;

an approximately flat wall parallel to said wafer and formed by a sixth face of said cavity opposite to said third opened face thereof, and by the corresponding faces of said two housings;

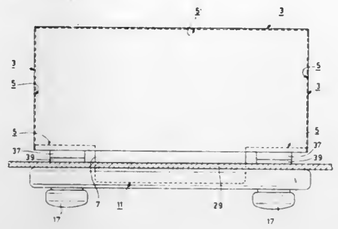
a flange positioned on said third opened face of said cavity; and

a guide section connected to said flange for propagating said input signal.

4,270,225
ELECTRICAL APPARATUS COMPRISING A REVERSIBLE FRONT PLATE

Bernardus W. J. Bentlage, and Geert Spakman, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 4, 1979, Ser. No. 36,275
Claims priority, application Netherlands, May 26, 1978, 7805727
Int. Cl.³ H04B *1/08*
U.S. Cl. 455—347 **1 Claim**



1. Electrical apparatus suitable either for building into a wall or for mounting against a wall, which comprises a substantially rectangular cabinet open on one side, an electrical device comprising a car radio accommodated in the cabinet, said electrical device having one or more control members and a substantially rectangular open box-shaped member both projecting outwardly through said open one side beyond the circumference of the cabinet, a cover plate closing the open box-shaped member, a front plate having one or more first openings for passage therethrough of said one or more control members and a second opening for passage therethrough of said box-shaped member, and an endless upright wall extending transversely from the front plate adjacent the periphery of the same, the height of said upright wall being less than the distance the box-shaped member projects beyond the circumference of the cabinet, the circumferential dimensions of said upright wall corresponding to the circumferential dimensions of the cabinet whereby, for mounting against a wall, the upright wall contacts the cabinet and said front plate closes the remainder of said open one side, and whereby, for building into a wall, the front plate is inverted whereby, the upright wall is directed outwardly to prevent light reflections.

4,270,226
REMOTE CONTROL SYSTEM

Morton Weintraub, 1542 47th St.; Elliot Waxman, 1825 50th St., and Bernard Gendelman, 1340 52nd St., all of, Brooklyn, N.Y. 11219

Continuation-in-part of Ser. No. 911,168, May 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 707,855, Jul. 22, 1976, abandoned. This application Mar. 19, 1979, Ser. No. 21,447
Int. Cl.³ H04B *1/16*
U.S. Cl. 455—353 **12 Claims**

1. Remote radio channel selection and plural function control apparatus comprising:

a. A tuner for receiving a radio signal including audio information modulated on a carrier on any one of a plurality of channels:

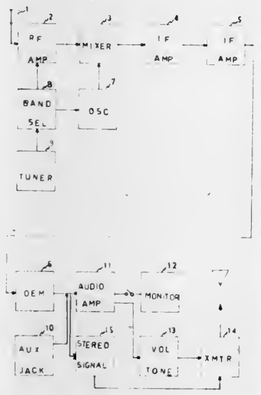
b. means located at said control apparatus for manually varying the channel selection of the tuner,

c. a demodulator connected to said tuner for providing said audio information in a baseband format,

d. means comprising of an auxiliary jack means and a magnetic pick up coil means located subsequent of the demodulator to facilitate the addition or mixing of an auxiliary intelligence signal into the incoming signal when it is in the baseband format,

e. means comprising of record/playback means connected between said auxiliary jack means and controls for selecting the mono bass, midrange, treble signals or other mono frequency range signals, separating said mono signals to a two or more channel stereo signal; for feeding said selected mono, midrange, bass signals or other frequency range signals, to one channel; for feeding a balanced input of all said signals to all channels; for feeding some of the said signals with a balanced input into all channels while some of the said signals are fed to one channel only; for feeding an unbalanced signal from some or all said selected signals to all channels; for delaying said selected signals from another of said selected signals so as to cause a resultant output from stereo channels whereby one of said frequency range signals will lead another of said frequency range signals by any desired delay level resulting in three or more signals, one emanating after another, from two or more channels,

f. means comprising vibration means, whereby musical signals cause vibrators to vibrate, each of said vibrators vibrating to a selected signal and thereafter feeding their newly created vibration signal to a signal input source thereby recreating a new signal through said vibration means and whereby a combination of many of said vibrators selected for a variety of frequency vibration ranges produce thereby a new live music sound signal source whereby said new live sound signal source does not stem



from the original electromagnetic baseband signal source but from vibrators vibrating as a result of said original electromagnetic baseband signal source, which said new signal may be placed mono or stereo, whereby all outputs of said vibration means are fed to a mono amplifier or separated into two branches to form a stereo output and to convert the frequency signals of said original electromagnetic signal emanating from one instrument. Whereby said signal acts to reproduce the said new live signal source of another instrument through said vibration means whereby the said original electromagnetic signal causes said vibration means to vibrate to a different frequency and whereby voice signals may be removed from a music-voice composition resulting in a music only output emanating from speakers and whereby producing over said speakers a voice only output from a music-voice composition by mixing means,

g. means located at said control apparatus for manually varying the characteristics of the baseband audio information as a function of listener preference,

h. means for remodulating and transmitting electromagnetically the audio signal to a remotely located radio receiver on an unused channel via wireless transmission, and,

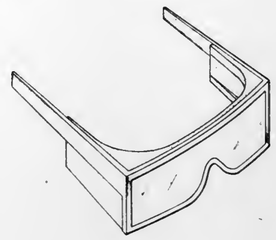
i. the remote control of both tuning and other receiver functions being effected without direct connection or modification to the receiver.

DESIGNS

MAY 26, 1981

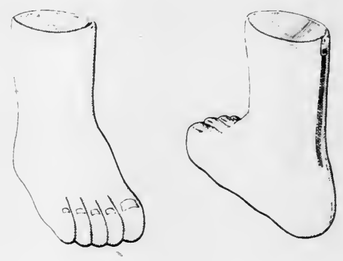
259,295
EYESHIELD FOR CHEMICAL TREATMENT OF HAIR

Vera Briggs, P.O. Box 8915, Dallas, Tex. 75216
Filed Mar. 20, 1978, Ser. No. 888,683
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—234



259,296
CHILD'S BOOT

Kerry Meyer, 1760 Harvard Ave., Salt Lake City, Utah 84108
Filed Aug. 18, 1977, Ser. No. 825,683
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—273



259,297
BOOT APPLIANCE

Michael J. Carey, 4045 Third Ave., San Diego, Calif. 92103
Filed Jun. 12, 1979, Ser. No. 47,941
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—317



259,298
SHOE SOLE

Joseph P. Famolare, Jr., Putney, Vt., assignor to Famolare, Inc., New York, N.Y.
Filed Aug. 6, 1979, Ser. No. 63,917
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—322



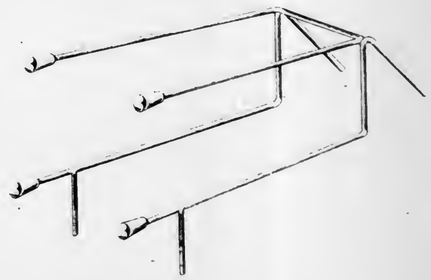
259,299
STOCKING REMOVING TOOL FOR THE HANDICAPPED OR SIMILAR ARTICLE

Richard Vreeken, 1276 Metz Rd., Perris, Calif. 92370
Filed Jan. 22, 1979, Ser. No. 5,154
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—378

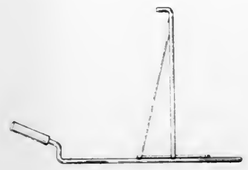


259,300
STOCKING HOLDER FOR THE HANDICAPPED OR SIMILAR ARTICLE

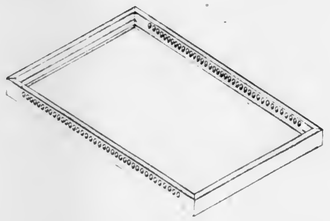
Richard Vreeken, 1276 Metz Rd., Perris, Calif. 92370
Filed Jan. 22, 1979, Ser. No. 5,383
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—378



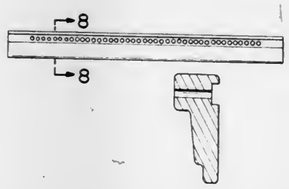
259,301
BOOT INSTALLATION AND REMOVAL DEVICE
J. Wayne Cowart, and Wayne J. Roberts, both of Woodward, Okla., assignors to Margaret Roberts, Woodward, Okla., by said J. Wayne Cowart
Filed Mar. 19, 1979, Ser. No. 21,920
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—378.2



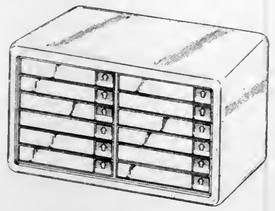
259,302
PORTABLE HAND WEAVING LOOM
P. Lynn Davis, Monte Sereno, Calif., assignor to Courtney Davis, Inc., Campbell, Calif.
Filed Dec. 11, 1978, Ser. No. 968,564
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D3—26







259,303
CONTAINER FOR TAPE CASSETTES
Peter Ackeret, Küsnacht, Switzerland, assignor to IDN Inventions and Development of Novelties AG, Chur, Switzerland
Filed Apr. 26, 1979, Ser. No. 34,019
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35



259,304
BOOT AND SHOE HOLDER
Bryan Ball, 17 Northcote Rd., Hampstead, Quebec, Canada
Filed Apr. 4, 1979, Ser. No. 26,818
Term of patent 14 years
Int. Cl. D03—*02*
U.S. Cl. D3—36



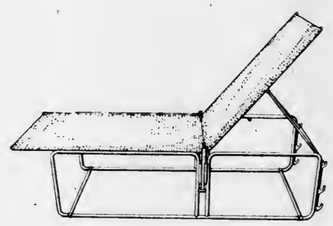
259,305
TOOTH BRUSH
Kuo-Chu Wu, 3rd Fl. No. 8, Alley 2, La. 39, Chung Hsiao E. Rd., Sec. 2, Taipei, Taiwan
Filed Jun. 26, 1979, Ser. No. 52,184
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—25



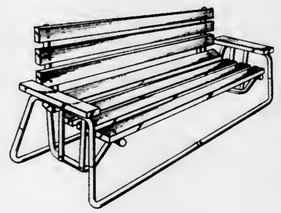
259,306
PORTABLE EASEL, SEAT AND CARRYING CASE COMBINATION
Joseph Licastro, II, 7329 Hooper Ave., Bakersfield, Calif. 93308
Filed Feb. 2, 1978, Ser. No. 874,568
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—17



259,307
SUN BENCH
Donald B. Colby, Los Angeles, Calif., assignor to Brown Jordan Company, Philadelphia, Pa.
Filed Oct. 2, 1978, Ser. No. 947,936
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



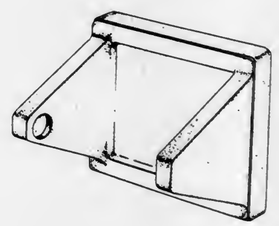
259,308
GLIDER
Joseph W. Sroub, Parma, Ohio, assignor to Cardinal American Corporation, Cleveland, Ohio
Filed Jan. 5, 1979, Ser. No. 1,183
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—52



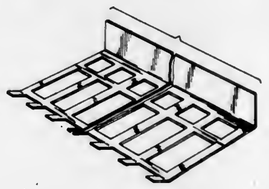
259,309
SEAT
Ira Friedman, Carmel, Calif., assignor to Rowe Furniture Corporation, Salem, Va.
Filed Jun. 30, 1978, Ser. No. 921,129
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—62



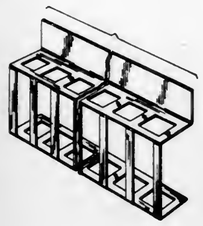
259,310
TOILET PAPER HOLDER
Douglas M. Crowe, Richmond Hill, Canada, assignor to Smith & Stone Limited, Toronto, Canada
Filed Aug. 7, 1979, Ser. No. 64,639
Claims priority, application Canada, Feb. 20, 1979, 20-02-79-6
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—97



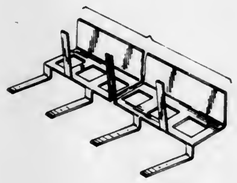
259,311
TOOL HOLDER
Sven P. Nordlund, Kåge, Sweden, assignor to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund, Kåge, Sweden
Filed Jun. 19, 1979, Ser. No. 49,982
Term of patent 14 years
Int. Cl. D6—*04*; D23—*02*
U.S. Cl. D6—125



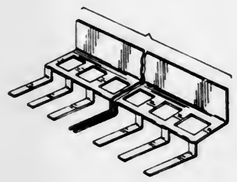
259,312
TOOL HOLDER
Sven P. Nordlund, Kåge, Sweden, assignor to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund, Kåge, Sweden
Filed Jun. 19, 1979, Ser. No. 50,090
Term of patent 14 years
Int. Cl. D6—*04;* D23—*02*
U.S. Cl. D6—125



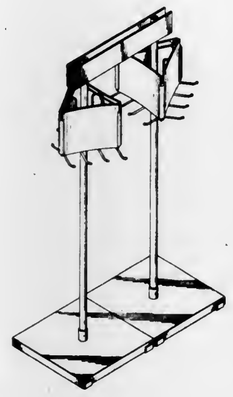
259,313
TOOL HOLDER
Sven P. Nordlund, Kåge, Sweden, assignor to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund, Kåge, Sweden
Filed Jun. 19, 1979, Ser. No. 50,091
Term of patent 14 years
Int. Cl. D6—*04;* D23—*02*
U.S. Cl. D6—125



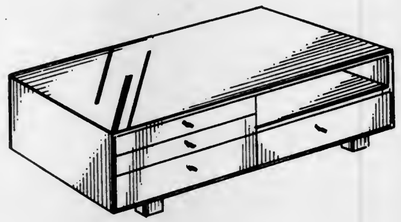
259,314
TOOL HOLDER
Sven P. Nordlund, Kåge, Sweden, assignor to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund, Kåge, Sweden
Filed Jun. 19, 1979, Ser. No. 50,092
Term of patent 14 years
Int. Cl. D6—*04;* D23—*02*
U.S. Cl. D6—125



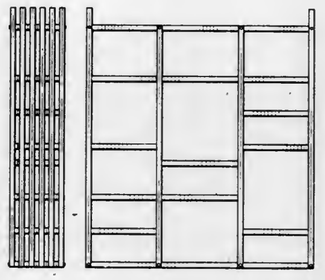
259,315
MULTI-UNIT BELT DISPLAY FIXTURE
Allan L. Ford, Melrose Park, and William A. Cole, Jenkintown, both of Pa., assignors to Reborn Products Co., Inc., Philadelphia, Pa.
Filed Jun. 4, 1979, Ser. No. 45,453
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—157



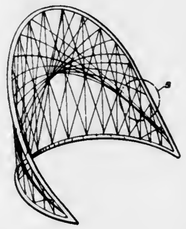
259,316
CABINET
Giovanni Offredi, Milan, Italy, assignor to Fratelli Saporiti, Besnate, Italy
Filed Oct. 31, 1977, Ser. No. 848,011
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—159



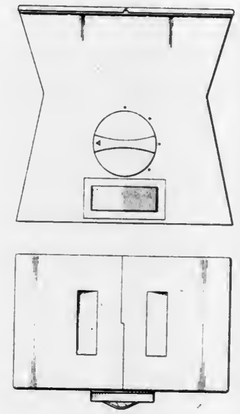
259,317
MODULAR SHELVING
Gerald M. Gilmore, 830 Kentucky, Lawrence, Kans. 66044
Filed Sep. 29, 1978, Ser. No. 947,246
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—186



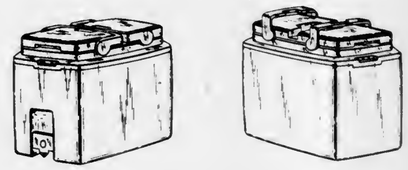
259,318
CHAIR BACK
Donald E. Hanaford, 4601 S. 35th St., Phoenix, Ariz. 85040
Filed Oct. 16, 1978, Ser. No. 951,469
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197



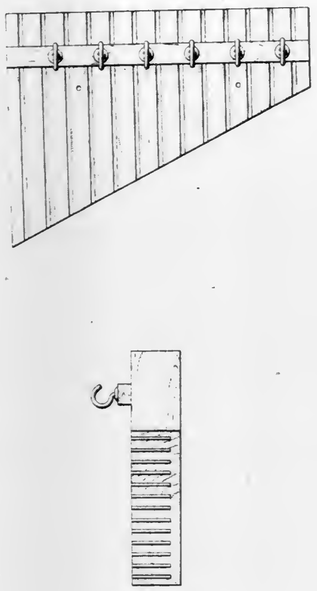
259,319
MEASURING DISPENSER FOR POWDERED OR GRANULAR MATERIALS
Salvatore D. Ciuffetti, Fitchburg, Mass., assignor to Product Development Associates, Pocasset, Mass.
Continuation-in-part of Ser. No. 732,581, Oct. 15, 1976, abandoned. This application Dec. 4, 1978, Ser. No. 966,473
Term of patent 14 years
Int. Cl. D07—*06;* D15—*08*
U.S. Cl. D7—50



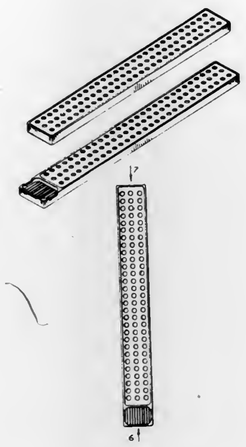
259,320
COMBINED FOOD AND BEVERAGE COOLER
Richard A. Tarozzi, Gales Ferry, Conn., assignor to King-Seeley Thermos Co., Norwich, Conn.
Filed Aug. 23, 1978, Ser. No. 936,012
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—61



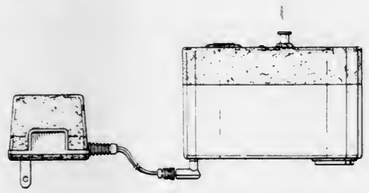
259,321
KNIFE RACK
Haywood M. Sparger, 358 Keller La., Marion, Va. 24354
Filed Nov. 16, 1978, Ser. No. 961,672
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—74



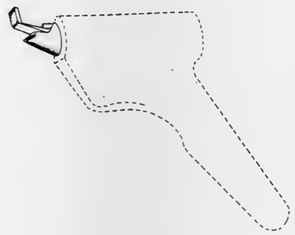
259,323
MAT FOR BEVERAGE CONTAINERS
Zigurds Galvins, 1425 Cherry Ave., Space 186, Beaumont, Calif. 92223
Filed Aug. 28, 1978, Ser. No. 937,080
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—188



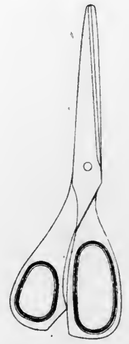
259,322
ROTATOR PRIMARILY FOR A BARBECUE SPIT INCLUDING AN ELECTRICAL ADAPTOR THEREFOR
Philip W. L. Lau, Kowloon, Hong Kong, assignor to Landmann Limited, Hong Kong
Filed Nov. 30, 1978, Ser. No. 965,207
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—129



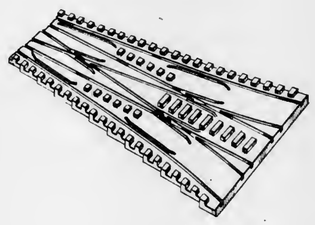
259,324
HEATED TIP FOR USE WITH A HEATING TOOL OR THE LIKE
Terry J. Hertel, 20065 Northwind Sq., Cupertino, Calif. 95104
Division of Ser. No. 778,699, Mar. 17, 1977. This application Sep. 1, 1978, Ser. No. 938,863
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



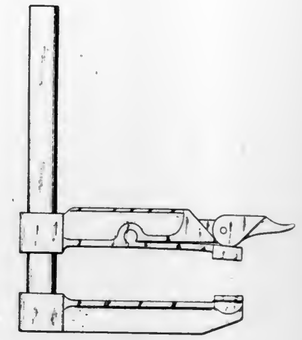
259,325
SCISSORS
Hidekazu Okada, Ashiya, Japan, assignor to Clover Mfg. Co. Ltd., Osaka, Japan
Filed Feb. 16, 1978, Ser. No. 878,587
The portion of the term of this patent subsequent to Aug. 1, 1992, has been disclaimed.
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—57



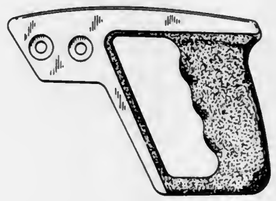
259,326
GLUEING JIG FOR PRODUCTION OF MODEL RAILWAY SWITCH POINTS
Janos Jozsa, Gråbergsvägen 3, Trollhättan, Sweden (461 00)
Filed Mar. 20, 1978, Ser. No. 888,681
Claims priority, application Sweden, Sep. 20, 1977, 1866
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—71



259,327
WOODWORKING CLAMP
Irving Sloane, Millerton, N.Y. 12546
Filed Nov. 16, 1978, Ser. No. 961,395
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—72



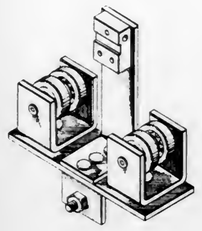
259,328
HANDLE FOR COMPASS SAW
Laird F. Covey, Easton, Conn., assignor to The Stanley Works, New Britain, Conn.
Filed Sep. 25, 1978, Ser. No. 945,782
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—97



259,329
BOAT ANCHOR DAVIT
Robert G. Barbour, 10597 Ayres Ave., Los Angeles, Calif. 90064
Filed Nov. 26, 1979, Ser. No. 97,402
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—356



259,330
DOOR MOUNTING CARRIER FOR A TRACK SUPPORTED TRANSACTION SECURITY ENCLOSURE DOOR
James G. Stine, Allentown, Pa., assignor to Automatic Devices Company, Allentown, Pa.
Filed Sep. 18, 1979, Ser. No. 76,730
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—377



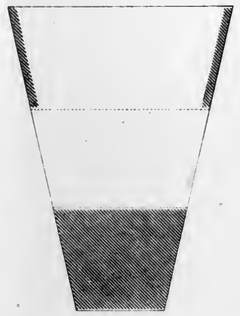
259,331
BOTTLE
Henry Saenz, Pittsburgh, Pa., assignor to J. L. Prescott Co., Passaic, N.J.
Filed Oct. 30, 1978, Ser. No. 955,692
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—404



259,332
BOTTLE
Laurie Walton, 36 Curtis Rd., Balmain, N.S.W. 2041, Australia
Filed Apr. 20, 1978, Ser. No. 898,247
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—385



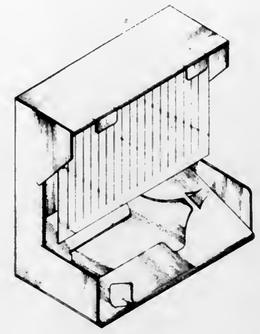
259,333
COMBINED SHIPPING AND PACKAGING ENVELOPE FOR A POTTED PLANT
Robert R. Charbonneau, 2083 Ian Ave., Mississauga, Ontario, Canada
Filed Oct. 11, 1977, Ser. No. 841,334
Term of patent 14 years
Int. Cl. D9—*05*
U.S. Cl. D9—306



259,334
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. D. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,878
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—310



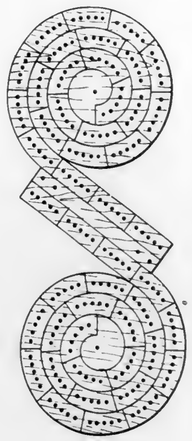
259,335
COMBINED PACKAGING CONTAINER AND TARGET FOR AN AIR GUN
Richard L. Gillespie, San Gabriel, Calif., assignor to Wham-O Mfg. Co., San Gabriel, Calif.
Filed Mar. 16, 1979, Ser. No. 21,089
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—337



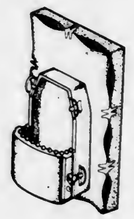
259,336
SEISMIC CABLE LOCATOR
Lloyd Paitson, Drawer 2600, Galveston, Tex. 77552
Filed Jul. 7, 1978, Ser. No. 923,050
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—46



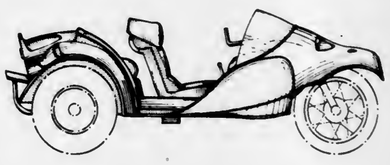
259,337
CRIBBAGE BOARD
Robert A. Blandy, 1744 Celeste, San Mateo, Calif. 94402
Filed Nov. 15, 1978, Ser. No. 960,822
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D10—46.1



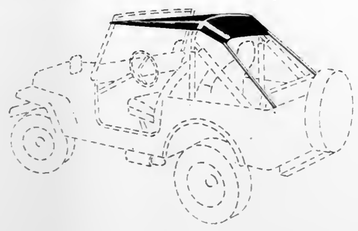
259,338
NON-SMOKING TROPHY
Okpara E. Tolbert, II, 6134 Dickerson, Detroit, Mich. 48213
Filed Oct. 23, 1978, Ser. No. 953,559
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—133



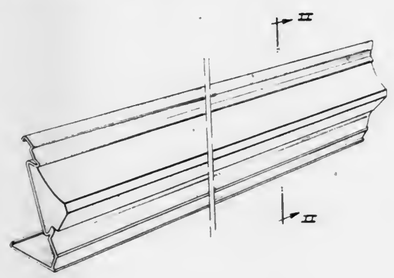
259,339
THREE WHEELED VEHICLE BODY
Sherman Vickers, P.O. Box 18322, Seattle, Wash. 98118
Filed May 14, 1979, Ser. No. 38,666
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—85



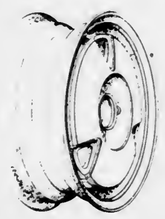
259,340
OPEN SIDE TOP FOR JEEPS
James J. Stengel, Boulder, Colo., assignor to Bestop Manufacturing Company, Boulder, Colo.
Filed Sep. 13, 1978, Ser. No. 942,174
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156



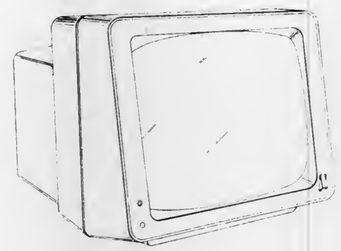
259,341
VEHICLE SIDE MOLDING
Peter Wang, 901E Greenwood Ave., Montebello, Calif. 90640
Filed Jul. 31, 1978, Ser. No. 929,684
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—190



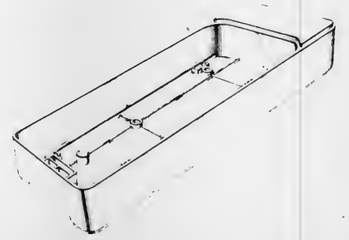
259,342
WHEEL
Björn E. A. Envall, Vänersborg, and Ulf K. Svanbäck, Lilla Edet, both of Sweden, assignors to Saab-Scania AB, Trollhattan, Sweden
Filed Aug. 24, 1979, Ser. No. 69,498
Claims priority, application Sweden, Feb. 27, 1979, 79-0505
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



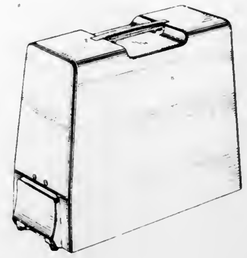
259,343
CATHODE RAY TUBE DISPLAY DEVICE
Edward Chamberlain, Chandlers Ford; Nicholas M. Leon, and Michael H. Sharp, both of Winchester, all of England, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 31, 1978, Ser. No. 892,068
Claims priority, application United Kingdom, Oct. 18, 1977, 981960/77
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—45



259,344
SEWING MACHINE BED COVER
Albert L. Newman, West Orange, and Clifford J. Kneipp, Livingston, both of N.J., assignors to The Singer Company, Stamford, Conn.
Filed Jun. 14, 1979, Ser. No. 48,338
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—72



259,345
CARRYING CASE COVER FOR A SEWING MACHINE
Albert L. Newman, West Orange, and M. Gary Grossman, Wyckoff, both of N.J., assignors to The Singer Company, Stamford, Conn.
Filed Aug. 6, 1979, Ser. No. 64,310
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D15—75



259,346
SEALING DISC FOR TIRE RETREADING
William M. DeHaven, Asheboro, N.C., assignor to Harrelson Rubber Company, Asheboro, N.C.
Filed Oct. 4, 1978, Ser. No. 948,525
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—199



259,347
TYPEWRITER
Takashi Hirata, Kawasaki, and Kunio Hirose, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 28, 1979, Ser. No. 52,987
Claims priority, application Japan, Jan. 19, 1979, 54-1612
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—1



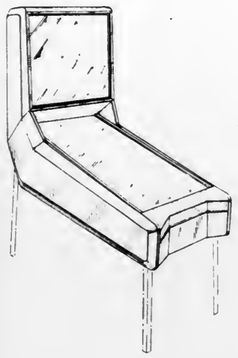
259,348
COMBINED DESK TOP ELECTRONIC CALCULATOR AND CLOCK
Masaaki Sakai, Tokyo, and Hideo Fushimoto, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 28, 1979, Ser. No. 52,990
Claims priority, application Japan, Jan. 25, 1979, 54-2566
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—2



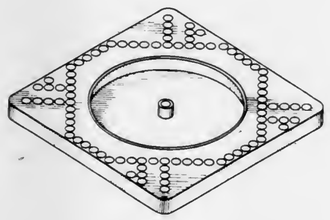
259,349
DESK TOP ELECTRONIC CALCULATOR
Takashi Hirata, Kawasaki, and Kazuyoshi Odagawa, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 22, 1978, Ser. No. 972,080
Claims priority, application Japan, Jul. 3, 1978, 53-27954
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—7



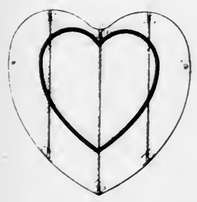
259,350
PINBALL GAME CABINET
Edward L. Stulik, and Charles W. Pelly, both of Calabasas, Calif., assignors to Bally Manufacturing Corporation, Chicago, Ill.
Filed Dec. 11, 1978, Ser. No. 968,403
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—7



259,351
GAMEBOARD
James H. DeBoer, 3533 E. "D" Ave., Kalamazoo, Mich. 49004
Filed Oct. 16, 1978, Ser. No. 951,451
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—20



259,352
KITE
Mark H. Adams, III, 315 N. Crestway, Wichita, Kans. 67208, and Davidjon Flesher, 1115 Carlos, Wichita, Kans. 67203
Filed Oct. 16, 1978, Ser. No. 951,450
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—88



259,353
NOVELTY TOY COFFIN
John W. Slemmons, 19142 Glen Albyn, Orange, Calif. 92669
Filed Dec. 26, 1978, Ser. No. 973,382
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—109



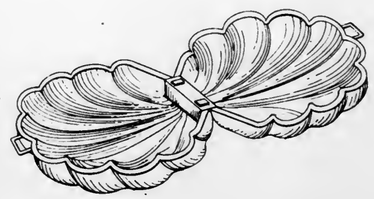
259,354
TASSELED CLINGING GAME BALL
Joseph B. Derrington, 15652 Parthenia St., Sepulveda, Calif. 91343
Filed Oct. 18, 1978, Ser. No. 952,569
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—203



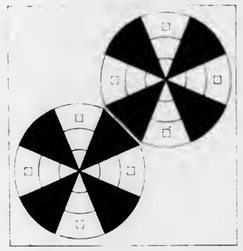
259,355
UNDERWATER HOCKEY STICK
Peter Van Winkle, 110 Seaspray Ave., Palm Beach, Fla. 33480
Filed May 21, 1979, Ser. No. 40,847
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—210



259,356
COMBINED POOL AND SANDBOX
Bruno Ferretti, Woburn, Mass., assignor to Martin Yale Industries, Inc., Chicago, Ill.
Filed Sep. 21, 1978, Ser. No. 944,251
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—252



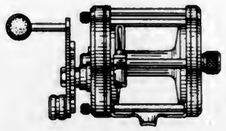
259,357
GUN TARGET
Charles R. Dulude, 33 Burnside Ave., East Hartford, Conn. 06108
Filed Apr. 7, 1978, Ser. No. 894,642
Term of patent 14 years
Int. Cl. D22—*04*
U.S. Cl. D22—15



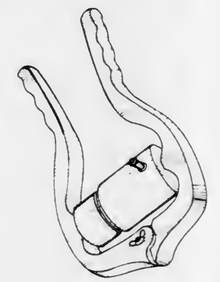
259,358
MINNOW DIPPER
William H. Jones, 8721 Elm St., Kansas City, Mo.
Filed May 7, 1979, Ser. No. 36,443
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—22



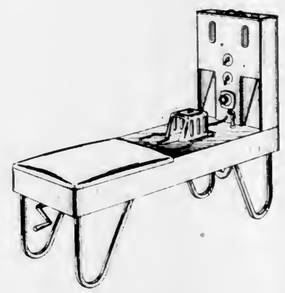
259,359
FISHING REEL
Seiji Myojo, Sakai, Japan, assignor to Shimano Kogyo Kabushiki Kaisha, Osaka, Japan
Filed May 7, 1979, Ser. No. 36,748
Claims priority, application Japan, Nov. 7, 1978, 53-47411
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



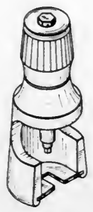
259,360
FLUID PUMP
Mervyn S. MacGregor, 7 Congdon St., Swanbourne, Western Australia 6010, Australia
Filed Oct. 13, 1978, Ser. No. 951,281
Claims priority, application Australia, Apr. 13, 1978, 74476/78
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—14



259,361
THERAPY TABLE
Harold A. Knackstedt, 201 E. Morgan St., Inman, Kans. 67546
Filed Feb. 8, 1978, Ser. No. 876,192
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—3



259,362
DENTAL BUR WRENCH TOOL
Richard P. Lewis, Springfield, Pa., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.
Filed Sep. 29, 1978, Ser. No. 947,216
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—10



259,363
POCKET INHALATOR WITH ULTRASONIC SPRAYER OR ATOMIZER
Ernst Reichl, Munich, Fed. Rep. of Germany, assignor to Bosch-Siemens Hasugeräte GmbH, Stuttgart, Fed. Rep. of Germany
Filed Jul. 7, 1978, Ser. No. 922,788
Claims priority, application Fed. Rep. of Germany, Jan. 13, 1978, MR 4771
Term of patent 14 years
Int. Cl. D24—*05*
U.S. Cl. D24—62



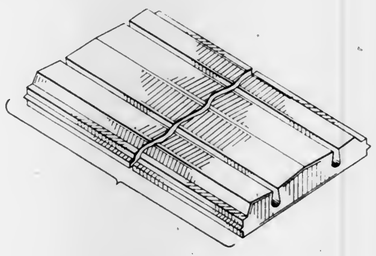
259,364
EXTRUDED ALUMINUM CHANNEL
Carl Poth, 1226 Manss Ave., Cincinnati, Ohio 45205
Filed Jun. 28, 1978, Ser. No. 919,897
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



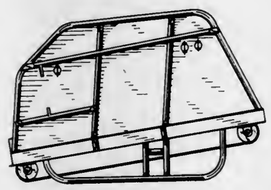
259,365
COMBINED DENTAL FLOSS HOLDER AND TOOTH PICK
Branislav Petrovic, 1540 E. Canfield La.-Apt. 15, Anaheim, Calif. 92805
Filed Aug. 28, 1978, Ser. No. 937,140
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—64



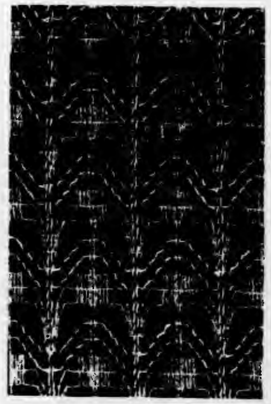
259,366
FLUME INTERLOCKING PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034
Filed Aug. 13, 1979, Ser. No. 65,867
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



259,367
TREADMILL FOR ANIMALS
Tully W. Talbot, Audubon, Iowa, assignor to Emmert Manufacturing Company, Audubon, Iowa
Filed Jul. 3, 1978, Ser. No. 921,605
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—42



259,368
CURTAIN MATERIAL
Hans Stöcker, Wil, Switzerland, assignor to Gardisette International AG, Lucerne, Switzerland
Filed May 30, 1979, Ser. No. 43,688
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 1187
Term of patent 14 years
Int. Cl. D5—*05*
U.S. Cl. D47—6 E



259,369
TRANSPARENT MONUMENT
Joseph Splendora, Milford, Pa. 18337
Filed May 24, 1978, Ser. No. 909,244
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D99—24



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF MAY, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Nattermann & Cie. GmbH: *See—*
Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, 4,269,855, Cl. 424-285.000.

A-T-O Inc.: *See—*
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A. W. Chesterton Company: *See—*
Dutton, Walter L., 4,269,417, Cl. 277-11.000.

AB Volvo: *See—*
Fredell, Soren; and Jarl, Stig, 4,269,079, Cl. 74-365.000.

Abbot-Northwestern Hospitals Inc.: *See—*
Burton, Charles V.; and Lossing, Wallace W., 4,269,179, Cl. 128-75.000.

Abbott Laboratories: *See—*
DeBernardis, John F.; and Kyncl, John J., 4,269,858, Cl. 424-330.000.
Erwin, Phillip, 4,269,511, Cl. 356-368.000.
Tadanier, John S.; and Martin, Jerry R., 4,269,970, Cl. 536-17.00R.

Abendschein, Frederic H.: *See—*
Kountz, Kenneth J.; Cooper, Kenneth W.; and Abendschein, Frederic H., 4,269,261, Cl. 165-2.000.

Abolins, Visvaldis; and Lee, Gim F., Jr., to General Electric Company. Thermoplastic molding compositions of vinyl aromatic compound α,β unsaturated cyclic anhydride copolymers. 4,269,950, Cl. 525-68.000.

Abraham, Jeffrey L.; and Banse, Gary D. Spring type ball pitching apparatus. 4,269,162, Cl. 124-7.000.

Abraham, William W., to Consolidated Medical Equipment Inc. Skin conducting electrode assembly. 4,269,189, Cl. 128-303.130.

ACF Industries Incorporated: *See—*
Winkley, Jerry H., 4,269,792, Cl. 261-39.00B.

Ackermann, Hans: *See—*
Horvath, Zoltan; Muggli, Jurg; Ackermann, Hans; and Tresch, Erwin, 4,269,510, Cl. 356-338.000.

Acra Plant, Inc.: *See—*
Robertson, Forrest E.; and Williams, Donald E., 4,269,274, Cl. 172-699.000.

Adachi, Eiichi, to Ricoh Company, Ltd. Identification information addition system of facsimile apparatus. 4,270,146, Cl. 358-256.000.

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Adair, Edwin L., to Medical Dynamics, Inc. Transcutaneous vasectomy apparatus and method. 4,269,174, Cl. 128-1.00R.

Adamant Kogyo Co., Ltd.: *See—*
Ozawa, Minoru, 4,269,900, Cl. 428-542.000.

Adams, Albert. Device for harvesting grapes or other berries and apparatus provided with this device. 4,269,022, Cl. 56-330.000.

Adams, Harold R. Valve stem lock. 4,269,221, Cl. 137-383.000.

Adler, Stanford L.; and Gordon, Abraham, to Technicon Instruments Corporation. Transfer apparatus. 4,269,139, Cl. 118-642.000.

Advanced Systems, Inc.: *See—*
Gurian, Marshall I., 4,269,716, Cl. 210-675.000.

Aerochem Research Laboratories, Inc.: *See—*
Allen, Jonathan; and Gould, Robert K., 4,269,507, Cl. 356-36.000.

Aeroquip Corporation: *See—*
Allread, Alan R., 4,269,226, Cl. 137-614.000.

AES Technology Systems, Inc.: *See—*
Sargis, John R.; and AES Technology Systems, Inc., 4,269,401, Cl. 270-58.000.

Agency of Industrial Science and Technology: *See—*
Ebata, Yoshihiro; Toibana, Yasuo; Uetsuki, Tsuneo; Kose, Saburo; and Kinoshita, Makoto, 4,269,641, Cl. 156-89.000.
Ichimura, Kunihiro, 4,269,941, Cl. 435-182.000.

AGFA-Gevaert, A.G.: *See—*
Engelsmann, Dieter; and Schroder, Rolf, 4,269,492, Cl. 354-42.000.

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Janssens, Wilhelmus; Somers, Alphonse; and Claeys, Daniel A., 4,269,924, Cl. 430-214.000.
Roosen, Raymond A.; Pollet, Robert J.; and Vandenberghe, Antoon L., 4,269,923, Cl. 430-140.000.
Umans, Frans M.; Ceuppens, Willy G.; Palmans, Willy J.; and Overmeer, Robert T., 4,269,594, Cl. 432-59.000.
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., 4,269,647, Cl. 156-157.000.

Agladze, Georgy R.: *See—*
Agladze, Rafael I.; Manukov, Erik A.; and Agladze, Georgy R., 4,269,689, Cl. 204-268.000.

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Shenoi, Kishan; and Agrawal, Bhagwati P., 4,270,026, Cl. 179-15.55R.

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Ahmed, Adel A. A., to RCA Corporation. Relaxation oscillator having switched current source. 4,270,101, Cl. 331-111.000.

Ahrens, Claude W. Swine farrowing hut and method of farrowing pigs and maintaining a disease-free farrowing hut. 4,269,144, Cl. 119-16.000.

Aiki, Kunio: *See—*
Takeda, Yutaka; Aiki, Kunio; and Ito, Ryoichi, 4,270,134, Cl. 357-19.000.

Ain, Mark S.: *See—*
Baxter, Larry K.; Cohen, Robert D.; Ain, Mark S.; and Apsell, Sheldon P., 4,270,043, Cl. 235-419.000.

Air Industrie: *See—*
Cordier, Andre G., 4,269,112, Cl. 98-115.0SB.

Aisin Seiki Company, Limited: *See—*
Kondo, Toshiyuki; and Ando, Masamoto, 4,269,456, Cl. 303-115.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Hida, Takashi; Mitsui, Tsutomu; Kuwana, Kazutaka; and Hashiride, Tadaaki, 4,269,045, Cl. 66-75.200.
Mashiki, Nobuo; and Chigusa, Koichi, 4,269,533, Cl. 403-410.000.

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Chaki, Takao; and Akasaka, Chuji, 4,269,074, Cl. 74-10.330.

Akiyama, Satoshi: *See—*
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Broberg, Hans; Douren, Lars; and Troeng, John, 4,269,655, Cl. 159-13.00A.

Aktiebolaget Karlstads Mekaniska Werkstad: *See—*
Jansson, Erik O.; Naucler, Bengt O.; and Asberg, Thomas, 4,269,568, Cl. 415-204.000.

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Aktiebolaget Svenska Flaktfabriken: *See—*
Gustavsson, Lennart, 4,269,578, Cl. 425-83.100.

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Akzo N.V.: *See—*
Gunter, Gerhard; and Haeufler, Hartmut, 4,269,866, Cl. 427-27.000.

Akzona Incorporated: *See—*
Kolczynski, James R.; and Schultz, Gerald A., 4,269,726, Cl. 252-186.000.

Albanese, Damian F., to International Telephone and Telegraph Corporation. Digital compressive receiver. 4,270,209, Cl. 375-96.000.

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Fischer, Rudolf; and Hartmann, Karl-Heinz, 4,269,402, Cl. 493-437.000.

Albert, Walter: *See—*
Borchert, Herbert; Albert, Walter; Kohaut, Gunter; Schulte, Ulrich; and Rapp, Bruno, 4,269,895, Cl. 428-402.000.

Alcan Aluminiumwerk Nurnberg GmbH: *See—*
Rosch, Fritz, 4,269,287, Cl. 188-1.00B.

Allen, Denis L. C., to Ford Motor Company. Track for sliding closure. 4,268,996, Cl. 49-212.000.

Allen, Jonathan; and Gould, Robert K., to Aerochem Research Laboratories, Inc. Method and apparatus for pulverizing solid materials with a grindstone and injecting particles thereof into a flame for analysis. 4,269,507, Cl. 356-36.000.

Allied Chemical Corporation: *See—*
Berry, Michael J.; and Barrett, Joseph J., 4,269,509, Cl. 356-301.000.
DellaVecchia, Michael P.; Mackey, Joseph E.; and Steinberg, Albert H., 4,269,884, Cl. 428-131.000.
Pez, Guido; and Anderson, Lowell R., 4,269,738, Cl. 252-500.000.
Yancey, Paul J., 4,269,652, Cl. 156-607.000.

Allione, Michele: *See—*
Cavallino, Francesco; Martinez, Pasquale; Allione, Michele; and Schiavuzzi, Roberto, 4,269,029, Cl. 60-293.000.

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Berti, Jerome L., 4,269,158, Cl. 123-563.000.
Faulkner, Bobby P.; Heyer, Wayne D.; and Weinecke, Michael H., 4,269,593, Cl. 432-58.000.

Allread, Alan R., to Aeroquip Corporation. Universal breakaway coupling. 4,269,226, Cl. 137-614.000.

Almond, George, to Empire of Carolina, Inc. Vehicle drive with free-wheeling and braking. 4,269,291, Cl. 192-6.00R.

Alphatype Corporation: *See—*
Tidd, James A.; and Tidd, Miles H., 4,270,172, Cl. 364-523.000.

Alps Electric Co., Ltd.: *See—*
Tsuchiya, Tatsuhiko; and Oka, Mikiwo, 4,269,373, Cl. 242-191.000.

Alsup, James M.; and Whitehouse, Harper J., to United States of America, Navy. Sampled speech compression system. 4,270,025, Cl. 179-15.55R.

Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., to Pfizer Inc. 1,9-Dihydroxyoctahydrophenanthrenes and intermediates therefor. 4,270,005, Cl. 568-328.000.

Altman Associates, Inc.: *See—*
Altman, Norman G., 4,269,515, Cl. 356-394.000.

Altman, Norman G., to Altman Associates, Inc. Electro-optical system for inspecting printed circuit boards. 4,269,515, Cl. 356-394.000.

Altmann, Marcel. Implement for the laying of cables and the like. 4,269,541, Cl. 405-181.000.

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Altorfer, Kenneth J.; and Marantz, Daniel R., to Texasgulf Inc. Metallizing of a corrodible metal with a protective metal. 4,269,867, Cl. 427-37.000.

Aluminum Company of America: *See—*
Clark, John F., 4,269,673, Cl. 204-67.000.

Alway, David M.: *See—*
Pryor, Timothy R.; Alway, David M.; and Hageniers, Omer L., 4,269,874, Cl. 427-282.000.

Amano Pharmaceutical Co. Ltd.: *See—*
Yamada, Hideaki; Shimizu, Sakayu; and Tani, Yoshiki, 4,269,942, Cl. 435-193.000.

AMBAC Industries, Incorporated: *See—*
Moore, James R., 4,268,964, Cl. 30-276.000.

American Cyanamid Company: *See—*
Hardy, Robert A., Jr.; Baker, Jannie S.; and Quinones, Nicanor Q., 4,269,980, Cl. 544-256.000.
Lipfert, Donald E.; and Goldschmidt, Willfred, 4,269,527, Cl. 401-200.000.
Tomcufcik, Andrew S.; and Sloboda, Adolph E., 4,269,832, Cl. 424-244.000.
Villamarin, Arturo A.; and de Gomez, Mabel A. S., 4,269,824, Cl. 424-70.000.

American Hospital Supply Corporation: *See—*
Zboralski, Jon A.; Tringali, Richard C.; and Grow, Harry N., 4,269,615, Cl. 55-480.000.

American Optical Corporation: *See—*
Young, John M., 4,269,487, Cl. 351-58.000.

Amicon Corporation: *See—*
Dean, Peter D. G.; Brown, Peter J.; and Bouriotis, Vasilis, 4,269,605, Cl. 23-230.00B.

Ammon, J. Preston; Weaver, Harry R.; and Rodriquez, Claude, to Elfab Corporation. Electrical connector insulator. 4,269,468, Cl. 339-176.00M.

AMP Incorporated: *See—*
Huber, John H., 4,269,466, Cl. 339-107.000.
Hughes, Donald W. K., 4,269,467, Cl. 339-126.00R.
Mueller, Arthur L., 4,269,465, Cl. 339-95.00R.
Shaffer, Howard R.; and Wycheck, Thomas H., 4,269,472, Cl. 339-223.00R.

Ampex Corporation: *See—*
Diermann, Joachim P.; and Ritchey, Thomas W., Jr., 4,270,150, Cl. 360-10.000.

Analog Devices, Incorporated: *See—*
Brokaw, Adrian P., 4,270,118, Cl. 340-347.0AD.

Anantha, Narasipur G.; and Srinivasan, Gurumakonda R., to International Business Machines Corporation. Selective epitaxy method using laser annealing for making filamentary transistors. 4,269,631, Cl. 148-1.500.

Ancos Co., Ltd.: *See—*
Hashimoto, Yasuyuki; and Torii, Osamu, 4,269,524, Cl. 401-65.000.

Anderberg, Erling L. Apparatus for drying or dehumidifying gases. 4,269,611, Cl. 55-179.000.

Anders, Dietmar; and Brand, Wilhelm, to Hermann Berstorff Maschinenbau GmbH. Drive means for a cascade extruder. 4,269,085, Cl. 74-665.0GA.

Andersen, Henry L. Jack mechanism. 4,269,392, Cl. 254-95.000.

Andersen, Holger. Seam press for tubular clothing parts. 4,268,982, Cl. 38-12.000.

Anderson, Lowell R.: *See—*
Pez, Guido; and Anderson, Lowell R., 4,269,738, Cl. 252-500.000.

Anderson, Paul T., to Westinghouse Electric Corp. Thermal overload relay. 4,270,113, Cl. 337-75.000.

Anderson Strathclyde Limited: *See—*
Wilson, Samuel L., 4,269,448, Cl. 299-1.000.

Ando, Masamoto: *See—*
Kondo, Toshiyuki; and Ando, Masamoto, 4,269,456, Cl. 303-115.000.

Angstrohm Precision Incorporated: *See—*
Sease, D. Lamar; Solow, Benjamin; Boeckmann, Eduard F.; and Rabinow, David, 4,268,954, Cl. 29-620.000.

Aoki, Minoru: *See—*
Yaguchi, Kunihide; Takaiwa, Masakazu; and Aoki, Minoru, 4,269,806, Cl. 422-171.000.

Aosco & Associates, Ltd.: *See—*
Aossey, Joseph W., 4,269,297, Cl. 194-1.00B.

Aossey, Joseph W., to Aosco & Associates, Ltd. Vending machine see-thru coin box. 4,269,297, Cl. 194-1.00B.

Aoyagi, Yoshiaki: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Tanaka, Haruo, 4,269,838, Cl. 424-250.000.

Applied Plastics Co., Inc.: *See—*
Firth, Francis G., 4,269,751, Cl. 260-31.20R.

Apsell, Sheldon P.: *See—*
Baxter, Larry K.; Cohen, Robert D.; Ain, Mark S.; and Apsell, Sheldon P., 4,270,043, Cl. 235-419.000.

Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, to Fuji Photo Film Co., Ltd. Process of forming yellow photographic images. 4,269,936, Cl. 430-389.000.

Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, to Dai Nippon Insatsu K.K. Transfer printing apparatus. 4,269,650, Cl. 156-540.000.

Arai, Yasuyuki: *See—*
Yoshino, Toshikazu; Arai, Yasuyuki; Tsukagoshi, Tsunehiro; and Yokozeki, Shinichi, 4,269,416, Cl. 369-256.000.

Arakawa, Tatsumi: *See—*
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, 4,269,911, Cl. 429-199.000.

Araki, Tatsuo; Okamoto, Yasuo; Ohtomo, Fumio; and Atsumi, Hiroto, to Tokyo Shibaura Denki Kabushiki Kaisha. Valve apparatus. 4,269,227, Cl. 137-630.140.

Araki, Yoshitaka: *See—*
Ishizaka, Sunao; Araki, Yoshitaka; and Muryoi, Takeshi, 4,269,497, Cl. 354-286.000.

Aratame, Kazuhisa: *See—*
Shiozawa, Kazuo; Yagi, Michio; Suzuki, Kijiro; Aratame, Kazuhisa; Shimokawa, Ryushi; and Ishihara, Haruji, 4,269,494, Cl. 354-60.00L.

Arcamone, Federico: *See—*
Lombardi, Paolo; Franceschi, Giovanni; and Arcamone, Federico, 4,269,771, Cl. 260-245.20R.

Arco Industries Ltd.: *See—*
D'Andrade, Bruce M., 4,269,596, Cl. 434-32.000.

Arco Polymers, Inc.: *See—*
Blommers, Elizabeth A.; Poole, William J.; and Ingram, Alvin R., 4,269,871, Cl. 427-222.000.

Arenco P.M.B. B.V.: *See—*
Boogers, Wilhelmus P. L., 4,269,202, Cl. 131-290.000.

Arendt, Georgy A.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.

ARES, Inc.: *See—*
Stoner, Eugene M., 4,269,108, Cl. 89-33.00R.
Stoner, Eugene M., 4,269,109, Cl. 89-198.000.

Argus Chemical Corporation: *See—*
Mack, Gerry, 4,269,731, Cl. 252-400.00R.
Spiegelman, Gerald; and Liauw, Koei-Liang, 4,269,782, Cl. 260-429.700.

Arjomari-Prioux: *See—*
Gomez, Daniel; and Bartoli, Giampaolo, 4,269,657, Cl. 162-135.000.

Armco Inc.: *See—*
Cowan, William S., 4,269,268, Cl. 166-208.000.
Hogan, John C.; and Gibson, Alan F., 4,269,398, Cl. 266-230.000.

Armitage, David, to Leveen, Harry H. Inducing local hyperthermia by inductive diathermy. 4,269,199, Cl. 128-804.000.

Arneklev, Duane R.: *See—*
Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., 4,269,618, Cl. 71-88.000.

Arnold, Franklin D.: *See—*
Benton, Charles M.; Arnold, Franklin D.; Forberg, Helge O.; Tuscher, Roger L.; and Evrad, Gerald D., 4,269,592, Cl. 432-19.000.

Arns, Harold E.: *See—*
Bejerano, Abraham; Bennett, George J.; and Arns, Harold E., 4,270,153, Cl. 360-78.000.

Aro Corporation, The: *See—*
Carter, Raymond D.; and Clark, Allen L., 4,269,223, Cl. 137-460.000.

Arthur A. Collins, Inc.: *See—*
Collins, Arthur A.; Bayless, Jon W., Sr.; and Pedersen, Robert D., 4,270,203, Cl. 370-102.000.

Arthur Schmid AG: *See—*
Principe, Viktor, 4,269,131, Cl. 112-273.000.

Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, to Central Glass Company, Limited. Process for preparing crystalline ammonium dihydrogen phosphate. 4,269,814, Cl. 423-308.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, 4,269,911, Cl. 429-199.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Ohishi, Michiro, 4,270,140, Cl. 358-55.000.
Takami, Satoshi, 4,269,490, Cl. 354-24.000.

Asahi Malleablt Iron, Co., Ltd.: *See—*
Nakai, Kiyoshi; Miyajima, Hidenobu; and Harada, Syuji, 4,269,333, Cl. 222-484.000.

Asahi Seimitsu Kabushiki Kaisha: *See—*
Koenuma, Masao, 4,268,969, Cl. 33-438.000.

Asanuma, Yoshimasa; and Nishimura, Taiichi, to Fuji Photo Film Co., Ltd. Photographic polyolefin coated paper bases with ionomer layer. 4,269,937, Cl. 430-538.000.

Asberg, Thomas: *See—*
Jansson, Erik O.; Naucler, Bengt O.; and Asberg, Thomas, 4,269,568, Cl. 415-204.000.

ASEA Aktiebolag: *See—*
Brogardh, Torgny, 4,270,050, Cl. 250-231.00R.

Ashland Oil, Inc.: *See—*
Norton, Richard V.; and Howe, Steven C., 4,270,014, Cl. 585-22.000.

Ashpole, Raymond S.; Peachey, Colin J.; and Kar, Arup K., to Associated Electrical Industries Limited. Strength members for the reinforcement of optical fibre cables. 4,269,024, Cl. 57-232.000.

Asija, Satya P. Automated information input, storage, and retrieval system. 4,270,182, Cl. 364-900.000.

Askew, Henry E. Masonry cleaning tool. 4,268,965, Cl. 30-304.000.

Associated Electrical Industries Limited: *See—*
Ashpole, Raymond S.; Peachey, Colin J.; and Kar, Arup K., 4,269,024, Cl. 57-232.000.

Assouline, David. Device to keep birds from alighting on buildings. 4,269,008, Cl. 52-101.000.

Atchison, George J.; McEwen, Gerald K.; and Stevens, Violete L., to Dow Chemical Company, The. Radiation curable flame retardant compositions containing 2,2-dialkylpropane-1,3-diolbis[bis-(acryloyloxylkyl) phosphates]. 4,269,727, Cl. 252-188.30R.

Atco Manufacturing Co., Inc.: *See—*
Vorbeck, Donald W., 4,269,147, Cl. 119-73.000.

Atherton, James H.: *See—*
Jindra, Clifford P.; and Atherton, James H., 4,270,190, Cl. 365-208.000.

Atlantic Richfield Company: *See—*
O'Toole, James T., 4,269,969, Cl. 528-498.000.

Atsumi, Hiroto: *See—*
Araki, Tatsuo; Okamoto, Yasuo; Ohtomo, Fumio; and Atsumi, Hiroto, 4,269,227, Cl. 137-630.140.

Atwell, Robert E., to Eastman Kodak Company. Internally doped surface sensitized high chloride silver halide emulsions and photograhic elements and processes for their preparation. 4,269,927, Cl. 430-217.000.

Aubard, Gilbert G.: *See—*
Torossian, Dieran R.; and Aubard, Gilbert G., 4,269,778, Cl. 260-397.450.

Audic, Bernard, to Souriau & Cie. Contact terminal connector. 4,269,469, Cl. 339-177.00R.

Ayusawa, Saburo: *See—*
Ikeno, Teruo; Kado, Satoshi; Ayusawa, Saburo; Kawasaki, Hironobu; and Watanabe, Takashi, 4,269,904, Cl. 428-623.000.

Aziende Colori Nazionali Affini ACNA S.p.A.: *See—*
Moiso, Ugo; Massabo, Vincenzo; and Domenis, Danilo, 4,269,769, Cl. 260-176.000.

B. F. Goodrich Company, The: *See—*
Morningstar, Marion G.; and Postel, William D., Jr., 4,269,954, Cl. 526-62.000.
Patel, Pradeep V., 4,269,668, Cl. 203-9.000.
Woods, Martin E.; and Chang, Daniel M., 4,269,740, Cl. 260-4.00R.

Babu, Suresh P.; and Knight, Richard A., to Institute of Gas Technology. Coal refining. 4,269,692, Cl. 208-8.0LE.

Bacon, Robert E.; Raleigh, Ronald G.; and Rosenfeld, Robert B., to Eastman Kodak Company. Ultrasonographic elements containing multiple layers and processes for their use. 4,269,914, Cl. 430-3.000.

Bafaro, Michael P., to Motorola, Inc. Video amplifier arrangement with wideband D-C gain control. 4,270,126, Cl. 340-748.000.

Bailey, Charles H.; DePalma, Ted V.; and Dillon, James E., to UOP Inc. Catalytic converter mounting arrangement for reducing bypass leakage. 4,269,807, Cl. 422-179.000.

Baines, Eric; and Harvey, Kenneth, to Colgate-Palmolive Co. Periodontal dental preparation. 4,269,823, Cl. 424-52.000.

Baker, Cecil J., to Whirlpool Corporation. Ice receptacle support. 4,269,039, Cl. 62-344.000.

Baker, Jannie S.: *See—*
Hardy, Robert A., Jr.; Baker, Jannie S.; and Quinones, Nicanor Q., 4,269,980, Cl. 544-256.000.

Baker, Richard H., to Exxon Research & Engineering Company. Bridge converter circuit. 4,270,163, Cl. 363-43.000.

Baker, Thomas G.: *See—*
Wechsler, Joseph R.; Baker, Thomas G.; Battaglini, George T.; and Skradski, Frank L., 4,269,730, Cl. 252-356.000.

Baker, William, to Masco Corporation. Processor controlled, service selecting, AM/FM scanning radio receiver. 4,270,217, Cl. 455-165.000.

Baker, William B., to Du Pont de Nemours, E. I., and Company. Dosimeter having constant flow pump. 4,269,059, Cl. 73-28.000.

Baldwin, Peter H.: *See—*
Gilbert, John R. B.; and Baldwin, Peter H., 4,269,687, Cl. 204-242.000.

Ballard, Denis G. H.; Meredith, William N. E.; and Rideal, Graham R., to Imperial Chemical Industries Limited. Compositions of vermiculite lamellae and solid particulate materials. 4,269,628, Cl. 106-86.000.

Balzer & Droll: *See—*
Muskulus, Willi, 4,269,235, Cl. 140-92.100.

Banasiak, Dennis S., to Phillips Petroleum Company. Olefin disproportionation. 4,269,780, Cl. 260-405.000.

Bandag Incorporated: *See—*
Brewer, Donaldee; and Dundon, Michael J., 4,269,643, Cl. 156-96.000.

Bank of America N.T. & S.A.: *See—*
Naffziger, Larry C., 4,269,564, Cl. 415-53.00R.

Banse, Gary D.: *See—*
Abraham, Jeffrey L.; and Banse, Gary D., 4,269,162, Cl. 124-7.000.

Barber, Peter R.: *See—*
Pyne, Bernard; Gray, Reginald W. H.; and Barber, Peter R., 4,270,201, Cl. 368-282.000.

Barford, Eric D.; Gray, Robin A.; and Saul, Michael R., to Jeyes Group Limited. Process for making a lavatory cleansing block and use. 4,269,723, Cl. 252-106.000.

Barnes, Arthur C.: *See—*
Barnes, Carl E.; and Barnes, Arthur C., 4,269,665, Cl. 203-14.000.

Barnes, Carl E.; and Barnes, Arthur C. Drying quaternary ammonium compounds. 4,269,665, Cl. 203-14.000.

Barraque, Christian; Burriat, Jean; and Rovel, Jean-Marie, to Degremont. Process and apparatus for treating by ion exchange or adsorption fluids having solid particles suspended therein. 4,269,715, Cl. 210-675.000.

Barrash, Marshall J., to Coca-Cola Company, The. Elastic band and handle structure for forming packages of groups of containers. 4,269,314, Cl. 206-428.000.

Barrett, Joseph J.: *See—*
Berry, Michael J.; and Barrett, Joseph J., 4,269,509, Cl. 356-301.000.

Barry, Robert L. Cable connector. 4,269,378, Cl. 248-56.000.

Barry Wright Corporation: *See—*
Jensen, William S., 4,269,400, Cl. 267-153.000.

Bartleson, John D.; and Wollensak, John C., to Ethyl Corporation. Amine antioxidant. 4,269,720, Cl. 252-50.000.

Bartoli, Giampaolo: *See—*
Gomez, Daniel; and Bartoli, Giampaolo, 4,269,657, Cl. 162-135.000.

Barton, Derek H. R.; Bronstein-Bonte, Irena Y.; and Taylor, Lloyd D., to Polaroid Corporation. Polymeric optical filter agents and photographic products and processes containing same. 4,269,925, Cl. 430-215.000.

Bartz, Wilfried: *See—*
Gorke, Klaus; and Bartz, Wilfried, 4,269,626, Cl. 106-18.320.

Barvet, Serge: *See—*
Le Tron, Yves; Obregon, Juan; Marechal, Pierre-Georges; and Barvet, Serge, 4,270,097, Cl. 331-96.000.

BASF Aktiengesellschaft: *See—*
Bejerano, Abraham; Bennett, George J.; and Arns, Harold E., 4,270,153, Cl. 360-78.000.
Bejerano, Abraham, 4,270,155, Cl. 360-106.000.
Brunold, Andreas; Kroetzsch, Peter; and Diehl, Lothar, 4,269,609, Cl. 55-71.000.
Heilen, Gerd; Nissen, Axel; and Woerz, Otto, 4,270,006, Cl. 568-396.000.
May, Hans-Joachim; and Koenig, Horst, 4,269,990, Cl. 548-315.000.
Treiber, Hans J.; Lenke, Dieter; and Worstmann, Wolfgang, 4,269,833, Cl. 424-244.000.

Basile, Richard J.: *See—*
Worley, Arthur C.; and Basile, Richard J., 4,269,166, Cl. 126-285.00R.

Battaglini, George T.: *See—*
Wechsler, Joseph R.; Baker, Thomas G.; Battaglini, George T.; and Skradski, Frank L., 4,269,730, Cl. 252-356.000.

Battelle Memorial Institute: *See—*
Rohrmann, Charles A., 4,269,817, Cl. 423-502.000.

Baugh, Benton F., to Brown Oil Tools, Inc. Power slip assembly. 4,269,277, Cl. 173-149.000.

Baum, Gerald A.: *See—*
Hulyalkar, Ramchandra K.; and Baum, Gerald A., 4,269,743, Cl. 260-23.0XA.
Hulyalkar, Ramchandra K.; and Baum, Gerald A., 4,269,744, Cl. 260-23.0XA.

Baumann, Rainer: *See—*
Tinnes, Bernhard; Baumann, Rainer; and Dur, Bernhard, 4,269,399, Cl. 266-236.000.

Baumanns, Herbert. Radiant burner. 4,269,590, Cl. 431-210.000.

Baumgartner Papier S.A.: *See—*
Dupre, Georges, 4,269,526, Cl. 401-198.000.

Baxter, Larry K.; Cohen, Robert D.; Ain, Mark S.; and Apsell, Sheldon P., to Kronos Inc. Methods of and apparatus for time clock recording and computation and related uses. 4,270,043, Cl. 235-419.000.

Bayer Aktiengesellschaft: *See—*
Elfert, Klaus; Wolf, Gerhard D.; and Rosenkranz, Hans J., 4,269,967, Cl. 528-337.000.
Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, 4,270,083, Cl. 324-58.50C.
Freitag, Dieter; Nouvertne, Werner; Burkhardt, Claus; and Kleiner, Frank, 4,269,964, Cl. 528-126.000.
Hamprecht, Rainer, 4,269,770, Cl. 260-208.000.
Lewalter, Jurgen; Rottmaier, Ludwig; Merten, Rudolf; Zecher, Wilfried; Dunwald, Willi; and Schulte, Bernhard, 4,269,750, Cl. 260-30.200.
Molls, Hans-Heinz; Kaspar, Vaclav; and Moutsokapas, Asterios, 4,268,972, Cl. 34-60.000.
Nachtkamp, Klaus; Pedain, Josef; and Grammel, Jurgen, 4,269,748, Cl. 260-29.2TN.

Bayerische Motoren Werke Aktiengesellschaft: *See—*
Gersmann, Klaus; and Gruber, Oskar, 4,269,446, Cl. 297-341.000.

Bayless, Jon W., Sr.: *See—*
Collins, Arthur A.; Bayless, Jon W., Sr.; and Pedersen, Robert D., 4,270,203, Cl. 370-102.000.

Bayliss, John A.: *See—*
Koehler, Robert J.; and Bayliss, John A., 4,270,167, Cl. 364-200.000.

Bayssat, Michel; Sautel, Francis; Depin, Jean-Claude; and Matibet, Annie B., to Lipha, Lyonnaise Industrielle Pharmaceutique. 5-Substituted indan-2-carboxylic acid and functional derivatives. 4,269,848, Cl. 424-275.000.

Beal, Robert R.: *See—*
Clarke, Robin; Thomas, Douglas J.; Kilmister, George T. F.; and Beal, Robert R., 4,269,051, Cl. 72-9.000.

Beatenbough, Charles M., to Bell Telephone Laboratories, Incorporated. Connector. 4,269,463, Cl. 339-91.00R.

Bechgaard, Carl C.; and Dulat, Joseph, to Wood-Slimp GmbH. Method of preserving timber. 4,269,875, Cl. 427-291.000.

Bechtiger, Charles G.; and Miller, James C., to Sargent & Greenleaf, Inc. Time lock with kicker arm carrier actuator. 4,269,050, Cl. 70-272.000.

Beck, Arnold A.; and Ruof, Edgar J., to Goodyear Aerospace Corporation. Antiskid brake control system. 4,269,455, Cl. 303-106.000.

Beck, Mark E., to Eaton Corporation. Thermostatic fluid valve with power element extension and method of constructing same. 4,269,350, Cl. 236-34.500.

Becker, Paul H.: *See—*
Woods, Quentin T.; Becker, Paul H.; and Gerverdinck, William D., 4,269,015, Cl. 53-526.000.

Beckman Instruments, Inc.: *See—*
Lillig, John E., 4,270,178, Cl. 364-579.000.

Bednar, Bohumil: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.

Beecham Group Limited: *See—*
Rose, Carl J.; and Miller, David, 4,270,004, Cl. 568-314.000.

Behney, Charles A. Method of and clamp for applying pressure to a skin region. 4,269,190, Cl. 128-325.000.

Behringwerke AG: *See—*
Bohn, Hans; and Winckler, Wilhelm, 4,269,825, Cl. 424-85.000.

Bejerano, Abraham; Bennett, George J.; and Arns, Harold E., to BASF Aktiengesellschaft. Optical control system for transducer positioning apparatus. 4,270,153, Cl. 360-78.000.

Bejerano, Abraham, to BASF Aktiengesellschaft. Transducer positioning apparatus. 4,270,155, Cl. 360-106.000.

Bell, Alan E., to RCA Corporation. Information record. 4,270,132, Cl. 346-135.100.

Bell Telephone Laboratories, Incorporated: *See—*
Beatenbough, Charles M., 4,269,463, Cl. 339-91.00R.
Brolin, Stephen J.; Gottesman, Jeffrey L.; Morgen, Dennis H.; and Swanson, Kenneth H., 4,270,030, Cl. 179-175.20D.
Cohen, Uri; and Sard, Richard, 4,269,671, Cl. 204-23.000.
Logan, Ralph A.; and Tsang, Won-Tien, 4,269,635, Cl. 148-171.000.
Smith, Craig G., 4,269,670, Cl. 204-15.000.

Bendix Corporation, The: *See—*
Drellishak, Glen J., 4,269,156, Cl. 123-478.000.
Van Arman, William L.; Kambs, Russell A.; Ivankovics, Steven G.; Hansen, Frederick W.; and Julow, Thomas M., 4,268,945, Cl. 29-407.000.
Van Siclen, Howard E., Jr., 4,269,152, Cl. 123-146.50A.

Bendix Corporation (Electrodynamics Div), The: *See—*
Charlton, John D., 4,270,180, Cl. 364-728.000.

Bennett, George J.: *See—*
Bejerano, Abraham; Bennett, George J.; and Arns, Harold E., 4,270,153, Cl. 360-78.000.

Benson, Clark K.: *See—*
Caridis, Andrew A.; Benson, Clark K.; Leary, Steven G.; and Nilsen, Arthur A., 4,269,861, Cl. 426-438.000.

Bentlage, Bernardus W. J.; and Spakman, Geert, to U.S. Philips Corporation. Electrical apparatus comprising a reversible front plate. 4,270,225, Cl. 455-347.000.

Benton, Charles M.; Arnold, Franklin D.; Forberg, Helge O.; Tuscher, Roger L.; and Evrad, Gerald D. Control of combustibility of volatile hydrocarbons and particulate matter in an exhaust gas stream by use of a high velocity burner in a carbon bake ring furnace. 4,269,592, Cl. 432-19.000.

Berger, Jurgen. Sump oil draining and collecting device. 4,269,237, Cl. 141-346.000.

Bergero, Jean-Pierre; Charlet, Yves; and Leschaeve, Philippe, to Thomson-CSF. Microwave acoustic wave oscillator. 4,270,100, Cl. 331-107.00A.

Berggren, Leif A., to Berggren, Torsten Lennart. Method and apparatus for beating fibre slurries. 4,269,362, Cl. 241-28.000.

Berggren, Torsten L. Beater mill. 4,269,365, Cl. 241-152.00A.

Berggren, Torsten Lennart: *See—*
Berggren, Leif A., 4,269,362, Cl. 241-28.000.

Berkowitz, Sidney, to FMC Corporation. Alkyl glyceryl ether sulfate salts and process for their preparation. 4,269,786, Cl. 260-458.00R.

Bernert, Bogdan W.: *See—*
Sivachenko, Eugene W.; Larkin, Artemas M.; and Bernert, Bogdan W., 4,269,055, Cl. 72-180.000.

Bernhagen, Wolfgang: *See—*
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,270,008, Cl. 568-448.000.

Bernhardt, Winfried: *See—*
Grundmann, Edgard; and Bernhardt, Winfried, 4,269,040, Cl. 62-467.0PR.

Berry, Michael J.; and Barrett, Joseph J., to Allied Chemical Corporation. Photoacoustic Raman spectroscopy. 4,269,509, Cl. 356-301.000.

Berti, Jerome L., to Allis-Chalmers Corporation. Intercooler for internal combustion engine. 4,269,158, Cl. 123-563.000.

Bertone, Antonino: *See—*
Dotti, Giulio; Bertone, Antonino; and Roggero, Bruno, 4,269,224, Cl. 137-596.150.

Bessinger, Walter L., to Clarke-Gravely Corporation. Carpet cleaning machine. 4,268,935, Cl. 15-320.000.

Bethlehem Steel Corporation: *See—*
Strimple, Robert A.; Snyder, Joseph E.; and Shoemaker, Bruce F., 4,269,397, Cl. 266-44.000.

Bethurum, Gary C., to Thomas & Betts Corporation. Zero insertion force connector. 4,269,462, Cl. 339-74.00R.

Betzing, Hans: *See—*
Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, 4,269,855, Cl. 424-285.000.

Beveridge, Harold N. Cylindrical speaker mechanism. 4,270,023, Cl. 179-1.0GA.

Beyer, Johann; and Strauber, Friedrich, to Siemens Aktiengesellschaft. Treatment head for electromedical diagnostic or therapeutic treatment of body parts. 4,269,176, Cl. 128-24.00A.

Beyler, Arthur L.: *See—*
Ferrari, Richard A.; and Beyler, Arthur L., 4,269,831, Cl. 424-241.000.

Bhushan, Bharat. Tractor/trailer safety device. 4,269,426, Cl. 280-432.000.

Bickel, Hans: *See—*
Peter, Heinrich; and Bickel, Hans, 4,269,977, Cl. 544-16.000.

Biggs, Eugene S. Quick release locking chuck mechanism. 4,269,422, Cl. 279-38.000.

Biller, Efim. Hydroquinone by hydrolysis of p-aminophenol or salts. 4,270,010, Cl. 568-767.000.

Bilofsky, Ruth C.; and Rogers, Howard G., to Polaroid Corporation. Photographic prints utilizing lamellar pigment materials. 4,269,916, Cl. 430-11.000.

Binkley Company, The: *See—*
Mattingly, John A.; and Mehta, Hasmukh S., 4,269,012, Cl. 52-394.000.

Birch, Robert J. Switching device. 4,269,033, Cl. 62-133.000.

Birr, Hans J., to Vorwerk & Co. Interholding GmbH. Safety arrangement for a mixer catch. 4,269,519, Cl. 366-206.000.

Bittner, Friedrich: *See—*
Hentschel, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,269,979, Cl. 544-190.000.

Blackwell, John E.: *See—*
Stuttard, Edward B.; Blackwell, John E.; and Chao, Jessie, 4,270,202, Cl. 370-80.000.

Block, James P., to LCOA Laminating Company of America. Method for drilling circuit boards. 4,269,549, Cl. 408-1.00R.

Blommers, Elizabeth A.; Poole, William J.; and Ingram, Alvin R., to Arco Polymers, Inc. Antilumping expandable styrene polymers. 4,269,871, Cl. 427-222.000.

Blomsterberg, Karl-Ingemar. Anodic deburring or brightening of steel articles. 4,269,677, Cl. 204-129.400.

Blondel, Jacques; and Mahieu, Jean-Rene, to Thomson-CSF. Microwave down converter. 4,270,224, Cl. 455-327.000.

Bobier, Wilfred S. Fluid device. 4,269,574, Cl. 417-506.000.

Boeckmann, Eduard F.: *See—*
Sease, D. Lamar; Solow, Benjamin; Boeckmann, Eduard F.; and Rabinow, David, 4,268,954, Cl. 29-620.000.

Boeing Company, The: *See—*
McIntyre, Melville D., 4,269,073, Cl. 74-5.700.

Bohlander, Ernst: *See—*
Kopp, Josef; Huther, Ernst; and Bohlander, Ernst, 4,269,016, Cl. 53-546.000.

Bohn, Hans; and Winckler, Wilhelm, to Behringwerke AG. New glycoprotein and process for isolating it. 4,269,825, Cl. 424-85.000.

Bojesgard, Pehr; Kullendorff, Anders; and Wikner, Jan, to Stal-Laval Turbin AB. Combustion chamber. 4,269,151, Cl. 122-4.00D.

Bolex International SA: *See—*
Laurent, Francois, 4,269,484, Cl. 350-427.000.

Bollongino, Norbert: *See—*
Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, 4,270,083, Cl. 324-58.50C.

Bolt, Reginald C.: *See—*
Powell, Gordon F. W.; Bolt, Reginald C.; and Simmons, Albert, 4,269,201, Cl. 131-280.000.

Bonazza, Benedict R.; and DeVault, Albert N., to Phillips Petroleum Company. Fuel and lubricant additives from acid treated mixtures of vegetable oil derived amides and esters. 4,269,606, Cl. 44-63.000.

Bondoc, Alfredo A., to GAF Corporation. Novel glass fiber mat. 4,269,886, Cl. 428-219.000.

Bonnett, Robert N. Adapter for adapting signal lamp systems of towed and towing vehicles. 4,270,115, Cl. 340-67.000.

Bonomini, Vittorio; and Ruggeri, Giovanni. Hemodialysis and/or ultrafiltration apparatus. 4,269,708, Cl. 210-90.000.

Boogers, Wilhelmus P. L., to Arenco P.M.B. B.V. Method and device for stretching tobacco leaves or portions thereof. 4,269,202, Cl. 131-290.000.

Boone, Harold B. Portable workstand. 4,269,096, Cl. 83-477.200.

Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and Van der Kruijs, Franciscus N. G. R., to U.S. Philips Corporation. Resistance material. 4,269,898, Cl. 428-426.000.

Borchert, Herbert; Albert, Walter; Kohaut, Gunter; Schulte, Ulrich; and Rapp, Bruno, to Hoechst Aktiengesellschaft. Free-flowing packing material of foamed plastics particles. 4,269,895, Cl. 428-402.000.

Borcoman, Mircea. Production line for the manufacture of concrete elements. 4,269,577, Cl. 425-62.000.

Borden, Inc.: *See—*
Hickson, Charles H.; and Chandramouli, Pitchaiya, 4,269,949, Cl. 525-58.000.

Borg-Warner Corporation: *See—*
Kelbel, Donald W., 4,269,294, Cl. 192-54.000.
Kountz, Kenneth J.; Cooper, Kenneth W.; and Abendschein, Frederic H., 4,269,261, Cl. 165-2.000.

Borona, Russell T.; and Coley, Kenneth R., to Westinghouse Electric Corp. Circuit breaker interlocking mechanism. 4,270,031, Cl. 200-50.00C.

Borrelli, Nicholas F.; and Young, Peter L., to Corning Glass Works. Tin oxide, cadmium chloride doped silver chloride electron beam recording medium. 4,269,934, Cl. 430-296.000.

Borsig GmbH: *See—*
Holldorff, Gunther, 4,269,041, Cl. 62-476.000.

Boser, Ronald J.; and Watts, Henry J., to Union Special Corporation. Low inertia tandemly mounted presser mechanism. 4,269,128, Cl. 112-235.000.

Bosman, Peter B., to WLPU Holdings Limited. Packing in wet cooling towers and method of and means for supporting the packing. 4,269,795, Cl. 261-111.000.

Bosne, Jacques G. P. E.; and Chofflet, Christian A. A., to Hamon Sobelco. Fire control system for a gas and liquid contact apparatus. 4,269,794, Cl. 261-108.000.

Bostrom, Harry N. Stand structure. 4,269,878, Cl. 428-11.000.

Bott, John A. Luggage carrier with illuminating means. 4,269,339, Cl. 224-325.000.

Bottcher, Irmgard: *See—*
Niedballa, Ulrich; and Bottcher, Irmgard, 4,269,847, Cl. 424-273.00R.

Bottomley, Herbert G., to Landis Lund, Limited. Work clamping fixture. 4,269,001, Cl. 51-237.0CS.

Bouldin, Eric W.: *See—*
Drexler, Jerome; and Bouldin, Eric W., 4,269,917, Cl. 430-16.000.

Bouriotis, Vasilis: *See—*
Dean, Peter D. G.; Brown, Peter J.; and Bouriotis, Vasilis, 4,269,605, Cl. 23-230.00B.

Bower, Arnold B., Jr., to General Electric Company. Screen for particle separation. 4,269,704, Cl. 209-393.000.

Bowman, George A., to Motorola, Inc. Means for linearizing a voltage variable capacitor controlled oscillator. 4,270,098, Cl. 331-96.000.

Bowman, Harold M. Sectional ingot mold. 4,269,385, Cl. 249-82.000.

Bowthorpe-Hellermann Limited: *See—*
McCormick, Mathew, 4,269,379, Cl. 248-73.000.

Boyce, Elvin L. Method and apparatus for packaging sterile surgical masks. 4,269,315, Cl. 206-438.000.

Boyd, Raymond. Lighted hand mirror. 4,269,206, Cl. 132-79.00F.

Boynton, Kenneth G., to Cooper Industries, Inc. Solder flux and method. 4,269,870, Cl. 427-96.000.

Brady, Michael: *See—*
Lim, John; Huang, Warren; and Brady, Michael, 4,269,815, Cl. 423-328.000.

Bramberger, Bo C.; and Stenudd, Kurt G., to Sallander, Hakan. Method and apparatus for acoustical damping of punching machines and the like. 4,269,283, Cl. 181-207.000.

Brana, Lejo C.; and Scott, John W. Package sizer. 4,268,967, Cl. 33-1.00V.

Brand, Richard A., to General Dynamics Corporation. Method of crosslinking aromatic thermoplastic polymers using a biphenylene terminated compound. 4,269,953, Cl. 525-534.000.

Brand, Wilhelm: *See—*
Anders, Dietmar; and Brand, Wilhelm, 4,269,085, Cl. 74-665.0GA.

Brandman, Yigal: *See—*
Cohen, Yitzhak; Brandman, Yigal; and Eckstien, Zvi, 4,270,185, Cl. 364-900.000.

Brant, Robert J. Fluid pressure sleeve and rubber gasket pipe joint. 4,269,419, Cl. 277-34.300.

Braun AG: *See—*
Stemme, Walter, 4,269,908, Cl. 429-98.000.

Braun, Ernst; and Braun, Gert, to Halbach & Braun. Scraper chain conveyor assembly. 4,269,304, Cl. 198-735.000.

Braun, Gert: *See—*
Braun, Ernst; and Braun, Gert, 4,269,304, Cl. 198-735.000.

Brearley, Malcolm: *See—*
White, Alfred K.; and Brearley, Malcolm, 4,269,454, Cl. 303-97.000.

Breault, Richard D.: *See—*
DeCasperis, Anthony J.; Roethlein, Richard J.; and Breault, Richard D., 4,269,642, Cl. 156-89.000.

Brede, Uwe; Penner, Horst; and Zeiher, Erich, to Dynamit Nobel Aktiengesellschaft. Igniter element with a booster charge. 4,269,120, Cl. 102-202.000.

Breeden, John O. 'R.: *See—*
Goldman, Jerome L.; Breeden, John O. 'R.; and Michel, Walter H., 4,269,543, Cl. 405-198.000.

Breister, Sigmund: *See—*
Reiner, Joseph R.; and Breister, Sigmund, 4,269,621, Cl. 75-101.0BE.

Breitling, Rolf; Mayer, Wolfgang; and Labatzke, Wolfgang, to Daimler-Benz Aktiengesellschaft. Process and apparatus for introducing foam into automobile body cavities. 4,269,890, Cl. 428-320.000.

Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., to Mobil Oil Corporation. Conversion of syngas to high octane olefinic naphtha. 4,269,783, Cl. 518-718.000.

Bressler, Peter W. Apparatus for inflating a deflated tire. 4,269,312, Cl. 206-303.000.

Bretl, Richard A.: *See—*
Meyer, Robert A.; and Bretl, Richard A., 4,269,265, Cl. 165-109.00T.

Brewer, Donaldee; and Dundon, Michael J., to Bandag Incorporated. Retreading stacked tires using inflatable pressure member. 4,269,643, Cl. 156-96.000.

Bridwell, Phillip P. Combination tool. 4,268,927, Cl. 7-143.000.

Bright Industries Inc.: *See—*
Sorrentino, Vincent P., 4,269,532, Cl. 403-191.000.

Bringol, Charles R., to International Business Machines Corporation. Alphanumeric CRT display system with unitary character formation and refresh. 4,270,124, Cl. 340-731.000.

Bristol-Myers Company: *See—*
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,269,839, Cl. 424-253.000.

British Industrial Plastics Limited: *See—*
Tranter, Harold W., 4,269,587, Cl. 425-451.900.

British Steel Corp.: *See—*
Strandell, Per O.; Thorslund, Erik M.; MacKenzie, Colin R.; and Smith, Norman, 4,268,948, Cl. 29-527.600.

Broberg, Hans; Douren, Lars; and Troeng, John, to Aktiebolaget Bofors. Device for concentration of mineral acids, particularly sulphuric acid. 4,269,655, Cl. 159-13.00A.

Brocklehurst, Charles E.: *See—*
Burton, Perry E.; and Brocklehurst, Charles E., 4,269,130, Cl. 112-262.300.

Brogardh, Torgny, to ASEA Aktiebolag. Apparatus for measuring pressure by absorption spectrum change. 4,270,050, Cl. 250-231.00R.

Brokaw, Adrian P., to Analog Devices, Incorporated. Parallel analog-to-digital converter. 4,270,118, Cl. 340-347.0AD.

Brokke, Mervin E.: *See—*
Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., 4,269,618, Cl. 71-88.000.

Brolin, Hans R. Attachment device. 4,269,531, Cl. 403-97.000.

Brolin, Stephen J.; Gottesman, Jeffrey L.; Morgen, Dennis H.; and Swanson, Kenneth H., to Bell Telephone Laboratories, Incorporated. Testing of subscriber loop pair gain systems. 4,270,030, Cl. 179-175.20D.

Bronstein-Bonte, Irena Y.: *See—*
Barton, Derek H. R.; Bronstein-Bonte, Irena Y.; and Taylor, Lloyd D., 4,269,925, Cl. 430-215.000.

Brossard, Michael E.; Heuer, Dale A.; and Wu, Philip T., to International Business Machines Corporation. Read only memory circuit. 4,270,189, Cl. 365-205.000.

Brother Kogyo Kabushiki Kaisha: *See—*
Kamiya, Osamu, 4,269,127, Cl. 112-122.000.

Brown Company: *See—*
Morse, Erwin E., 4,269,859, Cl. 424-362.000.

Brown Oil Tools, Inc.: *See—*
Baugh, Benton F., 4,269,277, Cl. 173-149.000.

Brown, Peter J.: *See—*
Dean, Peter D. G.; Brown, Peter J.; and Bouriotis, Vasilis, 4,269,605, Cl. 23-230.00B.

Brown, Richard L. E. Hand-held sail. 4,269,133, Cl. 114-103.000.

Bruckner Apparatebau: *See—*
Schuierer, Manfred, 4,269,047, Cl. 68-181.00R.

Bruderlein, Johannes, to Siebtechnik GmbH. Screening machine. 4,269,703, Cl. 209-243.000.

Bruins, Paul F.: *See—*
Gans, Leo; Bruins, Paul F.; Shapiro, Jay B.; and Rothman, Myron, 4,269,897, Cl. 428-419.000.

Brunel, Roger L.: *See—*
Hackman, Donald J.; Brunel, Roger L.; and Williams, Harry L., 4,269,383, Cl. 248-544.000.

Brunold, Andreas; Kroetzsch, Peter; and Diehl, Lothar, to BASF Aktiengesellschaft. Isolating fluorine compounds from the vapors obtained when evaporatively concentrating phosphoric acid. 4,269,609, Cl. 55-71.000.

Bruns, Klaus: *See—*
Hagen, Jens; and Bruns, Klaus, 4,270,007, Cl. 568-445.000.

Bryan, T. James: *See—*
Logie, James A.; Bryan, T. James; and Wilson, Arthur G., 4,270,147, Cl. 358-256.000.

Brymill Corporation: *See—*
Bryne, Michael D., 4,269,390, Cl. 251-254.000.

Bryne, Michael D., to Brymill Corporation. Cryosurgical instrument. 4,269,390, Cl. 251-254.000.

BS & B Safety Systems, Inc.: *See—*
Forsythe, Calvin C.; Strelow, John L.; and Clift, Miner E., 4,269,214, Cl. 137-68.00R.

Buchberger, Gregory D.: *See—*
Theis, Peter; Buchberger, Gregory D.; and Krueger, William J., 4,270,024, Cl. 179-8.00A.

Buckle, Allan S., to Lucas Industries Limited. Transistor protection circuits. 4,270,159, Cl. 361-79.000.

Buemi, Joseph M., Jr.: *See—*
Swartz, Harold L.; and Buemi, Joseph M., Jr., 4,270,077, Cl. 318-661.000.

Bulle, Marcel; and Vuillaume, Jean, to Timex Corporation. Connector pin for link bracelets. 4,269,026, Cl. 59-82.000.
Bunker Ramo Corporation: *See—*
Parks, Howard L.; and Kuronen, John M., 4,268,956, Cl. 29-869.000.
Burdorf, Walter L.: *See—*
Johnson, Donald C.; and Burdorf, Walter L., 4,269,881, Cl. 428-95.000.
Burgess, James B. Trench trash compactor. 4,269,562, Cl. 414-515.000.
Burkhardt, Claus: *See—*
Freitag, Dieter; Nouvertne, Werner; Burkhardt, Claus; and Kleiner, Frank, 4,269,964, Cl. 528-126.000.
Burner Systems International, Inc.: *See—*
Long, Kelso M.; Pharr, Leonard; and Pharr, Earl J., 4,269,094, Cl. 83-188.000.
Burns, James W.; and Shelton, John J., to Fife Corporation. Apparatus for positioning a coating thickness control roller in a web coating machine. 4,269,140, Cl. 118-665.000.
Burr Oak Tool & Gauge Company: *See—*
Franks, Lawrence A., 4,269,555, Cl. 414-27.000.
Burriat, Jean: *See—*
Barraque, Christian; Burriat, Jean; and Rovel, Jean-Marie, 4,269,715, Cl. 210-675.000.
Burton, Charles V.; and Lossing, Wallace W., to Abbot-Northwestern Hospitals Inc. Orthopedic gravity traction brace. 4,269,179, Cl. 128-75.000.
Burton, James A.; and Haber, Edgar, to Massachusetts General Hospital, The. Process and composition for reducing blood pressure. 4,269,827, Cl. 424-177.000.
Burton, Perry E.; and Brocklehurst, Charles E., to Opelika Manufacturing Corporation. Sheet production system. 4,269,130, Cl. 112-262.300.
Buttemer, David A. Activator units for identification systems and systems employing same. 4,270,187, Cl. 365-189.000.
Butterworth, Donald J.; Halbfoster, Christopher; and Loudon, Robert, to Ecodyne Corp. Apparatus and method. 4,269,707, Cl. 210-777.000.
Cadwell, Dennis J.: *See—*
Kmonk, Stanley; Cadwell, Dennis J.; and Ferlan, Stephen J., 4,269,661, Cl. 176-50.000.
Caesar, Philip D.: *See—*
Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., 4,269,783, Cl. 518-718.000.
Cagle, Bunyan B. Solid fuel furnace. 4,269,349, Cl. 236-11.000.
Calpis Shokuhin Kogyo Kabushiki Kaisha: *See—*
Inagami, Kaoru; Ohmura, Kazutaka; Haruna, Masao; and Terabayashi, Takeshi, 4,269,863, Cl. 426-550.000.
Calvin, Douglas G.: *See—*
Howard, Curtis E.; and Calvin, Douglas G., 4,269,211, Cl. 137-2.000.
Campbell, John, Jr., to United States of America, Air Force. Liquid propellant/regenerative charging system bubble preventer. 4,269,107, Cl. 89-7.000.
Canadian Patents & Dev. Ltd.: *See—*
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., 4,269,699, Cl. 75-101.00R.
Cannom, David L. Energy transmission devices. 4,270,114, Cl. 338-224.000.
Canon Kabushiki Kaisha: *See—*
Hamatani, Masahide, 4,269,479, Cl. 350-255.000.
Iakwa, Kazuo, 4,270,079, Cl. 320-1.000.
Mochizuki, Noritaka; and Hajimoto, Yoshioki, 4,270,047, Cl. 250-216.000.
Suzuki, Ryoichi; Kinoshita, Takao; Ogawa, Yukio; and Uchiyama, Takashi, 4,269,493, Cl. 354-51.000.
Takimoto, Hiroyuki, 4,269,489, Cl. 352-174.000.
Tanaka, Hiroshi; and Tsuneda, Terukuni, 4,269,921, Cl. 430-119.000.
Watanabe, Tsuyoshi; Murase, Hidetoshi; Murayama, Akira; and Nakasugi, Mikio, 4,268,943, Cl. 29-131.000.
Cantos, Earl J., Jr. Hand flute and percussion instrument. 4,269,104, Cl. 84-330.000.
Capes, Charles E.: *See—*
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., 4,269,699, Cl. 75-101.00R.
Capula, Pietro. Pressure-sensitive signalling device for detecting intrusion into an enclosed area. 4,270,122, Cl. 340-566.000.
Caridis, Andrew A.; Benson, Clark K.; Leary, Steven G.; and Nilsen, Arthur A., to Heat and Control, Inc. Process for preparing french fried potatoes and apparatus. 4,269,861, Cl. 426-438.000.
Carlo Erba Strumentazione S.p.A.: *See—*
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,269,608, Cl. 55-67.000.
Carlon, Hugh R.; and Pritt, Rex M., to United States of America, Army. Apparatus and method for determining electrical conductivity of water vapor. 4,270,084, Cl. 324-65.00R.
Carpenter, Ronnie L.; and Cathell, Frank, to Qualidyne Systems, Inc. Controller for d.c. current supplied by a plurality of parallel power supplies. 4,270,165, Cl. 363-65.000.
Carr, Richard P.; Nanda, Ashok K.; Schneider, Charles A.; and Malhotra, Girish K., to Sherwin-Williams Company, The. Purification of triazoles. 4,269,987, Cl. 548-257.000.
Carrier Corporation: *See—*
Hile, James R., 4,268,947, Cl. 29-451.000.
Carrillo, Robert M.; and Koss, Muriel L., to Rohr Industries, Inc. Method of manufacturing of honeycomb noise attenuation structure and the structure resulting therefrom. 4,269,882, Cl. 428-116.000.
Carter Equipment Co., Inc.: *See—*
Carter, William D.; and Mueller, Martin S., 4,269,370, Cl. 242-56.00A.
Carter, Jack L.: *See—*
Flanagan, James P.; and Carter, Jack L., 4,269,217, Cl. 137-183.000.
Carter, Raymond D.; and Clark, Allen L., to Aro Corporation, The. Resettable pneumatic overrun control valve. 4,269,223, Cl. 137-460.000.
Carter, William D.; and Mueller, Martin S., to Carter Equipment Co., Inc. Apparatus for continuous automatic spooling of motion picture film. 4,269,370, Cl. 242-56.00A.
Case, John M. Electronic funds transfer system. 4,270,042, Cl. 235-379.000.
Cash, Charles. Hand weapon for survival purposes. 4,268,987, Cl. 42-1.00R.
Caterpillar Tractor Co.: *See—*
Drazy, James W., 4,269,553, Cl. 409-232.000.
Linne, Terry D., 4,269,802, Cl. 264-255.000.
Cathell, Frank: *See—*
Carpenter, Ronnie L.; and Cathell, Frank, 4,270,165, Cl. 363-65.000.
Cavallino, Francesco; Martinez, Pasquale; Allione, Michele; and Schiavuzzi, Roberto, to Fiat Auto S.p.A. Internal combustion engine with exhaust emission control system. 4,269,029, Cl. 60-293.000.
Cavan, Donald R., Jr. End tab file folder storage file. 4,269,347, Cl. 229-33.000.
Cavanagh, John R.: *See—*
Clingman, David L.; Cavanagh, John R.; Schechter, Berton; and Cross, Kenneth R., 4,269,903, Cl. 428-591.000.
Cazes, Lyle C. Plow attachment assembly for a crawler-type tractor. 4,269,276, Cl. 172-832.000.
CBS Records ApS: *See—*
Grejsner, Teddy, 4,269,739, Cl. 252-547.000.
Celanese Corporation: *See—*
Edelman, Robert, 4,269,759, Cl. 260-42.170.
Vanderspurt, Thomas H.; and Zema, Paul M., 4,269,781, Cl. 260-410.90R.
Censor Patent-und Versuchs-Anstalt: *See—*
Mayer, Herbert E., 4,269,505, Cl. 355-62.000.
Central Glass Company, Limited: *See—*
Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, 4,269,814, Cl. 423-308.000.
Centro Ricerche Fiat S.p.A.: *See—*
Dotti, Giulio; Bertone, Antonino; and Roggero, Bruno, 4,269,224, Cl. 137-596.150.
Cerberus Ag: *See—*
Horvath, Zoltan; Muggli, Jurg; Ackermann, Hans; and Tresch, Erwin, 4,269,510, Cl. 356-338.000.
Ceskoslovenska akademie ved: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.
Ceuppens, Willy G.: *See—*
Umans, Frans M.; Ceuppens, Willy G.; Palmans, Willy J.; and Overmeer, Robert T., 4,269,594, Cl. 432-59.000.
Chaki, Takao; and Akasaka, Chuji. Changeover mechanism for push-button tuner. 4,269,074, Cl. 74-10.330.
Chamberlain, Francis N. Device for protection against fire. 4,269,901, Cl. 428-542.000.
Chamberlin, Kim S.: *See—*
Cheng, Dah-Chieh O.; and Chamberlin, Kim S., 4,269,985, Cl. 548-191.000.
Champion International Corporation: *See—*
Dutcher, Daniel P., 4,269,346, Cl. 229-21.000.
Chan, David C. K., to Chevron Research Company. Fungicidal 3-(N-cycloalkylcarbonyl-N-arylamino)-gamma-butyrolactones and gamma-butyrothiolactones. 4,269,849, Cl. 424-275.000.
Chan, David C. K.; and Whipp, Arthur A., to Chevron Research Company. Mite and mite ovicidal compositions. 4,269,856, Cl. 424-321.000.
Chandramouli, Pitchaiya: *See—*
Hickson, Charles H.; and Chandramouli, Pitchaiya, 4,269,949, Cl. 525-58.000.
Chang, Daniel M.: *See—*
Woods, Martin E.; and Chang, Daniel M., 4,269,740, Cl. 260-4.00R.
Chao, Jessie: *See—*
Stuttard, Edward B.; Blackwell, John E.; and Chao, Jessie, 4,270,202, Cl. 370-80.000.
Charles, Earl, Jr.: *See—*
Charles, Roger D.; Charles, Earl, Jr.; and Stedman, Robert C., 4,269,565, Cl. 415-76.000.
Charles, Roger D.; Charles, Earl, Jr.; and Stedman, Robert C. Turbine wheel. 4,269,565, Cl. 415-76.000.
Charles Stark Draper Laboratory, Inc., The: *See—*
Elwell, John M., Jr., 4,270,044, Cl. 250-201.000.
Charlet, Yves: *See—*
Bergero, Jean-Pierre; Charlet, Yves; and Leschaeve, Philippe, 4,270,100, Cl. 331-107.00A.
Charlton, John D., to Bendix Corporation (Electrodynamics Div), The. Delay line time compression correlation circuit. 4,270,180, Cl. 364-728.000.

Chatterjee, Pallab K.; and Tasch, Al F., Jr., to Texas Instruments Incorporated. Post-metal ion implant programmable MOS read only memory. 4,268,950, Cl. 29-571.000.
Chemische Werke Heuls, A.G.: *See—*
Gorke, Klaus; and Bartz, Wilfried, 4,269,626, Cl. 106-18.320.
Chen, Nai Y.; and Shihabi, David S., to Mobil Oil Corporation. Low pour point heavy oils. 4,269,697, Cl. 208-120.000.
Cheng, Dah-Chieh O.; and Chamberlin, Kim S., to Eastman Kodak Company. Process for the preparation of 2-amino-5-nitrothiazole. 4,269,985, Cl. 548-191.000.
Cherouge, Dominique, to Compagnie Industrielle des Piles Electriques "Cipel". Beacon lamp. 4,270,162, Cl. 362-311.000.
Chevron Research Company: *See—*
Chan, David C. K., 4,269,849, Cl. 424-275.000.
Chan, David C. K.; and Whipp, Arthur A., 4,269,856, Cl. 424-321.000.
de Vries, Louis, 4,269,790, Cl. 260-543.00F.
Chigusa, Koichi: *See—*
Mashiki, Nobuo; and Chigusa, Koichi, 4,269,533, Cl. 403-410.000.
Chimura, Kozo: *See—*
Ogihara, Masuo; Chimura, Kozo; Shinozaki, Nobuo; and Seki, Yoichi, 4,270,195, Cl. 368-74.000.
Chirafisi, Dominick J.; and Melachouris, Nicholas, to Stauffer Chemical Company. Milk replacer for caramels. 4,269,864, Cl. 426-583.000.
Chirskov, Vladimir G.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.
Chisso Corporation: *See—*
Ejima, Shozo; Tomioka, Susumu; Matsumoto, Tadao; and Hane, Naruaki, 4,269,888, Cl. 428-296.000.
Ohtake, Nobumasa; Koga, Isao; and Terui, Yohji, 4,269,993, Cl. 556-450.000.
Chodosh, Edward, to Roldwest Limited. Printing and pleating. 4,269,334, Cl. 223-28.000.
Chofflet, Christian A. A.: *See—*
Bosne, Jacques G. P. E.; and Chofflet, Christian A. A., 4,269,794, Cl. 261-108.000.
Christensen, Burton G.; Johnston, David B. R.; and Schmitt, Susan M., to Merck & Co., Inc. 2-, 5-, and 6-Substituted-1-carbadethiapen-2-em-3-carboxylic acids. 4,269,873, Cl. 424-274.000.
Christiaen, Lucien A.: *See—*
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., 4,269,647, Cl. 156-157.000.
Christian Majer KG Maschinenfabrik: *See—*
Hodapp, Otto; and Lindner, Ulrich, 4,269,091, Cl. 82-48.000.
Christopherson, Warren A., to International Business Machines Corporation. Current controlling circuitry for logical circuit reference electric level circuitry. 4,270,092, Cl. 330-257.000.
Chrysler Corporation: *See—*
Peck, Clifton S., 4,269,459, Cl. 308-36.400.
Ciba-Geigy Aktiengesellschaft: *See—*
Mason, Leslie F. A.; Kitzing, Rainer; Whitear, Brian R. D.; Long, William E.; Wood, Glenn P.; and Reeves, David L. R., 4,269,928, Cl. 430-239.000.
Ciba-Geigy Corporation: *See—*
Peter, Heinrich; and Bickel, Hans, 4,269,977, Cl. 544-16.000.
Petitpierre, Jean C., 4,269,978, Cl. 544-133.000.
Roueche, Armand, 4,269,976, Cl. 542-445.000.
Szczepanski, Henry; Martin, Henry; Fory, Werner; and Pissiotas, Georg, 4,269,775, Cl. 260-340.700.
Cincinnnati Rotary Press Company: *See—*
Nickum, Robert H., 4,269,093, Cl. 83-174.000.
CIR-S.p.A.-Divisione SASIB: *See—*
Goodman, Hubert C., Jr., 4,269,299, Cl. 198-347.000.
Ciric, Julius: *See—*
Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., 4,269,783, Cl. 518-718.000.
Citizen Watch Company Limited: *See—*
Ichikawa, Singo, 4,270,193, Cl. 368-47.000.
Morokawa, Shigeru; Sekiya, Fukuo; Hashimoto, Yukio; Nomura, Yasushi; and Koga, Keiichiro, 4,270,194, Cl. 368-73.000.
Claeys, Daniel A.: *See—*
Janssens, Wilhelmus; Somers, Alphonse; and Claeys, Daniel A., 4,269,924, Cl. 430-214.000.
Clark, Allen L.: *See—*
Carter, Raymond D.; and Clark, Allen L., 4,269,223, Cl. 137-460.000.
Clark, Carl A.; and Clark, Kathleen J. Thumb hair gauge. 4,269,205, Cl. 132-45.00R.
Clark, Charles A., Jr., to RCA Corporation. Digital data compression circuit. 4,270,127, Cl. 343-5.00W.
Clark, Charles A., Jr., to RCA Corporation. Power supply protection circuit. 4,270,157, Cl. 361-35.000.
Clark, John F., to Aluminum Company of America. Anode mount. 4,269,673, Cl. 204-67.000.
Clark, Kathleen J.: *See—*
Clark, Carl A.; and Clark, Kathleen J., 4,269,205, Cl. 132-45.00R.
Clark, Robert N. Ultrasonic detector apparatus. 4,269,065, Cl. 73-587.000.
Clark, Stanley M. Therapeutic device. 4,269,177, Cl. 128-57.000.
Clarke-Gravely Corporation: *See—*
Bessinger, Walter L., 4,268,935, Cl. 15-320.000.
Clarke, Robin; Thomas, Douglas J.; Kilmister, George T. F.; and Beal, Robert R., to Loewy Robertson Engineering Co. Ltd. Rolling mills and operation thereof. 4,269,051, Cl. 72-9.000.
Clean-Tex A/S: *See—*
Sorensen, Finn L.; and Neubert, Robert, 4,268,929, Cl. 8-151.000.
Clelford, Douglas H.: *See—*
Murphy, Richard D.; and Clelford, Douglas H., 4,270,168, Cl. 364-200.000.
Cleveland, Richard T.: *See—*
Silk, Murray R.; and Cleveland, Richard T., 4,269,695, Cl. 208-111.000.
Clift, Miner E.: *See—*
Forsythe, Calvin C.; Strelow, John L.; and Clift, Miner E., 4,269,214, Cl. 137-68.00R.
Clingman, David L.; Cavanagh, John R.; Schechter, Berton; and Cross, Kenneth R., to General Motors Corporation. Abradable ceramic seal and method of making same. 4,269,903, Cl. 428-591.000.
Coates, William R., Jr.; and Vance, M. William, to United States Steel Corporation. Recuperator tube construction. 4,269,266, Cl. 165-142.000.
Coca-Cola Company, The: *See—*
Barrash, Marshall J., 4,269,314, Cl. 206-428.000.
Coe, David J., to U.S. Philips Corporation. Field-effect devices. 4,270,137, Cl. 357-53.000.
Coffey, Fred S., to Owens-Corning Fiberglas Corporation. Apparatus for chopping strands. 4,268,936, Cl. 19-0.560.
Coffey, J. E.: *See—*
Newman, Aubrey W.; Coffey, J. E.; and Whitney, Arthur D., 4,269,686, Cl. 204-212.000.
Coffey, Valerie J.: *See—*
Lind, David J.; Coffey, Valerie J.; and Hallam, Joyce, 4,269,876, Cl. 427-309.000.
Cohen, Robert D.: *See—*
Baxter, Larry K.; Cohen, Robert D.; Ain, Mark S.; and Apsell, Sheldon P., 4,270,043, Cl. 235-419.000.
Cohen, Uri; and Sard, Richard, to Bell Telephone Laboratories, Incorporated. Electroplating of silver-palladium alloys and resulting product. 4,269,671, Cl. 204-23.000.
Cohen, Yitzhak; Brandman, Yigal; and Eckstien, Zvi, to Motorola Israel Limited. Memory control circuitry for a supervisory control system. 4,270,185, Cl. 364-900.000.
Cole Consumer Products, Inc.: *See—*
Reinschreiber, Merwyn R., 4,268,960, Cl. 30-161.000.
Coleman, Donald C.: *See—*
Peterson, James F.; Crabtree, Joe; and Coleman, Donald C., 4,269,081, Cl. 74-473.00R.
Coleman, Richard D.: *See—*
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., 4,269,699, Cl. 75-101.00R.
Coley, Kenneth R.: *See—*
Borona, Russell T.; and Coley, Kenneth R., 4,270,031, Cl. 200-50.00C.
Colgate-Palmolive Co.: *See—*
Baines, Eric; and Harvey, Kenneth, 4,269,823, Cl. 424-52.000.
Joshi, David; and Klingaman, Richard, 4,269,722, Cl. 252-90.000.
Collard, Jean-Claude, to Universal Det, S.A.R.L. Detector for indicating a fire or detector malfunction. 4,270,123, Cl. 340-629.000.
Collins, Arthur A.; Bayless, Jon W., Sr.; and Pedersen, Robert D., to Arthur A. Collins, Inc. Timing adjustment circuit for digital switching. 4,270,203, Cl. 370-102.000.
Collins, Joseph A. Train derail emergency brake system. 4,269,288, Cl. 188-33.000.
Colt Industries Operating Corp.: *See—*
Smitley, Marion L., 4,269,062, Cl. 73-118.000.
Coltrin, Michael E.; and Wu, Yulin, to Phillips Petroleum Company. Process for producing hydroperoxides. 4,269,734, Cl. 252-430.000.
Colucci, William: *See—*
Stephenson, George M.; and Colucci, William, 4,269,630, Cl. 134-26.000.
Colville, Hume W. Land surfacing apparatus. 4,269,273, Cl. 172-397.000.
Combustion Engineering, Inc.: *See—*
Mellinger, Gerald A., 4,269,125, Cl. 110-171.000.
Rockwell, Dale L., 4,269,799, Cl. 264-85.000.
Combustion Unlimited Incorporated: *See—*
Straitz, John F., III, 4,269,583, Cl. 431-202.000.
Commissariat a l'Energie Atomique: *See—*
Coppa, Louis; and Levy, Jacques, 4,269,558, Cl. 414-146.000.
Pleyber, Gaetan, 4,270,041, Cl. 235-92.0MT.
Compagnie Industrielle des Piles Electriques "Cipel": *See—*
Cherouge, Dominique, 4,270,162, Cl. 362-311.000.
Conkey, Walter J. Compartment door holder for recreational vehicles. 4,268,997, Cl. 49-383.000.
Conn, John L. Container with tube closure assembly. 4,269,332, Cl. 222-475.000.
Conoco, Inc.: *See—*
Leach, Bruce E., 4,269,735, Cl. 252-440.000.
Theodore, Frank W., 4,269,662, Cl. 202-100.000.
Consolidated Medical Equipment Inc.: *See—*
Abraham, William W., 4,269,189, Cl. 128-303.130.
Container Corporation of America: *See—*
Young, Harry E., 4,269,348, Cl. 229-52.00B.
Contour-Concept, Inc.: *See—*
Hughes, J. Walter, 4,269,412, Cl. 273-81.300.

Contraves Goerz Corporation: *See—*
Wyman, Kenneth R.; and Gallagher, Gerard A., 4,270,164, Cl. 363-56.000.
Cook, Jack E., to Minnesota Mining and Manufacturing Company. Security label. 4,268,983, Cl. 40-2.200.
Cooper Industries, Inc.: *See—*
Boynton, Kenneth G., 4,269,870, Cl. 427-96.000.
Cooper, Kenneth W.: *See—*
Kountz, Kenneth J.; Cooper, Kenneth W.; and Abendschein, Frederic H., 4,269,261, Cl. 165-2.000.
Coors Container Company: *See—*
Robertson, King G.; and McAuliffe, Donald C., 4,269,632, Cl. 148-2.000.
Coppa, Louis; and Levy, Jacques, to Commissariat a l'Energie Atomique. Apparatus for introducing a fuel element into a fuel assembly of a nuclear reactor. 4,269,558, Cl. 414-146.000.
Corbett, Lacey O. Anti-smoking device. 4,269,203, Cl. 131-270.000.
Cordier, Andre G., to Air Industrie. Enclosures for the treatment of workpieces. 4,269,112, Cl. 98-115.0SB.
Cordis Corporation: *See—*
Zick, Gregory L., 4,269,684, Cl. 204-195.00R.
Cordis Dow Corp.: *See—*
Hornby, Roger B.; Lipps, Bennie J.; and Savage, Charles E., 4,269,712, Cl. 210-321.300.
Cornell, Cyrus J. Wood conveyor apparatus. 4,269,303, Cl. 198-688.000.
Corning Glass Works: *See—*
Borrelli, Nicholas F.; and Young, Peter L., 4,269,934, Cl. 430-296.000.
Cornu, Dominique. Machine for pulling endives and other tap roots. 4,269,272, Cl. 171-116.000.
Costin, Charles R., to Rohm and Haas Company. Thermally stable resins prepared by bromination or chlorination of aromatic polymer beads followed by sulphonation. 4,269,943, Cl. 521-33.000.
Costruzioni Meccaniche Lonati S.p.A.: *See—*
Lonati, Francesco, 4,269,044, Cl. 66-56.000.
Cotey, John; and Volpe, Lee S., to Quaker Oats Company, The. Soft flexible articulated doll. 4,268,991, Cl. 46-163.000.
Coulson, Blanche E. Height-adjustable rear view hair styling mirror. 4,269,382, Cl. 248-472.000.
Coulter Systems Corporation: *See—*
Kuehnle, Manfred R., 4,269,919, Cl. 430-67.000.
Cousin, Lucien. Replaceable edge bit assembly. 4,269,275, Cl. 172-719.000.
Cowan, William S., to Armco Inc. Hanger apparatus for suspending pipes with positive retrieval capability. 4,269,268, Cl. 166-208.000.
Cox, Eugene R.: *See—*
Rivoli, Anthony L.; Morcom, William R.; Nicolay, Hugh C.; and Cox, Eugene R., 4,269,636, Cl. 148-175.000.
Crabtree, Joe: *See—*
Peterson, James F.; Crabtree, Joe; and Coleman, Donald C., 4,269,081, Cl. 74-473.00R.
Craig, William R. Roof truss suspension. 4,269,442, Cl. 294-81.00R.
Crane Co.: *See—*
Skarvada, Thomas, 4,270,176, Cl. 364-565.000.
Crawford, John E. Head selection technique. 4,270,154, Cl. 360-98.000.
Crimaldi, Daniel. Motion producing mechanism. 4,269,122, Cl. 104-167.000.
Crist, Gerald L.; and Flora, Arlen E. Coupling arrangement for detachably connecting a driven unit to a drive unit. 4,269,075, Cl. 74-16.000.
Cross, Kenneth R.: *See—*
Clingman, David L.; Cavanagh, John R.; Schechter, Berton; and Cross, Kenneth R., 4,269,903, Cl. 428-591.000.
Crouse-Hinds Company: *See—*
Perretta, Michael L., 4,270,161, Cl. 362-249.000.
Crowe, Donald R., to Sargent Industries, Inc. Valve assembly. 4,269,386, Cl. 251-74.000.
Crown Unlimited Machines, Inc.: *See—*
Stroup, Steven L.; 4,269,369, Cl. 242-45.000.
Cunningham, Percy C. Grass sports surfaces and a method for maintaining them. 4,268,993, Cl. 47-58.000.
Curran, Thomas F. Draw transmission. 4,269,600, Cl. 474-69.000.
Custom Concepts, Incorporated: *See—*
Kubiatowicz, James F., 4,268,990, Cl. 46-119.000.
Cutler, John H.: *See—*
Walker, Loren H.; and Cutler, John H., 4,270,078, Cl. 318-803.000.
Cutore, Gaetano. Unit adapted to be completely hidden in the ground and intended to be used in aircraft refuelling operations. 4,269,240, Cl. 141-392.000.
DAF Indal Ltd.: *See—*
Saeed, Amin; and Hill, James B., 4,269,384, Cl. 248-548.000.
Dai Nippon Insatsu K.K.: *See—*
Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.
Daicel Ltd.: *See—*
Yabune, Hideo; and Ikemoto, Yoshiyuki, 4,269,972, Cl. 536-71.000.
Daigle, Oscar L.: *See—*
Keil, Howard R.; and Daigle, Oscar L., 4,269,619, Cl. 75-1.00T.
Daimler-Benz Aktiengesellschaft: *See—*
Altmann, Werner, 4,269,086, Cl. 74-711.000.
Breitling, Rolf; Mayer, Wolfgang; and Labatzke, Wolfgang, 4,269,890, Cl. 428-320.000.
Konig, Karl; and Heldmaier, Emil, 4,269,425, Cl. 280-403.000.
Dainippon Screen Seizo Kabushiki Kaisha: *See—*
Sakamoto, Takashi, 4,270,141, Cl. 358-78.000.
Dakss, Mark L.; Kim, Bumman; and Schlafer, John, to GTE Laboratories Incorporated. Method for mounting microsphere coupling lenses on optical fibers. 4,269,648, Cl. 156-293.000.
Dall, Desmond M.; and Miles, Anthony W. Bone fastener for the greater trochanter. 4,269,180, Cl. 128-92.00B.
Dampney Company, The: *See—*
Davis, Murray L., 4,269,879, Cl. 428-36.000.
D'Andrade, Bruce M., to Arco Industries Ltd. Toy aeroplane flight simulating console. 4,269,596, Cl. 434-32.000.
Danfoss A/S: *See—*
Nygaard, Nils H., 4,270,075, Cl. 318-254.000.
Nygaard, Nils H., 4,270,076, Cl. 318-254.000.
Daniel, James W., Jr., to RCA Corporation. Phaselocked receiver with orderwire channel. 4,270,221, Cl. 455-208.000.
Daniels Manufacturing Corp.: *See—*
Daniels, William A., 4,268,955, Cl. 29-747.000.
Daniels, William A., to Daniels Manufacturing Corp. Contact insertion and removal tool. 4,268,955, Cl. 29-747.000.
Dart Industries Inc.: *See—*
Gaylord, N. Grant, 4,269,958, Cl. 526-192.000.
Gaylord, Norman G.; and Nagler, Meshulam, 4,269,956, Cl. 526-192.000.
Gaylord, Norman G.; Nagler, Meshulam; and Fein, Marvin M., 4,269,957, Cl. 526-192.000.
Gaylord, Norman G., 4,269,960, Cl. 526-213.000.
Hulyalkar, Ramchandra K.; and Baum, Gerald A., 4,269,743, Cl. 260-23.0XA.
Hulyalkar, Ramchandra K.; and Baum, Gerald A., 4,269,744, Cl. 260-23.0XA.
Dataproducts Corporation: *See—*
Jezbera, Val K., 4,269,118, Cl. 101-93.340.
Davies, George E.; and Foulkes, David M., to Imperial Chemical Industries Limited. Safeguarded toxic chemical compositions containing effective emesis-inducing S-triazolo-[1,5-α]pyrimidine derivatives. 4,269,820, Cl. 424-10.000.
Davis, Bernard J.: *See—*
Wada, Akira; and Davis, Bernard J., 4,269,747, Cl. 260-27.0BB.
Davis, Murray L., to Dampney Company, The. Solventless epoxy-based coating composition, method of applying and article coated therewith. 4,269,879, Cl. 428-36.000.
Davis, William W.; and Griffith, Ernest S., to Sperry Corporation. High impedance tap for tapped bus transmission systems. 4,270,214, Cl. 455-80.000.
Davy Powergas GmbH: *See—*
Keunecke, Gerhard; and Krimphove, Herbert, 4,269,776, Cl. 260-346.400.
Dawson, Sylvan L.: *See—*
Ziegelbein, Paul J.; Dawson, Sylvan L.; and Erickson, Gerald A., 4,270,117, Cl. 340-168.00B.
Dean, Peter D. G.; Brown, Peter J.; and Bouriotis, Vasilis, to Amicon Corporation. Method and kit for separation of glycoproteins. 4,269,605, Cl. 23-230.00B.
Dearing, Le Roy M., to L. M. Dearing Associates. Camera with back-up shutter and provisions for recording data in conjunction with a primary image. 4,269,495, Cl. 354-106.000.
DeBernardis, John F.; and Kyncl, John J., to Abbott Laboratories. Antihypertensive method. 4,269,858, Cl. 424-330.000.
Deborski, Gary A., to Dow Chemical Company, The. Oxygen electrode preparation. 4,269,691, Cl. 204-290.00R.
deBuhr, Harold E.; and Suechting, Henry W., to Deere & Company. Harvester header with a main frame of modular subframes. 4,269,017, Cl. 56-106.000.
DEC International, Inc.: *See—*
Erbach, Thomas W., 4,269,143, Cl. 119-14.490.
DeCasperis, Anthony J.; Roethlein, Richard J.; and Breault, Richard D., to United Technologies Corporation. Method of forming densified edge seals for fuel cell components. 4,269,642, Cl. 156-89.000.
Deckert, Cheryl A.; and Schnable, George L., to RCA Corporation. Silicon nitride and silicon oxide etchant. 4,269,654, Cl. 156-657.000.
Deelman, Hayo E.; and Porritt, Gordon S., to Windsor Machine Company Limited. Saw chain. 4,269,100, Cl. 83-834.000.
Deere & Company: *See—*
deBuhr, Harold E.; and Suechting, Henry W., 4,269,017, Cl. 56-106.000.
Dobberpuhl, Dale R., 4,270,032, Cl. 200-61.850.
Gorsler, Karl G., 4,269,200, Cl. 130-27.00T.
Degawa, Sadao: *See—*
Tanaka, Masaya; Ono, Mitsuo; and Degawa, Sadao, 4,270,049, Cl. 250-227.000.
de Gomez, Mabel A. S.: *See—*
Villamarin, Arturo A.; and de Gomez, Mabel A. S., 4,269,824, Cl. 424-70.000.
De Graw, Joseph I.; Lawson, John A.; Johnson, Howard L.; and Loew, Gilda H., to SRI International; and Leland Stanford Jr. University, The Board of Trustees of. N-Sec-alkyl analogs of norcodeine and normorphine and analgesic compositions and methods employing the normorphine derivatives. 4,269,843, Cl. 424-260.000.
Degremont: *See—*
Barraque, Christian; Burriat, Jean; and Rovel, Jean-Marie, 4,269,715, Cl. 210-675.000.
Delannoy, Robert, to Molinier S.A. Tubular dressing which is complete by itself. 4,269,181, Cl. 128-156.000.
Delbrouck, Klaus. Dispensing compartment, in particular for refrigerating units. 4,269,326, Cl. 221-227.000.

DellaVecchia, Michael P.; Mackey, Joseph E.; and Steinberg, Albert H., to Allied Chemical Corporation. Fiber reinforced multi-ply stampable thermoplastic sheet. 4,269,884, Cl. 428-131.000.
del Rio, Salvador M., to Mineral Industries Engineers, Inc. Method for preparing an oil shale deposit for in situ retorting. 4,269,449, Cl. 299-2.000.
De Luca, Hector F.; Schnoes, Heinrich K.; Napoli, Joseph L.; and Fivizzani, Mary A., to Wisconsin Alumni Research Foundation. Isotopically labeled vitamin D derivatives and processes for preparing same. 4,269,777, Cl. 260-397.100.
Den, Hiroshi: *See—*
Shima, Eiji; Shimizu, Masao; and Den, Hiroshi, 4,269,380, Cl. 248-74.00R.
Denzel, Theodor; and Hoehn, Hans, to E. R. Squibb & Sons, Inc. 4H-Pyrazolo[4',3':5,6]pyrido[4,3-d][1,2,4]triazolo[3,2-b]-pyrimidin-5(8H)one and derivatives thereof. 4,269,836, Cl. 424-246.000.
DePalma, Ted V.: *See—*
Bailey, Charles H.; DePalma, Ted V.; and Dillon, James E., 4,269,807, Cl. 422-179.000.
Depin, Jean-Claude: *See—*
Bayssat, Michel; Sautel, Francis; Depin, Jean-Claude; and Matibet, Annie B., 4,269,848, Cl. 424-275.000.
Deseret Company, The: *See—*
Loveless, James C.; and Palmer, Darrel R., 4,269,186, Cl. 128-214.400.
DeShon, Wallace E., to Phillips Petroleum Company. Serial line communication system. 4,270,205, Cl. 371-32.000.
Desmond, Richard J., to General Electric Company. Enhanced thermal transfer package for a semiconductor device. 4,270,138, Cl. 357-81.000.
Deutsch, Leslie J.: *See—*
Deutsch, Ralph; and Deutsch, Leslie J., 4,269,101, Cl. 84-1.010.
Deutsch, Ralph; and Deutsch, Leslie J., to Kawai Musical Instrument Mfg. Co., Ltd. Apparatus for generating the complement of a floating point binary number. 4,269,101, Cl. 84-1.010.
Deutsche Forschungs-und-Versuchsanstalt fur Luft-und Raumfahrt e.V.: *See—*
Liebing, Lotar, 4,270,048, Cl. 250-216.000.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Hentschel, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,269,979, Cl. 544-190.000.
Devanney, Raymond H., to Veeder Industries Inc. Extended range variator conversion mechanism. 4,269,078, Cl. 74-348.000.
DeVault, Albert N.: *See—*
Bonazza, Benedict R.; and DeVault, Albert N., 4,269,606, Cl. 44-63.000.
DeVos, Marc F.; and Gouw, Hoan G. Slide-puzzle. 4,269,414, Cl. 273-153.00S.
de Vries, Louis, to Chevron Research Company. Hydrocarbylethyl sulfonyl fluoride. 4,269,790, Cl. 260-543.00F.
DeWitt, Robert E. Water sprinkler. 4,269,354, Cl. 239-97.000.
Diehl, Lothar: *See—*
Brunold, Andreas; Kroetzsch, Peter; and Diehl, Lothar, 4,269,609, Cl. 55-71.000.
Diermann, Joachim P.; and Ritchey, Thomas W., Jr., to Ampex Corporation. Video frame storage recording and reproducing apparatus. 4,270,150, Cl. 360-10.000.
Diesel Kiki Co., Ltd.: *See—*
Hatsuno, Hiroshi; Machida, Toshio; Fukushima, Mitsuo; and Ogawa, Shinji, 4,269,061, Cl. 73-40.000.
Shibuya, Tsunenori, 4,269,576, Cl. 418-97.000.
Diffracto Ltd.: *See—*
Pryor, Timothy R.; Alway, David M.; and Hageniers, Omer L., 4,269,874, Cl. 427-282.000.
DiGiulio, Mario. Drill bushing for use in a metal tooling plate. 4,269,550, Cl. 408-241.00B.
Dillon, James E.: *See—*
Bailey, Charles H.; DePalma, Ted V.; and Dillon, James E., 4,269,807, Cl. 422-179.000.
Dillon, Richard S. Promoting circulation of blood. 4,269,175, Cl. 128-24.00R.
DiMatteo, Paul L.; Ross, Joseph A.; and Stern, Howard K., to Solid Photography Inc. Arrangement for sensing the surface of an object independent of the reflectance characteristics of the surface. 4,269,513, Cl. 356-376.000.
Dinella, Donald; Haller, Albert H.; and Polakowski, Theodore D., Jr., to Western Electric Company, Inc. Apparatus for distributing liquid over a surface. 4,269,138, Cl. 118-115.000.
Disharoon, Dale R., to Disharoon, Dale R. Method of microtomy utilizing vitreous carbon blade. 4,269,092, Cl. 83-42.000.
Dixon International Limited: *See—*
Redfarn, Cyril A., 4,269,944, Cl. 521-100.000.
Dobberpuhl, Dale R., to Deere & Company. Combined safety lever and ignition interlock switch. 4,270,032, Cl. 200-61.850.
Dobson, John V., to National Research Development Corporation. Electrochemical measuring system. 4,269,683, Cl. 204-195.00W.
Dochterman, Richard W., to General Electric Company. Motor having adapted shaft and shaft adapter. 4,270,063, Cl. 310-66.000.
Doiron, Donald: *See—*
Doiron, Joseph G., 4,268,962, Cl. 30-261.000.
Doiron, Joseph G., to Doiron, Donald. Finger held scissors. 4,268,962, Cl. 30-261.000.
Domenis, Danilo: *See—*
Moiso, Ugo; Massabo, Vincenzo; and Domenis, Danilo, 4,269,769, Cl. 260-176.000.
Domes, E. A.: *See—*
Venere, Lawrence A.; and Domes, E. A., 4,269,002, Cl. 51-281.0SF.
Donzis, Henry M.: *See—*
Tompkins, E. Neal; and Donzis, Henry M., 4,270,131, Cl. 346-108.000.
Doppelfeld, Ille-Stephanie: *See—*
Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, 4,269,855, Cl. 424-285.000.
Dopper, Franz-Herbert: *See—*
Hock, Franz; Dopper, Franz-Herbert; and Stock, Gert, 4,269,701, Cl. 209-23.000.
Dorn, Silvia; Pfiffner, Albert; and Zurfluh, Rene, to Hoffmann-La Roche Inc. 1,4-Bis-[(2-propynyloxy)-methyl] cyclohexane. 4,270,009, Cl. 568-670.000.
Dotti, Giulio; Bertone, Antonino; and Roggero, Bruno, to Centro Ricerche Fiat S.p.A. Combined fluid logic control device. 4,269,224, Cl. 137-596.150.
Dottori, Roberto B., to Grinfa Sociedad de Responsabilidad Limitada. Device for the regulation of the position on the back of reclining seats. 4,269,447, Cl. 297-365.000.
Douren, Lars: *See—*
Broberg, Hans; Douren, Lars; and Troeng, John, 4,269,655, Cl. 159-13.00A.
Dove, Norman F. Steam distribution apparatus. 4,268,976, Cl. 34-155.000.
Dow Chemical Company, The: *See—*
Atchison, George J.; McEwen, Gerald K.; and Stevens, Violete L., 4,269,727, Cl. 252-188.30R.
Deborski, Gary A., 4,269,691, Cl. 204-290.00R.
Ezzell, Bobby R.; and Sorenson, Marius W., 4,269,675, Cl. 204-98.000.
Marriott, Robert C.; Kristal, Frank W.; and Julier, Robert M., 4,269,749, Cl. 260-29.6MQ.
Shipley, Randall S., 4,269,733, Cl. 252-429.00C.
Thomas, Lowell S., 4,269,762, Cl. 260-45.70P.
Vanderhider, James A.; and Lancaster, Gerald M., 4,269,945, Cl. 521-159.000.
Dow Corning Corporation: *See—*
Homan, Gary R., 4,269,741, Cl. 260-18.00S.
Homan, Gary R.; and Lee, Chi-Long, 4,269,963, Cl. 528-17.000.
Homan, Gary R.; and Toporcer, Louis H., 4,269,991, Cl. 556-427.000.
Dowd, Norton W. Power plant. 4,270,054, Cl. 290-4.00R.
Doyle, Gerald, to Exxon Research & Engineering Company. Process for converting CO and H_2O into hydrocarbons using water-soluble ruthenium catalysts. 4,269,784, Cl. 518-715.000.
Drazy, James W., to Caterpillar Tractor Co. Arbor assembly. 4,269,553, Cl. 409-232.000.
Drellishak, Glen J., to Bendix Corporation, The. Air/fuel ratio management system with calibration correction for manifold pressure differentials. 4,269,156, Cl. 123-478.000.
Dresser Industries, Inc.: *See—*
Phillips, Victor Q.; Griffin, Phil H.; and Sharki, Martin J., 4,269,567, Cl. 415-168.000.
Drewett, Robert J., to National Research Development Corporation. Radio antennae. 4,270,128, Cl. 343-702.000.
Drexler, Jerome; and Bouldin, Eric W., to Drexler Technology Corporation. Data storage medium having reflective particulate silver layer. 4,269,917, Cl. 430-16.000.
Drexler Technology Corporation: *See—*
Drexler, Jerome; and Bouldin, Eric W., 4,269,917, Cl. 430-16.000.
Dreyfus, Russell W.: *See—*
Tynan, Eugene E.; Dreyfus, Russell W.; and von Gutfeld, Robert J., 4,269,067, Cl. 73-643.000.
Dubenitz, Michael G.: *See—*
Lang, Edward J.; and Dubenitz, Michael G., 4,269,754, Cl. 260-33.60R.
DuBois, Donald D., to PPG Industries, Inc. Solid polymer electrolyte bipolar electrolyzer. 4,269,688, Cl. 204-254.000.
Dubuisson, George: *See—*
Schneider, Yves; and Dubuisson, George, 4,269,281, Cl. 180-70.00R.
Duckworth, James J.; and Glennon, William J., to Singer Company, The. Brushless DC motor control utilizing a ROM. 4,270,074, Cl. 318-254.000.
Dukes, Bobby W., to N-S-W Corporation. Wrench tools for castellated nuts. 4,269,088, Cl. 81-57.390.
Dulat, Joseph: *See—*
Bechgaard, Carl C.; and Dulat, Joseph, 4,269,875, Cl. 427-291.000.
Duncan, Damon H., to Sperry Corporation. Flexure assembly for a dynamically tuned gyroscope. 4,269,072, Cl. 74-5.00F.
Dundon, Michael J.: *See—*
Brewer, Donaldee; and Dundon, Michael J., 4,269,643, Cl. 156-96.000.
Dunlop Limited: *See—*
Harrington, Wilfred H.; and Jackson, William L., 4,269,251, Cl. 152-362.00R.
Dunnrowicz, Clarence J.: *See—*
Parker, Thomas E.; and Dunnrowicz, Clarence J., 4,270,105, Cl. 333-155.000.
Dunwald, Willi: *See—*
Lewalter, Jurgen; Rottmaier, Ludwig; Merten, Rudolf; Zecher, Wilfried; Dunwald, Willi; and Schulte, Bernhard, 4,269,750, Cl. 260-30.200.

Du Pont de Nemours, E. I., and Company: *See—*
Baker, William B., 4,269,059, Cl. 73-28.000.
Irwin, Robert S., 4,269,965, Cl. 528-128.000.
Kring, Elbert V., 4,269,804, Cl. 422-86.000.
Pazos, Jose F., 4,269,933, Cl. 430-291.000.
Williams, John F., 4,269,042, Cl. 62-513.000.

Dupre, Georges, to Baumgartner Papier S.A. Pen and integral capillary store. 4,269,526, Cl. 401-198.000.

Dur, Bernhard: *See—*
Tinnes, Bernhard; Baumann, Rainer; and Dur, Bernhard, 4,269,399, Cl. 266-236.000.

Duracell International Inc.: *See—*
Graham, Teresita O.; and Goodman, John T., 4,269,910, Cl. 429-190.000.

Duran, John; Missel, Leo; and Montelbano, Thomas O., to International Business Machines Corporation. Synthesis of polyamic acid. 4,269,968, Cl. 528-351.000.

Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., to Smith Kline & French Laboratories Limited. Alkoxypyridyl N-cyano or N-carbamoylguanidino alkanes, compositions containing same and uses thereof. 4,269,844, Cl. 424-263.000.

Duratex S.A.: *See—*
Moura, Joao B., 4,269,679, Cl. 204-129.650.

Durham, Samuel; and Johnston, Max M., to Polyvend, Inc. Can vending apparatus. 4,269,325, Cl. 221-194.000.

Dutcher, Daniel P., to Champion International Corporation. Round ice cream carton. 4,269,346, Cl. 229-21.000.

Dutton, Walter L., to A. W. Chesterton Company. Seal gland. 4,269,417, Cl. 277-11.000.

Dybvig, Helge. Fittings for releasably interconnecting a fuel tank with an internal combustion engine. 4,269,219, Cl. 137-322.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Brede, Uwe; Penner, Horst; and Zeiher, Erich, 4,269,120, Cl. 102-202.000.
Schoengen, Anton; and Schroeder, Heinrich, 4,269,805, Cl. 422-106.000.

Dzhemilev, Usein M.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

E. R. Squibb & Sons, Inc.: *See—*
Denzel, Theodor; and Hoehn, Hans, 4,269,836, Cl. 424-246.000.

E. T. Oakes Limited: *See—*
Shaw, Douglas W.; and Gamwell, Richard, 4,269,437, Cl. 285-109.000.

Easom Engineering & Manufacturing, Corp.: *See—*
Obra, Bart, 4,269,076, Cl. 74-52.000.

Easterwood, John R. Wrecker-hoist attachment for truck bed. 4,269,396, Cl. 254-325.000.

Eastman Kodak Company: *See—*
Atwell, Robert E., 4,269,927, Cl. 430-217.000.
Bacon, Robert E.; Raleigh, Ronald G.; and Rosenfeld, Robert B., 4,269,914, Cl. 430-3.000.
Cheng, Dah-Chieh O.; and Chamberlin, Kim S., 4,269,985, Cl. 548-191.000.
Frank, David S., 4,269,938, Cl. 435-7.000.
Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased, 4,270,130, Cl. 346-77.00E.
Jessop, Thomas C., 4,269,803, Cl. 422-63.000.
Nothnagle, Ronald J., 4,269,929, Cl. 430-264.000.
Zannucci, Joseph S., 4,269,629, Cl. 106-176.000.

Eaton Corporation: *See—*
Beck, Mark E., 4,269,350, Cl. 236-34.500.
Vandervoort, John R., 4,269,077, Cl. 74-331.000.
Winkler, Peter S., 4,269,289, Cl. 188-71.600.

Eaton, Homer L., to Eaton-Leonard Corporation. Bending method. 4,269,054, Cl. 72-151.000.

Eaton-Leonard Corporation: *See—*
Eaton, Homer L., 4,269,054, Cl. 72-151.000.

Ebata, Yoshihiro; Toibana, Yasuo; Uetsuki, Tsuneo; Kose, Saburo; and Kinoshita, Makoto, to Agency of Industrial Science and Technology; and Ministry of International Trade and Industry. Method for adhesion of ceramics. 4,269,641, Cl. 156-89.000.

Eckerle, Joseph S., to SRI International. Noninvasive blood pressure monitoring transducer. 4,269,193, Cl. 128-672.000.

Eckstien, Zvi: *See—*
Cohen, Yitzhak; Brandman, Yigal; and Eckstien, Zvi, 4,270,185, Cl. 364-900.000.

Ecodyne Corp.: *See—*
Butterworth, Donald J.; Halbfoster, Christopher; and Loudon, Robert, 4,269,707, Cl. 210-777.000.

Edelman, Robert, to Celanese Corporation. 3,3'-Tetraglycidylsulfonyldianiline thermosetting compositions and polybutadiene rubber modified thermosetting compositions prepared from the same. 4,269,759, Cl. 260-42.170.

Edo Corporation: *See—*
Miko, Richard J.; and Shapiro, Daniel H., 4,269,613, Cl. 55-278.000.

Edwards Oil Service, Inc.: *See—*
Kreger, James G., 4,269,698, Cl. 208-180.000.

Edwards, William M.; and Huang, C. Peter, to Pullman Incorporated. Horizontal cross-flow scrubber for sulfur oxide removal. 4,269,812, Cl. 423-242.000.

Egoricheva, Sofia A.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Eichstadt, Arvin B. Tow bar for aircraft. 4,269,429, Cl. 280-503.000.

Eie, Nils. Ski boot heel attachment. 4,269,430, Cl. 280-614.000.

Eisenberg, Arnold J., to Owens-Corning Fiberglas Corporation. Method for finishing a plate. 4,268,946, Cl. 29-424.000.

Ejima, Shozo; Tomioka, Susumu; Matsumoto, Tadao; and Hane, Naruaki, to Chisso Corporation. Heat-adhesive composite fibers and process for producing same. 4,269,888, Cl. 428-296.000.

Ejiri, Yoshihiro: *See—*
Sato, Masanori; Wakabayashi, Hiroharu; Ejiri, Yoshihiro; and Yamamoto, Hitoshi, 4,270,029, Cl. 179-175.31R.

Eklund, Hans G. U.: *See—*
Fornell, Erik G.; and Eklund, Hans G. U., 4,269,245, Cl. 144-245.00A.

Ekman Engineering AG: *See—*
Ekman, Kjell R., 4,269,389, Cl. 251-149.600.

Ekman, Kjell R., to Ekman Engineering AG. Coupling device. 4,269,389, Cl. 251-149.600.

Elbel, Charles R.: *See—*
Rayburn, Robert L.; Watson, Robert L.; Elbel, Charles R.; and Schweickardt, Karl W., 4,269,194, Cl. 128-719.000.

Elder, John G.: *See—*
Moriconi, Dario J.; and Elder, John G., 4,269,364, Cl. 241-36.000.

Electric Power Research Institute: *See—*
King, Randall N.; and Mitoff, Stephan P., 4,269,909, Cl. 429-104.000.

Electron Machine Corporation: *See—*
Vossberg, Carl A., 4,269,514, Cl. 356-386.000.

Elfab Corporation: *See—*
Ammon, J. Preston; Weaver, Harry R.; and Rodriquez, Claude, 4,269,468, Cl. 339-176.00M.

Elfert, Klaus; Wolf, Gerhard D.; and Rosenkranz, Hans J., to Bayer Aktiengesellschaft. Semipermeable membranes of aromatic disulfimide containing polyamides. 4,269,967, Cl. 528-337.000.

Ellinor, Daniel H. Resiliently stabilized web movement for honeycomb machine. 4,269,342, Cl. 226-60.000.

Elliott Brothers (London) Limited: *See—*
Ellis, Stafford M., 4,269,475, Cl. 350-174.000.

Elliott, Michael T.; Splinter, Michael R.; Jones, Addison B.; and Reckstin, John P., to Rockwell International Corporation. Submicron semiconductor devices. 4,268,951, Cl. 29-571.000.

Ellis, Stafford M., to Elliott Brothers (London) Limited. Head-up displays. 4,269,475, Cl. 350-174.000.

Ellison, Howard W.: *See—*
Price, William; and Ellison, Howard W., 4,268,924, Cl. 4-373.000.

Eltra Corporation: *See—*
Major, Jeffrey T., 4,270,065, Cl. 310-207.000.

Elwell, John M., Jr., to Charles Stark Draper Laboratory, Inc., The. Optical reference gyro. 4,270,044, Cl. 250-201.000.

Embree, John M. Closed pressurized solar heating system with automatic valveless solar collector drain-back. 4,269,167, Cl. 126-420.000.

Emerson Electric Co.: *See—*
Hansen, John M., 4,268,998, Cl. 51-148.000.
Kwater, James L., 4,269,372, Cl. 242-129.800.

Emery, Roy W. Nestable moulded container. 4,269,345, Cl. 229-2.50R.

EMI Limited: *See—*
Soby, William; and Johnston, Samuel J. B., 4,269,669, Cl. 204-5.000.

Emory, Jack L. Apparatus for reducing aerodynamic drag. 4,269,444, Cl. 296-1.00S.

Empire of Carolina, Inc.: *See—*
Almond, George, 4,269,291, Cl. 192-6.00R.
Langieri, Michael, 4,269,413, Cl. 273-121.00R.

Endoh, Kenjiro; Ishizawa, Yoshiyuki; Tanaka, Masanori; and Iwasaki, Koji, to Tokyo Shibaura Denki Kabushiki Kaisha. Digital amplitude control for digital audio signal. 4,270,177, Cl. 364-571.000.

Engbers, Hermann, to Wintershall Aktiengesellschaft. Resetting device for the cam head on a deep-well pump drive. 4,269,082, Cl. 74-522.000.

Engel, Kurt; and Scheurecker, Werner, to Voest-Alpine Aktiengesellschaft. Protection arrangement for preventing damage at a continuous casting plant for slabs. 4,269,260, Cl. 164-442.000.

Engelbrecht, Eckart; and Nieder, Elmar, to GMT Gesellschaft fur med. Technik mbH. Endoprosthesis for a knee joint. 4,268,920, Cl. 3-1.911.

Engelsmann, Dieter; and Schroder, Rolf, to AGFA-Gevaert, A.G. Photographic camera with single selector structure performing exposure-parameter adjustment and also switching of control and monitoring circuits. 4,269,492, Cl. 354-42.000.

English Card Clothing Company Limited, The: *See—*
Grimshaw, Keith, 4,268,937, Cl. 19-114.000.

Enomoto, Hiroshi: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Tanaka, Haruo, 4,269,838, Cl. 424-250.000.

Entzmann, Karl, to Simmering-Graz-Pauker Aktiengesellschaft fur Maschinen-, Kessel- und Waggonbau. Method and apparatus for regenerating and reactivating cement. 4,269,363, Cl. 241-30.000.

Enviropak Inc.: *See—*
Walchli, John R., 4,268,938, Cl. 24-201.00C.

Erbach, Thomas W., to DEC International, Inc. Teat cup assembly. 4,269,143, Cl. 119-14.490.

Erhardt, Peter F.: *See—*
Lu, Chin H.; and Erhardt, Peter F., 4,269,922, Cl. 430-126.000.

Erickson, Gerald A.: *See—*
Ziegelbein, Paul J.; Dawson, Sylvan L.; and Erickson, Gerald A., 4,270,117, Cl. 340-168.00B.

Erickson, John W., to Kobe, Inc. Method of producing an erosion resistant surface. 4,269,872, Cl. 427-239.000.

Erwin, Phillip, to Abbott Laboratories. Apparatus and method for measuring the magnitude of polarization of light. 4,269,511, Cl. 356-368.000.

Escaron, Pierre C.; and Hoppe, Joachim A., to Schlumberger Technology Corporation. Downhole force measuring device. 4,269,063, Cl. 73-151.000.

Eshghy, Siavash, to Rockwell International Corporation. Tension control of fasteners. 4,268,944, Cl. 29-407.000.

Etablissements Francois Salomon et Fils: *See—*
Salomon, Georges P. J., 4,268,931, Cl. 12-146.00R.

Ethyl Corporation: *See—*
Bartleson, John D.; and Wollensak, John C., 4,269,720, Cl. 252-50.000.

Evans, Annette. Mastectomy bra. 4,269,191, Cl. 128-488.000.

Evrad, Gerald D.: *See—*
Benton, Charles M.; Arnold, Franklin D.; Forberg, Helge O.; Tuscher, Roger L.; and Evrad, Gerald D., 4,269,592, Cl. 432-19.000.

Exxon Production Research Company: *See—*
Hopke, Scott W., 4,269,539, Cl. 405-130.000.

Exxon Research & Engineering Company: *See—*
Baker, Richard H., 4,270,163, Cl. 363-43.000.
Doyle, Gerald, 4,269,784, Cl. 518-715.000.
Geiger, Joseph T., 4,268,977, Cl. 34-242.000.
Grenoble, Dane C.; Kim, Chang J.; and Murrell, Lawrence L., 4,269,737, Cl. 252-464.000.
Logie, James A.; Bryan, T. James; and Wilson, Arthur G., 4,270,147, Cl. 358-256.000.
Metrailer, William J., 4,269,696, Cl. 208-120.000.
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,269,940, Cl. 435-148.000.
Wagensommer, Joseph; and Manalastas, Pacifico V., 4,269,955, Cl. 526-185.000.
Worley, Arthur C.; and Basile, Richard J., 4,269,166, Cl. 126-285.00R.

Ezzell, Bobby R.; and Sorenson, Marius W., to Dow Chemical Company, The. Electrolyte series flow in electrolytic chlor-alkali cells. 4,269,675, Cl. 204-98.000.

Falk, Terrence F.; Schultz, Terrence R.; and Hoffmann, James E., to Motorola, Inc. Sequential channel selector system. 4,270,213, Cl. 455-77.000.

Far-Mar-Co., Inc.: *See—*
Rao, Ganta V.; and Shoup, Floyd K., 4,269,766, Cl. 260-112.00G.

Faranetta, John G.; and Feller, Robert G., to Okonite Company, The. Method of manufacturing a sealed cable employing a wrapped foam barrier. 4,269,638, Cl. 156-53.000.

Farge, Daniel; Jossin, Alain; Ponsinet, Gerard; and Reisdorf, Daniel, to Rhone-Poulenc Industries. Method for treating rhinoviral complaints. 4,269,842, Cl. 424-258.000.

Farina, Attilio, to Indesit Industria Elettrodomestici Italiana S.p.A. Television set which displays analog data relevant to the operation of the television set on its video display. 4,270,145, Cl. 358-188.000.

Farmer, Gary W. Motor vehicle with convertible bodies. 4,269,443, Cl. 296-1.00S.

Farmitalia Carlo Erba: *See—*
Lombardi, Paolo; Franceschi, Giovanni; and Arcamone, Federico, 4,269,771, Cl. 260-245.20R.

Farrior, James S., to Lockheed Missiles & Space Company, Inc. Endless traction band support apparatus. 4,269,457, Cl. 305-11.000.

Faul, Wolfgang; Kastening, Bertel; and Luft, Harald, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method for regenerating a cupric chloride and/or ferric chloride containing etching solution in an electrolysis cell. 4,269,678, Cl. 204-129.600.

Faulkner, Bobby P.; Heyer, Wayne D.; and Weinecke, Michael H., to Allis-Chalmers Corporation. Roller grate material bed conveying and heat exchange apparatus providing plural bed depths. 4,269,593, Cl. 432-58.000.

Federal Paper Board Company, Inc.: *See—*
Growney, Lawrence J., 4,269,316, Cl. 206-499.000.

Fein, Marvin M.: *See—*
Gaylord, Norman G.; Nagler, Meshulam; and Fein, Marvin M., 4,269,957, Cl. 526-192.000.

Feith, Donald, to United States Machine Works, Inc. System and apparatus for program controlled delivery of game balls. 4,269,163, Cl. 124-77.000.

Feldman, Norman: *See—*
Uyeda, Stanley T.; Radu, E. John; Talbot, William J., Jr.; and Feldman, Norman, 4,269,540, Cl. 405-168.000.

Feldtkeller, Ernst, to Siemens Aktiengesellschaft. Electro-optical voltage measurement device. 4,269,483, Cl. 350-390.000.

Felix, Raymond A., to Stauffer Chemical Company. Biocidal mercaptothiadiazole Haloacrylylnitrile compounds. 4,269,984, Cl. 548-142.000.

Felix, Raymond A., to Stauffer Chemical Company. Biocidal mercaptotriazole haloacrylylnitrile compounds. 4,269,988, Cl. 548-263.000.

Feller, Robert G.: *See—*
Faranetta, John G.; and Feller, Robert G., 4,269,638, Cl. 156-53.000.

Feniger, Arnold R. Eyeglass case. 4,269,306, Cl. 206-5.000.

FEPS International, Ltd.: *See—*
Shima, Eiji; Shimizu, Masao; and Den, Hiroshi, 4,269,380, Cl. 248-74.00R.

Ferguson, Douglas J.: *See—*
Kowalski, Ben C.; Kowalski, Daniel J.; and Ferguson, Douglas J., 4,269,340, Cl. 224-326.000.

Ferlan, Stephen J.: *See—*
Kmonk, Stanley; Cadwell, Dennis J.; and Ferlan, Stephen J., 4,269,661, Cl. 176-50.000.

Ferrari, Richard A.; and Beyler, Arthur L., to Sterling Drug Inc. Topical dermatological method of use of an androstenopyrazole. 4,269,831, Cl. 424-241.000.

Fiat-Allis Construction Machinery, Inc.: *See—*
Shears, W. Allan, 4,269,433, Cl. 280-716.000.

Fiat Auto S.p.A.: *See—*
Cavallino, Francesco; Martinez, Pasquale; Allione, Michele; and Schiavuzzi, Roberto, 4,269,029, Cl. 60-293.000.

Fiber Associates, Inc.: *See—*
Geyer, Charles J., Jr.; and White, Ben E., 4,269,973, Cl. 536-101.000.

Fichtel & Sachs AG: *See—*
Gelhard, Egon, 4,269,440, Cl. 292-336.300.

Fife Corporation: *See—*
Burns, James W.; and Shelton, John J., 4,269,140, Cl. 118-665.000.

Figini, Alessandro, to SAES Getters S.p.A. Method for the production of non-evaporable ternary gettering alloys. 4,269,624, Cl. 75-177.000.

Fike, Bruce G., deceased: *See—*
Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased, 4,270,130, Cl. 346-77.00E.

Fike, Joyce A., executrix: *See—*
Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased, 4,270,130, Cl. 346-77.00E.

Filos S.a.s. Di Zancaner Alberto & Sorella: *See—*
Zancaner, Alberto, 4,269,488, Cl. 351-113.000.

Filtrol Corporation: *See—*
Lim, John; Huang, Warren; and Brady, Michael, 4,269,815, Cl. 423-328.000.

Finney, William C. Retaining wall structure and method of constructing same. 4,269,545, Cl. 405-285.000.

Firebaugh, Dale C.: *See—*
Saarem, Myrl J.; Lovelace, Donald E.; Firebaugh, Dale C.; and Soukup, Dale F., 4,269,229, Cl. 137-869.000.

Firth, Francis G., to Applied Plastics Co., Inc. Kneadable mastic composition comprised of epoxy resin and aromatic diamine curing agent. 4,269,751, Cl. 260-31.20R.

Fischer, Artur. Coupling arrangement for transmitting torque. 4,269,080, Cl. 74-425.000.

Fischer, Christopher L. Ultrasonic sensing apparatus. 4,269,066, Cl. 73-639.000.

Fischer, Rudolf; and Hartmann, Karl-Heinz, to Albert-Frankenthal AG, Firma. Folding apparatus. 4,269,402, Cl. 493-437.000.

Fisons Limited: *See—*
Orr, Thomas S. C.; and Keogh, Raymond W., 4,269,853, Cl. 424-283.000.
Smith, Dennis A., 4,269,854, Cl. 424-283.000.

Fitzke, Emil V.; Wenner, Donald B.; and Polak, Michael J., to RCA Corporation. Temperature insensitive filter for kinescope envelopes. 4,269,616, Cl. 55-493.000.

Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, to Bayer Aktiengesellschaft. Microwave moisture measuring instrument with switchable measuring regions. 4,270,083, Cl. 324-58.50C.

Fivizzani, Mary A.: *See—*
De Luca, Hector F.; Schnoes, Heinrich K.; Napoli, Joseph L.; and Fivizzani, Mary A., 4,269,777, Cl. 260-397.100.

Flamm, Peter M.; and Miskin, Leslie, to ITT Industries, Inc. Color television receiver comprising at least one integrated circuit for the luminance signal and the chrominance signals. 4,270,139, Cl. 358-23.000.

Flanagan, James P.; and Carter, Jack L. Separator valve. 4,269,217, Cl. 137-183.000.

Flanagan, Joseph E., to Rockwell International Corporation. High-performance MHD solid gas generator. 4,269,637, Cl. 149-19.100.

Flannery, William E., to Sperry Corporation. Multiple generator block replicate bubble memory device. 4,270,186, Cl. 365-15.000.

Fleissner, Hans, to Vepa Aktiengesellschaft. Process for the continuous shrinking of yarns. 4,268,941, Cl. 28-281.000.

Flora, Arlen E.: *See—*
Crist, Gerald L.; and Flora, Arlen E., 4,269,075, Cl. 74-16.000.

Flora, Lawrence; and Francis, Marion D., to Procter & Gamble Company, The. Indole anti-inflammatory composition. 4,269,828, Cl. 424-204.000.

Flothmann, Detlev; Ruell, Hartwig; and Staimer, Angelika, to Siemens Aktiengesellschaft. Identification card with a hologram and a process for the production thereof. 4,269,473, Cl. 350-3.610.

Flotow, Richard A.; and Sink, William H. Two-stage coaxial spring damper. 4,269,296, Cl. 192-106.200.

FMC Corporation: *See—*
Berkowitz, Sidney, 4,269,786, Cl. 260-458.00R.
Haley, Frank P., 4,269,239, Cl. 141-387.000.
Woods, Quentin T.; Becker, Paul H.; and Gerverdinck, William D., 4,269,015, Cl. 53-526.000.

Focke & Co.: *See—*
Focke, Heinz H., 4,269,559, Cl. 414-414.000.

Focke, Heinz H., to Focke & Co. Apparatus for discharging containers (trays) filled with cigarettes and the like. 4,269,559, Cl. 414-414.000.
Fogg Filler Company: *See—*
Fogg, Michael T., 4,269,236, Cl. 141-293.000.
Fogg, Michael T., to Fogg Filler Company. Container filling device. 4,269,236, Cl. 141-293.000.
Fogle, Peter H. Portable band saw. 4,269,098, Cl. 83-733.000.
Fonderie et Ateliers des Sablons: *See—*
Lacombe, Pierre, 4,270,175, Cl. 364-562.000.
Forberg, Helge O.: *See—*
Benton, Charles M.; Arnold, Franklin D.; Forberg, Helge O.; Tuscher, Roger L.; and Evrad, Gerald D., 4,269,592, Cl. 432-19.000.
Ford Motor Company: *See—*
Allen, Denis L. C., 4,268,996, Cl. 49-212.000.
Knapp, Charles A.; and Rao, V. Durga N., 4,269,262, Cl. 165-8.000.
Rao, V. Durga N., 4,269,570, Cl. 417-64.000.
Tabar, Ronald J.; and Killgoar, Paul C., Jr., 4,269,746, Cl. 260-23.70H.
Fornell, Erik G.; and Eklund, Hans G. U., to Kockums Industri Aktiebolag. Infeed mechanism. 4,269,245, Cl. 144-245.00A.
Forsythe, Calvin C.; Strelow, John L.; and Clift, Miner E., to BS & B Safety Systems, Inc. Safety pressure relief device. 4,269,214, Cl. 137-68.00R.
Fory, Werner: *See—*
Szczepanski, Henry; Martin, Henry; Fory, Werner; and Pissiotas, Georg, 4,269,775, Cl. 260-340.700.
Foster, Karl; and Shilling, Jack W., to Westinghouse Electric Corp. Loss reduction in oriented iron-base alloys containing sulfur. 4,269,634, Cl. 148-120.000.
Foulkes, David M.: *See—*
Davies, George E.; and Foulkes, David M., 4,269,820, Cl. 424-10.000.
Four Star Corporation: *See—*
Kowalski, Ben C.; Kowalski, Daniel J.; and Ferguson, Douglas J., 4,269,340, Cl. 224-326.000.
Franceschi, Giovanni: *See—*
Lombardi, Paolo; Franceschi, Giovanni; and Arcamone, Federico, 4,269,771, Cl. 260-245.20R.
Francis, Marion D.: *See—*
Flora, Lawrence; and Francis, Marion D., 4,269,828, Cl. 424-204.000.
Frank, David S., to Eastman Kodak Company. Assay of peroxidatively active materials. 4,269,938, Cl. 435-7.000.
Frankel, Robert S. Two-piece quadripod for cameras. 4,269,499, Cl. 354-293.000.
Franklyn, Derek A. Line marking machine with heaters. 4,269,328, Cl. 222-146.00H.
Franks, Lawrence A., to Burr Oak Tool & Gauge Company. Device for discharging stacked fins from a transporter. 4,269,555, Cl. 414-27.000.
Franse, Albert D.: *See—*
Watson, Frederick D.; Mayse, Weldon D.; and Franse, Albert D., 4,269,681, Cl. 204-188.000.
Fredell, Soren; and Jarl, Stig, to AB Volvo. Arrangement for preventing incorrect shifting in a vehicle gearbox. 4,269,079, Cl. 74-365.000.
Freeman Chemical Corporation: *See—*
Neumann, Dennis J., 4,269,745, Cl. 260-23.00P.
Freeman, Ernest A., Jr.: *See—*
Worth, Daniel L.; and Freeman, Ernest A., Jr., 4,269,602, Cl. 8-116.400.
Freiede & Goldman, Ltd.: *See—*
Goldman, Jerome L.; Breeden, John O. 'R.; and Michel, Walter H., 4,269,543, Cl. 405-198.000.
Freitag, Dieter; Nouvertne, Werner; Burkhardt, Claus; and Kleiner, Frank, to Bayer Aktiengesellschaft. Polycarbonates with alkylphenyl end groups, their preparation and their use. 4,269,964, Cl. 528-126.000.
Friday, Philip L., to Friday Tractor Co., Inc. Fruit and nut harvesting apparatus. 4,269,021, Cl. 56-329.000.
Friday Tractor Co., Inc.: *See—*
Friday, Philip L., 4,269,021, Cl. 56-329.000.
Froitzheim, Hermann, to Leybold-Heraeus GmbH. Electronic or ionic optical apparatus. 4,270,053, Cl. 250-508.000.
Frush, Donald R. Spoke wheel assembly. 4,269,452, Cl. 301-6.00R.
Fry, Warren C., to General Equipment & Mfg. Co., Inc. Electronic synchronization monitor. 4,270,156, Cl. 361-21.000.
Fryatt, Leslie A., to J. H. Fenner & Co. Limited. Powered conveyors. 4,269,305, Cl. 198-781.000.
Fryer, Rodney I.; and Gilman, Norman W., to Hoffmann-La Roche Inc. Thiazolo[5,4-d][2]benzazepines. 4,269,774, Cl. 260-245.500.
Fuji Photo Film Co., Ltd.: *See—*
Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, 4,269,936, Cl. 430-389.000.
Asanuma, Yoshimasa; and Nishimura, Taiichi, 4,269,937, Cl. 430-538.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,269,926, Cl. 430-216.000.
Kato, Hajime; Satomura, Masato; and Sato, Kozo, 4,269,893, Cl. 428-341.000.
Minagawa, Nobuhiko, 4,269,891, Cl. 428-335.000.
Fujihira, Masamichi: *See—*
Osa, Tetsuo; Fujihira, Masamichi; Matsue, Tomokazu; and Yamauchi, Takashi, 4,269,674, Cl. 204-81.000.
Fujijura Cable Works, The: *See—*
Shima, Eiji; Shimizu, Masao; and Den, Hiroshi, 4,269,380, Cl. 248-74.00R.
Fujishiro, Takeshi, to Nissan Motor Company, Limited. Fuel injection system. 4,269,157, Cl. 123-478.000.
Fujita, Yoshiji; Ohnishi, Takashi; and Nishida, Takashi, to Kuraray Co., Ltd. Hydroquinone derivatives and preparation thereof. 4,270,003, Cl. 568-33.000.
Fujitsu Limited: *See—*
Tanakura, Yoshiyuki; and Uchida, Keiichiro, 4,270,181, Cl. 364-736.000.
Toyokura, Nobuo; Tokunaga, Hiroshi; Inoue, Shinichi; Ishikawa, Hajime; and Shinoda, Masaichi, 4,270,136, Cl. 357-23.000.
Fukano, Takashi: *See—*
Ito, Nobuyoshi; Morishita, Hiroshi; Morita, Minoru; and Fukano, Takashi, 4,269,323, Cl. 220-423.000.
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, to Asahi Kasei Kogyo Kabushiki Kaisha. Aluminum-halogen cells. 4,269,911, Cl. 429-199.000.
Fukuroi, Takeo, to Yoshida Kogyo K.K. Slider for a large sized slide fastener. 4,268,939, Cl. 24-205.15R.
Fukushima, Mitsuo: *See—*
Hatsuno, Hiroshi; Machida, Toshio; Fukushima, Mitsuo; and Ogawa, Shinji, 4,269,061, Cl. 73-40.000.
Furruse, Takao: *See—*
Hayashi, Izuo; and Furruse, Takao, 4,270,096, Cl. 331-94.50H.
Furukawa, Hajime, to Pioneer Electronic Corporation. CATV Converter. 4,270,212, Cl. 455-3.000.
Furukawa Metals Company, Ltd.: *See—*
Inoue, Sadao; Umemura, Tetsuya; Suzuki, Hiroshi; and Kuroyanagi, Takashi, 4,269,623, Cl. 75-157.500.
Fusion Systems Corporation: *See—*
Ury, Michael G.; and Ryan, Patrick J., 4,269,581, Cl. 425-174.400.
Futaba Denshi Kogyo K.K.: *See—*
Kishino, Takao; Kawasaki, Kishio; and Yamaguchi, Nobuo, 4,270,068, Cl. 313-497.000.
Fuyama, Moriaki; Honda, Haruhiko; and Ura, Mitsuru, to Hitachi Metals, Ltd. Surface hafnium-titanium carbide coated hard alloy and method. 4,269,899, Cl. 428-457.000.
Gabbar, Hamied: *See—*
Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, 4,269,855, Cl. 424-285.000.
Gabler, Gerhard, to Precisa AG Rechenmaschinenfabrik. Cartridge for dye-impregnated endless ribbon. 4,269,520, Cl. 400-196.000.
Gabriel, John F.: *See—*
Schall, Wayne E.; Miller, John E.; and Gabriel, John F., 4,268,975, Cl. 34-105.000.
Gaensslen, Fritz H.; and Spiller, Eberhard A., to International Business Machines Corporation. Method for fabricating self-aligned high resolution non planar devices employing low resolution registration. 4,268,952, Cl. 29-571.000.
GAF Corporation: *See—*
Bondoc, Alfredo A., 4,269,886, Cl. 428-219.000.
Gager, Lawrence J., Jr. Windshield mounting assembly. 4,269,445, Cl. 296-78.100.
Gageur, Fritz: *See—*
Strahm, Christian; and Gageur, Fritz, 4,269,046, Cl. 68-13.00R.
Gagnon, Jacques: *See—*
LaRose, Claude; and Gagnon, Jacques, 4,269,335, Cl. 224-31.000.
Galkin, Jury M.; Saulin, Albert B.; and Olshvang, Jury N. Device for gauging thickness of refractory lining. 4,270,051, Cl. 250-358.00R.
Gallagher, Gerard A.: *See—*
Wyman, Kenneth R.; and Gallagher, Gerard A., 4,270,164, Cl. 363-56.000.
Galli, Mario: *See—*
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,269,608, Cl. 55-67.000.
Gamwell, Richard: *See—*
Shaw, Douglas W.; and Gamwell, Richard, 4,269,437, Cl. 285-109.000.
Ganellin, Charon R.: *See—*
Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., 4,269,844, Cl. 424-263.000.
Gans, Leo; Bruins, Paul F.; Shapiro, Jay B.; and Rothman, Myron, to Voplex Corp. Flexible impact resistant trim and method for manufacture thereof. 4,269,897, Cl. 428-419.000.
GAO Gesellschaft fur Automation und Organisation mbH: *See—*
Mitzel, Wilhelm, 4,269,405, Cl. 271-94.000.
Garner, John N., to Northern Telecom Limited. Apparatus for use in fluidized powder filling of multiple core unit cables. 4,269,023, Cl. 57-1.0UN.
Garrett Corporation, The: *See—*
Martin, William B., 4,269,293, Cl. 192-35.000.
Mattson, George B.; and Woodhouse, Geoffrey D., 4,269,027, Cl. 60-39.040.
Garvey Corporation: *See—*
Garvey, Francis J., 4,269,302, Cl. 198-607.000.
Garvey, Francis J., to Garvey Corporation. Modular conveyor units and spiral conveyors constructed therefrom. 4,269,302, Cl. 198-607.000.
Garwood, William E.: *See—*
Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., 4,269,783, Cl. 518-718.000.
Gattyan, Andor. Piston/cylinder type elements and compactors embodying those elements. 4,269,115, Cl. 100-98.00R.
Gauthier, Francois H.; and Lepeytre, Jean-Paul, to Thomson-CSF. Helmet-mounted display system. 4,269,476, Cl. 350-174.000.

Gawler, Glenn B.; and McFadyen, Robert J., to General Electric Company. Integrated circuit FM local oscillator with AFC control and temperature compensation. 4,270,102, Cl. 331-115.000.
Gaylord, N. Grant, to Dart Industries Inc. Peroxygen compound-stannous chloride redox catalyst system for suspension polymerization of vinyl chloride. 4,269,958, Cl. 526-192.000.
Gaylord, Norman G.; and Nagler, Meshulam, to Dart Industries Inc. Peroxygen compound-metal carboxylate redox catalyst system for vinyl chloride polymerization. 4,269,956, Cl. 526-192.000.
Gaylord, Norman G.; Nagler, Meshulam; and Fein, Marvin M., to Dart Industries Inc. Peroxygen compound-metal carboxylate redox catalyst system for vinyl monomer polymerization. 4,269,957, Cl. 526-192.000.
Gaylord, Norman G., to Dart Industries Inc. Peroxygen compound-6-O-alkanoyl-L-ascorbic acid redox catalyst system for vinyl monomer polymerization. 4,269,960, Cl. 526-213.000.
Geberth, John D., Jr. Self-cleaning spray nozzle. 4,269,355, Cl. 239-107.000.
Gebr. Eickhoff Maschinenfabrik und Eisengeisserei m.b.H.: *See—*
Weber, Karl-Heinz, 4,270,072, Cl. 318-34.000.
Geiger, Joseph T., to Exxon Research & Engineering Company. Sealing apparatus for ovens. 4,268,977, Cl. 34-242.000.
Gelbard, Robert B., to General Electric Company. Defrost control. 4,269,035, Cl. 62-155.000.
Gelhard, Egon, to Fichtel & Sachs AG. Electrically energized operating mechanism for the door of a vehicle and the like, and drive arrangement for the mechanism. 4,269,440, Cl. 292-336.300.
Gendelman, Bernard: *See—*
Weintraub, Morton; Waxman, Elliot; and Gendelman, Bernard, 4,270,226, Cl. 455-353.000.
General Atomic Company: *See—*
Ohkawa, Tihiro, 4,269,658, Cl. 176-3.000.
General Dynamics Corporation: *See—*
Brand, Richard A., 4,269,953, Cl. 525-534.000.
General Electric Company: *See—*
Abolins, Visvaldis; and Lee, Gim F., Jr., 4,269,950, Cl. 525-68.000.
Bower, Arnold B., Jr., 4,269,704, Cl. 209-393.000.
Desmond, Richard J., 4,270,138, Cl. 357-81.000.
Dochterman, Richard W., 4,270,063, Cl. 310-66.000.
Gawler, Glenn B.; and McFadyen, Robert J., 4,270,102, Cl. 331-115.000.
Gelbard, Robert B., 4,269,035, Cl. 62-155.000.
Holub, Fred F.; and Macke, Gerald F., 4,269,755, Cl. 260-37.0PC.
Hughes, William C., 4,270,206, Cl. 375-9.000.
Morris, Edwin E., 4,270,143, Cl. 358-125.000.
Walker, Loren H.; and Cutler, John H., 4,270,078, Cl. 318-803.000.
Zamek, Otto S.; Pauze, Denis R.; and Jablonski, Richard J., 4,269,752, Cl. 260-31.40R.
Zaveri, Pradhumankumar S., 4,270,082, Cl. 323-248.000.
General Equipment & Mfg. Co., Inc.: *See—*
Fry, Warren C., 4,270,156, Cl. 361-21.000.
General Motors Corporation: *See—*
Clingman, David L.; Cavanagh, John R.; Schechter, Berton; and Cross, Kenneth R., 4,269,903, Cl. 428-591.000.
Meginnis, George B.; and Spees, John A., 4,269,032, Cl. 60-754.000.
Wandel, David M., 4,269,083, Cl. 74-579.00E.
Wright, Dolph D., 4,269,580, Cl. 425-150.000.
General Technology, Inc.: *See—*
Schwarz, Gail B.; and Hickinbotham, Lawrence F., 4,269,114, Cl. 100-53.000.
Genova, Inc.: *See—*
Pepper, Kenneth V., 4,269,230, Cl. 138-89.000.
Georg Fischer Aktiengesellschaft: *See—*
Wolfgang, Walter, 4,269,003, Cl. 51-421.000.
Georgini, Eugene A.: *See—*
Sullivan, John L.; Georgini, Eugene A.; and Simmonds, Milo R., 4,269,216, Cl. 137-102.000.
Geosource, Inc.: *See—*
Hogan, Alfred D., 4,268,932, Cl. 15-104.06A.
Gersbeck, Rolf; and Krohn, Manfred, to Hermann Berstorff Maschinenbau GmbH. Apparatus, including an endless belt, for continuously hot pressing a web of material. 4,269,585, Cl. 425-373.000.
Gersmann, Klaus; and Gruber, Oskar, to Bayerische Motoren Werke Aktiengesellschaft. Displaceable seat for automotive vehicles. 4,269,446, Cl. 297-341.000.
Gerteis, Hans, to Heinkel Industriezentrifugen GmbH & Co., Firma. Filter centrifuge. 4,269,711, Cl. 210-232.000.
Gerverdinck, William D.: *See—*
Woods, Quentin T.; Becker, Paul H.; and Gerverdinck, William D., 4,269,015, Cl. 53-526.000.
Geu, Edwin J.: *See—*
Jezuit, Arthur D.; and Geu, Edwin J., 4,268,973, Cl. 34-69.000.
Geyer, Charles J., Jr.; and White, Ben E., to Fiber Associates, Inc. Process and apparatus for making alkali cellulose in sheet form. 4,269,973, Cl. 536-101.000.
GF Business Equipment, Inc.: *See—*
Kenworthy, Max H.; and Textoris, Melvin A., 4,270,020, Cl. 174-48.000.
Gibbons, James F. Amorphous solar cells. 4,270,018, Cl. 136-258.000.
Gibbs, Alfred S. Conveyor belt scraper system. 4,269,301, Cl. 198-499.000.
Gibson, Alan F.: *See—*
Hogan, John C.; and Gibson, Alan F., 4,269,398, Cl. 266-230.000.
Gilardoni, Giovanni; and Gilardoni, Sergio, to Ravida, Antonino; and Ravida, Regina Carla Ezzevalli. System of protection against short circuits and fulminations. 4,270,158, Cl. 361-42.000.
Gilardoni, Sergio: *See—*
Gilardoni, Giovanni; and Gilardoni, Sergio, 4,270,158, Cl. 361-42.000.
Gilbard, Jeffrey P. Method of measuring tear osmolarity and apparatus therefor. 4,269,197, Cl. 128-763.000.
Gilbert, Everett E., to United States of America, Army. Preparation of HNS from HNBB using oxygen. 4,270,012, Cl. 568-931.000.
Gilbert, John R. B.; and Baldwin, Peter H., to IMI Kynoch Limited. Electrode suspension bars. 4,269,687, Cl. 204-242.000.
Gill, Hardial S.; and Tegel, Othmar, to Licentia Patent-Verwaltungs-G.m.b.H. Circuit arrangement for generating and stably amplifying broadband rf signals. 4,270,099, Cl. 331-96.000.
Gillespie, George P., to United States of America, Navy. Inflatable mini boat. 4,268,930, Cl. 9-2.00A.
Gilman, Norman W.: *See—*
Fryer, Rodney I.; and Gilman, Norman W., 4,269,774, Cl. 260-245.500.
Giras, Theodore C.: *See—*
Ronnen, Uri G.; Podolsky, Leaman B.; and Giras, Theodore C., 4,270,055, Cl. 290-40.00R.
Girling Limited: *See—*
White, Alfred K.; and Brearley, Malcolm, 4,269,454, Cl. 303-97.000.
Girlock Limited: *See—*
Sawyer, Patrick F., 4,269,453, Cl. 303-6.00C.
Glaenzer Spicer: *See—*
Orain, Michel A., 4,269,460, Cl. 308-233.000.
Glandorf, Frank J.; Wagner, Paul D.; and Keuper, John J., to Siemens-Allis, Inc. Heat exchange arrangement for cooling lubricant for vertical electric motor thrust bearing. 4,270,064, Cl. 310-90.000.
Glass, Carl R. Multi fin post anchor system. 4,269,010, Cl. 52-154.000.
Glass, Howard L.; and Henry, Rodney D., to Rockwell International Corporation. Process for preparing temperature-stabilized low-loss ferrite films. 4,269,651, Cl. 156-601.000.
Glennon, William J.: *See—*
Duckworth, James J.; and Glennon, William J., 4,270,074, Cl. 318-254.000.
Glicksman, Leon R.; and Rohsenow, Warren R., to Massachusetts Institute of Technology. Wet/dry cooling tower and method. 4,269,796, Cl. 261-112.000.
GMT Gesellschaft fur med. Technik mbH: *See—*
Engelbrecht, Eckart; and Nieder, Elmar, 4,268,920, Cl. 3-1.911.
Goehler, Robert F., to Ingersoll-Rand Company. Shock isolation means for an earth compactor drum. 4,269,536, Cl. 404-117.000.
Goeke, Ulrich; and Richter, Michael, to Schering Aktiengesellschaft. Epoxy resin hardening agents from Mannich bases and method for curing. 4,269,742, Cl. 260-18.0PN.
Goeldner, Richard W., to Water Services of America, Inc. Cleaning of heat exchanger tubing. 4,269,264, Cl. 165-95.000.
Goetz, Nelson F.: *See—*
Johnson, Doyle F.; and Goetz, Nelson F., 4,269,234, Cl. 138-121.000.
Gold, Marvin H. High voltage cable splice using condensation reaction polymeric insulation. 4,270,021, Cl. 174-84.00R.
Goldberg, Gershon M.: *See—*
Masters, Joseph I.; and Goldberg, Gershon M., 4,269,935, Cl. 430-323.000.
Goldberg, Leon. Neutron generator. 4,269,659, Cl. 176-9.000.
Goldman, Jerome L.; Breeden, John O. 'R.; and Michel, Walter H., to Freiede & Goldman, Ltd. Mobile, offshore, self-elevating (jack-up) unit leg/hull rigidification system. 4,269,543, Cl. 405-198.000.
Goldschmidt, Willfred: *See—*
Lipfert, Donald E.; and Goldschmidt, Willfred, 4,269,527, Cl. 401-200.000.
Goldstein, Leon C., to Prior Tire Enterprises Inc. Cold recapping method for tires. 4,269,644, Cl. 156-96.000.
Gomez, Daniel; and Bartoli, Giampaolo, to Arjomari-Prioux. Fibrous product containing cellulosic fibers, its method of preparation and its use, in particular in the field of covering panels, in lieu of asbestos. 4,269,657, Cl. 162-135.000.
Gomi Patent Office: *See—*
Koide, Fumiharu; and Ohshima, Masami, 4,269,036, Cl. 62-159.000.
Goode, Chester L., to Milton Roy Company. Pump drive mechanism for an evaporative cooler. 4,269,573, Cl. 417-362.000.
Goodman, Hubert C., Jr., to CIR-S.p.A.-Divisione SASIB. Reservoir for rod-like articles. 4,269,299, Cl. 198-347.000.
Goodman, John T.: *See—*
Graham, Teresita O.; and Goodman, John T., 4,269,910, Cl. 429-190.000.
Goodyear Aerospace Corporation: *See—*
Beck, Arnold A.; and Ruof, Edgar J., 4,269,455, Cl. 303-106.000.
Goodyear Tire & Rubber Company, The: *See—*
Harrison, John G., 4,269,250, Cl. 152-358.000.
Miller, Donald E., 4,269,763, Cl. 260-45.9QB.
Miller, Rickie L.; and Walters, Noel E., 4,269,646, Cl. 156-128.00N.
Shemenski, Robert M., Sr., 4,269,645, Cl. 156-124.000.
Shemenski, Robert M., Sr., 4,269,877, Cl. 427-327.000.
Sullivan, Carl M., 4,269,946, Cl. 521-163.000.
Gordon, Abraham: *See—*
Adler, Stanford L.; and Gordon, Abraham, 4,269,139, Cl. 118-642.000.
Gordon, Bruce E., to Raytheon Company. Multiplexer circuit. 4,270,204, Cl. 370-112.000.
Gordon, Goss E.; and McMillen, David L. Apparatus for detecting malfunction in tying operation on a baler. 4,269,116, Cl. 100-99.000.

Gorke, Klaus; and Bartz, Wilfried, to Chemische Werke Heuls, A.G. Aqueous acid/amino 1,3-butadiene polymer reaction product agent for treating wood and wooden materials. 4,269,626, Cl. 106-18.320.

Gorsler, Karl G., to Deere & Company. Feeding arrangement for an axial flow rotary combine. 4,269,200, Cl. 130-27.00T.

Goto, Kenji: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,154, Cl. 123-425.000.
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Gottesman, Jeffrey L.: *See—*
Brolin, Stephen J.; Gottesman, Jeffrey L.; Morgen, Dennis H.; and Swanson, Kenneth H., 4,270,030, Cl. 179-175.20D.

Gould, Robert K.: *See—*
Allen, Jonathan; and Gould, Robert K., 4,269,507, Cl. 356-36.000.

Gouw, Hoan G.: *See—*
DeVos, Marc F.; and Gouw, Hoan G., 4,269,414, Cl. 273-153.00S.

Graf, Erich: *See—*
Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, 4,269,855, Cl. 424-285.000.

Grafoplast S.A.S.: *See—*
Piana, Ivana, 4,268,986, Cl. 40-316.000.

Graham, James M., III, to Hammond, Nancy Swartz. Electrolytic apparatus for reclaiming dissolved metal from liquid. 4,269,690, Cl. 204-272.000.

Graham, Teresita O.; and Goodman, John T., to Duracell International Inc. Electrochemical cells having a gelled anode-electrolyte mixture. 4,269,910, Cl. 429-190.000.

Grammel, Jurgen: *See—*
Nachtkamp, Klaus; Pedain, Josef; and Grammel, Jurgen, 4,269,748, Cl. 260-29.2TN.

Grammerstorf, Werner, to IPA Bauchemie GmbH. Process for fastening a bonding and sealing device to construction components and/or buildings by forcing injection material into cracks, flaws, and the like. 4,269,014, Cl. 52-749.000.

Gray, Joseph L., to Gray Manufacturing Company, Inc. Jack assembly for truck transmissions, differentials and power dividers. 4,269,394, Cl. 254-134.000.

Gray, Joseph L., to Gray Manufacturing Company, Inc. Swivel lock and tow bar assembly for four-wheel caster jack assembly. 4,269,424, Cl. 280-92.000.

Gray Manufacturing Company, Inc.: *See—*
Gray, Joseph L., 4,269,394, Cl. 254-134.000.
Gray, Joseph L., 4,269,424, Cl. 280-92.000.

Gray, Reginald W. H.: *See—*
Pyne, Bernard; Gray, Reginald W. H.; and Barber, Peter R., 4,270,201, Cl. 368-282.000.

Gray, Robin A.: *See—*
Barford, Eric D.; Gray, Robin A.; and Saul, Michael R., 4,269,723, Cl. 252-106.000.

Green, Howard E.: *See—*
Jones, Robert J.; Green, Howard E.; and Quinlivan, Sandra C., 4,269,961, Cl. 526-262.000.

Green, Martin. Finger arithmetic device. 4,269,597, Cl. 434-198.000.

Greenbank-Cast Basalt Engineering Co. Limited: *See—*
Price, Donald, 4,268,974, Cl. 34-86.000.

Greene, Charles E.: *See—*
Martincic, Paul W.; and Greene, Charles E., 4,270,110, Cl. 336-174.000.

Grejsner, Teddy, to CBS Records ApS. Agent for surface treatment and cleaning of records and similar objects. 4,269,739, Cl. 252-547.000.

Grenoble, Dane C.; Kim, Chang J.; and Murrell, Lawrence L., to Exxon Research & Engineering Company. Method for preparing a group IVB, VB or VIB metal oxide on inorganic refractory oxide support catalyst and the product prepared by said method. 4,269,737, Cl. 252-464.000.

Greve, Peter F.: *See—*
Opheij, Willem G.; and Greve, Peter F., 4,270,045, Cl. 250-204.000.

Gries, Heinz, to Schering Aktiengesellschaft. 2,4,6-Triiodobenzonitrile derivatives and X-ray contrast media comprising them. 4,269,819, Cl. 424-5.000.

Griffin, Phil H.: *See—*
Phillips, Victor Q.; Griffin, Phil H.; and Sharki, Martin J., 4,269,567, Cl. 415-168.000.

Griffith, Ernest S.: *See—*
Davis, William W.; and Griffith, Ernest S., 4,270,214, Cl. 455-80.000.

Griffith, Glen A.; and Sutter, Leroy V., Jr. Drum for an automatic photographic processing system. 4,269,501, Cl. 354-323.000.

Grimshaw, Keith, to English Card Clothing Company Limited, The. Metallic wire type card-clothing. 4,268,937, Cl. 19-114.000.

Grinfa Sociedad de Responsabilidad Limitada: *See—*
Dottori, Roberto B., 4,269,447, Cl. 297-365.000.

Grinin, Vladimir V.; and Shtrikman, Mikhail M. Arc welding machine using non-consumable electrode. 4,270,037, Cl. 219-125.120.

Gronner, Alfred D.; and Simon, David J., to Singer Company, The. Current transformer input system for AC conversion devices. 4,270,061, Cl. 307-270.000.

Gross, Franz, to Siemens Aktiengesellschaft. Traveling wave tube. 4,270,070, Cl. 315-3.500.

Grow, Harry N.: *See—*
Zboralski, Jon A.; Tringali, Richard C.; and Grow, Harry N., 4,269,615, Cl. 55-480.000.

Growney, Lawrence J., to Federal Paper Board Company, Inc. Ice cream cone package. 4,269,316, Cl. 206-499.000.

Grube, William L.: *See—*
MacLean, Barry L.; and Grube, William L., 4,269,248, Cl. 411-186.000.

Gruber, Heinz, to Kusters, Eduard. Method and apparatus for applying a liquid on a moving web in patterns. 4,268,928, Cl. 8-149.000.

Gruber, Oskar: *See—*
Gersmann, Klaus; and Gruber, Oskar, 4,269,446, Cl. 297-341.000.

Gruenewald, Heinz: *See—*
Leibhard, Erich; Gruenewald, Heinz; and Richter, Hanno, 4,269,106, Cl. 411-34.000.

Grundmann, Edgard; and Bernhardt, Winfried, to Volkswagenwerk Aktiengesellschaft. Heat pump drive. 4,269,040, Cl. 62-467.0PR.

Grzhebir, Mikhail Z.: *See—*
Zhestkov, Vladimir M.; Tsypin, Vladimir M.; Grzhebin, Mikhail Z.; Kaminsky, Vadim A.; and Mazepov, Vitaly G., 4,269,599, Cl. 440-88.000.

Grzybkowski, Waclaw: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.

GTE Automatic Electric Laboratories Incorporated: *See—*
Miille, Gerard J., 4,270,093, Cl. 331-17.000.
Young, John S., 4,270,028, Cl. 179-84.00R.

GTE Laboratories Incorporated: *See—*
Dakss, Mark L.; Kim, Bumman; and Schlafer, John, 4,269,648, Cl. 156-293.000.

Guardian Electric Manufacturing Company: *See—*
Wright, William W., 4,270,108, Cl. 335-188.000.

Guch, Steve, Jr.; and Lundgren, Gordon L., to Hughes Aircraft Company. Cycloid-scanning laser pumping method and apparatus. 4,270,095, Cl. 331-94.50L.

Gudas, Charles J., to Scholl, Inc. Detorquing heel control device for footwear. 4,268,980, Cl. 36-43.000.

Guerra, John M. Adsorption solar heating and storage system. 4,269,170, Cl. 126-428.000.

Guibert, Raul. Cartridge for hot air oven. 4,269,169, Cl. 126-426.000.

Gumm, Peter: *See—*
Simonek, Rudiger; Gumm, Peter; Idstein, Hermann; and Witte, Horst, 4,269,409, Cl. 271-277.000.

Gunter, Gerhard; and Haeufler, Hartmut, to Akzo N.V. Coating composition having a water-dilutable maleinized oil base, process for the application and baking thereof. 4,269,866, Cl. 427-27.000.

Gurian, Marshall I., to Advanced Systems, Inc. Ion exchange separation method. 4,269,716, Cl. 210-675.000.

Gustavsson, Lennart, to Aktiebolaget Svenska Flaktfabriken. Apparatus for forming a web of material. 4,269,578, Cl. 425-83.100.

Gutleber, Frank S., to United States of America, Army. Combined ECCM/diversity tropospheric transmission system. 4,270,207, Cl. 375-40.000.

H. A. Schlatter AG: *See—*
Zollinger, Hans-Rudolf, 4,270,036, Cl. 219-53.000.

H. G. Weber & Co., Inc.: *See—*
Kidd, Arthur H., 4,269,557, Cl. 414-105.000.

Haber, Edgar: *See—*
Burton, James A.; and Haber, Edgar, 4,269,827, Cl. 424-177.000.

Haberer, Jens: *See—*
Stechmann, Helmut; and Haberer, Jens, 4,270,200, Cl. 368-252.000.

Haberlein, Peter, to Samsonite Corporation. Scanning magnetic test head. 4,270,089, Cl. 324-262.000.

Hackbarth, Klaus: *See—*
Schneider-Muntau, Hans-Jorg; and Hackbarth, Klaus, 4,270,112, Cl. 336-197.000.

Hackman, Donald J.; Brunel, Roger L.; and Williams, Harry L., to United States of America, Navy. Suction cup with lateral gripper. 4,269,383, Cl. 248-544.000.

Haeufler, Hartmut: *See—*
Gunter, Gerhard; and Haeufler, Hartmut, 4,269,866, Cl. 427-27.000.

Hagen, Jens; and Bruns, Klaus, to Henkel Kommanditgesellschaft auf Aktien. Perfume aldehydes from hydroformylation of caryophyllene. 4,270,007, Cl. 568-445.000.

Hageniers, Omer L.: *See—*
Pryor, Timothy R.; Alway, David M.; and Hageniers, Omer L., 4,269,874, Cl. 427-282.000.

Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, to Hitachi, Ltd. Electronic tuning type television receiver. 4,270,220, Cl. 455-182.000.

Hagyuda, Nobuyoshi; and Tanaka, Hiroaki, to Nippon Kogaku K.K. Distance information judging circuit for focus detecting apparatus. 4,269,491, Cl. 354-25.000.

Hajimoto, Yoshioki: *See—*
Mochizuki, Noritaka; and Hajimoto, Yoshioki, 4,270,047, Cl. 250-216.000.

Hakamada, Takeshi: *See—*
Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, 4,269,894, Cl. 428-377.000.

Halbach & Braun: *See—*
Braun, Ernst; and Braun, Gert, 4,269,304, Cl. 198-735.000.

Halbfoster, Christopher: *See—*
Butterworth, Donald J.; Halbfoster, Christopher; and Loudon, Robert, 4,269,707, Cl. 210-777.000.

Haley, Frank P., to FMC Corporation. Traveling loading arm for marine tankers. 4,269,239, Cl. 141-387.000.

Hall, Richard C. Aquarium. 4,269,142, Cl. 119-5.000.

Hallam, Joyce: *See—*
Lind, David J.; Coffey, Valerie J.; and Hallam, Joyce, 4,269,876, Cl. 427-309.000.

Haller, Albert H.: *See—*
Dinella, Donald; Haller, Albert H.; and Polakowski, Theodore D., Jr., 4,269,138, Cl. 118-115.000.

Halliburton Company: *See—*
Wilson, Donald R., 4,269,269, Cl. 166-241.000.

Hamatani, Masahide, to Canon Kabushiki Kaisha. Mounting system for optical lens assembly. 4,269,479, Cl. 350-255.000.

Hamlin, Thomas J., to Xerox Corporation. Document handler. 4,269,406, Cl. 271-108.000.

Hammond, Nancy Swartz: *See—*
Graham, James M., III, 4,269,690, Cl. 204-272.000.

Hamon Sobelco: *See—*
Bosne, Jacques G. P. E.; and Chofflet, Christian A. A., 4,269,794, Cl. 261-108.000.

Hamprecht, Rainer, to Bayer Aktiengesellschaft. Process for the preparation of cyanoazo dyestuffs. 4,269,770, Cl. 260-208.000.

Handtmann, Dieter; Rau, Helmut; and Zabler, Erich, to Robert Bosch GmbH. Pressure sensor, especially for intake air suction pressure. 4,269,069, Cl. 73-705.000.

Hane, Naruaki: *See—*
Ejima, Shozo; Tomioka, Susumu; Matsumoto, Tadao; and Hane, Naruaki, 4,269,888, Cl. 428-296.000.

Hanes, Maurice H.: *See—*
Schlegel, Earl S.; and Hanes, Maurice H., 4,270,135, Cl. 357-19.000.

Hankins, Frederick E.; and Umberger, John H., to Research-Cottrell, Inc. Electromagnetic plunger drop timer. 4,270,086, Cl. 368-118.000.

Hanna, John E., to Motorola, Inc. "D" Flip-flop. 4,270,062, Cl. 307-272.00A.

Hansen, Frederick W.: *See—*
Van Arman, William L.; Kambs, Russell A.; Ivankovics, Steven G.; Hansen, Frederick W.; and Julow, Thomas M., 4,268,945, Cl. 29-407.000.

Hansen, John M., to Emerson Electric Co. Belt sander for sanding external and internal surfaces. 4,268,998, Cl. 51-148.000.

Hanyuda, Toshiaki: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Happer, George T., to Happer Systems Limited. Below surface ducting. 4,269,231, Cl. 138-92.000.

Happer Systems Limited: *See—*
Happer, George T., 4,269,231, Cl. 138-92.000.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Stabilization of organic substrate materials including photographic dye images against the action of light. 4,269,926, Cl. 430-216.000.

Hara, Hiroshi: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Harada, Katsumasa: *See—*
Nakai, Mamoru; Harada, Katsumasa; and Mori, Yoshikatsu, 4,269,982, Cl. 548-127.000.

Harada, Syuji: *See—*
Nakai, Kiyoshi; Miyajima, Hidenobu; and Harada, Syuji, 4,269,333, Cl. 222-484.000.

Harbert, Charles A.: *See—*
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,270,005, Cl. 568-328.000.

Harding, John D. Tunnel roof supporting apparatus. 4,269,547, Cl. 405-303.000.

Hardy, Robert A., Jr.; Baker, Jannie S.; and Quinones, Nicanor Q., to American Cyanamid Company. (Substituted-phenyl)-1,2,4-triazolo[4,3-c]pyrimidines and (substituted-phenyl)-1,2,4-triazolo[1,5-c]pyrimidines. 4,269,980, Cl. 544-256.000.

Hareyama, Kyuichi, to Nippon Electric Co., Ltd. Constant-current circuit. 4,270,081, Cl. 323-316.000.

Harman, Jefferson H., to PerSci, Inc. Position control in disk drive system. 4,270,073, Cl. 318-632.000.

Harms, John F. Portable cook book holder. 4,269,381, Cl. 248-222.200.

Harms, Walter: *See—*
Larson, Eugene R.; and Harms, Walter, 4,269,246, Cl. 81-460.000.

Harrington, Wilfred H.; and Jackson, William L., to Dunlop Limited. Tire and wheel assemblies. 4,269,251, Cl. 152-362.00R.

Harris Corporation: *See—*
MacDavid, Kenneth R., 4,270,208, Cl. 375-76.000.
Rivoli, Anthony L.; Morcom, William R.; Nicolay, Hugh C.; and Cox, Eugene R., 4,269,636, Cl. 148-175.000.

Harrison, Christopher R. B., to Wilkinson Sword, Ltd. Hand tools. 4,268,963, Cl. 30-262.000.

Harrison, John G., to Goodyear Tire & Rubber Company, The. Rubber composition having improved adhesion to metal cord. 4,269,250, Cl. 152-358.000.

Hart, Andrew J.: *See—*
Nailor, Michael T.; and Hart, Andrew J., 4,269,255, Cl. 160-381.000.

Hartman, John M.; and Lancaster, Arthur L., to Hughes Aircraft Company. Charge coupled device with high speed input and output. 4,270,144, Cl. 307-221.00D.

Hartmann, Karl-Heinz: *See—*
Fischer, Rudolf; and Hartmann, Karl-Heinz, 4,269,402, Cl. 493-437.000.

Haruna, Masao: *See—*
Inagami, Kaoru; Ohmura, Kazutaka; Haruna, Masao; and Terabayashi, Takeshi, 4,269,863, Cl. 426-550.000.

Harvey, Kenneth: *See—*
Baines, Eric; and Harvey, Kenneth, 4,269,823, Cl. 424-52.000.

Hasegawa, Katsuji, to Meinan Machinery Works, Inc. Veneer lathe. 4,269,243, Cl. 144-213.000.

Hasegawa, Katsuji, to Meinan Machinery Works, Inc. Reinforced veneer and method of reinforcing a veneer sheet. 4,269,883, Cl. 428-120.000.

Hashimoto, Shunichi: *See—*
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,270,002, Cl. 564-221.000.

Hashimoto, Yasuyuki; and Torii, Osamu, to Ancos Co., Ltd. Mechanical pencil. 4,269,524, Cl. 401-65.000.

Hashimoto, Yukio: *See—*
Morokawa, Shigeru; Sekiya, Fukuo; Hashimoto, Yukio; Nomura, Yasushi; and Koga, Keiichiro, 4,270,194, Cl. 368-73.000.

Hashiride, Tadaaki: *See—*
Hida, Takashi; Mitsui, Tsutomu; Kuwana, Kazutaka; and Hashiride, Tadaaki, 4,269,045, Cl. 66-75.200.

Hastie, Anthony M. B. Process for recovering bitumen from waste bituminous products. 4,269,693, Cl. 208-39.000.

Hastings, Charles E. Adjustable ratchet pliers. 4,269,089, Cl. 81-410.00R.

Hatsuno, Hiroshi; Machida, Toshio; Fukushima, Mitsuo; and Ogawa, Shinji, to Diesel Kiki Co., Ltd. Leakage sensor apparatus for fluid passageway. 4,269,061, Cl. 73-40.000.

Hattori, Kyo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Secondary air supply system for the exhaust system of an internal combustion engine. 4,269,028, Cl. 60-276.000.

Hattori, Tadashi: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,154, Cl. 123-425.000.
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,155, Cl. 123-425.000.

Hatuse, Toshikazu: *See—*
Tamura, Munetaka; and Hatuse, Toshikazu, 4,270,198, Cl. 368-220.000.

Hauan, Nils F., to Skuteng A/S. Barrier attached to the side of a ship. 4,269,538, Cl. 405-63.000.

Hausam, Leonard P. Dispenser for paper-like containers. 4,269,324, Cl. 221-36.000.

Hauser, Stephen G., to Rincon Industries, Inc. Heating unit with indicator for disinfecting soft lenses, or the like. 4,270,039, Cl. 219-439.000.

Haux, Ulrich; and Voigt, Werner, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Apparatus for controlling explosive decompressions in an aircraft or spaceship. 4,269,376, Cl. 244-117.00R.

Hayashi, Izuo; and Furruse, Takao, to Nippon Electric Co., Ltd. Semiconductor laser device. 4,270,096, Cl. 331-94.50H.

Heat and Control, Inc.: *See—*
Caridis, Andrew A.; Benson, Clark K.; Leary, Steven G.; and Nilsen, Arthur A., 4,269,861, Cl. 426-438.000.

Heater, Charles P. Method and means for stacking flat flexible sheets. 4,269,408, Cl. 271-212.000.

Heddon, Will. Modular bowling lane system. 4,269,411, Cl. 273-51.000.

Heilen, Gerd; Nissen, Axel; and Woerz, Otto, to BASF Aktiengesellschaft. Preparation of aliphatic carbonyl compounds. 4,270,006, Cl. 568-396.000.

Heinemann Electric Company: *See—*
Richter, Konrad J., Sr., 4,270,035, Cl. 200-294.000.

Heinkel Industriezentrifugen GmbH & Co., Firma: *See—*
Gerteis, Hans, 4,269,711, Cl. 210-232.000.

Heise, Hartmut; Hille, Ernst; Wagner, Reinhard; and Kummerle, Kurt, to Hoechst Aktiengesellschaft. Process for the preparation of benzimidazolone-(2). 4,269,989, Cl. 548-305.000.

Heldmaier, Emil: *See—*
Konig, Karl; and Heldmaier, Emil, 4,269,425, Cl. 280-403.000.

Helphos-Autolight Schardmuller & Co.: *See—*
Hoffmann, Alfred, 4,270,033, Cl. 200-84.00C.

Henderson, George H. Wheel lock. 4,269,049, Cl. 70-227.000.

Henkel Kommanditgesellschaft auf Aktien: *See—*
Hagen, Jens; and Bruns, Klaus, 4,270,007, Cl. 568-445.000.

Henrick, Clive A., to Zoecon Corporation. Certain pyridylmethyl esters of formamido-lower-alkanoates and derivatives thereof. 4,269,981, Cl. 546-291.000.

Henry, Rodney D.: *See—*
Glass, Howard L.; and Henry, Rodney D., 4,269,651, Cl. 156-601.000.

Hentschel, Klaus; Bittner, Friedrich; and Schreyer, Gerd, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of suspension or solution of cyanuric chloride in organic solvents (II). 4,269,979, Cl. 544-190.000.

Hermann Berstorff Maschinenbau GmbH: *See—*
Anders, Dietmar; and Brand, Wilhelm, 4,269,085, Cl. 74-665.0GA.
Gersbeck, Rolf; and Krohn, Manfred, 4,269,585, Cl. 425-373.000.

Herper, John C.; and Stangel, John J., to Sperry Corporation. Apparatus and method for realizing preselected free space antenna patterns. 4,270,129, Cl. 343-703.000.

Heuer, Dale A.: *See—*
Brossard, Michael E.; Heuer, Dale A.; and Wu, Philip T., 4,270,189, Cl. 365-205.000.

Heyer, Wayne D.: *See—*
Faulkner, Bobby P.; Heyer, Wayne D.; and Weinecke, Michael H., 4,269,593, Cl. 432-58.000.

Hickey, John J. Hybrid annular airship. 4,269,375, Cl. 244-26.000.

Hickinbotham, Lawrence F.: *See—*
Schwarz, Gail B.; and Hickinbotham, Lawrence F., 4,269,114, Cl. 100-53.000.

Hickman, Lewis, to Products for Energy, Inc. Process and apparatus for severing limbs. 4,269,241, Cl. 144-2.00Z.

Hickson, Charles H.; and Chandramouli, Pitchaiya, to Borden, Inc. Phenol formaldehyde resin for hardboard applications. 4,269,949, Cl. 525-58.000.

Hida, Takashi; Mitsui, Tsutomu; Kuwana, Kazutaka; and Hashiride, Tadaaki, to Aisin Seiki Kabushiki Kaisha. Home knitting machine for producing programmed designs. 4,269,045, Cl. 66-75.200.

Hiebert, Inc.: *See—*
Timmons, Jay, 4,269,005, Cl. 52-36.000.

Hilbert, Ray. Apparatus and method for counting the number of shaves for which a razor blade is used. 4,268,958, Cl. 30-34.00A.

Hile, James R., to Carrier Corporation. Method of securing a capillary tube passing through a wall. 4,268,947, Cl. 29-451.000.

Hill, James B.: *See—*
Saeed, Amin; and Hill, James B., 4,269,384, Cl. 248-548.000.

Hill, Michael D. Burglar alarm. 4,269,136, Cl. 116-95.000.

Hille, Ernst: *See—*
Heise, Hartmut; Hille, Ernst; Wagner, Reinhard; and Kummerle, Kurt, 4,269,989, Cl. 548-305.000.

Hills, Brian A., to United States of America, Navy. Hydrogen-oxygen mixer apparatus and process. 4,269,791, Cl. 261-36.00R.

Hilti Aktiengesellschaft: *See—*
Leibhard, Erich; Gruenewald, Heinz; and Richter, Hanno, 4,269,106, Cl. 411-34.000.

Hirata, Hiromasa: *See—*
Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, 4,269,052, Cl. 72-39.000.

Hirosawa, Shunichi: *See—*
Oki, Takeo; and Hirosawa, Shunichi, 4,269,528, Cl. 401-231.000.

Hirsch, Henry M. Trash bag holder. 4,269,441, Cl. 294-1.00R.

Hitachi, Ltd.: *See—*
Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, 4,270,220, Cl. 455-182.000.
Murata, Toshinori; and Matsuura, Shigeo, 4,270,215, Cl. 455-158.000.
Murata, Toshinori; and Matsuura, Shigeo, 4,270,219, Cl. 455-179.000.
Nakazawa, Tetsuo; Sakai, Junji; and Morimoto, Syogo, 4,269,256, Cl. 164-16.000.
Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; and Manabe, Toshikatsu, 4,269,918, Cl. 430-28.000.
Noto, Koichi; and Kawai, Tsuneo, 4,268,999, Cl. 51-165.720.
Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, 4,269,894, Cl. 428-377.000.
Shibuya, Yoshimichi; Kawamura, Hiromitsu; Kando, Yasuhiko; and Koyama, Masaharu, 4,269,617, Cl. 65-43.000.
Takeda, Yutaka; Aiki, Kunio; and Ito, Ryoichi, 4,270,134, Cl. 357-19.000.

Hitachi Metals, Ltd.: *See—*
Fuyama, Moriaki; Honda, Haruhiko; and Ura, Mitsuru, 4,269,899, Cl. 428-457.000.

Hock, Franz; Dopper, Franz-Herbert; and Stock, Gert, to Temafa Textilemaschinenfabrik GmbH. Cyclone separator for the removal of heavy particles and dust particles from fibre material. 4,269,701, Cl. 209-23.000.

Hodapp, Otto; and Lindner, Ulrich, to Christian Majer KG Maschinenfabrik. Arrangement for cutting guided cylindrical sleeves. 4,269,091, Cl. 82-48.000.

Hodson, James V. Composition for paint stripper. 4,269,724, Cl. 252-171.000.

Hoechst Aktiengesellschaft: *See—*
Botchert, Herbert; Albert, Walter; Kohaut, Gunter; Schulte, Ulrich; and Rapp, Bruno, 4,269,895, Cl. 428-402.000.
Heise, Hartmut; Hille, Ernst; Wagner, Reinhard; and Kummerle, Kurt, 4,269,989, Cl. 548-305.000.
Moraw, Roland, 4,269,915, Cl. 430-11.000.
Moraw, Roland; and Schadlich, Renate, 4,269,932, Cl. 430-290.000.
Neeb, Rudolf; Hohmann, Kurt; and Mohr, Reinhard, 4,269,768, Cl. 260-146.00R.
Simonek, Rudiger; Gumm, Peter; Idstein, Hermann; and Witte, Horst, 4,269,409, Cl. 271-277.000.

Hoehn, Hans: *See—*
Denzel, Theodor; and Hoehn, Hans, 4,269,836, Cl. 424-246.000.

Hoff, David C.: *See—*
Robinson, Robert L.; Hoff, David C.; and Midling, Robert L., 4,270,183, Cl. 364-900.000.

Hoffmann, Alfred, to Helphos-Autolight Schardmuller & Co. Brake-fluid level detector. 4,270,033, Cl. 200-84.00C.

Hoffmann, James E.: *See—*
Falk, Terrence F.; Schultz, Terrence R.; and Hoffmann, James E., 4,270,213, Cl. 455-77.000.

Hoffmann-La Roche Inc.: *See—*
Dorn, Silvia; Pfiffner, Albert; and Zurfluh, Rene, 4,270,009, Cl. 568-670.000.
Fryer, Rodney I.; and Gilman, Norman W., 4,269,774, Cl. 260-245.500.
Mohacsi, Ernest, 4,270,000, Cl. 564-174.000.
Muller, Peter M.; Pfister, Rudolf; and Urban, Rene, 4,269,788, Cl. 260-501.100.

Hoffner, Karl: *See—*
Thye, Jurgen; and Hoffner, Karl, 4,270,019, Cl. 174-32.000.

Hogan, Alfred D., to Geosource, Inc. Sphere launching apparatus. 4,268,932, Cl. 15-104.06A.

Hogan, John C.; and Gibson, Alan F., to Armco Inc. Means for reclaiming galvanizing quality zinc alloy from continuous galvanizing line top dross. 4,269,398, Cl. 266-230.000.

Hohmann, Kurt: *See—*
Neeb, Rudolf; Hohmann, Kurt; and Mohr, Reinhard, 4,269,768, Cl. 260-146.00R.

Holland, Eric O.; and Johnson, Marvin M., to Phillips Petroleum Company. Method of removing contaminant from a feedstock stream. 4,269,694, Cl. 208-48.00R.

Holland, Robert E.: *See—*
Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., 4,269,783, Cl. 518-718.000.

Holldorff, Gunther, to Borsig GmbH. Absorption refrigerating machine with storage device for operation with yield of heat energy and refrigerating requirement different in time. 4,269,041, Cl. 62-476.000.

Holley-Donawa, Gloria. Animal excrement and urine receptacle apparatus. 4,269,148, Cl. 119-95.000.

Holonyak, Nick, Jr., to University of Illinois Foundation. Semiconductor light emitting device. 4,270,094, Cl. 331-94.50H.

Holt, William D., to Lucas Industries Limited. Battery isolator switches for use in road vehicles. 4,270,057, Cl. 307-10.0BP.

Holub, Fred F.; and Macke, Gerald F., to General Electric Company. Composition comprising aromatic polycarbonate and passivated wollastonite filler particles. 4,269,755, Cl. 260-37.0PC.

Homan, Gary R., to Dow Corning Corporation. Oxygen-curable mercaptoorganosiloxane compositions possessing rapid surface reaction and method of forming higher molecular weight products therefrom. 4,269,741, Cl. 260-18.00S.

Homan, Gary R.; and Lee, Chi-Long, to Dow Corning Corporation. Mercaptoorganopolysiloxanes and curable compositions including same. 4,269,963, Cl. 528-17.000.

Homan, Gary R.; and Toporcer, Louis H., to Dow Corning Corporation. Novel mercaptoorganosiloxanes. 4,269,991, Cl. 556-427.000.

Honda, Akira: *See—*
Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, 4,270,220, Cl. 455-182.000.

Honda, Haruhiko: *See—*
Fuyama, Moriaki; Honda, Haruhiko; and Ura, Mitsuru, 4,269,899, Cl. 428-457.000.

Honeywell Inc.: *See—*
Wada, Norikazu, 4,269,071, Cl. 73-861.120.

Hooker Chemicals & Plastics Corp.: *See—*
Lang, Edward J.; and Dubenitz, Michael G., 4,269,754, Cl. 260-33.60R.

Hooper, Inc.: *See—*
Jezuit, Arthur D.; and Geu, Edwin J., 4,268,973, Cl. 34-69.000.

Hoover, Francis W. Automatic pump sequencing and flow rate modulating control system. 4,269,569, Cl. 417-5.000.

Hopke, Scott W., to Exxon Production Research Company. Method for preventing damage to a refrigerated gas pipeline due to excessive frost heaving. 4,269,539, Cl. 405-130.000.

Hoppe, Joachim A.: *See—*
Escaron, Pierre C.; and Hoppe, Joachim A., 4,269,063, Cl. 73-151.000.

Horike, Akihiro: *See—*
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, 4,269,931, Cl. 430-271.000.

Horishima, Tohei: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Hornby, Roger B.; Lipps, Bennie J.; and Savage, Charles E., to Cordis Dow Corp. Hollow fiber separatory element and method of making same. 4,269,712, Cl. 210-321.300.

Horton, Francis B. Trolley and track. 4,269,254, Cl. 160-206.000.

Horvath, Zoltan; Muggli, Jurg; Ackermann, Hans; and Tresch, Erwin, to Cerberus Ag. Smoke detector. 4,269,510, Cl. 356-338.000.

Hou, Ching-Tsang: *See—*
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,269,940, Cl. 435-148.000.

Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased (by Fike, Joyce A., executrix), to Eastman Kodak Company. Thermal deformation record device with bleachable dye. 4,270,130, Cl. 346-77.00E.

Houn, Lin P. Automatic sound-emitted self-learning toy. 4,268,978, Cl. 434-330.000.

House, Roy F., to NL Industries, Inc. Spheroidal plastic coated magnetizable particles and their use in drilling fluids. 4,269,279, Cl. 175-66.000.

Howard, Curtis E.; and Calvin, Douglas G., to Texaco Inc. Steam manifold distribution system for providing equal quality of steam in two lines. 4,269,211, Cl. 137-2.000.

Howe, Dennis G.: *See—*
Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased, 4,270,130, Cl. 346-77.00E.

Howe, Steven C.: *See—*
Norton, Richard V.; and Howe, Steven C., 4,270,014, Cl. 585-22.000.

Hsu, Yung-San. Position indicating unit for sewing machines. 4,269,132, Cl. 112-275.000.

Huang, C. Peter: *See—*
Edwards, William M.; and Huang, C. Peter, 4,269,812, Cl. 423-242.000.

Huang, Fu C.; and Musser, John H., to USV Pharmaceutical Corporation. Heterocyclic compounds useful as anti-allergy agents. 4,269,846, Cl. 424-269.000.

Huang, Warren: *See—*
Lim, John; Huang, Warren; and Brady, Michael, 4,269,815, Cl. 423-328.000.

Huber, John H., to AMP Incorporated. Connector and strain relief for flat transmission cable. 4,269,466, Cl. 339-107.000.

Hughes Aircraft Company: *See—*
Guch, Steve, Jr.; and Lundgren, Gordon L., 4,270,095, Cl. 331-94.50L.
Hartman, John M.; and Lancaster, Arthur L., 4,270,144, Cl. 307-221.00D.
Lim, Hong S.; and Verzwyvelt, Scott A., 4,269,913, Cl. 429-251.000.
Pines, Michael Y.; and Levy, Israel D., 4,270,060, Cl. 307-221.00D.
Yamagishi, Frederick G., 4,269,896, Cl. 428-411.000.

Hughes, Donald W. K., to AMP Incorporated. Electrical connector receptacle having molded conductors. 4,269,467, Cl. 339-126.00R.

Hughes, J. Walter, to Contour-Concept, Inc. Golf club grip. 4,269,412, Cl. 273-81.300.

Hughes, William C., to General Electric Company. Transceiver for phase-shift modulated carrier signals. 4,270,206, Cl. 375-9.000.

Hulyalkar, Ramchandra K.; and Baum, Gerald A., to Dart Industries Inc. Low toxicity vinyl halide stabilizer compositions. 4,269,743, Cl. 260-23.0XA.

Hulyalkar, Ramchandra K.; and Baum, Gerald A., to Dart Industries Inc. Vinyl halide stabilizer compositions. 4,269,744, Cl. 260-23.0XA.

Humlong, Robert F., to Wald Manufacturing Co., Inc. Mounting means for bicycle baskets. 4,269,336, Cl. 224-36.000.

Hunt, David J.; and Reddaway, Stewart F., to International Computers Limited. Array processor. 4,270,169, Cl. 364-200.000.

Hunt, Patrick T. Cold weather breathing mask. 4,269,183, Cl. 128-201.130.

Hunt, Richard J., to Pye Limited. Chromatographic apparatus. 4,269,710, Cl. 210-198.200.

Huther, Ernst: *See—*
Kopp, Josef; Huther, Ernst; and Bohlander, Ernst, 4,269,016, Cl. 53-546.000.

Huwood Limited: *See—*
Saunders, Graham J., 4,269,546, Cl. 405-294.000.

Hwang, Ki-Sup, to Mead Corporation, The. Waterproof infrared absorptive jet printing ink. 4,269,627, Cl. 106-22.000.

Hyosu, Yoshihiko: *See—*
Wakimoto, Saburo; Miyahara, Sadayasu; and Hyosu, Yoshihiko, 4,269,760, Cl. 260-42.530.

Iakwa, Kazuo, to Canon Kabushiki Kaisha. Flash device. 4,270,079, Cl. 320-1.000.

Ibbott, Jack K. Carburetor for internal combustion engine. 4,269,793, Cl. 261-65.000.

Icesij A.G.: *See—*
Olivieri, Icaro, 4,268,981, Cl. 36-115.000.

Ichikawa, Singo, to Citizen Watch Company Limited. Electronic timepiece. 4,270,193, Cl. 368-47.000.

Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, to Nippon Telegraph and Telephone Public Corporation; and Takeda Riken Kogyo Kabushikikaisha. High speed data logical comparison device. 4,270,116, Cl. 340-146.200.

Ichimura, Kunihiro, to Agency of Industrial Science and Technology; and Ministry of International Trade & Industry. Method for enzyme immobilization. 4,269,941, Cl. 435-182.000.

Ichinose, Isao; Mori, Fumio; and Suzuki, Noboru, to Toyo Seikan Kaisha, Ltd. Peelable bonded structures and process for preparing same. 4,269,321, Cl. 215-343.000.

Ida, Masatoshi, to Olympus Optical Co., Ltd. Magnetic tape reproduction device. 4,270,152, Cl. 360-74.400.

Idstein, Hermann: *See—*
Simonek, Rudiger; Gumm, Peter; Idstein, Hermann; and Witte, Horst, 4,269,409, Cl. 271-277.000.

Iida, Yasuhiro: *See—*
Terade, Kiichi; and Iida, Yasuhiro, 4,270,066, Cl. 310-258.000.

Ikeda, Minoru: *See—*
Yoshioka, Teruhiko; Matsuzawa, Hideo; Okada, Kazuya; and Ikeda, Minoru, 4,269,705, Cl. 562-600.000.

Ikeda, Susumu: *See—*
Tokuda, Takuro; Ikeda, Susumu; Kubota, Yoshikazu; Takagi, Tutomu; and Kokagi, Yuuichi, 4,269,857, Cl. 424-325.000.

Ikeda, Yasunari: *See—*
Suzuki, Tadahiko; and Ikeda, Yasunari, 4,270,216, Cl. 455-159.000.

Ikemoto, Yoshiyuki: *See—*
Yabune, Hideo; and Ikemoto, Yoshiyuki, 4,269,972, Cl. 536-71.000.

Ikeno, Teruo; Kado, Satoshi; Ayusawa, Saburo; Kawasaki, Hironobu; and Watanabe, Takashi, to Nippon Steel Corporation. Manganese surface coated steel materials. 4,269,904, Cl. 428-623.000.

Ikeuchi, Hideki: *See—*
Ohkoshi, Isao; and Ikeuchi, Hideki, 4,269,285, Cl. 187-9.00R.

Ikonomou, Aristarchos S. Earthquake guarding system. 4,269,011, Cl. 52-167.000.

Illinois Tool Works Inc.: *See—*
Platt, John R., 4,269,308, Cl. 206-150.000.
Sygnator, Henry A., 4,269,902, Cl. 428-577.000.

Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha; and Nippon Steel Corporation. Mechanical descaling device. 4,269,052, Cl. 72-39.000.

Imai, Tamotsu, to UOP Inc. Production of dialkyl formamide. 4,269,998, Cl. 564-132.000.

IMI Kynoch Limited: *See—*
Gilbert, John R. B.; and Baldwin, Peter H., 4,269,687, Cl. 204-242.000.

Immler, Josef, to Siemens Aktiengesellschaft. Circuit arrangement for producing a regulated high DC voltage from a three-phase current. 4,270,166, Cl. 363-89.000.

Imperial Chemical Industries Limited: *See—*
Ballard, Denis G. H.; Meredith, William N. E.; and Rideal, Graham R., 4,269,628, Cl. 106-86.000.
Davies, George E.; and Foulkes, David M., 4,269,820, Cl. 424-10.000.
Milner, John A.; and Turner, Roger M., 4,269,702, Cl. 209-166.000.
Thomas, Berwyn C., 4,269,579, Cl. 425-111.000.
Worthington, Paul A.; and Shephard, Margaret C., 4,269,845, Cl. 424-269.000.

Inagami, Kaoru; Ohmura, Kazutaka; Haruna, Masao; and Terabayashi, Takeshi, to Calpis Shokuhin Kogyo Kabushiki Kaisha. Starch and agar containing noodles and process of preparing. 4,269,863, Cl. 426-550.000.

Inata, Hiroo; Ogasawara, Makoto; Morinaga, Tsuto; and Norike, Akihiro, to Teijin Limited. Cured or uncured aromatic polyester composition and process for its production. 4,269,947, Cl. 525-10.000.

Indesit Industria Elettrodomestici Italiana S.p.A.: *See—*
Farina, Attilio, 4,270,145, Cl. 358-188.000.

Ingber, Lawrence K.; and Strangio, Francis J., to Swisstronics, Inc. Method and apparatus for marking miniature turned parts. 4,269,090, Cl. 82-1.00C.

Ingersoll-Rand Company: *See—*
Goehler, Robert F., 4,269,536, Cl. 404-117.000.
Perkins, Joseph K., 4,269,656, Cl. 162-30.00R.

Ingram, Alvin R.: *See—*
Blommers, Elizabeth A.; Poole, William J.; and Ingram, Alvin R., 4,269,871, Cl. 427-222.000.

Inoue, Hitoshi; Watanabe, Kenichi; and Sumimoto, Takashi, to Toyo Kogyo Co., Ltd. Independent wheel suspension for motor vehicles. 4,269,432, Cl. 280-690.000.

Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,269,672, Cl. 204-23.000.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Gap distance control electroplating. 4,269,672, Cl. 204-23.000.

Inoue, Sadao; Umemura, Tetsuya; Suzuki, Hiroshi; and Kuroyanagi, Takashi, to Furukawa Metals Company, Ltd. Copper alloy for reliable electrical connection. 4,269,623, Cl. 75-157.500.

Inoue, Shinichi: *See—*
Toyokura, Nobuo; Tokunaga, Hiroshi; Inoue, Shinichi; Ishikawa, Hajime; and Shinoda, Masaichi, 4,270,136, Cl. 357-23.000.

Institute of Gas Technology: *See—*
Babu, Suresh P.; and Knight, Richard A., 4,269,692, Cl. 208-8.0LE.

Institutes of Medical Sciences, The: *See—*
Persidsky, Maxim D., 4,269,718, Cl. 210-787.000.

Insulation Sales Co.: *See—*
Ward, Bruce K., 4,269,007, Cl. 52-92.000.

Intel Corporation: *See—*
Koehler, Robert J.; and Bayliss, John A., 4,270,167, Cl. 364-200.000.

International Business Machines Corporation: *See—*
Anantha, Narasipur G.; and Srinivasan, Gurumakonda R., 4,269,631, Cl. 148-1.500.
Bringol, Charles R., 4,270,124, Cl. 340-731.000.
Brossard, Michael E.; Heuer, Dale A.; and Wu, Philip T., 4,270,189, Cl. 365-205.000.
Christopherson, Warren A., 4,270,092, Cl. 330-257.000.
Duran, John; Missel, Leo; and Montelbano, Thomas O., 4,269,968, Cl. 528-351.000.
Gaensslen, Fritz H.; and Spiller, Eberhard A., 4,268,952, Cl. 29-571.000.
Lee, Ho C.; Rickenbach, David H.; and Zable, Jack L., 4,269,117, Cl. 101-93.020.
Shattuck, Meredith D.; and Weiche, William J., 4,269,892, Cl. 428-337.000.
Tynan, Eugene E.; Dreyfus, Russell W.; and von Gutfeld, Robert J., 4,269,067, Cl. 73-643.000.

International Computers Limited: *See—*
Hunt, David J.; and Reddaway, Stewart F., 4,270,169, Cl. 364-200.000.
Reddaway, Stewart F., 4,270,170, Cl. 364-200.000.

International Flavors & Fragrances Inc.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,269,862, Cl. 426-536.000.

International Harvester Company: *See—*
Venere, Lawrence A.; and Domes, E. A., 4,269,002, Cl. 51-281.0SF.

International Telephone and Telegraph Corporation: *See—*
Agrawal, Bhagwati P.; and Shenoi, Kishan, 4,270,027, Cl. 179-81.00R.
Albanese, Damian F., 4,270,209, Cl. 375-96.000.
Shenoi, Kishan; and Agrawal, Bhagwati P., 4,270,026, Cl. 179-15.55R.

Iolab Corporation: *See*—
LaHaye, Peter G., 4,269,307, Cl. 206-5.100.
Ionomet Company, Inc.: *See*—
Masters, Joseph I.; and Goldberg, Gershon M., 4,269,935, Cl. 430-323.000.
IPA Bauchemie GmbH: *See*—
Grammerstorf, Werner, 4,269,014, Cl. 52-749.000.
Irvin, Eugene, Jr. Ignition device for internal combustion engine. 4,269,160, Cl. 123-620.000.
Irwin, Robert S., to Du Pont de Nemours, E. I., and Company. Aromatic polyester which forms optically anisotropic melts and filaments thereof. 4,269,965, Cl. 528-128.000.
Ise, Yukihiko: *See*—
Terada, Jiro; Nitta, Tsuneharu; and Ise, Yukihiko, 4,270,085, Cl. 324-65.00R.
Ishida, Masayuki, to Toyo Suisan Kaisha, Ltd. Apparatus for producing instant cupped noodles. 4,269,113, Cl. 99-404.000.
Ishida, Nakao: *See*—
Matsuda, Yoshiji; Tamura, Keiji; Motoki, Hiroaki; Kitame, Fumio; and Ishida, Nakao, 4,269,765, Cl. 260-112.00B.
Ishihara, Haruji: *See*—
Shiozawa, Kazuo; Yagi, Michio; Suzuki, Kijiro; Aratame, Kazuhisa; Shimokawa, Ryushi; and Ishihara, Haruji, 4,269,494, Cl. 354-60.00L.
Ishii, Toshiaki; and Watanabe, Eiki, to Mitsubishi Denki Kabushiki Kaisha. Speed control apparatus for elevator system. 4,269,286, Cl. 187-29.00R.
Ishikawa, Hajime: *See*—
Toyokura, Nobuo; Tokunaga, Hiroshi; Inoue, Shinichi; Ishikawa, Hajime; and Shinoda, Masaichi, 4,270,136, Cl. 357-23.000.
Ishikawa, Muneharu; and Kimoto, Kazuo, to Osaka Gas Company, Limited. Activated sludge treatment method of waste water. 4,269,714, Cl. 210-627.000.
Ishikawajima-Harima Jukogyo Kabushiki Kaisha: *See*—
Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, 4,269,052, Cl. 72-39.000.
Tanaka, Masaya; Ono, Mitsuo; and Degawa, Sadao, 4,270,049, Cl. 250-227.000.
Ishizaka, Sunao; Araki, Yoshitaka; and Muryoi, Takeshi, to Nippon Kogaku K.K. Lens barrel for both priorities or shutter speed priority mode automatic exposure system. 4,269,497, Cl. 354-286.000.
Ishizawa, Shizuo: *See*—
Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, 4,269,153, Cl. 123-308.000.
Ishizawa, Yoshiyuki: *See*—
Endoh, Kenjiro; Ishizawa, Yoshiyuki; Tanaka, Masanori; and Iwasaki, Koji, 4,270,177, Cl. 364-571.000.
Isolite Babcock Refractories Co., Ltd.: *See*—
Sonobe, Kazuo; and Kato, Takeo, 4,269,887, Cl. 428-280.000.
Italtel S.p.A.: *See*—
Sbuelz, Anes, 4,268,957, Cl. 29-871.000.
Ito, Masazumi; Shibazaki, Kenji; and Kitagawa, Tsuneo, to Minolta Camera Kabushiki Kaisha. Trouble detecting system for electrophotographic copying machine. 4,269,500, Cl. 355-14.00C.
Ito, Nobuyoshi; Morishita, Hiroshi; Morita, Minoru; and Fukano, Takashi, to Nippon Sanso Kabushiki Kaisha. Heat insulated tank. 4,269,323, Cl. 220-423.000.
Ito, Ryoichi: *See*—
Takeda, Yutaka; Aiki, Kunio; and Ito, Ryoichi, 4,270,134, Cl. 357-19.000.
Itoh, Ayao, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for measuring a pulmonary function. 4,269,195, Cl. 128-723.000.
Itoh, Osamu: *See*—
Nishizawa, Kazunori; Shirose, Toshihiro; and Itoh, Osamu, 4,269,188, Cl. 128-287.000.
ITT Industries, Inc.: *See*—
Flamm, Peter M.; and Miskin, Leslie, 4,270,139, Cl. 358-23.000.
Thiel, Rudolf, 4,269,290, Cl. 188-72.300.
Weiler, Rolf, 4,269,110, Cl. 91-369.00B.
Ivandick, Mark J.: *See*—
Ivandick, Tony J.; and Ivandick, Mark J., 4,269,353, Cl. 239-77.000.
Ivandick, Tony J.; and Ivandick, Mark J. Exhaust operated vaporizer. 4,269,353, Cl. 239-77.000.
Ivankovics, Steven G.: *See*—
Van Arman, William L.; Kambs, Russell A.; Ivankovics, Steven G.; Hansen, Frederick W.; and Julow, Thomas M., 4,268,945, Cl. 29-407.000.
Ivanov, Vasily T.: *See*—
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.
Ives, Frank E. Method for producing a curable, filled resin composition, e.g., artificial marble. 4,269,798, Cl. 264-73.000.
Ives, Jeffrey L.: *See*—
Watt, David S.; and Ives, Jeffrey L., 4,269,837, Cl. 424-246.000.
Iwamoto, Masahiro. Toothpaste extruder capable of controlling the supply amount. 4,269,238, Cl. 141-362.000.
Iwasaki, Koji: *See*—
Endoh, Kenjiro; Ishizawa, Yoshiyuki; Tanaka, Masanori; and Iwasaki, Koji, 4,270,177, Cl. 364-571.000.
Iwata, Shizuo: *See*—
Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, 4,269,860, Cl. 426-5.000.
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Ignition timing control system for internal combustion engines. 4,269,154, Cl. 123-425.000.
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Ignition timing control system for internal combustion engines. 4,269,155, Cl. 123-425.000.
J. H. Fenner & Co. Limited: *See*—
Fryatt, Leslie A., 4,269,305, Cl. 198-781.000.
J. Muller S.A.: *See*—
Muller, Alfred; and Muller, Jean-Paul, 4,268,961, Cl. 30-191.000.
Jablonski, Richard J.: *See*—
Zamek, Otto S.; Pauze, Denis R.; and Jablonski, Richard J., 4,269,752, Cl. 260-31.40R.
Jackson, Lewis B. Well pipe handling equipment. 4,269,554, Cl. 414-22.000.
Jackson, William L.: *See*—
Harrington, Wilfred H.; and Jackson, William L., 4,269,251, Cl. 152-362.00R.
Jagenberg Werke Aktiengesellschaft: *See*—
Martini, Norbert, 4,269,556, Cl. 414-50.000.
Janssens, Wilhelmus; Somers, Alphonse; and Claeys, Daniel A., to AGFA-GEVAERT N.V. Photographic material suited for the production of multicolor images by means of diffusion transfer of complexed silver halide. 4,269,924, Cl. 430-214.000.
Jansson, Erik O.; Naucler, Bengt O.; and Asberg, Thomas, to Aktiebolaget Karlstads Mekaniska Werkstad. Stay ring for the spiral casing of a rotary hydraulic machine. 4,269,568, Cl. 415-204.000.
Japan Tower Miller Co., Ltd.: *See*—
Kawabata, Shigekatsu, 4,269,808, Cl. 423-1.000.
Jarl, Stig: *See*—
Fredell, Soren; and Jarl, Stig, 4,269,079, Cl. 74-365.000.
Jarvenkyla, Juhani; and Yli-Kovero, Tapio. Fastening means for skis. 4,269,435, Cl. 280-814.000.
Jennings, Francis W., to Merck & Co., Inc. Compositions and methods for the treatment of chronic trypanosomiasis infections. 4,269,830, Cl. 424-226.000.
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Jessop, Thomas C., to Eastman Kodak Company. Slide transfer mechanism. 4,269,803, Cl. 422-63.000.
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Jezbera, Val K., to Dataproducts Corporation. Print hammer assembly method. 4,269,118, Cl. 101-93.340.
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Johnson, Clarence, Jr. II. 2 in 1 Bobber super and regular. 4,268,988, Cl. 43-43.110.
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Matthews, Russell B., 4,269,589, Cl. 431-46.000.
Johnson, Donald C.; and Burdorf, Walter L., to Ludlow Corporation. Anti-static mats and carpets. 4,269,881, Cl. 428-95.000.
Johnson, Doyle F.; and Goetz, Nelson F., to Tri State Culvert Corporation. High strength pipe. 4,269,234, Cl. 138-121.000.
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Johnson, Julius T.; and Johnson, Robert R. On-line sampler. 4,269,064, Cl. 73-422.0TC.
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Holland, Eric O.; and Johnson, Marvin M., 4,269,694, Cl. 208-48.00R.
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Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,270,005, Cl. 568-328.000.
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Johnson, Terry J. Cartridge type sauce extruder. 4,269,330, Cl. 222-386.000.
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Durham, Samuel; and Johnston, Max M., 4,269,325, Cl. 221-194.000.
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Soby, William; and Johnston, Samuel J. B., 4,269,669, Cl. 204-5.000.
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Elliott, Michael T.; Splinter, Michael R.; Jones, Addison B.; and Reekstin, John P., 4,268,951, Cl. 29-571.000.

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Joshi, David; and Klingaman, Richard, to Colgate-Palmolive Company. Bottled particulate detergent. 4,269,722, Cl. 252-90.000.
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Marriott, Robert C.; Kristal, Frank W.; and Julier, Robert M., 4,269,749, Cl. 260-29.6MQ.
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Kaartinen, Niilo. Procedure and apparatus for manipulating batches of liquids. 4,269,212, Cl. 137-13.000.
Kabushiki Kaisha Daini Seikosha: *See*—
Kondo, Kenichi, 4,269,025, Cl. 368-73.000.
Terade, Kiichi; and Iida, Yasuhiro, 4,270,066, Cl. 310-258.000.
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Kondo, Tatsunori; and Kitagawa, Hiroshi, 4,269,102, Cl. 84-1.010.
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Shikutani, Michio; and Akiyama, Satoshi, 4,269,571, Cl. 417-234.000.
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Kudo, Yasuhiko, 4,270,192, Cl. 368-29.000.
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Ohtani, Shigemori; and Tanno, Shoji, 4,269,358, Cl. 239-425.000.
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Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, to Ceskoslovenska akademie ved. Electron resist. 4,269,962, Cl. 526-273.000.
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Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.
Kamimura, Toshio, to Teijin Seiki Company Limited. Hydraulic apparatus. 4,269,111, Cl. 91-419.000.
Kamimura, Yasushi. Wide-angle optical door viewer. 4,269,474, Cl. 350-69.000.
Kaminsky, Vadim A.: *See*—
Zhestkov, Vladimir M.; Tsypin, Vladimir M.; Grzhebin, Mikhail Z.; Kaminsky, Vadim A.; and Mazepov, Vitaly G., 4,269,599, Cl. 440-88.000.
Kamiya, Osamu, to Brother Kogyo Kabushiki Kaisha. Trimming device for sewing machines. 4,269,127, Cl. 112-122.000.
Kando, Yasuhiko: *See*—
Shibuya, Yoshimichi; Kawamura, Hiromitsu; Kando, Yasuhiko; and Koyama, Masaharu, 4,269,617, Cl. 65-43.000.
Kaneko, Katsumi: *See*—
Okumura, Yoshiharu; and Kaneko, Katsumi, 4,270,011, Cl. 568-899.000.
Kang, Kenneth S.; Veeder, George T.; and Mirrasoul, Peter J., to Merck & Co., Inc. Preparation of heteropolysaccharide S-119. 4,269,939, Cl. 435-104.000.
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Nishizawa, Kazunori; Shirose, Toshihiro; and Itoh, Osamu, 4,269,188, Cl. 128-287.000.
Sakurai, Akira; Tsuchiya, Yoshimi; and Mizutani, Hiroshi, 4,269,187, Cl. 128-263.000.
Kapadia, Jayant K.: *See*—
Rush, Donald L.; and Kapadia, Jayant K., 4,269,377, Cl. 246-182.00B.
Kar, Arup K.: *See*—
Ashpole, Raymond S.; Peachey, Colin J.; and Kar, Arup K., 4,269,024, Cl. 57-232.000.
Karashima, Masashi. Refrigerated show case. 4,269,037, Cl. 62-256.000.
Karlin, Richard A.; and Koskinen, Carl J., to Sun Electric Corporation. Remote site engine test techniques. 4,270,174, Cl. 364-551.000.
Kaspar, Vaclav: *See*—
Molls, Hans-Heinz; Kaspar, Vaclav; and Moutsokapas, Asterios, 4,268,972, Cl. 34-60.000.
Kastening, Bertel: *See*—
Faul, Wolfgang; Kastening, Bertel; and Luft, Harald, 4,269,678, Cl. 204-129.600.
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Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,269,502, Cl. 355-35.00H.
Katayama, Kouichi: *See*—
Yukimachi, Katsurou; and Katayama, Kouichi, 4,269,263, Cl. 165-29.000.
Kato, Hajime; Satomura, Masato; and Sato, Kozo, to Fuji Photo Film Co., Ltd. Recording material containing a novel color developer. 4,269,893, Cl. 428-341.000.
Kato, Takeo: *See*—
Sonobe, Kazuo; and Kato, Takeo, 4,269,887, Cl. 428-280.000.
Kaufman, Kurt D., to Thomas C. Elder, Inc. 8-Aminoalkyl-4-alkylpsoralens. 4,269,851, Cl. 424-279.000.
Kaufman, Kurt D., to Thomas C. Elder, Inc. 4'-Substituted-4,5',8-trialkylpsoralens. 4,269,852, Cl. 424-279.000.
Kawabata, Shigekatsu, to Seika Sangyo Co., Ltd.; and Japan Tower Miller Co., Ltd. Method of simultaneously subjecting ores to pulverization and leaching or extraction. 4,269,808, Cl. 423-1.000.
Kawai Musical Instrument Mfg. Co., Ltd: *See*—
Deutsch, Ralph; and Deutsch, Leslie J., 4,269,101, Cl. 84-1.010.
Kawai, Syuji: *See*—
Yamashita, Shuzo; Kawai, Syuji; Tanii, Hirokuni; and Takakura, Koichi, 4,269,713, Cl. 210-500.200.
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Noto, Koichi; and Kawai, Tsuneo, 4,268,999, Cl. 51-165.720.
Kawamoto, Toshiaki: *See*—
Shimazawa, Yoichi; and Kawamoto, Toshiaki, 4,270,133, Cl. 346-140.00R.
Kawamura, Hiromitsu: *See*—
Shibuya, Yoshimichi; Kawamura, Hiromitsu; Kando, Yasuhiko; and Koyama, Masaharu, 4,269,617, Cl. 65-43.000.
Kawanami, Takao: *See*—
Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, 4,269,052, Cl. 72-39.000.
Kawasaki, Akio: *See*—
Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.
Kawasaki, Hironobu: *See*—
Ikeno, Teruo; Kado, Satoshi; Ayusawa, Saburo; Kawasaki, Hironobu; and Watanabe, Takashi, 4,269,904, Cl. 428-623.000.
Kawasaki, Kishio: *See*—
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Kawasaki Steel Corporation: *See*—
Ohzu, Hideshi; Ohmori, Hisashi; Maeda, Mizuo; and Ohtani, Hiromi, 4,269,257, Cl. 164-86.000.
Kawashima, Akira: *See*—
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.
Kay, Joel B. Pencils and pencil caps. 4,269,523, Cl. 401-51.000.
Keasling, Hugh H., to Shell Oil Company. Certain 7-(β-phenyl-β-hydroxyethylaminopropyl)-theophyllines as lipolysis promoters. 4,269,840, Cl. 424-253.000.
Keasling, Hugh H., to Shell Oil Company. Certain 7-(phenethylaminoalkyl)theophylline derivatives as lipolysis promoters. 4,269,841, Cl. 424-253.000.
Keene, James S. Hook assembly for engaging a spinal column. 4,269,178, Cl. 128-69.000.
Keil, Howard R.; and Daigle, Oscar L., to Kerr-McGee Chemical Corporation. Ilmenite beneficiation process and a digester method. 4,269,619, Cl. 75-1.00T.
Kelbel, Donald W., to Borg-Warner Corporation. Automatic clutch. 4,269,294, Cl. 192-54.000.
Keller, Terry M. Plant-watering device. 4,269,329, Cl. 222-333.000.
Kelman, Charles D. Intraocular lenses. 4,268,921, Cl. 3-13.000.
Kemanord AB: *See*—
Johansson, Thomas, 4,269,620, Cl. 75-11.000.
Kempton, Alan G.: *See*—
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., 4,269,699, Cl. 75-101.00R.
Kennett, John E. Apparatus for cleaning the wheel arches of vehicles. 4,269,141, Cl. 118-708.000.
Kenworthy, Max H.; and Textoris, Melvin A., to GF Business Equipment, Inc. Partition wiring system. 4,270,020, Cl. 174-48.000.
Keogh, Raymond W.: *See*—
Orr, Thomas S. C.; and Keogh, Raymond W., 4,269,853, Cl. 424-283.000.
Kerley, Bernard J., Jr. Recovery of precious metals from difficult ores. 4,269,622, Cl. 75-103.000.
Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See*—
Faul, Wolfgang; Kastening, Bertel; and Luft, Harald, 4,269,678, Cl. 204-129.600.
Zimmermann, Ulrich; and Pilwat, Gunter, 4,269,826, Cl. 424-101.000.

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Keil, Howard R.; and Daigle, Oscar L., 4,269,619, Cl. 75-1.00T.

Kethley, Lancelot I. Continuous recording of vapor pressure. 4,269,060, Cl. 73-29.000.

Keunecke, Gerhard; and Krimphove, Herbert, to Davy Powergas GmbH. Jet pump exhaust recycle in production of phthalic anhydride. 4,269,776, Cl. 260-346.400.

Keuper, John J.: *See—*
Glandorf, Frank J.; Wagner, Paul D.; and Keuper, John J., 4,270,064, Cl. 310-90.000.

Kheinis, Alexandr B.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.

Kidd, Arthur H., to H. G. Weber & Co., Inc. Automatic bag collating and stacking apparatus. 4,269,557, Cl. 414-105.000.

Kienzle Uhrenfabriken GmbH: *See—*
Stechmann, Helmut; and Haberer, Jens, 4,270,200, Cl. 368-252.000.

Kii, Masami, to Mitsubishi Denki Kabushiki Kaisha. Puffer type circuit interrupter. 4,270,034, Cl. 200-148.00R.

Kilian, Lars E.: *See—*
Olsson, Curt S.; Widerstrom, Olle; and Kilian, Lars E., 4,269,458, Cl. 308-9.000.

Killgoar, Paul C., Jr.: *See—*
Tabar, Ronald J.; and Killgoar, Paul C., Jr., 4,269,746, Cl. 260-23.70H.

Kilmister, George T. F.: *See—*
Clarke, Robin; Thomas, Douglas J.; Kilmister, George T. F.; and Beal, Robert R., 4,269,051, Cl. 72-9.000.

Kim, Bumman: *See—*
Dakss, Mark L.; Kim, Bumman; and Schlafer, John, 4,269,648, Cl. 156-293.000.

Kim, Chang J.: *See—*
Grenoble, Dane C.; Kim, Chang J.; and Murrell, Lawrence L., 4,269,737, Cl. 252-464.000.

Kimoto, Kazuo: *See—*
Ishikawa, Muneharu; and Kimoto, Kazuo, 4,269,714, Cl. 210-627.000.

Kimura, Muneaki: *See—*
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, 4,269,911, Cl. 429-199.000.

King, Randall N.; and Mitoff, Stephan P., to Electric Power Research Institute. Sodium-sulfur cell with method of constructing the sulfur electrode. 4,269,909, Cl. 429-104.000.

King, Russell W. Radioactive gas dose computer. 4,270,052, Cl. 250-432.0PD.

Kinoshita, Makoto: *See—*
Ebata, Yoshihiro; Toibana, Yasuo; Uetsuki, Tsuneo; Kose, Saburo; and Kinoshita, Makoto, 4,269,641, Cl. 156-89.000.

Kinoshita, Takao: *See—*
Suzuki, Ryoichi; Kinoshita, Takao; Ogawa, Yukio; and Uchiyama, Takashi, 4,269,493, Cl. 354-51.000.

Kinsella, Phillip W., to Schurman Machine Works, Inc. Rotary chipping head. 4,269,244, Cl. 144-218.000.

Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, to Sumitomo Chemical Company, Limited. N-(Phenylcycloalkyl)acetamide derivatives, and their production and use. 4,270,002, Cl. 564-221.000.

Kish, Arthur S., to Murray Corporation. Torque transmitting fluid couplings. 4,269,295, Cl. 192-58.00B.

Kishino, Takao; Kawasaki, Kishio; and Yamaguchi, Nobuo, to Futaba Denshi Kogyo K.K. Fluorescent display device. 4,270,068, Cl. 313-497.000.

Kita, Yuzo: *See—*
Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, 4,270,220, Cl. 455-182.000.

Kitagawa, Hiroshi: *See—*
Kondo, Tatsunori; and Kitagawa, Hiroshi, 4,269,102, Cl. 84-1.010.

Kitagawa, Masamichi, to Konishiroku Photo Industry Co., Ltd. Symmetrical objective. 4,269,477, Cl. 350-464.000.

Kitagawa, Tsuneo: *See—*
Ito, Masazumi; Shibazaki, Kenji; and Kitagawa, Tsuneo, 4,269,500, Cl. 355-14.00C.

Kitame, Fumio: *See—*
Matsuda, Yoshiji; Tamura, Keiji; Motoki, Hiroaki; Kitame, Fumio; and Ishida, Nakao, 4,269,765, Cl. 260-112.00B.

Kitamura Valve Seizo Kabushiki Kaisha: *See—*
Saito, Tutomu; Yamazoe, Hiroshi; and Yamaoka, Hidenori, 4,269,391, Cl. 251-315.000.

Kitzing, Rainer: *See—*
Mason, Leslie F. A.; Kitzing, Rainer; Whitear, Brian R. D.; Long, William E.; Wood, Glenn P.; and Reeves, David L. R., 4,269,928, Cl. 430-239.000.

Kiwala, Jacob: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,269,862, Cl. 426-536.000.

Kizu, Ryohei; Matoba, Taketo; Oguni, Yasuo; and Sakurai, Hideaki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Coupling for resiliently connecting two shafts for transmission of torque. 4,269,043, Cl. 64-11.00R.

Klasema, Hendrik; and Prince, Hendrikus A., to Prince, Hendrikus Andreas. Method and device for forming a flange on a tubular element of a synthetic resin. 4,269,801, Cl. 264-156.000.

Kleber, Karl H.: *See—*
Rabenstein, Heinrich; Kalbitz, Angela; and Kleber, Karl H., 4,269,912, Cl. 429-225.000.

Kleiner, Frank: *See—*
Freitag, Dieter; Nouvertne, Werner; Burkhardt, Claus; and Kleiner, Frank, 4,269,964, Cl. 528-126.000.

Kleingartner, Charles A.: *See—*
Nelson, Harold K.; Kleingartner, Charles A.; and Vetsch, LeRoy E., 4,269,070, Cl. 73-779.000.

Klingaman, Richard: *See—*
Joshi, David; and Klingaman, Richard, 4,269,722, Cl. 252-90.000.

Klockner-Humboldt-Deutz AG: *See—*
Strobel, Gerhard, 4,269,019, Cl. 56-192.000.

Klotz, Marvin R., to Standard Oil Company (Indiana). Crystalline borosilicate and process of preparation. 4,269,813, Cl. 423-277.000.

Kluczkowski, Marek: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.

Kmonk, Stanley; Cadwell, Dennis J.; and Ferlan, Stephen J., to Westinghouse Electric Corp. Top nozzle for a nuclear reactor fuel assembly. 4,269,661, Cl. 176-50.000.

Knapp, Charles A.; and Rao, V. Durga N., to Ford Motor Company. Elastic mounting structure for ceramic regenerator core. 4,269,262, Cl. 165-8.000.

Knifton, John F., to Texaco Inc. Manufacture of ethylene from synthesis gas (D75,673-C1). 4,270,015, Cl. 585-324.000.

Knight, Richard A.: *See—*
Babu, Suresh P.; and Knight, Richard A., 4,269,692, Cl. 208-8.0LE.

Knoll, William P. Heater unit and container. 4,269,591, Cl. 431-312.000.

Kobayashi, Hidehiko: *See—*
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, 4,269,911, Cl. 429-199.000.

Kobayashi, Yuko: *See—*
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Kobe, Inc.: *See—*
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Kockums Industri Aktiebolag: *See—*
Fornell, Erik G.; and Eklund, Hans G. U., 4,269,245, Cl. 144-245.00A.

Koehler, Robert J.; and Bayliss, John A., to Intel Corporation. Apparatus and method for cooperative and concurrent coprocessing of digital information. 4,270,167, Cl. 364-200.000.

Koenig, Horst: *See—*
May, Hans-Joachim; and Koenig, Horst, 4,269,990, Cl. 548-315.000.

Koenuma, Masao, to Asahi Seimitsu Kabushiki Kaisha. Universal parallel ruler including scale setting device. 4,268,969, Cl. 33-438.000.

Koering, Dale J. Electroplating apparatus. 4,269,208, Cl. 134-60.000.

Koga, Isao: *See—*
Ohtake, Nobumasa; Koga, Isao; and Terui, Yohji, 4,269,993, Cl. 556-450.000.

Koga, Keiichiro: *See—*
Morokawa, Shigeru; Sekiya, Fukuo; Hashimoto, Yukio; Nomura, Yasushi; and Koga, Keiichiro, 4,270,194, Cl. 368-73.000.

Kohaut, Gunter: *See—*
Borchert, Herbert; Albert, Walter; Kohaut, Gunter; Schulte, Ulrich; and Rapp, Bruno, 4,269,895, Cl. 428-402.000.

Koide, Fumiharu; and Ohshima, Masami, to Gomi Patent Office; and Shinsei Reizo Kogyo Kabushiki Kaisha, a part interest. Food defrosting apparatus. 4,269,036, Cl. 62-159.000.

Kokagi, Yuuichi: *See—*
Tokuda, Takuro; Ikeda, Susumu; Kubota, Yoshikazu; Takagi, Tutomu; and Kokagi, Yuuichi, 4,269,857, Cl. 424-325.000.

Kokusai Denshin Denwa Kabushiki Kaisha: *See—*
Sato, Masanori; Wakabayashi, Hiroharu; Ejiri, Yoshihiro; and Yamamoto, Hitoshi, 4,270,029, Cl. 179-175.31R.

Kolakowski, Michael A., to NL Industries, Inc. Method for desulfation of battery mud. 4,269,810, Cl. 423-92.000.

Kolakowski, Michael A.: *See—*
Striffler, Eugene, Jr.; and Kolakowski, Michael A., 4,269,811, Cl. 423-92.000.

Kolczynski, James R.; and Schultz, Gerald A., to Akzona Incorporated. Compositions comprising asymmetrical peroxydicarbonates and methods for their use. 4,269,726, Cl. 252-186.000.

Komatsu, Yasuji: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Kondo, Kenichi, to Kabushiki Kaisha Daini Seikosha. Electronic alarm timepiece with presettable alarm time memory. 4,269,025, Cl. 368-73.000.

Kondo, Tatsunori; and Kitagawa, Hiroshi, to Kabushiki Kaisha Kawai Gakki Seisakusho. Key assignor. 4,269,102, Cl. 84-1.010.

Kondo, Toshiyuki; and Ando, Masamoto, to Aisin Seiki Company, Limited. Anti-skid brake pressure control system with common solenoid valve. 4,269,456, Cl. 303-115.000.

Konig, Karl; and Heldmaier, Emil, to Daimler-Benz Aktiengesellschaft. Safety covering for rotary gating in articulated buses. 4,269,425, Cl. 280-403.000.

Konishiroku Photo Industry Co., Ltd.: *See—*
Kitagawa, Masamichi, 4,269,477, Cl. 350-464.000.

Konovalov, Julian K.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.;

Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.

Konrad, Czeslaw; and Konrad, Janina. Combined toothbrush-toothpaste container. 4,269,207, Cl. 132-84.00B.

Konrad, Janina: *See—*
Konrad, Czeslaw; and Konrad, Janina, 4,269,207, Cl. 132-84.00B.

Kopp, Josef; Huther, Ernst; and Bohlander, Ernst, to Zupack-Gesellschaft mbH. Plural line back forming and filling apparatus. 4,269,016, Cl. 53-546.000.

Kopse, Odon, to Robert Bosch GmbH. Fuel injection nozzle. 4,269,360, Cl. 239-533.800.

Korotkevich, Boris S.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Kortbeek, Andras G. T. G.; and van der Linden-Lemmers, Wilhelmina J. M., to Shell Oil Company. Olefin polymerization catalysts. 4,269,732, Cl. 252-429.00B.

Kose, Saburo: *See—*
Ebata, Yoshihiro; Toibana, Yasuo; Uetsuki, Tsuneo; Kose, Saburo; and Kinoshita, Makoto, 4,269,641, Cl. 156-89.000.

Koskinen, Carl J.: *See—*
Karlin, Richard A.; and Koskinen, Carl J., 4,270,174, Cl. 364-551.000.

Koss, Muriel L.: *See—*
Carrillo, Robert M.; and Koss, Muriel L., 4,269,882, Cl. 428-116.000.

Kostecki, Raymond T., to Sun Electric Corporation. Automatic battery charge apparatus and method. 4,270,080, Cl. 320-24.000.

Kountz, Kenneth J.; Cooper, Kenneth W.; and Abendschein, Frederic H., to Borg-Warner Corporation. Microcomputer control for supplemental heating in a heat pump. 4,269,261, Cl. 165-2.000.

Kovaleski, Joseph J., to Wyrepak Industries, Inc. Composite, heavy-duty spool with plastic end cones. 4,269,371, Cl. 242-118.600.

Kowalski, Ben C.; Kowalski, Daniel J.; and Ferguson, Douglas J., to Four Star Corporation. Load bearing cross-slat. 4,269,340, Cl. 224-326.000.

Kowalski, Daniel J.: *See—*
Kowalski, Ben C.; Kowalski, Daniel J.; and Ferguson, Douglas J., 4,269,340, Cl. 224-326.000.

Koyama, Masaharu: *See—*
Shibuya, Yoshimichi; Kawamura, Hiromitsu; Kando, Yasuhiko; and Koyama, Masaharu, 4,269,617, Cl. 65-43.000.

Kozinski, Richard R. Conduit bender construction. 4,269,056, Cl. 72-459.000.

Kraftwerk Union Aktiengesellschaft: *See—*
Neuenfeldt, Walter; Siegert, Heiner; and Zeitzschel, Gunter, 4,269,660, Cl. 176-30.000.

Kralowetz, Bruno. Method of machining crankshafts. 4,269,551, Cl. 409-132.000.

Kreger, James G., to Edwards Oil Service, Inc. Oil treatment processes, and products obtained thereby. 4,269,698, Cl. 208-180.000.

Kress Corporation: *See—*
Thomas, Dennis R., 4,269,560, Cl. 414-459.000.

Kress, David R., to Matrix Unlimited, Inc. Photopolymeric composition containing polyamide and dicarboxylic acid diester. 4,269,930, Cl. 430-270.000.

Kreuter, Jorg; and Speiser, Peter P., to Kreuter, Jorg; and Speiser, Peter Paul. Biological materials. 4,269,821, Cl. 424-19.000.

Krimphove, Herbert: *See—*
Keunecke, Gerhard; and Krimphove, Herbert, 4,269,776, Cl. 260-346.400.

Kring, Elbert V., to Du Pont de Nemours, E. I., and Company. Self-contained gaseous contaminant dosimeter. 4,269,804, Cl. 422-86.000.

Kristal, Frank W.: *See—*
Marriott, Robert C.; Kristal, Frank W.; and Julier, Robert M., 4,269,749, Cl. 260-29.6MQ.

Kroetzsch, Peter: *See—*
Brunold, Andreas; Kroetzsch, Peter; and Diehl, Lothar, 4,269,609, Cl. 55-71.000.

Krohn, Manfred: *See—*
Gersbeck, Rolf; and Krohn, Manfred, 4,269,585, Cl. 425-373.000.

Kroll, Walter; and Stefan, Gunther, to Leistritz Maschinenfabrik Paul Leistritz GmbH. Hot pelletizer for extruders. 4,269,584, Cl. 425-313.000.

Kronos Inc.: *See—*
Baxter, Larry K.; Cohen, Robert D.; Ain, Mark S.; and Apsell, Sheldon P., 4,270,043, Cl. 235-419.000.

Krueger, Hans; Schauer, Alois; and Walter, Karl-Heinz, to Siemens Aktiengesellschaft. Process and apparatus for displaying an image in front of an optical contrasting background. 4,269,480, Cl. 350-355.000.

Krueger, Wallace F.; Shaw, Anthony R.; and Smith, Jerry L., to Libbey-Owens-Ford Company. System for mounting solar collector panels. 4,269,173, Cl. 126-450.000.

Krueger, William J.: *See—*
Theis, Peter; Buchberger, Gregory D.; and Krueger, William J., 4,270,024, Cl. 179-8.00A.

Kruger, Karl-Heinz: *See—*
Riessland, Eberhard; and Kruger, Karl-Heinz, 4,270,109, Cl. 335-277.000.

Kubiatowicz, James F., to Custom Concepts, Incorporated. Toy activating mechanism. 4,268,990, Cl. 46-119.000.

Kubota, Keiichi: *See—*
Ohta, Yoshinori; Kubota, Keiichi; and Sakaguchi, Mitsuhito, 4,270,149, Cl. 358-293.000.

Kubota Ltd.: *See—*
Sudo, Hisashi, 4,269,218, Cl. 137-240.000.

Kubota, Yoshikazu: *See—*
Tokuda, Takuro; Ikeda, Susumu; Kubota, Yoshikazu; Takagi, Tutomu; and Kokagi, Yuuichi, 4,269,857, Cl. 424-325.000.

Kubushiki Kaisha Suwa Seikosha: *See—*
Minowa, Yoshiki, 4,270,197, Cl. 368-102.000.

Kuchuk-Yatsenko, Sergei I.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.

Kudo, Yasuhiko, to Kabushiki Kaisha Suwa Seikosha. Electronic timepiece. 4,270,192, Cl. 368-29.000.

Kuehnle, Manfred R., to Coulter Systems Corporation. Inorganic photoconductive coating, electrophotographic member and sputtering method of making the same. 4,269,919, Cl. 430-67.000.

Kullendorff, Anders: *See—*
Bojesgard, Pehr; Kullendorff, Anders; and Wikner, Jan, 4,269,151, Cl. 122-4.00D.

Kummerle, Kurt: *See—*
Heise, Hartmut; Hille, Ernst; Wagner, Reinhard; and Kummerle, Kurt, 4,269,989, Cl. 548-305.000.

Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, to Nissan Motor Company, Limited. Internal combustion engine with fuel injector. 4,269,153, Cl. 123-308.000.

Kuraray Co., Ltd.: *See—*
Fujita, Yoshiji; Ohnishi, Takashi; and Nishida, Takashi, 4,270,003, Cl. 568-33.000.
Maruyama, Hitoshi; Kajitani, Koichi; and Shiraishi, Makoto, 4,269,729, Cl. 252-316.000.
Yamashita, Shuzo; Kawai, Syuji; Tanii, Hirokuni; and Takakura, Koichi, 4,269,713, Cl. 210-500.200.
Yano, Makoto; Shimada, Kiyoo; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,269,682, Cl. 204-195.00M.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Osa, Tetsuo; Fujihira, Masamichi; Matsue, Tomokazu; and Yamauchi, Takashi, 4,269,674, Cl. 204-81.000.
Tokuda, Takuro; Ikeda, Susumu; Kubota, Yoshikazu; Takagi, Tutomu; and Kokagi, Yuuichi, 4,269,857, Cl. 424-325.000.
Yaguchi, Kunihide; Takaiwa, Masakazu; and Aoki, Minoru, 4,269,806, Cl. 422-171.000.

Kuroda, Toshimasa; and Matsumoto, Mitsuo, to Teijin Limited. Process and apparatus for crimping filament yarn. 4,268,940, Cl. 28-255.000.

Kuronen, John M.: *See—*
Parks, Howard L.; and Kuronen, John M., 4,268,956, Cl. 29-869.000.

Kuroyanagi, Takashi: *See—*
Inoue, Sadao; Umemura, Tetsuya; Suzuki, Hiroshi; and Kuroyanagi, Takashi, 4,269,623, Cl. 75-157.500.

Kusters, Eduard: *See—*
Gruber, Heinz, 4,268,928, Cl. 8-149.000.

Kuwana, Kazutaka: *See—*
Hida, Takashi; Mitsui, Tsutomu; Kuwana, Kazutaka; and Hashiride, Tadaaki, 4,269,045, Cl. 66-75.200.

Kwater, James L., to Emerson Electric Co. Apparatus for cutting vegetation. 4,269,372, Cl. 242-129.800.

Kwong, Hanoi: *See—*
United States of America, National Aeronautics and Space Administration; Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi, 4,269,787, Cl. 260-465.50R.

Kyncl, John J.: *See—*
DeBernardis, John F.; and Kyncl, John J., 4,269,858, Cl. 424-330.000.

L. M. Dearing Associates: *See—*
Dearing, Le Roy M., 4,269,495, Cl. 354-106.000.

Labatzke, Wolfgang: *See—*
Breitling, Rolf; Mayer, Wolfgang; and Labatzke, Wolfgang, 4,269,890, Cl. 428-320.000.

Labelle, Eugene C. Vehicle transporter. 4,269,598, Cl. 440-11.000.

Labonia, Michelino. Hydroplanes. 4,269,135, Cl. 114-272.000.

Labrande, Jean-Paul, to Societe Anonyme Francaise du Ferodo. Fin and tube assembly and a method of making the assembly. 4,269,267, Cl. 165-181.000.

Laclede Professional Products, Inc.: *See—*
Pellico, Michael A.; and Montgomery, Robert E., 4,269,822, Cl. 424-50.000.

Lacombe, Pierre, to Fonderie et Ateliers des Sablons. Apparatus for dividing a segment of variable length into equal parts. 4,270,175, Cl. 364-562.000.

LaHaye, Peter G., to Iolab Corporation. Intraocular lens storage assembly. 4,269,307, Cl. 206-5.100.

Lancaster, Arthur L.: *See—*
Hartman, John M.; and Lancaster, Arthur L., 4,270,144, Cl. 307-221.00D.

Lancaster, Gerald M.: *See—*
Vanderhider, James A.; and Lancaster, Gerald M., 4,269,945, Cl. 521-159.000.

Landa, Benzion, to Savin Corporation. Pickoff device for copying machine. 4,269,504, Cl. 355-3.0SH.

Landis, Arthur M.: *See—*
Priegnitz, James W.; and Landis, Arthur M., 4,270,013, Cl. 568-940.000.

Landis Lund, Limited: *See*—
Bottomley, Herbert G., 4,269,001, Cl. 51-237.0CS.

Landis, Norris J., to Standard Oil Company. Acrylonitrile purification by extractive distillation. 4,269,667, Cl. 203-76.000.

Landstingens Inkopscentral, Lic, ekonomisk forening: *See*—
Marsh, Gunnar; and Olander, Christer B., 4,268,922, Cl. 3-21.000.

Lang, Edward J.; and Dubenitz, Michael G., to Hooker Chemicals & Plastics Corp. Phenolic resin particles and processes for their production and friction elements containing same. 4,269,754, Cl. 260-33.60R.

Langdon, Howard S.: *See*—
Veldman, Donald R., 4,269,464, Cl. 339-95.00R.

Langieri, Michael, to Empire of Carolina, Inc. Pinball game. 4,269,413, Cl. 273-121.00R.

Laporte Industries Limited: *See*—
Smith, Eileen; and Morgan, David A., 4,269,725, Cl. 252-174.250.

Larkin, Artemas M.: *See*—
Sivachenko, Eugene W.; Larkin, Artemas M.; and Bernert, Bogdan W., 4,269,055, Cl. 72-180.000.

LaRose, Claude; and Gagnon, Jacques, to Triangle Accessoires de Motocyclettes Ltee. Motorcycle luggage rack. 4,269,335, Cl. 224-31.000.

Larrow, Kenneth. House assembly with prefabricated elements. 4,269,006, Cl. 52-79.100.

Larson, Curtis L., to Minnesota Mining and Manufacturing Company. Flexible bail assembly. 4,269,322, Cl. 220-94.00R.

Larson, Eugene R.; and Harms, Walter, to Textron Inc. Fastener and driver assembly. 4,269,246, Cl. 81-460.000.

Laskin, Allen I.: *See*—
Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., 4,269,940, Cl. 435-148.000.

Laughlin, William C.: *See*—
Tolley, William K.; and Laughlin, William C., 4,269,809, Cl. 423-70.000.

Laurent, Francois, to Bolex International SA. Varifocal optical system. 4,269,484, Cl. 350-427.000.

Lavanish, Jerome M., to PPG Industries, Inc. 3-[5-[1-(2 or 3-Halophenoxy)alkyl, alkynyl, alkenyl, or haloalkyl]-1,3,4-thiadiazol-2-yl]-4-hydroxy-1-methyl-2-imidazolidinones. 4,269,983, Cl. 548-137.000.

Lawrence, Larry K., to Pyramid Manufacturing Company Low lift, elevatable high floor drilling mast and substructure arrangement therefor. 4,269,009, Cl. 52-116.000.

Lawson, John A.: *See*—
De Graw, Joseph I.; Lawson, John A.; Johnson, Howard L.; and Loew, Gilda H., 4,269,843, Cl. 424-260.000.

Lawton, Emil A., to Whittaker Corporation. Method of preparing improved imbibitive polymer. 4,269,959, Cl. 526-194.000.

LCOA Laminating Company of America: *See*—
Block, James P., 4,269,549, Cl. 408-1.00R.

Le, Be V. Underwater breathing device for a swimmer. 4,269,182, Cl. 128-201.110.

Leach, Bruce E., to Conoco, Inc. Magnesium oxide catalyst. 4,269,735, Cl. 252-440.000.

Leary, Steven G.: *See*—
Caridis, Andrew A.; Benson, Clark K.; Leary, Steven G.; and Nilsen, Arthur A., 4,269,861, Cl. 426-438.000.

Lecznar, Joseph F. Desk name plate. 4,268,985, Cl. 40-219.000.

Lee, Chi-Long: *See*—
Homan, Gary R.; and Lee, Chi-Long, 4,269,963, Cl. 528-17.000.

Lee, Gim F., Jr.: *See*—
Abolins, Visvaldis; and Lee, Gim F., Jr., 4,269,950, Cl. 525-68.000.

Lee, Harold D.: *See*—
Newman, James L.; and Lee, Harold D., 4,269,395, Cl. 254-386.000.

Lee, Ho C.; Rickenbach, David H.; and Zable, Jack L., to International Business Machines Corporation. Electro-magnetic print hammer. 4,269,117, Cl. 101-93.020.

Lee, Lois E. Novelty cap. 4,268,918, Cl. 2-199.000.

Lee, Walter: *See*—
Siegel, William J.; Lee, Walter; and Vella, Alexander J., 4,269,343, Cl. 228-20.000.

Legal, Jules O.: *See*—
Toms, Norman D.; and Legal, Jules O., 4,269,196, Cl. 128-727.000.

Leibhard, Erich; Gruenewald, Heinz; and Richter, Hanno, to Hilti Aktiengesellschaft. Dowel for a hollow wall structure. 4,269,106, Cl. 411-34.000.

Leistritz Maschinenfabrik Paul Leistritz GmbH: *See*—
Kroll, Walter; and Stefan, Gunther, 4,269,584, Cl. 425-313.000.

Leland Stanford Jr. University, The Board of Trustees of: *See*—
De Graw, Joseph I.; Lawson, John A.; Johnson, Howard L.; and Loew, Gilda H., 4,269,843, Cl. 424-260.000.

Le Nevez, Yves F., to Societe Anonyme de Telecommunications. Device for adjusting the azimuthal and inclination directions of a wave reflector. 4,269,508, Cl. 356-249.000.

Lenke, Dieter: *See*—
Treiber, Hans J.; Lenke, Dieter; and Worstmann, Wolfgang, 4,269,833, Cl. 424-244.000.

Lepeytre, Jean-Paul: *See*—
Gauthier, Francois H.; and Lepeytre, Jean-Paul, 4,269,476, Cl. 350-174.000.

Leschaeve, Philippe: *See*—
Bergero, Jean-Pierre; Charlet, Yves; and Leschaeve, Philippe, 4,270,100, Cl. 331-107.00A.

Le Tron, Yves; Obregon, Juan; Marechal, Pierre-Georges; and Barvet, Serge, to Thomson-CSF. Oscillator electronically tunable within a very wide frequency band. 4,270,097, Cl. 331-96.000.

Leveen, Harry H.: *See*—
Armitage, David, 4,269,199, Cl. 128-804.000.

Levinson, Leo; and Rempel, William D., to Xerox Corporation. Bi-directional record material feed apparatus. 4,269,522, Cl. 400-616.100.

Levitt, Ben; and Levitt, Irving. Sheet metal shelf. 4,269,318, Cl. 211-153.000.

Levitt, Irving: *See*—
Levitt, Ben; and Levitt, Irving, 4,269,318, Cl. 211-153.000.

Levy, Israel D.: *See*—
Pines, Michael Y.; and Levy, Israel D., 4,270,060, Cl. 307-221.00D.

Levy, Jacques: *See*—
Coppa, Louis; and Levy, Jacques, 4,269,558, Cl. 414-146.000.

Lewalter, Jurgen; Rottmaier, Ludwig; Merten, Rudolf; Zecher, Wilfried; Dunwald, Willi; and Schulte, Bernhard, to Bayer Aktiengesellschaft. Process for the preparation of polymers containing hydantoin groups. 4,269,750, Cl. 260-30.200.

Lewis, Robert J. Manufacture of mineral insulated cables. 4,269,639, Cl. 156-54.000.

Leybold-Heraeus GmbH: *See*—
Froitzheim, Hermann, 4,270,053, Cl. 250-508.000.

Liakumovich, Alexandr G.: *See*—
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Liauw, Koei-Liang: *See*—
Spiegelman, Gerald; and Liauw, Koei-Liang, 4,269,782, Cl. 260-429.700.

Libbey-Owens-Ford Company: *See*—
Krueger, Wallace F.; Shaw, Anthony R.; and Smith, Jerry L., 4,269,173, Cl. 126-450.000.

Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, to Politechnika Gdanska. Method of winning copper and accompanying metals from sulfidic ores, post-flotation deposits and waste products in the pyrometallurgical processing of copper ores. 4,269,676, Cl. 204-107.000.

Licentia Patent-Verwaltungs-G.m.b.H.: *See*—
Gill, Hardial S.; and Tegel, Othmar, 4,270,099, Cl. 331-96.000.

Liebing, Lotar, to Deutsche Forschungs-und-Versuchsanstalt fur Luft- und Raumfahrt e.V. Apparatus for determining the angle of incident electromagnetic radiation. 4,270,048, Cl. 250-216.000.

Lillig, John E., to Beckman Instruments, Inc. Measuring system incorporating self-testing probe circuit and method for checking signal levels at test points within the system. 4,270,178, Cl. 364-579.000.

Lim, Hong S.; and Verzwyvelt, Scott A., to Hughes Aircraft Company. Novel inorganic-organic composite felt for use in alkaline storage cells and process for making same. 4,269,913, Cl. 429-251.000.

Lim, John; Huang, Warren; and Brady, Michael, to Filtrol Corporation. Method of exchanging sodium zeolite. 4,269,815, Cl. 423-328.000.

Lind, David J.; Coffey, Valerie J.; and Hallam, Joyce, to Rolls-Royce Limited. Treatment of carbon fibre. 4,269,876, Cl. 427-309.000.

Lindauer Dornier Gesellschaft mbH: *See*—
Strahm, Christian; and Gageur, Fritz, 4,269,046, Cl. 68-13.00R.

Lindenman, Charles L. Hog farrowing house. 4,269,146, Cl. 119-16.000.

Lindenmeyer, Carl W., to United States of America, Energy. Shuttleless toroid winder. 4,269,366, Cl. 242-4.00R.

Lindner, Ulrich: *See*—
Hodapp, Otto; and Lindner, Ulrich, 4,269,091, Cl. 82-48.000.

Linn, S. Stephen, to Molins Machine Company, Inc. Slitter having means to adjust slitter position on mounting shaft. 4,269,097, Cl. 83-482.000.

Linne, Terry D., to Caterpillar Tractor Co. Process for making dual-material self-bonding lip seal. 4,269,802, Cl. 264-255.000.

Lipfert, Donald E.; and Goldschmidt, Willfred, to American Cyanamid Company. Applicator for pulverized substances. 4,269,527, Cl. 401-200.000.

Lipha, Lyonnaise Industrielle Pharmaceutique: *See*—
Bayssat, Michel; Sautel, Francis; Depin, Jean-Claude; and Matibet, Annie B., 4,269,848, Cl. 424-275.000.

Lipps, Bennie J.: *See*—
Hornby, Roger B.; Lipps, Bennie J.; and Savage, Charles E., 4,269,712, Cl. 210-321.300.

Littauer, Ernest L.: *See*—
Momyer, William R.; and Littauer, Ernest L., 4,269,907, Cl. 429-67.000.

Litteral, Carl J.; and Mullins, David L., to Union Carbide Corporation. Preparation of hydrolyzable polysiloxane-polyoxyalkylene block copolymers. 4,269,992, Cl. 556-446.000.

Little, Joseph E. Exhaust gas cleaning system. 4,269,612, Cl. 55-227.000.

Littwin, Arthur K. Apparatus for testing permanent magnets using electro-magnets and Hall sensors. 4,270,087, Cl. 324-205.000.

Liu, David C.: *See*—
Warwick, James M.; and Liu, David C., 4,269,439, Cl. 292-246.000.

Livsey, Norman B., to Rolls-Royce Limited. Application of metallic coatings to metallic substrates. 4,269,868, Cl. 427-53.100.

Locatelli, Jean-Louis, to Rhone-Poulenc Industries. Preparation of glycidyl polyarylethers. 4,269,952, Cl. 525-507.000.

Lockheed Aircraft Corp.: *See*—
Robinson, Robert L.; Hoff, David C.; and Midling, Robert L., 4,270,183, Cl. 364-900.000.

Lockheed Missiles & Space Company, Inc.: *See*—
Farrior, James S., 4,269,457, Cl. 305-11.000.
Momyer, William R.; and Littauer, Ernest L., 4,269,907, Cl. 429-67.000.

Loew, Gilda H.: *See*—
De Graw, Joseph I.; Lawson, John A.; Johnson, Howard L.; and Loew, Gilda H., 4,269,843, Cl. 424-260.000.

Loewy Robertson Engineering Co. Ltd.: *See*—
Clarke, Robin; Thomas, Douglas J.; Kilmister, George T. F.; and Beal, Robert R., 4,269,051, Cl. 72-9.000.

Logan, Ralph A.; and Tsang, Won-Tien, to Bell Telephone Laboratories, Incorporated. Strip buried heterostructure laser. 4,269,635, Cl. 148-171.000.

Logie, James A.; Bryan, T. James; and Wilson, Arthur G., to Exxon Research & Engineering Company. Apparatus for limiting facsimile transmission durations. 4,270,147, Cl. 358-256.000.

Loh, Shiu C. Ideographic character selection. 4,270,022, Cl. 178-30.000.

Lombardi, Paolo; Franceschi, Giovanni; and Arcamone, Federico, to Farmitalia Carlo Erba. Total synthesis of 7-oxo-4-thia-1-azabicyclo-[3,2,0]-heptane-2-carboxyl derivatives useful as β-lactamase inhibitors and antibacterial agents. 4,269,771, Cl. 260-245.20R.

Lonati, Francesco, to Costruzioni Meccaniche Lonati S.p.A. Circular knitting machine. 4,269,044, Cl. 66-56.000.

Long, Kelso M.; Pharr, Leonard; and Pharr, Earl J., to Burner Systems International, Inc. Device for punching holes in tubing. 4,269,094, Cl. 83-188.000.

Long, William E.: *See*—
Mason, Leslie F. A.; Kitzing, Rainer; Whitear, Brian R. D.; Long, William E.; Wood, Glenn P.; and Reeves, David L. R., 4,269,928, Cl. 430-239.000.

Longrod, Scott J., to SCM Corporation. Key mechanism having a snap action. 4,269,521, Cl. 400-472.000.

Loskot, John E. Heat engine. 4,269,031, Cl. 60-669.000.

Lossing, Wallace W.: *See*—
Burton, Charles V.; and Lossing, Wallace W., 4,269,179, Cl. 128-75.000.

Lotte Co. Ltd.: *See*—
Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, 4,269,860, Cl. 426-5.000.

Loudon, Robert: *See*—
Butterworth, Donald J.; Halbfoster, Christopher; and Loudon, Robert, 4,269,707, Cl. 210-777.000.

Lovelace, Donald E.: *See*—
Saarem, Myrl J.; Lovelace, Donald E.; Firebaugh, Dale C.; and Soukup, Dale F., 4,269,229, Cl. 137-869.000.

Loveless, James C.; and Palmer, Darrel R., to Deseret Company, The. Intravenous needle assembly with air bleed plug. 4,269,186, Cl. 128-214.400.

Lu, Chin H.; and Erhardt, Peter F., to Xerox Corporation. Positive toners containing long chain hydrazinium compounds. 4,269,922, Cl. 430-126.000.

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Lucas Industries Limited: *See*—
Buckle, Allan S., 4,270,159, Cl. 361-79.000.
Holt, William D., 4,270,057, Cl. 307-10.0BP.
Seilly, Alec H., 4,269,361, Cl. 239-585.000.
Seilly, Alec H.; and Sonderskov, Rasmus J., 4,269,388, Cl. 251-138.000.
Skinner, Robert T. J., 4,269,159, Cl. 123-569.000.

Ludlow Corporation: *See*—
Johnson, Donald C.; and Burdorf, Walter L., 4,269,881, Cl. 428-95.000.

Luft, Harald: *See*—
Faul, Wolfgang; Kastening, Bertel; and Luft, Harald, 4,269,678, Cl. 204-129.600.

Lundberg, Bror. Stop mechanism for radial arm saw. 4,269,095, Cl. 83-391.000.

Lundgren, Gordon L.: *See*—
Guch, Steve, Jr.; and Lundgren, Gordon L., 4,270,095, Cl. 331-94.50L.

Lynch, Gregory A.: *See*—
Noyes, Ronald T.; Lynch, Gregory A.; and Williams, Eugene E., 4,268,971, Cl. 34-34.000.

MacDavid, Kenneth R., to Harris Corporation. Threshold generator. 4,270,208, Cl. 375-76.000.

Machida, Toshio: *See*—
Hatsuno, Hiroshi; Machida, Toshio; Fukushima, Mitsuo; and Ogawa, Shinji, 4,269,061, Cl. 73-40.000.

Mack, Gerry, to Argus Chemical Corporation. Antimony mercaptocarboxylic acid ester stabilizers for polyvinyl chloride resin compositions and process. 4,269,731, Cl. 252-400.00R.

Mack Trucks, Inc.: *See*—
Meacock, Leslie A., II; and Merkel, Edward C., 4,269,282, Cl. 180-328.000.

Macke, Gerald F.: *See*—
Holub, Fred F.; and Macke, Gerald F., 4,269,755, Cl. 260-37.0PC.

Mackelburg, Gerald R.; McCracken, Howard B.; and McCardell, Peter D., to United States of America, Navy. Adaptive slant range compensator for a remote optical mapping system. 4,270,142, Cl. 358-99.000.

MacKenzie, Colin R.: *See*—
Strandell, Per O.; Thorslund, Erik M.; MacKenzie, Colin R.; and Smith, Norman, 4,268,948, Cl. 29-527.600.

Mackey, Joseph E.: *See*—
DellaVecchia, Michael P.; Mackey, Joseph E.; and Steinberg, Albert H., 4,269,884, Cl. 428-131.000.

MacLean, Barry L.; and Grube, William L., to MacLean-Fogg Company. Fastener with flexible flange. 4,269,248, Cl. 411-186.000.

MacLean-Fogg Company: *See*—
MacLean, Barry L.; and Grube, William L., 4,269,248, Cl. 411-186.000.

Maddox, Jim, Jr.: *See*—
Shupe, Russell D.; and Maddox, Jim, Jr., 4,269,271, Cl. 166-274.000.

Maeda, Haruo; and Kobayashi, Yuko, to Olympus Optical Co., Ltd. Constant-speed scanning lens system. 4,269,478, Cl. 350-465.000.

Maeda, Hidetoshi: *See*—
Sasaki, Takehiko; and Maeda, Hidetoshi, 4,270,199, Cl. 368-224.000.

Maeda, Miwako: *See*—
Yamashita, Nobuo; and Maeda, Miwako, 4,269,485, Cl. 350-469.000.

Maeda, Mizuo: *See*—
Ohzu, Hideshi; Ohmori, Hisashi; Maeda, Mizuo; and Ohtani, Hiromi, 4,269,257, Cl. 164-86.000.

Magill, D. Thomas: *See*—
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Mahieu, Jean-Rene: *See*—
Blondel, Jacques; and Mahieu, Jean-Rene, 4,270,224, Cl. 455-327.000.

Mahn, John E. Laminated material and method of forming. 4,269,885, Cl. 428-216.000.

Major, Jeffrey T., to Eltra Corporation. Four pole wave wound direct current machine with multi-turn armature coils. 4,270,065, Cl. 310-207.000.

Makimoto, Tsutomu: *See*—
Yano, Makoto; Shimada, Kiyoo; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,269,682, Cl. 204-195.00M.

Makino Milling Machine Co., Ltd.: *See*—
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Malhotra, Girish K.: *See*—
Carr, Richard P.; Nanda, Ashok K.; Schneider, Charles A.; and Malhotra, Girish K., 4,269,987, Cl. 548-257.000.

Manabe, Toshikatsu: *See*—
Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; and Manabe, Toshikatsu, 4,269,918, Cl. 430-28.000.

Manalastas, Pacifico V.: *See*—
Wagensommer, Joseph; and Manalastas, Pacifico V., 4,269,955, Cl. 526-185.000.

Mandelshtamm, Elena Y.: *See*—
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Mann, Joseph K., to Varian Associates, Inc. Apparatus and method for measuring pressures and indicating leaks with optical analysis. 4,270,091, Cl. 324-462.000.

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Maples, James A.; and Pepper, Robert B. Position sensing and indicating device. 4,270,171, Cl. 364-480.000.

Marantz, Daniel R.: *See*—
Altorfer, Kenneth J.; and Marantz, Daniel R., 4,269,867, Cl. 427-37.000.

Marckx, Michel L.: *See*—
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., 4,269,647, Cl. 156-157.000.

Marechal, Pierre-Georges: *See*—
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Marks, George R., to Sierra Designs, Inc. Arch supported tent. 4,269,210, Cl. 135-1.00R.

Marple, Elwood, to W. L. Burke, Inc. Sewage treatment system. 4,268,925, Cl. 4-449.000.

Marriott, Robert C.; Kristal, Frank W.; and Juñer, Robert M., to Dow Chemical Company, The. Method of imparting salt and/or mechanical stability to aqueous polymer microsuspensions. 4,269,749, Cl. 260-29.6MQ.

Marsh, Gunnar; and Olander, Christer B., to Landstingens Inkopscentral, Lic, ekonomisk forening. Prefabricatable, artificial lower leg. 4,268,922, Cl. 3-21.000.

Marshall Electronics, Inc.: *See*—
Richman, Stephan S., 4,269,058, Cl. 73-4.00R.

Marston, Robert K., to Rockwell International Corporation. Signal normalizer. 4,270,223, Cl. 455-305.000.

Martin, Henry: *See*—
Szczepanski, Henry; Martin, Henry; Fory, Werner; and Pissiotas, Georg, 4,269,775, Cl. 260-340.700.

Martin, James H. Tennis training device. 4,269,410, Cl. 273-29.00A.

Martin, Jerry R.: *See*—
Tadanier, John S.; and Martin, Jerry R., 4,269,970, Cl. 536-17.00R.

Martin, John K., III: *See*—
Whitney, Douglass G.; and Martin, John K., III, 4,269,185, Cl. 128-214.00F.

Martin, William B., to Garrett Corporation, The. Engine accessory disconnect. 4,269,293, Cl. 192-35.000.

Martincic, Paul W.; and Greene, Charles E., to Westinghouse Electric Corp. Bus bar adaptor for window type current transformers. 4,270,110, Cl. 336-174.000.

Martinez, Pasquale: *See—*
Cavallino, Francesco; Martinez, Pasquale; Allione, Michele; and Schiavuzzi, Roberto, 4,269,029, Cl. 60-293.000.
Martini, Norbert, to Jagenberg Werke Aktiengesellschaft. Stack changing apparatus. 4,269,556, Cl. 414-50.000.
Maruyama, Hiromi: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Maruyama, Hitoshi; Kajitani, Koichi; and Shiraishi, Makoto, to Kuraray Co., Ltd. Microencapsulation process and resulting microcapsules. 4,269,729, Cl. 252-316.000.
Maruyama, Tsuneo: *See—*
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, 4,269,753, Cl. 260-33.4SB.
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Masco Corporation: *See—*
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Mashiki, Nobuo; and Chigusa, Koichi, to Aisin Seiki Kabushiki Kaisha. Spacer. 4,269,533, Cl. 403-410.000.
Mason, Leslie F. A.; Kitzing, Rainer; Whitear, Brian R. D.; Long, William E.; Wood, Glenn P.; and Reeves, David L. R., to Ciba-Geigy Aktiengesellschaft. Process for the production of photographic images by dye diffusion transfer and photographic material suitable in this process. 4,269,928, Cl. 430-239.000.
Massabo, Vincenzo: *See—*
Moiso, Ugo; Massabo, Vincenzo; and Domenis, Danilo, 4,269,769, Cl. 260-176.000.
Massachusetts General Hospital, The: *See—*
Burton, James A.; and Haber, Edgar, 4,269,827, Cl. 424-177.000.
Massachusetts Institute of Technology: *See—*
Glicksman, Leon R.; and Rohsenow, Warren R., 4,269,796, Cl. 261-112.000.
Massey, Emmett B. Variably weighted vest. 4,268,917, Cl. 2-102.000.
Masters, Joseph I.; and Goldberg, Gershon M., to Ionomet Company, Inc. Process of doping silver image in chalcogenide layer. 4,269,935, Cl. 430-323.000.
Masukawa, Yukihisa: *See—*
Fukuoka, Masayuki; Arakawa, Tatsumi; Kimura, Muneaki; Masukawa, Yukihisa; and Kobayashi, Hidehiko, 4,269,911, Cl. 429-199.000.
Matibet, Annie B.: *See—*
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Matoba, Taketo: *See—*
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Matrix Unlimited, Inc.: *See—*
Kress, David R., 4,269,930, Cl. 430-270.000.
Matsuda, Yoshiji; Tamura, Keiji; Motoki, Hiroaki; Kitame, Fumio; and Ishida, Nakao, to Kabushiki Kaisha Saikin Kagaku Kenkyujo; and Kabushiki Kaisha Kayaku Kosei Bushitsu Kenkyujo. Immune serum for diagnosis of cancer and preparation thereof. 4,269,765, Cl. 260-112.00B.
Matsue, Tomokazu: *See—*
Osa, Tetsuo; Fujihira, Masamichi; Matsue, Tomokazu; and Yamauchi, Takashi, 4,269,674, Cl. 204-81.000.
Matsumoto, Hiroshi: *See—*
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,270,002, Cl. 564-221.000.
Matsumoto, Mitsuo: *See—*
Kuroda, Toshimasa; and Matsumoto, Mitsuo, 4,268,940, Cl. 28-255.000.
Matsumoto, Tadao: *See—*
Ejima, Shozo; Tomioka, Susumu; Matsumoto, Tadao; and Hane, Naruaki, 4,269,888, Cl. 428-296.000.
Matsumoto, Yoichi, to Metallgesellschaft Aktiengesellschaft. Electrostatic precipitator with supplemental means for catching dust released from the main collector plates. 4,269,610, Cl. 55-112.000.
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Tanaka, Haruo, to Nippon Shinyaku Co. Ltd. Carbamyl piperazine derivatives. 4,269,838, Cl. 424-250.000.
Matsuo, Kazumasa, to Olympus Optical Co., Ltd. Stabbing apparatus for diagnosis of living body. 4,269,192, Cl. 128-665.000.
Matsuo, Tadayuki: *See—*
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Matsushita Electric Industrial Co. Ltd.: *See—*
Terada, Jiro; Nitta, Tsuneharu; and Ise, Yukihiko, 4,270,085, Cl. 324-65.00R.
Matsuura, Shigeo: *See—*
Murata, Toshinori; and Matsuura, Shigeo, 4,270,215, Cl. 455-158.000.
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Matsuyama, Takashi: *See—*
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Matsuzawa, Hideo: *See—*
Yoshioka, Teruhiko; Matsuzawa, Hideo; Okada, Kazuya; and Ikeda, Minoru, 4,269,705, Cl. 562-600.000.
Matthews, Russell B., to Johnson Controls, Inc. Solid state ignition control. 4,269,589, Cl. 431-46.000.
Mattingly, John A.; and Mehta, Hasmukh S., to Binkley Company, The. Standing seam roof, panel therefor, and method of installation. 4,269,012, Cl. 52-394.000.
Mattson, George B.; and Woodhouse, Geoffrey D., to Garrett Corporation, The. Gas turbine engine idle control and method. 4,269,027, Cl. 60-39.040.
Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V.: *See—*
Johnson, Mark; and Ulrich, Reinhard, 4,269,506, Cl. 356-5.000.
Lubbers, Dietrich W.; and Optiz, Norbert, 4,269,516, Cl. 356-427.000.
Schneider-Muntau, Hans-Jorg; and Hackbarth, Klaus, 4,270,112, Cl. 336-197.000.
Maxcap, Inc.: *See—*
Virog, John J., Jr.; and Von Hagel, Leo, 4,269,320, Cl. 215-252.000.
May, Hans-Joachim; and Koenig, Horst, to BASF Aktiengesellschaft. 1-Acyl-2-imidazolines and their manufacture. 4,269,990, Cl. 548-315.000.
Mayer, Herbert E., to Censor Patent-und Versuchs-Anstalt. Device for the projection printing of the masks of a mask set onto a semiconductor substrate. 4,269,505, Cl. 355-62.000.
Mayer, Wolfgang: *See—*
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Mayse, Weldon D.: *See—*
Watson, Frederick D.; Mayse, Weldon D.; and Franse, Albert D., 4,269,681, Cl. 204-188.000.
Mazepov, Vitaly G.: *See—*
Zhestkov, Vladimir M.; Tsypin, Vladimir M.; Grzhebin, Mikhail Z.; Kaminsky, Vadim A.; and Mazepov, Vitaly G., 4,269,599, Cl. 440-88.000.
McArthur, William H. Building structure and integral solar energy collecting apparatus. 4,269,171, Cl. 126-429.000.
McAuliffe, Donald C.: *See—*
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McCardell, Peter D.: *See—*
Mackelburg, Gerald R.; McCracken, Howard B.; and McCardell, Peter D., 4,270,142, Cl. 358-99.000.
McCarthy, Michael D. Dog leash. 4,269,150, Cl. 119-109.000.
McCollough, John D. Pen with articulate handle. 4,269,529, Cl. 401-258.000.
McCormick, Mathew, to Bowthorpe-Hellermann Limited. Panel-fixing cable tie. 4,269,379, Cl. 248-73.000.
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Mackelburg, Gerald R.; McCracken, Howard B.; and McCardell, Peter D., 4,270,142, Cl. 358-99.000.
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., to Canadian Patents & Dev. Ltd. Bioadsorption alteration of iron sulfide surfaces. 4,269,699, Cl. 75-101.00R.
McDorman, Robert L. Door locking system. 4,269,048, Cl. 70-13.000.
McDowell, Charles J.: *See—*
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McEwen, Gerald K.: *See—*
Atchison, George J.; McEwen, Gerald K.; and Stevens, Violete L., 4,269,727, Cl. 252-188.30R.
McFadyen, Robert J.: *See—*
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McFee, Richard. Water distiller. 4,269,663, Cl. 202-185.00B.
McIntire, Floyd C.: *See—*
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McIntosh, James D.: *See—*
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McIntyre, Melville D., to Boeing Company, The. Gyroscope closed-loop speed controller. 4,269,073, Cl. 74-5.700.
McLean, William B. Tire chains and a tool for applying them to a tire. 4,269,249, Cl. 152-213.00A.
McMillen, David L.: *See—*
Gordon, Goss E.; and McMillen, David L., 4,269,116, Cl. 100-99.000.
McMullan, James P.; and Stevens, Albert. Heater with reinforcing strate. 4,270,040, Cl. 219-528.000.
McNeilabs, Inc.: *See—*
Parker, Dawood, 4,269,685, Cl. 204-195.00P.
Meacock, Leslie A., II; and Merkel, Edward C., to Mack Trucks, Inc. Gear shift control. 4,269,282, Cl. 180-328.000.
Mead Corporation, The: *See—*
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Meal, John R.; and Sandmore, Donald K., to Western Electric Company, Inc. Method and apparatus for manufacturing boxed encapsulated capacitors. 4,268,942, Cl. 29-25.420.
Medical Dynamics, Inc.: *See—*
Adair, Edwin L., 4,269,174, Cl. 128-1.00R.
Medney, Jonas. Pre-insulated pipe system. 4,269,436, Cl. 285-47.000.
Medtronic, Inc.: *See—*
Stokes, Kenneth B., 4,269,198, Cl. 128-785.000.
Meginnis, George B.; and Spees, John A., to General Motors Corporation. Waffle pattern porous material. 4,269,032, Cl. 60-754.000.
Mehta, Hasmukh S.: *See—*
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Meinan Machinery Works, Inc.: *See—*
Hasegawa, Katsuji, 4,269,243, Cl. 144-213.000.
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Melikian, Robert B. Writing instrument with retractable tip. 4,269,525, Cl. 401-108.000.
Melillo, David G.; and Ryan, Kenneth M., to Merck & Co., Inc. Synthesis of thienamycin via trans-3-carboxymethylene-4-carboxy-5-methyl-Δ^2-isoxazoline. 4,269,772, Cl. 260-245.20T.
Mella, Mario. Pasta-making machine. 4,269,582, Cl. 425-190.000.
Mellinger, Gerald A., to Combustion Engineering, Inc. Pulverizer rejects disposal. 4,269,125, Cl. 110-171.000.
Melvin, Lawrence S., Jr.: *See—*
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Menant, Christophe, to Thomson-CSF. Radio-frequency head having a self-adaptive dynamic range. 4,270,222, Cl. 455-236.000.
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., to RIS Irrigation Systems. Continuous drip irrigation tube. 4,269,357, Cl. 239-272.000.
Merck & Co., Inc.: *See—*
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Jennings, Francis W., 4,269,830, Cl. 424-226.000.
Kang, Kenneth S.; Veeder, George T.; and Mirrasoul, Peter J., 4,269,939, Cl. 435-104.000.
Melillo, David G.; and Ryan, Kenneth M., 4,269,772, Cl. 260-245.20T.
Wintersdorff, Peter, 4,269,974, Cl. 536-114.000.
Meredith, William N. E.: *See—*
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Mergl, Vernon F., to National Instrument Co. Tray indexing apparatus. 4,269,298, Cl. 198-341.000.
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Merten, Rudolf: *See—*
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Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: *See—*
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Metrailer, William J., to Exxon Research & Engineering Company. Fluid coking and gasification process with the addition of cracking catalysts. 4,269,696, Cl. 208-120.000.
Meyer, Lloyd E., to Westinghouse Electric Corp. Electrical inductive apparatus. 4,270,111, Cl. 336-70.000.
Meyer, Robert A.; and Bretl, Richard A., to Modine Manufacturing Company. Tubular heat exchanger with turbulator. 4,269,265, Cl. 165-109.00T.
Michaud, Honore. Tree-felling lever. 4,269,393, Cl. 254-104.000.
Michel, Walter H.: *See—*
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Michurov, Jury I.: *See—*
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Midling, Robert L.: *See—*
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Miille, Gerard J., to GTE Automatic Electric Laboratories Incorporated. Apparatus for forcing a phase-lock oscillator to a predetermined frequency when unlocked. 4,270,093, Cl. 331-17.000.
Mikiya, Toshio; Mogaki, Tadahisa; and Nozawa, Nobuyuki, to Nikki Co., Ltd. Bubble generator. 4,269,797, Cl. 261-122.000.
Miko, Richard J.; and Shapiro, Daniel H., to Edo Corporation. Reusable disc filter with foil spacers for high temperature gases. 4,269,613, Cl. 55-278.000.
Miles, Anthony W.: *See—*
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Miller, David: *See—*
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Miller, Donald E., to Goodyear Tire & Rubber Company, The. Method for the production of low melting ring alkylated diphenyl-paraphenylenediamines. 4,269,763, Cl. 260-45.9QB.
Miller, Harvey R. Combined road vehicle and aircraft. 4,269,374, Cl. 244-2.000.
Miller, James C.: *See—*
Bechtiger, Charles G.; and Miller, James C., 4,269,050, Cl. 70-272.000.
Miller, John E.: *See—*
Schall, Wayne E.; Miller, John E.; and Gabriel, John F., 4,268,975, Cl. 34-105.000.
Miller, Rickie L.; and Walters, Noel E., to Goodyear Tire & Rubber Company, The. Method of making a belted tire. 4,269,646, Cl. 156-128.00N.
Mills, Benjamin G.: *See—*
Thomas, Alvin W.; and Mills, Benjamin G., 4,270,067, Cl. 219-438.000.
Milner, John A.; and Turner, Roger M., to Imperial Chemical Industries Limited. Ore treatment process. 4,269,702, Cl. 209-166.000.
Milton Roy Company: *See—*
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Minagawa, Nobuhiko, to Fuji Photo Film Co., Ltd. Recording sheet for ink jet recording. 4,269,891, Cl. 428-335.000.
Minami, Takehiro; and Shigekusa, Hisashi, to Tokyo Shibaura Denki Kabushiki Kaisha. Coil winding machine. 4,269,367, Cl. 242-7.080.
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, to Toray Silicone Company, Ltd. Siloxane compositions which can be ceramified at high temperatures. 4,269,753, Cl. 260-33.4SB.
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, to Toray Silicone Company, Ltd. Siloxane compositions which form ceramics at high temperatures. 4,269,757, Cl. 260-37.0SB.
Mineral Industries Engineers, Inc.: *See—*
del Rio, Salvador M., 4,269,449, Cl. 299-2.000.
Mineral Process Licensing Corp. BV: *See—*
Shackleton, Charles E. E., deceased; Shackleton, Edward A. B., executor; Wickens, Anthony J.; and Turner, John H. W., 4,269,816, Cl. 423-498.000.
Ministry of International Trade and Industry: *See—*
Ebata, Yoshihiro; Toibana, Yasuo; Uetsuki, Tsuneo; Kose, Saburo; and Kinoshita, Makoto, 4,269,641, Cl. 156-89.000.
Ichimura, Kunihiro, 4,269,941, Cl. 435-182.000.
Minnesota Mining and Manufacturing Company: *See—*
Cook, Jack E., 4,268,983, Cl. 40-2.200.
Larson, Curtis L., 4,269,322, Cl. 220-94.00R.
Minnich, George E., to Singer Company, The. Method and apparatus to extend the bandwidth of buffeting in flight simulators. 4,268,979, Cl. 434-46.000.
Minolta Camera Kabushiki Kaisha: *See—*
Ito, Masazumi; Shibazaki, Kenji; and Kitagawa, Tsuneo, 4,269,500, Cl. 355-14.00C.
Wada, Kenichi; Oka, Tateki; Tanaka, Susumu; and Tabuchi, Kenji, 4,269,920, Cl. 430-107.000.
Minowa, Yoshiki, to Kubushiki Kaisha Suwa Seikosha. Analog display electronic stopwatch. 4,270,197, Cl. 368-102.000.
Mirrasoul, Peter J.: *See—*
Kang, Kenneth S.; Veeder, George T.; and Mirrasoul, Peter J., 4,269,939, Cl. 435-104.000.
Miskin, Leslie: *See—*
Flamm, Peter M.; and Miskin, Leslie, 4,270,139, Cl. 358-23.000.
Missel, Leo: *See—*
Duran, John; Missel, Leo; and Montelbano, Thomas O., 4,269,968, Cl. 528-351.000.
Mitamura, Masakazu, to Takeda Riken Kogyo Kabushikikaisha. Dual slope system A-D converter. 4,270,119, Cl. 340-347.0NT.
Mitchell Industries, Inc.: *See—*
Wrotny, Walter A.; and McIntosh, James D., 4,269,165, Cl. 126-191.000.
Mitoff, Stephan P.: *See—*
King, Randall N.; and Mitoff, Stephan P., 4,269,909, Cl. 429-104.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Ishii, Toshiaki; and Watanabe, Eiki, 4,269,286, Cl. 187-29.00R.
Kii, Masami, 4,270,034, Cl. 200-148.00R.
Nagai, Nobuo, 4,270,160, Cl. 361-132.000.
Mitsubishi Rayon Co., Ltd.: *See—*
Yoshioka, Teruhiko; Matsuzawa, Hideo; Okada, Kazuya; and Ikeda, Minoru, 4,269,705, Cl. 562-600.000.
Mitsui, Tsutomu: *See—*
Hida, Takashi; Mitsui, Tsutomu; Kuwana, Kazutaka; and Hashiride, Tadaaki, 4,269,045, Cl. 66-75.200.
Mitsuru, Yoshioka; Teruji, Tsuji; Yasuhiro, Nishitani; and Wataru, Nagata, to Shionogi & Co., Ltd. Fused oxazolidine compounds. 4,269,773, Cl. 260-245.400.
Mitzel, Wilhelm, to GAO Gesellschaft fur Automation und Organisation mbH. Separating unit for flat sheet material. 4,269,405, Cl. 271-94.000.
Miyahara, Sadayasu: *See—*
Wakimoto, Saburo; Miyahara, Sadayasu; and Hyosu, Yoshihiko, 4,269,760, Cl. 260-42.530.
Miyajima, Hidenobu: *See—*
Nakai, Kiyoshi; Miyajima, Hidenobu; and Harada, Syuji, 4,269,333, Cl. 222-484.000.
Miyashita, Kiyoshi: *See—*
Tsuda, Hiroshi; Miyashita, Kiyoshi; and Matsuyama, Takashi, 4,269,407, Cl. 271-127.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,269,502, Cl. 355-35.00H.
Miyazaki, Kensaku: *See—*
Sawamura, Ichiro; Miyazaki, Kensaku; and Yonekubo, Ken, 4,269,517, Cl. 356-432.000.
Mizoue, Kazutoshi: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Mizutani, Hiroshi: *See—*
Sakurai, Akira; Tsuchiya, Yoshimi; and Mizutani, Hiroshi, 4,269,187, Cl. 128-263.000.

Mizutani, Taku: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Mobil Oil Corporation: *See—*
Brennan, James A.; Caesar, Philip D.; Ciric, Julius; Garwood, William E.; and Holland, Robert E., 4,269,783, Cl. 518-718.000.
Chen, Nai Y.; and Shihabi, David S., 4,269,697, Cl. 208-120.000.
Silk, Murray R.; and Cleveland, Richard T., 4,269,695, Cl. 208-111.000.

Mochizuki, Noritaka; and Hajimoto, Yoshioki, to Canon Kabushiki Kaisha. Information detecting apparatus. 4,270,047. Cl. 250-216.000.

Mock, Donald E.: *See—*
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., 4,269,357, Cl. 239-272.000.

Modine Manufacturing Company: *See—*
Meyer, Robert A.; and Bretl, Richard A., 4,269,265, Cl. 165-109.00T.

Mogaki, Tadahisa: *See—*
Mikiya, Toshio; Mogaki, Tadahisa; and Nozawa, Nobuyuki, 4,269,797, Cl. 261-122.000.

Mohacsi, Ernest, to Hoffmann-La Roche Inc. Process for preparing 3-phenoxy morphinans. 4,270,000, Cl. 564-174.000.

Mohr, Reinhard: *See—*
Neeb, Rudolf; Hohmann, Kurt; and Mohr, Reinhard, 4,269,768, Cl. 260-146.00R.

Moiso, Ugo; Massabo, Vincenzo; and Domenis, Danilo, to Aziende Colori Nazionali Affini ACNA S.p.A. Diazo compounds obtained by coupling acetoacetanilides with tetrazotized diaminobenzanilides. 4,269,769, Cl. 260-176.000.

Molenaar, Arian, to U.S. Philips Corporation. Bath for electroless depositing tin on substrates. 4,269,625, Cl. 106-1.220.

Molina, Orlando G., to Rockwell International Corporation. Ultrasonic couplant compositions and method for employing same. 4,269,068. Cl. 73-644.000.

Molinier S.A.: *See—*
Delannoy, Robert, 4,269,181, Cl. 128-156.000.

Molins Limited: *See—*
Powell, Gordon F. W.; Bolt, Reginald C.; and Simmons, Albert, 4,269,201, Cl. 131-280.000.

Molins Machine Company, Inc.: *See—*
Linn, S. Stephen, 4,269,097, Cl. 83-482.000.

Molls, Hans-Heinz; Kaspar, Vaclav; and Moutsokapas, Asterios, to Bayer Aktiengesellschaft. Thin layer contact drier. 4,268,972, Cl. 34-60.000.

Molnar, Thomas R.: *See—*
Rutenberg, Morton W.; and Molnar, Thomas R., 4,269,975, Cl. 536-114.000.

Mominee, David E.: *See—*
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., 4,269,357, Cl. 239-272.000.

Momyer, William R.; and Littauer, Ernest L., to Lockheed Missiles & Space Company, Inc. Electrochemical cell. 4,269,907, Cl. 429-67.000.

Monarch Marking Systems, Inc.: *See—*
Strausburg, Larry D., 4,269,119, Cl. 101-111.000.

Moneib, Nayera A. M.: *See—*
McCready, Ronald G. L.; Coleman, Richard D.; Capes, Charles E.; Kempton, Alan G.; and Moneib, Nayera A. M., 4,269,699, Cl. 75-101.00R.

Monsanto Company: *See—*
Van Eenam, Donald N., 4,269,951, Cl. 525-359.000.

Montelbano, Thomas O.: *See—*
Duran, John; Missel, Leo; and Montelbano, Thomas O., 4,269,968, Cl. 528-351.000.

Montgomery, Robert E.: *See—*
Pellico, Michael A.; and Montgomery, Robert E., 4,269,822, Cl. 424-50.000.

Montgomery, William W. Silicone tracheal cannula. 4,269,184, Cl. 128-207.140.

Moore, James R., to AMBAC Industries, Incorporated. Apparatus for cutting, trimming and edging vegetation and the like. 4,268,964, Cl. 30-276.000.

Moraw, Roland, to Hoechst Aktiengesellschaft. Information carrier original for zero order diffraction projection. 4,269,915, Cl. 430-11.000.

Moraw, Roland; and Schadlich, Renate, to Hoechst Aktiengesellschaft. Process for preparing an original information carrier for zero-order diffraction. 4,269,932, Cl. 430-290.000.

Morcom, William R.: *See—*
Rivoli, Anthony L.; Morcom, William R.; Nicolay, Hugh C.; and Cox, Eugene R., 4,269,636, Cl. 148-175.000.

Morgan, David A.: *See—*
Smith, Eileen; and Morgan, David A., 4,269,725, Cl. 252-174.250.

Morgan Electronics: *See—*
Theis, Peter; Buchberger, Gregory D.; and Krueger, William J., 4,270,024, Cl. 179-8.00A.

Morgen, Dennis H.: *See—*
Brolin, Stephen J.; Gottesman, Jeffrey L.; Morgen, Dennis H.; and Swanson, Kenneth H., 4,270,030, Cl. 179-175.20D.

Mori, Fumio: *See—*
Ichinose, Isao; Mori, Fumio; and Suzuki, Noboru, 4,269,321, Cl. 215-343.000.

Mori, Masaaki, to Ricoh Company, Ltd. Simultaneous multi-beam optical modulation system. 4,269,482, Cl. 350-358.000.

Mori, Yoshikatsu: *See—*
Nakai, Mamoru; Harada, Katsumasa; and Mori, Yoshikatsu, 4,269,982, Cl. 548-127.000.

Moriconi, Dario J.; and Elder, John G. Needle chopper apparatus. 4,269,364, Cl. 241-36.000.

Morimoto, Syogo: *See—*
Nakazawa, Tetsuo; Sakai, Junji; and Morimoto, Syogo, 4,269,256, Cl. 164-16.000.

Morinaga, Tsuto: *See—*
Inata, Hiroo; Ogasawara, Makoto; Morinaga, Tsuto; and Norike, Akihiro, 4,269,947, Cl. 525-10.000.

Morishita, Hajime: *See—*
Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; and Manabe, Toshikatsu, 4,269,918, Cl. 430-28.000.

Morishita, Hiroshi: *See—*
Ito, Nobuyoshi; Morishita, Hiroshi; Morita, Minoru; and Fukano, Takashi, 4,269,323, Cl. 220-423.000.

Morita, Minoru: *See—*
Ito, Nobuyoshi; Morishita, Hiroshi; Morita, Minoru; and Fukano, Takashi, 4,269,323, Cl. 220-423.000.

Morningstar, Marion G.; and Postel, William D., Jr., to B. F. Goodrich Company, The. Process for producing homo- or copolymers of vinyl or vinylidene halides having reduced polymer buildup in the reactor. 4,269,954, Cl. 526-62.000.

Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, to Showa High-polymer Co., Ltd.; and Taisei Corporation. Method for improving surface properties of porous inorganic material by coating. 4,269,869, Cl. 427-54.100.

Morokawa, Shigeru; Sekiya, Fukuo; Hashimoto, Yukio; Nomura, Yasushi; and Koga, Keiichiro, to Citizen Watch Company Limited. Electronic alarm timepiece. 4,270,194, Cl. 368-73.000.

Morris, Edwin E., to General Electric Company. Cross-correlation video tracker and method. 4,270,143, Cl. 358-125.000.

Morse, Erwin E., to Brown Company. Cellulose floc granules and process. 4,269,859, Cl. 424-362.000.

Morton, Edward W., to Westinghouse Electric Corp. Composite base and ballast member for compact single-ended fluorescent lamp. 4,270,071, Cl. 315-62.000.

Motoki, Hiroaki: *See—*
Matsuda, Yoshiji; Tamura, Keiji; Motoki, Hiroaki; Kitame, Fumio; and Ishida, Nakao, 4,269,765, Cl. 260-112.00B.

Motoori, Ryuzo; Watanabe, Sakuji; and Ohtsubo, Yoshiaki, to Nippon Kogaku K.K. Power supply circuit for camera. 4,269,496, Cl. 354-267.000.

Motorola, Inc.: *See—*
Bafaro, Michael P., 4,270,126, Cl. 340-748.000.
Bowman, George A., 4,270,098, Cl. 331-96.000.
Falk, Terrence F.; Schultz, Terrence R.; and Hoffmann, James E., 4,270,213, Cl. 455-77.000.
Hanna, John E., 4,270,062, Cl. 307-272.00A.

Motorola Israel Limited: *See—*
Cohen, Yitzhak; Brandman, Yigal; and Eckstien, Zvi, 4,270,185, Cl. 364-900.000.

Moura, Joao B., to Duratex S.A. Process for engraving metal plates to be used as patterns for texturized products. 4,269,679, Cl. 204-129.650.

Moutsokapas, Asterios: *See—*
Molls, Hans-Heinz; Kaspar, Vaclav; and Moutsokapas, Asterios, 4,268,972, Cl. 34-60.000.

Mueller, Arthur L., to AMP Incorporated. Splice connector for aluminum wire. 4,269,465, Cl. 339-95.00R.

Mueller, Klaus W.; and Olsen, Norman R., to Stauffer Chemical Company. Dust abatement with calcium sulfate. 4,269,721, Cl. 252-88.000.

Mueller, Martin S.: *See—*
Carter, William D.; and Mueller, Martin S., 4,269,370, Cl. 242-56.00A.

Mueller, Sergio R. C., to Petroleo Brasileiro S.A. - Petrobras. Jack-up rig for marine drilling. 4,269,542, Cl. 405-196.000.

Muggli, Jurg: *See—*
Horvath, Zoltan; Muggli, Jurg; Ackermann, Hans; and Tresch, Erwin, 4,269,510, Cl. 356-338.000.

Mukainakano, Siniti: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,154, Cl. 123-425.000.
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,155, Cl. 123-425.000.

Muller, Alfred; and Muller, Jean-Paul, to J. Muller S.A. Cutting device in particular pin cutting. 4,268,961, Cl. 30-191.000.

Muller, Jean-Paul: *See—*
Muller, Alfred; and Muller, Jean-Paul, 4,268,961, Cl. 30-191.000.

Muller, Peter M.; Pfister, Rudolf; and Urban, Rene, to Hoffmann-La Roche Inc. Phenyl-cyclohexadiene-alkylamine derivatives. 4,269,788, Cl. 260-501.100.

Mullins, David L.: *See—*
Litteral, Carl J.; and Mullins, David L., 4,269,992, Cl. 556-446.000.

Murase, Hidetoshi: *See—*
Watanabe, Tsuyoshi; Murase, Hidetoshi; Murayama, Akira; and Nakasugi, Mikio, 4,268,943, Cl. 29-131.000.

Murata, Toshinori; and Matsuura, Shigeo, to Hitachi, Ltd. Channel indicator. 4,270,215, Cl. 455-158.000.

Murata, Toshinori; and Matsuura, Shigeo, to Hitachi, Ltd. Channel selection apparatus tunable to destined frequency in short time. 4,270,219, Cl. 455-179.000.

Murayama, Akira: *See—*
Watanabe, Tsuyoshi; Murase, Hidetoshi; Murayama, Akira; and Nakasugi, Mikio, 4,268,943, Cl. 29-131.000.

Murphy, Richard D.; and Clelford, Douglas H., to United Technologies Corporation. Selective disablement in fail-operational, fail-safe multi-computer control system. 4,270,168, Cl. 364-200.000.

Murray Corporation: *See—*
Kish, Arthur S., 4,269,295, Cl. 192-58.00B.

Murray Ohio Manufacturing Co., The: *See—*
Peterson, James F.; Crabtree, Joe; and Coleman, Donald C., 4,269,081, Cl. 74-473.00R.

Murrell, Lawrence L.: *See—*
Grenoble, Dane C.; Kim, Chang J.; and Murrell, Lawrence L., 4,269,737, Cl. 252-464.000.

Muryoi, Takeshi: *See—*
Ishizaka, Sunao; Araki, Yoshitaka; and Muryoi, Takeshi, 4,269,497, Cl. 354-286.000.

Muskulus, Willi, to Balzer & Droll. Method and apparatus for winding a plurality of windings that are to be collected in a stator sheet packet. 4,269,235, Cl. 140-92.100.

Musser, John H.: *See—*
Huang, Fu C.; and Musser, John H., 4,269,846, Cl. 424-269.000.

Mutsaers, Cornelis A. H. A.: *See—*
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and Van der Kruijs, Franciscus N. G. R., 4,269,898, Cl. 428-426.000.

N-S-W Corporation: *See—*
Dukes, Bobby W., 4,269,088, Cl. 81-57.390.

Nachtkamp, Klaus; Pedain, Josef; and Grammel, Jurgen, to Bayer Aktiengesellschaft. Process for the preparation of aqueous polyurethane dispersions and solutions. 4,269,748, Cl. 260-29.2TN.

Naffziger, Larry C., to Bank of America N.T. & S.A. Flow control device. 4,269,564, Cl. 415-53.00R.

Nagai, Nobuo, to Mitsubishi Denki Kabushiki Kaisha. Lightning resistive device in aerial power transmission system. 4,270,160, Cl. 361-132.000.

Nagano, Masashi, to Shimano Industrial Company, Limited. Rear derailleur for a bicycle. 4,269,601, Cl. 474-82.000.

Nagler, Meshulam: *See—*
Gaylord, Norman G.; and Nagler, Meshulam, 4,269,956, Cl. 526-192.000.
Gaylord, Norman G.; Nagler, Meshulam; and Fein, Marvin M., 4,269,957, Cl. 526-192.000.

Nailor, Michael T.; and Hart, Andrew J. Fire damper frames. 4,269,255, Cl. 160-381.000.

Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Takaaki; and Yamashita, Haruhiro, to Bristol-Myers Company. Alkylthioadenines used as bronchodilators. 4,269,839, Cl. 424-253.000.

Naka, Kiyomi: *See—*
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, 4,269,931, Cl. 430-271.000.

Nakagawa, Shinsuke: *See—*
Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, 4,269,814, Cl. 423-308.000.

Nakagawa, Susumu: *See—*
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,269,839, Cl. 424-253.000.

Nakai, Kiyoshi; Miyajima, Hidenobu; and Harada, Syuji, to Asahi Malleablt Iron, Co., Ltd.; and Nippon Light Metal Co., Ltd. Pinch valve for a closed container. 4,269,333, Cl. 222-484.000.

Nakai, Mamoru; Harada, Katsumasa; and Mori, Yoshikatsu, to Ube Industries, Ltd. Process for preparing 5-amino-1,2,3-thiadiazoles. 4,269,982, Cl. 548-127.000.

Nakamura, Kotaro: *See—*
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,269,926, Cl. 430-216.000.

Nakasugi, Mikio: *See—*
Watanabe, Tsuyoshi; Murase, Hidetoshi; Murayama, Akira; and Nakasugi, Mikio, 4,268,943, Cl. 29-131.000.

Nakatani, Masaru: *See—*
Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, 4,269,814, Cl. 423-308.000.

Nakazawa, Tetsuo; Sakai, Junji; and Morimoto, Syogo, to Hitachi, Ltd. Process for preparing mold. 4,269,256, Cl. 164-16.000.

Nakazyo, Kiyoshi: *See—*
Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, 4,269,936, Cl. 430-389.000.

Nalco Chemical Company: *See—*
Slovinsky, Manuel, 4,269,717, Cl. 210-750.000.

Nalepka, Debra A. Disposable self-pleating drapes and method for making same. 4,269,880, Cl. 428-43.000.

Nanda, Ashok K.: *See—*
Carr, Richard P.; Nanda, Ashok K.; Schneider, Charles A.; and Malhotra, Girish K., 4,269,987, Cl. 548-257.000.

Napoli, Joseph L.: *See—*
De Luca, Hector F.; Schnoes, Heinrich K.; Napoli, Joseph L.; and Fivizzani, Mary A., 4,269,777, Cl. 260-397.100.

Narahara, Toshikazu: *See—*
Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, 4,269,894, Cl. 428-377.000.

Narang, Rajendra K. Wheel and tire balancing system. 4,269,451, Cl. 301-5.00B.

Nash, Lawrence H. Trialkyldithiocarbamates and method of making same. 4,269,785, Cl. 260-455.00A.

National Instrument Co.: *See—*
Mergl, Vernon F., 4,269,298, Cl. 198-341.000.

National Research Development Corporation: *See—*
Dobson, John V., 4,269,683, Cl. 204-195.00W.
Drewett, Robert J., 4,270,128, Cl. 343-702.000.
Rogers, Henry J., 4,269,850, Cl. 424-279.000.

National Starch and Chemical Corporation: *See—*
Rutenberg, Morton W.; and Molnar, Thomas R., 4,269,975, Cl. 536-114.000.

Naucler, Bengt O.: *See—*
Jansson, Erik O.; Naucler, Bengt O.; and Asberg, Thomas, 4,269,568, Cl. 415-204.000.

Nauta, Wijbe T. Copper complexes of isoquinazolines. 4,269,834, Cl. 424-245.000.

Neeb, Rudolf; Hohmann, Kurt; and Mohr, Reinhard, to Hoechst Aktiengesellschaft. Process for the preparation of chlorozincate salts of thiazolium azo dyestuffs. 4,269,768, Cl. 260-146.00R.

Neiss, Lynn R. Valve construction for pressurized flow of abrasive granular material. 4,269,359, Cl. 239-530.000.

Nelson, Harold K.; Kleingartner, Charles A.; and Vetsch, LeRoy E., to Weico Corporation. Strain/deflection sensitive variable reluctance transducer assembly. 4,269,070, Cl. 73-779.000.

Nemethy, Mike Z., to Ware, Ormond H., a part interest. Prefabricated non-precious pontic. 4,269,595, Cl. 433-191.000.

Nemirovsky, Isaak Y.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.

Neubert, Robert: *See—*
Sorensen, Finn L.; and Neubert, Robert, 4,268,929, Cl. 8-151.000.

Neuenfeldt, Walter; Siegert, Heiner; and Zeitzschel, Gunter, to Kraftwerk Union Aktiengesellschaft. Device for transporting radioactive material. 4,269,660, Cl. 176-30.000.

Neumann, Dennis J., to Freeman Chemical Corporation. Styrene suppressed unsaturated polyester resin compositions. 4,269,745, Cl. 260-23.00P.

Newman, Aubrey W.; Coffey, J. E.; and Whitney, Arthur D. Apparatus for plating journals of crankshafts. 4,269,686, Cl. 204-212.000.

Newman, James L.; and Lee, Harold D. Portable hydraulic rig for performing workover, drilling and other operations on a well. 4,269,395, Cl. 254-386.000.

Nicco, Adrien, to Societe Chimique des Charbonnages - CdF CHIMIE. Process and apparatus for widening the polyethylene molecular weight distribution by using two reactors and two separators. 4,269,948, Cl. 525-53.000.

Nickum, Robert H., to Cincinnnati Rotary Press Company. Rotary die cutting machine. 4,269,093, Cl. 83-174.000.

Nicolay, Hugh C.: *See—*
Rivoli, Anthony L.; Morcom, William R.; Nicolay, Hugh C.; and Cox, Eugene R., 4,269,636, Cl. 148-175.000.

Niedballa, Ulrich; and Bottcher, Irmgard, to Schering Aktiengesellschaft. Antiinflammatory-4,5-diphenyl-2-substituted-thio-imidazoles and their corresponding sulfoxides and sulfones. 4,269,847, Cl. 424-273.00R.

Nieder, Elmar: *See—*
Engelbrecht, Eckart; and Nieder, Elmar, 4,268,920, Cl. 3-1.911.

Nikki Co., Ltd.: *See—*
Mikiya, Toshio; Mogaki, Tadahisa; and Nozawa, Nobuyuki, 4,269,797, Cl. 261-122.000.

Nilsen, Arthur A.: *See—*
Caridis, Andrew A.; Benson, Clark K.; Leary, Steven G.; and Nilsen, Arthur A., 4,269,861, Cl. 426-438.000.

Nippon Carbon Co., Ltd.: *See—*
Saito, Tutomu; Yamazoe, Hiroshi; and Yamaoka, Hidenori, 4,269,391, Cl. 251-315.000.

Nippon Electric Co., Ltd.: *See—*
Hareyama, Kyuichi, 4,270,081, Cl. 323-316.000.
Hayashi, Izuo; and Furuse, Takao, 4,270,096, Cl. 331-94.50H.
Ohta, Yoshinori; Kubota, Keiichi; and Sakaguchi, Mitsuhito, 4,270,149, Cl. 358-293.000.
Tan, Yoichi; and Noda, Seiichi, 4,270,210, Cl. 375-100.000.

Nippon Kogaku K.K.: *See—*
Hagyuda, Nobuyoshi; and Tanaka, Hiroaki, 4,269,491, Cl. 354-25.000.
Ishizaka, Sunao; Araki, Yoshitaka; and Muryoi, Takeshi, 4,269,497, Cl. 354-286.000.
Motoori, Ryuzo; Watanabe, Sakuji; and Ohtsubo, Yoshiaki, 4,269,496, Cl. 354-267.000.
Suzuki, Yoshiki; and Noda, Seijiro, 4,269,498, Cl. 354-288.000.

Nippon Light Metal Co., Ltd.: *See—*
Nakai, Kiyoshi; Miyajima, Hidenobu; and Harada, Syuji, 4,269,333, Cl. 222-484.000.

Nippon Petrochemicals Co., Ltd.: *See—*
Saito, Tutomu; Yamazoe, Hiroshi; and Yamaoka, Hidenori, 4,269,391, Cl. 251-315.000.

Nippon Sanso Kabushiki Kaisha: *See—*
Ito, Nobuyoshi; Morishita, Hiroshi; Morita, Minoru; and Fukano, Takashi, 4,269,323, Cl. 220-423.000.

Nippon Shinyaku Co. Ltd.: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Tanaka, Haruo, 4,269,838, Cl. 424-250.000.

Nippon Soken, Inc.: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,154, Cl. 123-425.000.

Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Sinti; Goto, Kenji; and Sawada, Daisaku. 4,269,155, Cl. 123-425.000.

Nippon Steel Corporation: *See—*
Ikeno, Teruo; Kado, Satoshi; Ayusawa, Saburo; Kawasaki, Hironobu; and Watanabe, Takashi, 4,269,904, Cl. 428-623.000.
Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, 4,269,052, Cl. 72-39.000.

Nippon Telegraph and Telephone Public Corporation: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.

Nippon Zeon Co., Ltd.: *See—*
Wada, Akira; and Davis, Bernard J., 4,269,747, Cl. 260-27.0BB.

Nira Nucleare Italiana Reattori Avanzati: *See—*
Valentini, Silvio; and Serafica, Mario, 4,269,418, Cl. 277-14.00V.

Nishida, Takashi: *See—*
Fujita, Yoshiji; Ohnishi, Takashi; and Nishida, Takashi, 4,270,003, Cl. 568-33.000.

Nishikawa, Masaji, to Olympus Optical Co., Ltd. Toner cleaning apparatus. 4,269,503, Cl. 355-15.000.

Nishikawa, Masaji: *See—*
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,269,502, Cl. 355-35.00H.

Nishimura, Taiichi: *See—*
Asanuma, Yoshimasa; and Nishimura, Taiichi, 4,269,937, Cl. 430-538.000.

Nishizawa, Jun-ichi; and Ohmi, Tadahiro, to Zaidan Hojin Handotai Kenkyu Shinkokai. Static induction transistor logic circuit. 4,270,059, Cl. 307-446.000.

Nishizawa, Kazunori; Shirose, Toshihiro; and Itoh, Osamu, to Kao Soap Co., Ltd. Disposable diaper. 4,269,188, Cl. 128-287.000.

Nissan Motor Company, Limited: *See—*
Fujishiro, Takeshi, 4,269,157, Cl. 123-478.000.
Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, 4,269,153, Cl. 123-308.000.
Sasaki, Michiaki, 4,269,213, Cl. 137-38.000.

Nissen, Axel: *See—*
Heilen, Gerd; Nissen, Axel; and Woerz, Otto, 4,270,006, Cl. 568-396.000.

Nisshin Steel Co., Ltd.: *See—*
Takeuchi, Takeshi; Takamura, Hisao; Takatsu, Kiyoshi; and Shibata, Hidehiro, 4,269,633, Cl. 148-6.210.

Nitta, Tsuneharu: *See—*
Terada, Jiro; Nitta, Tsuneharu; and Ise, Yukihiko, 4,270,085, Cl. 324-65.00R.

NL Industries, Inc.: *See—*
House, Roy F., 4,269,279, Cl. 175-66.000.
Kolakowski, Michael A., 4,269,810, Cl. 423-92.000.
Striffler, Eugene, Jr.; and Kolakowski, Michael A., 4,269,811, Cl. 423-92.000.

Noda, Seiichi: *See—*
Tan, Yoichi; and Noda, Seiichi, 4,270,210, Cl. 375-100.000.

Noda, Seijiro: *See—*
Suzuki, Yoshiki; and Noda, Seijiro, 4,269,498, Cl. 354-288.000.

Nogai, Akira, to Yoshida Kogyo K.K. Injection molding machine. 4,269,588, Cl. 425-545.000.

Nomura, Hideo: *See—*
Nozawa, Katsumi; and Nomura, Hideo, 4,269,572, Cl. 417-299.000.

Nomura, Yasushi: *See—*
Morokawa, Shigeru; Sekiya, Fukuo; Hashimoto, Yukio; Nomura, Yasushi; and Koga, Keiichiro, 4,270,194, Cl. 368-73.000.

Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; and Manabe, Toshikatsu, to Hitachi, Ltd. Process for forming patternwise coated powder layer. 4,269,918, Cl. 430-28.000.

Norfield Corporation: *See—*
Ronayne, James F., 4,269,586, Cl. 425-407.000.

Norike, Akihiro: *See—*
Inata, Hiroo; Ogasawara, Makoto; Morinaga, Tsuto; and Norike, Akihiro, 4,269,947, Cl. 525-10.000.

Norsk Hydro a.s.: *See—*
Omdal, Bjarne, 4,269,247, Cl. 150-12.000.

Northern Telecom Limited: *See—*
Garner, John N., 4,269,023, Cl. 57-1.0UN.

Norton Company: *See—*
Notermann, Thomas M., 4,269,736, Cl. 252-455.00Z.

Norton, Richard V.; and Howe, Steven C., to Ashland Oil, Inc. Production of high energy fuel. 4,270,014, Cl. 585-22.000.

Nosler, John C. Electro-optical position-monitoring apparatus with tracking detector. 4,269,512, Cl. 356-375.000.

Notermann, Thomas M., to Norton Company. Parafin conversion catalyst. 4,269,736, Cl. 252-455.00Z.

Nothnagle, Ronald J., to Eastman Kodak Company. High contrast development of photographic elements. 4,269,929, Cl. 430-264.000.

Noto, Koichi; and Kawai, Tsuneo, to Hitachi, Ltd. Automatic polishing apparatus. 4,268,999, Cl. 51-165.720.

Nouvertne, Werner: *See—*
Freitag, Dieter; Nouvertne, Werner; Burkhardt, Claus; and Kleiner, Frank, 4,269,964, Cl. 528-126.000.

Noyes, Ronald T.; Lynch, Gregory A.; and Williams, Eugene E. Optimum low profile continuous crossflow grain drying and conditioning method and apparatus. 4,268,971, Cl. 34-34.000.

Nozawa, Katsumi; and Nomura, Hideo, to Taisan Industrial Co., Ltd. Electromagnetic plunger pump. 4,269,572, Cl. 417-299.000.

Nozawa, Nobuyuki: *See—*
Mikiya, Toshio; Mogaki, Tadahisa; and Nozawa, Nobuyuki, 4,269,797, Cl. 261-122.000.

Nygaard, Nils H., to Danfoss A/S. Motor energized by a DC voltage. 4,270,075, Cl. 318-254.000.

Nygaard, Nils H., to Danfoss A/S. Circuit for a brushless D.C. motor. 4,270,076, Cl. 318-254.000.

Obra, Bart, to Easom Engineering & Manufacturing, Corp. Motion generating mechanism. 4,269,076, Cl. 74-52.000.

Obregon, Juan: *See—*
Le Tron, Yves; Obregon, Juan; Marechal, Pierre-Georges; and Barvet, Serge, 4,270,097, Cl. 331-96.000.

Occidental Research Corporation: *See—*
White, William R., 4,269,700, Cl. 209-12.000.

Odar, Larry F., to Rego Company. Vapor flow control valve. 4,269,215, Cl. 137-75.000.

Ogasawara, Makoto: *See—*
Inata, Hiroo; Ogasawara, Makoto; Morinaga, Tsuto; and Norike, Akihiro, 4,269,947, Cl. 525-10.000.

Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, to Lotte Co. Ltd. Process for preparing a gas-developing chewing gum. 4,269,860, Cl. 426-5.000.

Ogawa, Shinji: *See—*
Hatsuno, Hiroshi; Machida, Toshio; Fukushima, Mitsuo; and Ogawa, Shinji, 4,269,061, Cl. 73-40.000.

Ogawa, Yukio: *See—*
Suzuki, Ryoichi; Kinoshita, Takao; Ogawa, Yukio; and Uchiyama, Takashi, 4,269,493, Cl. 354-51.000.

Ogihara, Masuo; Chimura, Kozo; Shinozaki, Nobuo; and Seki, Yoichi, to Seiko Koki Kabushiki Kasiha. Alarm setting indication device for digital clock. 4,270,195, Cl. 368-74.000.

Oguni, Yasuo: *See—*
Kizu, Ryohei; Matoba, Taketo; Oguni, Yasuo; and Sakurai, Hideaki, 4,269,043, Cl. 64-11.00R.

Ohishi, Michiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Optical system for imprinting information. 4,270,140, Cl. 358-55.000.

Ohkawa, Tihiro, to General Atomic Company. Mechanical compression plasma device. 4,269,658, Cl. 176-3.000.

Ohkoshi, Isao; and Ikeuchi, Hideki, to Tokyo Shibaura Denki Kabushiki Kaisha. Lifting apparatus for electrical switchboards. 4,269,285, Cl. 187-9.00R.

Ohmi, Tadahiro: *See—*
Nishizawa, Jun-ichi; and Ohmi, Tadahiro, 4,270,059, Cl. 307-446.000.

Ohmori, Hisashi: *See—*
Ohzu, Hideshi; Ohmori, Hisashi; Maeda, Mizuo; and Ohtani, Hiromi, 4,269,257, Cl. 164-86.000.

Ohmura, Kazutaka: *See—*
Inagami, Kaoru; Ohmura, Kazutaka; Haruna, Masao; and Terabayashi, Takeshi, 4,269,863, Cl. 426-550.000.

Ohnishi, Takashi: *See—*
Fujita, Yoshiji; Ohnishi, Takashi; and Nishida, Takashi, 4,270,003, Cl. 568-33.000.

Ohshima, Masami: *See—*
Koide, Fumiharu; and Ohshima, Masami, 4,269,036, Cl. 62-159.000.

Ohta, Yoshinori; Kubota, Keiichi; and Sakaguchi, Mitsuhito, to Nippon Electric Co., Ltd. Laser beam facsimile apparatus. 4,270,149, Cl. 358-293.000.

Ohtake, Nobumasa; Koga, Isao; and Terui, Yohji, to Chisso Corporation. Diaralkyldichlorosilanes. 4,269,993, Cl. 556-450.000.

Ohtani, Hiromi: *See—*
Ohzu, Hideshi; Ohmori, Hisashi; Maeda, Mizuo; and Ohtani, Hiromi, 4,269,257, Cl. 164-86.000.

Ohtani, Shigemori; and Tanno, Shoji, to Kabushikikaisha Ohkawara Seisakusho. Binary fluid burner device with burner units combined which functions as if it were a single large-capacity burner. 4,269,358, Cl. 239-425.000.

Ohtomo, Fumio: *See—*
Araki, Tatsuo; Okamoto, Yasuo; Ohtomo, Fumio; and Atsumi, Hiroto, 4,269,227, Cl. 137-630.140.

Ohtsubo, Yoshiaki: *See—*
Motoori, Ryuzo; Watanabe, Sakuji; and Ohtsubo, Yoshiaki, 4,269,496, Cl. 354-267.000.

Ohzu, Hideshi; Ohmori, Hisashi; Maeda, Mizuo; and Ohtani, Hiromi, to Kawasaki Steel Corporation. Method of sequential continuous-casting of different grades of steel. 4,269,257, Cl. 164-86.000.

Oishi, Yasushi: *See—*
Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, 4,269,936, Cl. 430-389.000.

Oka, Mikiwo: *See—*
Tsuchiya, Tatsuhiko; and Oka, Mikiwo, 4,269,373, Cl. 242-191.000.

Oka, Tateki: *See—*
Wada, Kenichi; Oka, Tateki; Tanaka, Susumu; and Tabuchi, Keiji, 4,269,920, Cl. 430-107.000.

Okada, Kazuya: *See—*
Yoshioka, Teruhiko; Matsuzawa, Hideo; Okada, Kazuya; and Ikeda, Minoru, 4,269,705, Cl. 562-600.000.

Okada, Naoki: *See—*
Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, 4,269,814, Cl. 423-308.000.

Okajima, Shinpei, to Shimano Industrial Company, Limited. Toe clip for a bicycle pedal. 4,269,084, Cl. 74-594.600.

Okamoto, Yasuo: *See—*
Araki, Tatsuo; Okamoto, Yasuo; Ohtomo, Fumio; and Atsumi, Hiroto, 4,269,227, Cl. 137-630.140.

Oki, Takeo; and Hirosawa, Shunichi, to Pilot Man-Nen Hitsu Kabushiki Kaisha. Fountain pen with specific tubular nib. 4,269,528, Cl. 401-231.000.

Okita, Taka-aki: *See—*
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,269,839, Cl. 424-253.000.

Okonite Company, The: *See—*
Faranetta, John G.; and Feller, Robert G., 4,269,638, Cl. 156-53.000.

Okumura, Akio: *See—*
Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, 4,269,936, Cl. 430-389.000.

Okumura, Yoshiharu; and Kaneko, Katsumi, to Toa Nenryo Kogyo Kabushiki Kaisha. Process for the production of tertiary butyl alcohol. 4,270,011, Cl. 568-899.000.

Olander, Christer B.: *See—*
Marsh, Gunnar; and Olander, Christer B., 4,268,922, Cl. 3-21.000.

Olin Corporation: *See—*
Reiner, Joseph R.; and Breister, Sigmund, 4,269,621, Cl. 75-101.0BE.

Olivieri, Icaro, to Icesij A.G. Ice skating footwear. 4,268,981, Cl. 36-115.000.

Olsen, Norman R.: *See—*
Mueller, Klaus W.; and Olsen, Norman R., 4,269,721, Cl. 252-88.000.

Olshvang, Jury N.: *See—*
Galkin, Jury M.; Saulin, Albert B.; and Olshvang, Jury N., 4,270,051, Cl. 250-358.00R.

Olsson, Curt S.; Widerstrom, Olle; and Kilian, Lars E., to Waplans Mekaniska Verkstads AB. Hydrostatic bearing, especially for a rotating drum. 4,269,458, Cl. 308-9.000.

Olympus Optical Co., Ltd.: *See—*
Ida, Masatoshi, 4,270,152, Cl. 360-74.400.
Maeda, Haruo; and Kobayashi, Yuko, 4,269,478, Cl. 350-465.000.
Matsuo, Kazumasa, 4,269,192, Cl. 128-665.000.
Nishikawa, Masaji, 4,269,503, Cl. 355-15.000.
Sawamura, Ichiro; Miyazaki, Kensaku; and Yonekubo, Ken, 4,269,517, Cl. 356-432.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; and Matsuyama, Takashi, 4,269,407, Cl. 271-127.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,269,502, Cl. 355-35.00H.
Yamashita, Nobuo; and Maeda, Miwako, 4,269,485, Cl. 350-469.000.

Omdal, Bjarne, to Norsk Hydro a.s. Large size sack and methods for the formation thereof. 4,269,247, Cl. 150-12.000.

Omura, Sadafumi: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Omura, Yasuhiro: *See—*
Imai, Isao; Hirata, Hiromasa; Kawanami, Takao; and Omura, Yasuhiro, 4,269,052, Cl. 72-39.000.

O'Neill, Raymond J. Revetment unit. 4,269,537, Cl. 405-29.000.

Ong, Kwok Y.; Packard, Michael T.; and McDowell, Charles J., to United States of America, Army. Multipurpose humidity controlled agent generator. 4,269,057, Cl. 73-1.00G.

Ono, Mitsuo: *See—*
Tanaka, Masaya; Ono, Mitsuo; and Degawa, Sadao, 4,270,049, Cl. 250-227.000.

Opelika Manufacturing Corporation: *See—*
Burton, Perry E.; and Brocklehurst, Charles E., 4,269,130, Cl. 112-262.300.

Opheij, Willem G.; and Greve, Peter F., to U.S. Philips Corporation. Apparatus for reading an optical radiation-reflecting information carrier for controlling focus. 4,270,045, Cl. 250-204.000.

Optiz, Norbert: *See—*
Lubbers, Dietrich W.; and Optiz, Norbert, 4,269,516, Cl. 356-427.000.

Orain, Michel A., to Glaenzer Spicer. Ball bearing and applications thereof. 4,269,460, Cl. 308-233.000.

Orcutt, John W., to Texas Instruments Incorporated. Proportional stroke automatic temperature control system. 4,269,351, Cl. 236-87.000.

Orihara, Yasuharu: *See—*
Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.

Orr, Thomas S. C.; and Keogh, Raymond W., to Fisons Limited. Composition and method for treating skin mast cells and/or delayed cellular hypersensitivity reactions. 4,269,853, Cl. 424-283.000.

Osa, Tetsuo; Fujihira, Masamichi; Matsue, Tomokazu; and Yamauchi, Takashi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Method of preparing para-chlorotoluene. 4,269,674, Cl. 204-81.000.

Osaka Gas Company, Limited: *See—*
Ishikawa, Muneharu; and Kimoto, Kazuo, 4,269,714, Cl. 210-627.000.

Osaka Gas Kabushiki Kaisha: *See—*
Yukimachi, Katsurou; and Katayama, Kouichi, 4,269,263, Cl. 165-29.000.

Osborne, Robert L., to Westinghouse Electric Corp. Power plant optimization control. 4,269,030, Cl. 60-641.00R.

Oshio, Hiromichi: *See—*
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,270,002, Cl. 564-221.000.

Otake, Noboru: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Otis Elevator Company: *See—*
Weischedel, Herbert R., 4,270,088, Cl. 324-241.000.

O'Toole, James T., to Atlantic Richfield Company. Polybutadienediol purification. 4,269,969, Cl. 528-498.000.

Ott, Helmut: *See—*
Ruchser, Erich; and Ott, Helmut, 4,269,225, Cl. 137-596.160.

Outlaw, Benjamin T.: *See—*
Redmore, Derek; and Outlaw, Benjamin T., 4,270,001, Cl. 564-186.000.

Overmeer, Robert T.: *See—*
Umans, Frans M.; Ceuppens, Willy G.; Palmans, Willy J.; and Overmeer, Robert T., 4,269,594, Cl. 432-59.000.

Owens-Corning Fiberglas Corporation: *See—*
Coffey, Fred S., 4,268,936, Cl. 19-0.560.
Eisenberg, Arnold J., 4,268,946, Cl. 29-424.000.
Rapp, Kenneth L.; and Zolnerovich, Walter, Jr., 4,269,368, Cl. 242-42.000.

Owens-Illinois, Inc.: *See—*
Schall, Wayne E.; Miller, John E.; and Gabriel, John F., 4,268,975, Cl. 34-105.000.

Ozawa, Minoru, to Adamant Kogyo Co., Ltd. Solderless capillary chips. 4,269,900, Cl. 428-542.000.

Pace Incorporated: *See—*
Siegel, William J.; Lee, Walter; and Vella, Alexander J., 4,269,343, Cl. 228-20.000.

Packard, Michael T.: *See—*
Ong, Kwok Y.; Packard, Michael T.; and McDowell, Charles J., 4,269,057, Cl. 73-1.00G.

Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., to Stauffer Chemical Company. Herbicide compositions. 4,269,618, Cl. 71-88.000.

Palmans, Willy J.: *See—*
Umans, Frans M.; Ceuppens, Willy G.; Palmans, Willy J.; and Overmeer, Robert T., 4,269,594, Cl. 432-59.000.

Palmer, Darrel R.: *See—*
Loveless, James C.; and Palmer, Darrel R., 4,269,186, Cl. 128-214.400.

Palti, Yoram. Constant flow device. 4,269,222, Cl. 137-391.000.

Pantukh, Boris I.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Papas, Sophia. Bristles for an interproximal and periodontal toothbrush. 4,268,933, Cl. 15-167.00R.

Paratech Incorporated: *See—*
Roxton, George F., 4,268,926, Cl. 7-143.000.

Parker, Dawood, to McNeilabs, Inc. Disposable polarographic gas sensor system. 4,269,685, Cl. 204-195.00P.

Parker, Peter D.; Walton, Robert N.; and Walton, Lawrence J. Solar water-heating apparatus. 4,269,172, Cl. 126-450.000.

Parker, Thomas E.; and Dunnrowicz, Clarence J., to Raytheon Company. Stabilized surface wave device. 4,270,105, Cl. 333-155.000.

Parks, Howard L.; and Kuronen, John M., to Bunker Ramo Corporation. Method of fabricating an interconnection cable. 4,268,956, Cl. 29-869.000.

Parrent, Russell, to United Industrial Syndicate, Inc. Air dome with baffle for fuel pumps. 4,269,575, Cl. 417-542.000.

Pastewski, Roman: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.

Pastormerlo, Primo, to Stamicarbon B.V. Treatment of urea solutions. 4,269,997, Cl. 564-73.000.

Patel, Pradeep V., to B. F. Goodrich Company, The. Extractive distillation of C-4 hydrocarbons using modified alkoxynitrile solvent. 4,269,668, Cl. 203-9.000.

Patel, Ramesh N.; Hou, Ching-Tsang; and Laskin, Allen I., to Exxon Research & Engineering Co. Microbiological alkane oxidation process. 4,269,940, Cl. 435-148.000.

Patterson, Roy; and McIntire, Floyd C. Preparation for treatment of allergic patients sensitive to ragweed pollen. 4,269,764, Cl. 260-112.00R.

Pauze, Denis R.: *See—*
Zamek, Otto S.; Pauze, Denis R.; and Jablonski, Richard J., 4,269,752, Cl. 260-31.40R.

Pazos, Jose F., to Du Pont de Nemours, E. I., and Company. Methods of developing photopolymerizable compositions containing an O-nitroaromatic compound as photoinhibitor. 4,269,933, Cl. 430-291.000.

Peachey, Colin J.: *See—*
Ashpole, Raymond S.; Peachey, Colin J.; and Kar, Arup K., 4,269,024, Cl. 57-232.000.

Peck, Clifton S., to Chrysler Corporation. Wheel bearing slinger ring. 4,269,459, Cl. 308-36.400.

Pedain, Josef: *See—*
Nachtkamp, Klaus; Pedain, Josef; and Grammel, Jurgen, 4,269,748, Cl. 260-29.2TN.

Pedersen, Robert D.: *See—*
Collins, Arthur A.; Bayless, Jon W., Sr.; and Pedersen, Robert D., 4,270,203, Cl. 370-102.000.

Pelcbauer, Zdenek: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.

Pellico, Michael A.; and Montgomery, Robert E., to Laclede Professional Products, Inc. Antiseptic dentifrice. 4,269,822, Cl. 424-50.000.

Penner, Horst: *See—*
Brede, Uwe; Penner, Horst; and Zeiher, Erich, 4,269,120, Cl. 102-202.000.

Pepper, Kenneth V., to Genova, Inc. Closure member. 4,269,230, Cl. 138-89.000.

Pepper, Robert B.: *See—*
Maples, James A.; and Pepper, Robert B., 4,270,171, Cl. 364-480.000.

Perez, Hector R. Brake and wheel assembly. 4,269,423, Cl. 280-80.00R.

Perkins, Joseph K., to Ingersoll-Rand Company. Wood pulp forming system and method of recovering spent chemicals. 4,269,656, Cl. 162-30.00R.

Perretta, Michael L., to Crouse-Hinds Company. Lighting apparatus. 4,270,161, Cl. 362-249.000.

PerSci, Inc.: *See—*
Harman, Jefferson H., 4,270,073, Cl. 318-632.000.

Persidsky, Maxim D., to Institutes of Medical Sciences, The. Process and device for centrifugal separation of platelets. 4,269,718, Cl. 210-787.000.

Persson, Stig, to Aktiebolaget SKF. Seal. 4,269,420, Cl. 277-53.000.

Peter, Heinrich; and Bickel, Hans, to Ciba-Geigy Corporation. Process for the manufacture of 8-oxo-5-thia-1-azabicyclo [4,2,0]oct-2-ene or 3-ene compounds. 4,269,977, Cl. 544-16.000.

Peterson, James F.; Crabtree, Joe; and Coleman, Donald C., to Murray Ohio Manufacturing Co., The. Neutral positioning device for a gear shift lever. 4,269,081, Cl. 74-473.00R.

Peterson, Stephen C. Serial flow photographic washer. 4,269,209, Cl. 134-182.000.

Petitpierre, Jean C., to Ciba-Geigy Corporation. Thiazolylphthalide compounds. 4,269,978, Cl. 544-133.000.

Petr, Jiri: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.

Petroleo Brasileiro S.A. - Petrobras: *See—*
Mueller, Sergio R. C., 4,269,542, Cl. 405-196.000.

Petrolite Corporation: *See—*
Redmore, Derek; and Outlaw, Benjamin T., 4,270,001, Cl. 564-186.000.
Watson, Frederick D.; Mayse, Weldon D.; and Franse, Albert D., 4,269,681, Cl. 204-188.000.

Peynaud, Francois, to Thomson-CSF. Doppler current meter for use at great depths. 4,270,191, Cl. 367-91.000.

Pez, Guido; and Anderson, Lowell R., to Allied Chemical Corporation. Electrically conducting polymers. 4,269,738, Cl. 252-500.000.

Pfiffner, Albert: *See—*
Dorn, Silvia; Pfiffner, Albert; and Zurfluh, Rene, 4,270,009, Cl. 568-670.000.

Pfister, Rudolf: *See—*
Muller, Peter M.; Pfister, Rudolf; and Urban, Rene, 4,269,788, Cl. 260-501.100.

Pfizer Inc.: *See—*
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,270,005, Cl. 568-328.000.
Watt, David S.; and Ives, Jeffrey L., 4,269,837, Cl. 424-246.000.

Pharr, Earl J.: *See—*
Long, Kelso M.; Pharr, Leonard; and Pharr, Earl J., 4,269,094, Cl. 83-188.000.

Pharr, Leonard: *See—*
Long, Kelso M.; Pharr, Leonard; and Pharr, Earl J., 4,269,094, Cl. 83-188.000.

Phillips Petroleum Company: *See—*
Banasiak, Dennis S., 4,269,780, Cl. 260-405.000.
Bonazza, Benedict R.; and DeVault, Albert N., 4,269,606, Cl. 44-63.000.
Coltrin, Michael E.; and Wu, Yulin, 4,269,734, Cl. 252-430.000.
DeShon, Wallace E., 4,270,205, Cl. 371-32.000.
Holland, Eric O.; and Johnson, Marvin M., 4,269,694, Cl. 208-48.00R.
Zornes, David R., 4,269,789, Cl. 260-505.00P.

Phillips, Victor Q.; Griffin, Phil H.; and Sharki, Martin J., to Dresser Industries, Inc. Mud degasser pump. 4,269,567, Cl. 415-168.000.

Piana, Ivana, to Grafoplast S.A.S. Identification device. 4,268,986, Cl. 40-316.000.

Pickering Blackburn Limited: *See—*
Woodcock, Douglas G., 4,269,126, Cl. 112-79.00R.

Pickett, John P. Bean divider. 4,269,018, Cl. 56-119.000.

Pilarczyk, Michal: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.

Pilot Man-Nen Hitsu Kabushiki Kaisha: *See—*
Oki, Takeo; and Hirosawa, Shunichi, 4,269,528, Cl. 401-231.000.

Pilwat, Gunter: *See—*
Zimmermann, Ulrich; and Pilwat, Gunter, 4,269,826, Cl. 424-101.000.

Pines, Michael Y.; and Levy, Israel D., to Hughes Aircraft Company. Monolithic focal plane array having on-chip aperture corrector. 4,270,060, Cl. 307-221.00D.

Pioneer Electronic Corporation: *See—*
Furukawa, Hajime, 4,270,212, Cl. 455-3.000.
Yoshino, Toshikazu; Arai, Yasuyuki; Tsukagoshi, Tsunehiro; and Yokozeki, Shinichi, 4,269,416, Cl. 369-256.000.

Pira, Camille F.: *See—*
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., 4,269,647, Cl. 156-157.000.

Pissiotas, Georg: *See—*
Szczepanski, Henry; Martin, Henry; Fory, Werner; and Pissiotas, Georg, 4,269,775, Cl. 260-340.700.

Platt, John R., to Illinois Tool Works Inc. Multi-unit container package. 4,269,308, Cl. 206-150.000.

Pleyber, Gaetan, to Commissariat a l'Energie Atomique. Process and apparatus for detecting the presence of a physical phenomenon. 4,270,041, Cl. 235-92.0MT.

Podolsky, Leaman B.: *See—*
Ronnen, Uri G.; Podolsky, Leaman B.; and Giras, Theodore C., 4,270,055, Cl. 290-40.00R.

Polak, Michael J.: *See—*
Fitzke, Emil V.; Wenner, Donald B.; and Polak, Michael J., 4,269,616, Cl. 55-493.000.

Polakowski, Theodore D., Jr.: *See—*
Dinella, Donald; Haller, Albert H.; and Polakowski, Theodore D., Jr., 4,269,138, Cl. 118-115.000.

Polaroid Corporation: *See—*
Barton, Derek H. R.; Bronstein-Bonte, Irena Y.; and Taylor, Lloyd D., 4,269,925, Cl. 430-215.000.
Bilofsky, Ruth C.; and Rogers, Howard G., 4,269,916, Cl. 430-11.000.

Politechnika Gdanska: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.

Polko, Peter R., to Uarco Incorporated. Stationery burster. 4,269,341, Cl. 225-94.000.

Pollet, Robert J.: *See—*
Roosen, Raymond A.; Pollet, Robert J.; and Vandenberghe, Antoon L., 4,269,923, Cl. 430-140.000.

Polychrome Corporation: *See—*
Rowe, William, 4,269,680, Cl. 204-159.170.

Polyvend, Inc.: *See—*
Durham, Samuel; and Johnston, Max M., 4,269,325, Cl. 221-194.000.

Pomagalski S.A.: *See—*
Segafredo, Andre, 4,269,123, Cl. 104-178.000.

Ponsinet, Gerard: *See—*
Farge, Daniel; Jossin, Alain; Ponsinet, Gerard; and Reisdorf, Daniel, 4,269,842, Cl. 424-258.000.

Poole, William J.: *See—*
Blommers, Elizabeth A.; Poole, William J.; and Ingram, Alvin R., 4,269,871, Cl. 427-222.000.

Porritt, Gordon S.: *See—*
Deelman, Hayo E.; and Porritt, Gordon S., 4,269,100, Cl. 83-834.000.

Postel, William D., Jr.: *See—*
Morningstar, Marion G.; and Postel, William D., Jr., 4,269,954, Cl. 526-62.000.

Poteat, George A.: *See—*
Rosenthal, Stanley H.; and Poteat, George A., 4,269,124, Cl. 108-103.000.

Powell, Gordon F. W.; Bolt, Reginald C.; and Simmons, Albert, to Molins Limited. Cigarette weight control systems. 4,269,201, Cl. 131-280.000.

PPG Industries, Inc.: *See—*
DuBois, Donald D., 4,269,688, Cl. 204-254.000.
Lavanish, Jerome M., 4,269,983, Cl. 548-137.000.

Precisa AG Rechenmaschinenfabrik: *See—*
Gabler, Gerhard, 4,269,520, Cl. 400-196.000.

Price, Donald, to Greenbank-Cast Basalt Engineering Co. Limited. Hoods for the cylinder drying section of paper making machines and other cylinder drying machines. 4,268,974, Cl. 34-86.000.

Price, William; and Ellison, Howard W. Syphon-operated closet bowl flush tank. 4,268,924, Cl. 4-373.000.

Priegnitz, James W.; and Landis, Arthur M., to UOP Inc. Process for the separation of nitrotoluene isomers. 4,270,013, Cl. 568-940.000.

Prill, Robert S., to Singer Company, The. Solid state synchro torque receiver driver. 4,270,120, Cl. 340-347.0SY.

Prince, Hendrikus A.: *See—*
Klasema, Hendrik; and Prince, Hendrikus A., 4,269,801, Cl. 264-156.000.

Prince, Hendrikus Andreas: *See—*
Klasema, Hendrik; and Prince, Hendrikus A., 4,269,801, Cl. 264-156.000.

Principe, Viktor, to Arthur Schmid AG. Thread control device for stitching machines. 4,269,131, Cl. 112-273.000.

Prior Tire Enterprises Inc.: *See—*
Goldstein, Leon C., 4,269,644, Cl. 156-96.000.

Pritt, Rex M.: *See—*
Carlon, Hugh R.; and Pritt, Rex M., 4,270,084, Cl. 324-65.00R.

Procter & Gamble Company, The: *See—*
Flora, Lawrence; and Francis, Marion D., 4,269,828, Cl 424-204.000.

Prodel, Ulrich H. Bottle packaging. 4,269,309, Cl. 206-203.000.

Products for Energy, Inc.: *See—*
Hickman, Lewis, 4,269,241, Cl. 144-2.00Z.

Pryor, Timothy R.; Alway, David M.; and Hageniers, Omer L., to Diffracto Ltd. Method and apparatus for marking parts. 4,269,874, Cl. 427-282.000.

Przybylinski, Phillip G.; Schuller, James J.; and Varda, Eugene I., to Pullman Incorporated. Railway wheel profilometer and diameter gage. 4,268,968, Cl. 33-174.00P.

Przystawik, Gunter. Water pump arrangement and electric circuitry for a fountain display. 4,269,352, Cl. 239-17.000.

Pullman Incorporated: *See—*
Edwards, William M.; and Huang, C. Peter, 4,269,812, Cl. 423-242.000.
Przybylinski, Phillip G.; Schuller, James J.; and Varda, Eugene I., 4,268,968, Cl. 33-174.00P.
Rehbein, Richard E., 4,269,220, Cl. 137-350.000.

Pye Limited: *See—*
Hunt, Richard J., 4,269,710, Cl. 210-198.200.

Pyne, Bernard; Gray, Reginald W. H.; and Barber, Peter R., to Timex Corporation. Watch strap with adjustable attachment end. 4,270,201, Cl. 368-282.000.

Pyramid Manufacturing Company: *See—*
Lawrence, Larry K., 4,269,009, Cl. 52-116.000.

Quaker Oats Company, The: *See—*
Cotey, John; and Volpe, Lee S., 4,268,991, Cl. 46-163.000.

Qualidyne Systems, Inc.: *See—*
Carpenter, Ronnie L.; and Cathell, Frank, 4,270,165, Cl. 363-65.000.

Quinlivan, Sandra C.: *See—*
Jones, Robert J.; Green, Howard E.; and Quinlivan, Sandra C., 4,269,961, Cl. 526-262.000.

Quinones, Nicanor Q.: *See—*
Hardy, Robert A., Jr.; Baker, Jannie S.; and Quinones, Nicanor Q., 4,269,980, Cl. 544-256.000.

R. T. Vanderbilt Company, Inc.: *See—*
Suhoza, Richard A., 4,269,761, Cl. 260-45.70S.

Rabenstein, Heinrich; Kalbitz, Angela; and Kleber, Karl H., to Varta Batterie Aktiengesellschaft. Lead storage battery with stored expander. 4,269,912, Cl. 429-225.000.

Rabinow, David: *See—*
Sease, D. Lamar; Solow, Benjamin; Boeckmann, Eduard F.; and Rabinow, David, 4,268,954, Cl. 29-620.000.

Racal-Milgo, Inc.: *See—*
Stuttard, Edward B.; Blackwell, John E.; and Chao, Jessie, 4,270,202, Cl. 370-80.000.

Radu, E. John: *See—*
Uyeda, Stanley T.; Radu, E. John; Talbot, William J., Jr.; and Feldman, Norman, 4,269,540, Cl. 405-168.000.

Rafikov, Sagid R.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Rahn, John P., to United States of America, Navy. Stray light eliminator in a scatterometer. 4,269,518, Cl. 356-445.000.

Raleigh, Ronald G.: *See—*
Bacon, Robert E.; Raleigh, Ronald G.; and Rosenfeld, Robert B., 4,269,914, Cl. 430-3.000.

Ralston Purina Company: *See—*
Retrum, Rowland, 4,269,865, Cl. 426-657.000.

Rao, Ganta V.; and Shoup, Floyd K., to Far-Mar-Co., Inc. Method and apparatus for fractionating the whole wheat kernel by sequential milling. 4,269,766, Cl. 260-112.00G.

Rao, V. Durga N., to Ford Motor Company. Elastomeric mounting for wave compressor supercharger. 4,269,570, Cl. 417-64.000.

Rao, V. Durga N.: *See—*
Knapp, Charles A.; and Rao, V. Durga N., 4,269,262, Cl. 165-8.000.

Rapp, Bruno: *See—*
Borchert, Herbert; Albert, Walter; Kohaut, Gunter; Schulte, Ulrich; and Rapp, Bruno, 4,269,895, Cl. 428-402.000.

Rapp, Kenneth L.; and Zolnerovich, Walter, Jr., to Owens-Corning Fiberglas Corporation. Microprocessor controlled product roving system. 4,269,368, Cl. 242-42.000.

Ratton, Serge, to Rhone-Poulenc Industries. Diazotization of aromatic amines. 4,269,767, Cl. 260-141.000.

Rau, Helmut: *See—*
Handtmann, Dieter; Rau, Helmut; and Zabler, Erich, 4,269,069, Cl. 73-705.000.

Ravida, Antonino: *See—*
Gilardoni, Giovanni; and Gilardoni, Sergio, 4,270,158, Cl. 361-42.000.

Ravida, Regina Carla Ezzevalli: *See—*
Gilardoni, Giovanni; and Gilardoni, Sergio, 4,270,158, Cl. 361-42.000.

Rayburn, Robert L.; Watson, Robert L.; Elbel, Charles R.; and Schweickardt, Karl W. Carbon dioxide measurement from expired gases in a partial rebreathing anesthesia circuit. 4,269,194, Cl. 128-719.000.

Raytheon Company: *See—*
Gordon, Bruce E., 4,270,204, Cl. 370-112.000.
Parker, Thomas E.; and Dunnrowicz, Clarence J., 4,270,105, Cl. 333-155.000.

RCA Corporation: *See—*
Ahmed, Adel A. A., 4,270,101, Cl. 331-111.000.
Bell, Alan E., 4,270,132, Cl. 346-135.100.
Clark, Charles A., Jr., 4,270,127, Cl. 343-5.00W.
Clark, Charles A., Jr., 4,270,157, Cl. 361-35.000.
Daniel, James W., Jr., 4,270,221, Cl. 455-208.000.
Deckert, Cheryl A.; and Schnable, George L., 4,269,654, Cl. 156-657.000.
Fitzke, Emil V.; Wenner, Donald B.; and Polak, Michael J., 4,269,616, Cl. 55-493.000.
Jindra, Clifford P.; and Atherton, James H., 4,270,190, Cl. 365-208.000.
Schwarzmann, Alfred, 4,270,104, Cl. 333-28.00R.
Weisbecker, Joseph A., 4,270,125, Cl. 340-744.000.

Reaktor-Brennelment Union GmbH: *See—*
Sondermann, Thomas, 4,269,706, Cl. 210-682.000.

Reddaway, Stewart F., to International Computers Limited. Array processor. 4,270,170, Cl. 364-200.000.

Reddaway, Stewart F.: *See—*
Hunt, David J.; and Reddaway, Stewart F., 4,270,169, Cl. 364-200.000.

Redfarn, Cyril A., to Dixon International Limited. Composition for forming an intumescent material. 4,269,944, Cl. 521-100.000.

Redmore, Derek; and Outlaw, Benjamin T., to Petrolite Corporation. Quaternaries of hydroxyalkylaminoalkylamides. 4,270,001, Cl. 564-186.000.

Reekstin, John P.: *See—*
Elliott, Michael T.; Splinter, Michael R.; Jones, Addison B.; and Reekstin, John P., 4,268,951, Cl. 29-571.000.

Reeves, David L. R.: *See—*
Mason, Leslie F. A.; Kitzing, Rainer; Whitear, Brian R. D.; Long, William E.; Wood, Glenn P.; and Reeves, David L. R., 4,269,928, Cl. 430-239.000.

Rego Company: *See—*
Odar, Larry F., 4,269,215, Cl. 137-75.000.

Rehbein, Richard E., to Pullman Incorporated. Tank valve mounting arrangement. 4,269,220, Cl. 137-350.000.

Rehrmann, Helmut: *See—*
Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, 4,270,083, Cl. 324-58.50C.

Reiner, Joseph R.; and Breister, Sigmund, to Olin Corporation. Use of heavy metal chelates of 2-mercaptopyridine-N-oxide to separate selected precious metals from acidic solutions. 4,269,621, Cl. 75-101.0BE.

Reinschreiber, Merwyn R., to Cole Consumer Products, Inc. Knife with blade locking mechanism. 4,268,960, Cl. 30-161.000.

Reisdorf, Daniel: *See—*
Farge, Daniel; Jossin, Alain; Ponsinet, Gerard; and Reisdorf, Daniel, 4,269,842, Cl. 424-258.000.

Rempel, William D.: *See—*
Levinson, Leo; and Rempel, William D., 4,269,522, Cl. 400-616.100.

Research-Cottrell, Inc.: *See—*
Hankins, Frederick E.; and Umberger, John H., 4,270,086, Cl. 368-118.000.

Retrum, Rowland, to Ralston Purina Company. Process for the production of a food product from feathers. 4,269,865, Cl. 426-657.000.

Rex Industries Co., Ltd.: *See—*
Taira, Tsuneo, 4,268,959, Cl. 30-94.000.

Rexine, Carl A. Hideaway tow hitch. 4,269,428, Cl. 280-491.00R.

Reynolds, Gordon S.; and Todd, Robert J., to Sorenson Research Co., Inc. Needle valve and method of manufacturing a needle valve. 4,269,387, Cl. 251-122.000.

Rhone-Poulenc Industries: *See—*
Farge, Daniel; Jossin, Alain; Ponsinet, Gerard; and Reisdorf, Daniel, 4,269,842, Cl. 424-258.000.
Locatelli, Jean-Louis, 4,269,952, Cl. 525-507.000.
Ratton, Serge, 4,269,767, Cl. 260-141.000.

Rich, Jackson E. Portable hand carried kit for a set of wrenches and the like. 4,269,311, Cl. 206-234.000.

Richard, Gerard Y., to Societe D'Applications de Procedes Industriels et Chimiques S.A.P.I.C. Method for hardening a composition particularly intended for making foundry cores and moulds. 4,269,758, Cl. 260-38.000.

Richdel, Inc.: *See—*
Saarem, Myrl J.; Lovelace, Donald E.; Firebaugh, Dale C.; and Soukup, Dale F., 4,269,229, Cl. 137-869.000.

Richman, Stephan S., to Marshall Electronics, Inc. Method and apparatus for determining the accuracy of a sphygmomanometer. 4,269,058, Cl. 73-4.00R.

Richter, Hanno: *See—*
Leibhard, Erich; Gruenewald, Heinz; and Richter, Hanno, 4,269,106, Cl. 411-34.000.

Richter, Konrad J., Sr., to Heinemann Electric Company. Snap on mounting clip for circuit breakers. 4,270,035, Cl. 200-294.000.

Richter, Michael: *See—*
Goeke, Ulrich; and Richter, Michael, 4,269,742, Cl. 260-18.0PN.

Rickenbach, David H.: *See—*
Lee, Ho C.; Rickenbach, David H.; and Zable, Jack L., 4,269,117, Cl. 101-93.020.

Ricoh Company, Ltd.: *See—*
Adachi, Eiichi, 4,270,146, Cl. 358-256.000.
Adachi, Eiichi, 4,270,148, Cl. 358-260.000.
Mori, Masaaki, 4,269,482, Cl. 350-358.000.
Sifford, Bruce M.; and Magill, D. Thomas, 4,270,179, Cl. 364-724.000.

Rideal, Graham R.: *See—*
Ballard, Denis G. H.; Meredith, William N. E.; and Rideal, Graham R., 4,269,628, Cl. 106-86.000.
Ridenour, Ralph G. Tube-to-tube joint. 4,269,438, Cl. 285-382.200.
Riegel Textile Corporation: *See—*
Worth, Daniel L.; and Freeman, Ernest A., Jr., 4,269,602, Cl. 8-116.400.
Worth, Daniel L., 4,269,603, Cl. 8-116.400.
Riessland, Eberhard; and Kruger, Karl-Heinz, to VEB Elektromat. Bounce-free lifting device. 4,270,109, Cl. 335-277.000.
Rincon Industries, Inc.: *See—*
Hauser, Stephen G., 4,270,039, Cl. 219-439.000.
RIS Irrigation Systems: *See—*
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., 4,269,357, Cl. 239-272.000.
Ritchey, Thomas W., Jr.: *See—*
Diermann, Joachim P.; and Ritchey, Thomas W., Jr., 4,270,150, Cl. 360-10.000.
Rivoli, Anthony L.; Morcom, William R.; Nicolay, Hugh C.; and Cox, Eugene R., to Harris Corporation. Method of fabricating self-aligned bipolar transistor process and device utilizing etching and self-aligned masking. 4,269,636, Cl. 148-175.000.
Roach, Bobbie R., Jr. Christmas tree trim cabinet. 4,269,461, Cl. 312-244.000.
Robert Bosch GmbH: *See—*
Handtmann, Dieter; Rau, Helmut; and Zabler, Erich, 4,269,069, Cl. 73-705.000.
Kopse, Odon, 4,269,360, Cl. 239-533.800.
Schneider, Yves; and Dubuisson, George, 4,269,281, Cl. 180-70.00R.
Robertson, Forrest E.; and Williams, Donald E., to Acra Plant, Inc. Streamlined wear-resistant deep tillage tool. 4,269,274, Cl. 172-699.000.
Robertson, King G.; and McAuliffe, Donald C., to Coors Container Company. Fabrication of aluminum alloy sheet from scrap aluminum for container components. 4,269,632, Cl. 148-2.000.
Robinson, Robert L.; Hoff, David C.; and Midling, Robert L., to Lockheed Aircraft Corp. Data dejittering apparatus. 4,270,183, Cl. 364-900.000.
Rockwell, Dale L., to Combustion Engineering, Inc. Method of forming fusion cast refractories. 4,269,799, Cl. 264-85.000.
Rockwell International Corporation: *See—*
Agrawal, Suphal P.; and Weisert, Edward D., 4,269,053, Cl. 72-42.000.
Elliott, Michael T.; Splinter, Michael R.; Jones, Addison B.; and Reekstin, John P., 4,268,951, Cl. 29-571.000.
Eshghy, Siavash, 4,268,944, Cl. 29-407.000.
Flanagan, Joseph E., 4,269,637, Cl. 149-19.100.
Glass, Howard L.; and Henry, Rodney D., 4,269,651, Cl. 156-601.000.
Marston, Robert K., 4,270,223, Cl. 455-305.000.
Molina, Orlando G., 4,269,068, Cl. 73-644.000.
Yeh, Pochi A.; and Tracy, John M., 4,269,481, Cl. 350-356.000.
Ziegelbein, Paul J.; Dawson, Sylvan L.; and Erickson, Gerald A., 4,270,117, Cl. 340-168.00B.
Rodriquez, Claude: *See—*
Ammon, J. Preston; Weaver, Harry R.; and Rodriquez, Claude, 4,269,468, Cl. 339-176.00M.
Roethlein, Richard J.: *See—*
DeCasperis, Anthony J.; Roethlein, Richard J.; and Breault, Richard D., 4,269,642, Cl. 156-89.000.
Rogers, Henry J., to National Research Development Corporation. Enterochelin complexes. 4,269,850, Cl. 424-279.000.
Rogers, Howard G.: *See—*
Bilofsky, Ruth C.; and Rogers, Howard G., 4,269,916, Cl. 430-11.000.
Roggero, Bruno: *See—*
Dotti, Giulio; Bertone, Antonino; and Roggero, Bruno, 4,269,224, Cl. 137-596.150.
Rohm and Haas Company: *See—*
Costin, Charles R., 4,269,943, Cl. 521-33.000.
Seidel, Michael; Weir, W. David; and Wolfersberger, Martha H., 4,269,829, Cl. 424-211.000.
Rohr Industries, Inc.: *See—*
Carrillo, Robert M.; and Koss, Muriel L., 4,269,882, Cl. 428-116.000.
Rohrmann, Charles A., to Battelle Memorial Institute. Production of chlorine from chloride salts. 4,269,817, Cl. 423-502.000.
Rohsenow, Warren R.: *See—*
Glicksman, Leon R.; and Rohsenow, Warren R., 4,269,796, Cl. 261-112.000.
Rokhvarg, Yakov. Animal house. 4,269,145, Cl. 119-16.000.
Roldwest Limited: *See—*
Chodosh, Edward, 4,269,334, Cl. 223-28.000.
Rolls-Royce Limited: *See—*
Lind, David J.; Coffey, Valerie J.; and Hallam, Joyce, 4,269,876, Cl. 427-309.000.
Livsey, Norman B., 4,269,868, Cl. 427-53.100.
Ronayne, James F., to Norfield Corporation. Heated platen. 4,269,586, Cl. 425-407.000.
Rongved, Paul I. Waste water treatment system with aeration and circulation means. 4,269,709, Cl. 210-195.300.
Ronnen, Uri G.; Podolsky, Leaman B.; and Giras, Theodore C., to Westinghouse Electric Corp. System and method for transferring the operation of a turbine-power plant between single and sequential modes of turbine valve operation. 4,270,055, Cl. 290-40.00R.
Roosen, Raymond A.; Pollet, Robert J.; and Vandenberghe, Antoon L., to AGFA-GEVAERT N.V. Photographic imaging process and materials suitable therefor. 4,269,923, Cl. 430-140.000.
Rosch, Fritz, to Alcan Aluminiumwerk Nurnberg GmbH. Machine housing with relatively thin-walled structural member. 4,269,287, Cl. 188-1.00B.
Rose, Carl J.; and Miller, David, to Beecham Group Limited. Chemical process for the preparation of 4-(6[1]-methoxy-2[1]-naphthyl)butan-2-one. 4,270,004, Cl. 568-314.000.
Rose, Donald D. Portable agricultural sprayer. 4,269,356, Cl. 239-167.000.
Rosen, Charles L. Propulsion system for automotive vehicles. 4,269,280, Cl. 180-54.00C.
Rosenfeld, Robert B.: *See—*
Bacon, Robert E.; Raleigh, Ronald G.; and Rosenfeld, Robert B., 4,269,914, Cl. 430-3.000.
Rosenkranz, Hans J.: *See—*
Elfert, Klaus; Wolf, Gerhard D.; and Rosenkranz, Hans J., 4,269,967, Cl. 528-337.000.
Rosenthal, Stanley H.; and Poteat, George A., to Rosenthal, Stanley H. Merchandise display rack. 4,269,124, Cl. 108-103.000.
Rosenthal Technik AG: *See—*
Zeibig, Anton, 4,268,919, Cl. 3-1.910.
Ross, Joseph A.: *See—*
DiMatteo, Paul L.; Ross, Joseph A.; and Stern, Howard K., 4,269,513, Cl. 356-376.000.
Rosser, Robert W.: *See—*
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Gans, Leo; Bruins, Paul F.; Shapiro, Jay B.; and Rothman, Myron, 4,269,897, Cl. 428-419.000.
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Roueche, Armand, to Ciba-Geigy Corporation. Pigment of sodium salt of bis-methine-barbituric acid. 4,269,976, Cl. 542-445.000.
Rovel, Jean-Marie: *See—*
Barraque, Christian; Burriat, Jean; and Rovel, Jean-Marie, 4,269,715, Cl. 210-675.000.
Rowe, William, to Polychrome Corporation. Curable polymeric composition comprising natural or synthetic rubbers. 4,269,680, Cl. 204-159.170.
Roxton, George F., to Paratech Incorporated. Rescue tool. 4,268,926, Cl. 7-143.000.
Rubens, George J. Fluid measuring container closure cap. 4,269,319, Cl. 215-228.000.
Rubenstein, Daniel: *See—*
Rubenstein, Maurice D.; and Rubenstein, Daniel, 4,269,317, Cl. 211-72.000.
Rubenstein, Maurice D.; and Rubenstein, Daniel. Dispenser support. 4,269,317, Cl. 211-72.000.
Ruchser, Erich; and Ott, Helmut, to Technomatic AG. Safety valve assembly. 4,269,225, Cl. 137-596.160.
Ruell, Hartwig: *See—*
Flothmann, Detlev; Ruell, Hartwig; and Staimer, Angelika, 4,269,473, Cl. 350-3.610.
Ruggeri, Giovanni: *See—*
Bonomini, Vittorio; and Ruggeri, Giovanni, 4,269,708, Cl. 210-90.000.
Ruhrchemie Aktiengesellschaft: *See—*
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,270,008, Cl. 568-448.000.
Ruiz, W. V.: *See—*
United States of America, National Aeronautics and Space Administration; Ruiz, W. V.; and Thatcher, C. S., 4,269,640, Cl. 156-84.000.
Rulevsky, Evgeny V.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.
Ruof, Edgar J.: *See—*
Beck, Arnold A.; and Ruof, Edgar J., 4,269,455, Cl. 303-106.000.
Rusche, Fredric. In situ pile forming apparatus. 4,269,544, Cl. 405-239.000.
Rush, Donald L.; and Kapadia, Jayant K., to Westinghouse Electric Corp. Door control for train vehicles. 4,269,377, Cl. 246-182.00B.
Rutenberg, Morton W.; and Molnar, Thomas R., to National Starch and Chemical Corporation. Preparation of guar gum. 4,269,975, Cl. 536-114.000.
Rutman, Grigory I.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.
Rutten, Paul J. Apparatus for loading and unloading objects relative to a carrier vehicle. 4,269,561, Cl. 414-462.000.
Rutter, Harold T., to Sunnen Products Company. Fixture for aligning and locating the axis of rotation of a rotatable member. 4,269,000, Cl. 51-165.740.
Ryan, John E. Replaceable guide post. 4,269,534, Cl. 404-10.000.

Ryan, Kenneth M.: *See—*
Melillo, David G.; and Ryan, Kenneth M., 4,269,772, Cl. 260-245.20T.
Ryan, Patrick J.: *See—*
Ury, Michael G.; and Ryan, Patrick J., 4,269,581, Cl. 425-174.400.
Rzechula, Joseph A. Absorption unit with variant control system. 4,269,034, Cl. 62-141.000.
Saarem, Myrl J.; Lovelace, Donald E.; Firebaugh, Dale C.; and Soukup, Dale F., to Richdel, Inc. Solar heat system. 4,269,229, Cl. 137-869.000.
Sach, George S.: *See—*
Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., 4,269,844, Cl. 424-263.000.
Saeed, Amin; and Hill, James B., to DAF Indal Ltd. Collapsible structures employing frangible connections. 4,269,384, Cl. 248-548.000.
SAES Getters S.p.A.: *See—*
Figini, Alessandro, 4,269,624, Cl. 75-177.000.
Saint-Gobain Industries: *See—*
Sommer, Rolf; Schweinfurth, Gustav; and Ungerer, Heinz-Jurgen, 4,269,800, Cl. 264-111.000.
Saito, Shozo, to Tokyo Shibaura Denki Kabushiki Kaisha. Nonvolatile semiconductor memory apparatus. 4,270,188, Cl. 365-189.000.
Saito, Shuichi. Bandsaw blade tensioning apparatus for horizontal bandsaw machines. 4,269,099, Cl. 83-819.000.
Saito, Tutomu; Yamazoe, Hiroshi; and Yamaoka, Hidenori, to Nippon Petrochemicals Co., Ltd.; Nippon Carbon Co., Ltd.; and Kitamura Valve Seizo Kabushiki Kaisha. Valve sealing device and a valve. 4,269,391, Cl. 251-315.000.
Sakaguchi, Mitsuhito: *See—*
Ohta, Yoshinori; Kubota, Keiichi; and Sakaguchi, Mitsuhito, 4,270,149, Cl. 358-293.000.
Sakai, Junji: *See—*
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Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, to Hitachi, Ltd. Electric windings and production thereof characterized by the use of a condensation type silicon resin for combination with an addition type silicon resin. 4,269,894, Cl. 428-377.000.
Sakamoto, Takashi, to Dainippon Screen Seizo Kabushiki Kaisha. Method and machine for reproducing a color picture by storing signal streams, one entirely, and the rest partially. 4,270,141, Cl. 358-78.000.
Sakharnov, Vasily A.: *See—*
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B., 4,269,552, Cl. 409-140.000.
Sakurai, Akira; Tsuchiya, Yoshimi; and Mizutani, Hiroshi, to Kao Soap Co., Ltd. Tampon. 4,269,187, Cl. 128-263.000.
Sakurai, Hideaki: *See—*
Kizu, Ryohei; Matoba, Taketo; Oguni, Yasuo; and Sakurai, Hideaki, 4,269,043, Cl. 64-11.00R.
Sallander, Hakan: *See—*
Bramberger, Bo C.; and Stenudd, Kurt G., 4,269,283, Cl. 181-207.000.
Salmon, James E. Musical percussion instrument. 4,269,105, Cl. 84-402.000.
Salomatin, Viktor M. Device for controlling hydraulic motors. 4,269,228, Cl. 137-636.000.
Salomon, Georges P. J., to Etablissements Francois Salomon et Fils. Process of manufacturing an inner boot. 4,268,931, Cl. 12-146.00R.
Samsonite Corporation: *See—*
Haberlein, Peter, 4,270,089, Cl. 324-262.000.
Sandmore, Donald K.: *See—*
Meal, John R.; and Sandmore, Donald K., 4,268,942, Cl. 29-25.420.
Santa Fe International Corporation: *See—*
Uyeda, Stanley T.; Radu, E. John; Talbot, William J., Jr.; and Feldman, Norman, 4,269,540, Cl. 405-168.000.
Sard, Richard: *See—*
Cohen, Uri; and Sard, Richard, 4,269,671, Cl. 204-23.000.
Sargent & Greenleaf, Inc.: *See—*
Bechtiger, Charles G.; and Miller, James C., 4,269,050, Cl. 70-272.000.
Sargent Industries, Inc.: *See—*
Crowe, Donald R., 4,269,386, Cl. 251-74.000.
Sargis, John R.; and AES Technology Systems, Inc. Method and apparatus for collating and stacking documents and for effecting a high density stack in a document receiving bin. 4,269,401, Cl. 270-58.000.
Sasaki, Michiaki, to Nissan Motor Company, Limited. Safety valve. 4,269,213, Cl. 137-38.000.
Sasaki, Takehiko; and Maeda, Hidetoshi, to Sharp Kabushiki Kaisha. Switching mechanism for electronic wristwatch. 4,270,199, Cl. 368-224.000.
Sastre, Cesar: *See—*
Schweitzer, Donald G.; Sastre, Cesar; and Winsche, Warren, 4,269,728, Cl. 252-301.10W.
Sato, Kozo: *See—*
Kato, Hajime; Satomura, Masato; and Sato, Kozo, 4,269,893, Cl. 428-341.000.
Sato, Makoto, to Makino Milling Machine Co., Ltd. Tracing milling machine. 4,268,949, Cl. 29-568.000.
Sato, Masanori; Wakabayashi, Hiroharu; Ejiri, Yoshihiro; and Yamamoto, Hitoshi, to Kokusai Denshin Denwa Kabushiki Kaisha. Selection system for digital signal repeaters. 4,270,029, Cl. 179-175.31R.
Satomura, Masato: *See—*
Kato, Hajime; Satomura, Masato; and Sato, Kozo, 4,269,893, Cl. 428-341.000.
Saul, Michael R.: *See—*
Barford, Eric D.; Gray, Robin A.; and Saul, Michael R., 4,269,723, Cl. 252-106.000.
Saulin, Albert B.: *See—*
Galkin, Jury M.; Saulin, Albert B.; and Olshvang, Jury N., 4,270,051, Cl. 250-358.00R.
Saunders, Graham J., to Huwood Limited. Mine working apparatus. 4,269,546, Cl. 405-294.000.
Sautel, Francis: *See—*
Bayssat, Michel; Sautel, Francis; Depin, Jean-Claude; and Matibet, Annie B., 4,269,848, Cl. 424-275.000.
Savage, Charles E.: *See—*
Hornby, Roger B.; Lipps, Bennie J.; and Savage, Charles E., 4,269,712, Cl. 210-321.300.
Savin Corporation: *See—*
Landa, Benzion, 4,269,504, Cl. 355-3.0SH.
Sawada, Daisaku: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,154, Cl. 123-425.000.
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,269,155, Cl. 123-425.000.
Sawamura, Ichiro; Miyazaki, Kensaku; and Yonekubo, Ken, to Olympus Optical Co., Ltd. Microscope for quantitative determination of substance in specimen. 4,269,517, Cl. 356-432.000.
Sawase, Terumi: *See—*
Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, 4,270,220, Cl. 455-182.000.
Sawyer, Patrick F., to Girlock Limited. Brake pressure control valves. 4,269,453, Cl. 303-6.00C.
Sbuelz, Anes, to Italtel S.p.A. Process for splicing a coaxial cable with a conductor composed of individually enameled wire strands to a coaxial connector. 4,268,957, Cl. 29-871.000.
Scentex Corporation: *See—*
Wright, Charles W., 4,269,292, Cl. 192-33.00R.
Schadlich, Renate: *See—*
Moraw, Roland; and Schadlich, Renate, 4,269,932, Cl. 430-290.000.
Schall, Wayne E.; Miller, John E.; and Gabriel, John F., to Owens-Illinois, Inc. Apparatus for pre-heating thermoplastic parisons. 4,268,975, Cl. 34-105.000.
Scharf, Raymond J., Sr. Tree protector. 4,268,992, Cl. 47-23.000.
Schauer, Alois: *See—*
Krueger, Hans; Schauer, Alois; and Walter, Karl-Heinz, 4,269,480, Cl. 350-355.000.
Schechter, Berton: *See—*
Clingman, David L.; Cavanagh, John R.; Schechter, Berton; and Cross, Kenneth R., 4,269,903, Cl. 428-591.000.
Schering Aktiengesellschaft: *See—*
Goeke, Ulrich; and Richter, Michael, 4,269,742, Cl. 260-18.0PN
Gries, Heinz, 4,269,819, Cl. 424-5.000.
Niedballa, Ulrich; and Bottcher, Irmgard, 4,269,847, Cl. 424-273.00R.
Scheurecker, Werner: *See—*
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Schiavuzzi, Roberto: *See—*
Cavallino, Francesco; Martinez, Pasquale; Allione, Michele; and Schiavuzzi, Roberto, 4,269,029, Cl. 60-293.000.
Schiebroek, Cornelis J. M. Explosion-proof building. 4,269,004, Cl. 52-1.000.
Schlafer, John: *See—*
Dakss, Mark L.; Kim, Bumman; and Schlafer, John, 4,269,648, Cl. 156-293.000.
Schlegel, Earl S.; and Hanes, Maurice H., to Westinghouse Electric Corp. High-frequency phototransistor operated with multiple light sources. 4,270,135, Cl. 357-19.000.
Schlichte, Max, to Siemens Aktiengesellschaft. System for synchronizing exchanges of a telecommunications network. 4,270,211, Cl. 375-107.000.
Schlumberger Technology Corporation: *See—*
Escaron, Pierre C.; and Hoppe, Joachim A., 4,269,063, Cl. 73-151.000.
Schmechtig, Rune, to Aktiebolaget Tudor. Pump device. 4,269,906, Cl. 429-67.000.
Schmitt, Franz: *See—*
Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, 4,270,083, Cl. 324-58.50C.
Schmitt, Frederick L.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,269,862, Cl. 426-536.000.
Schmitt, Susan M.: *See—*
Christensen, Burton G.; Johnston, David B. R.; and Schmitt, Susan M., 4,269,873, Cl. 424-274.000.
Schnable, George L.: *See—*
Deckert, Cheryl A.; and Schnable, George L., 4,269,654, Cl. 156-657.000.
Schneider, Charles A.: *See—*
Carr, Richard P.; Nanda, Ashok K.; Schneider, Charles A.; and Malhotra, Girish K., 4,269,987, Cl. 548-257.000.

Schneider-Muntau, Hans-Jorg; and Hackbarth, Klaus, to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. Normal conductive or superconductive magnet coil. 4,270,112, Cl. 336-197.000.

Schneider, Yves; and Dubuisson, George, to Robert Bosch GmbH. Automatic transmission digital control system. 4,269,281, Cl. 180-70.00R.

Schnoes, Heinrich K.: *See—*
De Luca, Hector F.; Schnoes, Heinrich K.; Napoli, Joseph L.; and Fivizzani, Mary A., 4,269,777, Cl. 260-397.100.

Schoengen, Anton; and Schroeder, Heinrich, to Dynamit Nobel Aktiengesellschaft. Reactor for the oxidation of alkyl aromatics with oxygen-containing gases in the liquid phase. 4,269,805, Cl. 422-106.000.

Scholl, Inc.: *See—*
Gudas, Charles J., 4,268,980, Cl. 36-43.000.

Schornack, Louis W. Power supply and control circuit for series connected controller. 4,270,058, Cl. 307-140.000.

Schreyer, Gerd: *See—*
Hentschel, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,269,979, Cl. 544-190.000.

Schroder, Ernst. Amplifier having a variable propagation constant. 4,270,103, Cl. 333-14.000.

Schroder, Rolf: *See—*
Engelsmann, Dieter; and Schroder, Rolf, 4,269,492, Cl. 354-42.000.

Schroeder, Heinrich: *See—*
Schoengen, Anton; and Schroeder, Heinrich, 4,269,805, Cl. 422-106.000.

Schuegraf, Eberhard, to Siemens Aktiengesellschaft. Rectangular waveguide elbow formed with a truncated corner and having pipes formed therein. 4,270,107, Cl. 333-249.000.

Schuierer, Manfred, to Bruckner Apparatebau. Apparatus for passing a working medium through a continuously moving permeable fabric web. 4,269,047, Cl. 68-181.00R.

Schuller, James J.: *See—*
Przybylinski, Phillip G.; Schuller, James J.; and Varda, Eugene I., 4,268,968, Cl. 33-174.00P.

Schulte, Bernhard: *See—*
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Schulte, Ulrich: *See—*
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Schultz, Gene, to Sornsin, Earl W., a part interest. Earth working implement control system. 4,269,535, Cl. 404-117.000.

Schultz, Gerald A.: *See—*
Kolczynski, James R.; and Schultz, Gerald A., 4,269,726, Cl. 252-186.000.

Schultz, Terrence R.: *See—*
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Schurman Machine Works, Inc.: *See—*
Kinsella, Phillip W., 4,269,244, Cl. 144-218.000.

Schwarz, Gail B.; and Hickinbotham, Lawrence F., to General Technology, Inc. Force-exerting machine. 4,269,114, Cl. 100-53.000.

Schwarzmann, Alfred, to RCA Corporation. Phase equalizer in microwave transmission line. 4,270,104, Cl. 333-28.00R.

Schweickardt, Karl W.: *See—*
Rayburn, Robert L.; Watson, Robert L.; Elbel, Charles R.; and Schweickardt, Karl W., 4,269,194, Cl. 128-719.000.

Schweinfurth, Gustav: *See—*
Sommer, Rolf; Schweinfurth, Gustav; and Ungerer, Heinz-Jurgen, 4,269,800, Cl. 264-111.000.

Schweitzer, Donald G.; Sastre, Cesar; and Winsche, Warren, to United States of America, Energy. Method for storing spent nuclear fuel in repositories. 4,269,728, Cl. 252-301.10W.

SCM Corporation: *See—*
Longrod, Scott J., 4,269,521, Cl. 400-472.000.

Scott, John W.: *See—*
Brana, Lejo C.; and Scott, John W., 4,268,967, Cl. 33-1.00V.

Sease, D. Lamar; Solow, Benjamin; Boeckmann, Eduard F.; and Rabinow, David, to Angstrohm Precision Incorporated. Method of making non-inductive cylindrical thin film resistor. 4,268,954, Cl. 29-620.000.

Segafredo, Andre, to Pomagalski S.A. Safety device for a rocker of sheaves supporting an overhead cable. 4,269,123, Cl. 104-178.000.

Seidel, Michael; Weir, W. David; and Wolfersberger, Martha H., to Rohm and Haas Company. Method and composition for treating helminths containing O,O-dialkyl-N-(substituted phenyl)aminothiocarbonyl phosphoramidates. 4,269,829, Cl. 424-211.000.

Seika Sangyo Co., Ltd.: *See—*
Kawabata, Shigekatsu, 4,269,808, Cl. 423-1.000.

Seiko Koki Kabushiki Kasiha: *See—*
Ogihara, Masuo; Chimura, Kozo; Shinozaki, Nobuo; and Seki, Yoichi, 4,270,195, Cl. 368-74.000.

Seilly, Alec H., to Lucas Industries Limited. Fuel injection nozzles. 4,269,361, Cl. 239-585.000.

Seilly, Alec H.; and Sonderskov, Rasmus J., to Lucas Industries Limited. Valve operating mechanism. 4,269,388, Cl. 251-138.000.

Seki, Yoichi: *See—*
Ogihara, Masuo; Chimura, Kozo; Shinozaki, Nobuo; and Seki, Yoichi, 4,270,195, Cl. 368-74.000.

Sekiya, Fukuo: *See—*
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Serafica, Mario: *See—*
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Seto, Haruo: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Shackleton, Charles E. E., deceased; Shackleton, Edward A. B., executor; Wickens, Anthony J.; and Turner, John H. W., to Mineral Process Licensing Corp. BV. Preparation of anhydrous magnesium chloride. 4,269,816, Cl. 423-498.000.

Shackleton, Edward A. B., executor: *See—*
Shackleton, Charles E. E., deceased; Shackleton, Edward A. B., executor; Wickens, Anthony J.; and Turner, John H. W., 4,269,816, Cl. 423-498.000.

Shaffer, Howard R.; and Wycheck, Thomas H., to AMP Incorporated. Electrical terminal. 4,269,472, Cl. 339-223.00R.

Shalhoub, Ibrahim M.: *See—*
United States of America, National Aeronautics and Space Administration; Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi, 4,269,787, Cl. 260-465.50R.

Shapiro, Daniel H.: *See—*
Miko, Richard J.; and Shapiro, Daniel H., 4,269,613, Cl. 55-278.000.

Shapiro, David. Tire pressure maintenance device. 4,269,252, Cl. 152-426.000.

Shapiro, Jay B.: *See—*
Gans, Leo; Bruins, Paul F.; Shapiro, Jay B.; and Rothman, Myron, 4,269,897, Cl. 428-419.000.

Shapland, Earl P. Sailboat with universal roll furling sail housing. 4,269,134, Cl. 114-107.000.

Sharak, Errol W.; and Sharak, George E., Sr., to Sharak, Errol W. Wind turbine. 4,269,563, Cl. 415-2.00R.

Sharak, George E., Sr.: *See—*
Sharak, Errol W.; and Sharak, George E., Sr., 4,269,563, Cl. 415-2.00R.

Sharki, Martin J.: *See—*
Phillips, Victor Q.; Griffin, Phil H.; and Sharki, Martin J., 4,269,567, Cl. 415-168.000.

Sharp Kabushiki Kaisha: *See—*
Sasaki, Takehiko; and Maeda, Hidetoshi, 4,270,199, Cl. 368-224.000.
Shimazawa, Yoichi; and Kawamoto, Toshiaki, 4,270,133, Cl. 346-140.00R.

Shattuck, Meredith D.; and Weiche, William J., to International Business Machines Corporation. Polyester ribbon for non-impact printing. 4,269,892, Cl. 428-337.000.

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Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Shaw, Anthony R.: *See—*
Krueger, Wallace F.; Shaw, Anthony R.; and Smith, Jerry L., 4,269,173, Cl. 126-450.000.

Shaw, Douglas W.; and Gamwell, Richard, to E. T. Oakes Limited. Jointing of pipes. 4,269,437, Cl. 285-109.000.

Shears, W. Allan, to Fiat-Allis Construction Machinery, Inc. Resilient rear suspension for graders. 4,269,433, Cl. 280-716.000.

Shell Oil Company: *See—*
Keasling, Hugh H., 4,269,840, Cl. 424-253.000.
Keasling, Hugh H., 4,269,841, Cl. 424-253.000.
Kortbeek, Andras G. T. G.; and van der Linden-Lemmers, Wilhelmina J. M., 4,269,732, Cl. 252-429.00B.

Shelstad, Keith L., to Sunoco Energy Development Co. Apparatus for controlling the dispersion of coal fines into the atmosphere. 4,269,614, Cl. 55-385.00R.

Shelton, John J.: *See—*
Burns, James W.; and Shelton, John J., 4,269,140, Cl. 118-665.000.

Shemenski, Robert M., Sr., to Goodyear Tire & Rubber Company, The. Aromatic triazoles and alkylamine borates for increased surface protection and improved adhesion of brass-coated steel to rubber. 4,269,645, Cl. 156-124.000.

Shemenski, Robert M., Sr., to Goodyear Tire & Rubber Company, The. Aromatic triazole, precipitation compound and oxidizing compound for increased surface protection and improved adhesion of brass coated steel to rubber. 4,269,877, Cl. 427-327.000.

Shenoi, Kishan; and Agrawal, Bhagwati P., to International Telephone and Telegraph Corporation. Interpolator apparatus for increasing the word rate of a digital signal of the type employed in digital telephone systems. 4,270,026, Cl. 179-15.55R.

Shenoi, Kishan: *See—*
Agrawal, Bhagwati P.; and Shenoi, Kishan, 4,270,027, Cl. 179-81.00R.

Shephard, Margaret C.: *See—*
Worthington, Paul A.; and Shephard, Margaret C., 4,269,845, Cl. 424-269.000.

Sherwin-Williams Company, The: *See—*
Carr, Richard P.; Nanda, Ashok K.; Schneider, Charles A.; and Malhotra, Girish K., 4,269,987, Cl. 548-257.000.

Shibata, Hidehiro: *See—*
Takeuchi, Takeshi; Takamura, Hisao; Takatsu, Kiyoshi; and Shibata, Hidehiro, 4,269,633, Cl. 148-6.210.

Shibatani, Kyoichiro: *See—*
Yano, Makoto; Shimada, Kiyoo; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,269,682, Cl. 204-195.00M.

Shibazaki, Kenji: *See—*
Ito, Masazumi; Shibazaki, Kenji; and Kitagawa, Tsuneo, 4,269,500, Cl. 355-14.00C.

Shibuya, Tsunenori, to Diesel Kiki Co., Ltd. Vane compressor with reticulate or porous separator element and fluid guide means therein. 4,269,576, Cl. 418-97.000.

Shibuya, Yoshimichi; Kawamura, Hiromitsu; Kando, Yasuhiko; and Koyama, Masaharu, to Hitachi, Ltd. Process for the manufacture of liquid crystal display element. 4,269,617, Cl. 65-43.000.

Shigekusa, Hisashi: *See—*
Minami, Takehiro; and Shigekusa, Hisashi, 4,269,367, Cl. 242-7.080.

Shihabi, David S.: *See—*
Chen, Nai Y.; and Shihabi, David S., 4,269,697, Cl. 208-120.000.

Shikutani, Michio; and Akiyama, Satoshi, to Kabushiki Kaisha Shikutani. Blowing apparatus. 4,269,571, Cl. 417-234.000.

Shilling, Jack W.: *See—*
Foster, Karl; and Shilling, Jack W., 4,269,634, Cl. 148-120.000.

Shima, Eiji; Shimizu, Masao; and Den, Hiroshi, to FEPS International, Ltd.; and Fujijura Cable Works, The. Flat type cable suspension structure. 4,269,380, Cl. 248-74.00R.

Shimada, Kiyoo: *See—*
Yano, Makoto; Shimada, Kiyoo; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,269,682, Cl. 204-195.00M.

Shimano Industrial Company, Limited: *See—*
Nagano, Masashi, 4,269,601, Cl. 474-82.000.
Okajima, Shinpei, 4,269,084, Cl. 74-594.600.

Shimazawa, Yoichi; and Kawamoto, Toshiaki, to Sharp Kabushiki Kaisha. Ink supply device for an ink jet printer. 4,270,133, Cl. 346-140.00R.

Shimizu, Akira: *See—*
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,269,502, Cl. 355-35.00H.

Shimizu, Masao: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Shima, Eiji; Shimizu, Masao; and Den, Hiroshi, 4,269,380, Cl. 248-74.00R.

Shimizu, Sakayu: *See—*
Yamada, Hideaki; Shimizu, Sakayu; and Tani, Yoshiki, 4,269,942, Cl. 435-193.000.

Shimokawa, Ryushi: *See—*
Shiozawa, Kazuo; Yagi, Michio; Suzuki, Kijiro; Aratame, Kazuhisa; Shimokawa, Ryushi; and Ishihara, Haruji, 4,269,494, Cl. 354-60.00L.

Shimokawa, Yoshiyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Microprocessor-based programmable logic controller. 4,270,184, Cl. 364-900.000.

Shingu, Tadashi: *See—*
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, 4,269,931, Cl. 430-271.000.

Shinoda, Masaichi: *See—*
Toyokura, Nobuo; Tokunaga, Hiroshi; Inoue, Shinichi; Ishikawa, Hajime; and Shinoda, Masaichi, 4,270,136, Cl. 357-23.000.

Shinozaki, Nobuo: *See—*
Ogihara, Masuo; Chimura, Kozo; Shinozaki, Nobuo; and Seki, Yoichi, 4,270,195, Cl. 368-74.000.

Shinozaki, Toshiaki: *See—*
Wada, Hirotsugu; and Shinozaki, Toshiaki, 4,269,653, Cl. 156-644.000.

Shinsei Reizo Kogyo Kabushiki Kaisha: *See—*
Koide, Fumiharu; and Ohshima, Masami, 4,269,036, Cl. 62-159.000.

Shintani, Kenji, to Sony Corporation. Multi-axis movable mirror device. 4,269,486, Cl. 350-486.000.

Shionogi & Co., Ltd.: *See—*
Mitsuru, Yoshioka; Teruji, Tsuji; Yasuhiro, Nishitani; and Wataru, Nagata, 4,269,773, Cl. 260-245.400.

Shiozawa, Kazuo; Yagi, Michio; Suzuki, Kijiro; Aratame, Kazuhisa; Shimokawa, Ryushi; and Ishihara, Haruji. Battery level warning device. 4,269,494, Cl. 354-60.00L.

Shipley, Randall S., to Dow Chemical Company, The. Ultra high efficiency catalyst for polymerizing olefins. 4,269,733, Cl. 252-429.00C.

Shirai, Koichi: *See—*
Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.

Shiraishi, Makoto: *See—*
Maruyama, Hitoshi; Kajitani, Koichi; and Shiraishi, Makoto, 4,269,729, Cl. 252-316.000.

Shirose, Toshihiro: *See—*
Nishizawa, Kazunori; Shirose, Toshihiro; and Itoh, Osamu, 4,269,188, Cl. 128-287.000.

Shmuk, Jury A.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.

Shoemaker, Bruce F.: *See—*
Strimple, Robert A.; Snyder, Joseph E.; and Shoemaker, Bruce F., 4,269,397, Cl. 266-44.000.

Shoup, Floyd K.: *See—*
Rao, Ganta V.; and Shoup, Floyd K., 4,269,766, Cl. 260-112.00G.

Showa Highpolymer Co., Ltd.: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Shtrikman, Mikhail M.: *See—*
Grinin, Vladimir V.; and Shtrikman, Mikhail M., 4,270,037, Cl. 219-125.120.

Shupe, Russell D.; and Maddox, Jim, Jr., to Texaco Inc. Emulsion oil recovery process usable in high temperature, high salinity formations. 4,269,271, Cl. 166-274.000.

Sichel, Burton F. Ball holder. 4,269,338, Cl. 224-242.000.

Siebtechnik GmbH: *See—*
Bruderlein, Johannes, 4,269,703, Cl. 209-243.000.

Siegel, William J.; Lee, Walter; and Vella, Alexander J., to Pace Incorporated. Desolderer and heater assembly for use therewith. 4,269,343, Cl. 228-20.000.

Siegert, Heiner: *See—*
Neuenfeldt, Walter; Siegert, Heiner; and Zeitzschel, Gunter, 4,269,660, Cl. 176-30.000.

Siemens Aktiengesellschaft: *See—*
Beyer, Johann; and Strauber, Friedrich, 4,269,176, Cl. 128-24.00A.
Feldtkeller, Ernst, 4,269,483, Cl. 350-390.000.
Flothmann, Detlev; Ruell, Hartwig; and Staimer, Angelika, 4,269,473, Cl. 350-3.610.
Gross, Franz, 4,270,070, Cl. 315-3.500.
Immler, Josef, 4,270,166, Cl. 363-89.000.
Krueger, Hans; Schauer, Alois; and Walter, Karl-Heinz, 4,269,480, Cl. 350-355.000.
Schlichte, Max, 4,270,211, Cl. 375-107.000.
Schuegraf, Eberhard, 4,270,107, Cl. 333-249.000.
Thye, Jurgen; and Hoffner, Karl, 4,270,019, Cl. 174-32.000.
Wiehler, Wolf, 4,270,069, Cl. 315-3.500.

Siemens-Allis, Inc.: *See—*
Glandorf, Frank J.; Wagner, Paul D.; and Keuper, John J., 4,270,064, Cl. 310-90.000.

Sierra Designs, Inc.: *See—*
Marks, George R., 4,269,210, Cl. 135-1.00R.

Sifford, Bruce M.; and Magill, D. Thomas, to Ricoh Company, Ltd. Complex ternary correlator and method for adaptive gradient computation. 4,270,179, Cl. 364-724.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-6-oxo-PGF_1 amides. 4,269,779, Cl. 260-404.000.

Sih, John C., to Upjohn Company, The. 13,14-Dihydro-inter-phenylene-11-deoxy-19-oxo-PGE_1 compounds. 4,269,994, Cl. 560-53.000.

Sih, John C., to Upjohn Company, The. 19,20-Didehydro-13,14-dihydro-PG_2 compounds. 4,269,995, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-cis-4,5-didehydro-PG_1 analogs. 4,269,996, Cl. 560-121.000.

Silk, Murray R.; and Cleveland, Richard T., to Mobil Oil Corporation. Reclaiming wax contaminated lubricating oils. 4,269,695, Cl. 208-111.000.

Simmering-Graz-Pauker Aktiengesellschaft fur Maschinen-, Kessel- und Waggonbau: *See—*
Entzmann, Karl, 4,269,363, Cl. 241-30.000.

Simmonds, Milo R.: *See—*
Sullivan, John L.; Georgini, Eugene A.; and Simmonds, Milo R., 4,269,216, Cl. 137-102.000.

Simmons, Albert: *See—*
Powell, Gordon F. W.; Bolt, Reginald C.; and Simmons, Albert, 4,269,201, Cl. 131-280.000.

Simmons, William F. Variable fuel explosion chamber engine. 4,269,161, Cl. 123-620.000.

Simon, David J.: *See—*
Gronner, Alfred D.; and Simon, David J., 4,270,061, Cl. 307-270.000.

Simonek, Rudiger; Gumm, Peter; Idstein, Hermann; and Witte, Horst, to Hoechst Aktiengesellschaft. Original document transport mechanism for electrophotographic copying machines. 4,269,409, Cl. 271-277.000.

Singer Company, The: *See—*
Duckworth, James J.; and Glennon, William J., 4,270,074, Cl. 318-254.000.
Gronner, Alfred D.; and Simon, David J., 4,270,061, Cl. 307-270.000.
Minnich, George E., 4,268,979, Cl. 434-46.000.
Prill, Robert S., 4,270,120, Cl. 340-347.0SY.
Tullman, Edward J., 4,269,129, Cl. 112-257.000.

Sink, William H.: *See—*
Flotow, Richard A.; and Sink, William H., 4,269,296, Cl. 192-106.200.

Sinloihi Company Limited: *See—*
Wakimoto, Saburo; Miyahara, Sadayasu; and Hyosu, Yoshihiko, 4,269,760, Cl. 260-42.530.

SIPSY: *See—*
Torossian, Dieran R.; and Aubard, Gilbert G., 4,269,778, Cl. 260-397.450.

Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, to Carlo Erba Strumentazione S.p.A. Method and device for sample injection under controlled conditions of temperature profile into gas chromatographic columns. 4,269,608, Cl. 55-67.000.

Sivachenko, Eugene W.; Larkin, Artemas M.; and Bernert, Bogdan W., to Sivachenko, Eugene W. Large profile sheet metal corrugator. 4,269,055, Cl. 72-180.000.

Skarvada, Thomas, to Crane Co. Digital wheel speed sensor. 4,270,176, Cl. 364-565.000.

Skinner, Robert T. J., to Lucas Industries Limited. Engine system. 4,269,159, Cl. 123-569.000.
Skradski, Frank L.: *See—*
Wechsler, Joseph R.; Baker, Thomas G.; Battaglini, George T.; and Skradski, Frank L., 4,269,730, Cl. 252-356.000.
Skuteng A/S: *See—*
Hauan, Nils F., 4,269,538, Cl. 405-63.000.
Sloboda, Adolph E.: *See—*
Tomcufcik, Andrew S.; and Sloboda, Adolph E., 4,269,832, Cl. 424-244.000.
Slovinsky, Manuel, to Nalco Chemical Company. Boiler additives for oxygen scavenging. 4,269,717, Cl. 210-750.000.
Smirl, Richard A., to Zenith Radio Corporation. Continuous tune all-channel selector. 4,270,218, Cl. 455-176.000.
Smith, Clark K.; and Staley, Harry W. Combination log cutter, splitter and bundler. 4,269,242, Cl. 144-192.000.
Smith, Craig G., to Bell Telephone Laboratories, Incorporated. Electrode for electrochemical processes. 4,269,670, Cl. 204-15.000.
Smith, Dennis A., to Fisons Limited. 6,7,8,9-Tetrahydro-4H-naphtho-[2,3-b]pyran-2-carboxylic acids. 4,269,854, Cl. 424-283.000.
Smith, Eileen; and Morgan, David A., to Laporte Industries Limited. Washing compositions. 4,269,725, Cl. 252-174.250.
Smith, Forrest D. Toothpick holder and dispenser. 4,269,313, Cl. 206-380.000.
Smith, Jerry L.: *See—*
Krueger, Wallace F.; Shaw, Anthony R.; and Smith, Jerry L., 4,269,173, Cl. 126-450.000.
Smith Kline & French Laboratories Limited: *See—*
Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., 4,269,844, Cl. 424-263.000.
Smith, Norman: *See—*
Strandell, Per O.; Thorslund, Erik M.; MacKenzie, Colin R.; and Smith, Norman, 4,268,948, Cl. 29-527.600.
Smitley, Marion L., to Colt Industries Operating Corp. Method for gauging fluid flow. 4,269,062, Cl. 73-118.000.
Snowden, James E., Jr. Method for the on-site determination of the presence of corrosive material in lubricating oil. 4,269,604, Cl. 23-230.0HC.
Snyder, Joseph E.: *See—*
Strimple, Robert A.; Snyder, Joseph E.; and Shoemaker, Bruce F., 4,269,397, Cl. 266-44.000.
Sobolev, Valerian M.: *See—*
Tolstikov, Genrikh A.; Dzhemilev, Usein M.; Rutman, Grigory I.; Michurov, Jury I.; Pantukh, Boris I.; Shavanov, Stanislav S.; Rafikov, Sagid R.; Egoricheva, Sofia A.; Juriev, Valery P.; Liakumovich, Alexandr G.; Sobolev, Valerian M.; Korotkevich, Boris S.; Shmuk, Jury A.; and Mandelshtamm, Elena Y., 4,270,016, Cl. 585-366.000.
Sobotka, Frank. Roller skate carrier. 4,269,337, Cl. 294-163.000.
Soby, William; and Johnston, Samuel J. B., to EMI Limited. High speed electroplating. 4,269,669, Cl. 204-5.000.
Sochard, Irving I., to United States of America, Navy. Semi-active optical fuzing. 4,269,121, Cl. 102-213.000.
Societe Anonyme de Telecommunications: *See—*
Le Nevez, Yves F., 4,269,508, Cl. 356-249.000.
Societe Anonyme Francaise du Ferodo: *See—*
Labrande, Jean-Paul, 4,269,267, Cl. 165-181.000.
Societe Chimique des Charbonnages - CdF CHIMIE: *See—*
Nicco, Adrien, 4,269,948, Cl. 525-53.000.
Societe D'Applications de Procedes Industriels et Chimiques S.A.P.I.C.: *See—*
Richard, Gerard Y., 4,269,758, Cl. 260-38.000.
Societe Franco-Belge des Laminoirs et Trefileries d'Anvers "Lamitref": *See—*
Vervliet, Rene, 4,269,344, Cl. 228-125.000.
Soder, Jorg M.: *See—*
Fitzky, Hans G.; Soder, Jorg M.; Schmitt, Franz; Bollongino, Norbert; and Rehrmann, Helmut, 4,270,083, Cl. 324-58.50C.
Solid Photography Inc.: *See—*
DiMatteo, Paul L.; Ross, Joseph A.; and Stern, Howard K., 4,269,513, Cl. 356-376.000.
Solow, Benjamin: *See—*
Sease, D. Lamar; Solow, Benjamin; Boeckmann, Eduard F.; and Rabinow, David, 4,268,954, Cl. 29-620.000.
Somers, Alphonse: *See—*
Janssens, Wilhelmus; Somers, Alphonse; and Claeys, Daniel A., 4,269,924, Cl. 430-214.000.
Sommer, Rolf; Schweinfurth, Gustav; and Ungerer, Heinz-Jurgen, to Saint-Gobain Industries. Process for the preparation of a composite mat consisting of a layer of mineral wool and a layer of steel wool. 4,269,800, Cl. 264-111.000.
Sondermann, Thomas, to Reaktor-Brennelment Union GmbH. Method of decontaminating radioactive process waste waters. 4,269,706, Cl. 210-682.000.
Sonderskov, Rasmus J.: *See—*
Seilly, Alec H.; and Sonderskov, Rasmus J., 4,269,388, Cl. 251-138.000.
Sonntag, Heinrich; and Wallasch, Helmut. Core for molds for electrically melting metals for casting hollow ingots. 4,269,258, Cl. 164-252.000.
Sonobe, Kazuo; and Kato, Takeo, to Isolite Babcock Refractories Co., Ltd. Ceramic fiber felt. 4,269,887, Cl. 428-280.000.
Sony Corporation: *See—*
Shintani, Kenji, 4,269,486, Cl. 350-486.000.
Suzuki, Tadahiko; and Ikeda, Yasunari, 4,270,216, Cl. 455-159.000.
Sorensen, Finn L.; and Neubert, Robert, to Clean-Tex A/S. Method and apparatus for cleaning rugs and mats. 4,268,929, Cl. 8-151.000.
Sorenson, Marius W.: *See—*
Ezzell, Bobby R.; and Sorenson, Marius W., 4,269,675, Cl. 204-98.000.
Sorenson Research Co., Inc.: *See—*
Reynolds, Gordon S.; and Todd, Robert J., 4,269,387, Cl. 251-122.000.
Sornsin, Earl W.: *See—*
Schultz, Gene, 4,269,535, Cl. 404-117.000.
Sorrentino, Vincent P., to Bright Industries Inc. Coupling for furniture and the like. 4,269,532, Cl. 403-191.000.
Soukup, Dale F.: *See—*
Saarem, Myrl J.; Lovelace, Donald E.; Firebaugh, Dale C.; and Soukup, Dale F., 4,269,229, Cl. 137-869.000.
Souriau & Cie: *See—*
Audic, Bernard, 4,269,469, Cl. 339-177.00R.
South African Inventions Development Corp.: *See—*
Wedlake, Roger J., 4,269,905, Cl. 429-8.000.
Spakman, Geert: *See—*
Bentlage, Bernardus W. J.; and Spakman, Geert, 4,270,225, Cl. 455-347.000.
Spees, John A.: *See—*
Meginnis, George B.; and Spees, John A., 4,269,032, Cl. 60-754.000.
Speiser, Peter P.: *See—*
Kreuter, Jorg; and Speiser, Peter P., 4,269,821, Cl. 424-19.000.
Speiser, Peter Paul: *See—*
Kreuter, Jorg; and Speiser, Peter P., 4,269,821, Cl. 424-19.000.
Sperry Corporation: *See—*
Davis, William W.; and Griffith, Ernest S., 4,270,214, Cl. 455-80.000.
Duncan, Damon H., 4,269,072, Cl. 74-5.00F.
Flannery, William E., 4,270,186, Cl. 365-15.000.
Herper, John C.; and Stangel, John J., 4,270,129, Cl. 343-703.000.
Swartz, Harold L.; and Buemi, Joseph M., Jr., 4,270,077, Cl. 318-661.000.
Spiegelman, Gerald; and Liauw, Koei-Liang, to Argus Chemical Corporation. Preparation of mixtures of methyltin trichloride and dimethyltin dichloride from stannic chloride and dimethyltin dichloride. 4,269,782, Cl. 260-429.700.
Spiller, Eberhard A.: *See—*
Gaensslen, Fritz H.; and Spiller, Eberhard A., 4,268,952, Cl. 29-571.000.
Splinter, Michael R.: *See—*
Elliott, Michael T.; Splinter, Michael R.; Jones, Addison B.; and Reekstin, John P., 4,268,951, Cl. 29-571.000.
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Use of 1,3,5,5-Tetramethyl-2-oxabicyclo[2.2.2]octane in augmenting or enhancing the aroma or taste of foodstuffs. 4,269,862, Cl. 426-536.000.
Springer, Helmut: *See—*
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,270,008, Cl. 568-448.000.
Spruiell, Walter L. Centrifugal pump for abrasive liquids. 4,269,566, Cl. 415-112.000.
Spuhl AG: *See—*
Spuhl, Walter, 4,269,300, Cl. 198-379.000.
Spuhl, Walter, to Spuhl AG. Method and apparatus for separating helical springs closed by knots at their winding ends. 4,269,300, Cl. 198-379.000.
SRI International: *See—*
De Graw, Joseph I.; Lawson, John A.; Johnson, Howard L.; and Loew, Gilda H., 4,269,843, Cl. 424-260.000.
Eckerle, Joseph S., 4,269,193, Cl. 128-672.000.
Srinivasan, Gurumakonda R.: *See—*
Anantha, Narasipur G.; and Srinivasan, Gurumakonda R., 4,269,631, Cl. 148-1.500.
Staffieri, Lamberto. Thigh prosthesis. 4,268,923, Cl. 3-22.000.
Staimer, Angelika: *See—*
Flothmann, Detlev; Ruell, Hartwig; and Staimer, Angelika, 4,269,473, Cl. 350-3.610.
Stal-Laval Turbin AB: *See—*
Bojesgard, Pehr; Kullendorff, Anders; and Wikner, Jan, 4,269,151, Cl. 122-4.00D.
Staley, Harry W.: *See—*
Smith, Clark K.; and Staley, Harry W., 4,269,242, Cl. 144-192.000.
Stamicarbon B.V.: *See—*
Pastormerlo, Primo, 4,269,997, Cl. 564-73.000.
Standard Oil Company: *See—*
Landis, Norris J., 4,269,667, Cl. 203-76.000.
Wysocki, Carl G., 4,269,666, Cl. 203-15.000.
Standard Oil Company (Indiana): *See—*
Klotz, Marvin R., 4,269,813, Cl. 423-277.000.
Stangel, John J.: *See—*
Herper, John C.; and Stangel, John J., 4,270,129, Cl. 343-703.000.
Statics, Inc.: *See—*
Testone, Anthony Q., 4,268,934, Cl. 15-306.00B.
Stauffer Chemical Company: *See—*
Chirafisi, Dominick J.; and Melachouris, Nicholas, 4,269,864, Cl. 426-583.000.
Felix, Raymond A., 4,269,984, Cl. 548-142.000.
Felix, Raymond A., 4,269,988, Cl. 548-263.000.
Mueller, Klaus W.; and Olsen, Norman R., 4,269,721, Cl. 252-88.000.

Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., 4,269,618, Cl. 71-88.000.
Teach, Eugene G., 4,269,986, Cl. 548-215.000.
Stechmann, Helmut; and Haberer, Jens, to Kienzle Uhrenfabriken GmbH. Timed chime system. 4,270,200, Cl. 368-252.000.
Stedman, Robert C.: *See—*
Charles, Roger D.; Charles, Earl, Jr.; and Stedman, Robert C., 4,269,565, Cl. 415-76.000.
Steelastic Company, The: *See—*
Vanderzee, Robert S., 4,269,649, Cl. 156-416.000.
Stefan, Gunther: *See—*
Kroll, Walter; and Stefan, Gunther, 4,269,584, Cl. 425-313.000.
Steinberg, Albert H.: *See—*
DellaVecchia, Michael P.; Mackey, Joseph E.; and Steinberg, Albert H., 4,269,884, Cl. 428-131.000.
Steinmaier, Dieter. Microphone mixer with predistortion indication. 4,270,151, Cl. 360-31.000.
Stemme, Walter, to Braun AG. Battery mounting chamber for a pocket calculator. 4,269,908, Cl. 429-98.000.
Stenudd, Kurt G.: *See—*
Bramberger, Bo C.; and Stenudd, Kurt G., 4,269,283, Cl. 181-207.000.
Stenzenberger, Horst, to Technochemie GmbH Verfahrenstechnik. Polyimide prepolymer, polyimide resin from imide acid chloride and diamine. 4,269,966, Cl. 528-322.000.
Stepan Chemical Company: *See—*
Wechsler, Joseph R.; Baker, Thomas G.; Battaglini, George T.; and Skradski, Frank L., 4,269,730, Cl. 252-356.000.
Stephens, Frederick N.; and Stephens, Joseph L., to Stephens Systems, Inc. Worksheet presenting apparatus. 4,269,403, Cl. 271-3.000.
Stephens, Joseph L.: *See—*
Stephens, Frederick N.; and Stephens, Joseph L., 4,269,403, Cl. 271-3.000.
Stephens Systems, Inc.: *See—*
Stephens, Frederick N.; and Stephens, Joseph L., 4,269,403, Cl. 271-3.000.
Stephenson, George M.; and Colucci, William, to Stephenson, George M. Two-step process and composition for cleaning polished surfaces. 4,269,630, Cl. 134-26.000.
Sterling Drug Inc.: *See—*
Ferrari, Richard A.; and Beyler, Arthur L., 4,269,831, Cl. 424-241.000.
Stern, Howard K.: *See—*
DiMatteo, Paul L.; Ross, Joseph A.; and Stern, Howard K., 4,269,513, Cl. 356-376.000.
Stevens, Albert: *See—*
McMullan, James P.; and Stevens, Albert, 4,270,040, Cl. 219-528.000.
Stevens, Violete L.: *See—*
Atchison, George J.; McEwen, Gerald K.; and Stevens, Violete L., 4,269,727, Cl. 252-188.30R.
Stock, Gert: *See—*
Hock, Franz; Dopper, Franz-Herbert; and Stock, Gert, 4,269,701, Cl. 209-23.000.
Stokes, Kenneth B., to Medtronic, Inc. Body implantable lead. 4,269,198, Cl. 128-785.000.
Stoner, Eugene M., to ARES, Inc. Programmed shell casing ejector apparatus for automatic cannon. 4,269,108, Cl. 89-33.00R.
Stoner, Eugene M., to ARES, Inc. Open-framework receiver automatic cannon. 4,269,109, Cl. 89-198.000.
Strahm, Christian; and Gageur, Fritz, to Lindauer Dornier Gesellschaft mbH. Externally held cylindrical spreading means for tubular fabric. 4,269,046, Cl. 68-13.00R.
Straitz, John F., III, to Combustion Unlimited Incorporated. Pilots for flare stacks. 4,269,583, Cl. 431-202.000.
Strandell, Per O.; Thorslund, Erik M.; MacKenzie, Colin R.; and Smith, Norman, to British Steel Corp. Parting device. 4,268,948, Cl. 29-527.600.
Strangio, Francis J.: *See—*
Ingber, Lawrence K.; and Strangio, Francis J., 4,269,090, Cl. 82-1.00C.
Strauber, Friedrich: *See—*
Beyer, Johann; and Strauber, Friedrich, 4,269,176, Cl. 128-24.00A.
Strausburg, Larry D., to Monarch Marking Systems, Inc. Setting knobs for selective print head. 4,269,119, Cl. 101-111.000.
Strelow, John L.: *See—*
Forsythe, Calvin C.; Strelow, John L.; and Clift, Miner E., 4,269,214, Cl. 137-68.00R.
Striffler, Eugene, Jr.; and Kolakowski, Michael A., to NL Industries, Inc. Production of lead monoxide from lead sulfate with acetic acid. 4,269,811, Cl. 423-92.000.
Strimple, Robert A.; Snyder, Joseph E.; and Shoemaker, Bruce F., to Bethlehem Steel Corporation. Method for measuring the thickness of a refractory in a metallurgical apparatus. 4,269,397, Cl. 266-44.000.
Strobel, Gerhard, to Klockner-Humboldt-Deutz AG. Tedding attachment for rotary harvesting mower. 4,269,019, Cl. 56-192.000.
Stroup, Steven L., to Crown Unlimited Machines, Inc. Power driven dereeler with strand tension-sensing device. 4,269,369, Cl. 242-45.000.
Strzelecki, Henryk: *See—*
Libus, Wlodzimierz; Kluczkowski, Marek; Pilarczyk, Michal; Strzelecki, Henryk; Pastewski, Roman; and Grzybkowski, Waclaw, 4,269,676, Cl. 204-107.000.
Stuttard, Edward B.; Blackwell, John E.; and Chao, Jessie, to Racal-Milgo, Inc. Modem with automatic port reconfiguration apparatus. 4,270,202, Cl. 370-80.000.
Su, Tsung-Yuan, to Union Carbide Corporation. Use of organotitanate in the encapsulation of electrical components. 4,269,756, Cl. 260-37.00R.
Sudo, Hisashi, to Kubota Ltd. Rotary valve. 4,269,218, Cl. 137-240.000.
Sudo, Tsuneta: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Suechting, Henry W.: *See—*
deBuhr, Harold E.; and Suechting, Henry W., 4,269,017, Cl. 56-106.000.
Sugamori, Shigeru: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Sugimoto, Kenji: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.
Sugizaki, Atsushi: *See—*
Arai, Atsuaki; Oishi, Yasushi; Nakazyo, Kiyoshi; Sugizaki, Atsushi; and Okumura, Akio, 4,269,936, Cl. 430-389.000.
Suhoza, Richard A., to R. T. Vanderbilt Company, Inc. Alkylnaphthalene sulfonic acid salts as filler deactivators in polyolefins. 4,269,761, Cl. 260-45.70S.
Sullivan, Carl M., to Goodyear Tire & Rubber Company, The. Low density high resiliency foams. 4,269,946, Cl. 521-163.000.
Sullivan, John L.; Georgini, Eugene A.; and Simmonds, Milo R., to A-T-O Inc. Pressure demand valve system. 4,269,216, Cl. 137-102.000.
Sumida, Susumu: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Sumimoto, Takashi: *See—*
Inoue, Hitoshi; Watanabe, Kenichi; and Sumimoto, Takashi, 4,269,432, Cl. 280-690.000.
Sumitomo Chemical Company, Limited: *See—*
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,270,002, Cl. 564-221.000.
Sun Electric Corporation: *See—*
Karlin, Richard A.; and Koskinen, Carl J., 4,270,174, Cl. 364-551.000.
Kostecki, Raymond T., 4,270,080, Cl. 320-24.000.
Sunnen Products Company: *See—*
Rutter, Harold T., 4,269,000, Cl. 51-165.740.
Sunoco Energy Development Co.: *See—*
Shelstad, Keith L., 4,269,614, Cl. 55-385.00R.
Sutter, Leroy V., Jr.: *See—*
Griffith, Glen A.; and Sutter, Leroy V., Jr., 4,269,501, Cl. 354-323.000.
Suttler, Henry G. Electronic scaler. 4,270,173, Cl. 364-523.000.
Suzuki, Hiroshi: *See—*
Inoue, Sadao; Umemura, Tetsuya; Suzuki, Hiroshi; and Kuroyanagi, Takashi, 4,269,623, Cl. 75-157.500.
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, to Teijin Limited. Supports for printing plates. 4,269,931, Cl. 430-271.000.
Suzuki, Kijiro: *See—*
Shiozawa, Kazuo; Yagi, Michio; Suzuki, Kijiro; Aratame, Kazuhisa; Shimokawa, Ryushi; and Ishihara, Haruji, 4,269,494, Cl. 354-60.00L.
Suzuki, Masahiro. Method of producing hydrogen. 4,269,818, Cl. 423-657.000.
Suzuki, Noboru: *See—*
Ichinose, Isao; Mori, Fumio; and Suzuki, Noboru, 4,269,321, Cl. 215-343.000.
Suzuki, Ryoichi; Kinoshita, Takao; Ogawa, Yukio; and Uchiyama, Takashi, to Canon Kabushiki Kaisha. Electromagnetic camera shutter control device. 4,269,493, Cl. 354-51.000.
Suzuki, Tadahiko; and Ikeda, Yasunari, to Sony Corporation. Tuning and volume indicator. 4,270,216, Cl. 455-159.000.
Suzuki, Yoshiaki: *See—*
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,269,926, Cl. 430-216.000.
Suzuki, Yoshihisa: *See—*
Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, 4,269,860, Cl. 426-5.000.
Suzuki, Yoshiki; and Noda, Seijiro, to Nippon Kogaku K.K. Accessory device for photographic camera. 4,269,498, Cl. 354-288.000.
Svec, Frantisek: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.
Swager, William E. Sliding clamp and adaptor. 4,269,284, Cl. 182-8.000.
Swanson, Kenneth H.: *See—*
Brolin, Stephen J.; Gottesman, Jeffrey L.; Morgen, Dennis H.; and Swanson, Kenneth H., 4,270,030, Cl. 179-175.20D.
Swartz, Harold L.; and Buemi, Joseph M., Jr., to Sperry Corporation. Demodulatorless synchro position sensor apparatus utilizing square wave excitation. 4,270,077, Cl. 318-661.000.
Swisstronics, Inc.: *See—*
Ingber, Lawrence K.; and Strangio, Francis J., 4,269,090, Cl. 82-1.00C.

Sygnator, Henry A., to Illinois Tool Works Inc. Extruding and tapping screw and blank for manufacture of such screw. 4,269,902, Cl. 428-577.000.

Szczepanski, Henry; Martin, Henry; Fory, Werner; and Pissiotas, Georg, to Ciba-Geigy Corporation. Oxime derivatives for protecting plant crops. 4,269,775, Cl. 260-340.700.

Tabar, Ronald J.; and Killgoar, Paul C., Jr., to Ford Motor Company. Compounding polychloroprene rubber. 4,269,746, Cl. 260-23.70H.

Tabuchi, Kenji: *See—*
Wada, Kenichi; Oka, Tateki; Tanaka, Susumu; and Tabuchi, Kenji, 4,269,920, Cl. 430-107.000.

Tadanier, John S.; and Martin, Jerry R., to Abbott Laboratories. 1,2-Carbamates of fortimicin B and derivatives. 4,269,970, Cl. 536-17.00R.

Taira, Tsuneo, to Rex Industries Co., Ltd. Pipe cutter. 4,268,959, Cl. 30-94.000.

Taisan Industrial Co., Ltd.: *See—*
Nozawa, Katsumi; and Nomura, Hideo, 4,269,572, Cl. 417-299.000.

Taisei Corporation: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Taisho Pharmaceutical Co., Ltd.: *See—*
Yamagishi, Michio; Kawashima, Akira; Mizutani, Taku; Hara, Hiroshi; Mizoue, Kazutoshi; Omura, Sadafumi; Seto, Haruo; and Otake, Noboru, 4,269,971, Cl. 536-17.00R.

Takada, Juichiro. Passive vehicle occupant restraint lap and shoulder belt system. 4,269,434, Cl. 280-803.000.

Takagi, Fumio: *See—*
Arai, Eisuke; Kamei, Kuniaki; Kawasaki, Akio; Takagi, Fumio; Shirai, Koichi; and Orihara, Yasuharu, 4,269,650, Cl. 156-540.000.

Takagi, Sadaaki. Polyurethane cushion material and preparing the same. 4,269,889, Cl. 428-315.000.

Takagi, Tutomu: *See—*
Tokuda, Takuro; Ikeda, Susumu; Kubota, Yoshikazu; Takagi, Tutomu; and Kokagi, Yuuichi, 4,269,857, Cl. 424-325.000.

Takahara, Yoshiyuki: *See—*
Asagao, Soichi; Nakatani, Masaru; Nakagawa, Shinsuke; Takahara, Yoshiyuki; and Okada, Naoki, 4,269,814, Cl. 423-308.000.

Takahashi, Teruo: *See—*
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, 4,269,931, Cl. 430-271.000.

Takai, Atsushi: *See—*
Hagiwara, Yoshimune; Sawase, Terumi; Takai, Atsushi; Kita, Yuzo; and Honda, Akira, 4,270,220, Cl. 455-182.000.

Takaiwa, Masakazu: *See—*
Yaguchi, Kunihide; Takaiwa, Masakazu; and Aoki, Minoru, 4,269,806, Cl. 422-171.000.

Takakura, Koichi: *See—*
Yamashita, Shuzo; Kawai, Syuji; Tanii, Hirokuni; and Takakura, Koichi, 4,269,713, Cl. 210-500.200.

Takami, Satoshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Programmed shutter gamma switching circuit. 4,269,490, Cl. 354-24.000.

Takamura, Hisao: *See—*
Takeuchi, Takeshi; Takamura, Hisao; Takatsu, Kiyoshi; and Shibata, Hidehiro, 4,269,633, Cl. 148-6.210.

Takatsu, Kiyoshi: *See—*
Takeuchi, Takeshi; Takamura, Hisao; Takatsu, Kiyoshi; and Shibata, Hidehiro, 4,269,633, Cl. 148-6.210.

Takeda Riken Kogyo Kabushikikaisha: *See—*
Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Mitamura, Masakazu, 4,270,119, Cl. 340-347.0NT.

Takeda, Yutaka; Aiki, Kunio; and Ito, Ryoichi, to Hitachi, Ltd. Light-emitting semiconductor device. 4,270,134, Cl. 357-19.000.

Takeshita, Kazuhide: *See—*
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, 4,269,753, Cl. 260-33.4SB.
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, 4,269,757, Cl. 260-37.0SB.

Takeuchi, Takeshi; Takamura, Hisao; Takatsu, Kiyoshi; and Shibata, Hidehiro, to Nisshin Steel Co., Ltd. Method for coloring stainless steel. 4,269,633, Cl. 148-6.210.

Takimoto, Hiroyuki, to Canon Kabushiki Kaisha. Camera and error preventing circuit therefor. 4,269,489, Cl. 352-174.000.

Takiyama, Eiichiro: *See—*
Morohashi, Yasushi; Komatsu, Yasuji; Hanyuda, Toshiaki; Takiyama, Eiichiro; Horishima, Tohei; and Sugimoto, Kenji, 4,269,869, Cl. 427-54.100.

Talbot, William J., Jr.: *See—*
Uyeda, Stanley T.; Radu, E. John; Talbot, William J., Jr.; and Feldman, Norman, 4,269,540, Cl. 405-168.000.

Tamura, Keiji: *See—*
Matsuda, Yoshiji; Tamura, Keiji; Motoki, Hiroaki; Kitame, Fumio; and Ishida, Nakao, 4,269,765, Cl. 260-112.00B.

Tamura, Munetaka; and Hatuse, Toshikazu. Electronic timepiece. 4,270,198, Cl. 368-220.000.

Tan, Yoichi; and Noda, Seiichi, to Nippon Electric Co., Ltd. Digital diversity receiver, comprising an APC loop for locking instants of read-out of buffer memories to an averaged phase of signals supplied thereto. 4,270,210, Cl. 375-100.000.

Tanaka, Haruo: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Tanaka, Haruo, 4,269,838, Cl. 424-250.000.

Tanaka, Hiroaki: *See—*
Hagyuda, Nobuyoshi; and Tanaka, Hiroaki, 4,269,491, Cl. 354-25.000.

Tanaka, Hiroshi; and Tsuneda, Terukuni, to Canon Kabushiki Kaisha. Method for preventing degradation of a liquid developer for electrostatic recording. 4,269,921, Cl. 430-119.000.

Tanaka, Masanori: *See—*
Endoh, Kenjiro; Ishizawa, Yoshiyuki; Tanaka, Masanori; and Iwasaki, Koji, 4,270,177, Cl. 364-571.000.

Tanaka, Masaya; Ono, Mitsuo; and Degawa, Sadao, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Liquid leakage detection system. 4,270,049, Cl. 250-227.000.

Tanaka, Susumu: *See—*
Wada, Kenichi; Oka, Tateki; Tanaka, Susumu; and Tabuchi, Kenji, 4,269,920, Cl. 430-107.000.

Tanakamaru, Hideki: *See—*
Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, 4,269,860, Cl. 426-5.000.

Tanakura, Yoshiyuki; and Uchida, Keiichiro, to Fujitsu Limited. Data processing system having a high speed pipeline processing architecture. 4,270,181, Cl. 364-736.000.

Tani, Yoshiki: *See—*
Yamada, Hideaki; Shimizu, Sakayu; and Tani, Yoshiki, 4,269,942, Cl. 435-193.000.

Tanii, Hirokuni: *See—*
Yamashita, Shuzo; Kawai, Syuji; Tanii, Hirokuni; and Takakura, Koichi, 4,269,713, Cl. 210-500.200.

Tanno, Shoji: *See—*
Ohtani, Shigemori; and Tanno, Shoji, 4,269,358, Cl. 239-425.000.

Tasch, Al F., Jr.: *See—*
Chatterjee, Pallab K.; and Tasch, Al F., Jr., 4,268,950, Cl. 29-571.000.

Taylor, Lloyd D.: *See—*
Barton, Derek H. R.; Bronstein-Bonte, Irena Y.; and Taylor, Lloyd D., 4,269,925, Cl. 430-215.000.

Taylor, Warren A. Sign assembly. 4,268,984, Cl. 40-154.000.

Teach, Eugene G., to Stauffer Chemical Company. Hydroxyacetyl oxazolidine herbicidal antidotes. 4,269,986, Cl. 548-215.000.

Technicon Instruments Corporation: *See—*
Adler, Stanford L.; and Gordon, Abraham, 4,269,139, Cl. 118-642.000.

Technochemie GmbH Verfahrenstechnik: *See—*
Stenzenberger, Horst, 4,269,966, Cl. 528-322.000.

Technomatic AG: *See—*
Ruchser, Erich; and Ott, Helmut, 4,269,225, Cl. 137-596.160.

Tegel, Othmar: *See—*
Gill, Hardial S.; and Tegel, Othmar, 4,270,099, Cl. 331-96.000.

Teijin Limited: *See—*
Inata, Hiroo; Ogasawara, Makoto; Morinaga, Tsuto; and Norike, Akihiro, 4,269,947, Cl. 525-10.000.
Kuroda, Toshimasa; and Matsumoto, Mitsuo, 4,268,940, Cl. 28-255.000.
Suzuki, Kazuyoshi; Takahashi, Teruo; Shingu, Tadashi; Naka, Kiyomi; and Horike, Akihiro, 4,269,931, Cl. 430-271.000.

Teijin Seiki Company Limited: *See—*
Kamimura, Toshio, 4,269,111, Cl. 91-419.000.

Temafa Textilemaschinenfabrik GmbH: *See—*
Hock, Franz; Dopper, Franz-Herbert; and Stock, Gert, 4,269,701, Cl. 209-23.000.

Terabayashi, Takeshi: *See—*
Inagami, Kaoru; Ohmura, Kazutaka; Haruna, Masao; and Terabayashi, Takeshi, 4,269,863, Cl. 426-550.000.

Terada, Jiro; Nitta, Tsuneharu; and Ise, Yukihiko, to Matsushita Electric Industrial Co. Ltd. Humidity detecting apparatus. 4,270,085, Cl. 324-65.00R.

Terade, Kiichi; and Iida, Yasuhiro, to Kabushiki Kaisha Daini Seikosha. Miniature motor for an electronic timepiece including a stator having a non-magnetic reinforcing ring. 4,270,066, Cl. 310-258.000.

Terasawa, Masatoshi: *See—*
Ogawa, Koichi; Terasawa, Masatoshi; Iwata, Shizuo; Suzuki, Yoshihisa; and Tanakamaru, Hideki, 4,269,860, Cl. 426-5.000.

Terui, Yohji: *See—*
Ohtake, Nobumasa; Koga, Isao; and Terui, Yohji, 4,269,993, Cl. 556-450.000.

Teruji, Tsuji: *See—*
Mitsuru, Yoshioka; Teruji, Tsuji; Yasuhiro, Nishitani; and Wataru, Nagata, 4,269,773, Cl. 260-245.400.

Terzian, Berj A. Balanced complementary digital time displays. 4,270,196, Cl. 368-82.000.

Testone, Anthony Q., to Statics, Inc. Cleaner for circuit boards. 4,268,934, Cl. 15-306.00B.

Tetro, Roland G., to Transamerica DeLaval Inc. Method of making an encapsulated magnetic-reed switch circuit element adapted for use in interconnected array. 4,268,953, Cl. 29-602.00R.

Texaco Inc.: *See—*
Howard, Curtis E.; and Calvin, Douglas G., 4,269,211, Cl. 137-2.000.
Kalfoglou, George, 4,269,270, Cl. 166-273.000.
Knifton, John F., 4,270,015, Cl. 585-324.000.
Shupe, Russell D.; and Maddox, Jim, Jr., 4,269,271, Cl. 166-274.000.

Texas Instruments Incorporated: *See—*
Chatterjee, Pallab K.; and Tasch, Al F., Jr., 4,268,950, Cl. 29-571.000.
Orcutt, John W., 4,269,351, Cl. 236-87.000.
Werking, Paul M., 4,270.046, Cl. 250-205.000.

Texasgulf Inc.: *See—*
Altorfer, Kenneth J.; and Marantz, Daniel R., 4,269,867, Cl. 427-37.000.

Textoris, Melvin A.: *See—*
Kenworthy, Max H.; and Textoris, Melvin A., 4,270,020, Cl. 174-48.000.

Textron Inc.: *See—*
Larson, Eugene R.; and Harms, Walter, 4,269,246, Cl. 81-460.000.

Thatcher, C. S.: *See—*
United States of America, National Aeronautics and Space Administration; Ruiz, W. V.; and Thatcher, C. S., 4,269,640, Cl. 156-84.000.

Theis, Peter; Buchberger, Gregory D.; and Krueger, William J., to Morgan Electronics. Telephone line activity monitor. 4,270,024, Cl. 179-8.00A.

Theodore, Frank W., to Conoco, Inc. Apparatus for compacting, degassing and carbonizing carbonaceous agglomerates. 4,269,662, Cl. 202-100.000.

Thiel, Rudolf, to ITT Industries, Inc. Guiding device for brake pad supports of a spot-type disc brake. 4,269,290, Cl. 188-72.300.

Thomas, Alvin W.; and Mills, Benjamin G., to Trans-Canada Life-Ware Limited. Electric frying pan. 4,270,067, Cl. 219-438.000.

Thomas, Berwyn C., to Imperial Chemical Industries Limited. Apparatus for injection molding against a preformed web. 4,269,579, Cl. 425-111.000.

Thomas & Betts Corporation: *See—*
Bethurum, Gary C., 4,269,462, Cl. 339-74.00R.

Thomas C. Elder, Inc.: *See—*
Kaufman, Kurt D., 4,269,851, Cl. 424-279.000.
Kaufman, Kurt D., 4,269,852, Cl. 424-279.000.

Thomas, Dennis R., to Kress Corporation. Steering assembly. 4,269,560, Cl. 414-459.000.

Thomas, Douglas J.: *See—*
Clarke, Robin; Thomas, Douglas J.; Kilmister, George T. F.; and Beal, Robert R., 4,269,051, Cl. 72-9.000.

Thomas, Harold T.: *See—*
Houle, Conrad G.; Howe, Dennis G.; Thomas, Harold T.; Wrobel, Joseph J.; and Fike, Bruce G., deceased, 4,270,130, Cl. 346-77.00E.

Thomas, Lowell S., to Dow Chemical Company, The. Polycarbonate containing a salt of a tetrahydrocarbyl borate as an ignition depressant. 4,269,762, Cl. 260-45.70P.

Thomas, Roy W. Passive restrainer for small animals. 4,269,149, Cl. 119-103.000.

Thomson-CSF: *See—*
Bergero, Jean-Pierre; Charlet, Yves; and Leschaeve, Philippe, 4,270,100, Cl. 331-107.00A.
Blondél, Jacques; and Mahieu, Jean-Rene. 4,270,224, Cl. 455-327.000.
Gauthier, Francois H.; and Lepeytre, Jean-Paul, 4,269,476, Cl. 350-174.000.
Le Tron, Yves; Obregon, Juan; Marechal, Pierre-Georges; and Barvet, Serge, 4,270,097, Cl. 331-96.000.
Menant, Christophe, 4,270,222, Cl. 455-236.000.
Peynaud, Francois, 4,270,191, Cl. 367-91.000.

Thorne-Booth, George M. Scoring system for shooting gallery. 4,269,415, Cl. 273-310.000.

Thorslund, Erik M.: *See—*
Strandell, Per O.; Thorslund, Erik M.; MacKenzie, Colin R.; and Smith, Norman, 4,268,948, Cl. 29-527.600.

Thye, Jurgen; and Hoffner, Karl, to Siemens Aktiengesellschaft. Connecting piece between cables and bus bars. 4,270,019, Cl. 174-32.000.

Tidd, James A.; and Tidd, Miles H., to Alphatype Corporation. Ultra-high resolution photocomposition system employing electronic character generation from magnetically stored data. 4,270,172, Cl. 364-523.000.

Tidd, Miles H.: *See—*
Tidd, James A.; and Tidd, Miles H., 4,270,172, Cl. 364-523.000.

Timex Corporation: *See—*
Bulle, Marcel; and Vuillaume, Jean, 4,269,026, Cl. 59-82.000.
Pyne, Bernard; Gray, Reginald W. H.; and Barber, Peter R., 4,270,201, Cl. 368-282.000.

Timmons, Jay, to Hiebert, Inc. Panel joining system. 4,269,005, Cl. 52-36.000.

Tinnes, Bernhard; Baumann, Rainer; and Dur, Bernhard, to Metacon AG. Metallurgical furnace. 4,269,399, Cl. 266-236.000.

TMC Corporation: *See—*
Weigl, Erwin, 4,269,431, Cl. 280-618.000.

Toa Nenryo Kogyo Kabushiki Kaisha: *See—*
Okumura, Yoshiharu; and Kaneko, Katsumi, 4,270,011, Cl. 568-899.000.

Todd, Robert J.: *See—*
Reynolds, Gordon S.; and Todd, Robert J., 4,269,387, Cl. 251-122.000.

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Araki, Tatsuo; Okamoto, Yasuo; Ohtomo, Fumio; and Atsumi, Hiroto, 4,269,227, Cl. 137-630.140.
Endoh, Kenjiro; Ishizawa, Yoshiyuki; Tanaka, Masanori; and Iwasaki, Koji, 4,270,177, Cl. 364-571.000.
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Minami, Takehiro; and Shigekusa, Hisashi, 4,269,367, Cl. 242-7.080.
Ohkoshi, Isao; and Ikeuchi, Hideki, 4,269,285, Cl. 187-9.00R.
Saito, Shozo, 4,270,188, Cl. 365-189.000.
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Tompkins, E. Neal; and Donzis, Henry M. Adaptive error correction device for a laser scanner. 4,270,131, Cl. 346-108.000.

Toms, Norman D.; and Legal, Jules O. Pediatric tidal volume indicator and ventilator adaptation. 4,269,196, Cl. 128-727.000.

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Toray Silicone Company, Ltd.: *See—*
Mine, Katsutoshi; Maruyama, Tsuneo; and Takeshita, Kazuhide, 4,269,753, Cl. 260-33.4SB.
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Hashimoto, Yasuyuki; and Torii, Osamu, 4,269,524, Cl. 401-65.000.

Torossian, Dieran R.; and Aubard, Gilbert G., to SIPSY. Process for the preparation of steroids. 4,269,778, Cl. 260-397.450.

Toyo Kogyo Co., Ltd.: *See—*
Inoue, Hitoshi; Watanabe, Kenichi; and Sumimoto, Takashi, 4,269,432, Cl. 280-690.000.

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Ichinose, Isao; Mori, Fumio; and Suzuki, Noboru, 4,269,321, Cl. 215-343.000.

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Ishida, Masayuki, 4,269,113, Cl. 99-404.000.

Toyoda, Shinichi: *See—*
Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, 4,269,894, Cl. 428-377.000.

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Hattori, Kyo, 4,269,028, Cl. 60-276.000.
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Kizu, Ryohei; Matoba, Taketo; Oguni, Yasuo; and Sakurai, Hideaki, 4,269,043, Cl. 64-11.00R.

Tracy, John M.: *See—*
Yeh, Pochi A.; and Tracy, John M., 4,269,481, Cl. 350-356.000.

Trans-Canada Life-Ware Limited: *See—*
Thomas, Alvin W.; and Mills, Benjamin G., 4,270,067, Cl. 219-438.000.

Transamerica DeLaval Inc.: *See—*
Tetro, Roland G., 4,268,953, Cl. 29-602.00R.

Tranter, Harold W., to British Industrial Plastics Limited. Compression moulding presses. 4,269,587, Cl. 425-451.900.

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Tresch, Erwin: *See—*
Horvath, Zoltan; Muggli, Jurg; Ackermann, Hans; and Tresch, Erwin, 4,269,510, Cl. 356-338.000.

Trestianu, Sorin: *See—*
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,269,608, Cl. 55-67.000.

Tri State Culvert Corporation: *See—*
Johnson, Doyle F.; and Goetz, Nelson F., 4,269,234, Cl. 138-121.000.

Triangle Accessoires de Motocyclettes Ltee.: *See—*
LaRose, Claude; and Gagnon, Jacques, 4,269,335, Cl. 224-31.000.

Tringali, Richard C.: *See—*
Zboralski, Jon A.; Tringali, Richard C.; and Grow, Harry N., 4,269,615, Cl. 55-480.000.

Troeng, John: *See—*
Broberg, Hans; Douren, Lars; and Troeng, John, 4,269,655, Cl. 159-13.00A.

TRW, Inc: *See—*
Jones, Robert J.; Green, Howard E.; and Quinlivan, Sandra C., 4,269,961, Cl. 526-262.000.

Tsang, Won-Tien: *See—*
Logan, Ralph A.; and Tsang, Won-Tien, 4,269,635, Cl. 148-171.000.

Tsuchiya, Tatsuhiko; and Oka, Mikiwo, to Alps Electric Co., Ltd. Automatic stop mechanism for tape recorder. 4,269,373, Cl. 242-191.000.
Tsuchiya, Yoshimi: *See—*
Sakurai, Akira; Tsuchiya, Yoshimi; and Mizutani, Hiroshi, 4,269,187, Cl. 128-263.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; and Matsuyama, Takashi, to Olympus Optical Co., Ltd. Sheet holding cassette. 4,269,407, Cl. 271-127.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, to Olympus Optical Co., Ltd. Electrophotographic copying apparatus for copying manuscripts without interruptions. 4,269,502, Cl. 355-35.00H.
Tsukagoshi, Tsunehiro: *See—*
Yoshino, Toshikazu; Arai, Yasuyuki; Tsukagoshi, Tsunehiro; and Yokozeki, Shinichi, 4,269,416, Cl. 369-256.000.
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Tanaka, Hiroshi; and Tsuneda, Terukuni, 4,269,921, Cl. 430-119.000.
Tsunoda, Tomoya: *See—*
Sakai, Masahiko; Toyoda, Shinichi; Narahara, Toshikazu; Hakamada, Takeshi; and Tsunoda, Tomoya, 4,269,894, Cl. 428-377.000.
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Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, 4,269,153, Cl. 123-308.000.
Tsypin, Vladimir M.: *See—*
Zhestkov, Vladimir M.; Tsypin, Vladimir M.; Grzhebin, Mikhail Z.; Kaminsky, Vadim A.; and Mazepov, Vitaly G., 4,269,599, Cl. 440-88.000.
Tullman, Edward J., to Singer Company, The. Retractable retaining device for sewing machine support plate. 4,269,129, Cl. 112-257.000.
Turner, John H. W.: *See—*
Shackleton, Charles E. E., deceased; Shackleton, Edward A. B., executor; Wickens, Anthony J.; and Turner, John H. W., 4,269,816, Cl. 423-498.000.
Turner, Roger M.: *See—*
Milner, John A.; and Turner, Roger M., 4,269,702, Cl. 209-166.000.
Tuscher, Roger L.: *See—*
Benton, Charles M.; Arnold, Franklin D.; Forberg, Helge O.; Tuscher, Roger L.; and Evrad, Gerald D., 4,269,592, Cl. 432-19.000.
Tynan, Eugene E.; Dreyfus, Russell W.; and von Gutfeld, Robert J., to International Business Machines Corporation. Method and apparatus for focusing elastic waves converted from thermal energy. 4,269,067, Cl. 73-643.000.
Uarco Incorporated: *See—*
Polko, Peter R., 4,269,341, Cl. 225-94.000.
Ube Industries, Ltd.: *See—*
Nakai, Mamoru; Harada, Katsumasa; and Mori, Yoshikatsu, 4,269,982, Cl. 548-127.000.
Ueno, Toyoaki; and Uchida, Masashi, 4,269,259, Cl. 164-303.000.
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Tanakura, Yoshiyuki; and Uchida, Keiichiro, 4,270,181, Cl. 364-736.000.
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Ueno, Toyoaki; and Uchida, Masashi, 4,269,259, Cl. 164-303.000.
Uchino, Shoichi: *See—*
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Uchiyama, Takashi: *See—*
Suzuki, Ryoichi; Kinoshita, Takao; Ogawa, Yukio; and Uchiyama, Takashi, 4,269,493, Cl. 354-51.000.
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Uhlendorf, Joachim; Betzing, Hans; Gabbar, Hamied; Graf, Erich; and Doppelfeld, Ille-Stephanie, to A. Nattermann & Cie. GmbH. (3-Alkylamino-2-hydroxypropoxy)-furan-2-carboxylic acid anilides and physiologically tolerated acid addition salts thereof and medicaments containing them. 4,269,855, Cl. 424-285.000.
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Johnson, Mark; and Ulrich, Reinhard, 4,269,506, Cl. 356-5.000.
Umans, Frans M.; Ceuppens, Willy G.; Palmans, Willy J.; and Overmeer, Robert T., to AGFA-GEVAERT N.V. Contact heat fusing apparatus. 4,269,594, Cl. 432-59.000.
Umberger, John H.: *See—*
Hankins, Frederick E.; and Umberger, John H., 4,270,086, Cl. 368-118.000.
Umemura, Tetsuya: *See—*
Inoue, Sadao; Umemura, Tetsuya; Suzuki, Hiroshi; and Kuroyanagi, Takashi, 4,269,623, Cl. 75-157.500.
Underwood, John F. Electromagnetic pickup for stringed musical instruments. 4,269,103, Cl. 84-1.160.
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Sommer, Rolf; Schweinfurth, Gustav; and Ungerer, Heinz-Jurgen, 4,269,800, Cl. 264-111.000.
Unigovsky, Mikhail R.; Rulevsky, Evgeny V.; Arendt, Georgy A.; Chirskov, Vladimir G.; Konovalov, Julian K.; Ivanov, Vasily T.; Nemirovsky, Isaak Y.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; and Kheinis, Alexandr B. Apparatus for removing a welding bulge from resistance welded pipes. 4,269,552, Cl. 409-140.000.
Union Carbide Corporation: *See—*
Litteral, Carl J.; and Mullins, David L., 4,269,992, Cl. 556-446.000.
Su, Tsung-Yuan, 4,269,756, Cl. 260-37.00R.
Union Oil Company of California: *See—*
Young, Dean A., 4,270,017, Cl. 585-437.000.
Union Special Corporation: *See—*
Boser, Ronald J.; and Watts, Henry J., 4,269,128, Cl. 112-235.000.
United Industrial Syndicate, Inc.: *See—*
Parrent, Russell, 4,269,575, Cl. 417-542.000.
United States Machine Works, Inc.: *See—*
Feith, Donald, 4,269,163, Cl. 124-77.000.
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Air Force: *See—*
Campbell, John, Jr., 4,269,107, Cl. 89-7.000.
Woermbke, James D., 4,270,106, Cl. 333-246.000.
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Carlon, Hugh R.; and Pritt, Rex M., 4,270,084, Cl. 324-65.00R.
Gilbert, Everett E., 4,270,012, Cl. 568-931.000.
Gutleber, Frank S., 4,270,207, Cl. 375-40.000.
Ong, Kwok Y.; Packard, Michael T.; and McDowell, Charles J., 4,269,057, Cl. 73-1.00G.
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Lindenmeyer, Carl W., 4,269,366, Cl. 242-4.00R.
Schweitzer, Donald G.; Sastre, Cesar; and Winsche, Warren, 4,269,728, Cl. 252-301.10W.
National Aeronautics and Space Administration; administrator; with respect to an invention of:
Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi. Bifunctional monomers having terminal oxime and cyano or amidine groups. 4,269,787, Cl. 260-465.50R.
Ruiz, W. V.; and Thatcher, C. S. Precision heat forming of tetrafluoroethylene tubing. 4,269,640, Cl. 156-84.000.
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Alsup, James M.; and Whitehouse, Harper J., 4,270,025, Cl. 179-15.55R.
Gillespie, George P., 4,268,930, Cl. 9-2.00A.
Hackman, Donald J.; Brunel, Roger L.; and Williams, Harry L., 4,269,383, Cl. 248-544.000.
Hills, Brian A., 4,269,791, Cl. 261-36.00R.
Mackelburg, Gerald R.; McCracken, Howard B.; and McCardell, Peter D., 4,270,142, Cl. 358-99.000.
Rahn, John P., 4,269,518, Cl. 356-445.000.
Sochard, Irving I., 4,269,121, Cl. 102-213.000.
U.S. Philips Corporation: *See—*
Bentlage, Bernardus W. J.; and Spakman, Geert, 4,270,225, Cl. 455-347.000.
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and Van der Kruijs, Franciscus N. G. R., 4,269,898, Cl. 428-426.000.
Coe, David J., 4,270,137, Cl. 357-53.000.
Molenaar, Arian, 4,269,625, Cl. 106-1.220.
Opheij, Willem G.; and Greve, Peter F., 4,270,045, Cl. 250-204.000.
United States Steel Corporation: *See—*
Coates, William R., Jr.; and Vance, M. William, 4,269,266, Cl. 165-142.000.
United Technologies Corporation: *See—*
DeCasperis, Anthony J.; Roethlein, Richard J.; and Breault, Richard D., 4,269,642, Cl. 156-89.000.
Murphy, Richard D.; and Clelford, Douglas H., 4,270,168, Cl. 364-200.000.
Universal Det, S.A.R.L.: *See—*
Collard, Jean-Claude, 4,270,123, Cl. 340-629.000.
University of Illinois Foundation: *See—*
Holonyak, Nick, Jr., 4,270,094, Cl. 331-94.50H.
UOP Inc.: *See—*
Bailey, Charles H.; DePalma, Ted V.; and Dillon, James E., 4,269,807, Cl. 422-179.000.
Imai, Tamotsu, 4,269,998, Cl. 564-132.000.
Priegnitz, James W.; and Landis, Arthur M., 4,270,013, Cl. 568-940.000.
Tolley, William K.; and Laughlin, William C., 4,269,809, Cl. 423-70.000.
Upjohn Company, The: *See—*
Sih, John C., 4,269,779, Cl. 260-404.000.
Sih, John C., 4,269,994, Cl. 560-53.000.
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Urai, Muneharu. Three-dimensional planter. 4,268,994, Cl. 47-79.000.
Urban, Rene: *See—*
Muller, Peter M.; Pfister, Rudolf; and Urban, Rene, 4,269,788, Cl. 260-501.100.
Ury, Michael G.; and Ryan, Patrick J., to Fusion Systems Corporation. Apparatus for molding thermosetting material. 4,269,581, Cl. 425-174.400.
Uson, Aurelio C. Aseptic container and manipulator for a urethral catheter having an integral antiseptic solution and lubricant. 4,269,310, Cl. 206-210.000.
Ustin, Martin D. Modular electrical terminal board. 4,269,470, Cl. 339-198.00H.
USV Pharmaceutical Corporation: *See—*
Huang, Fu C.; and Musser, John H., 4,269,846, Cl. 424-269.000.
Utility Trailer Manufacturing Company: *See—*
Warwick, James M.; and Liu, David C., 4,269,439, Cl. 292-246.000.
Uyeda, Stanley T.; Radu, E. John; Talbot, William J., Jr.; and Feldman, Norman, to Santa Fe International Corporation. Self propelled dynamically positioned reel pipe laying ship. 4,269,540, Cl. 405-168.000.

Valentini, Silvio; and Serafica, Mario, to Nira Nucleare Italiana Reattori Avanzati. Hydraulic seal for fluid machines. 4,269,418, Cl. 277-14.00V.
Van Arman, William L.; Kambs, Russell A.; Ivankovics, Steven G.; Hansen, Frederick W.; and Julow, Thomas M., to Bendix Corporation, The. Method of assemblying a sealed structure. 4,268,945, Cl. 29-407.000.
Vance, Gilbert W.: *See—*
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., 4,269,357, Cl. 239-272.000.
Vance, M. William: *See—*
Coates, William R., Jr.; and Vance, M. William, 4,269,266, Cl. 165-142.000.
Vandenberghe, Antoon L.: *See—*
Roosen, Raymond A.; Pollet, Robert J.; and Vandenberghe, Antoon L., 4,269,923, Cl. 430-140.000.
Vanderhider, James A.; and Lancaster, Gerald M., to Dow Chemical Company, The. Reaction injection molded polyurethanes employing aliphatic amine chain extenders. 4,269,945, Cl. 521-159.000.
Van der Kruijs, Franciscus N. G. R.: *See—*
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and Van der Kruijs, Franciscus N. G. R., 4,269,898, Cl. 428-426.000.
van der Lely, Cornelis. Lifting device and associated structure. 4,269,427, Cl. 280-446.00A.
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Kortbeek, Andras G. T. G.; and van der Linden-Lemmers, Wilhelmina J. M., 4,269,732, Cl. 252-429.00B.
Vanderspurt, Thomas H.; and Zema, Paul M., to Celanese Corporation. Dimeric carbonylation of 1,3-butadiene. 4,269,781, Cl. 260-410.90R.
Vandervoort, John R., to Eaton Corporation. Change gear transmission. 4,269,077, Cl. 74-331.000.
Vanderzee, Robert S., to Steelastic Company, The. Second stage tire building drum and method for the operation thereof. 4,269,649, Cl. 156-416.000.
Van Eenam, Donald N., to Monsanto Company. Purification of wet strength resins. 4,269,951, Cl. 525-359.000.
Van Grinsven, Donald R.; and Winius, Michael H. Swing-a-way camp grill. 4,269,164, Cl. 126-30.000.
Vann, Peabody: *See—*
Vann, Roy R., 4,269,278, Cl. 175-4.510.
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Van Siclen, Howard E., Jr., to Bendix Corporation, The. Breakerless pulse distribution system and opto-electrical distributor therefor. 4,269,152, Cl. 123-146.50A.
Varda, Eugene I.: *See—*
Przybylinski, Phillip G.; Schuller, James J.; and Varda, Eugene I., 4,268,968, Cl. 33-174.00P.
Varian Associates, Inc.: *See—*
Mann, Joseph K., 4,270,091, Cl. 324-462.000.
Varta Batterie Aktiengesellschaft: *See—*
Rabenstein, Heinrich; Kalbitz, Angela; and Kleber, Karl H., 4,269,912, Cl. 429-225.000.
VEB Elektromat: *See—*
Riessland, Eberhard; and Kruger, Karl-Heinz, 4,270,109, Cl. 335-277.000.
Veeder, George T.: *See—*
Kang, Kenneth S.; Veeder, George T.; and Mirrasoul, Peter J., 4,269,939, Cl. 435-104.000.
Veeder Industries Inc.: *See—*
Devanney, Raymond H., 4,269,078, Cl. 74-348.000.
Veldman, Donald R., to Langdon, Howard S. Tilting terminal clamp. 4,269,464, Cl. 339-95.00R.
Vella, Alexander J.: *See—*
Siegel, William J.; Lee, Walter; and Vella, Alexander J., 4,269,343, Cl. 228-20.000.
Venere, Lawrence A.; and Domes, E. A., to International Harvester Company. Method for resurfacing disc brake rotors. 4,269,002, Cl. 51-281.0SF.
Vepa Aktiengesellschaft: *See—*
Fleissner, Hans, 4,268,941, Cl. 28-281.000.
Verhoeven, Ludovicus H.: *See—*
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., 4,269,647, Cl. 156-157.000.
Verkinderen, Paul A.; Verhoeven, Ludovicus H.; Christiaen, Lucien A.; Pira, Camille F.; and Marckx, Michel L., to AGFA-GEVAERT N.V. Method for the continuous coating of webs having spliced joints. 4,269,647, Cl. 156-157.000.
Verr, Raymond E. Circuitry for burglar alarm annunciator. 4,270,121, Cl. 340-514.000.
Vervliet, Rene, to Societe Franco-Belge des Laminoirs et Trefileries d'Anvers "Lamitref". Pressure welding metal bars together. 4,269,344, Cl. 228-125.000.
Verzwyvelt, Scott A.: *See—*
Lim, Hong S.; and Verzwyvelt, Scott A., 4,269,913, Cl. 429-251.000.
Vetsch, LeRoy E.: *See—*
Nelson, Harold K.; Kleingartner, Charles A.; and Vetsch, LeRoy E., 4,269,070, Cl. 73-779.000.
Villa, Genesio. Window frames having swingable blind-slats. 4,268,995, Cl. 49-87.000.
Villamarin, Arturo A.; and de Gomez, Mabel A. S., to American Cyanamid Company. Thixotropic hair conditioner composition. 4,269,824, Cl. 424-70.000.
Vinals, Joaquin F.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,269,862, Cl. 426-536.000.
Virog, John J., Jr.; and Von Hagel, Leo, to Maxcap, Inc. Blow molded plastic bottle and anti-tamper cap. 4,269,320, Cl. 215-252.000.
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Wada, Hirotsugu; and Shinozaki, Toshiaki, 4,269,653, Cl. 156-644.000.
Vock, Manfred H.: *See—*
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,269,862, Cl. 426-536.000.
Voest-Alpine Aktiengesellschaft: *See—*
Engel, Kurt; and Scheurecker, Werner, 4,269,260, Cl. 164-442.000.
Voigt, Werner: *See—*
Haux, Ulrich; and Voigt, Werner, 4,269,376, Cl. 244-117.00R.
Volkswagenwerk Aktiengesellschaft: *See—*
Grundmann, Edgard; and Bernhardt, Winfried, 4,269,040, Cl. 62-467.0PR.
Volpe, Lee S.: *See—*
Cotey, John; and Volpe, Lee S., 4,268,991, Cl. 46-163.000.
Von Roll AG: *See—*
Witschi, Fritz, 4,269,232, Cl. 138-96.00R.
von Bennigsen-Mackiewicz, Andreas; and von Bennigsen-Mackiewicz, Christoph. Apparatus for measuring and controlling flow of pulverulent material. 4,269,548, Cl. 406-25.000.
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von Bennigsen-Mackiewicz, Andreas; and von Bennigsen-Mackiewicz, Christoph, 4,269,548, Cl. 406-25.000.
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Gans, Leo; Bruins, Paul F.; Shapiro, Jay B.; and Rothman, Myron, 4,269,897, Cl. 428-419.000.
Vorbeck, Donald W., to Atco Manufacturing Co., Inc. Animal watering system. 4,269,147, Cl. 119-73.000.
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Birr, Hans J., 4,269,519, Cl. 366-206.000.
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Wada, Akira; and Davis, Bernard J., to Nippon Zeon Co., Ltd. Crosslinkable adhesive composition. 4,269,747, Cl. 260-27.0BB.
Wada, Hirotsugu; and Shinozaki, Toshiaki, to VLSI Technology Research Association. Aperture stop. 4,269,653, Cl. 156-644.000.
Wada, Kenichi; Oka, Tateki; Tanaka, Susumu; and Tabuchi, Kenji, to Minolta Camera Kabushiki Kaisha. Dry process developing material for electrophotography. 4,269,920, Cl. 430-107.000.
Wada, Norikazu, to Honeywell Inc. Electrodes for an electromagnetic flow meter. 4,269,071, Cl. 73-861.120.
Wagensommer, Joseph; and Manalastas, Pacifico V., to Exxon Research & Engineering Company. Catalyst composition polymerization of isoolefins and multiolefins. 4,269,955, Cl. 526-185.000.
Wagner, Paul D.: *See—*
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Wagner, Reinhard: *See—*
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Wakimoto, Saburo; Miyahara, Sadayasu; and Hyosu, Yoshihiko, to Sinloihi Company Limited. Fine spherical polymer particles containing inorganic pigment and/or coloring agent and process for the preparation thereof. 4,269,760, Cl. 260-42.530.
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Ichimiya, Yoshichika; Sudo, Tsuneta; Maruyama, Hiromi; Sugamori, Shigeru; Sumida, Susumu; Shimizu, Masao; and Wakita, Toshiaki, 4,270,116, Cl. 340-146.200.
Walchli, John R., to Enviropak Inc. Closure device for container. 4,268,938, Cl. 24-201.00C.
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Walker, Loren H.; and Cutler, John H., to General Electric Company. Method and apparatus for a variable frequency inverter system having commutation fault detection and correction capabilities. 4,270,078, Cl. 318-803.000.
Walker, Robert A. Air-oil separator and method of separation. 4,269,607, Cl. 55-1.000.
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Walton, Robert N.: *See—*
Parker, Peter D.; Walton, Robert N.; and Walton, Lawrence J., 4,269,172, Cl. 126-450.000.
Wand, Lawrence J. Tool assembly for mounting a wire clip to a grid member of a false ceiling. 4,269,087, Cl. 81-5.10R.
Wandel, David M., to General Motors Corporation. Connecting rod. 4,269,083, Cl. 74-579.00E.
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Watson, Frederick D.; Mayse, Weldon D.; and Franse, Albert D., to Petrolite Corporation. Radial flow electrofilter. 4,269,681, Cl. 204-188.000.
Watson, John D. Metered dispensing device. 4,269,331, Cl. 222-390.000.
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Webb, John L., to Xerox Corporation. Single sheet friction feeder. 4,269,404, Cl. 271-42.000.
Weber, Joseph. Document retaining system. 4,269,530, Cl. 402-15.000.
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, to Ruhrchemie Aktiengesellschaft. 2-Propyl-pent-4-en-1-al. 4,270,008, Cl. 568-448.000.
Weber, Karl-Heinz, to Gebr. Eickhoff Maschinenfabrik und Eisengeisserei m.b.H. Current supply circuit of cutting drum motors on a mining machine. 4,270,072, Cl. 318-34.000.
Wechsler, Joseph R.; Baker, Thomas G.; Battaglini, George T.; and Skradski, Frank L., to Stepan Chemical Company. Substituted imidazoline reactions with chloroacetate salts. 4,269,730, Cl. 252-356.000.
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Weisbecker, Joseph A., to RCA Corporation. Display system. 4,270,125, Cl. 340-744.000.
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Welborn, Woodrow W. Asphalt shingle remover and deroofer apparatus. 4,269,450, Cl. 299-39.000.
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White, Alfred K.; and Brearley, Malcolm, to Girling Limited. Anti-skid brake control system. 4,269,454, Cl. 303-97.000.
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Worth, Daniel L., to Riegel Textile Corporation. Non-formaldehyde durable press textile treatment. 4,269,603, Cl. 8-116.400.
Worthington, Paul A.; and Shephard, Margaret C., to Imperial Chemical Industries Limited. Triazole and imidazole compounds and their use as fungicides and plant growth regulating agents. 4,269,845, Cl. 424-269.000.
Wright, Charles W., to Scentex Corporation. Drive mechanism for a high speed film transport and the like. 4,269,292, Cl. 192-33.00R.
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Yamada, Hideaki; Shimizu, Sakayu; and Tani, Yoshiki, to Amano Pharmaceutical Co. Ltd. Process for preparing acyl-CoA synthetase LCF-18. 4,269,942, Cl. 435-193.000.
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Fukuroi, Takeo, 4,268,939, Cl. 24-205.15R.
Nogai, Akira, 4,269,588, Cl. 425-545.000.

Yoshino, Toshikazu; Arai, Yasuyuki; Tsukagoshi, Tsunehiro; and Yokozeki, Shinichi, to Pioneer Electronic Corporation. Head shell for record player tonearms. 4,269,416, Cl. 369-256.000.

Yoshioka, Teruhiko; Matsuzawa, Hideo; Okada, Kazuya; and Ikeda, Minoru, to Mitsubishi Rayon Co., Ltd. Method for removing chromium ions from aqueous solutions of organic acids. 4,269,705, Cl. 562-600.000.

Young, Dean A., to Union Oil Company of California. Process for selectively producing para-xylene. 4,270,017, Cl. 585-437.000.

Young, Harry E., to Container Corporation of America. Triangular carrying container. 4,269,348, Cl. 229-52.00B.

Young, John M., to American Optical Corporation. Spectacle lens insert for aphakic refraction. 4,269,487, Cl. 351-58.000.

Young, John S., to GTE Automatic Electric Laboratories Incorporated. Digitally activated ringing circuit for generation of AC voltages. 4,270,028, Cl. 179-84.00R.

Young, Peter L.: *See—*
Borrelli, Nicholas F.; and Young, Peter L., 4,269,934, Cl. 430-296.000.

Younger, Philip G. Liquid treating and distillation apparatus. 4,269,664, Cl. 202-185.00A.

Yukimachi, Katsurou; and Katayama, Kouichi, to Osaka Gas Kabushiki Kaisha. Cooling and heating system utilizing solar heat. 4,269,263, Cl. 165-29.000.

Zable, Jack L.: *See—*
Lee, Ho C.; Rickenbach, David H.; and Zable, Jack L., 4,269,117, Cl. 101-93.020.

Zabler, Erich: *See—*
Handtmann, Dieter; Rau, Helmut; and Zabler, Erich, 4,269,069, Cl. 73-705.000.

Zachoval, Jaromir: *See—*
Kalal, Jaroslav; Bednar, Bohumil; Zachoval, Jaromir; Petr, Jiri; Pelcbauer, Zdenek; and Svec, Frantisek, 4,269,962, Cl. 526-273.000.

Zaidan Hojin Handotai Kenkyu Shinkokai: *See—*
Nishizawa, Jun-ichi; and Ohmi, Tadahiro, 4,270,059, Cl. 307-446.000.

Zamek, Otto S.; Pauze, Denis R.; and Jablonski, Richard J., to General Electric Company. Polyester imide wire enamels. 4,269,752, Cl. 260-31.40R.

Zancaner, Alberto, to Filos S.a.s. Di Zancaner Alberto & Sorella. Flexible hinge for resiliently connecting the arms to the front portion of spectacles. 4,269,488, Cl. 351-113.000.

Zannucci, Joseph S., to Eastman Kodak Company. Stabilized cellulose ester compositions. 4,269,629, Cl. 106-176.000.

Zauner, Dale P.: *See—*
Menzel, S. W. O.; Mock, Donald E.; Mominee, David E.; Vance, Gilbert W.; and Zauner, Dale P., 4,269,357, Cl. 239-272.000.

Zaveri, Pradhumankumar S., to General Electric Company. Open-circuit shunt-regulated high-voltage circuit. 4,270,082, Cl. 323-248.000.

Zboralski, Jon A.; Tringali, Richard C.; and Grow, Harry N., to American Hospital Supply Corporation. Filter assembly. 4,269,615, Cl. 55-480.000.

Zecher, Wilfried: *See—*
Lewalter, Jurgen; Rottmaier, Ludwig; Merten, Rudolf; Zecher, Wilfried; Dunwald, Willi; and Schulte, Bernhard, 4,269,750, Cl. 260-30.200.

Zeibig, Anton, to Rosenthal Technik AG. Joint endoprosthesis. 4,268,919, Cl. 3-1.910.

Zeiher, Erich: *See—*
Brede, Uwe; Penner, Horst; and Zeiher, Erich, 4,269,120, Cl. 102-202.000.

Zeitzschel, Gunter: *See—*
Neuenfeldt, Walter; Siegert, Heiner; and Zeitzschel, Gunter, 4,269,660, Cl. 176-30.000.

Zema, Paul M.: *See—*
Vanderspurt, Thomas H.; and Zema, Paul M., 4,269,781, Cl. 260-410.90R.

Zenith Radio Corporation: *See—*
Smirl, Richard A., 4,270,218, Cl. 455-176.000.

Zhestkov, Vladimir M.; Tsypin, Vladimir M.; Grzhebin, Mikhail Z.; Kaminsky, Vadim A.; and Mazepov, Vitaly G. Cooling system of self-propelled floating crane engines. 4,269,599, Cl. 440-88.000.

Zick, Gregory L., to Cordis Corporation. Apparatus for oxygen partial pressure measurement. 4,269,684, Cl. 204-195.00R.

Ziegelbein, Paul J.; Dawson, Sylvan L.; and Erickson, Gerald A., to Rockwell International Corporation. Variable rate digital controller for a frequency synthesizer. 4,270,117, Cl. 340-168.00B.

Ziegler, Robert J. Garage door and safety guard therefor. 4,269,253, Cl. 160-201.000.

Zimmermann, Ulrich; and Pilwat, Gunter, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Physiological preparation containing loaded cells in suspension and a magnetic agent for local concentration thereof in a living body. 4,269,826, Cl. 424-101.000.

Zoecon Corporation: *See—*
Henrick, Clive A., 4,269,981, Cl. 546-291.000.

Zollinger, Hans-Rudolf, to H. A. Schlatter AG. Device for welding together two bars on their front sides. 4,270,036, Cl. 219-53.000.

Zolnerovich, Walter, Jr.: *See—*
Rapp, Kenneth L.; and Zolnerovich, Walter, Jr., 4,269,368, Cl. 242-42.000.

Zornes, David R., to Phillips Petroleum Company. Petroleum sulfonation. 4,269,789, Cl. 260-505.00P.

Zupack-Gesellschaft mbH: *See—*
Kopp, Josef; Huther, Ernst; and Bohlander, Ernst, 4,269,016, Cl. 53-546.000.

Zurfluh, Rene: *See—*
Dorn, Silvia; Pfiffner, Albert; and Zurfluh, Rene, 4,270,009, Cl. 568-670.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF MAY, 1981

NOTE:—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Akers, Edward G. Safety cap and container. Re. 30,625, Cl. 215-211.000.

Austin Powder Company: *See—*
Calder, Brooke J., Jr.; Childs, David L.; Prescott, Roger N.; and Lyons, Donald W., Re. 30,621, Cl. 102-313.000.

Bagshawe, Kenneth D.; and Kemble, James E., to Picker Corporation. Apparatus for performing chemical and biological analysis. Re. 30,627, Cl. 23-230.00R.

Calder, Brooke J., Jr.; Childs, David L.; Prescott, Roger N.; and Lyons, Donald W., to Austin Powder Company. Carrier for explosive primer and method of using same. Re. 30,621, Cl. 102-313.000.

Childs, David L.: *See—*
Calder, Brooke J., Jr.; Childs, David L.; Prescott, Roger N.; and Lyons, Donald W., Re. 30,621, Cl. 102-313.000.

Eldon Industries, Inc.: *See—*
Soulakis, George; and Mandala, Charles G., Re. 30,624, Cl. 206-45.130.

Gonnella, Sebastian: *See—*
Kaplan, Richard B.; and Gonnella, Sebastian, Re. 30,626, Cl. 401-215.000.

Hogan, Gerard T.: *See—*
Schulz, William J.; Pecoraro, Ralph R.; and Hogan, Gerard T., Re. 30,623, Cl. 165-48.00R.

Kaneko, Masayoshi: *See—*
Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, Re. 30,628, Cl. 318-600.000.

Kaplan, Richard B.; and Gonnella, Sebastian, to Ultramet of Pacoima. Spheres obtained by vapor deposition for use in ball point pens. Re. 30,626, Cl. 401-215.000.

Kemble, James E.: *See—*
Bagshawe, Kenneth D.; and Kemble, James E., Re. 30,627, Cl. 23-230.00R.

Lyons, Donald W.: *See—*
Calder, Brooke J., Jr.; Childs, David L.; Prescott, Roger N.; and Lyons, Donald W., Re. 30,621, Cl. 102-313.000.

Mandala, Charles G.: *See—*
Soulakis, George; and Mandala, Charles G., Re. 30,624, Cl. 206-45.130.

Matsuura, Masayuki: *See—*
Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, Re. 30,628, Cl. 318-600.000.

Nippon Riraiansu Kabushiki Kaisha: *See—*
Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, Re. 30,628, Cl. 318-600.000.

Pecoraro, Ralph R.: *See—*
Schulz, William J.; Pecoraro, Ralph R.; and Hogan, Gerard T., Re. 30,623, Cl. 165-48.00R.

Picker Corporation: *See—*
Bagshawe, Kenneth D.; and Kemble, James E., Re. 30,627, Cl. 23-230.00R.

Prescott, Roger N.: *See—*
Calder, Brooke J., Jr.; Childs, David L.; Prescott, Roger N.; and Lyons, Donald W., Re. 30,621, Cl. 102-313.000.

Regueiro, Jose F., to Teledyne Industries, Inc. Fuel metering apparatus for a carburetor. Re. 30,622, Cl. 123-523.000.

Rengo Kabushiki Kaisha (Rengo Co., Ltd.): *See—*
Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, Re. 30,628, Cl. 318-600.000.

Schulz, William J.; Pecoraro, Ralph R.; and Hogan, Gerard T., to UOP Inc. Apparatus for selectively heating an individual food item in a refrigerated environment. Re. 30,623, Cl. 165-48.00R.

Shinmura, Noboru: *See—*
Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, Re. 30,628, Cl. 318-600.000.

Soulakis, George; and Mandala, Charles G., to Eldon Industries, Inc. Container-card file structure. Re. 30,624, Cl. 206-45.130.

Teledyne Industries, Inc.: *See—*
Regueiro, Jose F., Re. 30,622, Cl. 123-523.000.

Tokuno, Masateru; Matsuura, Masayuki; Shinmura, Noboru; and Kaneko, Masayoshi, to Rengo Kabushiki Kaisha (Rengo Co., Ltd.); and Nippon Riraiansu Kabushiki Kaisha. Web cutting control system. Re. 30,628, Cl. 318-600.000.

Ultramet of Pacoima: *See—*
Kaplan, Richard B.; and Gonnella, Sebastian, Re. 30,626, Cl. 401-215.000.

UOP Inc.: *See—*
Schulz, William J.; Pecoraro, Ralph R.; and Hogan, Gerard T., Re. 30,623, Cl. 165-48.00R.

LIST OF DESIGN PATENTEES

Ackeret, Peter, to IDN Inventions and Development of Novelties AG. Container for tape cassettes. 259,303, 5-26-81, Cl. D3-35.000.

Adams, Mark H., III; and Flesher, Davidjon. Kite. 259,352, 5-26-81, Cl. D21-88.000.

Automatic Devices Company: *See—*
Stine, James G., 259,330, Cl. D8-377.000.

Ball, Bryan. Boot and shoe holder. 259,304, 5-26-81, Cl. D3-36.000.

Bally Manufacturing Corporation: *See—*
Stulik, Edward L.; and Pelly, Charles W., 259,350, Cl. D21-7.000.

Barbour, Robert G. Boat anchor davit. 259,329, 5-26-81, Cl. D8-356.000.

Bestop Manufacturing Company: *See—*
Stengel, James J., 259,340, Cl. D12-156.000.

Blandy, Robert A. Cribbage board. 259,337, 5-26-81, Cl. D10-46.100.

Bosch-Siemens Hasugerate GmbH: *See—*
Reichl, Ernst, 259,363, Cl. D24-62.000.

Briggs, Vera. Eyeshield for chemical treatment of hair. 259,295, 5-26-81, Cl. D2-234.000.

Brown Jordan Company: *See—*
Colby, Donald B., 259,307, Cl. D6-37.000.

Bunger, Richard E. Flume interlocking platform panel for animal confinement pens. 259,366, 5-26-81, Cl. D30-2.000.

Canon Kabushiki Kaisha: *See—*
Hirata, Takashi; and Hirose, Kunio, 259,347, Cl. D18-1.000.
Hirata, Takashi; and Odagawa, Kazuyoshi, 259,349, Cl. D18-7.000.
Sakai, Masaaki; and Fushimoto, Hideo, 259,348, Cl. D18-2.000.

Cardinal American Corporation: *See—*
Sroub, Joseph W., 259,308, Cl. D6-52.000.

Carey, Michael J. Boot appliance. 259,297, 5-26-81, Cl. D2-317.000.

Chamberlain, Edward; Leon, Nicholas M.; and Sharp, Michael H., to International Business Machines Corporation. Cathode ray tube display device. 259,343, 5-26-81, Cl. D14-45.000.

Charbonneau, Robert R. Combined shipping and packaging envelope for a potted plant. 259,333, 5-26-81, Cl. D9-306.000.

Ciuffetti, Salvatore D., to Product Development Associates. Measuring dispenser for powdered or granular materials. 259,319, 5-26-81, Cl. D7-50.000.

Clover Mfg. Co. Ltd.: *See—*
Okada, Hidekazu, 259,325, Cl. D8-57.000.

Colby, Donald B., to Brown Jordan Company. Sun bench. 259,307, 5-26-81, Cl. D6-37.000.

Cole, William A.: *See—*
Ford, Allan L.; and Cole, William A., 259,315, Cl. D6-157.000.

Courtney Davis, Inc.: *See—*
Davis, P. Lynn, 259,302, Cl. D3-26.000.

Covey, Laird F., to Stanley Works, The. Handle for compass saw. 259,328, 5-26-81, Cl. D8-97.000.

Cowart, J. Wayne; and Roberts, Wayne J., to Roberts, Margaret, by said J. Wayne Cowart. Boot installation and removal device. 259,301, 5-26-81, Cl. D2-378.200.

Crowe, Douglas M., to Smith & Stone Limited. Toilet paper holder. 259,310, 5-26-81, Cl. D6-97.000.

Davis, P. Lynn, to Courtney Davis, Inc. Portable hand weaving loom. 259,302, 5-26-81, Cl. D3-26.000.

DeBoer, James H. Gameboard. 259,351, 5-26-81, Cl. D21-20.000.

DeHaven, William M., to Harrelson Rubber Company. Sealing disc for tire retreading. 259,346, 5-26-81, Cl. D15-199.000.

Derrington, Joseph B. Tasseled clinging game ball. 259,354, 5-26-81, Cl. D21-203.000.

Dulude, Charles R. Gun target. 259,357, 5-26-81, Cl. D22-15.000.

Emmert Manufacturing Company: *See—*
Talbot, Tully W., 259,367, Cl. D30-42.000.

Envall, Bjorn E. A.; and Svanback, Ulf K., to Saab-Scania AB. Wheel. 259,342, 5-26-81, Cl. D12-209.000.

Famolare, Inc.: *See—*
Famolare, Joseph P., Jr., 259,298, Cl. D2-322.000.
Famolare, Joseph P., Jr., to Famolare, Inc. Shoe sole. 259,298, 5-26-81, Cl. D2-322.000.
Ferretti, Bruno, to Martin Yale Industries, Inc. Combined pool and sandbox. 259,356, 5-26-81, Cl. D21-252.000.
Flesher, Davidjon: *See—*
Adams, Mark H., III; and Flesher, Davidjon, 259,352, Cl. D21-88.000.
Ford, Allan L.; and Cole, William A., to Reborn Products Co., Inc. Multi-unit belt display fixture. 259,315, 5-26-81, Cl. D6-157.000.
Fratelli Saporiti: *See—*
Offredi, Giovanni, 259,316, Cl. D6-159.000.
Friedman, Ira, to Rowe Furniture Corporation. Seat. 259,309, 5-26-81, Cl. D6-62.000.
Fushimoto, Hideo: *See—*
Sakai, Masaaki; and Fushimoto, Hideo, 259,348, Cl. D18-2.000.
Galvins, Zigurds. Mat for beverage containers. 259,323, 5-26-81, Cl. D7-188.000.
Gardisette International AG: *See—*
Stocker, Hans, 259,368, Cl. D47-6.00E.
Gillespie, Richard L., to Wham-O Mfg. Co. Combined packaging container and target for an air gun. 259,335, 5-26-81, Cl. D9-337.000.
Gilmore, Gerald M. Modular shelving. 259,317, 5-26-81, Cl. D6-186.000.
Grossman, M. Gary: *See—*
Newman, Albert L.; and Grossman, M. Gary, 259,345, Cl. D15-75.000.
Hanaford, Donald E. Chair back. 259,318, 5-26-81, Cl. D6-197.000.
Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund: *See—*
Nordlund, Sven P., 259,311, Cl. D6-125.000.
Nordlund, Sven P., 259,312, Cl. D6-125.000.
Nordlund, Sven P., 259,313, Cl. D6-125.000.
Nordlund, Sven P., 259,314, Cl. D6-125.000.
Harrelson Rubber Company: *See—*
DeHaven, William M., 259,346, Cl. D15-199.000.
Hertel, Terry J. Heated tip for use with a heating tool or the like. 259,324, 5-26-81, Cl. D8-30.000.
Hirata, Takashi; and Hirose, Kunio, to Canon Kabushiki Kaisha. Typewriter. 259,347, 5-26-81, Cl. D18-1.000.
Hirata, Takashi; and Odagawa, Kazuyoshi, to Canon Kabushiki Kaisha. Desk top electronic calculator. 259,349, 5-26-81, Cl. D18-7.000.
Hirose, Kunio: *See—*
Hirata, Takashi; and Hirose, Kunio, 259,347, Cl. D18-1.000.
IDN Inventions and Development of Novelties AG: *See—*
Ackeret, Peter, 259,303, Cl. D3-35.000.
International Business Machines Corporation: *See—*
Chamberlain, Edward; Leon, Nicholas M.; and Sharp, Michael H., 259,343, Cl. D14-45.000.
J. L. Prescott Co.: *See—*
Saenz, Henry, 259,331, Cl. D9-404.000.
Jones, William H. Minnow dipper. 259,358, 5-26-81, Cl. D22-22.000.
Jozsa, Janos. Glueing jig for production of model railway switch points. 259,326, 5-26-81, Cl. D8-71.000.
King-Seeley Thermos Co.: *See—*
Tarozzi, Richard A., 259,320, Cl. D7-61.000.
Knackstedt, Harold A. Therapy table. 259,361, 5-26-81, Cl. D24-3.000.
Kneipp, Clifford J.: *See—*
Newman, Albert L.; and Kneipp, Clifford J., 259,344, Cl. D15-72.000.
Landmann Limited: *See—*
Lau, Philip W. L., 259,322, Cl. D7-129.000.
Lau, Philip W. L., to Landmann Limited. Rotator primarily for a barbecue spit including an electrical adaptor therefor. 259,322, 5-26-81, Cl. D7-129.000.
Leon, Nicholas M.: *See—*
Chamberlain, Edward; Leon, Nicholas M.; and Sharp, Michael H., 259,343, Cl. D14-45.000.
Lewis, Richard P., to Syntex (U.S.A.) Inc. Dental bur wrench tool. 259,362, 5-26-81, Cl. D24-10.000.
Licastro, Joseph, II. Portable easel, seat and carrying case combination. 259,306, 5-26-81, Cl. D6-17.000.
MacGregor, Mervyn S. Fluid pump. 259,360, 5-26-81, Cl. D23-14.000.
Martin Yale Industries, Inc.: *See—*
Ferretti, Bruno, 259,356, Cl. D21-252.000.
Meyer, Kerry. Child's boot. 259,296, 5-26-81, Cl. D2-273.000.
Myojo, Seiji;, to Shimano Kogyo Kabushiki Kaisha. Fishing reel. 259,359, 5-26-81, Cl. D22-25.000.
Newman, Albert L.; and Kneipp, Clifford J., to Singer Company, The. Sewing machine bed cover. 259,344, 5-26-81, Cl. D15-72.000.
Newman, Albert L.; and Grossman, M. Gary, to Singer Company, The. Carrying case cover for a sewing machine. 259,345, 5-26-81, Cl. D15-75.000.
Nordlund, Sven P., to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund. Tool holder. 259,311, 5-26-81, Cl. D6-125.000.
Nordlund, Sven P., to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund. Tool holder. 259,312, 5-26-81, Cl. D6-125.000.
Nordlund, Sven P., to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund. Tool holder. 259,313, 5-26-81, Cl. D6-125.000.
Nordlund, Sven P., to Handelsbolaget Nordlunds Karosseriverkstad, Sven & Anna-Stina Nordlund. Tool holder. 259,314, 5-26-81, Cl. D6-125.000.
Odagawa, Kazuyoshi: *See—*
Hirata, Takashi; and Odagawa, Kazuyoshi, 259,349, Cl. D18-7.000.
Offredi, Giovanni, to Fratelli Saporiti. Cabinet. 259,316, 5-26-81, Cl. D6-159.000.
Okada, Hidekazu, to Clover Mfg. Co. Ltd. Scissors. 259,325, 5-26-81, Cl. D8-57.000.
Paitson, Lloyd. Seismic cable locator. 259,336, 5-26-81, Cl. D10-46.000.
Pelly, Charles W.: *See—*
Stulik, Edward L.; and Pelly, Charles W., 259,350, Cl. D21-7.000.
Petrovic, Branislav. Combined dental floss holder and tooth pick. 259,365, 5-26-81, Cl. D28-64.000.
Poth, Carl. Extruded aluminum channel. 259,364, 5-26-81, Cl. D25-74.000.
Product Development Associates: *See—*
Ciuffetti, Salvatore D., 259,319, Cl. D7-50.000.
Reborn Products Co., Inc.: *See—*
Ford, Allan L.; and Cole, William A., 259,315, Cl. D6-157.000.
Reichl, Ernst, to Bosch-Siemens Hasugerate GmbH. Pocket inhalator with ultrasonic sprayer or atomizer. 259,363, 5-26-81, Cl. D24-62.000.
Roberts, Margaret: *See—*
Cowart, J. Wayne; and Roberts, Wayne J. (said J. Wayne Cowart assors. to), 259,301, Cl. D2-378.200.
Roberts, Wayne J.: *See—*
Cowart, J. Wayne; and Roberts, Wayne J., 259,301, Cl. D2-378.200.
Rowe Furniture Corporation: *See—*
Friedman, Ira, 259,309, Cl. D6-62.000.
Saab-Scania AB: *See—*
Envall, Bjorn E. A.; and Svanback, Ulf K., 259,342, Cl. D12-209.000.
Saenz, Henry, to J. L. Prescott Co. Bottle. 259,331, 5-26-81, Cl. D9-404.000.
Sakai, Masaaki; and Fushimoto, Hideo, to Canon Kabushiki Kaisha. Combined desk top electronic calculator and clock. 259,348, 5-26-81, Cl. D18-2.000.
Sharp, Michael H.: *See—*
Chamberlain, Edward; Leon, Nicholas M.; and Sharp, Michael H., 259,343, Cl. D14-45.000.
Shimano Kogyo Kabushiki Kaisha: *See—*
Myojo, Seiji;, 259,359, Cl. D22-25.000.
Singer Company, The: *See—*
Newman, Albert L.; and Kneipp, Clifford J., 259,344, Cl. D15-72.000.
Newman, Albert L.; and Grossman, M. Gary, 259,345, Cl. D15-75.000.
Slemmons, John W. Novelty toy coffin. 259,353, 5-26-81, Cl. D21-109.000.
Sloane, Irving. Woodworking clamp. 259,327, 5-26-81, Cl. D8-72.000.
Smith & Stone Limited: *See—*
Crowe, Douglas M., 259,310, Cl. D6-97.000.
Sparger, Haywood M. Knife rack. 259,321, 5-26-81, Cl. D7-74.000.
Splendora, Joseph. Transparent monument. 259,369, 5-26-81, Cl. D99-24.000.
Sroub, Joseph W., to Cardinal American Corporation. Glider. 259,308, 5-26-81, Cl. D6-52.000.
Stanley Works, The: *See—*
Covey, Laird F., 259,328, Cl. D8-97.000.
Stengel, James J., to Bestop Manufacturing Company. Open side top for jeeps. 259,340, 5-26-81, Cl. D12-156.000.
Stine, James G., to Automatic Devices Company. Door mounting carrier for a track supported transaction security enclosure door. 259,330, 5-26-81, Cl. D8-377.000.
Stocker, Hans, to Gardisette International AG. Curtain material. 259,368, 5-26-81, Cl. D47-6.00E.
Stulik, Edward L.; and Pelly, Charles W., to Bally Manufacturing Corporation. Pinball game cabinet. 259,350, 5-26-81, Cl. D21-7.000.
Svanback, Ulf K.: *See—*
Envall, Bjorn E. A.; and Svanback, Ulf K., 259,342, Cl. D12-209.000.
Syntex (U.S.A.) Inc.: *See—*
Lewis, Richard P., 259,362, Cl. D24-10.000.
Sztuden, Luis. Bottle. 259,334, 5-26-81, Cl. D9-310.000.
Talbot, Tully W., to Emmert Manufacturing Company. Treadmill for animals. 259,367, 5-26-81, Cl. D30-42.000.
Tarozzi, Richard A., to King-Seeley Thermos Co. Combined food and beverage cooler. 259,320, 5-26-81, Cl. D7-61.000.
Tolbert, Okpara E., II. Non-smoking trophy. 259,338, 5-26-81, Cl. D11-133.000.
Van Winkle, Peter. Underwater hockey stick. 259,355, 5-26-81, Cl. D21-210.000.
Vickers, Sherman. Three wheeled vehicle body. 259,339, 5-26-81, Cl. D12-85.000.
Vreeken, Richard. Stocking removing tool for the handicapped or similar article. 259,299, 5-26-81, Cl. D2-378.000.
Vreeken, Richard. Stocking holder for the handicapped or similar article. 259,300, 5-26-81, Cl. D2-378.000.
Walton, Laurie. Bottle. 259,332, 5-26-81, Cl. D9-385.000.
Wang, Peter. Vehicle side molding. 259,341, 5-26-81, Cl. D12-190.000.
Wham-O Mfg. Co.: *See—*
Gillespie, Richard L., 259,335, Cl. D9-337.000.
Wu, Kuo-Chu. Tooth brush. 259,305, 5-26-81, Cl. D4-25.000.

LIST OF PLANT PATENTEES

Armstrong Nurseries, Inc.: *See—*
Swim, Herbert C.; and Ellis, Arnold W., 4,723, Cl. 26.000.
Bailey, Catherine H.: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Dayton, Daniel F.: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Ellis, Arnold W.: *See—*
Swim, Herbert C.; and Ellis, Arnold W., 4,723, Cl. 26.000.
Emerson, Frank H.: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Hough, L. Fredric: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Janick, Jules: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Mikkelsen, James C.; and Van den Berg, Cornelis P., to Mikkelsens Inc. Kalanchoe plant. 4,726, 5-26-81, Cl. 68.000.
Mikkelsen, James C.: *See—*
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,725, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,727, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,728, Cl. 68.000.
Mikkelsens Inc.: *See—*
Mikkelsen, James C.; and Van den Berg, Cornelis P., 4,726, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,725, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,727, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,728, Cl. 68.000.
Shay, J. Ralph, deceased (by Witters, Robert E.); Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, to State of Oregon Acting by and through the State Board of Higher Education on Behalf of Oregon State University. Apple tree. 4,724, 5-26-81, Cl. 34.000.
State of Oregon Acting by and through the State Board of Higher Education on Behalf of Oregon State University: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Swim, Herbert C.; and Ellis, Arnold W., to Armstrong Nurseries, Inc. Rose plant. 4,723, 5-26-81, Cl. 26.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., to Mikkelsens Inc. Impatiens plant. 4,725, 5-26-81, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., to Mikkelsens Inc. Kalanchoe plant. 4,727, 5-26-81, Cl. 68.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., to Mikkelsens Inc. Kalanchoe plant. 4,728, 5-26-81, Cl. 68.000.
Van den Berg, Cornelis P.: *See—*
Mikkelsen, James C.; and Van den Berg, Cornelis P., 4,726, Cl. 68.000.
Williams, Edwin B.: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.
Witters, Robert E.: *See—*
Shay, J. Ralph, deceased; Williams, Edwin B.; Dayton, Daniel F.; Hough, L. Fredric; Bailey, Catherine H.; Emerson, Frank H.; and Janick, Jules, 4,724, Cl. 34.000.

CLASSIFICATION OF PATENTS

ISSUED MAY 26, 1981

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

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CLASS 3

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CLASS 279

16 4,269,421
38 4,269,422

CLASS 280

80 R 4,269,423
92 4,269,424
403 4,269,425
432 4,269,426
446 A 4,269,427
491 R 4,269,428
503 4,269,429
614 4,269,430
618 4,269,431
690 4,269,432
716 4,269,433
803 4,269,434
814 4,269,435

CLASS 285

47 4,269,436
109 4,269,437
382.2 4,269,438

CLASS 290

4 R 4,270,054
40 R 4,270,055
54 4,270,056

CLASS 292

246 4,269,439
336.3 4,269,440

CLASS 294

1 R 4,269,441
81 R 4,269,442
163 4,269,337

CLASS 296

1 S 4,269,443
4,269,444
78.1 4,269,445

CLASS 297

341 4,269,446
365 4,269,447

CLASS 299

1 4,269,448
2 4,269,449
39 4,269,450

CLASS 301

5 B 4,269,451
6 R 4,269,452

CLASS 303

6 C 4,269,453
97 4,269,454
106 4,269,455
115 4,269,456

CLASS 305

11 4,269,457

CLASS 307

10 BP 4,270,057
140 4,270,058
221 D 4,270,060
4,270,144
270 4,270,061
272 A 4,270,062
446 4,270,059

CLASS 308

9 4,269,458
36.4 4,269,459
233 4,269,460

CLASS 310

66 4,270,063
90 4,270,064
207 4,270,065
258 4,270,066

CLASS 312

244 4,269,461

CLASS 313

497 4,270,068

CLASS 315

3.5 4,270,069
4,270,070
62 4,270,071

CLASS 318

34 4,270,072
254 4,270,074
4,270,075
4,270,076
600 Re.30,628
632 4,270,073
661 4,270,077
803 4,270,078

CLASS 320

1 4,270,079
24 4,270,080

CLASS 323

248 4,270,082
316 4,270,081

CLASS 324

58.5 C 4,270,083
65 R 4,270,084
4,270,085
205 4,270,087
241 4,270,088
262 4,270,089
457 4,270,090
462 4,270,091

CLASS 330

257 4,270,092

CLASS 331

17 4,270,093
94.5 H 4,270,094
4,270,096
94.5 L 4,270,095
96 4,270,097
4,270,098
4,270,099
107 A 4,270,100
111 4,270,101
115 4,270,102

CLASS 333

14 4,270,103
28 R 4,270,104
155 4,270,105
246 4,270,106
249 4,270,107

CLASS 335

188 4,270,108
277 4,270,109

CLASS 336

70 4,270,111
174 4,270,110
197 4,270,112

CLASS 337

75 4,270,113

CLASS 338

224 4,270,114

CLASS 339

74 R 4,269,462
91 R 4,269,463
95 R 4,269,464
4,269,465
107 4,269,466
126 R 4,269,467
176 M 4,269,468
177 R 4,269,469
198 GA 4,269,471
198 H 4,269,470
223 R 4,269,472

CLASS 340

67 4,270,115
146.2 4,270,116
168 B 4,270,117
347 AD 4,270,118
347 NT 4,270,119
347 SY 4,270,120

514 4,270,121
566 4,270,122
629 4,270,123
731 4,270,124
744 4,270,125
748 4,270,126

CLASS 343

5 W 4,270,127
702 4,270,128
703 4,270,129

CLASS 346

77 E 4,270,130
108 4,270,131
135.1 4,270,132
140 R 4,270,133

CLASS 350

3.61 4,269,473
69 4,269,474
174 4,269,475
4,269,476
255 4,269,479
355 4,269,480
356 4,269,481
358 4,269,482
390 4,269,483
427 4,269,484
464 4,269,477
465 4,269,478
469 4,269,485
486 4,269,486

CLASS 351

58 4,269,487
113 4,269,488

CLASS 352

174 4,269,489

CLASS 354

24 4,269,490
25 4,269,491
42 4,269,492
51 4,269,493
60 L 4,269,494
106 4,269,495
267 4,269,496
286 4,269,497
288 4,269,498
293 4,269,499
323 4,269,501

CLASS 355

3 SH 4,269,504
14 C 4,269,500
15 4,269,503
35 H 4,269,502
62 4,269,505

CLASS 356

5 4,269,506
36 4,269,507
249 4,269,508
301 4,269,509
338 4,269,510
368 4,269,511
375 4,269,512
376 4,269,513
386 4,269,514
394 4,269,515
427 4,269,516
432 4,269,517
445 4,269,518

CLASS 357

19 4,270,134
4,270,135
23 4,270,136
53 4,270,137
81 4,270,138

CLASS 358

23 4,270,139
55 4,270,140
78 4,270,141
99 4,270,142
125 4,270,143
188 4,270,145
256 4,270,146
4,270,147
260 4,270,148
293 4,270,149

CLASS 360

10 4,270,150
31 4,270,151
74.4 4,270,152
78 4,270,153
98 4,270,154
106 4,270,155

CLASS 361

21 4,270,156
35 4,270,157
42 4,270,158
79 4,270,159
132 4,270,160

CLASS 362

249 4,270,161
311 4,270,162

CLASS 363

43 4,270,163
56 4,270,164
65 4,270,165
89 4,270,166

CLASS 364

200 4,270,167
4,270,168
4,270,169
4,270,170
480 4,270,171
523 4,270,172
4,270,173
551 4,270,174
562 4,270,175
565 4,270,176
571 4,270,177
579 4,270,178
724 4,270,179
728 4,270,180
736 4,270,181
900 4,270,182
4,270,183
4,270,184
4,270,185

CLASS 365

15 4,270,186
189 4,270,187
4,270,188
205 4,270,189
208 4,270,190

CLASS 366

206 4,269,519

CLASS 367

91 4,270,191

CLASS 368

29 4,270,192
47 4,270,193
73 4,269,025
4,270,194
74 4,270,195
82 4,270,196
102 4,270,197
118 4,270,086
220 4,270,198
224 4,270,199
252 4,270,200
282 4,270,201

CLASS 369

256 4,269,416

CLASS 370

80 4,270,202
102 4,270,203
112 4,270,204

CLASS 371

32 4,270,205

CLASS 375

9 4,270,206
40 4,270,207
76 4,270,208
96 4,270,209
100 4,270,210
107 4,270,211

CLASS 400

196 4,269,520
472 4,269,521
616.1 4,269,522

CLASS 401

51 4,269,523
65 4,269,524
-108 4,269,525
198 4,269,526
200 4,269,527
215 Re.30,626
231 4,269,528
258 4,269,529

CLASS 402

15 4,269,530

CLASS 403

97 4,269,531
191 4,269,532
410 4,269,533

CLASS 404

10 4,269,534
117 4,269,535
4,269,536

CLASS 405

29 4,269,537
63 4,269,538
130 4,269,539
168 4,269,540
181 4,269,541
196 4,269,542
198 4,269,543
239 4,269,544
285 4,269,545
294 4,269,546
303 4,269,547

CLASS 406

25 4,269,548

CLASS 408

1 R 4,269,549
241 B 4,269,550

CLASS 409

132 4,269,551
140 4,269,552
232 4,269,553

CLASS 411

34 4,269,106
186 4,269,248

CLASS 414

22 4,269,554
27 4,269,555
50 4,269,556
105 4,269,557
146 4,269,558
414 4,269,559
459 4,269,560
462 4,269,561
515 4,269,562

CLASS 415

2 R 4,269,563
53 R 4,269,564
76 4,269,565
112 4,269,566
168 4,269,567
204 4,269,568

CLASS 417

5 4,269,569
64 4,269,570
234 4,269,571
299 4,269,572
362 4,269,573
506 4,269,574
542 4,269,575

CLASS 418

97 4,269,576

CLASS 422

63 4,269,803
86 4,269,804
106 4,269,805
171 4,269,806
179 4,269,807

CLASS 423

1 4,269,808
70 4,269,809
92 4,269,810
4,269,811
242 4,269,812
277 4,269,813
308 4,269,814
328 4,269,815
498 4,269,816
502 4,269,817
657 4,269,818

CLASS 424

5 4,269,819
10 4,269,820
19 4,269,821
50 4,269,822
52 4,269,823
70 4,269,824
85 4,269,825
101 4,269,826
177 4,269,827
204 4,269,828
211 4,269,829
226 4,269,830
241 4,269,831
244 4,269,832
4,269,833
245 4,269,834
246 4,269,836
4,269,837
247 4,269,835
250 4,269,838
253 4,269,839
4,269,840
4,269,841
258 4,269,842
260 4,269,843
263 4,269,844
269 4,269,845
4,269,846
273 R 4,269,847
274 4,269,873
275 4,269,848
4,269,849
279 4,269,850
4,269,851
4,269,852
283 4,269,853
4,269,854
285 4,269,855
321 4,269,856
325 4,269,857
330 4,269,858
362 4,269,859

CLASS 425

62 4,269,577
83.1 4,269,578
111 4,269,579
150 4,269,580
174.4 4,269,581
190 4,269,582
313 4,269,584
373 4,269,585
407 4,269,586
451.9 4,269,587
545 4,269,588

CLASS 426

5 4,269,860
438 4,269,861
536 4,269,862
550 4,269,863
583 4,269,864
657 4,269,865

CLASS 427

27 4,269,866
37 4,269,867
53.1 4,269,868
54.1 4,269,869
96 4,269,870
222 4,269,871
239 4,269,872
282 4,269,874
291 4,269,875
309 4,269,876
327 4,269,877

CLASS 428

11 4,269,878
36 4,269,879
43 4,269,880
95 4,269,881
116 4,269,882
120 4,269,883
131 4,269,884
216 4,269,885
219 4,269,886
280 4,269,887
296 4,269,888
315 4,269,889
320 4,269,890
335 4,269,891
337 4,269,892
341 4,269,893
377 4,269,894
402 4,269,895
411 4,269,896
419 4,269,897
426 4,269,898
457 4,269,899
542 4,269,900
4,269,901
577 4,269,902
591 4,269,903
623 4,269,904

CLASS 429

8 4,269,905
67 4,269,906
4,269,907
98 4,269,908
104 4,269,909
190 4,269,910
199 4,269,911
225 4,269,912
251 4,269,913

CLASS 430

3 4,269,914
11 4,269,915
4,269,916
16 4,269,917
28 4,269,918
67 4,269,919
107 4,269,920
119 4,269,921
126 4,269,922
140 4,269,923
214 4,269,924
215 4,269,925
216 4,269,926
217 4,269,927
239 4,269,928
264 4,269,929
270 4,269,930
271 4,269,931
290 4,269,932
291 4,269,933
296 4,269,934
323 4,269,935
389 4,269,936
538 4,269,937

CLASS 431

46 4,269,589
202 4,269,583
210 4,269,590
312 4,269,591

CLASS 432

19 4,269,592
58 4,269,593
59 4,269,594

CLASS 433

191 4,269,595

CLASS 434

32 4,269,596
46 4,268,979
198 4,269,597
330 4,268,978

CLASS 435

7 4,269,938
104 4,269,939
148 4,269,940
182 4,269,941
193 4,269,942

CLASS 440

11 4,269,598
88 4,269,599

CLASS 455

3 4,270,212
77 4,270,213
80 4,270,214
158 4,270,215
159 4,270,216
165 4,270,217
176 4,270,218
179 4,270,219
182 4,270,220
208 4,270,221
236 4,270,222
305 4,270,223
327 4,270,224
347 4,270,225
353 4,270,226

CLASS 474

69 4,269,600
82 4,269,601

CLASS 493

437 4,269,402

CLASS 518

715 4,269,784
718 4,269,783

CLASS 521

33 4,269,943
100 4,269,944
159 4,269,945
163 4,269,946

CLASS 525

10 4,269,947
53 4,269,948
58 4,269,949
68 4,269,950
359 4,269,951
507 4,269,952
534 4,269,953

CLASS 526

62 4,269,954
185 4,269,955
192 4,269,956
4,269,957
4,269,958
194 4,269,959
213 4,269,960
262 4,269,961
273 4,269,962

CLASS 528

17 4,269,963
126 4,269,964
128 4,269,965
322 4,269,966
337 4,269,967
351 4,269,968
498 4,269,969

CLASS 536

17 R 4,269,970
4,269,971
71 4,269,972
101 4,269,973
114 4,269,974
4,269,975

CLASS 542

445 4,269,976

CLASS 544

16 4,269,977
133 4,269,978
190 4,269,979
256 4,269,980

CLASS 546

291 4,269,981

CLASS 548

127 4,269,982
137 4,269,983
142 4,269,984
191 4,269,985
215 4,269,986
257 4,269,987
263 4,269,988
305 4,269,989
315 4,269,990

CLASS 556

427 4,269,991
446 4,269,992
450 4,269,993

CLASS 560

53 4,269,994
121 4,269,995
4,269,996

CLASS 562

600 4,269,705

CLASS 564

73 4,269,997
132 4,269,998
174 4,270,000
186 4,270,001
221 4,270,002

CLASS 568

33 4,270,003
314 4,270,004
328 4,270,005
396 4,270,006
445 4,270,007
448 4,270,008
670 4,270,009
767 4,270,010
899 4,270,011
931 4,270,012
940 4,270,013

CLASS 585

22 4,270,014
324 4,270,015
366 4,270,016
437 4,270,017

CLASSIFICATION OF DESIGNS

D2—	234	259,295		52	259,308		74	259,321		385	259,332		199	259,346		22	259,358
	273	259,296		62	259,309		129	259,322		404	259,331	D18—	1	259,347		25	259,359
	317	259,297		97	259,310		188	259,323	D10—	46	259,336		2	259,348	D23—	14	259,360
	322	259,298		125	259,311	D8—	30	259,324		46.1	259,337		7	259,349	D24—	3	259,361
	378	259,299			259,312		57	259,325	D11—	133	259,338	D21—		259,350		10	259,362
		259,300			259,313		71	259,326	D12—	85	259,339		20	259,351		62	259,363
	378.2	259,301			259,31		72	259,327		156	259,340		88	259,352	D25—	74	259,364
D3—	26	259,302		157	259,315		97	259,328		190	259,341		109	259,353	D28—	64	259,365
	35	259,303		159	259,316		356	259,329		209	259,342		203	259,354	D30—	2	259,366
	36	259,304		186	259,317		377	259,330	D14—	45	259,343		210	259,355		42	259,367
D4—	25	259,305		197	259,318	D9—	306	259,333	D15—	72	259,344		252	259,356	D47—	6 E	259,368
D6—	17	259,306	D7—	50	259,319		310	259,334		75	259,345	D22—	15	259,357	D99—	24	259,369
	37	259,307		61	259,320		337	259,335									

CLASSIFICATION OF PLANTS

P.—	26	4,723		34	4,724		68	4,725		4,726			4,727			4,728	

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

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Canal Zone	7	Minnesota	27	Tennessee	47
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Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

6 :	4,269,107	4,269,319	4,269,953	4,269,291	16 : 4,269,018	4,270,098
	4,269,210	4,269,329	4,269,959	4,269,371	4,269,116	4,270,108
9 :	4,269,880	4,269,331	4,269,961	4,269,390	4,269,168	4,270,126
01 :	4,268,965	4,269,347	4,269,968	4,269,515	4,269,443	4,270,172
	4,269,241	4,269,370	4,269,974	4,269,521	17 : 4,268,926	4,270,174
	4,269,457	4,269,386	4,269,981	4,269,621	4,268,927	4,270,213
02 :	4,269,372	4,269,400	4,269,984	4,269,630	4,268,942	4,270,218
04 :	4,269,027	4,269,415	4,269,986	4,269,642	4,268,973	18 : 4,268,968
	4,269,072	4,269,419	4,269,988	4,269,665	4,268,980	4,268,971
	4,269,190	4,269,439	4,270,017	4,269,761	4,269,002	4,269,032
	4,269,622	4,269,441	4,270,018	4,269,837	4,269,034	4,269,039
	4,269,716	4,269,462	4,270,021	4,269,867	4,269,058	4,269,220
	4,270,028	4,269,481	4,270,023	4,269,992	4,269,087	4,269,284
	4,270,062	4,269,495	4,270,025	4,270,005	4,269,158	4,269,294
	4,270,077	4,269,499	4,270,039	4,270,026	4,269,215	4,269,296
	4,270,121	4,269,501	4,270,040	4,270,027	4,269,221	4,269,369
05 :	4,269,325	4,269,518	4,270,052	4,270,031	4,269,246	4,269,381
	4,269,349	4,269,522	4,270,060	4,270,088	4,269,248	4,269,452
	4,269,612	4,269,529	4,270,073	4,270,168	4,269,261	4,269,463
06 :	Re.30,624	4,269,534	4,270,091	10 : 4,269,059	4,269,308	4,269,589
	Re.30,626	4,269,540	4,270,092	4,269,804	4,269,330	4,269,903
	4,268,918	4,269,549	4,270,093	4,269,933	4,269,341	4,269,949
	4,268,938	4,269,564	4,270,095	4,269,965	4,269,350	4,270,063
	4,268,951	4,269,569	4,270,114	4,270,056	4,269,354	4,270,082
	4,268,956	4,269,573	4,270,127	12 : 4,268,925	4,269,366	4,270,217
	4,268,958	4,269,607	4,270,142	4,269,006	4,269,401	19 : Re.30,622
	4,268,962	4,269,618	4,270,144	4,269,010	4,269,433	4,269,017
	4,268,997	4,269,637	4,270,150	4,269,065	4,269,464	4,269,064
	4,269,005	4,269,640	4,270,151	4,269,089	4,269,511	4,269,144
	4,269,015	4,269,651	4,270,153	4,269,103	4,269,553	4,269,297
	4,269,031	4,269,658	4,270,155	4,269,108	4,269,560	4,269,429
	4,269,053	4,269,700	4,270,157	4,269,109	4,269,575	4,269,643
	4,269,054	4,269,712	4,270,165	4,269,134	4,269,600	4,270,117
	4,269,055	4,269,718	4,270,167	4,269,191	4,269,692	20 : 4,269,096
	4,269,060	4,269,751	4,270,171	4,269,264	4,269,717	4,269,146
	4,269,066	4,269,787	4,270,176	4,269,352	4,269,730	4,269,182
	4,269,068	4,269,790	4,270,178	4,269,364	4,269,734	4,269,254
	4,269,092	4,269,815	4,270,179	4,269,378	4,269,764	4,269,274
	4,269,101	4,269,822	4,270,180	4,269,411	4,269,799	4,269,403
	4,269,104	4,269,840	4,270,183	4,269,445	4,269,802	21 : 4,269,035
	4,269,105	4,269,841	4,270,204	4,269,514	4,269,807	4,269,336
	4,269,118	4,269,843	4,270,209	4,269,532	4,269,809	4,269,592
	4,269,137	4,269,849	08 : 4,269,174	4,269,565	4,269,813	4,269,766
	4,269,147	4,269,856	4,269,253	4,269,595	4,269,858	22 : 4,269,543
	4,269,149	4,269,861	4,269,449	4,269,636	4,269,902	4,269,696
	4,269,150	4,269,872	4,269,562	4,269,785	4,269,970	23 : 4,269,527
	4,269,169	4,269,882	4,269,632	4,270,147	4,269,998	24 : 4,269,057
	4,269,193	4,269,892	09 : Re.30,623	4,269,094	4,270,013	4,269,121
	4,269,239	4,269,896	4,268,953	13 : 4,269,185	4,270,024	4,269,242
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DESIGN PATENTS

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